ACADEMIC CALENDER -2020-21

[Due to covid-19, academic calendar could not be completely printed, instead the schedule alone was printed and provided to the students. Due to covid -19, in between there was unprecedented two lock downs in the academic schedule]

CHIKKANNA GOVERNMENT ARTS COLLEGE, TIRUPUR
CALENDER 2021

January 2021		
Date	**Day**	**Day Order**
1	Fri	**New Year**
2	**Sat**	
3	**Sun**	
4	Mon	I
5	Tue	II
6	Wed	III
7	Thu	IV
8	Fri	V
9	**Sat**	
10	**Sun**	
11	Mon	VI
12	Tue	I
13	Wed	**Bhogi**
14	Thu	**Pongal**
15	Fri	**Thiruvalluvar Day**
16	**Sat**	**Uzhavar Thirunal**
17	**Sun**	
18	Mon	II
19	Tue	III
20	Wed	IV
21	Thu	V
22	Fri	VI
23	Sat	I
24	**Sun**	
25	Mon	II
26	Tue	**Republic Day**
27	Wed	III
28	Thu	IV
29	Fri	V
30	Sat	VI
31	**Sun**	
WORKING DAYS - 18		

February 2021		
Date	**Day**	**Day Order**
1	Mon	I
2	Tue	II
3	Wed	III
4	Thu	IV
5	Fri	V
6	**Sat**	
7	**Sun**	
8	Mon	VI
9	Tue	I
10	Wed	II
11	Thu	III
12	Fri	IV
13	Sat	V
14	**Sun**	
15	Mon	VI
16	Tue	I
17	Wed	II
18	Thu	III
19	Fri	IV
20	**Sat**	
21	**Sun**	
22	Mon	V
23	Tue	VI
24	Wed	I
25	Thu	II
26	Fri	III
27	Sat	IV
28	**Sun**	
WORKING DAYS – 22		

CHIKKANNA GOVERNMENT ARTS COLLEGE, TIRUPUR
CALENDER 2021

March 2021		
Date	**Day**	**Day Order**
1	Mon	V
2	Tue	VI
3	Wed	I
4	Thu	II
5	Fri	III
6	Sat	IV
7	**Sun**	
8	Mon	V
9	Tue	VI
10	Wed	I
11	Thu	II
12	Fri	III
13	**Sat**	
14	**Sun**	
15	Mon	IV
16	Tue	V
17	Wed	VI
18	Thu	I
19	Fri	II
20	**Sat**	
21	**Sun**	
22	Mon	III
23	Tue	IV
24	Wed	V
25	Thu	VI
26	Fri	I
27	**Sat**	II
28	**Sun**	
29	Mon	III
30	Tue	IV
31	Wed	V
WORKING DAYS - 25		

April 2021		
Date	**Day**	**Day Order**
1	Thu	VI
2	Fri	**Good Friday**
3	**Sat**	
4	**Sun**	
5	Mon	I
6	Tue	II
7	Wed	III
8	Thu	IV
9	Fri	V
10	Sat	VI
11	**Sun**	
12	Mon	I
13	Tue	**Ugadhi**
14	Wed	**Tamil New Year**
15	Thu	II
16	Fri	III
17	Sat	IV
18	**Sun**	
19	Mon	V
20	Tue	VI
21	Wed	I
22	Thu	II
23	Fri	III
24	Sat	IV
25	**Sun**	**Mahavir Jayanthi**
26	Mon	V
27	Tue	VI
28	Wed	I
29	Thu	II
30	Fri	III
WORKING DAYS - 22		

4/9/2020.

CHIKKANNA GOVERNMENT ARTS COLLEGE, TIRUPUR
CALENDER 2020

August 2020		
Date	**Day**	**Day order**
1	Sat	Bakrid
2	**Sun**	
3	Mon	I
4	Tue	II
5	Wed	III
6	Thu	IV
7	Fri	V
8	Sat	VI
9	**Sun**	
10	Mon	I
11	**Tue**	Krishnajayanthi
12	Wed	II
13	Thu	III
14	Fri	IV
15	**Sat**	Ind day
16	**Sun**	
17	Mon	V
18	Tue	VI
19	Wed	I
20	Thu	II
21	Fri	III
22	**Sat**	Vinayakar Chathurthi
23	**Sun**	
24	Mon	IV
25	Tue	V
26	Wed	VI
27	Thu	I
28	Fri	II
29	Sat	III
30	**Sun**	Muharram
31	Mon	Onam L H
WORKING DAYS - 21		

September 2020		
Date	**Day**	**Day order**
1	Tue	IV
2	Wed	V
3	Thu	VI
4	Fri	I
5	Sat	II
6	**Sun**	
7	Mon	III
8	Tue	IV
9	Wed	V
10	Thu	VI
11	Fri	I
12	Sat	II
13	**Sun**	
14	Mon	III
15	Tue	IV
16	Wed	V
17	Thu	VI
18	Fri	I
19	Sat	II
20	**Sun**	
21	Mon	III
22	Tue	IV
23	Wed	V
24	Thu	VI
25	Fri	I
26	Sat	II
27	**Sun**	
28	Mon	III
29	Tue	IV
30	Wed	V
WORKING DAYS - 26		

October 2020		
Date	**Day**	**Day order**
1	Thu	VI
2	Fri	Gandhi Jayanthi
3	Sat	I
4	**Sun**	
5	Mon	II
6	Tue	III
7	Wed	IV
8	Thu	V
9	Fri	VI
10	Sat	I
11	**Sun**	
12	Mon	II
13	Tue	III
14	Wed	IV
15	Thu	V
16	Fri	VI
17	Sat	I
18	**Sun**	
19	Mon	II
20	Tue	III
21	Wed	IV
22	Thu	V
23	Fri	VI
24	Sat	I
25	**Sun**	
26	Mon	Vijaya dasami
27	Tue	II
28	Wed	III
29	Thu	IV
30	Fri	Milad E Nabi
31	Sat	V
WORKING DAYS - 24		

COMMON TIME-TABLE

CHIKKANNA GOVERNMENT ARTS COLLEGE , TIRUPUR-2.
GENERAL TIME TABLE FOR I YEAR-UG- CLASSES 2020-21 *odd* SEMESTER

Day Order	Dept/Hr	1	2	3	4	5
I	Maths	Core	Tamil	English	Core	Allied
	Physics	Core	Tamil	English	Core	Allied
	Chemistry	Core	Tamil	Core	English	Allied
	Zoology	Core	Tamil	Core	English	Allied
	History	Tamil	Core	English	Core	Allied
	B.Com-A	Allied	Core	Tamil	Core	English
	B.Com-B	Allied	Core	English	Tamil	Core
	B.Com CA	Core	English	Core	Core	Tamil
	Comp.Sci	Tamil	English	Core	Allied	Core
	BCA	Tamil	English	Core	Allied	Core
	B.Com IB	Core	Allied	Tamil	Core	English
	BA.Eng	Core	Core	Core	Tamil	English
	CDF	Core	Core	Core	Tamil	English
	BA.Tamil	Allied	Tamil	Core	English	Core
	BBA	Core	Core	Allied	English	Tamil
	BA.Economics	Core	English	Tamil	Core	Core
II	Maths	Allied	Core	Allied	Tamil	English
	Physics	Allied	Allied	Allied	Tamil	English
	Chemistry	Core	Core	Allied	Tamil	English
	Zoology	Allied	Allied	Allied	Tamil	English
	History	Core	Tamil	Core	Allied	English
	B.Com-A	Allied	Tamil	Core	Core	English
	B.Com-B	Core	English	Tamil	Core	Allied
	B.Com CA	English	Core	Allied	Core	Tamil
	Comp.Sci	Core	Tamil	English	Allied	Core
	BCA	Core	Tamil	English	Allied	Core
	B.Com IB	Allied	Tamil	Core	Core	English
	BA.Eng	Core	Core	Core	English	Tamil
	CDF	Core	Core	Core	English	Tamil
	BA.Tamil	Core	English	Allied	Tamil	Core
	BBA	Tamil	Allied	Core	Core	English
	BA.Economics	English	Core	Core	Tamil	Allied
III	Maths	Tamil	Core	English	Allied	Core
	Physics	Tamil	Core	English	Allied	Core
	Chemistry	Tamil	English	Allied	Allied	Allied
	Zoology	Tamil	English	Core	Allied	Core
	History	Allied	Core	Core	English	Tamil
	B.Com-A	Tamil	Core	English	Allied	Core
	B.Com-B	Core	Core	Tamil	English	Allied
	B.Com CA	Allied	Core	Tamil	Core	English
	Comp.Sci	Core	Core	Allied	Tamil	English
	BCA	Core	Core	Core	Tamil	English

	B.Com IB	Tamil	Core	English	Allied	Core
	BA.Eng	Core	Core	Core	English	Tamil
	CDF	Core	Core	Core	English	Tamil
	BA.Tamil	Allied	Core	Core	Tamil	English
	BBA	Tamil	English	Core	Core	Core
	BA.Economics	Core	Core	English	Tamil	Allied
IV	Maths	Core	Core	Core	Tamil	English
	Physics	Core	Core	Core	Tamil	English
	Chemistry	Core	Core	Core	English	Tamil
	Zoology	Core	Core	Core	English	Tamil
	History	English	Core	Tamil	Allied	Allied
	B.Com-A	English	Core	Allied	Tamil	Core
	B.Com-B	Tamil	Core	Allied	English	Core
	B.Com CA	Core	Tamil	Allied	Core	English
	Comp.Sci	Core	Allied	Tamil	English	Core
	BCA	Core	Allied	Tamil	English	Core
	B.Com IB	English	Core	Allied	Tamil	Core
	BA.Eng	Core	Tamil	English	Core	Core
	CDF	Core	Tamil	English	Core	Core
	BA.Tamil	Tamil	Allied	English	Core	Core
	BBA	Allied	English	Tamil	Core	Core
	BA.Economics	Allied	Core	Core	English	Tamil
V	Maths	English	Allied	Core	Tamil	Core
	Physics	English	Allied	Core	Tamil	Core
	Chemistry	Core	English	Core	Tamil	Allied
	Zoology	Allied	English	Core	Tamil	Core
	History	Core	Allied	English	Core	Tamil
	B.Com-A	Core	Core	Allied	English	Tamil
	B.Com-B	Allied	Core	Core	Tamil	English
	B.Com CA	Core	Tamil	Allied	English	Core
	Comp.Sci	Allied	English	Core	Tamil	Allied
	BCA	Allied	English	Core	Tamil	Core
	B.Com IB	Core	Core	Allied	English	Tamil
	BA.Eng	Tamil	English	Core	Core	Core
	CDF	Tamil	English	Core	Core	Core
	BA.Tamil	Tamil	Allied	English	Core	Core
	BBA	English	Allied	Core	Core	Tamil
	BA.Economics	Allied	Tamil	Core	Core	English
VI	Maths	Core	Allied	Core	English	Tamil
	Physics	Core	Allied	Core	English	Tamil
	Chemistry	Core	Allied	Core	English	Tamil
	Zoology	Core	Allied	Core	English	Tamil
	History	Core	English	Tamil	Allied	Allied
	B.Com-A	Core	English	Core	Allied	Tamil
	B.Com-B	Allied	Tamil	Core	Core	English
	B.Com CA	Tamil	Core	Core	English	Core
	Comp.Sci	English	Core	Core	Core	Tamil

BCA	English	Allied	Core	Core	Tamil
B.Com IB	Core	English	Core	Allied	Tamil
BA.Eng	English	Core	Tamil	Core	Core
CDF	English	Core	Tamil	Core	Core
BA.Tamil	English	Core	Core	Allied	Tamil
BBA	Core	English	Core	Allied	Tamil
BA.Economics	Core	Core	Allied	Tamil	English

CHIKKANNA GOVERNMENT ARTS COLLEGE , TIRUPUR-2.

GENERAL TIME TABLE FOR II YEAR-UG- CLASSES 2020-21 *odd* SEMESTER

Day Order	Dept/Hr	1	2	3	4	5
I	Maths	Tamil	English	Allied	Allied	Allied
	Physics	Tamil	English	Allied	Allied	Allied
	Chemistry	English	Tamil	Allied	Allied	Allied
	Zoology	English	Tamil	Allied	Allied	Allied
	History	Allied	Tamil	English	Core	Core
	B.Com-A	Core	Core	Core	Core	Allied
	B.Com-B	Core	Core	Allied	Core	Core
	B.Com CA	Core	Allied	Core	Core	Core
	Comp.Sci	Core	Allied	Core	Core	Core
	BCA	Core	Core	Allied	Core	Core
	B.Com IB	Core	Core	Core	Allied	Core
	BA.Eng	Allied	Tamil	English	Core	Core
	CDF	Core	Core	Core	Core	Core
	BA.Tamil	Tamil	English	Core	Core	Allied
	BBA	Core	Core	Core	Core	Core
	BA.Economics	Allied	Tamil	English	Core	Core
II	Maths	Core	Core	Core	English	Tamil
	Physics	Core	Allied	Core	English	Tamil
	Chemistry	Core	Allied	Tamil	English	Core
	Zoology	Core	Allied	Tamil	English	Core
	History	English	Core	Tamil	Allied	Core
	B.Com-A	Core	Allied	Core	Core	Core
	B.Com-B	Core	Core	Core	Allied	Core
	B.Com CA	Core	Core	Core	Core	Allied
	Comp.Sci	Core	Core	Core	Core	Allied
	BCA	Core	Allied	Core	Core	Core
	B.Com IB	Core	Core	Core	Core	Allied
	BA.Eng	Core	Allied	Tamil	Core	English
	CDF	Core	Core	Core	Core	Core
	BA.Tamil	Core	Core	Allied	English	Tamil
	BBA	Core	Core	Core	Core	Core
	BA.Economics	Tamil	English	Core	Core	Allied
III	Maths	English	Tamil	Allied	Core	Core
	Physics	English	Tamil	Allied	Allied	Core
	Chemistry	English	Tamil	Allied	Allied	Core
	Zoology	English	Tamil	Allied	Allied	Core
	History	Core	Core	Core	Tamil	English
	B.Com-A	Core	Allied	Core	Core	Core
	B.Com-B	Core	Allied	Core	Core	Core
	B.Com CA	Core	Allied	Core	Core	Core
	Comp.Sci	Allied	Core	Core	Core	Core
	BCA	Core	Core	Core	Allied	Core

	B.Com IB	Allied	Core	Core	Core	Core
	BA.Eng	English	Core	Allied	Tamil	Core
	CDF	Core	Core	Core	Core	Core
	BA.Tamil	Core	Tamil	Allied	English	Allied
	BBA	Core	Core	Core	Core	Core
	BA.Economics	Allied	Tamil	English	Core	Core
IV	Maths	Allied	Core	Core	Tamil	English
	Physics	Core	Core	Allied	Tamil	English
	Chemistry	Core	Core	Allied	Tamil	English
	Zoology	Core	Core	Allied	Tamil	English
	History	Allied	Core	Core	English	Tamil
	B.Com-A	Core	Core	Core	Allied	Core
	B.Com-B	Core	Core	Core	Core	Allied
	B.Com CA	Core	Allied	Core	Core	Core
	Comp.Sci	Core	Core	Allied	Core	Core
	BCA	Core	Core	Core	Core	Allied
	B.Com IB	Core	Core	Allied	Core	Core
	BA.Eng	Core	English	Core	Allied	Tamil
	CDF	Core	Core	Core	Core	Core
	BA.Tamil	Tamil	Core	Allied	Core	English
	BBA	Core	Core	Core	Core	Core
	BA.Economics	Core	Allied	Core	English	Tamil
V	Maths	Core	Core	Tamil	Allied	English
	Physics	Core	Core	Tamil	Core	English
	Chemistry	Core	Core	Core	English	Tamil
	Zoology	Core	Core	Core	English	Tamil
	History	Core	Core	Allied	Tamil	English
	B.Com-A	Allied	Core	Core	Core	Core
	B.Com-B	Core	Core	Core	Allied	Core
	B.Com CA	Allied	Core	Core	Core	Core
	Comp.Sci	Core	Core	Core	Allied	Core
	BCA	Core	Core	Allied	Core	Core
	B.Com IB	Allied	Core	Core	Core	Core
	BA.Eng	Tamil	Core	Core	English	Allied
	CDF	Core	Core	Core	Core	Core
	BA.Tamil	Core	Core	English	Tamil	Core
	BBA	Core	Core	Core	Core	Core
	BA.Economics	Core	Core	Allied	Tamil	English
VI	Maths	Core	Core	Allied	English	Tamil
	Physics	Core	Core	Core	English	Tamil
	Chemistry	Core	Core	Core	Tamil	English
	Zoology	Core	Core	Core	Tamil	English
	History	Tamil	Core	Allied	English	Core
	B.Com-A	Core	Core	Allied	Core	Core
	B.Com-B	Allied	Core	Core	Core	Core
	B.Com CA	Core	Allied	Core	Core	Core
	Comp.Sci	Core	Allied	Core	Core	Core

BCA	Allied	Core	Core	Core	Core
B.Com IB	Core	Allied	Core	Core	Core
BA.Eng	Core	Tamil	Allied	Core	English
CDF	Core	Core	Core	Core	Core
BA.Tamil	Core	Core	Tamil	Core	English
BBA	Core	Core	Core	Core	Core
BA.Economics	Tamil	Core	Allied	English	Core

CHIKKANNA GOVERNMENT ARTS COLLEGE , TIRUPUR-2.
GENERAL TIME TABLE FOR I YEAR CLASSES 2020-21-(UG-I-YEAR)- *Even* SEMES

Day Order	Dept/Hr	1	2	3	4	5
I	Maths	Core	Allied	Core	Tamil	English
	Physics	Core	Core	Core	Tamil	English
	Chemistry	Core	Core	Allied	Tamil	English
	Zoology	Allied	Allied	Allied	Tamil	English
	History	Tamil	Core	English	Core	Allied
	B.Com-A	Allied	Core	Tamil	Core	English
	B.Com-B	Allied	Core	English	Tamil	Core
	B.Com CA	Core	English	Core	Core	Tamil
	Comp.Sci	Tamil	English	Core	Allied	Core
	BCA	Tamil	English	Core	Allied	Core
	B.Com IB	Core	Allied	Tamil	Core	English
	BA.Eng	Core	Core	Core	Tamil	English
	CDF	Core	Core	Core	Tamil	English
	BA.Tamil	Core	Core	English	Tamil	Core
	BBA	Core	Core	Core	English	Tamil
	BA.Economics	Tamil	Core	English	Core	Allied
II	Maths	Allied	Allied	Allied	English	Tamil
	Physics	Core	Allied	Core	English	Tamil
	Chemistry	Core	Allied	Core	English	Tamil
	Zoology	Core	Allied	Core	English	Tamil
	History	Core	Tamil	Core	Allied	English
	B.Com-A	Allied	Tamil	Core	Core	English
	B.Com-B	Core	English	Tamil	Core	Allied
	B.Com CA	English	Core	Allied	Core	Tamil
	Comp.Sci	Core	Tamil	English	Allied	Core
	BCA	Core	Tamil	English	Allied	Core
	B.Com IB	Allied	Tamil	Core	Core	English
	BA.Eng	Core	Core	Core	English	Tamil
	CDF	Core	Core	Core	English	Tamil
	BA.Tamil	Core	Core	Core	Tamil	English
	BBA	Core	Allied	Tamil	Core	English
	BA.Economics	Core	Core	Core	Tamil	English
III	Maths	Tamil	Core	English	Allied	Core
	Physics	Tamil	Core	English	Allied	Core
	Chemistry	Tamil	English	Allied	Allied	Allied
	Zoology	Tamil	English	Core	Allied	Core
	History	Allied	Core	Core	English	Tamil
	B.Com-A	Tamil	Core	English	Allied	Core
	B.Com-B	Core	Core	Tamil	English	Allied
	B.Com CA	Allied	Core	Tamil	Core	English
	Comp.Sci	Core	Core	Allied	Tamil	English
	BCA	Core	Core	Core	Tamil	English

	B.Com IB	Tamil	Core	English	Allied	Core
	BA.Eng	Core	Core	Core	English	Tamil
	CDF	Core	Core	Core	English	Tamil
	BA.Tamil	Core	Core	Tamil	Core	Core
	BBA	Core	Allied	Core	Tamil	English
	BA.Economics	Core	Allied	Tamil	Core	English
IV	Maths	Core	Core	Core	Tamil	English
	Physics	Core	Core	Core	Tamil	English
	Chemistry	Core	Core	Core	English	Tamil
	Zoology	Core	Core	Core	English	Tamil
	History	English	Core	Tamil	Allied	Allied
	B.Com-A	English	Core	Allied	Tamil	Core
	B.Com-B	Tamil	Core	Allied	English	Core
	B.Com CA	Core	Tamil	Allied	Core	English
	Comp.Sci	Core	Allied	Tamil	English	Core
	BCA	Core	Allied	Tamil	English	Core
	B.Com IB	English	Core	Allied	Tamil	Core
	BA.Eng	Core	Tamil	English	Core	Core
	CDF	Core	Tamil	English	Core	Core
	BA.Tamil	Core	Core	Core	English	Tamil
	BBA	Core	Core	Allied	Tamil	English
	BA.Economics	Core	Tamil	Allied	Core	English
V	Maths	English	Allied	Core	Tamil	Core
	Physics	English	Allied	Core	Tamil	Core
	Chemistry	Core	English	Core	Tamil	Allied
	Zoology	Allied	English	Core	Tamil	Core
	History	Core	Allied	English	Core	Tamil
	B.Com-A	Core	Core	Allied	English	Tamil
	B.Com-B	Allied	Core	Core	Tamil	English
	B.Com CA	Core	Tamil	Allied	English	Core
	Comp.Sci	Allied	English	Core	Tamil	Allied
	BCA	Allied	English	Core	Tamil	Core
	B.Com IB	Core	Core	Allied	English	Tamil
	BA.Eng	Tamil	English	Core	Core	Core
	CDF	Tamil	English	Core	Core	Core
	BA.Tamil	Core	English	Core	Tamil	Core
	BBA	Core	Allied	Core	English	Tamil
	BA.Economics	Core	Tamil	English	Core	Allied
VI	Maths	Core	Allied	English	Core	Tamil
	Physics	Core	Tamil	English	Core	Allied
	Chemistry	Core	Tamil	Core	English	Allied
	Zoology	Core	Allied	Core	English	Tamil
	History	Core	English	Tamil	Allied	Allied
	B.Com-A	Core	English	Core	Allied	Tamil
	B.Com-B	Allied	Tamil	Core	Core	English
	B.Com CA	Tamil	Allied	Core	English	Core
	Comp.Sci	English	Core	Core	Core	Tamil

BCA	English	Allied	Core	Core	Tamil
B.Com IB	Core	English	Core	Allied	Tamil
BA.Eng	English	Core	Tamil	Core	Core
CDF	English	Core	Tamil	Core	Core
BA.Tamil	Core	Core	Core	Core	Tamil
BBA	English	Tamil	Allied	Core	Core
BA.Economics	Core	Core	Allied	English	Tamil

CHIKKANNA GOVERNMENT ARTS COLLEGE , TIRUPUR-2.

GENERAL TIME TABLE FOR II YEAR- UG-CLASSES 2020-21 *Even* SEMESTER

Day Order	Dept/Hr	1	2	3	4	5
I	Maths	Tamil	English	Allied	Allied	Allied
	Physics	Tamil	English	Allied	Allied	Allied
	Chemistry	English	Tamil	Allied	Allied	Allied
	Zoology	English	Tamil	Allied	Allied	Allied
	History	Allied	Tamil	English	Core	Core
	B.Com-A	Core	Core	Core	Core	Allied
	B.Com-B	Core	Core	Allied	Core	Core
	B.Com CA	Core	Allied	Core	Core	Core
	Comp.Sci	Core	Allied	Core	Core	Core
	BCA	Core	Core	Allied	Core	Core
	B.Com IB	Core	Core	Core	Allied	Core
	BA.Eng	Allied	Tamil	English	Core	Core
	CDF	Core	Core	Core	Core	Core
	BA.Tamil	Core	English	Core	Tamil	Core
	BBA	Core	Core	Core	Core	Core
	BA.Economics	Core	Allied	Tamil	Core	English
II	Maths	Core	Core	Core	English	Tamil
	Physics	Core	Allied	Core	English	Tamil
	Chemistry	Core	Allied	Tamil	English	Core
	Zoology	Core	Allied	Tamil	English	Core
	History	English	Core	Tamil	Allied	Core
	B.Com-A	Core	Allied	Core	Core	Core
	B.Com-B	Core	Core	Core	Allied	Core
	B.Com CA	Core	Core	Core	Core	Allied
	Comp.Sci	Core	Core	Core	Core	Allied
	BCA	Core	Allied	Core	Core	Core
	B.Com IB	Core	Core	Core	Core	Allied
	BA.Eng	Core	Allied	Tamil	Core	English
	CDF	Core	Core	Core	Core	Core
	BA.Tamil	Core	English	Core	Core	Core
	BBA	Core	Core	Core	Core	Core
	BA.Economics	English	Core	Allied	Tamil	Core
III	Maths	English	Tamil	Allied	Core	Core
	Physics	English	Tamil	Allied	Allied	Core
	Chemistry	English	Tamil	Allied	Allied	Core
	Zoology	English	Tamil	Allied	Allied	Core
	History	Core	Core	Core	Tamil	English
	B.Com-A	Core	Allied	Core	Core	Core
	B.Com-B	Core	Allied	Core	Core	Core
	B.Com CA	Core	Allied	Core	Core	Core
	Comp.Sci	Allied	Core	Core	Core	Core
	BCA	Core	Core	Core	Allied	Core

	B.Com IB	Allied	Core	Core	Core	Core
	BA.Eng	English	Core	Allied	Tamil	Core
	CDF	Core	Core	Core	Core	Core
	BA.Tamil	English	Tamil	Core	Core	Core
	BBA	Core	Core	Core	Core	Core
	BA.Economics	Core	Core	Allied	Tamil	English
IV	Maths	Allied	Core	Core	Tamil	English
	Physics	Core	Core	Allied	Tamil	English
	Chemistry	Core	Core	Allied	Tamil	English
	Zoology	Core	Core	Allied	Tamil	English
	History	Allied	Core	Core	English	Tamil
	B.Com-A	Core	Core	Core	Allied	Core
	B.Com-B	Core	Core	Core	Core	Allied
	B.Com CA	Core	Allied	Core	Core	Core
	Comp.Sci	Core	Core	Allied	Core	Core
	BCA	Core	Core	Core	Core	Allied
	B.Com IB	Core	Core	Allied	Core	Core
	BA.Eng	Core	English	Core	Allied	Tamil
	CDF	Core	Core	Core	Core	Core
	BA.Tamil	Core	Core	Core	Tamil	English
	BBA	Core	Core	Core	Core	Core
	BA.Economics	English	Tamil	Core	Core	Core
V	Maths	Core	Core	Tamil	Allied	English
	Physics	Core	Core	Tamil	Core	English
	Chemistry	Core	Core	Core	English	Tamil
	Zoology	Core	Core	Core	English	Tamil
	History	Core	Core	Allied	Tamil	English
	B.Com-A	Allied	Core	Core	Core	Core
	B.Com-B	Core	Core	Core	Allied	Core
	B.Com CA	Allied	Core	Core	Core	Core
	Comp.Sci	Core	Core	Core	Allied	Core
	BCA	Core	Core	Allied	Core	Core
	B.Com IB	Allied	Core	Core	Core	Core
	BA.Eng	Tamil	Core	Core	English	Allied
	CDF	Core	Core	Core	Core	Core
	BA.Tamil	Core	Core	Tamil	English	Core
	BBA	Core	Core	Core	Core	Core
	BA.Economics	Allied	Core	Core	English	Tamil
VI	Maths	Core	Core	Allied	English	Tamil
	Physics	Core	Core	Core	English	Tamil
	Chemistry	Core	Core	Core	Tamil	English
	Zoology	Core	Core	Core	Tamil	English
	History	Tamil	Core	Allied	English	Core
	B.Com-A	Core	Core	Allied	Core	Core
	B.Com-B	Allied	Core	Core	Core	Core
	B.Com CA	Core	Allied	Core	Core	Core
	Comp.Sci	Core	Allied	Core	Core	Core

BCA	Allied	Core	Core	Core	Core
B.Com IB	Core	Allied	Core	Core	Core
BA.Eng	Core	Tamil	Allied	Core	English
CDF	Core	Core	Core	Core	Core
BA.Tamil	Core	English	Core	Core	Tamil
BBA	Core	Core	Core	Core	Core
BA.Economics	Core	Core	Allied	English	Tamil

DEPARTMENT TIME-TABLE

DEPARTMENT OF ENGLISH

TIME TABLE FOR ODD (I, III, V) SEMESTER - 2020 (ONLINE)

DAY	1 9.30 -10.30		2 10.30-11.30		3 12.00-1.00		4		5	
	I HIS, I ECO, I TAM	PK								
	I MAT, I PHY, ICHE, IZOO, I CS	PMS								
	I B.COM A, IB.COM B, I B.COM CA, I B.COM IB, I BBA, I BCA, I CDF	RS								
I	I B.A	PK	I B.A	PK	I B.A	KB	I B.A	ASSIGN	I B.A	ASSIGN
	II B.A	IR	II B.A	AM	II B.A	SP	II B.A	ASSIGN	II B.A	ASSIGN
	III B.A	SP	III B.A	RC	III B.A	PMS	III B.A	ASSIGN	III B.A	ASSIGN
	I MA	RV	I MA	SP	I MA	AM	I MA	ASSIGN	I MA	ASSIGN
	II MA	KB	II MA	RV	II MA	RC	II MA	ASSIGN	II MA	ASSIGN
	I HIS, I ECO, I TAM	PK								
	I MAT, I PHY, ICHE, IZOO, I CS	PMS								
	I B.COM A, IB.COM B, I B.COM CA, I B.COM IB, I BBA, I BCA, I CDF	RS								
II	I B.A	PK	I B.A	PMS	I B.A	AM	I B.A	ASSIGN	I B.A	ASSIGN
	II B.A	IR	II B.A	PK	II B.A	RV	II B.A	ASSIGN	II B.A	ASSIGN
	III B.A	RV	III B.A	KB	III B.A	SP	III B.A	ASSIGN	III B.A	ASSIGN
	I MA	SP	I MA	RV	I MA	PMS	I MA	ASSIGN	I MA	ASSIGN
	II MA	AM	II MA	RC	II MA	RC	II MA	ASSIGN	II MA	ASSIGN
	I HIS, I ECO, I TAM	PK								
	I MAT, I PHY, ICHE, IZOO, I CS	PMS								
	I B.COM A, IB.COM B, I B.COM CA, I B.COM IB, I BBA, I BCA, I CDF	RS								
III	I B.A	PK	I B.A	AM	I B.A	PK	I B.A	ASSIGN	I B.A	ASSIGN
	II B.A	IR	II B.A	RV	II B.A	AM	II B.A	ASSIGN	II B.A	ASSIGN
	III B.A	SP	III B.A	PMS	III B.A	KB	III B.A	ASSIGN	III B.A	ASSIGN
	I MA	RC	I MA	PK	I MA	RV	I MA	ASSIGN	I MA	ASSIGN
	II MA	SP	II MA	KB	II MA	RC	II MA	ASSIGN	II MA	ASSIGN
	II TAM, II ECO. II HIS, II MAT, II PHY , II CHE, II ZOO	PMS								
IV	I B.A	SK	I B.A	RS	I B.A	PMS	I B.A	ASSIGN	I B.A	ASSIGN
	II B.A	AM	II B.A	PMS	II B.A	RS	II B.A	ASSIGN	II B.A	ASSIGN
	III B.A	RS	III B.A	SP	III B.A	RV	III B.A	ASSIGN	III B.A	ASSIGN
	I MA	PK	I MA	PMS	I MA	PK	I MA	ASSIGN	I MA	ASSIGN
	II MA	AM	II MA	RC	II MA	SP	II MA	ASSIGN	II MA	ASSIGN
	II TAM, II ECO. II HIS, II MAT, II PHY , II CHE, II ZOO	PK								
V	I B.A	SK	I B.A	RS	I B.A	PK	I B.A	ASSIGN	I B.A	ASSIGN
	II B.A	SP	II B.A	PK	II B.A	AM	II B.A	ASSIGN	II B.A	ASSIGN
	III B.A	KB	III B.A	RC	III B.A	PMS	III B.A	ASSIGN	III B.A	ASSIGN
	I MA	SP	I MA	AM	I MA	RC	I MA	ASSIGN	I MA	ASSIGN
	II MA	RV	II MA	RV	II MA	KB	II MA	ASSIGN	II MA	ASSIGN
	II TAM, II ECO. II HIS, II MAT, II PHY , II CHE, II ZOO	PMS								
VI	I B.A	SK	I B.A	AM	I B.A	PK	I B.A	ASSIGN	I B.A	ASSIGN
	II B.A	RV	II B.A	PMS	II B.A	RS	II B.A	ASSIGN	II B.A	ASSIGN
	III B.A	RC	III B.A	RS	III B.A	RV	III B.A	ASSIGN	III B.A	ASSIGN
	I MA	AM	I MA	PMS	I MA	RC	I MA	ASSIGN	I MA	ASSIGN
	II MA	SP	II MA	RC	II MA	AM	II MA	ASSIGN	II MA	ASSIGN

KB - Dr. BRINDHA K, RV - Mrs. VALARMATHI R, RC - Dr. RUBY CHRISTIE L, SP - Dr. PARVIN BANU, AM - Dr. MURUGESAN A, PMS - Dr. RENUGA P M S, PK - MR. PREM ANAND K , RS- Mrs. RANI SAMYUKTHA

HOD

DEPARTMENT OF ENGLISH

TIME TABLE FOR EVEN (II, IV, IV) SEMESTER - 2020 (ONLINE)

DAY	1	9.15-10.05	2	10.05-10.55	3	10.55-11.45	4	12.00-12.50	5	12.50-1.40
	II CHE	UK	I BCA	PK	II HIS	RS	I TAM	GS	I CHE	PK
			II MAT	RS			II TAM	MM	I CDF	UK
			II PHY	GS						
I	I B.A	IR	I B.A	PMS	I B.A	PK	I B.A	LIB	I B.A	GS
	II B.A	SP	II B.A	RC	II B.A	AM	II B.A	LIB	II B.A	LIB
	III B.A	GS	III B.A	UK	III B.A	RC	III B.A	SP	III B.A	PMS
	I MA	RV	I MA	AM	I MA	SP	I MA	RC	I MA	AM
	II MA	KB	II MA	KB	II MA	RV	II MA	RV	II MA	RS
	I BBA	RS	I BCA	PK	ICHE	PK	II MAT	RS	I HIS	GS
			I CS	RS	I MAT	PMS	II PHY	GS		
					II ECO	DL	II CHE	UK		
II	I B.A	PK	I B.A	PMS	I B.A	AM	I B.A	LIB	I B.A	IR
	II B.A	AM	II B.A	LIB	II B.A	LIB	II B.A	RC	II B.A	RV
	III B.A	RC	III B.A	UK	III B.A	PMS	III B.A	SP	III B.A	UK
	I MA	SP	I MA	RV	I MA	RC	I MA	AM	I MA	SP
	II MA	GS	II MA	KB	II MA	RV	II MA	KB	II MA	PROJ
			I ZOO	RS	I ECO	GS	I TAM	GS	II HIS	RS
					I PHY	UK	I CDF	UK		
							II TAM	MM		
III	I B.A	PK	I B.A	AM	I B.A	AM	I B.A	LIB	I B.A	LIB
	II B.A	RC	II B.A	RV	II B.A	LIB	II B.A	IR	II B.A	LIB
	III B.A	SP	III B.A	PMS	III B.A	PMS	III B.A	RC	III B.A	SP
	I MA	KB	I MA	RC	I MA	PK	I MA	SP	I MA	RV
	II MA	UK	II MA	KB	II MA	RV	II MA	RS	II MA	PROJ
	I B.COM A	RS					I ZOO	RS	I B.COM (	UK
	I HIS	GS					I B.COM B	UK	II ZOO	GS
							I MAT	PMS		
IV	I B.A	GP	I B.A	PK	I B.A	PMS	I B.A	PK	I B.A	RC
	II B.A	SP	II B.A	RS	II B.A	AM	II B.A	LIB	II B.A	LIB
	III B.A	RC	III B.A	RC	III B.A	SP	III B.A	AM	III B.A	EXT
	I MA	KB	I MA	AM	I MA	RV	I MA	RC	I MA	PK
	II MA	RV	II MA	UK	II MA	KB	II MA	RV	II MA	PROJ
	I PHY	UK	I CS	RS	I ECO	GS	I B.COM A	RS		
							I B.COM IB	GS		
							II ECO	DL		
V	I B.A	SP	I B.A	GP	I B.A	PK	I B.A	LIB	I B.A	LIB
	II B.A	IR	II B.A	RV	II B.A	SP	II B.A	AM	II B.A	LIB
	III B.A	GS	III B.A	PMS	III B.A	KB	III B.A	PMS	III B.A	AM
	I MA	PK	I MA	KB	I MA	RV	I MA	SP	I MA	RC
	II MA	PROJ	II MA	PROJ	II MA	PROJ	II MA	PROJ	II MA	PROJ
			I BBA	RS	I B.COM CA	UK	I B.COM B	UK		
			I B.COM IB	GS			II ZOO	GS		
VI	I B.A	PK	I B.A	SP	I B.A	AM	I B.A	RC	I B.A	LIB
	II B.A	RV	II B.A	RV	II B.A	SP	II B.A	AM	II B.A	RS
	III B.A	UK	III B.A	PMS	III B.A	SEMINAR	III B.A	PMS	III B.A	RC
	I MA	AM	I MA	KB	I MA	PK	I MA	PK	I MA	KB
	II MA	PROJ	II MA	PROJ	II MA	PROJ	II MA	PROJ	II MA	PROJ

KB - Dr. BRINDHA K, RV - Mrs. VALARMATHI R, RC - Dr. RUBY CHRISTIE L, SP - Dr. PARVIN BANU, AM - Dr. MURUGESAN A, PMS - Dr. RENUGA P M S, PK - MR. PREM ANAND K, RS - Mrs RANISAMYUKTHA, UK- Mrs. UDAYAKUMARI, GP- Miss . GOKULA PRIYA , IR- Dr INDRANI, DL - Mrs DHANALAKSHMI, GS - Mrs. SUREKA G, MM -Miss MALLIKA M

HOD

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DEPARTMENT OF TAMIL

TIME TABLE FOR I, III, V SEMESTERS - 2020-21 (ONLINE)

DAY	1		2		3		4		5	
I	I B.A(His.)	LIB	I B.SC (Maths))	A.K.P	I B.COM (A)	R.S	I B.COM (B)	LIB	I B.COM (CA)	S.K
	I B.SC(CS)	LIB	IB.SC (Phy.)	LIB	I B.COM (I.B)	S.K	I B.SC CDF	LIB	I B.A TAM.	LIB
	II B.SC (Maths]	LIB	I B.SC (Che.)	R.I	I B.A TAM.	K.S	I B.A (Eng)	LIB	II B.A TAM.	A.K.P
	II B.A ECO	LIB	I M.A TAM	LIB	I B.A ECO	A.K.P	I M.A TAM	LIB	III B.A TAM	LIB
	II B.SC (Phy.)	R.I	I B.SC (Zoo.)	LIB	II B.A TAM.	LIB	I B.A TAM.	LIB	I M.A TAM	P.K
	I BCA	K.S	II B.SC (Che)	R.S	III B.A TAM	*LIB*	II B.A TAM.	S.K		
	I B.A TAM.	LIB	II B.SC (Zoo..)	N.B	I M.A TAM	R.I	III B.A TAM.	K.S		
	II B.A TAM(L)	LIB	II B.A (His.)	LIB	I BBA	P.K				
	III B .A TAM	R.M	II B.A (Eng)	LIB						
	I M.A TAM	N.B	I B.A TAM(L)	P.K						
			II B.A TAM.	R.M						
			III B.A TAM.	LIB						
II	I B.A TAM.	R.I	I B.A (His.)	LIB	I B.COM (B)	LIB	I B.SC (Maths)]	LIB	I B.COM (C.A)	LIB
	II B.A TAM.	R.S	I B.COM (A)	LIB	II B.SC (Che)	R.S	IB.SC (Phy.))	N.B	I B.SC CDF	LIB
	III B .A TAM	R.M	I B.SC(CS)	LIB	II B.SC (Zoo.)	N.B	I B.SC (Che.)	R.I	I B.A (Eng)	LIB
	I M.A TAM	N.B	I B.COM (I.B)	S.K	II B.A (His.)	LIB	I B.SC (Zoo.)	R.M	II B.SC (Maths]	S.K
	II B.A ECO	K.S	I B.A TAM.	LIB	II B.A (Eng.)	LIB	I B.A TAM.	P.K	II B.SC (Phy.)	LIB
			II B.A TAM.	R.M	I B.A TAM.	LIB	II B.A TAM.	LIB	I B.A TAM.	LIB
			I BCA	K.S	II B.A TAM.	R.I	III B.A TAM.	K.S	II B.A TAM.	LIB
			III B.A TAM.	A.K.P	I BBA	LIB	I M.A TAM	LIB	III B.A TAM	LIB
			I M.A TAM	P.K	I B.A ECO	A.K.P			I M.A TAM	R.S
					III B.A TAM	LIB				
					I M.A TAM	LIB				
III	I B.SC (Maths)	A.K.P	II B.SC (Maths)	S.K	I B.COM (B)	LIB	I B.SC(CS)	LIB	I B.SC (CDF)	LIB
	I B.SC (Phy.)	N.B	II B.SC (Phy.)	LIB	I B.COM (CA)	S.K	II B.A (Eng.)	P.K	I B.A (Eng.)	LIB
	I B.SC (Che)	R.I	II B.SC (Che)	R.S	II B.A ECO	LIB	II B.A (His.)	R.M	I B.A (His.)	LIB
	I B.SC (ZOO.)	R.M	II B.SC (Zoo.))	LIB	I B.A TAM	LIB	I BCA	K.S	I B.A TAM.	LIB
	I B.COM (A)	LIB	I B.A (Eco.)	LIB	II B.A TAM.	LIB	I B.A TAM.	R.I	II B.A TAM.	LIB
	I B.COM (I.B)	LIB	I B.A (Eng.)	LIB	III B.A TAM	A.K.P	II B.A TAM.	A.K.P	III B.A TAM	K.S
	I B.A TAM.	P.K	I BBA	LIB	I M.A TAM	P.K	III B.A TAM.	LIB	I M.A TAM	LIB
	II B.A TAM.	LIB	I B.A TAM.	K.S			I M.A TAM	N.B		
	III B.A TAM	R.S	II B.A TAM	LIB						
	I M.A TAM	LIB	III B.A TAM	R.M						
			I M.A TAM.	R.I						
IV	I B.COM (B)	K.S	I B.COM (CA)	S.K	I B.SC(CS)	S.K	I B.SC (Maths]	LIB	I B.SC (Che)	LIB
	I BBA	P.K	I B.SC (CDF)	R.M	I B.A (His.)	LIB	I B.SC (Phy.)	N.B	I B.SC (Zoo.)	LIB
	I B.A ECO	A.K.P	I B.A (Eng.)	A.K.P	I BCA	LIB	I B.COM (A)	R.S	II B.A (His.)	LIB
	1 BATAM(L)	LIB	I B.A TAM.	R.I	II B.A ECO	K.S	I B.COM (IB)	LIB	II B.A (Eng.)	LIB
	II B.ATAM(L)	R.I	II B.A TAM.	LIB	I B.A TAM.	LIB	II B.SC (Maths]	S.K	I B.A TAM.	LIB
	III B.A TAM	R.M	III B.A TAM.	LIB	II B.A TAM.	LIB	II B.SC (Phy.)	R.I	II B.A TAM(L)	LIB
	I M.A TAM	N.B	I M.A TAM	R.S	III B.A TAM	P.K	II B.SC (Che.)	LIB	III B.A TAM	R.S
					I M.A TAM	LIB	II B.SC (Zoo.)	LIB	I M.A TAM	LIB
							I B.A TAM	LIB		
							II B.A TAM	LIB		
							I M.A TAM	P.K		
							III B.A TAM	A.K.P		
V	I B.SC (CDF)	R.M	I B.COM (CA)	LIB	II B.SC (Maths]	LIB	I BCA	LIB	I B.A (His.)	LIB
	I ENG	A.K.P	I B.A TAM	LIB	II B.SC (Phy.)	R.I	I B.SC (Maths.	A.K.P	I B.COM (A)	LIB
	I B.A TAM(L)R.I	K.S	II B.A TAM	R.M	II B.A TAM.	LIB	I B.SC (Phy.)	LIB	I B.COM (IB)	S.K
	II B.A TAM	R.S	III B.A TAM	R.S	I B.A TAM(E)	LIB	I B.SC (Che..)	LIB	II B.SC (Che.)	LIB
	II ENG	P.K	II B.A ECO	K.S	III B.A TAM(E)	A.K.P	I B.COM (B)	K.S	II B.SC (Zoo.)	LIB
	III B.A TAM	LIB	I M.A TAM	N.B	I BBA	P.K	I B.SC(CS)	S.K	I TAM	LIB
	I M.A TAM				I B.A ECO	LIB	II B.A (His.)	R.M	II TAM	LIB
					I M.A TAM	K.S	I B.A TAM	LIB	III B.A TAM	LIB
							IIB.A TAM	R.I	I M.A TAM	R.M
							I M.A TAM	R.S		
							III B.A TAM	P.K		
							I B.SC (Zoo.)	LIB		
VI	I B.COM (CA)	LIB	I B.COM (B)	K.S	I B.A (His.)	LIB	II B.SC (Che.)	LIB	I B.SC (Maths)	LIB
	II B.A (His.)	R.M	II B.A ENG	P.K	I B.A (Eng.)	A.K.P	II B.SC (Zoo.)	LIB	I B.SC (Phy)	LIB
	I B.A TAM	LIB	I B.A TAM	R.I	I B.SC (CDF)	R.M	I B.A TAM	K.S	I B.SC (Zoo.)	R.I
	II B.A TAM	R.S	II B.A TAM	A.K.P	I B.A TAM	LIB	II B.A TAM	LIB	I B.COM (A)	R.S
	III B.A TAM	K.S	III B.A TAM	LIB	II B.A TAM	*LIB*	I BBA	LIB	I B.SC (Che.)	LIB
	I M.A TAM	R.I	I M.A TAM	N.B	III B.A TAM	P.K	I B.A ECO	LIB	I B.SC (CS.)	S.K
					I M.A TAM	R.S	II B.A ECO	LIB	I BCA	LIB
							III B.A TAM	LIB	II B.SC (Maths	LIB
							I M.A TAM	P.K	IB.A TAM	LANG
									II B.ATAM	LANG
									I M.A TAM	LIB
									I B.COM IB	LIB
									II B.SC (Phy)	LIB

Dr. N. BALASUBRAMANIAN, Dr. R. INDIRANI, Mr. R. SENGAMUTHU, Mr. S. KUMAR, Dr. P. KARUNAKARAN, Mrs. K. SAHAYA RANI, Dr. R. MAHESWARI, Dr. A.K. PONMARI

DEPARTMENT OF TAMIL

TIME TABLE FOR II, IV, VI SEMESTERS - 2020-2021 (ONLINE)

DAY	1		2		3		4		5	
I	I B.A(His.)	P.K	II B.SC (Che)	R.I	I B.COM (A)	P.K	I B.SC (Maths)	LIB	I B.COM (CA)	LIB
	I B.SC(CS)	R.S	II B.SC (Zoo.)	LIB	I B.COM (B)	LIB	I B.SC (Phy.)	A.K.P	I B.A (Tamil)	S.K
	II B.SC (Maths)	A.K.P	II B.A (Eng.)	LIB	I B.A (Tam. M)	LIB	I B.SC (Che)	N.B	II B.A (Tamil)	LIB
	II B.SC (Phy.)	LIB	II B.A (His.)	LIB	II B.A (Tam.M)	LIB	I B.COM (B)	P.K	III B.A (Tamil)	K.S
	I BCA	LIB	I BBA	LIB	III B.A (Tamil)	*LIB*	I B.A (Eng.)	LIB	I M.A	N.B
	I B.A (Tamil)	N.B	I B.A Eco.	A.K.P	I M.A	K.S	I B.SC CDF	LIB		
	II B.A (Tamil)	R.M	I B.A (Tamil)	K.S			I B.A (Tam.M)	R.I		
	I B.A (Eng.)	K.S	II B.A (Tamil)	N.B			II B.A (Tam.M)	R.S		
	III B.A (Tamil)	R.I	III B.A (Tamil)	R.S			III B.A (Tamil)	S.K		
			II B.A Eco.	R.M			I M.A	LIB		
	I M.A	LIB	I M.A	P.K			I B.SC (Zoo.)	LIB		
II	I B.A (Tamil)	LIB	I B.A (His.)	LIB	I B.COM (B)	P.K	I B.A (Tamil)	Eng.	I B.SC (Maths)	S.K
	II B.A (Tamil)	R.S	I B.COM (A)	P.K	II B.SC (Che)	LIB	II B.A (Tamil)	R.M	I B.SC (Phy.)	LIB
	III B.A (Tamil)	A.K.P	I B.COM (IB)	LIB	II B.SC (Zoo.))	R.S	III B.A (Tamil)	S.K	I B.SC (Che)	LIB
	I M.A	R.I	I B.SC(CS)	LIB	II B.A (His.)	N.B	I M.A	K.S	I B.SC (ZOO.)	R.I
			I BCA	R.M	II B.A (Eng.)	LIB			I B.COM (CA)	LIB
			I B.A (Tamil)	K.S	I BBA	LIB			I B.A (Eng.)	LIB
			II B.A (Tamil)	Eng.	I B.A Eco.	A.K.P			II B.SC (Maths)	LIB
			III B.A (Tamil)	R.I	I B.A (Tamil)	R.I			II B.SC (Phy.)	LIB
			I M.A	N.B	II B.A (Tamil)	LIB			I B.SC (CDF)	LIB
					III B.A (Tamil)	LIB			I B.A (Tamil)	RS (FC)
					I M.A	LIB			II B.A (Tamil)	P.K
									I M.A	LIB
									III B.A (Tamil)	K.S
III	I B.SC (Maths)	K.S	II B.SC (Maths)	LIB	I B.COM (B)	LIB	I B.SC(CS)	LIB	I B.A(His.)	LIB
	I B.SC (Phy.)	A.K.P	II B.SC (Phy.)	LIB	I B.COM (CA)	LIB	I BCA	LIB	I B.A (Eng.)	LIB
	I B.SC (Che)	N.B	II B.SC (Che)	LIB	I B.A (Tam.M)	N.B	II B.A (Eng.)	K.S	I B.SC (CDF)	LIB
	I B.SC (ZOO.)	R.I	II B.SC (Zoo.))	LIB	II B.A (Tamil)	LIB	II B.A (His.)	LIB	I B.A (Tam.M)	A.K.P
	I B.COM (A)	LIB	I B.A (Eco.)	LIB	III B.A (Tamil)	LIB	I B.A (Tam.M)	LIB	II B.A (Tamil)	S.K (FC)
	I B.COM (IB)	R.M	I BBA	R.M	I M.A	K.S	II B.A (Tamil)	P.K	III B.A (Tamil)	LIB
	I B.A (Tamil)	LIB	I B.A (Eng.)	K.S			III B.A (Tamil)	R.S	I M.A	LIB
	II B.A (Tamil)	R.S	I B.A (Tam.M)	Eng.			II B.A (Eco.)	R.M		
	III B.A (Tamil)	P.K	II B.A (Tamil)	LIB			I M.A	LIB		
	I M.A	LIB	III B.A (Tamil)	P.K						
			I M.A	R.I						
IV	I B.COM (B)	P.K	I B.COM (CA)	LIB	I B.SC(CS)	R.S	I B.SC (Maths)	LIB	I B.SC (Che)	N.B
	I B.A (Eco.)	A.K.P	I B.SC (CDF)	R.I	I B.A (His.)	LIB	I B.SC (Phy.)	LIB	I B.SC (Zoo.)	LIB
	I BBA	R.M	I B.A (Eng.)	LIB	I BCA	R.M	I B.COM (A)	P.K	II B.A (His.)	LIB
	I B.A (Tamil)	R.I	I B.A (Tam.)	N.B	I B.A (Tam.)	K.S	I B.COM (IB)	R.M	II B.A (Eng.)	LIB
	II B.A (Tamil)	R.S	II B.A (Tamil)	Eng.	II B.A (Tamil)	LIB	I B.A (Eng.)	K.S	I B.A (Tam.)	LIB
	III B.A (Tamil)	LIB	III B.A (Tamil)	A.K.P	III B.A (Tamil)	P.K	II B.SC (Phy.)	LIB	II B.A (Tamil)	S.K
	I M.A		I M.A		I M.A		II B.SC (Che.)	LIB	III B.A (Tamil)	R.S
							II B.SC (Zoo.)	LIB	I M.A	
							I B.A (Tam.)	S.K		
							II B.A (Tamil)	LIB		
							III B.A (Tamil)	LIB		
							II B.SC (Maths)	LIB		
							I M.A			
V	I B.A (Eng.)	LIB	I B.COM (CA)	LIB	I B.A (Eco.)	LIB	I B.SC (Maths)	S.K	I B.A (His.)	P.K
	I B.SC (CDF)	R.I	I B.A (Tam.)	K.S	I BBA	LIB	I B.SC (Phy.)	A.K.P	I B.COM (A)	LIB
	II B.A (Eng.)	K.S	II B.A (Tamil)	P.K	I B.A (Tam.)	LIB	I B.SC (Che)	LIB	I B.COM (B)	LIB
	II B.A (Eco.)	R.M	III B.A (Tamil)	R.S	II B.A (Tamil)	R.M	I BCA	R.M	II B.SC (Che.)	LIB
	I B.A (Tamil)	N.B	I M.A	S.K	III B.A (Tamil)	R.I	I B.COM (B)	LIB	II B.SC (Zoo.)	LIB
	II B.A (Tamil)	LIB			II B.SC (Maths)	A.K.P	I B.SC(CS)	R.S	I B.A (Tam.)	LIB
	III B.A (Tamil)	A.K.P			II B.SC (Phy.)	LIB	I B.SC (Zoo.)	R.I	II B.A (Tamil)	LIB
	I M.A	LIB			I M.A	K.S	I B.A (Tam.)	LIB	III B.A (Tamil)	S.K
							II B.A (Tamil)	Eng.	I M.A	R.S
							III B.A (Tamil)	K.S		
							II B.A (His)	N.B		
							I M.A	LIB		
VI	I B.COM (CA)	LIB	I B.SC (Che)	LIB	I B.A (His.)	P.K	II B.SC (Che.)	R.S	I B.SC (Maths)	LIB
	II B.A (His.)	N.B	I B.COM (B)	LIB	I B.A (Eng.)	LIB	II B.SC (Zoo.)	R.S	I B.SC (Zoo.)	LIB
	I B.A (Tam.)	K.S	II B.A (Eng.)	K.S	I B.SC (CDF)	R.I	I BBA	R.M	I B.COM (A)	LIB
	II B.A (Tamil)	R.M	I B.SC (Phy.)	LIB	I B.A (Tam.)	A.K.P	I B.A (Eco.)	LIB	I B.COM (IB)	R.M
	III B.A (Tamil)	R.S	I B.A (Tam.)	Eng.	II B.A (Tamil)	N.B	I B.A (Tam.)	LIB	I B.SC (CS.)	LIB
	I M.A	LIB	II B.A (Tamil)	LIB	III B.A (Tamil)	LIB	II B.A (Tamil)	LIB	I BCA	LIB
			III B.A (Tamil)	A.K.P	I M.A	LIB	III B.A (Tamil)	K.S	II B.SC (Maths)	LIB
			I M.A	S.K			I M.A	P.K	II B.SC (Phy)	LIB
									I B.A (Tam.)	LIB
									II B.A (Tamil)	S.K
									III B.A (Tamil)	P.K
									I M.A	LIB

Dr. N. BALASUBRAMANIAN, Dr. R. INDIRANI, Dr. M.P.KANTHASAMY, R. SENGAMUTHU, S. KUMAR, Dr. P. KARUNAKARAN, K. SAHAYA RANI, Dr. R. MAHESWARI, Dr. A.K. PONMARI

DEPARTMENT OF ECONOMICS

TIME TABLE FOR II, IV, VI SEMESTERS - 2020-2021 Even Sem

DAY	1	8.45-9.40	2	9.40-10.35	3	10.45-11.40	4	11.40-12.35	5	12.35-1.30
I	I BA	NR	I BA	T	I BA	MKV	I BA	LIB	I BA	LIB
	II	MKV	II	NR	II	SS	II	LIB	II	
	III	SS	III	LIB	III	NR	III	LIB	III	
	I MA	LIB	I MA	SS	I MA	LIB	I MA	SEMI	I MA	
	II MA	LIB	II MA	MKV	II MA	LIB	II MA	SEMI	II MA	
II	I BA	SS	I BA	NR	I BA	T	I BA	LIB	I BA	LIB
	II	NR	II	MKV	II	E	II	LIB	II	
	III	MKV	III	LIB	III	SS	III	LIB	III	
	I MA	LIB	I MA	SEMI	I MA	MKV	I MA	LIB	I MA	
	II MA	LIB	II MA	SS	II MA	NR	II MA	SEMI	II MA	
III	I BA	EVS	I BA	MKV	I BA	E	I BA	LIB	I BA	LIB
	II	SS	II	LIB	II	LIB	II	T	II	
	III	MKV	III	NR	III	LIB	III	LIB	III	
	I MA	NR	I MA	SS	I MA	LIB	I MA	SEMI	I MA	
	II MA	LIB	II MA	SEMI	II MA	NR	II MA	LIB	II MA	
							I B.Com A	SS		
IV	I BA	CLP	I BA	CLP	I BA	NR	I BA	EVS	I BA	
	II	NR	II	SS	II	LIB	II	T	II	
	III	SS	III	LIB	III	LIB	III	LIB	III	
	I MA	MKV	I MA	NR	I MA	SS	I MA	SEMI	I MA	LIB
	II MA	LIB	II MA	LIB	II MA	MKV	II MA	SEMI	II MA	
V	I BA	SS	I BA	EVS	I BA	E	I BA	LIB	I BA	
	II	MKV	II	LIB	II	LIB	II	E	II	
	III	NR	III	MKV	III	SS	III	LIB	III	SEMI
	I MA	LIB	I MA	NR	I MA	SEMI	I MA	LIB	I MA	
	II MA	LIB	II MA	LIB	II MA	NR	II MA	LIB	II MA	
			I B.COM B	SS						
VI	I BA	SS	I BA	NR	I BA	SEMI	I BA	MKV	I BA	LIB
	II	MKV	II	LIB	II	LIB	II	LIB	II	
	III	NR	III	LIB	III	SS	III	LIB	III	SEMI
	I MA	LIB	I MA	SS	I MA	MKV	I MA	SEMI	I MA	
	II MA	LIB	II MA	SEMI	II MA	NR	II.MA	SS	II MA	LIB

MKV-M.K.Vinayagamoorthy, NR-N.Raju, SS-S.Sudakar T-Tamil E-English

HOD

Prof and Head
Department of Economics,
Chikkanna Govt Arts College.
TIRUPUR - 641 602. Tamilnadu

DEPARTMENT OF ECONOMICS

TIME TABLE FOR I, III, V SEMESTERS - 2020-2021 ODD SEM

DAY	1	8.45-9.40	2	9.40-10.35	3	10.45-11.40	4	11.40-12.35	5	12.35-1.30
I	I BA	E	I BA	NR	I BA	SS	I BA	LIB	I BA	LIB
	II	T	II	FA	II	MKV	II	LIB	II	
	III	SS	III	MKV	III	NR	III	SEMI	III	
	I MA	MKV	I MA	LIB	I MA	SEMI	I MA	NR	I MA	SEMI
	II MA	LIB	II MA	SS	II MA	LIB	II MA	SEMI	II MA	
II	I BA	E	I BA	NR	I BA	MKV	I BA	LIB	I BA	
	II	T	II	SS	II	NR	II	FA	II	
	III	NR	III	MKV	III	SS	III	LIB	III	
	I MA	SS	I MA	LIB	I MA	SEMI	I MA	SEMI	I MA	
	II MA	MKV	II MA	LIB	II MA	LIB	II MA	LIB	II MA	
III	I BA	E	I BA	NR	I BA	EVS	I BA	SS	I BA	
	II	T	II	FA	II	NR	II	LIB	II	
	III	MKV	III	LIB	III	SS	III	LIB	III	SEMI
	I MA	SS	I MA	MKV	I MA	LIB	I MA	SEMI	I MA	
	II MA	NR	II MA	SEMI	II MA	MKV	II MA	LIB	II MA	SEMI
			I B.COM A	SS						
IV	I BA	T	I BA	MKV	I BA	NR	I BA	CLP	I BA	
	II	E	II	NR	II	FA	II	LIB	II	SEMI
	III	SS	III	LIB	III	MKV	III	SEMI	III	
	I MA	MKV	I MA	LIB	I MA	SEMI	I MA	SEMI	I MA	
	II MA	LIB	II MA	SS	II MA	LIB	II MA	SEMI	II MA	
					I B.COM B	SS				
V	I BA	T	I BA	NR	I BA	LIB	I BA	CLP	I BA	LIB
	II	E	II	SS	II	MKV	II	LIB	II	
	III	NR	III	MKV	III	LIB	III	SEMI	III	
	I MA	SS	I MA	LIB	I MA	NR	I MA	LIB	I MA	
	II MA	MKV	II MA	LIB	II MA	LIB	II MA	SEMI	II MA	
							I B.COM C	SS		
VI	I BA	T	I BA	EVS	I BA	SS	I BA	SEMI	I BA	LIB
	II	E	II	NR	II	MKV	II	SEMI	II	LIB
	III	NR	III	SS	III	SEMI	III	LIB	III	
	I MA	MKV	I MA	LIB	I MA	NR	I MA	SEMI	I MA	SEMI
	II MA	SS	II MA	MKV	II MA	LIB	II MA	LIB	II MA	
							I M.Com	MKV		

MKV-M.K.Vinayagamoorthy, NR-N.Raju, SS-S.Sudakar T-Tamil E-English

HOD

Prof and Head
Department of Economics
Chikkanna Govt Arts College
TIRUPUR - 641 602 Tamilnadu

DEPARTMENT OF HISTORY

TIME TABLE FOR I, III, V SEMESTERS - 2020-2021

DAY	1	8.45-9.40	2	9.40-10.35	3	10.45-11.40	4	11.40-12.35	5	12.35-1.30
I	I	PS	III	CG	II	SS	I	SS	I	RS
	II	CG			III	RS	II	PS	III	SEM
	III	SS					III	SEM		
II	I	CG	I	SS	III	RS	I	PS	I	RS
	II	RS	III	CG			II	SS	II	LIB
	III	PS					III	LIB	III	SS
III	I	RS	III	PS	II	SS	I	PS	I	CG
	II	CG			III	RS	II	RS	II	PS
	III	SS					III	CG	III	SEM
IV	I	CG	II	PS	II	SS	I	RS	I	PS
	II	RS	III	CG	III	PS	II	CG	III	LIB
	III	SS					III	SEM		
V	I	RS	II	PS	I	SS	I	CG	I	PS
	II	CG	III	CG	III	RS	II	RS	II	SS
	III	SS					III	PS	III	SEM
VI	I	CG	I	SS	II	PS	I	PS	I	RS
	II	RS	III	CG	III	RS	II	SS	II	CG
	III	PS					III	LIB	III	SS

RS - R. SHANGAMESWARAN CG - C. GURUCHANRAPADMAN PS - P. SATHIYA SS - R. SAKTHISELVAM

HOD
DEPARTMENT OF HISTORY
Chikkanna Govt Arts College,
TIRUPUR - 641 602.

DEPARTMENT OF HISTORY

WORKLOAD FOR THE ACADEMIC YEAR 2020 - 2021

S No	Class	Hrs
1	I BA History	18
2	II BA History	18
3	III BA History	30
	Total	66
	Head of the Department	12 = 1
	Other staffs	54/16 = 3.4
	Total workload	1+4 = 5

HEAD OF THE DEPARTMENT

DEPARTMENT OF HISTORY
Chikkanna Govt Arts College,
TIRUPUR - 641 602.

DEPARTMENT OF HISTORY

TIME TABLE FOR II, IV, VI SEMESTERS - 2020-2021

DAY	1	8.45-9.40	2	9.40-10.35	3	10.45-11.40	4	11.40-12.35	5	12.35-1.30
I	I	PS	I	CG	I	SS	I	RS	II	RS
	III	CG	II	SS	II	CG	II	PS	III	LIB
			III	RS	III	PS	III	SS		
II	I	SS	I	RS	I	PS	I	CG	III	SEM
	III	RS	II	PS	II	RS	II	SS		
			III	CG	III	SS	III	PS,		
III	I	RS	I	CG	I	SS	II	PS	III	LIB
	III	CG	II	SS	II	CG	III	SEM		
			III	RS	III	PS				
IV	III	RS	I	RS	I	PS	I	SS	I	CG
			II	PS	II	RS	II	CG	III	SEM
			III	CG	III	SS	III	PS		
V	I	PS	I	CG	I	SS	II	PS	II	RS
	III	CG	II	SS	II	CG	III	SS	III	LIB
			III	RS	III	PS				
VI	I	SS	I	RS	I	PS	I	CG	III	SEM
	III	RS	II	PS	II	RS	II	SS		
			III	CG	III	SS	III	PS		

RS - R. SHANGAMESWARAN CG - C. GURUCHANRAPADMAN PS - P. SATHIYA SS - R. SAKTHISELVAM

HOD
DEPARTMENT OF HISTORY
Chikkanna Govt Arts College,
TIRUPUR - 641 602

CHIKKANNA GOVERNMENTT ARTS COLLEGE – TIRUPUR 641 602
DEPARTMENT OF PHYSICS – TIME TABLE – June 2020 to Nov 2020

	Class	1	2	3	4	5
I	I B Sc	VSN (PM&S)	TAMIL	ENGLISH		ALLIED
	II B Sc	TAMIL	ENGLISH	ALLIED	ALLIED	ALLIED
	III B Sc	HMP (MP)	(SSS &HMP) DIGITAL ELEC.PRACTICAL		XXX(DIP)	PPK(E&M)
	I M Sc	VG (QM)	JWC(MP)	XXX(ACP)	JWC(MP)	XXX(ACP)
	II M Sc	VSK(NP)	RB(CE)	PPK(ETDA)	VSN (ETDA)	XXX(L&O)
	I ALLIED					SSS
	II ALLIED			PHYSICS PRACTICAL(VG,RB)		

II	I B Sc	ALLIED PRACTICAL			TAMIL	ENGLISH
	II B Sc	PPK (OPT)	ALLIED	DIP	ENGLISH	TAMIL
	III B Sc	C &C++ PRACTICAL (KBR,HMP)			VSK (C Prog.)	VG (Electr.)
	I M Sc	JWC(MP)	VSK(CM)	HMP (QM)	SSS(NCER)	VSK(CM)
	II M Sc	VG(Spectra)	RB(CE)	GENERAL PRACTICAL (JWC,PPK)		
	I ALLIED			XXX		
	II ALLIED			SSS		

III	I B Sc	TAMIL	CLP	ENGLISH	ALLIED	XXX(PM&S)
	II B Sc	ENGLISH	TAMIL	ALLIED	ALLIED	DIP (JWC)
	III B Sc	ELECTRONICS PRACTICAL (VSK,SSS)		HMP(C Prog.)	XXX(DIP)	VSK (C Prog.)
	I M Sc	KBR(CM)	VG (QM)	RB(NCER)	VSK(CM)	KBR(CM)
	II M Sc	PPK(CE)	PPK(ETDA)	XXX(Spectra)	XXX(L&O)	XXX(Spectra)
	I ALLIED			PHYSICS PRACTICAL(VSN,XXX,SSS,VG,PPK)		
	II ALLIED			JWC		

IV	I B Sc	PRACTICAL (PPK,JWC)			TAMIL	ENGLISH
	II B Sc	KBR(OPT)	KBR(OPT)	ALLIED	TAMIL	ENGLISH
	III B Sc	SSS(SSP)	RB(E&M)	HMP (C prog.)	JWC(SSP)	VSN (Electr.)
	I M Sc	RB(NCER)	KBR(ACP)	ELECTRONICS PRACTICAL (VG,RB)		
	II M Sc	SSS(NP)	VG(Spectra)	VSK(NP)	VSN(ETDA)	XXX(CE)
	I ALLIED					
	II ALLIED					

V	I B Sc	ENGLISH	ALLIED	VSN (PM&S)	TAMIL	CLP
	II B Sc	PPK (OPT)	DIP (JWC)	TAMIL	TEST	ENGLISH
	III B Sc	VSN (Electr.)	HMP(MP)	XXX(MP)	XXX (MP)	JWC(SSP)
	I M Sc	RB(NCER)	VG (QM)	KBR(ACP)	SSS(NCER)	RB(MP)
	II M Sc	KBR(L&O)	XXX(Spectra)	ELECTRONICS PRACTICAL (VSK,SSS)		
	I ALLIED					VSN
	II ALLIED			JWC		

VI	I B Sc	XXX (PM&S)	ALLIED	XXX (PM&S)	ENGLISH	TAMIL
	II B Sc	PRACTICAL (RB, VSN)		FC	ENGLISH	TAMIL
	III B Sc	PPK(E&M)	SSS(SSP)	VG (Electr.)	RB(E&M)	JWC(DIP)
	I M Sc	VG (QM)	XXX(ACP)	GENERAL PRACTICAL (KBR, HMP)		
	II M Sc	VSK(NP)	KBR(L&O)	XXX (ETDA)	PPK(CE)	SSS(NP)
	I ALLIED				XXX	
	II ALLIED			VSN		

HMP- Dr.HARESH.M.PANDYA (HOD) **VSK** – V. SENTHIL KUMAR **PPK** – Dr..P.PEULA KUMARI

VG – Mrs. V.A.VIJAYA GEETHA **JWC** –Mr.J.WILLIAM CHARLES **KBR** –Dr. K.B. RAJESH

RB – Dr. R.BALAN **VSN** – Dr.V.SENTHILNATHAN **SSS** –Dr. R. SHAKTHI SUDAR SARAVANAN

இயற்பியல் துறை
சிக்கண்ணா அரசு கலைக் கல்லூரி
திருப்பூர் - 641602.

CHIKKANNA GOVERNMENT ARTS COLLEGE, TIRUPUR-641 602
DEPARTMENT OF PHYSICS (2020-2021, Even Sem)

	Class	1	2	3	4	5
I	I B Sc	SSS(H&T)	ALLIED	XXX (H&T)	TAMIL	ENGLISH
	II B Sc	TAMIL	ENGLISH	ALLIED	ALLIED	ALLIED
	III B Sc	PPK(NP)	HMP,**KBR** (DIG.ELE.μ.PRAC)		HMP(C++)	JWC(QM&R)
	I M Sc	VG(QM I)	RB(AP)	VSK(A&MS)	JWC(MP II)	VS(A&MS)
	II M Sc	VSK(N&PA)	PPK(CE)	SSS(N&PA)	PPK(CE)	KBR(LN)
	I ALLIED			XXX		
	II ALLIED			PHYSICS PRACTICAL(**VG**,RB)		
II	I B Sc	ALLIED PRACTICAL			ENGLISH	TAMIL
	II B Sc	RB(AP&S)	ALLIED	SSS(AP&S)	ENGLISH	TAMIL
	III B Sc	**KBR**,XXX (C &C++ PRACTICAL)			VG (D&μP)	PPK(NP)
	I M Sc	VS(A&MS)	VG(QM I)	HMP(AP)	RB(AP)	VSK (A&MS)
	II M Sc	**JWC**,PPK (GENERAL PRACTICAL)				
	I ALLIED		VS			SSS
	II ALLIED					
III	I B Sc	TAMIL	PPK(H&T)	ENGLISH	ALLIED	FC
	II B Sc	ENGLISH	TAMIL	ALLIED	ALLIED	FC
	III B Sc	**VSK**,SSS(ELEC. PRACT.)		KBR(QM&R)	JWC(QM&R)	XXX(QM&R)
	I M Sc	JWC (MP II)	HMP (AP)	RB (AP)	XXX (A&MS)	KBR (MPII)
	II M Sc	PPK(CE)	KBR (LN)	SSS (N&PA)	RB (CE)	PROJECT
	I ALLIED			PHYSICS PRACTICAL(**PPK**,VG,VS,VSK,XXX)		
	II ALLIED			JWC		
IV	I B Sc	PRACTICAL (**PPK**,JWC)			TAMIL	ENGLISH
	II B Sc	XXX(AP&S)	VS (INS2)	ALLIED	SSS (AP&S)	ENGLISH
	III B Sc	VS (NP)	HMP(C++)	KBR(QM&R)	VSK (C++)	JWC(QM&R)
	I M Sc	ELECTRONICS PRACTICAL (**VG**, RB)				
	II M Sc	VSK(N&PA)	PROJECT	PROJECT	KBR(LN)	RB (CE)
	I ALLIED					
	II ALLIED	VS				
V	I B Sc	ENGLISH	ALLIED	SSS (H&T)	TAMIL	FC
	II B Sc	VS (INS2)	RB (AP&S)	TAMIL	TEST	ENGLISH
	III B Sc	VS(NP)	VG (D&μP)	**VS,** XXX (Skill Based Practical)		
	I M Sc	KBR (MPII)	HMP(QMI)	JWC (MPII)	VG(QM I)	XXX (QMI)
	II M Sc	ELECTRONICS PRACTICAL (VSK, **SSS**)				
	I ALLIED					
	II ALLIED				XXX	
VI	I B Sc	PPK (H&T)	ALLIED	ENGLISH	SSS(H&T)	TAMIL
	II B Sc	PRACTICAL(**RB**,VS)		VS(INS2)	ENGLISH	TAMIL
	III B Sc	SSS(NP)	VG(D&μP)	VSK(C++)	VG(D&μP)	RB(C++)
	I M Sc	GENERAL PRACTICAL (KBR, **HMP**)				
	II M Sc	KBR(LN)	VSK(N&PA)	PROJECT	PPK(CE)	KBR(LN)
	I ALLIED			JWC		
	II ALLIED			SSS		

Dr. Haresh M. Pandya HMP
Mrs. V. A. Vijayageetha VG
Dr. V. Senthilnathan VS
Mr. V. Senthilkumar VSK
Mr. J. William Charles JWC
Dr. R. Balan RB
Dr. P. Peulakumari PPK
Dr. K. B. Rajesh KBR
Dr. R. Sakthi Sudar Saravanan SSS

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சிக்கண்ணா அரசு கலைக் கல்லூரி
திருப்பூர் - 641602.

Aug 2020

CHIKKANNA GOVERNMENT ARTS COLLEGE,TIRUPUR-2

Time Table ODD Semester 2020- 2021

PG Department of Chemistry w.e.f. /0 /2019

DAY ORDER /		CLASS HOUR	I 9.15-10.05	II 10.05-10.55	III 10.55-11.45	IV 11.45-12.35	V 12.35-1.25
I	EM	II MSc	PV	ORGANIC LAB (Dr.PV/Dr.X)			
		I MSc	GR	NSG	MSD	NS	NSG
		I BSc	SPR	TAMIL	NS	ENGLISH	ALLIED
		II BSc	ENGLISH	TAMIL*	ALLIED	ALLIED	ALLIED
		III BSc	KK	MSU	GR	JB	SPR
		Allied					KK/MSD
II	EM	II MSc	SK	PHYSICAL LAB(Dr.GR/Dr.SK)			
		I MSc	MSU	JB	NS	SPR	NSK
		I BSc	CLP/NS	SPR	ALLIED	TAMIL	ENGLISH*
		II BSc	NSG	ALLIED	TAMIL	ENGLISH	X
		III BSc	JB	NSG	MSU	PV	MSD
		Allied	ALLIED LAB(NSK/KK/MSD/PV)				
III	EM	II MSc	SK	INORGANIC LAB (Dr.NS/Dr.NSG)			
		I MSc	SPR	JB	GR	GR	NSK
		I BSc	TAMIL	ENGLISH	ALLIED	ALLIED	ALLIED
		II BSc	ENGLISH*	TAMIL	ALLIED	ALLIED	SK
		III BSc	III UG GRAVI & PHYSICAL LAB Dr.KK / Dr.MSU				
		Allied				NSK/PV	
IV	EM	II MSc	MSU	NSK	SPR	SK	KK
		I MSc	MSD	ORGANIC LAB (Dr.X /Dr.MSD)			
		I BSc	I UG LAB (Dr.GR / DrJB)			ENGLISH	TAMIL
		II BSc	PV	NS	ALLIED	TAMIL*	ENGLISH
		III BSc	NSG	KK	PV	MSU	JB
		Allied					
V	EM	II MSc	KK	MSD	SPR	SK	PV
		I MSc	JB	PHYSICAL LAB(Dr.MSU/Dr.JB)			
		I BSc	CLP/SPR	ENGLISH	NS	TAMIL	ALLIED
		II BSc	NS	SK	NSG	ENGLISH	TAMIL
		III BSc	GR	NSG	AOS+TEX LAB (Dr.SK/X)		
		Allied	ZOO PV	(P+M)NSK			
VI	EM	II MSc	PV	X	KK	SK	MSD
		I MSc	NSK	INORGANIC LAB (Dr.NSK/Dr.SPR)			
		I BSc	SPR	ALLIED	X	ENGLISH	TAMIL
		II BSc	II UG LAB Dr.NS /Dr.NSG			TAMIL	ENGLISH*
		III BSc	JB	JB	GR	NSG	MSU
		Allied		KK/MSD			

HOD

Head
Department of Chemistry,
Chikkanna Govt. Arts College,
Tripur - 641 602.

CHIKKANNA GOVERNMENT ARTS COLLEGE,TIRUPUR-2

Time Table EVEN Semester 2020- 2021

PG Department of Chemistry w.e.f. 07/12/2020

DAY ORDER / MEDIUM		CLASS	I	II	III	IV	V
		HOUR	9.15-10.05	10.05-10.55	10.55-11.45	11.45-12.35	12.35-1.25
I	EM	II MSc	X	ORGANIC LAB (Dr.PV/Dr.X)			
		I MSc	NSG	JB	SK	SPR	NSK
		I BSc	NS	SPR	ALLIED	TAMIL	ENGLISH
		II BSc	ENGLISH	TAMIL	ALLIED	ALLIED	ALLIED
		III BSc	GR	MSU	GR	NSG	MSU
		Allied		KK/MSD			
II	EM	II MSc	SK	PHYSICAL LAB(Dr.GR/Dr.SK)			
		I MSc	MSU	JB	NSG	NSK	PV
		I BSc	SPR	ALLIED	NS	ENGLISH	TAMIL
		II BSc	JB	ALLIED	TAMIL	ENGLISH	JB
		III BSc	GR	MSU	X	KK	SPR
		Allied	ALLIED LAB(NSK/KK/MSD/PV)				
III	EM	II MSc	NSG	INORGANIC LAB (Dr.NS/Dr.NSG)			
		I MSc	PV	MSD	SK	MSD	SPR
		I BSc	TAMIL	ENGLISH	ALLIED	ALLIED	ALLIED
		II BSc	ENGLISH	TAMIL	ALLIED	ALLIED	JB
		III BSc	III UG GRAVI & PHYSICAL LAB Dr.KK / Dr.MSU				
		Allied				NSK/PV	
IV	EM	II MSc	X	NS	KK	GR	MSU
		I MSc	MSD	ORGANIC LAB (Dr.SPR /Dr.MSD)			
		I BSc	I UG LAB (Dr.GR / Dr.JB)			ENGLISH	TAMIL
		II BSc	NS	PV	ALLIED	TAMIL	ENGLISH
		III BSc	SPR	SK	NSG	JB	PV
		Allied					
V	EM	II MSc	NSG	X	GR	KK	NSG
		I MSc	JB	PHYSICAL LAB(Dr.MSU/Dr.JB)			
		I BSc	SPR	ENGLISH	SPR	TAMIL	ALLIED
		II BSc	NS	PV	NS	ENGLISH	TAMIL
		III BSc	GR	KK	AOS+TEX LAB (Dr.SK/X)		
		Allied	ZOO PV	(P+M)NSK			
VI	EM	II MSc	MSU	SK	KK	NS	MSD
		I MSc	NSK	INORGANIC LAB (Dr.NSK/Dr.SPR)			
		I BSc	MSD	TAMIL	CLP	ENGLISH	ALLIED
		II BSc	II UG LAB Dr.NS/Dr.NSG			TAMIL	ENGLISH
		III BSc	PV	GR	JB	SK	X
		Allied		KK/MSD			

HOD

Head
Department of Chemistry,
Chikkanna Govt. Arts College,
Tirupur - 641 602.

DEPARTMENT OF ZOOLOGY

ONLINE TIME TABLE FOR I, III, V SEMESTERS - 2020-2021

DAY	1 9.30- 10.30		2 10.30-11.30		3 12.00-1.00	
I	I B Sc		I B Sc		I B Sc	MR
	II B Sc		II B Sc		II B Sc	MM
	III B Sc	AMK	III B Sc	MR	III B Sc	AM
	I M Sc	AM	I M Sc	MM	I M Sc	MD
	II M Sc	MVR	II M Sc	JJ	II M Sc	SSS
II	I B Sc		I B Sc		I B Sc	MR
	II B Sc		II B Sc		II B Sc	MD
	III B Sc	MVR	III B Sc	SSS	III B Sc	JJ
	I M Sc	MM	I M Sc	MD	I M Sc	MVR
	II M Sc	JJ	II M Sc	MM	II M Sc	AMK
III	I B Sc		I B Sc		I B Sc	MR
	II B Sc		II B Sc		II B Sc	MM
	III B Sc	MR	III B Sc	AMK	III B Sc	AM
	I M Sc	AM	I M Sc	MD	I M Sc	MVR
	II M Sc	SSS	II M Sc	JJ	II M Sc	MD
IV	I B Sc		I B Sc		I B Sc	MR
	II B Sc		II B Sc		II B Sc	MD
	III B Sc	SSS	III B Sc	MVR	III B Sc	JJ
	I M Sc	AM	I M Sc	MM	I M Sc	MVR
	II M Sc	JJ	II M Sc	AMK	II M Sc	SSS
V	I B Sc		I B Sc		I B Sc	MR
	II B Sc		II B Sc		II B Sc	MM
	III B Sc	JJ	III B Sc	AMK	III B Sc	AM
	I M Sc	AM	I M Sc	AM	I M Sc	MVR
	II M Sc	SSS	II M Sc	JJ	II M Sc	SSS
VI	I B Sc		I B Sc		I B Sc	MR
	II B Sc		II B Sc		II B Sc	MD
	III B Sc	SSS	III B Sc	MR	III B Sc	MVR
	I M Sc	MVR	I M Sc	MD	I M Sc	MM
	II M Sc	JJ	II M Sc	AMK	II M Sc	SSS

AM - DR A MARGARAT MR - DR M RABEETH AMK - DR A MOHAN KUMAR SSS - DR S SUMATHI
JJ - DR J JAGATHEESWARI, MVR - DR M V RADHAKRISHNAN MM - Mr M MUSTHAQ MD - DR M DEEPAK

துறைத் தலைவர்
விலங்கியல் துறை
சீக்கன்னா அரசு கலைக் கல்லூரி
திருப்பூர்-641 602.

DEPARTMENT OF ZOOLOGY
TIME TABLE FOR I, III, V SEMESTERS - 2020-2021

DAY	1	8.45-9.40	2	9.40-10.35	3	10.45-11.40	4	11.40-12.35	5	12.35-1.30
I	I B Sc	MR	I B Sc		I B Sc	AMK	I B Sc		I B Sc	
	II B Sc		II B Sc		II B Sc	MD	II B Sc	MM	II B Sc	MD
	III B Sc	JJ & MM	III B Sc	JJ & MM	III B Sc	MR	III B Sc	AM	III B Sc	AMK
	I M Sc	MD	I M Sc	AM	I M Sc	MVR	I M Sc	MD	I M Sc	MM
	II M Sc	MVR	II M Sc	AMK	II M Sc	SS	II M Sc	MVR	II M Sc	MVR
II	I B Sc		I B Sc		I B Sc		I B Sc		I B Sc	
	II B Sc	MM	II B Sc	MD	II B Sc		II B Sc		II B Sc	
	III B Sc	JJ	III B Sc	AMK	III B Sc	SSS	III B Sc	MR	III B Sc	MVR
	I M Sc	MD	I M Sc	AM	I M Sc	MVR	I M Sc	AM	I M Sc	AM
	II M Sc	MR	II M Sc	MR	II M Sc	JJ	II M Sc	SSS	II M Sc	JJ
III	I B Sc		I B Sc		I B Sc	*MR*	I B Sc		I B Sc	MR
	II B Sc		II B Sc		II B Sc	MD	II B Sc		II B Sc	
	III B Sc	MR & AMK	III B Sc	MR & AMK	III B Sc	AMK	III B Sc	AM	III B Sc	AM
	I M Sc	MD	I M Sc	AM	I M Sc	MVR	I M Sc	JJ	I M Sc	JJ
	II M Sc	JJ	II M Sc	SSS	II M Sc	SSS	II M Sc	AMK	II M Sc	MD
IV	I B Sc	SSS & MD	I B Sc	SSS & MD	I B Sc	SSS & MD	I B Sc		I B Sc	
	II B Sc	MD	II B Sc		II B Sc	MM	II B Sc		II B Sc	
	III B Sc	MVR	III B Sc	JJ	III B Sc	MR	III B Sc	AMK	III B Sc	SSS
	I M Sc	MM	I M Sc	MVR	I M Sc	AM	I M Sc	MM	I M Sc	MD
	II M Sc	AMK	II M Sc	AMK	II M Sc	JJ	II M Sc	AM	II M Sc	AM
V	I B Sc		I B Sc		I B Sc	MR	I B Sc		I B Sc	LIB
	II B Sc	AM & MD	II B Sc	AM & MD	II B Sc	AM & MD	II B Sc		II B Sc	
	III B Sc	MR	III B Sc	MVR	III B Sc	JJ	III B Sc	SSS	III B Sc	MVR
	I M Sc	MVR	I M Sc	MM	I M Sc	MD	I M Sc	MM	I M Sc	AM
	II M Sc	JJ	II M Sc	SSS	II M Sc	AMK	II M Sc	AMK	II M Sc	AMK
VI	I B Sc	MR	I B Sc		I B Sc	MR	I B Sc		I B Sc	
	II B Sc		II B Sc		II B Sc		II B Sc		II B Sc	
	III B Sc	AMK	III B Sc	JJ	III B Sc	MVR	III B Sc	AM	III B Sc	AM
	I M Sc	MVR	I M Sc	AM	I M Sc	MM	I M Sc	SSS	I M Sc	SSS
	II M Sc	SSS	II M Sc	SSS	II M Sc	JJ	II M Sc	AMK	II M Sc	JJ

AM - DR A MARGARAT MR - DR M RABEETH AMK - DR A MOHAN KUMAR SSS - DR S SUMATHI JJ - DR J JAGATHEESWARI

MVR - DR M V RADHAKRISHNAN MM - Mr M MUSTHAQ MD - DR M DEEPAK

HOD

DEPT OF COSTUME DESIGN AND FASHION 2020-21 Odd SEM

Day ord/Hr	Class	1	2	3	4	5
I	I B.Sc	BGC (PCJ)	(IJ)---------- FS---------- (F)		Tamil	English
	II B.Sc	FD (SKC)	FF (PCJ)	CTI (SK)	CTI(SK)	CTI (SK)
	III B.Sc	TP (IJ)	AMM (F)	COMP (F)	AMM (IJ)	Comp (F)
	I M.Sc	(UM)----------(UM)- ----------FI--------- (UM)----------(UM)----------(UM)				
	II M.Sc	TT (SK)	C.S. (SKC)	(SKC)----------D & P (P)--------(F) ----------(F)		
II	I B.Sc	(UM)----------BGC (UM)----------(UM)			English	Tamil
	II B.Sc	(IJ)----------(IJ)----------Draping (P)------- (F)----------(F)				F.F (F)
	III B.Sc	(SKC)----------TP (P)----(SKC)----------(F)			TF (SK)	T.F (Sk)
	I M.Sc	AE (PCJ)	Tech tex (F)	(SKC)---------(F)----------O& A (P) ---(F)		
	II M.Sc	C.S (F/IJ)	THESIS	(F)----------CAD (P)----(PCJ)----------(F)		
III	I B.Sc	BGC (PCJ)	(IJ)---------- FS---------- (F)		English	Tamil
	II B.Sc	CTI(SK)	FD(SKC)	FBCP (PCJ)	FF (F)	FF (PCJ)
	III B.Sc	COMP (IJ)	T.F (SK)	TF (SK)	PCJ -----CAD (P)-------(F)	
	I M.Sc	Tech tex (F)	A.E (PCJ)	CW (UM)	CW (IJ)	CW (UM)
	II M.Sc	ITD (SKC)	Thesis	C.S (IJ)	(SKC)-----D&P----------(F)	
IV	I B.Sc	BGC(F)	Tamil	English	BGC(PCJ)	EVS (F)
	II B.Sc	FBCP (PCJ)	YOGA (F)	FD (F)	(SKC)----------FD (P)-------(F)	
	III B.Sc	-----(IJ)----------MA (P)----------(F)----------(F)			T.P (F)	AMM (F)
	I M.Sc	CW (SKC)	FI (UM)	Tech tex(IJ)	AE (F)	AE (F)
	II M.Sc	ITD (F)	TT(Sk)	(UM)----------T.T(UM)---(SK)----------(UM)		
V	I B.Sc	TAMIL	English	----(UM)--------BGC(P)----------(UM)		BGC (P)(UM)
	II B.Sc	FF (PCJ)	FBCP (F)	FD (F)	(SKC)----------FD (P)----------(F)	
	III B.Sc	TF (SK)	TF (F)	(PCJ)--------CAD (P)-------(PCJ)----------(F)-----		
	I M.Sc	-------(IJ) ----------(IJ)---------Draping (P)----------(F)----------(F)----------(F)				
	II M.Sc	ITD (SKC)	ITD (F)	TT (SK)	Thesis	Thesis
VI	I B.Sc	ENGLISH	BGC (F)	Tamil	EVS(F)	FS (F)
	II B.Sc	(PCJ)----------FF (P)-------- (PCJ)----------(F)			Yoga (F)	FBCP(F)
	III B.Sc	AMM (IJ)	TP (IJ)	COMP (IJ)	(IJ)----------MA (P)---------(F)	
	I M.Sc	Tech tex(F)	Draping(F)	(S.K.C)---------- O& A (P) ------(SKC) ----------(F)		
	II M.Sc	C.S (F)/ (SKC)	ITD(SKC)	TT (SK)	PCJ)----------CAD (P)----------(F)	

SKC - Dr S KARPAGAM CHINNAMMAL
PCJ - Dr P C JEMINARANI
SK - Mrs S KARTHAYANI
IJ - Mrs I JAYALAKSHMI

DEPARTMENT OF COSTUME DESIGN AND FASHION EVEN SEMESTER TIME TABLE 2020-2021

Day order/Hours	Class	1	2	3	4	5
I	I B.Sc	G.P (NU)	FD (P) (SKC)	FD (P) (F)	Tamil (F)	English
	II B.Sc	FSD(PCJ)	GQCM (IJ)	--- (IJ)---------SE (P)----------(F)		GA(F)
	III B.Sc	F.Port (SKC)	H.T (NU)	HT (F)	--(PCJ)----CAD----------(F)	
	I MSc	ETD (IJ)	RMS PCJ)	CAD (P) (PCJ)---------- (F)		SCM (F)
	II Msc	-	-	HF (F)----------(NU)----------(F)-------		
II	I B.Sc	G.P (NU)	FD (SKC)	FD (P) (F)	English (F)	Tamil(F)
	II B.Sc	TP (SKC)	(NU) ----------WA Prac --------(NU) ----------(F)			FSD(F)
	III B.Sc	Knit (PCJ)	Knit (F)	OGU (IJ)	OGU (F)	CAD (P)----- (F)
	I MSc	SCM(F)	ETD (IJ)	---------- DAP (SKC)----------(F)----------(F)		
	II Msc	TECH.TEX (IJ)	-	-	-	-
III	I B.Sc	(NU) ------- G.I Prac-------(NU) ---------- (F)			English	Tamil
	II B.Sc	GQCM (IJ)	FSD(PCJ)	--(PCJ)------FSD(P)----------(F)----------(F)--------		
	III B.Sc	F.Port (SKC)---------- (F)		HT (NU)	HT (F)	Knit (P) (NU)
	I MSc	RMS(PCJ)	ETD (IJ)	--(F)----AGC (P)----------(PCJ)		RMS (F)
	II Msc	-	-	-	-	-
IV	I B.Sc	FD (F)	Tamil	English (F)	FD (SKC)	GP(F)
	II B.Sc	TP (SKC)	----WA (P)----(NU)----------(F)--------		GQCM (F)	FSD(F)
	III B.Sc	Knit (PCJ)	Knit (F)	OGU (IJ)	OGU (F)	CAD ----(F)
	I MSc	DAP (SKC)	SCM (IJ)	----CAD (P)(PCJ)----------(F)		ETD(F)
	II Msc	-TECH TEX(IJ)	TECH TEX(F)		-	-
V	I B.Sc	Tamil (F)	G I PRAC-------- (NU)----------(F)		HR(F)	English (F)
	II B.Sc	FSD(PCJ)	GQCM (IJ)	--- (IJ)---------SE (P)----------(F)		GA (F)
	III B.Sc	F.Port (SKC)---------- (F)		HT (NU)	KNIT (P) (Nu)-------(F)	
	I MSc	SCM(IJ)	RMS(PCJ)	--(F)----CAD----------(F) -----(F)		RMS (F)
	II Msc	HF (NU)----------(F)-------		-	-	-
VI	I B.Sc	G.P (NU)	FD (SKC)	Tamil (F)	HR(F)	English (F)
	II B.Sc	TP (F)	TP (F)	----------(SKC)------T.P prac-------(SKC)----------(F)		
	III B.Sc	Knit (PCJ)	Knit(F)	OGU(IJ)	--(PCJ)----CAD----------(F)	
	I MSc	DAP(SKC)	(PCJ)--------- AGC---------(F)----------(F)----------(F)			
	II Msc	TECH TEX(IJ)	TECH TEX (F)	-	-	- -

Manager alumni

CHIKKANNA GOVERNMENT ARTS COLLEGE, TIRUPUR-2

DEPARTMENT OF COMPUTER APPLICATIONS

TIME TABLE FOR I, III, V SEMESTERS - 2020-2021

DAY	1 8.45-9.40		2 9.40-10.35		3 10.45-11.40		4 11.40-12.35		5 12.35-1.30	
I	I	SA	I	PA	I	*KKV*	I	SE	I	SA
	II	CS	II	KKV	II	SK	II	CS	II	DS
	III	GMN & DS	III	GMN & DS	III	GMN & DS	III	GMN	III	SA
II	I	SA	I	TAMIL	I	*ENG*	I	SE	I	SK
	II	CS	II	SK	II	KKV	II	KKV	II	SA
	III	GMN & DS	III	GMN & DS	III	GMN & DS	III	GMN	III	CS
III	I	KKV & SA	I	KKV & SA	II	KKV & SA	I	LIB	I	SEMINAR
	II	DS	II	CS	II	SK	II	KKV	II	CS
	III	MS	III	NV	III	MJ	III	AK	III	LIB
IV	I	SA	I	SE	I	SR	I	LIB	I	KKV
	II	CS&KKV	II	CS&KKV	II	CS&KKV	I	DS	II	LIB
	III	DS	III	GMN	III	SA	III	SA	III	CS
V	I	*SE*	I	PA	I	KKV	I	SR	I	LIB
	II	CS&SA	II	CS&SA	II	SK	II	KKV	II	DS
	III	GMN	III	DS	III	SA	III	CS	III	LIB
VI	I	KKV	I	SE	I	*SA*	ITAM	SR	COMP	LIB
	II	SK	II	CS	II	KKV	IITAM	CS	I	LIB
	III	GMN	III	DS	III	CS	III	SA	III	DS

GMN-Dr.G.M.NASIRA CS-Mrs.C.SARASWATHI DS-Mrs.D.SUDHA KKV-Mr.K.K.VISWANATHAN SA-Mrs.S.ANNAPOORNI SR-Mrs.SAHAYA RANI PA-Mr.PREM ANAND SK-Mrs.SASIKALA SE-Mr.SEKAR

HOD 6.8.2020

தலைமைக்கணினி,
கணினி பயன்பாட்டியல் துறை,
சிக்கண்ணா அரசு கலைக்கல்லூரி,
திருப்பூர் - 641602.

CHIKKANNA GOVERNMENT ARTS COLLEGE, TIRUPUR-2
DEPARTMENT OF COMPUTER APPLICATIONS
TIME TABLE FOR II, IV, VI SEMESTERS - 2020-2021

DAY	1 8.45-9.40	2 9.40-10.35	3 10.45-11.40	4 11.40-12.35	5 12.35-1.30
I	I SA	I S	I *RM*	I SE	I LIB
	II DS	II CS	II SA	II CS	II CS
	III DS&KKV	III DS&KKV	III DS&KKV	III GMN	III LIB
II	I SA	I RM	I *S*	I SE	I LIB
	II CS	II CS	II DS	II CS	II CS
	III DS&KKV	III DS&KKV	III DS&KKV	III GMN	III KKV
III	I SA	I SA	I SA	I RM	I LIB
	II DS	II KKV	II DS	II DS	II CS
	III CS	III CS	III GMN	III SA	III SA
IV	I SA	I SE	I RM	I S	I LIB
	II DS&GMN	II DS&GMN	II DS&GMN	II CS	II KKV
	III KKV	III CS	III CS	III SA	III SA
V	I *SE*	I S	I SA	I RM	I LIB
	II DS&GMN	II DS&GMN	II DS&GMN	II DS	II SA
	III CS	III CS	III KKV	III GMN	III KKV
VI	I SA	I SA	I *SE*	I CS	I CS
	II DS	II CS	II KKV	II ACC	II LIB
	III GMN	III KKV	III CS	III SA	III DS

GMN-Dr.G.M.NASIRA CS-Mrs.C.SARASWATHI DS-Mrs.D.SUDHA KKV-Mr.K.K.VISWANATHAN SA-Mrs.S.ANNAPOORNI SE-Mr.SEKAR RM-Mrs.R.MAHESHWARI S-Ms.SUREKA

6.1.2021
HOD

தலைமைக் காவலர்,
கணினி பயன்பாட்டியல் துறை,
சிக்கண்ணா அரசு கலைக்கல்லூரி,
திருப்பூர் - 641602.

CHIKKANNA GOVERNMENT ARTS COLLEGE, TIRUPUR - 641 602

PG AND RESEARCH DEPARTMENT OF COMMERCE

TIME TABLE FOR I, III, V SEMESTERS - 2020-2021

DAY	1		2		3		4		5	
I	I-CA	AM	I- A	LIB	I-CA	LAB	I- A	MG	I- B	GD
	II- A	BK	I- B	MG	II- A	ST	I-CA	SEM	I- B	SEM
	II- B	ST	II- A	GR	II- CA	GV	II- A	PV	II- B	SEM
	II- CA	KPL	II- B	SEM	III- A	BC	II- B	BK	III- A	LIB
	III- A	GV	II- CA	NR	III- B	LIB	II- CA	LAB	III- B	SEM
	III- B	GR	III- A	CA	III- CA	PV	III- A	BR	III- CA	NR
	III- CA	BR	III- B	BR	I-M	NR	III- B	GV	II-M	LAB
	I-M	CA	III- CA	LAB	II-M	LIB	III- CA	AM		
	II-M	PV	I-M	KPL	II-Maths	SP	I-M	GR		
			II-M	AM			II-M	ST		
							II-Maths	SP		
II	I- B	SP	I-CA	LAB	I- A	MG	I- A	SP	II- A	SEM
	I-CA	PV	II- B	BK	I-CA	LAB	I- B	MG	II- B	LIB
	II- A	BK	II- CA	KPL	II- A	ST	I-CA	AM	III- A	BR
	II- B	ST	III- A	SEM	II- B	LIB	II- A	LIB	III- B	LIB
	II- CA	NR	III- B	GV	II- CA	SEM	II- CA	LAB	III- CA	AM
	III- A	GV	III- CA	BR	III- A	GR	III- A	CA	I-M	GR
	III- B	GR	I-M	NR	III- B	BR	III- B	BK	II-M	GV
	III- CA	AM	II-M	SEM	III- CA	LIB	III- CA	NR		
	I-M	KPL			I-M	CA	I-M	ECO		
	II-M	MG			II-M	PV	II-M	LAB		
III	I- B	MG	I- A	MG	I-CA	PV	II- A	ST	I- A	SP
	II- A	BK	I- B	SP	II- A	LIB	II- B	GR	II- A	PV
	II- B	ST	I-CA	AM	II- B	BK	II- CA	GV	II- B	LIB
	II- CA	NR	II- CA	KPL	II- CA	LAB	III- A	BR	II- CA	SEM
	III- A	CA	III- A	LIB	III- A	GV	III- B	LIB	III- A	BK
	III- B	BR	III- B	GR	III- B	SEM	III- CA	LAB	III- B	GD
	III- CA	AM	III- CA	SEM	III- CA	BR	I-M	ECO	III- CA	LAB
	I-M	GR	I-M	NR	I-M	KPL	II-M	MG	I-M	CA
	II-M	GV	II-M	PV	II-M	ST			II-M	AM
					II-Maths	SP				
IV	I-CA	LAB	I- A	SP	II- A	LIB	I-CA	PV	I- A	MG
	II- A	LIB	I- B	MG	II- B	LIB	II- B	ST	I- B	SP
	II- B	SEM	II- A	ST	II- CA	NR	II- CA	SEM	II- A	PV
	II- CA	GV	II- B	PV	III- A	GV	III- A	GR	II- CA	LAB
	III- A	CA	II- CA	KPL	III- B	BR	III- B	CA	III- A	LIB
	III- B	LIB	III- A	BR	III- CA	AM	III- CA	LAB	III- B	GV
	III- CA	NR	III- B	BK	I-M	SEM	I-M	NR	III- CA	BK
	I-M	KPL	III- CA	LIB	II-M	AM	II-M	LIB	I-M	SEM
	II-M	MG	I-M	GR					II-M	ST
	II-Maths	SP	II-M	LAB						

V	I- A	SP	I- A	LIB	I- B	SP	II- A	LIB	II- A	ST
	I-CA	AM	I- B	MG	II- A	LIB	II- CA	NR	II- B	SEM
	II- B	PV	I-CA	SEM	II- B	LIB	III- A	GV	II- CA	LIB
	II- CA	LIB	II- A	BK	II- CA	SEM	III- B	BR	III- A	SEM
	III- A	BK	II- B	ST	III- A	GR	III- CA	BK	III- B	SEM
	III- B	GR	II- CA	KPL	III- B	CA	I-M	ECO	III- CA	AM
	III- CA	BR	III- A	BR	III- CA	AM	II-M	PV	I-M	GR
	I-M	NR	III- B	GV	I-M	KPL	II-Maths	SP	II-M	MG
	II-M	ST	III- CA	NR	II-M	LAB				
			I-M	CA						
			II-M	LAB						
VI	I- A	SP	II- A	LIB	I- A	MG	I- B	SP	I- B	LIB
	I-CA	PV	II- B	ST	I-CA	LIB	II- A	ST	I-CA	SEM
	II- A	SEM	II- CA	SEM	II- B	SEM	II- B	PV	II- A	SEM
	II- B	SEM	III- A	GR	II- CA	SEM	III- A	TAX	II- CA	LIB
	II- CA	KPL	III- B	GV	III- A	LIB	III- B	BK	III- A	GD
	III- A	BR	III- CA	BR	III- B	SEM	III- CA	AM	III- B	LIB
	III- B	CA	I-M	KPL	III- CA	NR	I-M	NR	III- CA	GD
	III- CA	BK	II-M	AM	I-M	ECO	II-M	GV	I-M	CA
	I-M	GR			II-M	PV			II-M	LAB
	II-M	MG			II-Maths	SP				

KPL - K.PUSHPALATHA CA - C,AMIRTHA RANI PV - P.VENUGOPAL NR - N.RAJ MG - M.GOPANASAMY
SP - S.PONNAIYAN GR - G.RAVINDRAN BR - B.RAJASEKARAN BK - B.KANAGARAJ ST - S.THINAKARAN
AM - A.MURUGANANTHAM MK - M.KAVITHA

HOD

CHIKKANNA GOVERNMENT ARTS COLLEGE, TIRUPUR - 641 602

PG AND RESEARCH DEPARTMENT OF COMMERCE

TIME TABLE FOR II, IV, VI SEMESTERS - 2020-2021

DAY	1		2		3		4		5	
I	I- A	MG	I- A	SP	I-CA	SEM	II- A	PV	I- B	MG
	I- B	SP	II- A	MK	II- A	LAB	II- B	GV	II- B	MK
	I-CA	AM	II- B	LIB	II- CA	LIB	II- CA	MG	II- CA	SEM
	II- A	BK	II- CA	BR	III- A	AM	III- A	GR	III- A	ST
	II- B	ST	III- A	KPL	III- B	CA	III- B	ST	III- B	BK
	II- CA	NR	III- B	GV	III- CA	BR	III- CA	NR	III- CA	AM
	III- A	GV	III- CA	LAB	I-M	NR	I-M	LAB	I-M	LAB
	III- B	GR	I-M	GR	II-M	MG	II-M	PROJECT	II-M	PROJECT
	III- CA	LAB	II-M	PV			II-Maths	SP		
	I-M	CA								
	II-M	KPL								
II	I- A	SP	I-CA	AM	I-CA	SEM	I- A	MG	II- A	LAB
	I- B	MG	II- B	BK	II- A	GV	I- B	SP	II- B	MK
	II- A	ST	II- CA	NR	II- B	ST	II- A	LAB	II- CA	BR
	II- B	SEM	III- A	LAB	II- CA	LIB	II- CA	PV	III- A	BK
	II- CA	MK	III- B	GR	III- A	CA	III- A	GR	III- B	AM
	III- A	LAB	III- CA	SP	III- B	KPL	III- B	GV	III- CA	NR
	III- B	BK	I-M	KPL	III- CA	AM	III- CA	MK	I-M	PV
	III- CA	BR	II-M	MG	I-M	LAB	I-M	CA	II-M	PROJECT
	I-M	GR			II-M	BR	II-M	PROJECT		
	II-M	PV								
III	I- B	SP	I- A	SP	II- A	ST	II- A	SEM	I- A	MG
	I-CA	LAB	I- B	MG	II- B	LAB	II- B	ST	II- A	SEM
	II- A	BK	I-CA	LAB	II- CA	SEM	II- CA	LAB	II- B	MK
	II- B	SEM	II- CA	BR	III- A	SEM	III- A	BK	II- CA	LAB
	II- CA	MK	III- A	CA	III- B	GR	III- B	SEM	III- A	GR
	III- A	GV	III- B	BK	III- CA	AM	III- CA	MK	III- B	GV
	III- B	ST	III- CA	NR	I-M	KPL	I-M	GR	III- CA	SP
	III- CA	BR	I-M	PV	II-M	MC	II-M	PROJECT	I-M	NR
	I-M	CA	II-M	KPL					II-M	PROJECT
	II-M	PV								
IV	I-CA	AM	I- A	MG	I- A	SEM	II- B	GV	I- B	SEM
	II- A	ST	II- A	MK	I- B	MG	II- CA	BR	II- A	PV
	II- B	SEM	II- B	SEM	I-CA	AM	III- A	KPL	II- CA	SEM
	II- CA	LIB	II- CA	LAB	II- A	LIB	III- B	LAB	III- A	GV
	III- A	BK	III- A	ST	II- B	BK	III- CA	AM	III- B	LAB
	III- B	GR	III- B	GV	II- CA	LAB	I-M	NR	III- CA	LIB
	III- CA	NR	III- CA	BR	III- A	GR	II-M	PROJECT	I-M	MG
	I-M	LAB	I-M	CA	III- B	CA			II-M	PROJECT
	II-M	BR	II-M	PV	III- CA	SP				
	II-Maths	SP			I-M	PV				
					II-M	KPL				

V	I- A	MG	I-CA	SEM	I- B	SEM	II- A	GV	I- A	SEM
	I- B	SEM	II- A	LIB	II- A	ST	II- CA	BR	II- A	SEM
	I-CA	AM	II- B	LAB	II- B	LAB	III- A	GR	II- B	PV
	II- B	SEM	II- CA	GD	II- CA	PV	III- B	KPL	II- CA	GV
	II- CA	NR	III- A	BK	III- A	CA	III- CA	NR	III- A	ST
	III- A	GV	III- B	GR	III- B	BK	I-M	LAB	III- B	LIB
	III- B	LAB	III- CA	MK	III- CA	SP	II-M	PROJECT	III- CA	AM
	III- CA	BR	I-M	KPL	I-M	NR	II-Maths	SP	I-M	LAB
	I-M	GR	II-M	BR	II-M	MG			II-M	PROJECT
	II-M	PV								
VI	I- A	SP	I-CA	AM	I- A	SEM	I- B	SP	I-CA	LAB
	I- B	MG	II- A	SEM	I-CA	LAB	II- A	MK	II- A	SEM
	II- A	BK	II- B	PV	II- B	SEM	II- B	LIB	II- B	ST
	II- CA	BR	II- CA	GD	II- CA	LIB	II- CA	Mgt	II- CA	SEM
	III- A	ST	III- A	BK	III- A	LAB	III- A	GV	III- A	LIB
	III- B	AM	III- B	ST	III- B	GV	III- B	CA	III- B	BK
	III- CA	LAB	III- CA	LAB	III- CA	BR	III- CA	NR	III- CA	SP
	I-M	GR	I-M	CA	I-M	NR	I-M	KPL	I-M	PV
	II-M	KPL	II-M	MG	II-M	PV	II-M	PROJECT	II-M	PROJECT

KPL - K.PUSHPALATHA CA - C,AMIRTHA RANI PV - P.VENUGOPAL NR - N.RAJA MG - M.GOPANASAMY SP - S.PONNAIYAN GR - G.RAVINDRAN BR - B.RAJASEKARAN BK - B.KANAGARAJ ST - S.THINAKARAN AM - A.MURUGANANTHAM MK - M.KAVITHA

HOD

CHIKKANNA GOVERNMENT ARTS COLLEGE, TIRUPUR

DEPARTMENT OF INTERNATIONAL BUSINESS

TIME TABLE FOR I, III, V SEMESTERS (2020- 2021)

DAY	1	8.45-9.40	2	9.40-10.35	3	10.45-11.40	4	11.40-12.35	5	12.35-1.30
I	I UG	SEM	I UG	SEM	I UG	TAMIL	I UG	CLP	I UG	ENGLISH
	II UG	GC	II UG	VM	II UG	VM	II UG	MATHS	II UG	CM
	III UG	BG	III UG	BG	III UG	GC	III UG	CM	III UG	VM
	I PG	CM	I PG	GC	I PG	BG	I PG	VM	I PG	BG
	II PG	VM	II PG	CM	II PG	CM	II PG	GC	II PG	GC
II	I UG	GC	I UG	TAMIL	I UG	CLP	I UG	SEM	I UG	GC
	II UG	VM	II UG	VM	II UG	GC	II UG	VM	II UG	CM
	III UG	BG	III UG	BG	III UG	VM	III UG	VM	III UG	VM
	I PG	CM	I PG	GC	I PG	BG	I PG	BG	I PG	BG
	II PG	GC	II PG	CM	II PG	SEM	II PG	SEM	II PG	LIB
III	I UG	VM	I UG	GC	I UG	GC	I UG	VM	I UG	LIB
	II UG	MATHS	II UG	SEM	II UG	VM	II UG	CM	II UG	GC
	III UG	GC	III UG	VM	III UG	LIB	III UG	BG	III UG	BG
	I PG	BG	I PG	BG	I PG	CM	I PG	GC	I PG	VM
	II PG	CM	II PG	CM	II PG	BG	II PG	SEM	II PG	SEM
IV	I UG	TAMIL	I UG	LIB	I UG	GC	I UG	CM	I UG	CM
	II UG	CM	II UG	GC	II UG	MATHS	II UG	YOGA	II UG	GC
	III UG	VM	III UG	VM	III UG	BG	III UG	GC	III UG	CM
	I PG	BG	I PG	BG	I PG	CM	I PG	VM	I PG	VM
	II PG	GC	II PG	CM	II PG	VM	II PG	BG	II PG	LIB
V	I UG	VM	I UG	VM	I UG	CM	I UG	GC	I UG	TAMIL
	II UG	CM	II UG	GC	II UG	VM	II UG	YOGA	II UG	SEM
	III UG	BG	III UG	BG	III UG	GC	III UG	CM	III UG	CM
	I PG	GC	I PG	CM	I PG	BG	I PG	VM	I PG	LIB
	II PG	SEM	II PG	SEM	II PG	SEM	II PG	SEM	II PG	VM
VI	I UG	GC	I UG	VM	I UG	VM	I UG	CLP	I UG	LIB
	II UG	VM	II UG	MATHS	II UG	GC	II UG	LIB	II UG	CM
	III UG	GC	III UG	CM	III UG	CM	III UG	BG	III UG	BG
	I PG	CM	I PG	GC	I PG	SEM	I PG	SEM	I PG	GC
	II PG	BG	II PG	BG	II PG	SEM	II PG	SEM	II PG	SEM

C.M - C.MALLESHWARAN, GC - G.CHANDRASEKARAN, VM - V.MANIMEKALAI, BG - B.GIRIJA.

R. Ponyodi

HOD (i/c)

HOD-COMMERCE (IB)
Chikkanna Govt Arts College,
TIRUPPUR

CHIKKANNA GOVERNMENT ARTS COLLEGE, TIRUPUR

DEPARTMENT OF INTERNATIONAL BUSINESS

TIME TABLE FOR II, IV, VI SEMESTERS (2020 - 2021)

DAY	1	8.45-9.40	2	9.40-10.35	3	10.45-11.40	4	11.40-12.35	5	12.35-1.30
I	I UG	VM	I UG	VM	I UG	CM	I UG	GC	I UG	LIB
	II UG	GC	II UG	BG	II UG	VM	II UG	VM	II UG	VM
	III UG	CM	III UG	GC	III UG	SEM	III UG	LAB	III UG	LAB
	I PG	RP	I PG	SEM	I PG	LAB	I PG	LAB	I PG	GC
	II PG	BG	II PG	CM	II PG	SEM	II PG	BG	II PG	LIB
II	I UG	CM	I UG	CM	I UG	GC	I UG	BG	I UG	CLP
	II UG	VM	II UG	TAMIL	II UG	BG	II UG	CM	II UG	GC
	III UG	BG	III UG	VM	III UG	CM	III UG	STAT	III UG	LIB
	I PG	GC	I PG	BG	I PG	SEM	I PG	VM	I PG	BG
	II PG	SEM	II PG	RP	II PG	RP	II PG	GC	II PG	RP
III	I UG	GC	I UG	CM	I UG	VM	I UG	VM	I UG	LIB
	II UG	VM	II UG	VM	II UG	GC	II UG	STAT	II UG	RP
	III UG	BG	III UG	BG	III UG	CM	III UG	GC	III UG	VM
	I PG	CM	I PG	GC	I PG	BG	I PG	RP	I PG	LIB
	II PG	LIB	II PG	LIB	II PG	RP	II PG	RP	II PG	RP
IV	I UG	ENG	I UG	VM	I UG	VM	I UG	CLP	I UG	CM
	II UG	GC	II UG	BG	II UG	STAT	II UG	VM	II UG	VM
	III UG	VM	III UG	CM	III UG	GC	III UG	GC	III UG	LIB
	I PG	BG	I PG	GC	I PG	BG	I PG	SEM	I PG	RP
	II PG	PRO	II PG	PRO	II PG	PRO	II PG	PRO	II PG	PRO
V	I UG	VM	I UG	GC	I UG	CM	I UG	ENG	I UG	TAMIL
	II UG	VM	II UG	RP	II UG	GC	II UG	STAT	II UG	LIB
	III UG	BG	III UG	BG	III UG	VM	III UG	GC	III UG	CM
	I PG	GC	I PG	RP	I PG	BG	I PG	SEM	I PG	SEM
	II PG	CM	II PG	VM	II PG	SEM	II PG	VM	II PG	VM
VI	I UG	GC	I UG	ENG	I UG	LIB	I UG	LIB	I UG	GC
	II UG	RP	II UG	GC	II UG	GC	II UG	STAT	II UG	LIB
	III UG	SEM	III UG	CM	III UG	VM	III UG	SEM	III UG	VM
	I PG	BG	I PG	GC	I PG	LAB	I PG	LAB	I PG	LAB
	II PG	PRO	II PG	PRO	II PG	PRO	II PG	PRO	II PG	PRO

C.M - C.MALLESHWARAN, GC - G.CHANDRASEKARAN, VM - V.MANIMEKALAI, BG - B.GIRIJA-RP-R.POONGODI

R. Poongodi

HOD (i/c)

HOD-COMMERCE (IB)
Chikkanna Govt Arts College,
TIRUPPUR

Chikkanna Government Arts College, Tirupur – 641 602

Department of Business Administration

Time Table for the Odd Semester 2020-21

DAY	1	9.15	2	10.05	3	10.55	4	11.45	5	12.35
I	I BBA	AJ	I BBA	AJ	I BBA	*TM*	I BBA	LAB	I BBA	LIB
	II BBA	*MVC*	II BBA	KP	II BBA	AJ	II BBA	MVC	II BBA	KP
	III BBA	KP	III BBA	*MVC*	III BBA	SEMINAR	III BBA	AJ	III BBA	AJ
II	I BBA	KP	I BBA	*TM*	I BBA	AJ	I BBA	DIVYA	I BBA	KP
	II BBA	*MVC*	II BBA	LAB	II BBA	LAB	II BBA	AJ	II BBA	CASE STUDY
	III BBA	AJ	III BBA	KP	III BBA	*MVC*	III BBA	*MVC*	III BBA	AJ
III	I BBA	KP	I BBA	DIVYA	I BBA	AJ	I BBA	LAB	I BBA	AJ
	II BBA	*MVC*	II BBA	lab	II BBA	*lab*	II BBA	KP	II BBA	MVC
	III BBA	AJ	III BBA	*MVC*	III BBA	KP	III BBA	AJ	III BBA	KP
IV	I BBA	SM	I BBA	*TM*	I BBA	KP	I BBA	DIVYA	I BBA	AJ
	II BBA	AJ	II BBA	KP	II BBA	*MVC*	II BBA	PRACTICAL	II BBA	MVC
	III BBA	KP	III BBA	AJ	III BBA	PRACTICAL	III BBA	*MVC*	III BBA	KP
V	I BBA	KP	I BBA	*TM*	I BBA	PM	I BBA	LIB	I BBA	MVC
	II BBA	*MVC*	II BBA	KP	II BBA	lab	II BBA	AJ	II BBA	AJ
	III BBA	AJ	III BBA	MVC	III BBA	*MVC*	III BBA	KP	III BBA	*CASE STUDY*
VI	I BBA	KP	I BBA	KP	I BBA	AJ	I BBA	*SS*	I BBA	SEMINAR
	II BBA	AJ	II BBA	MVC	II BBA	LAB	II BBA	KP	II BBA	KP
	III BBA	*MVC*	III BBA	AJ	III BBA	*MVC*	III BBA	AJ	III BBA	AJ

MVC.DR,M,VIJAYACHITRA ,AJ-DR,A.JELINCE DHINAKAR ,PROF . PRIYANKA,SS-PROF.SHANKAR,SP-MS.SHANMUGHPRIYA, SM -Ms .S,MAHESHWARI

Chikkanna Government Arts College, Tirupur – 641 602

Department of Business Administration

Time Table for the EVEN Semester 2020-21

DAY	1	9.15	2	10.05	3	10.55	4	11.45	5	12.35
I	I BBA	MVC	I BBA	KP	I BBA	*MVC*	I BBA	PM	I BBA	DV
	II BBA	*AJ*	II BBA	MVC	II BBA	KP	II BBA	LAB	II BBA	LIB
	III BBA	PRIYANKA	III BBA	*AJ*	III BBA	RESEARCH	III BBA	AJ	III BBA	MVC
II	I BBA	KP	I BBA	*SS*	I BBA	MVC	I BBA	PM	I BBA	DIVYA
	II BBA	MVC	II BBA	LAB	II BBA	*AJ*	II BBA	LAB	II BBA	MVC
	III BBA	AJ	III BBA	MVC	III BBA	*KP*	III BBA	*RESEARCH*	III BBA	AJ
III	I BBA	EE	I BBA	RM	I BBA	SS	I BBA	DIVYA	I BBA	MVC
	II BBA	KP	II BBA	lab	II BBA	*AJ*	II BBA	MVC	II BBA	SEMINAR
	III BBA	RESEARCH	III BBA	*AJ*	III BBA	MVC	III BBA	AJ	III BBA	KP
IV	I BBA	RM	I BBA	*MS.DIVYA*	I BBA	SS	I BBA	MVC	I BBA	AJ
	II BBA	AJ	II BBA	*AJ*	II BBA	KP	II BBA	AJ	II BBA	CASE STUDY
	III BBA	MVC	III BBA	RESEARCH	III BBA	MVC	III BBA	*KP*	III BBA	PRACTICAL
V	I BBA	MS.DIVYA	I BBA	*SS*	I BBA	MVC	I BBA	KP	I BBA	PM
	II BBA	KP	II BBA	MVC	II BBA	*AJ*	II BBA		II BBA	AJ
	III BBA	*AJ*	III BBA	AJ	III BBA	KP	III BBA	PRACTICAL	III BBA	*MVC*
VI	I BBA	MS.DIVYA	I BBA	MVC	I BBA	SS	I BBA	*RM*	I BBA	KP
	II BBA	*AJ*	II BBA	AJ	II BBA	MVC	II BBA	PRACTICAL	II BBA	SEMINAR
	III BBA	*KP*	III BBA	KP	III BBA	*AJ*	III BBA	AJ	III BBA	RESEARCH

MVC.DR,M,VIJAYACHITRA ,AJ-DR,A.JELINCE DHINAKAR ,PROF . PRIYANKA,SS-PROF.SEKAR,PM-MS.PONMARI,DV=PROF .DIVYA

HOD

SYLLABUS

B. A. Tamil

Syllabus

AFFILIATED COLLEGES

Program Code: 21A

2020 – 2021 onwards

BHARATHIAR UNIVERSITY

(A State University, Accredited with "A" Grade by NAAC,
Ranked 13th among Indian Universities by MHRD-NIRF,
World Ranking : Times - 801-1000, Shanghai - 901-1000, URAP - 982)

Coimbatore - 641 046, Tamil Nadu, India

Program Educational Objectives (PEOs)	
The **B.A TAMIL** program describe accomplishments that graduates are expected to attain within five to seven years after graduation	
PEO1	எழுத்தாற்றல் மற்றும் படைப்பாக்கத் திறனை பெற வைத்தல்
PEO2	இலக்கிய நயங்களை அறியச் செய்தல்
PEO3	மொழி பெயர்ப்பு திறனை வளர்த்தல்
PEO4	சமூக மாற்றத்திற்கான காரணங்களைப் புரிய வைத்தல்
PEO5	கற்றலின் புதிய தொழில்நுட்பத் திறனை வளர்த்தல்
PEO6	பண்பாட்டு உணர்வை ஏற்படுத்துதல்
PEO7	சங்க கால மக்களின் வாழ்க்கை நிலையை அறிய வைத்தல்
PEO8	நாட்டுப்புற மக்களின் கலை வடிவங்களை எடுத்துரைத்தல்
PEO9	சித்தர்களின் ஆளுமையை உணர வைத்தல்
PEO10	அரசுப் போட்டித் தேர்வுகளில் பங்கேற்கும் திறன் வளர்த்தல்

Program Specific Outcomes (PSOs)	
After the successful completion of BA TAMIL program, the students are expected to	
PSO1	இலக்கிய இலக்கண வகைமைகளை அறிதல்
PSO2	மொழி ஆளுமைத் திறன் பெறுதல்
PSO3	மொழிபெயர்ப்பு கலையில் மேம்பாடு உடையவர்களாக திகழ்தல்
PSO4	கல்வெட்டுகளை வாசிப்பதற்கான திறன் பெறுதல்
PSO5	கலைகளின் நுட்பங்களை உணர்ந்து கொள்ளுதல்
PSO6	கணினி நுட்பங்களை அறிதல்
PSO7	நாடகத்தின் மெய்ப்பாடுகளை அறிந்து கொள்ளுதல்
PSO8	இலக்கிய ஒப்பீட்டுத் திறனைப் பெறுதல்
PSO9	திறனாய்வு முறையினை அறிதல்
PSO10	தமிழரின் பண்பாட்டுக் கூறுகளைத் தெரிந்துக் கொள்ளுதல்

Program Outcomes (POs)	
On successful completion of the B.A TAMIL program	
PO1	வாழ்க்கை நெறிமுறையை அறிந்து கொள்ளுதல்
PO2	மொழி ஆளுமைப் பெறுதல்
PO3	சமூக சிந்தனையைப் பெறுதல்
PO4	இலக்கியப் படைப்பாக்கத் திறனை வளர்த்தல்
PO5	நாட்டுப் புற மக்களின் பண்பாட்டை அறிதல்
PO6	சுற்றுச்சூழல் பாதுகாப்பின் அவசியத்தை அறிந்து கொள்ளுதல்
PO7	இணையத்தளங்களில் தமிழ் மொழி இடம் பெறும் நிலையினைத் அறிதல்
PO8	அகழ்வாராய்ச்சி குறித்த சிந்தனைகளை வளர்த்தல்
PO9	காப்பியங்களின் வழி சமூக அமைப்பினை அறிதல்
PO10	அரசு போட்டித் தேர்வுகளில் கலந்து கொள்ளும் திறன் பெறுதல்

பாரதியார் பல்கலைக்கழகம் : கோயம்புத்தூர் 641 046

BA TAMIL Curriculum (Affitiated college)

(For the students admitted during the academic year 2020 – 21 onwards)

Course Code	Title of the Course	Credits	Hours		Maximum Marks		
			Theory	Practical	CIA	ESE	Total
FIRST SEMESTER							
	Language-1	4	6		25	75	100
	English - 1	4	6		25	75	100
Core -I	இலக்கியம் - 1 - தற்கால இலக்கியம்	3	5		20	55	75
Core – II	இலக்கியம் - 2 உரைநடை இலக்கியம்	3	5		20	55	75
Allied – I	தமிழ் இலக்கிய வரலாறு -1	4	6		25	75	100
	Envirnomental Studies	2	2		-	50	50
	Total	20	-	-	-	-	500
SECOND SEMESTER							
	Language-II	4	6		25	75	100
	English-II	4	6		25	75	100
Core – III	இலக்கணம் - 1 நன்னூல் எழுத்து	4	5		25	75	100
Core – IV	கணிப்பொறியும் இணையமும்	4	5		25	75	100
Allied-II	தமிழ் இலக்கிய வரலாறு -2	4	6		25	75	100
	Value Education – Human Rights	2	2		-	50	50
	Total	22					550
THIRD SEMESTER							
	Language-III	4	6		25	75	100
	English-III	4	6		25	75	100
Core –V	இலக்கணம் - 2 நன்னூல் சொல்	4	4		25	75	100
Core –VI	இலக்கியம் - 3 பக்தி இலக்கியங்களும் சிற்றிலக்கியங்களும்	4	4		25	75	100
Allied -III	தமிழக வரலாறும் பண்பாடும்-1	4	5		25	75	100
திறன்படிப்பு பாடம் - I	தமிழ் பயிற்றும் முறை நோக்கம்	3	3		20	55	75
	Tamil /Advanced Tamil (OR) Non-major elective-1 (yoga for Human Excellence) /Women's Rights / Indian Constitution	2	2		-	50	50
	Total	25					625
FOURTH SEMESTER							
	Language-IV	4	6		25	75	100
	English-IV	4	6		25	75	100
Core – VII	இலக்கணம் - 3	4	4		25	75	100

	யாப்பருங்கலக்காரிகை (ஒழிபியில் நீங்கலாக) தண்டியலங்காரம்						
Core –VIII	நாட்டுப்புறவியல்	4	4		25	75	100
Allied - IV	தமிழக வரலாறும் பண்பாடும்-2	4	5		25	75	100
திறன் படிப்பு பாடம் - II	மொழிப்பயிற்சிகள்	3	3		20	55	75
	Tamil /Advanced Tamil (OR) Non-major elective-II (General Awarness)	2	2		-	50	50
	Total	25					625
FIVTH SEMESTER							
Core – IX	இலக்கணம் - 4 புறப்பொருள் வெண்பாமாலை, நம்பியகப்பொருள்	4	6		25	75	100
Core – X	காப்பியங்கள்	4	6		25	75	100
XI	இலக்கியத் திறனாய்வு	4	6		25	75	100
Core –XII	பொது மொழியியல்	4	5		25	75	100
Elective -I	அ) மக்கள் ஊடகத் தொடர்பியல் ஆ) நாடகவியல் இ) இதழியல்	4	4		25	75	100
திறன் படிப்பு பாடம் - III	இலக்கணம்	3	3		20	55	75
	Total	23					575
SIXTH SEMESTER							
Core – XIII	சங்க இலக்கியம் - அகம்	4	6		25	75	100
Core – XIV	சங்க இலக்கியம் - புறம்	4	6		25	75	100
Core –XV	தமிழ் மொழி வரலாறு	4	5		25	75	100
Elective - II	அ) ஆட்சித்தமிழ் ஆ) கோயில் கலைகள் இ) இந்தியத் தத்துவம்	4	5		25	75	100
Elective - III	அ) மொழி பெயர்ப்பியல் ஆ) சுற்றுலாவியல் இ) சித்தர் பாடல்கள்	4	5		25	75	100
திறன்படிப்பு -IV	இலக்கியம்	3	3		20	55	75
	Extension activites	2	-		50	-	50
	Grand Total	25					625
		140					3500


First
Semester

முதற் பருவம்

பாடக்குறியீட்டு எண்		பாடத்தலைப்பு	L	T	P	C
முதன்மைப் பாடம்		தாள் - 1 தற்கால இலக்கியம்	5	5	-	3
			பாடப்பிரிவு			

பாட நோக்கம்

1. சமூக மாற்றத்தில் புதுக்கவிதையின் சிறப்பை எடுத்துரைத்தல்
2. சமூக சிந்தனையைத் தூண்டுதல்
3. படைப்பாற்றல் ஆளுமையை வளர்த்தல்

பயன்கள்

1	மொழி ஆளுமைத் திறன் பெறுதல்	K3
2	சமூக சிந்தனையைப் பெறுதல்	K4
3	வாழ்வியல் தொடர்பான அறச் சிந்தனைகளை அறிந்து கொள்ளுதல்	K2
4	கவிதை உருவாக்கும் திறன் பெறுதல்	K6
5	கற்றலுக்குரிய புதிய தொழில் நுட்பங்களை அறிந்து கொள்ளுதல்	K5

K1 - Remember; K2 - Undestand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 – Create

அலகு :1	தத்துவம் -சுயசிந்தனை	14 hours
பாரதியார் கவிதைகள் - கண்ணன் பாட்டு, கண்ணன் என் தோழன், கண்ணன் என் சீடன், கண்ணன் என் சேவகன்		
அலகு :2	குடும்ப அமைப்பு - அன்பு நெறி	14- hours
பாரதிதாசன்- குடும்ப விளக்கு - முதியோர் காதல்		
அலகு:3	பண்பாடு	15- hours
கண்ணதாசன் - தைப்பாவை		
அலகு:4	சுற்றுச் சூழல்	14- hours
சிற்பி பாலசுப்பிரமணியம் - கண்ணாடி சிறகுள்ள ஒரு பறவை		
அலகு:5	சமூகம் -பெண்ணியம்	13- hours
இளம்பிறை -முதல் மனுஷி		
அலகு :6	சம கால சிக்கல்களை மையப்படுத்தி வலைத்தளக் கருத்தரங்கம் நடத்துதல், துறை வல்லுநர்களை அழைத்து பயிலரங்கம் நடத்துதல்	2- hours
	Total Lecture hours	72- hours

பாடநூல்கள்

1. பாரதியார் கவிதைகள், மணிவாசகர் பதிப்பகம், சென்னை.
2. பாரதிதாசன் கவிதைகள் பாரி நிலையம், சென்னை.
3. கண்ணதாசன்- தைப்பாவை, வானதி பதிப்பகம், சென்னை.
4. சிற்பி பாலசுப்பிரமணியம், கண்ணாடிசிறகுள்ள ஒரு பறவை, கவிதா பதிப்பகம், சென்னை.
5. இளம்பிறை, முதல்மனுஷி, சாரதி நகர், என.'.பில் அவன்யு, மடிப்பாக்கம், சென்னை.

பார்வை நூல்கள்

1. வல்லிக்கண்ணன், புதுக்கவிதையின் தோற்றமும் வளர்ச்சியும், பாரிநிலையம், சென்னை.
2. புதுயுகக் கவிஞன் பாரதி, நஞ்சுண்டன், இயல் பதிப்பகம், தஞ்சாவூர்.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1. www.tamilvu.org
2.

Course Designed By:
முனைவர் க.மலர்விழி
இணைப்பேராசிரியர் மற்றும் துறைத்தலைவர்
தமிழ்த்துறை
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Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	M	S	M	M	M	M	L	M	M	S
CO3	S	M	M	S	M	S	M	M	M	M
CO3	M	M	M	L	M	M	M	M	S	M
CO4	M	S	M	M	L	M	M	L	M	M
CO5	M	M	S	M	M	L	M	M	S	M

*S-Strong; M-Medium; L-Low

பாடக்குறியீட்டு எண்		பாடத்தலைப்பு	L	T	P	C
முதன்மைப்பாடம்		தாள் - 2 உரைநடை இலக்கியம்	3	-	-	3
			பாடப்பிரிவு			

பாடநோக்கம்

1. சமூக சிந்தனை ஆற்றலை வளர்த்தல்
2. எழுத்தாற்றல் திறனை உருவாக்குதல்
3. இலக்கியத்தின் வழி அறிவியல் சிந்தனைகளை உணர்த்துதல்

பயன்கள்

1	வாழ்க்கை சிக்கல்களை எதிர்கொள்ளும் திறனைப் பெறுதல்	K3
2	சிறந்த படைப்பாளியாக உருவாகுதல்	K6
3	அடித்தள மக்களின் வாழ்க்கை அனுபவத்தைப் புரிந்து கொள்ளுதல்	K2
4	சமூக மாற்றங்களை உணர்ந்து கொள்ளுதல்	K5
5	அரசுப் போட்டித் தேர்வில் கலந்து கொள்ளும் தகுதியைப் பெறுதல்	K1 K4

K1 - Remember; **K2** - Undestand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

அலகு:1	**பெண்ணியம்**	**14- hours**
டாக்டர் மு.வரதராசனார் - பெண்மை வாழ்க, பாரிநிலையம், சென்னை.		
அலகு:2	**அறிவியல் தமிழ்**	**14-- hours**
டாக்டர் வா.செ.குழந்தைசாமி – பாரதியின் அறிவியல் பார்வை, பாரதி பதிப்பகம்,சென்னை		
அலகு:3	**சுற்றுச்சூழல் பாதுகாப்பு**	**14-- hours**
சுப்பிரபாரதிமணியன் - சூழல் அறம், நியூ செஞ்சுரி புக்ஹவுஸ் வெளியீடு,		
அலகு:4	**சமூகம்**	**14- hours**
நாவல் - கீதாரி, சு.தமிழ்செல்வி நியூ செஞ்சுரி புக்ஹவுஸ் வெளியீடு		
அலகு:5	**சமூகம்**	**14-- hours**
நாடகம் - சாபம்! விமோசனம்? – மு. இராமசுவாமி, செண்பகம் இராமசுவாமி, நியூ செஞ்சுரி புக்ஹவுஸ் வெளியீடு, சென்னை.		
அலகு:6	**சம கால சிக்கல்களை மையப்படுத்தி வலைத்தளக் கருத்தரங்கம் நடத்துதல்** **துறை வல்லுநர்களை அழைத்து பயிலரங்கம் நடத்துதல்.**	**2 hours**
	Total Lecture hours	**72-- hours**

பாடநூல்கள்

1	டாக்டர் மு.வரதராசனார் - பெண்மை வாழ்க, பாரிநிலையம், சென்னை
2	டாக்டர் வா.செ.குழந்தைசாமி – பாரதியின் அறிவியல் பார்வை, பாரதி பதிப்பகம், சென்னை.
3	சுப்பிரபாரதிமணியன் - சூழல் அறம், நியூ செஞ்சுரி புக்ஹவுஸ் வெளியீடு, சென்னை.
4	நாவல் - கீதாரி, சு.தமிழ்செல்வி, நியூ செஞ்சுரி புக்ஹவுஸ் வெளியீடு, சென்னை.
5	நாடகம் - சாபம்! விமோசனம்? – மு. இராமசுவாமி செண்பகம் இராமசுவாமி, நியூ செஞ்சுரி புக்ஹவுஸ் வெளியீடு, சென்னை.

பார்வை நூல்கள்

1	தா.ஏ. ஞானமூர்த்தி, இலக்கியத் திறனாய்வியல், ஐந்திணைப்பதிப்பகம், சென்னை.
2	கா.சிவத்தம்பி, நாவலும் வாழ்க்கையும், தமிழ்ப்புத்தகாலயம், சென்னை

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	www.tamilvu.org

2	www.noolagam.com

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Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	M	S	M	M	L	M	S	M	M	S
CO3	S	M	M	L	M	L	M	M	M	M
CO3	M	M	M	S	M	L	M	M	M	S
CO4	M	S	M	M	L	M	M	L	M	M
CO5	M	M	L	M	M	L	M	M	L	S

*S-Strong; M-Medium; L-Low

பாடக்குறியீட்டு எண்		பாடத்தலைப்பு	L	T	P	C
துணைப்பாடம்		தமிழ் இலக்கிய வரலாறு – 1	4	-	-	4
			பாடப்பிரிவு			

பாடநோக்கம்

1. தமிழ் மொழியின் தொன்மையையும் பெருமையையும் உணர்த்தல்
2. மொழி அறிவு பெறப் பயற்சி அளித்தல்
3. அற வழிச் சிந்தனைகளை வளர்த்தல்

பயன்கள்

1	தமிழ் மொழியின் தோற்றம் குறித்து அறிதல்	K2
2	சங்க கால மக்களின் வாழ்க்கை நிலையோடு இன்றைய வாழ்க்கையைப் பொருத்திப் பார்த்தல்	K3 K5
3	தொல்காப்பியம் உணர்த்தும் வாழ்வியல் நெறிகளை அறிதல்	K3
4	காப்பியங்கள் வழி அறச்சிந்தனைகளை உணர்தல்	K4
5	அரசுப் போட்டித்தேர்வு குறித்த விழிப்புணர்வுப் பெறுதல்	K3 K5

K1 - Remember; **K2** - Undestand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

அலகு:1		**13 hours**
சங்ககாலம் - தமிழின் தொன்மை - தொல்காப்பியம் - தொகை நூல் வரலாறு-எட்டுத்தொகை		
அலகு:2		**14 hours**
பத்துப்பாட்டு - சிலப்பதிகாரம் -மணிமேகலை		
அலகு:3		**15 hours**
சங்கம் மருவிய காலம் - பதினெண் கீழ்க்கணக்கு நூல்கள்		
அலகு:4		**14 hours**
காரைக்கால் அம்மையார் நூல்கள் -திருமந்திரம்- முத்தொள்ளாயிரம்		
அலகு:5		**14 hours**
பல்லவர் காலம் -பக்தி இலக்கியம் -சைவ இலக்கியம் -வைணவ இலக்கியம்		
அலகு:6	**சம கால சிக்கல்களை மையப்படுத்தி வலைத்தளக் கருத்தரங்கம் நடத்துதல்** **துறை வல்லுநர்களை அழைத்து பயிலரங்கம் நடத்துதல்.**	**2 hours**
	Total Lecture hours	**72 hours**

பாடநூல்

1. டாக்டர் பூவண்ணன் - தமிழ் இலக்கிய வரலாறு, வர்த்தமானன் பதிப்பகம், சென்னை.

பார்வை நூல்கள்

1. மு.வரதராசனார் - தமிழ் இலக்கிய வரலாறு, சாகித்ய அகாதெமி, சென்னை.
2. க.ஐயப்பன் - தமிழ் மொழி- இலக்கிய வரலாறு, சுபா பதிப்பகம், சென்னை
3. முனைவர் சுபாஷ் சந்திரபோஷ், தமிழ் இலக்கிய வரலாறு, பாவைப் பதிப்பகம், சென்னை 600014
4. தெ.வாசுகி – தமிழ் இலக்கிய வரலாறு, நியூ செஞ்சுரி புக் ஹவுஸ், சென்னை

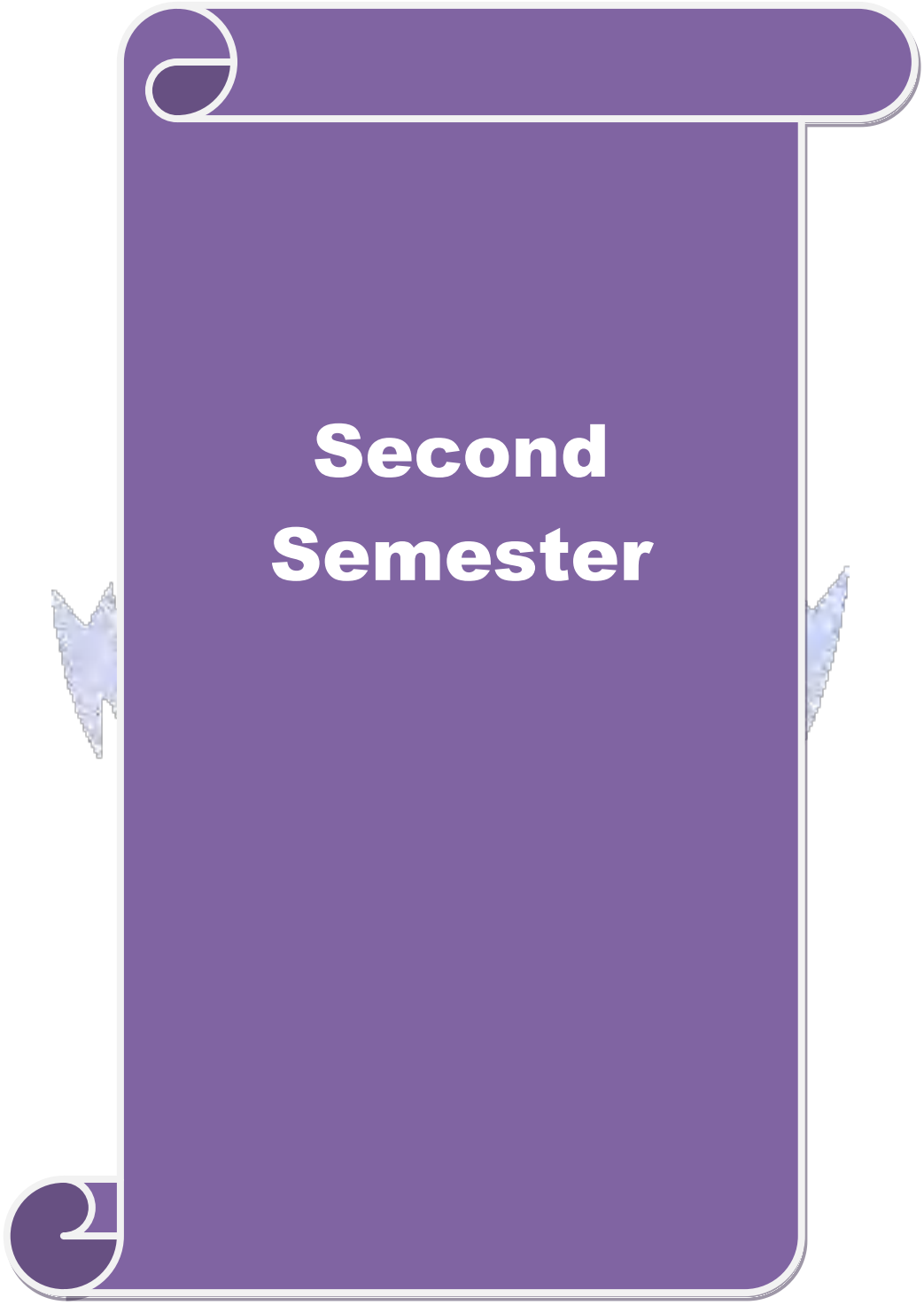
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1. www.tamilvu.org
2. www.noolulagam.com

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Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	M	M	M	M	M	M	S	M	M	S
CO3	S	M	M	L	M	L	M	M	M	M
CO3	M	M	M	S	M	M	M	M	M	M
CO4	M	S	M	M	L	M	M	L	M	M
CO5	M	M	L	M	M	S	M	M	S	L

*S-Strong; M-Medium; L-Low


Second
Semester

பாடக்குறியீட்டு எண்		பாடத்தலைப்பு	L	T	P	C
முதன்மைப்பாடம்		தாள் - 3 நன்னூல் - எழுத்ததிகாரம்	4		-	4
			பாடப்பிரிவு			

பாட நோக்கம்

1. தமிழ் இலக்கணத்தின் தொன்மையை அறிதல்
2. தமிழ் உச்சரிப்புத் திறனை வளர்த்தல்
3. மொழி ஆற்றலை மேம்படுத்துதல்

பயன்கள் :

1	தமிழ் மொழியைப் பிழையில்லாமல் பேசவும் எழுதவும் அறிதல்	K3
2	தமிழ் எழுத்துக்களின் பிறப்பினை அறிந்து கொள்ளுதல்	K1 K2
3	தமிழ் இலக்கண மரபினை உணர்ந்து கொள்ளுதல்	K3
4	சொல், பொருள் வேறுபாட்டினை உணர்தல்	K4
5	போட்டித்தேர்வுகளில் கலந்து கொள்ளும் திறனைப் பெறுதல்	K5

K1 - Remember; **K2** - Undestand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

அலகு:1		**13 hours**
	பாயிரம்	
அலகு:2		**14 hours**
	எழுத்தியல்	
அலகு:3		**15 hours**
	பதவியல்	
அலகு:4		**14 hours**
	உயிரீற்றுப்புணரியல்	
அலகு:5		**14 hours**
	மெய்யீற்றுப் புணரியல், உருபு புணரியல்	
அலகு:6	**சம கால சிக்கல்களை மையப்படுத்தி வலைத்தளக் கருத்தரங்கம் நடத்துதல்** **துறை வல்லுநர்களை அழைத்து பயிலரங்கம் நடத்துதல்**	**2 hours**
	Total Lecture hours	**72 hours**

பாடநூல்

1. நன்னூல் - எழுத்ததிகாரம் (காண்டிகையுரை), கழக வெளியீடு.

பார்வை நூல்கள்

1. மயிலைநாதர் நன்னூல் உ.வே.சாமிநாதையர் நூல் நிலையம், சென்னை.
2. தாமோதரன்.அ - நன்னூல் - மூலமும் விருத்தியுரையும், உலக தமிழாராய்ச்சி நிறுவனம், சென்னை

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1. www.tamilvu.org

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Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	M	M	M	M	M	M	S	M	M	S
CO3	S	M	M	L	M	L	M	M	M	M
CO3	M	M	M	S	M	M	M	M	M	M
CO4	M	S	M	M	L	M	M	L	M	M
CO5	M	M	L	M	M	S	M	M	S	L

*S-Strong; M-Medium; L-Low

பாடக்குறியீட்டு எண்		பாடத்தலைப்பு	L	T	P	C
முதன்மைப்பாடம்		கணிப்பொறியும் இணையமும்	4	-	-	4
			பாடப்பிரிவு			

பாடநோக்கம்

1. தகவல் தொடர்பு சாதனங்களைப் பற்றி அறியச் செய்தல்
2. தொழில்நுட்ப அறிவை வளர்த்தல்.
3. கணினி மொழியைக் கற்றுக் கொள்ளுதல்.

பயன்கள்:

1	தகவல் தொடர்புச் சாதனங்களைப் பற்றிய பரந்து பட்ட அறிவைப் பெறுதல்	K4
2	கணிப்பொறி குறித்த முழுமையான அறிவு பெறுதல்	K3 K5
3	வேலைவாய்ப்பைப் பெறும் திறன் அடைதல்	K3
4	மொழி ஆளுமை பெறல்	K6
5	தகவல் தொடர்பின் நுட்பத்தினை அறிதல்	K2 K1

K1 - Remember; **K2** - Undestand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

அலகு:1		**15 hours**
	கணிப்பொறி அறிமுகம்	
அலகு:2		**13 hours**
	கணிப்பொறி இயங்கும் நெறிமுறை	
அலகு:3		**14 hours**
	கணிப்பொறி மொழி	
அலகு:4		**14 hours**
	இணையம் - அறிமுகம்	
அலகு:5		**14 hours**
	மின்னஞ்சல் - வலைத்தளப் பதிவுகள்	
அலகு:6	**சம கால சிக்கல்களை மையப்படுத்தி வலைத்தளக் கருத்தரங்கம் நடத்துதல்** **துறை வல்லுநர்களை அழைத்து பயிலரங்கம் நடத்துதல்**	**2 hours**
	Total Lecture hours	**72 hours**

பாடநூல்கள்

1. சாந்தலிங்க அடிகளார் - "கணிப்பொறி கற்க", தமிழ்க்கல்லூரி, பேரூர்.
2. மு.இளங்கோவன் - "இணையம் கற்போம்", வயல்வெளி பதிப்பகம், கங்கை கொண்ட சோழபுரம், அரியலூர் மாவட்டம்

பார்வை நூல்கள்

1. முனைவர் இல.சுந்தரம் - கணினித்தமிழ், விகடன் பிரசுரம், சென்னை.
2. பேராசிரியர் மதியழகன் - கணினித்தமிழ் - ஓர் அறிமுகம், பாரி நிலையம் சென்னை.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1. www.tamilvu.org

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Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	M	M	L	M	M	S	M	M	S

CO3	S	M	M	L	M	L	M	M	M	M
CO3	M	M	M	M	L	M	M	M	M	M
CO4	M	S	M	M	L	M	M	L	M	M
CO5	M	M	S	M	M	S	M	M	L	S

*S-Strong; M-Medium; L-Low

பாடக்குறியீட்டு எண்		பாடத் தலைப்பு	L	T	P	C
சார்புப்பாடம்		தாள் - 2 தமிழ் இலக்கிய வரலாறு- 2	4	-	-	4
			பாடப்பிரிவு			

பாட நோக்கம்

1. தமிழ் மொழியின் தொன்மையை அறிய வைத்தல்
2. நாகரிகம் பண்பாட்டினை வளர்த்தல்
3. வேலைவாய்ப்பிற்கான கல்வியை வழங்குதல்

பயன்கள்:

1	தமிழ் மொழியின் தோற்றம் குறித்து அறிதல்	KX
2	சங்க கால மக்களின் வாழ்க்கை நிலையோடு இன்றைய வாழ்க்கையைப் பொருத்திப் பார்த்தல்	KX
3	தொல்காப்பியம் உணர்த்தும் வாழ்வியல் நெறிகளை அறிதல்	KX
4	காப்பியங்கள் வழி அறநெறி முறையைத் தெரிந்து கொள்ளுதல்	KX
5	அரசுப் போட்டித்தேர்வு குறித்த விழிப்புணர்வைப் பெறுதல்	KX

K1 - Remember; **K2** - Undestand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

அலகு:1		**15 hours**
சோழர்காலம் - ஐம்பெரும் காப்பியங்கள் - ஐஞ்சிறுகாப்பியங்கள் - கம்பராமாயணம் - பெரிய புராணம்		
அலகு:2		**14 hours**
நாயக்கர் காலம் - சிற்றிலக்கியங்கள் - தூது, பிள்ளைத்தமிழ், கலம்பகம், குறவஞ்சி, பள்ளு		
அலகு:3		**13 hours**
உரையாசிரியர்கள் - இளம்பூரணர், பேராசிரியர், சேனாவரையர், நச்சினார்க்கினியர், கல்லாடார், அடியார்க்கு நல்லார், பரிமேலழகர், பிற புலவர்கள்		
அலகு:4		**14 hours**
சமயம் வளர்த்த தமிழ் - சமணம், பௌத்தம், இஸ்லாம், கிறித்துவம் ஐரோப்பியர் காலம் - ஐரோப்பியர் வருகை, தமிழ் இலக்கிய மறுமலர்ச்சி, கிறித்துவர் தமிழ் தொண்டு		
அலகு:5		**14 hours**
தற்காலம் - கவிதை, புதுக்கவிதை, உரைநடை, சிறுகதை, நாவல், நாடகம்		
அலகு:6	**சம கால சிக்கல்களை மையப்படுத்தி வலைத்தளக் கருத்தரங்கம் நடத்துதல்** **துறை வல்லுநர்களை அழைத்து பயிலரங்கம் நடத்துதல்**	**2 hours**
	Total Lecture hours	**72 hours**

பாடநூல்

1. டாக்டர் பூவண்ணன் - தமிழ் இலக்கிய வரலாறு –வர்த்தமானன் பதிப்பகம். சென்னை

பார்வை நூல்கள்

1. முனைவர் ச. சுபாஷ் சந்திரபோஷ் - தமிழ் இலக்கிய வரலாறு பாவைப் பதிப்பகம் சென்னை 600014
2. க.ஜயப்பன் - தமிழ் மொழி இலக்கிய வரலாறு, சுபா பதிப்பகம், சென்னை

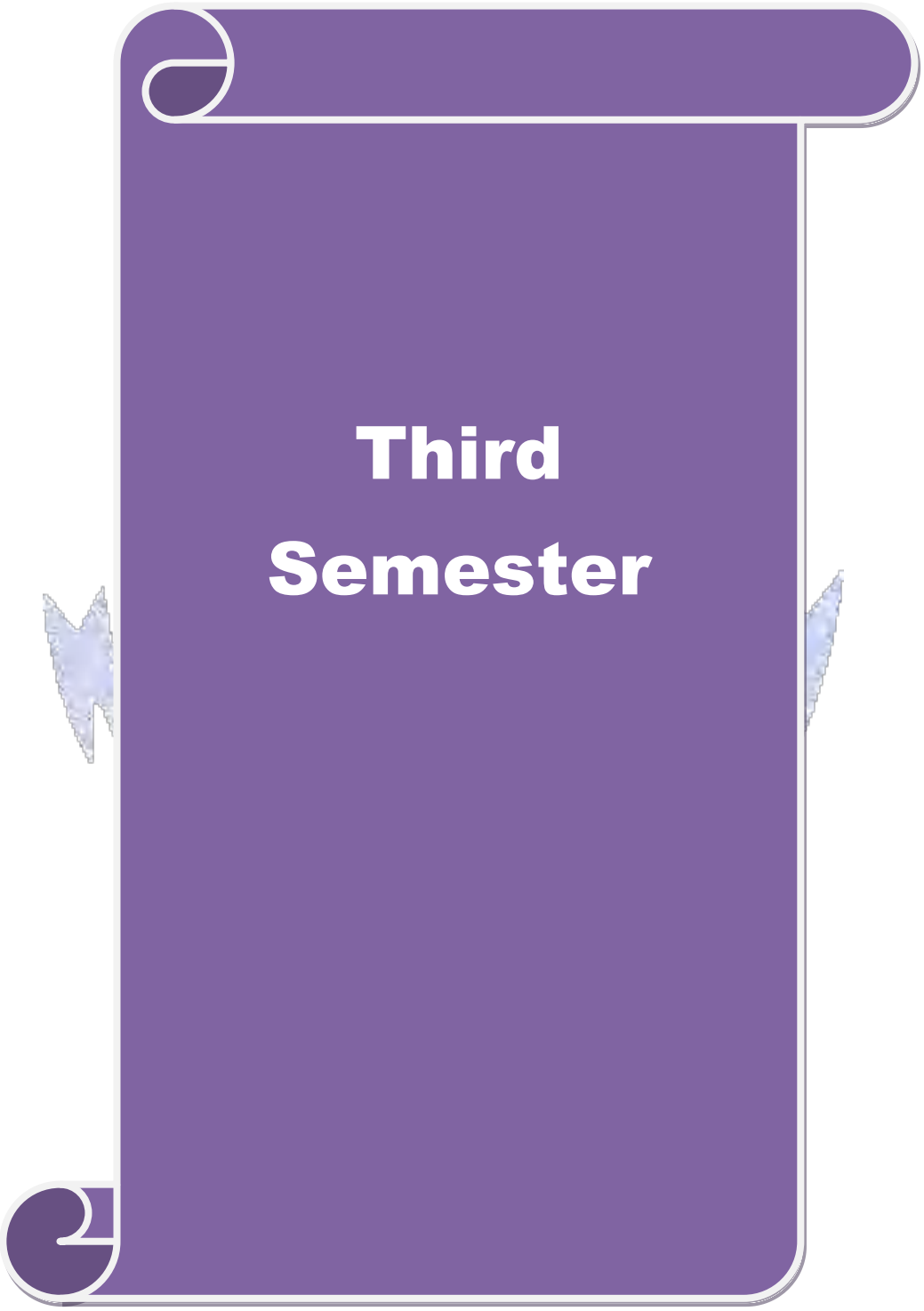
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1. www.tamilvu.org

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Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	M	M	M	S	M	M	S	M	M	S
CO3	S	M	M	M	M	L	M	M	S	M
CO3	M	M	M	S	M	M	M	M	M	M
CO4	M	S	M	S	L	M	M	S	M	M
CO5	M	M	L	M	M	S	M	M	S	L

*S-Strong; M-Medium; L-Low


Third
Semester

பாடக்குறியீட்டு எண்		பாடத்தலைப்பு	L	T	P	C
முதன்மைப் பாடம்		இலக்கணம் - 2 தாள் - நன்னூல் - சொல்லதிகாரம்	4	-	-	4
			பாடப்பிரிவு			

பாட நோக்கம் :

1. தமிழ் இலக்கணத்தின் தொன்மையை அறிதல்
2. தமிழ் உச்சரிப்புத் திறனை வளர்த்தல்
3. மொழி ஆற்றலை மேம்படுத்துதல்

பயன்கள்:

1	தமிழ் மொழியைப் பிழையில்லாமல் பேசவும் எழுதவும் அறிதல்	K1
2	சொல் ஆளுமையை வளர்த்துக் கொள்ளல்	K3
3	சொல் பொருள் வேறுபாட்டினை உணர்தல்	K4
4	தமிழ் மொழியின் சொல் திறம் அறிந்து கொள்ளுதல்	K5
5	போட்டித் தேர்வுகளில் கலந்து கொள்ளும் திறனைப் பெறுதல்	K5

K1 - Remember; **K2** - Undestand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

அலகு:1		**13 hours**
	பெயரியல்	
அலகு:2		**14 hours**
	வினையியல்	
அலகு:3		**15 hours**
	இடையியல்	
அலகு:4		**14 hours**
	உரியியல்	
அலகு:5		**14 hours**
	பொதுவியல்	
அலகு:6	**சம கால சிக்கல்களை மையப்படுத்தி வலைத்தளக் கருத்தரங்கம் நடத்துதல்** **துறை வல்லுநர்களை அழைத்து பயிலரங்கம் நடத்துதல்**	**2 hours**
	Total Lecture hours	**72 hours**

பாட நூல்

1. நன்னூல் - சொல்லதிகாரம் (காண்டிகையுரை) கழக வெளியீடு

பார்வை நூல்கள்

1. மயிலைநாதர் - நன்னூல் -உ.வே.சாமிநாத அய்யர் நூல் நிலையம், சென்னை.
2. தாமோதரன். அ- நன்னூல், மூலமும் விருத்தியுரையும், உலகத்தமிழாராய்ச்சி நிறுவனம், சென்னை.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1. www.tamilvu.org

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Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	M	M	M	M	M	M	S	M	M	S
CO3	S	M	M	L	M	L	M	M	M	M
CO3	M	M	M	S	M	M	M	M	M	M
CO4	M	S	M	M	L	M	M	L	M	M
CO5	M	M	L	M	M	S	M	M	S	L

*S-Strong; M-Medium; L-Low

பாடக்குறியீட்டு எண்		பாடத்தலைப்பு	L	T	P	C
முதன்மைப்பாடம்		இலக்கியம் - 3 தாள் - 6 பக்தி இலக்கியங்களும் சிற்றிலக்கியங்களும்	4	-	-	4
			பாடப்பிரிவு			

பாட நோக்கம்:

1. பக்தி நெறியின் தன்மையை உணர்த்துதல்
2. நாயன்மார்கள், ஆழ்வார்களின் பக்திச் சிறப்பை அறியச் செய்தல்
3. சிற்றிலக்கிய வகைமைகளை எடுத்துரைத்தல்

பயன்கள் :

1	சமயங்களின் வழி வாழ்வியல் நெறிமுறைகளை உணர்தல்	K2
2	வைணவ சமயத்தின் வழிபாட்டு முறையைத் தெரிந்து கொள்ளுதல்	K1
3	இஸ்லாமிய சமயக் கருத்துக்கள் வழி வாழ்வியல் சார்ந்த கருத்துகளை அறிதல்	K3
4	நாடகப் பாங்கினை பள்ளு, குறவஞ்சி இலக்கியங்கள் வழி உணர்தல்	K5
5	சமய வழிப்பாட்டு முறைகளை அறிந்து கொள்ளுதல்	K3

K1 - Remember; **K2** - Undestand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

அலகு:1		**15 hours**

தேவாரம் - திருஞானசம்பந்தர் - "திருநணா" என்று தொடங்கும் பதிகம் (10 பாடல்கள்)
திருநாவுக்கரசர் - "அரியானை அந்தணர் தம்" எனத் தொடங்கும் பதிகம் (10 பாடல்கள்)
சுந்தரர் - "சிறுபுக் கொளியூர்" என்று தொடங்கும் பதிகம்(10 பாடல்கள்)
மாணிக்கவாசகர் - "திருச்சாழல்" என்று தொடங்கும் பதிகம் (20 பாடல்கள்)

அலகு:2		**14 hours**

பெரியாழ்வார் திருமொழி –"கண்ணன் திருமேனி அழகு" (20 பாடல்கள்)

நம்மாழ்வார் - திருவாய்மொழி – "வீடுமின்" எனத் தொடங்கும் பதிகம் (முதல் பத்து)

திருமழிசையாழ்வார் - "நான்முகன் திருவந்தாதி"

அலகு:3		**13 hours**

குணங்குடி மஸ்தான் - மனோன்மணிக்கண்ணி (1-20), ரகுமான் கண்ணி (1-20) (மொத்தம் 40 கண்ணிகள்)

அலகு:4		**14 hours**

முக்கூடற்பள்ளு – மூன்றாவது பகுதி - வளமை செழுமை

அலகு:5		**14 hours**

திருக்குற்றாலக் குறவஞ்சி – "இறைவனின் திருவுலா"

அலகு:6	**சம கால சிக்கல்களை மையப்படுத்தி வலைத்தளக் கருத்தரங்கம் நடத்துதல்** **துறை வல்லுநர்களை அழைத்து பயிலரங்கம் நடத்துதல்**	**2 hours**
	Total Lecture hours	**72 hours**

பாட நூல்கள்

1	தேவாரம் - மணிவாசகர் பதிப்பகம், சென்னை
2	நாலாயிரத் திவ்ய பிரபந்தம் - வர்த்தமானன் பதிப்பகம், சென்னை
3	குணங்குடி மஸ்தான் சாகிபு பாடல்கள் - முல்லை நிலையம், சென்னை.
4	முக்கூடற்பள்ளு – பாரி நிலையம், சென்னை
5	திரிகூட ராசப்பக் கவிராயர் - திருக்குற்றாலக் குறவஞ்சி, பாரி நிலையம், சென்னை

பார்வை நூல்கள்

1	இரா.சந்திரசேகரன் - தமிழ்ச் சிற்றிலக்கியங்கள், நாம் தமிழர் பதிப்பகம், சென்னை
2	ந.வீ.ஜெயராமன் - சிற்றிலக்கியச் செல்வங்கள், மணிவாசகர் நூலகம், சிதம்பரம்

3	ந.வீ.ஜெயராமன் - சிற்றிலக்கியத் திறனாய்வு, இலக்கியப் பதிப்பகம், சென்னை
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	www.tamilvu.org
2	www.chennailibrary.com

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Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	M	M	M	M	M	M	S	M	M	S
CO3	S	M	M	L	M	L	M	M	M	M
CO3	M	M	M	S	M	M	M	M	M	M
CO4	M	S	M	M	L	M	M	L	M	M
CO5	M	M	L	M	M	S	M	M	S	L

*S-Strong; M-Medium; L-Low

பாடக் குறியீட்டு எண்		பாடத்தலைப்பு	L	T	P	C
விருப்பப்பாடம்		தாள்-1-தமிழக வரலாறும் பண்பாடும் - I	4	-	-	4
			பாடப்பிரிவு			

பாட நோக்கம்:

1. தமிழகத்தின் முச்சங்கங்கள் குறித்து அறிதல்
2. பண்டைய தமிழரின் வாழ்க்கை முறையைத் தெரிந்து கொள்ளுதல்
3. தொல்லியல் தொடர்பான செய்திகளை அறியச் செய்தல்

பயன்கள்:

1	தமிழகத்தின் இயற்கை அமைப்பு குறித்து அறிதல்	K2
2	பண்டைத் தமிழர்களின் அயல்நாட்டு வாணிபத் தொடர்பை அறிந்து கொள்ளுதல்	K1
3	அகழ்வாராய்ச்சி குறித்த சிந்தனையைப் பெறுதல்	K4
4	அரசியல் நிலையையும் சமூக நிலையையும் உணர்தல்	K5
5	அரசு வேலைவாய்ப்புக்கான திறனைப் பெறுதல்	K3 K6

K1 - Remember; **K2** - Undestand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

அலகு:1		**15 hours**
தமிழக வரலாற்றுக்கான அடிப்படை ஆதாரங்கள், தமிழகத்தின் இயற்கை அமைப்பு – வரலாற்றுக் காலத்திற்கு முந்தைய தமிழகம்		
அலகு:2		**14 hours**
சிந்துவெளி அகழ்வாராய்ச்சி – பண்டைத் தமிழர் அயல்நாட்டுத் தொடர்புகள்		
அலகு:3		**13 hours**
தமிழ் வளர்த்த சங்கம் - சங்க இலக்கியம் - பண்டைத் தமிழர் வாழ்க்கை		
அலகு:4		**14 hours**
களப்பிரர்கள் - பல்லவர்கள்		
அலகு:5		**14 hours**
தமிழகத்தில் நான்கு முதல் ஒன்பதாம் நூற்றாண்டு வரை சமூக நிலை		
அலகு:6	**சம கால சிக்கல்களை மையப்படுத்தி வலைத்தளக் கருத்தரங்கம் நடத்துதல்** **துறை வல்லுநர்களை அழைத்து பயிலரங்கம் நடத்துதல்**	**2 hours**
	Total Lecture hours	**72 hours**

பாட நூல்

1. தமிழக வரலாறும் பண்பாடும், கே.கே.பிள்ளை, உலகத் தமிழாராய்ச்சி நிறுவனம், சென்னை

பார்வை நூல்கள்

1. வே.தி.செல்லம், தமிழக வரலாறும் பண்பாடும், மணிவாசகர் பதிப்பகம், சென்னை
2. அ.தட்சணாமூர்த்தி, தமிழர் நாகரீகமும் பண்பாடும், யாழ் வெளியீடு, சென்னை

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1.
2.

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Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	M	M	M	M	M	M	S	M	M	S
CO3	S	M	M	L	M	L	M	M	M	M
CO3	M	M	M	S	M	M	M	M	M	M
CO4	M	S	M	M	L	M	M	L	M	M
CO5	M	M	L	M	M	S	M	M	S	L

*S-Strong; M-Medium; L-Low

பாடக்குறியீட்டு எண்		பாடத் தலைப்பு	L	T	P	C
திறன் படிப்பு		தாள் - 1 தமிழ் பயிற்றும் முறை – நோக்கம்	3	-	-	3
			பாடப்பிரிவு			

பாட நோக்கம்:

1. தாய்மொழியின் இன்றியமையாமையை உணர்த்துதல்
2. தாய்மொழி அறிவு, மொழிப்பற்றிய சிந்தனைப் பெற வைத்தல்
3. தமிழகத்தின் அரசியல் போக்கை அறியச் செய்தல்

பயன்கள்:

1	தாய்மொழியில் தெளிவாகப் பேசவும் எழுதவும் அறிதல்	K3
2	படைப்பாற்றல் திறன் பெறுதல்	K6
3	எழுத்தாற்றல் திறனை வளர்த்துக்கொள்ளுதல்	K4
4	மொழி அறிவு, மொழிப்பற்று ஏற்படுதல்	K5
5	அரசுப் போட்டித் தேர்வில் கலந்து கொள்ளும் திறனைப் பெறுதல்	K6

K1 - Remember; **K2** - Undestand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

அலகு:1		**15 hours**

மனதில் உள்ளவற்றை வெளியிடல் - இலக்கிய வடிவம் உருவாதல் - இலக்கியம் பொருளுணர்தல் - பாட்டும் - உரைநடையும் - சங்க இலக்கிய வடிவமும் கட்டமைப்பும் - நவீன இலக்கியங்களின் வடிவமும் கட்டமைப்பும்.

அலகு:2		**14 hours**

மொழி என்பது என்ன? - தாய்மொழி – கருத்துத்தெளிவு – சிந்தனை ஆற்றல்- ஆய்வு மனப்பான்மை – பண்பாடு – கற்பனைத்திறன் - முருகியல் உணர்வு – படைப்பாற்றல்

அலகு:3		**13 hours**

கேட்டல் திறன் - பேசுதல் திறன் - படித்தல் திறன் - எழுதுதல் திறன் - மொழியும் சிந்தனையும்.

அலகு:4		**14 hours**

செய்யுள் கற்றலில் ஒழுங்கு – ஒழுக்கத்தை அறிதல் - எதுகை, மோனை, இயைபு, முரண் உணர்ந்து இன்புறுதல் - குறிக்கோள் வாழ்க்கையைக் கடைபிடித்தல் - சொல்லாட்சித்திறனை வளர்த்தல் - புலவரின் உட்கிடக்கையை அறிதல் - மனித நேயம் - மனித உரிமை – அன்பு, பாசம், நட்பு, தொண்டு, பரிவு, இயற்கை, போற்றல் ஆகிய உணர்வுகளை வளர்த்தல் - நாட்டுப்பற்று, மொழிப்பற்று வளர்த்தல் - உலகத்தோடு ஒட்டி வாழக்கற்றல்- கலை கலைக்காவே மற்றும் வாழ்க்கைக்காகவே என அறிதல்.

அலகு:5		**14 hours**

சிறுகதை எழுதுதல் பயிற்சி – கவிதை எழுதுதல் பயிற்சி – கருத்தியல் - வரலாறு – தன் வரலாறு – வருணனை – அறிவியல் - சமூகவியல் கட்டுரை எழுதுதல் பயிற்சி.

அலகு:6	**சம கால சிக்கல்களை மையப்படுத்தி வலைத்தளக் கருத்தரங்கம் நடத்துதல்** **துறை வல்லுநர்களை அழைத்து பயிலரங்கம் நடத்துதல்**	**2 hours**
	Total Lecture hours	**72 hours**

பாட நூல்

1	ந.சுப்புரெட்டியார் - தமிழ் பயிற்றும் முறை – மெய்யப்பன் பதிப்பகம், சிதம்பரம்

பார்வை நூல்கள்

1	சரவண ஆறுமுக முதலியார், - தமிழ் பயிற்றும் முறைகள்,பூரம் பதிப்பகம், திருநின்றவூர், 602024
2	கி.வா. ஜகந்நாதன் - கவி பாடலாம் - மணிவாசகர் பதிப்பகம், சென்னை.
3	மு.சுதந்திரமுத்து - படைப்புகள் - சுவடு பதிப்பகம், சென்னை – 24.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	www.tamilvu.org

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Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	M	M	M	M	M	M	S	M	M	S
CO3	S	M	M	L	M	L	M	M	M	M
CO3	M	M	M	S	M	M	M	M	M	M
CO4	M	S	M	M	L	M	M	L	M	M
CO5	M	M	L	M	M	S	M	M	S	L

*S-Strong; M-Medium; L-Low

Fourth Semester

நான்காம் பருவம் - IV

பாடக்குறியீட்டு எண்		பாடத் தலைப்பு	L	T	P	C
முதன்மைப் பாடம்		இலக்கணம் - 3 தாள் - 7 யாப்பருங்கலக்காரிகை (ஒழிபியல் நீங்கலாக) தண்டியலங்காரம்	4	-	-	4
			பாடப்பிரிவு			

பாட நோக்கம் :

1. யாப்பிலக்கணத்தின் சிறப்பை எடுத்துரைத்தல்
2. செய்யுள் உறுப்புகளைக் கண்டறிதல்
3. சொல், பொருள் கட்டமைப்புகளை வரையறுத்தல்

பயன்கள்:

1	மரபுக்கவிதை எழுதுதல்	K6
2	பா, பாவினங்கள் பற்றித் தெரிந்து கொள்ளல்	K2
3	அணி இலக்கணத்தின் தொன்மையை அறிதல்	K1 K4
4	அணி இலக்கணம் செய்யுளின் இடம்பெறும் தன்மையை உணர்தல்	K4
5	காப்பிய இலக்கணம் பற்றி அறிதல்	K2

K1 - Remember; **K2** - Undestand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

அலகு : 1		**13 hours**
	உறுப்பியல் - செய்யுளியல்	
அலகு:2		**14 hours**
	ஆசிரியப்பா, வஞ்சிப்பா	
அலகு:3		**14 hours**
	வெண்பா, மருட்பா	
அலகு:4		**15 hours**
	கலிப்பா	
அலகு:5		**14 hours**
தண்டியலங்காரம் 1. உவமையணி (24) 2. சுவையணி (8) 3. சிலேடையணி (2) 4. தன்மையணி(4) 5. பின்வருநிலையணி (முழுவதும்) 6. தற்குறிப்பேற்றணி(2)		
அலகு:6	**சம கால சிக்கல்களை மையப்படுத்தி வலைத்தளக் கருத்தரங்கம் நடத்துதல்** **துறை வல்லுநர்களை அழைத்து பயிலரங்கம் நடத்துதல்**	**2 hours**
	Total Lecture hours	**72 hours**

பாட நூல்கள்

1. அமிர்த சாகரர் - யாப்பருங்கலக்காரிகை, கழக வெளியீடு, சென்னை
2. தண்டி - தண்டியலங்காரம் - கழக வெளியீடு, சென்னை

பார்வை நூல்கள்

1. புலவர் குழந்தை - யாப்பதிகாரம் - கௌரா பதிப்பகம், சென்னை.
2. கி.வா.ஜகநாதன் - கவிபாடலாம் - சீதை பதிப்பகம், சென்னை.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1. www.tamilvu.org

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Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	M	S	M	M	ML	M	M	M	M	L
CO3	S	M	M	L	M	L	M	M	M	M
CO3	M	M	M	M	S	M	M	L	M	M
CO4	M	S	M	M	L	M	M	L	M	M
CO5	M	M	M	S	M	S	M	M	L	S

*S-Strong; M-Medium; L-Low

பாடக்குறியீட்டு எண்		பாடத் தலைப்பு	L	T	P	C
முதன்மைப் பாடம்		தாள் - 8 நாட்டுப்புறவியல்	4	-	-	4
			பாடப்பிரிவு			

பாட நோக்கம் :

1. நாட்டுப்புற மக்களின் வரலாற்றை அறிய வைத்தல்
2. நாட்டுப்புறப் பாடல்களின் வழி வாழ்வியல் உண்மைகளை உணர்த்துதல்
3. நாட்டுப்புறக் கலைகளை வளர்த்தல்

பயன்கள்:

1	நாட்டுப்புறப்பாடல்களின் வடிவங்களைப் புரிந்து கொள்ளுதல்	K2
2	கதை, கதைப்பாடல்களின் வாயிலாக பண்டைத்தமிழர்களின் வாழ்க்கை முறையை அறிதல்	K4
3	நாட்டுப்புற மக்களின் பண்பாடு மற்றும் பழக்கவழக்கங்களைத் தெரிந்து கொள்ளுதல்	K3 K5
4	நம்பிக்கைகள் மூலமாக நாட்டுப்புற மக்களின் மனஉணர்வுகளை அறிந்து கொள்ளுதல்	K5
5	நாட்டுப்புற மக்களின் சமூக சூழலை உணர்தல்	K2

K1 - Remember; **K2** - Undestand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

அலகு:1		**15 hours**
பொதுப்பகுதி நாட்டுப்புறவியல் - நாட்டுப்புறப் பாடல்கள் - நாட்டுப்புறக் கதைகள்		
அலகு : 2		**13 hours**
சிறப்புப் பகுதி – நாட்டுப்புறக் கதைப்பாடல்கள் - பழமொழிகள் - விடுகதைகள்.		
அலகு:3		**14 hours**
சிறப்புப்பகுதி – நாட்டுப்புறக் கலைகள் - நாட்டுப்புற இசை – நாட்டுப்புற கைவினைப் பொருட்கள் - நாட்டுப்புற விளையாட்டுக்கள் - நாட்டுப்புறத் தெய்வங்கள் - நாட்டுப்புறத் திருவிழாக்கள் - நாட்டுப்புற நம்பிக்கைகள்.		
அலகு:4		**14 hours**
கள ஆய்வுமுறை – நாட்டுப்புற இலக்கியமும் எழுத்திலக்கியமும் - நாட்டுப்புறவியல் ஆய்வுக் கோட்பாடுகளும் - நாட்டுப்புறவியலும் பிறவியலும்.		
அலகு:5		**14 hours**
நாட்டுப்புறவியல் காட்டும் சமுதாயம் - நாட்டுப்புறவியலின் வரலாறு - இந்திய நாட்டுப்புறவியலின் வரலாறு – தமிழக நாட்டுப்புறவியலின் வரலாறு.		
அலகு:6	**சம கால சிக்கல்களை மையப்படுத்தி வலைத்தளக் கருத்தரங்கம் நடத்துதல்** **துறை வல்லுநர்களை அழைத்து பயிலரங்கம் நடத்துதல்**	**2 hours**
	Total Lecture hours	**72 hours**

பாட நூல்

1. சு.சண்முகசுந்தரம் - நாட்டுப்புறவியல் - காவ்யா வெளியீடு, சென்னை-24.

பார்வை நூல்கள் :

1. பா.ரா.சுப்பிரமணியன், தமிழக நாட்டுப்புறப் பாடல்கள், தமிழ்ப் புத்தகாலயம், சென்னை
2. பா.கிருட்டிணசாமி – கொங்கு நாட்டுப்புறப்பாடல்கள். மக்கள் வெளியீடு, சென்னை
3. ஆறு.இராமநாதன் - தமிழர் கலை இலக்கிய மரபுகள், மெய்யப்பன் பதிப்பகம், சிதம்பரம்

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1.

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Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	M	S	M	L	M	M	M	M	M	L
CO3	S	M	M	L	M	L	M	M	M	M
CO3	M	M	M	L	M	M	S	M	M	M
CO4	M	S	M	M	L	M	M	L	M	M
CO5	S	M	L	M	M	L	M	M	M	S

*S-Strong; M-Medium; L-Low

பாடக்குறியீட்டு எண்		பாடத்தலைப்பு	L	T	P	C
விருப்பப்பாடம்		தாள் - 2 தமிழக வரலாறும் பண்பாடும்-II	54		-	4
			பாடப்பிரிவு			

பாட நோக்கம்

1. தமிழ் மொழியின் தொன்மையை அறிய வைத்தல்
2. மூவேந்தர்களின் சிறப்பை எடுத்துரைத்தல்
3. தொல்லியல் தொடர்பான செய்திகளை உணர்த்துதல்

பயன்கள்:

1	தமிழகத்தின் அரசியல், சமூக நிலை உணர்தல்	K2
2	பண்டைய வாணிபத் தொடர்பை அறிதல்	K2
3	அகழ்வாராய்ச்சி குறித்த அறிவைப் பெறுதல்	K4
4	ஐரோப்பியரின் வருகையால் உண்டான மாற்றம் குறித்து அறிதல்	K5
5	அரசுப் போட்டித் தேர்வு குறித்த விழிப்புணர்வைப் பெறுதல்	K1 K3

K1 - Remember; **K2** - Undestand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

அலகு : 1		**15 hours**
	சோழப் பேரரசின் தோற்றம் - வளர்ச்சி – வீழ்ச்சி	
அலகு:2		**13 hours**
	சோழர் காலத்துச் சமுதாயம்	
அலகு:3		**14 hours**
	பாண்டியர் ஏற்றமும் வீழ்ச்சியும்	
அலகு:4		**14 hours**
	தமிழகத்தில் 13-ஆம் நூற்றாண்டு முதல் 18-ஆம் நூற்றாண்டு வரையான சமூகநிலை	
அலகு:5		**14 hours**
	ஐரோப்பியர் வருகை முதல் இன்று வரை	
அலகு:6	**சம கால சிக்கல்களை மையப்படுத்தி வலைத்தளக் கருத்தரங்கம் நடத்துதல்** **துறை வல்லுநர்களை அழைத்து பயிலரங்கம் நடத்துதல்**	**2 hours**
	Total Lecture hours	**72 hours**

பாட நூல்கள்

1. கே.கே. பிள்ளை - தமிழக வரலாறும் பண்பாடும், உலகத் தமிழராய்ச்சி நிறுவனம், சென்னை

பார்வை நூல்கள்

1. வே.தி.செல்லம், தமிழக வரலாறும் பண்பாடும், மணிவாசகர் பதிப்பகம், சென்னை
2. அ.தட்சணாமூர்த்தி. தமிழர் நாகரிகமும் பண்பாடும், யாழ் வெளியீடு, சென்னை

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1.
2.

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Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M	M	M	M	M	M	S	M	M	S
CO3	S	M	M	L	M	L	M	M	M	M
CO3	M	M	M	S	M	M	M	M	M	M
CO4	M	S	M	M	L	M	M	L	M	M
CO5	M	M	L	M	M	S	M	M	S	L

*S-Strong; M-Medium; L-Low

பாடக்குறியீட்டு எண்		பாடத்தலைப்பு	L	T	P	C
திறன் படிப்பு		திறன்படிப்பு – 2 மொழிப்பயிற்சிகள்	3	-	-	3
			பாடப்பிரிவு			

பாட நோக்கம்:

1. தாய்மொழியின் இன்றியமையாமையை உணர்த்துதல்
2. தாய் மொழி அறிவு பெற வைத்தல்
3. தாய்மொழி கல்வி மூலம் படைப்பாக்கத் திறனை உருவாக்குதல்

பயன்கள்:

1	தாய்மொழியில் தெளிவாக பேசவும் எழுதவும் ஆற்றல் பெறுதல்	K5
2	படைப்பாற்றல் திறன் மற்றும் மொழி ஆளுமை வளர்தல்	K6
3	எழுத்தாற்றல் திறனை அடைதல்	K3
4	மொழிப் பற்றும் மொழி அறிவும் ஏற்படுதல்	K4
5	அரசுப் போட்டித் தேர்வுகளில் கலந்து கொள்ளும் திறன் பெறுதல்	K1 K3

K1 - Remember; **K2** - Undestand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

அலகு:1		**15 hours**
நிறுத்தற்குறிகளை ஏற்ற இடங்களில் இடுதல் - கள் விகுதியை எழுதும் முறை, தொகைச் சொற்களை எழுதும் முறை, பொருளுக்கு அமைதியான சொற்கள்.		
அலகு:2		**13 hours**
சொற்களைப் பயன்படுத்தும் முறை – வருதல் - போதல் - அழைத்தல் - தருதல் - கொடுத்தல் - ஓர் - ஒரு – ஒரு கருத்தைப் பல தொடர்களில் வெளியிடுதல்.		
அலகு:3		**14 hours**
கடிதம் வரைதல் - உரையாடல் - கட்டுரை – வாக்கிய அமைப்பு – பத்தி அமைப்பு – சுருக்கி வரைதல் - பெருக்கி வரைதல்.		
அலகு:4		**14 hours**
எழுத்துப் பயிற்சிகளைத் திருத்துதல் - திருத்துவது பற்றிய சில குறிப்புகள் - படைப்பாற்றலுக்கு வழி கோலுதல்.		
அலகு:5		**14 hours**
உரைநடை கற்பித்தல் - இலக்கணம் பயிற்றுவதன் நோக்கங்கள் - பயிற்றும் முறை.		
அலகு:6	**சம கால சிக்கல்களை மையப்படுத்தி வலைத்தளக் கருத்தரங்கம் நடத்துதல்** **துறை வல்லுநர்களை அழைத்து பயிலரங்கம் நடத்துதல்**	**2 hours**
	Total Lecture hours	**72 hours**

பாட நூல்

1	பேராசிரியர் ந. சுப்புரெட்டியார் - தமிழ் பயிற்றும் முறை, மணிவாசகர் பதிப்பகம், சிதம்பரம்.

பார்வை நூல்கள்

1	ச.ஆறுமுக முதலியார், தமிழ் கற்பிக்கும் முறை, பூரம் பதிப்பகம், திருநின்றவூர்.
2	உ.வே.சாமிநாத அய்யர், சங்கத் தமிழும், பிற்காலத் தமிழும், உ.வே.சா நூலகம், சென்னை

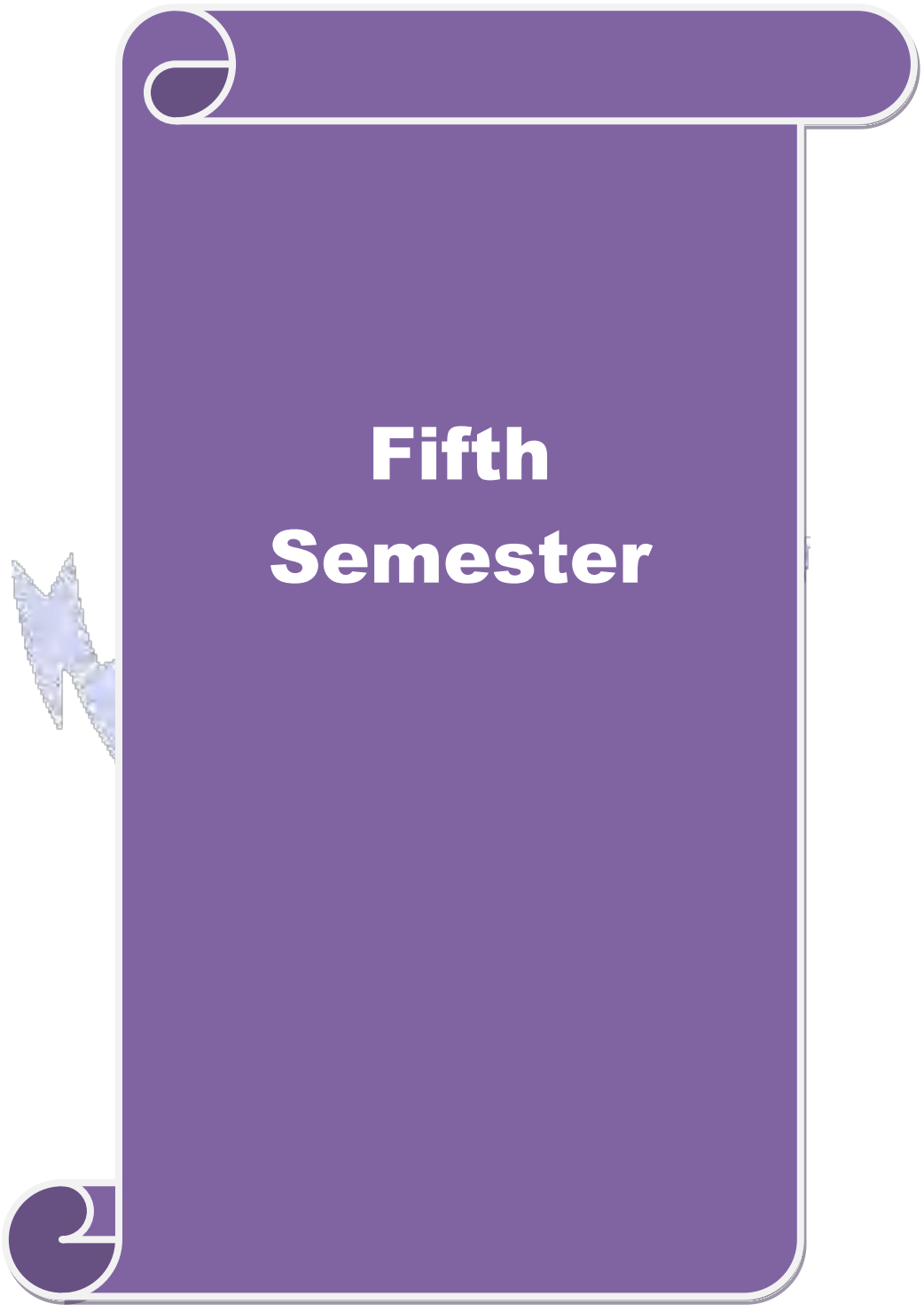
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	
2	

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Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	s	M	M	l	M	M	L	M	M	L
CO3	S	M	M	L	M	L	M	M	M	M
CO3	M	M	M	L	M	M	M	S	M	M
CO4	M	S	M	M	L	M	M	L	M	M
CO5	M	M	L	M	M	S	M	M	S	L

*S-Strong; M-Medium; L-Low


Fifth
Semester

ஐந்தாம் பருவம் - V

பாடக்குறியீட்டு எண்		பாடத்தலைப்பு	L	T	P	C
முதன்மைப் பாடம்		இலக்கணம் - 4 தாள் - 9 புறப்பொருள் வெண்பாமாலை, நம்பியகப் பொருள்	6	-	-	4
			பாடப்பிரிவு			

பாட நோக்கம்

1. சங்க கால மக்களின் வாழ்வியல் நெறிகளை அறிய வைத்தல்
2. போர் திறம், வீர உணர்வை உணர்த்துதல்
3. அக வாழ்க்கை இலக்கணத்தை அறியச் செய்தல்

பயன்கள்

1	மன்னர்களின் ஆட்சி சிறப்பை மற்றும் வெற்றிச் சிறப்பை அறிதல்	K1
2	போர் விதிமுறைகளைத் தெரிந்து கொள்ளுதல்	K2
3	இல்லற வாழ்வின் சிறப்பை அறிந்து கொள்ளுதல்	K3
4	களவு வாழ்க்கை நெறியினை அறிதல்	K4
5	அரசுப் போட்டித் தேர்வுகளில் பங்கேற்கச் செய்தல்	K5

K1 - Remember; **K2** - Undestand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

அலகு:1		**15 hours**
	வெட்சி, கரந்தை	
அலகு:2		**14 hours**
	தும்பை, வாகை	
அலகு:3		**13 hours**
	பாடாண்திணை	
அலகு:4		**14 hours**
	களவியல்	
அலகு:5		**14 hours**
	கற்பியல்	
அலகு:6	**சம கால சிக்கல்களை மையப்படுத்தி வலைத்தளக் கருத்தரங்கம் நடத்துதல்** **துறை வல்லுநர்களை அழைத்து பயிலரங்கம் நடத்துதல்**	**2 hours**
	Total Lecture hours	**72 hours**

பாட நூல்கள்

1. புறப்பொருள் வெண்பாமாலை – கழக வெளியீடு
2. நம்பியகப் பொருள் - கழக வெளியீடு

பார்வை நூல்கள்

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

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Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	M	M	M	M	M	S	M	M	S
CO3	M	M	S	M	M	L	M	M	M	M
CO3	M	M	M	S	M	M	M	M	M	M
CO4	M	S	M	M	M	L	M	L	M	M
CO5	M	M	L	M	M	L	M	M	S	L

*S-Strong; M-Medium; L-Low

பாடக்குறியீட்டு எண்		பாடத்தலைப்பு	L	T	P	C
முதன்மைப்பாடம்		தாள் - 10 காப்பியங்கள்	4	-	-	4
			பாடப்பிரிவு			

பாட நோக்கம் :

1. காப்பிய இலக்கியங்கள் வாயிலாக அரசியல் பண்பாடு குறித்த கருத்துக்களை அறிந்து கொள்ளுதல்
2. வாழ்வியல் முறைகள், அறச்சிந்தனைகள், இயற்கைச்சூழல் இவற்றைக் காப்பியங்கள் வழி அறிய வைத்தல்
3. கற்பனை, சொல்லாற்றல், இலக்கிய நயம், ஆளுமைத் தன்மைகளை உணர்த்துதல்

பயன்கள் :

1	காப்பியங்களின் வழி கற்பு நெறியை உணர்தல்	K2
2	அறச் செயல்கள், அரசியல் அறம் பற்றி அறிந்து கொள்ளுதல்	K2
3	நிர்வாகத் திறன் பெறுதல்	K3
4	நட்பின் பெருமை, உறவுகளின் மேன்மை பற்றி அறிதல்	K4
5	இலக்கிய நயங்கள் நுட்பங்கள் குறித்து அறிதல்	K5

K1 - Remember; **K2** - Undestand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

அலகு:1		**15 hours**
சிலப்பதிகாரம் - அடைக்கலக் காதை, வழக்குரைகாதை, மணிமேகலை - பாத்திரம் கொண்டு பிச்சை புக்க காதை, ஆதிரை பிச்சையிட்ட காதை		
அலகு:2		**14 hours**
கம்பராமாயணம் - சுந்தரகாண்டம் - சூளாமணிப்படலம்		
அலகு:3		**13 hours**
பெரியபுராணம் - புகழ்ச் சோழ நாயனார் புராணம் (38 பாடல்கள்) பூசலார் நாயனார் புராணம் (18 பாடல்கள்)		
அலகு:4		**14 hours**
சீவகசிந்தாமணி – நாமகள் இலம்பகம் - 1-50 பாடல்கள்		
அலகு:5		**14 hours**
தேம்பாவணி – நாட்டுப்படலம்		
அலகு:6	**சம கால சிக்கல்களை மையப்படுத்தி வலைத்தளக் கருத்தரங்கம் நடத்துதல்** **துறை வல்லுநர்களை அழைத்து பயிலரங்கம் நடத்துதல்**	**2 hours**
	Total Lecture hours	**72 hours**

பாட நூல்கள்

1	சிலப்பதிகாரம்
2	மணிமேகலை
3	கம்பராமாயணம்
4	சீவக சிந்தாமணி
5	பெரிய புராணம்
6	வில்லி பாரதம் (மூன்றாம் பாகம்)

பார்வை நூல்கள்

1	கி.வா.ஜகந்நாதன் - தமிழ்க் காப்பியங்கள், அமுத நிலையம்,சென்னை
2	சோம. இளவரசு – காப்பியத் திறன், மணிவாசகர் நூலகம், சிதம்பரம்.
3	இரா.காசிராசன் - காப்பியத் தோற்றமும் வளர்ச்சியும், மதி பதிப்பகம், மதுரை

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	
2	

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Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	M	M	M	S	M	L	M	M	M
CO3	S	M	M	L	M	L	M	M	M	M
CO3	M	M	M	S	L	M	M	S	M	M
CO4	M	S	M	M	L	M	M	L	M	S
CO5	M	M	L	M	M	L	M	M	S	M

*S-Strong; M-Medium; L-Low

பாடக்குறியீட்டு எண்		பாடத்தலைப்பு	L	T	P	C
முதன்மைப்பாடம்		தாள் - 11 இலக்கியத் திறனாய்வு	4	-	-	4
			பாடப்பிரிவு			

பாட நோக்கம்

1. இலக்கியங்களின் போக்குகளை உணர்ந்து கொள்வதற்கும், மதிப்பிடுவதற்கும் தூண்டுதலாக அமைதல்
2. இலக்கியம் படைக்கப்பட்டதன் நோக்கத்தை அறிந்து, ஆய்வு மேற்கொள்வதற்கு உதவுதல்
3. இலக்கியங்களின் பண்புகளை ஆராய்ந்து, புதிய இலக்கியக் கொள்கைகள் உருவாவதற்குத் துணை செய்தல்

பயன்கள் :

1	புதிய இலக்கியங்களைப் படைக்கப் படைப்பாளிகள் தூண்டப்படுகின்றனர்	K6
2	இலக்கியப் பிழைகள், இலக்கணப் பிழைகள் நீக்கி எழுதுதல்	K3
3	சமூக வரலாற்றை அறிதல்	K2
4	கலையின் சிறப்பும் அதனைக் கற்போரின் வழி சமூக வளர்ச்சிக்கு உதவுதல்	K5
5	தனிமனித ஆளுமைத் திறன் பெறுதல்	K4

K1 - Remember; **K2** - Undestand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

அலகு:1		**15 hours**
மதிப்புரை – திறனாய்வு – ஆராய்ச்சி – பழந்தமிழ் இலக்கியத் திறனாய்வு		
அலகு:2		**13 hours**
மூலப்பாடம் - உரைமரபு – கல்வியாளர் - அழகியல் திறனாய்வுகள்		
அலகு:3		**14 hours**
சமூகவியல் - ஒப்பிலக்கியம் - பல்கலைக்கழக ஆராய்ச்சிகள்		
அலகு:4		**14 hours**
பின்நவீனத்துவம்		
அலகு:5		**14 hours**
பெண்ணியம் - தலித்தியத் திறனாய்வுகள்		
அலகு:6	**சம கால சிக்கல்களை மையப்படுத்தி வலைத்தளக் கருத்தரங்கம் நடத்துதல்** **துறை வல்லுநர்களை அழைத்து பயிலரங்கம் நடத்துதல்**	**2 hours**
	Total Lecture hours	**72 hours**

பாட நூல்

1. முனைவர் க. பஞ்சாங்கம் - தமிழ் இலக்கியத் திறனாய்வு வரலாறு, அகரம், மனை எண் : 1, நிர்மலா நகர், தஞ்சாவூர் - 7.

பார்வை நூல்கள்

1. அரங்க.சுப்பையா - இலக்கியத் திறனாய்வு இசங்கள் - கொள்கைகள், நலங்கிள்ளி பதிப்பகம், தஞ்சாவூர்
2. தி.சு.நடராசன் - திறனாய்வுக் கலை கொள்கைகளும் அணுகுமுறைகளும், நியூ செஞ்சுரி புக் ஹவுஸ், சென்னை
3. தா.ஏ.ஞானமூர்த்தி - இலக்கியத் திறனாய்வியல், ஐந்திணைப் பதிப்பகம், சென்னை

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1.
2.

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Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	M	M	M	M	M	M	S	M	M	S
CO3	S	M	M	L	M	L	M	M	M	M
CO3	M	M	M	S	M	M	M	M	M	M
CO4	M	S	M	M	L	M	M	L	M	M
CO5	M	M	L	M	M	S	M	M	S	L

*S-Strong; M-Medium; L-Low

பாடக்குறியீட்டு எண்		பாடத்தலைப்பு	L	T	P	C
முதன்மைப்பாடம்		தாள் - 12 பொது மொழியியல்	4	-	-	4
			பாடப்பிரிவு			

பாட நோக்கம் :

1. மொழியை அறிவியல் முறைப்படி அணுகுவதற்குரிய அறிவை வழங்குதல்
2. மொழி வழிக் கல்வியின் இன்றியமையாமையை எடுத்துரைத்தல்
3. சமுதாயத்தோடு மொழிக்குள்ள உறவை அறியச் செய்தல்

பயன்கள்

1	ஒலிப்பு முறைகளை முறையாகக் கற்று உச்சரிப்பு திறன் பெறுதல்	K5
2	சிறந்த சொல் அமைப்பு, மொழி அமைப்போடு எழுதுதல்	K3
3	வினைச்சொற்களின் பயன்பாட்டு முறையை அறிதல்	K2
4	வாக்கியமைப்பை உருவாக்குதல்	K6
5	பேச்சு மொழி, பிற மொழி கலப்பு, தாய்மொழியின் சிறப்பை இவற்றை அறிந்து கொள்ளுதல்	K4

K1 - Remember; **K2** - Undestand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

அலகு:1		**15 hours**
மொழியும் மொழியியலும் - ஒலியியல் - ஒலியுறுப்புகளும் அதன் தொழிலும் - ஒலியனியல் - ஒலியன்களை வகை செய்யும் முறை – தமிழில் ஒலியன்கள்.		
அலகு:2		**14 hours**
உருபன் - உருபன்களைக் கண்டறிதல் - நைடா கூறும் விதிகள் - உருபொலியனியல்		
அலகு:3		**13 hours**
தமிழில் வினைச் சொற்கள்		
அலகு:4		**14 hours**
அண்மையுறுப்பு – மாற்றிலக்கணக் கோட்பாடு – தொடக்கம் - வளர்ச்சி		
அலகு:5		**14 hours**
பேச்சுமொழி – மொழிகள் கடன் வாங்குதல் - தாய்மொழி		
அலகு:6	**சம கால சிக்கல்களை மையப்படுத்தி வலைத்தளக் கருத்தரங்கம் நடத்துதல்** **துறை வல்லுநர்களை அழைத்து பயிலரங்கம் நடத்துதல்**	**2 hours**
	Total Lecture hours	**72 hours**

பாட நூல்

1. திரு.முத்துசண்முகம் - இக்கால மொழியியல் (தமிழ்மொழிக் கண்ணோட்டத்தில்), முல்லைநிலையம், 9, பாரதிநகர், முதல்தெரு, சென்னை-17.

பார்வை நூல்கள்

1. மு.வரதராசனார் - மொழி நூல், முல்லை நிலையம், மதுரை

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

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Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M	S	M	M	L	M	S	M	M	L
CO3	S	M	M	L	M	L	M	M	M	M
CO3	M	S	M	S	M	M	L	M	M	M
CO4	M	S	M	M	L	M	M	L	M	M
CO5	M	M	S	M	M	S	M	M	S	L

*S-Strong; M-Medium; L-Low

பாடக்குறியீட்டு எண்		பாடத்தலைப்பு	L	T	P	C
விருப்பப்பாடம் - I		அ. மக்கள் ஊடகத் தொடர்பியல்	4	-	-	4
			பாடப்பிரிவு			

பாட நோக்கம் :

1. தகவல் தொடர்பு ஊடகங்கள் பற்றி அறியச் செய்தல்
2. சமுதாயம், அரசியல், பொருளாதாரம், பண்பாடு இவற்றில் ஊடகங்களின் பங்கு குறித்து அறிய வைத்தல்
3. தொழில் நுட்ப வளர்ச்சி, அறிவியல் முன்னேற்றம் மற்றும் சமுதாய மாற்றங்களுக்கு ஏற்ப ஊடகங்கள் செயல்படுகின்றன என்பதை உணர வைத்தல்

பயன்கள் :

1	ஊடக தொடர்பியலின் கோட்பாடுகள் வகைகள் வரையறைகளைத் தெரிந்து கொள்ளுதல்	K2
2	அறிவியல் தொழிற்நுட்ப வளர்ச்சியால் சமுதாயம் அடைந்த மாற்றதை அறிதல்	K2
3	காட்சி ஊடகங்கள் வழி சிக்கல்கள், தீர்வுகள் வளர்ச்சிக்கான வழிமுறைகளைப் புரிந்து கொள்ளுதல்	K3
4	சமுதாய மாற்றத்தில் இதழ்களின் நோக்கம், வளர்ச்சி பற்றி அறிதல்	K4
5	வேலை வாய்ப்பு பெறுதல்	K5

K1 - Remember; **K2** - Undestand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

அலகு:1		**15 hours**
மக்கள் ஊடகத் தொடர்பியல் கோட்பாடுகள் - மார்ச்சியக் கோட்பாடுகள் - நான்கு வகைக் கோட்பாடுகள்		
அலகு:2		**13 hours**
வானொலி – தொலைக்காட்சித் தொடர்பு – தொலைக்காட்சி உத்திகள் - திரைப்படம் - திரைப்பட உத்திகள்		
அலகு:3		**14 hours**
இதழியல் மேலாண்மை – வர்த்தக இதழியல்		
அலகு:4		**14 hours**
மக்கள் தொடர்பு உத்திகள் - விளம்பரங்கள் - விளம்பர அடிப்படைகள் - விளம்பர உத்திகள்		
அலகு:5		**14 hours**
வளர்ச்சித் தொடர்பியல் - வளர்ச்சி குறித்த சிக்கல்களும் இலக்குகளும் - வளர்ச்சியில் முக்கியக் கோட்பாடுகள் - வளர்ச்சிக்கான மாற்று வழிமுறைகள்.		
அலகு: 6	**சம கால சிக்கல்களை மையப்படுத்தி வலைத்தளக் கருத்தரங்கம் நடத்துதல்** **துறை வல்லுநர்களை அழைத்து பயிலரங்கம் நடத்துதல்**	**2 hours**
	Total Lecture hours	**72 hours**

பாட நூல்கள்

1	டாக்டர் ஆர்.சாந்தா - மக்கள் ஊடகத்தொடர்பியல் அடிப்படைகள் - டாக்டர் வீ.மோகன், மீடியா பப்ளிகேசன்ஸ், மதுரை.
2	டாக்டர் ஆர்.சாந்தா - மக்கள் ஊடகத்தொடர்பியல் புதிய பரிமாணங்கள் - டாக்டர் வீ.மோகன், மீடியா பப்ளிகேசன்ஸ், மதுரை.

பார்வை நூல்கள்

1	வெ.நல்லதம்பி - தொலைக்காட்சியும் பிற தகவல் துறைகளும், வள்ளுவன் வெளியீட்டகம், சென்னை.
2	சொ.கலைவாணி - பத்திரிகைக்கலை, சாரதா வெளியீடு, வேலூர்.
3	தமிழ்த்திரைப்பட இதழ்கள், இராசி வெளியீடு, சின்னாளப்பட்டி.
4	இரா.கோதண்டபாணி - இதழியல், மீனாட்சி புத்தக நிலையம், மதுரை

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

2	

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Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	M	M	L	M	M	S	M	M	S
CO3	S	M	M	L	M	L	M	S	M	M
CO3	M	M	M	S	M	M	M	M	M	M
CO4	M	S	M	M	L	M	M	L	M	M
CO5	M	M	L	M	M	S	M	M	S	L

*S-Strong; M-Medium; L-Low

பாடக்குறியீட்டு எண்		பாடத்தலைப்பு	L	T	P	C
விருப்பப்பாடம் - I		ஆ. நாடகவியல்	4	-	-	4
			பாடப்பிரிவு			

பாட நோக்கம் :

1. நாடகத்தின் தோற்றம் வளர்ச்சியினை அறியச் செய்தல்
2. நாடகத்தின் வகைகளை எடுத்துரைத்தல்
3. தற்கால நாடகக் கலையின் தன்மையைக் கூறுதல்

பயன்கள் :

1	நாடக உத்திகளை அறிந்து கொள்ளுதல்	K1 K2
2	சிறந்த நாடக ஆசிரியராகுதல்	K6
3	சிறந்த நாடக இயக்குநராகி சமூக மாற்றங்களை ஏற்படுத்துதல்	K3 K6
4	நாடக கலைஞராக உருமாறுதல்	K6
5	மொழிப்பெயர்ப்புத் திறனை வளர்த்து வேலைவாய்ப்பு பெறுதல்	K5

K1 - Remember; **K2** - Undestand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

அலகு:1		**15 hours**
நாடகத்தின் தோற்றமும் வளர்ச்சியும் - சிலம்பில் நாடகக்கூறுகள்		
அலகு:2		**14 hours**
தென்னாட்டில் நாடகக்கலை – தென்னாட்டு நாடக மேடை – நவீன அரங்கக்கலை – கிராம நாடக சாலை		
அலகு:3		**13 hours**
சங்கரதாசு சுவாமிகள் - பம்மல் சம்பந்த முதலியார் - கலைவாணர் என்.எஸ்.கிருஷ்ணன் - எப்.ஜி.நடேச அய்யர் பாலாமணி அம்மையார் - எம். கந்தசாமி முதலியார் ஆகியோரின் நாடகப்பணி		
அலகு:4		**14 hours**
தாகூரின் மூன்று நாடகங்கள் - கி.நடராஜன், பாவை வெளியீடு, சென்னை.		
அலகு:5		**14 hours**
ஓரங்கநாடகம் - சமூகவிழிப்புணர்வு நாடகம் - காப்பியக் கதைக்கூறுகளை அடிப்படையாகக் கொண்ட நாடகம் எழுதுதல்.		
அலகு:6	**சம கால சிக்கல்களை மையப்படுத்தி வலைத்தளக் கருத்தரங்கம் நடத்துதல்** **துறை வல்லுநர்களை அழைத்து பயிலரங்கம் நடத்துதல்**	**2 hours**
	Total Lecture hours	**72 hours**

பாட நூல்கள்

பார்வை நூல்கள்

1	தமிழ் நாடக மலர் - உலகத் தமிழ் ஆராய்ச்சி நிறுவனம், சென்னை.
2	சிலம்புச் செல்வம் - யோகி – சுத்தானந்த பாரதியார், செல்வி பதிப்பகம், காரைக்குடி.
3	நாடகக்கலை – சி.வி.முனிசாமி, கலைக்காட்சிக்குழு, 2-வது உலகத்தமிழ் கருத்தரங்கு மாநாடு, சென்னை.
4	நாடக நறுமலர்கள் - முனைவர் புலவர் த.கோடப்பிள்ளை, கோடப்பிள்ளை அறக்கட்டளை, திருச்சி.
5	நாடகக்களஞ்சியம், தமிழ்ப் பல்கலைக்கழகம், தஞ்சாவூர்.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	
2	

Course Designed By: : **முனைவர் க.மலர்விழி**

இணைப் பேராசிரியர் மற்றும் துறைத்தலைவர்
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Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	M	M	M	M	M	S	M	M	S
CO3	M	M	M	S	M	L	M	M	M	M
CO3	M	M	M	L	M	S	M	L	M	M
CO4	S	S	M	M	L	M	M	L	M	M
CO5	M	M	L	M	M	S	M	M	L	S

*S-Strong; M-Medium; L-Low

பாடக்குறியீட்டு எண்		பாடத்தலைப்பு	L	T	P	C
விருப்பப்பாடம் -I		இ. இதழியல்	4	-	-	4
			பாடப்பிரிவு			

பாட நோக்கம்

1. இதழியல் வகைகள் குறித்து எடுத்துரைத்தல்
2. இதழியல் வளர்ச்சி வரலாறு குறித்து உணர்த்துதல்
3. இதழ்களின் பணிகள் குறித்து தெரிந்து கொள்ளுதல்

பயன்கள்

1	இதழ்கள் தொடங்குவதற்கு வழிமுறைகளை அறிந்து கொள்ளுதல்	K3
2	பத்திரிக்கைச் சட்டங்கள் குறித்து தெரிந்து கொள்ளுதல்	K1 K2
3	அரசியல், நீதி, அறிவியல், பொருளாதாரம், சொற்பொழிவுகள் குறித்து அறிதல்	K2
4	புகைப்பட, புலனாய்வு செய்திகள் உணர்தல்	K3 K4
5	இதழியல் தொழிலுக்களுக்கான வாய்ப்புகள் பத்திரிக்கை சுதந்திரம் குறித்து அறிந்து கொள்ளுதல்	K5

K1 - Remember; **K2** - Undestand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

அலகு:1		**15 hours**

மக்கள் தொடர்பு சாதனங்கள் ஓர் அறிமுகம் - இதழ்களின் வரலாறு – ஜேம்ஸ், அகஸ்டஸ்ஹிக்கி, பக்கிங்காம், இராசாராம் மோகன்ராய் ஆகியோரின் இதழியல் பணிகள்.

அலகு:2		**14 hours**

பத்திரிகைச் சட்டங்கள் - பதிப்புரிமைச் சட்டம் - இதழ்களின் பதிவுச்சட்டம் - செய்தி – செய்தி விளக்கம் - செய்தியின் இயல்புகள் - செய்தி மூலங்கள் - செய்தி வகைகள் - செய்தி நிறுவனங்கள்.

அலகு:3		**13 hours**

செய்தி ஆசிரியர் - செய்தியின் உள்ளடக்கங்கள் - செய்தித்தாள் பக்க அமைப்பு முறை – எழுதும் முறை – செம்மையாக்கம்.

அலகு:4		**14 hours**

தலையங்கங்கள் - படங்கள் (கேலிச்சித்திரங்கள்) – படங்களின் முக்கியத்துவம் - நகைச்சுவைத் துணுக்குகள் - அச்சுப்படி திருத்துதல் - அச்சுப்பிழைதிருத்தக் குறியீடுகள்.

அலகு:5		**14 hours**

நிருபர் தகுதி – கடமை – செய்தி சேகரிப்பதில் ஏற்படும் இடர்ப்பாடுகள் - செய்தி சேகரிக்கும் திறன் - பேட்டி எடுத்தல்.

அலகு:6	**சம கால சிக்கல்களை மையப்படுத்தி வலைத்தளக் கருத்தரங்கம் நடத்துதல்** **துறை வல்லுநர்களை அழைத்து பயிலரங்கம் நடத்துதல்**	**2 hours**
	Total Lecture hours	**72 hours**

பாட நூல்

1	இதழியல் கலை, டாக்டர் மா.பா.குருசாமி, தாயன்பகம், ஏ.கே.எம்.ஜி.ஆர். நகர், திண்டுக்கல்

பார்வை நூல்கள்

1	தமிழ் இதழ்கள் - சோமலெ, சென்னைப் பல்கலைக்கழகம், சென்னை.
2	இதழியல் ஓர் அறிமுகம் - ஆ.பி.அந்தோணிராசு, ஆரோக்கியம் பதிப்பகம், திருச்சி.
3	இதழியல் - இரா. கோதண்டபானி, கற்பகம் வெளியீடு, மதுரை.
4	இதழியல் - முனைவர் ச. ஈஸ்வரன், இரா.சபாபதி, பாவை பப்ளிகேஷன்ஸ், சென்னை.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	

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Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	M	M	M	M	M	S	M	M	L
CO3	S	M	M	L	M	L	M	M	M	M
CO3	M	M	M	S	M	M	M	S	M	M
CO4	M	S	M	M	L	M	M	L	M	M
CO5	M	M	L	M	M	S	M	S	M	S

*S-Strong; M-Medium; L-Low

பாடக்குறியீட்டு எண்		பாடத்தலைப்பு	L	T	P	C
விருப்பப்பாடம்		தாள் - 3 இலக்கணம்	3	-	-	3
			பாடப்பிரிவு			

பாட நோக்கம்

1. தொன்மையான தமிழ் இலக்கண நூல்களை அறியச் செய்தல்
2. இலக்கண உரையாசிரியர்களைப் பற்றி விளக்குதல்
3. கலைச் சொற்கள் உருவாக்கும் தன்மையை விளக்குதல்

பயன்கள்:

1	இலக்கண உரையாசிரியர்களின் வரலாற்றை அறிந்து கொள்ளுதல்	K2
2	அகப்பொருள் புறப்பொருள் வாயிலாக அக்காலச் சமூக நிலையை அறிதல்	K4
3	இலக்கியத்தில் அணியின் முக்கியத்துவம் குறித்து உணர்தல்	K3
4	பா, பாவினங்கள் மூலமாக படைப்பாற்றல் திறனை மேம்படுத்துதல்	K3
5	புதிய கலைச்சொல்லாக்கத்தை உருவாக்குதல்	K6

K1 - Remember; **K2** - Undestand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

அலகு:1		**15 hours**

தமிழில் இலக்கண நூல்கள் அகத்தியம் - தொல்காப்பியம் - நன்னூல் - வீரசோழியம் - நேமிநாதம் - தண்டியலங்காரம் - யாப்பருங்கலக்காரிகை – உரையாசிரியர்கள் வரலாறு.

அலகு:2		**14 hours**

அகப்பொருள் - முதல், கரு, உரிப்பொருட்கள் - புறப்பொருள் - பன்னிருதிணைகள் - அகத்திணை, கைக்கிளை, பெருந்திணை உட்பட ஏழு வகைகளும் - அகத்துறை – புறத்துறை – விளக்கங்கள்.

அலகு:3		**13 hours**

அணி இலக்கணம் - உவமை – எடுத்துக்காட்டு உவமணி – உருவக அணி – ஏகதேச உருவக அணி – சொற்பொருட்பின்வரு நிலையணி – தற்குறிப்பேற்றவணி – மயக்கஅணி - இல்பொருளுவமை அணி – வேற்றுமையணி – பிறிது மொழிதலணி – நிரல் நிரை அணி – வஞ்சப்புகழ்ச்சியணி.

அலகு:4		**14 hours**

பாவுக்குரிய அடியும் ஓசையும் - வெண்பா இலக்கணமும் வகைகளும் - ஆசிரியப்பா இலக்கணமும் வகைகளும் - கலிப்பா இலக்கணமும், வகைகளும், வஞ்சிப்பா இலக்கணமும் வகைகளும் - மருட்பா வகைகள்.

அலகு:5		**14 hours**

கலைச்சொல்லாக்கம் - கடன் வாங்கிய சொற்கள் - புதிய சொற்களும், தொடர் மொழிகளும், ஆங்கிலப் பழமொழிகள், மரபுத்தொடர்கள் தமிழில் மொழி பெயர்த்தல் - மரபுத்தொடர்களும் மானுட வாழ்க்கையும் அறிதல்.

அலகு:6	**சம கால சிக்கல்களை மையப்படுத்தி வலைத்தளக் கருத்தரங்கம் நடத்துதல்** **துறை வல்லுநர்களை அழைத்து பயிலரங்கம் நடத்துதல்**	**2 hours**
	Total Lecture hours	**72 hours**

பாட நூல்கள்

பார்வை நூல்கள்

1	அ.கி.பரந்தாமனார் - நல்ல தமிழ் எழுத வேண்டுமா? – பாரி நிலையம், 184, பிரகாசம் சாலை, சென்னை-108.
2	தண்டி - தண்டியலங்காரம் - கழக வெளியீடு
3	விசாகப்பெருமாளையர் - யாப்பிலக்கணம் - கழகவெளியீடு.
4	புலவர் க.இளங்கோவன் - மரபுத்தொடர்களும் மானுட வாழ்க்கையும், விஜயா பதிப்பகம், கோவை.

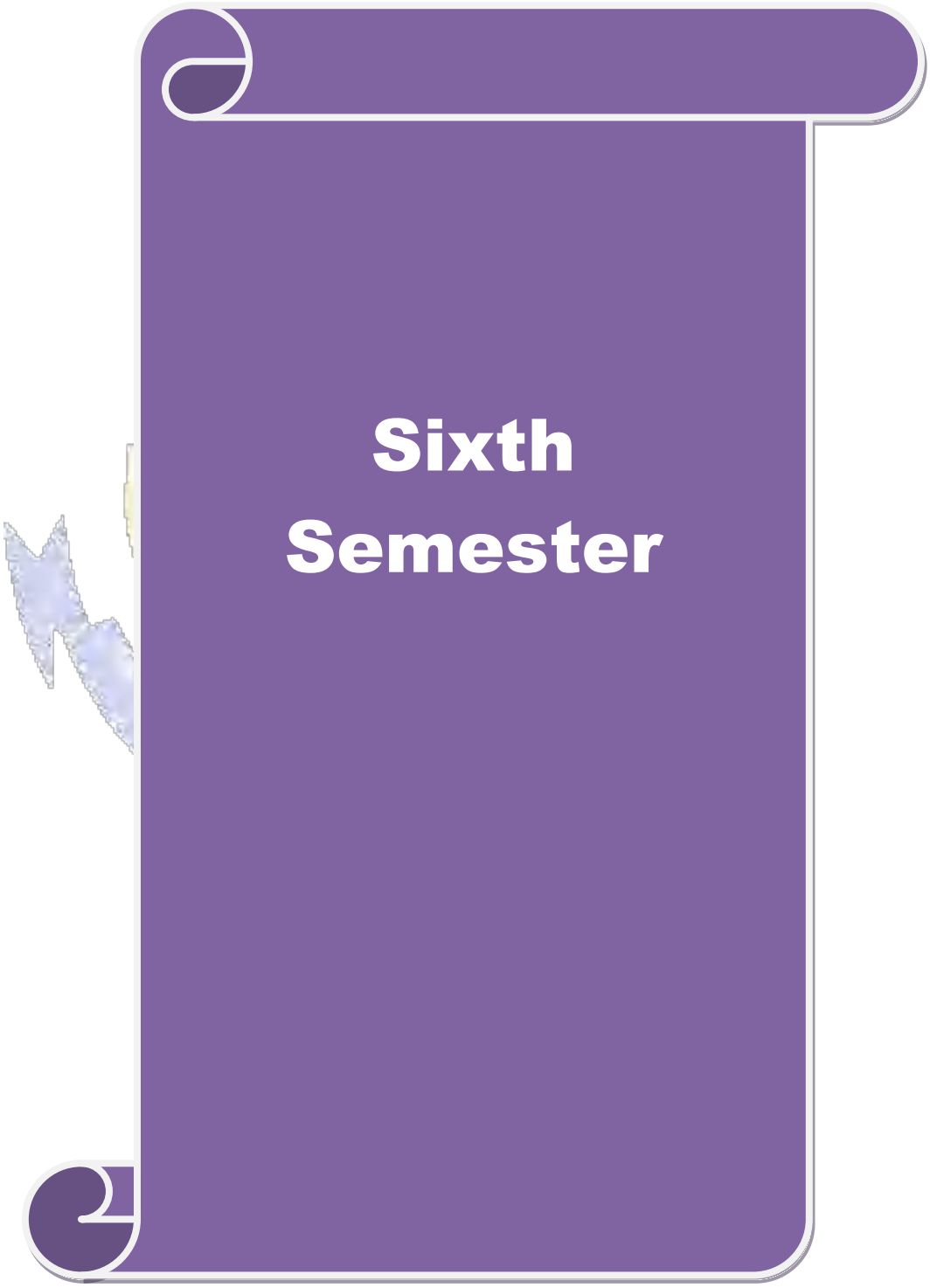
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	

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Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	M	S	M	M	M	M	S	M	M	L
CO3	M	L	M	L	M	L	M	L	M	M
CO3	M	M	M	S	M	L	M	S	M	M
CO4	M	S	M	M	L	M	M	L	M	M
CO5	M	M	L	M	M	S	M	M	S	M

*S-Strong; M-Medium; L-Low


Sixth
Semester

ஆறாம் பருவம் - VI

பாடக்குறியீட்டு எண்		பாடத்தலைப்பு	L	T	P	C
முதன்மைப்பாடம்		தாள் - 13 சங்க இலக்கியம் அகம்	**4**	**-**	**-**	**4**
			பாடப்பிரிவு			

பாட நோக்கம்

1. பழந்தமிழ் இல்லற நெறியை உணர்த்துதல்
2. பழங்கால வரலாற்றுப் பதிவுகள் வழி வணிக அறிவு பெற வைத்தல்
3. அறிவார்ந்த பொழுதுபோக்கு வழி பண்டைத் தமிழரின் மனத்திண்மையை அறியச் செய்தல்

பயன்கள் :

1	பழந்தமிழர்களின் வாழ்வியல் முறைகளை அறிதல்	K2
2	புலவர்களின் தனித்தன்மையைத் தெரிந்து கொள்ளுதல்	K3
3	சங்க கால இயற்கைச் சூழலை அறிந்து கொள்ளுதல்	K3
4	பண்டைய கால நட்பின் ஆழத்தை உணர்தல்	K5
5	தொன்மையான பண்பாட்டை அறிதல்	K2

K1 - Remember; **K2** - Undestand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

அலகு:1	**கற்பு வாழ்க்கை நெறி**	**13 hours**
நற்றிணை – பாடல் எண்கள் (1, 42, 59, 110, 142, 179, 214, 221, 243) 9 பாடல்கள்		
அலகு:2	**அன்பியல் நெறி**	**14 hours**
குறுந்தொகை – பாடல் எண்கள் (3, 7, 17, 18, 40, 49, 58, 59) 8 பாடல்கள்		
அலகு:3	**களவு வாழ்க்கை நெறி**	**14 hours**
ஐங்குநுறூறு – 1. தாய்க்குரைத்த பத்து (நெய்தல்), 2.தலைவி இரங்கு பத்து (பாலை)		
அலகு:4	**வரலாற்றுப் பதிவுகள்**	**15 hours**
அகநானூறு – பாடல் எண்கள் (69, 76, 77, 149, 251, 265, 281, 375) 8 பாடல்கள்		
அலகு:5	**பண்டைத் தமிழர்களின் விளையாட்டுகள்**	**14 hours**
கலித்தொகை – பாடல் எண்கள் (37, 68, 82, 101, 102, 106) 6 பாடல்கள்		
அலகு:6	**சம கால சிக்கல்களை மையப்படுத்தி வலைத்தளக் கருத்தரங்கம் நடத்துதல்** **துறை வல்லுநர்களை அழைத்து பயிலரங்கம் நடத்துதல்**	**2 hours**
	Total Lecture hours	**72 hours**

பாட நூல்கள்

1 எட்டுத்தொகை நூல்கள்

பார்வை நூல்கள்

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

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Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	M	M	M	M	M	M	S	M	M	S
CO3	S	M	M	L	M	L	M	M	M	M
CO3	M	M	M	S	M	M	M	M	M	M
CO4	S	M	M	M	S	M	M	L	M	M
CO5	M	M	L	M	M	S	M	M	S	L

*S-Strong; M-Medium; L-Low

பாடக்குறியீட்டு எண்		பாடத்தலைப்பு	L	T	P	C
முதன்மைப்பாடம்		தாள் - 14 சங்க இலக்கியம் புறம்	4	-	-	4
			பாடப்பிரிவு			

பாட நோக்கம் :

1. மன்னர்களின் வரலாற்றை எடுத்துரைத்தல்
2. ஆட்சிச் சிறப்பு, கொடை, நட்பு போன்றவைகளை அறிய வைத்தல்
3. பண்டைத் தமிழரின் வீர உணர்வை அறிய வைத்தல்

பயன்கள்

1	மறத்திலும் அறம் போற்றும் பண்பை உணர்தல்	K2
2	பண்டைத் தமிழரின் போர் மரபு, போர் திறம் அறிதல்	K2
3	மன்னர்களின் போர் கருவிகள் குறித்து தெரிந்து கொள்ளுதல்	K3
4	தன்மான உணர்வு, வஞ்சின மொழியை உணர்தல்	K4
5	தமிழர்களின் பண்பாட்டு உணர்வைப் பெறுதல்	K5

K1 - Remember; **K2** - Undestand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

அலகு:1	**வாழ்வியல் நெறிகள்**	**15 hours**

புறநானூறு – 9, 18, 67, 107, 109, 194, 195, 212, 214, 223) (10 பாடல்கள்)

அலகு:2	**கொடை மாட்சி**	**13 hours**

பதிற்றுப்பத்து – 2-ஆம் பத்து பாடல் எண் - 20
3ஆம் பத்து பாடல் எண் - 24
4ஆம் பத்து பாடல் எண் - 38
5ஆம் பத்து பாடல் எண் - 46
6ஆம் பத்து பாடல் எண் - 60
7ஆம் பத்து பாடல் எண் - 67
8ஆம் பத்து பாடல் எண் - 80

அலகு:3	**வணிக மாட்சி**	**14 hours**

பட்டினப்பாலை – பாடல் வரிகள் (1 முதல் 193 வரை)

அலகு:4	**நிலையாமை நெறிகள்**	**14 hours**

திருக்குறள், அதிகார எண்கள் : 34, 35, 36, 37, 38 (5 அதிகாரங்கள்)

அலகு:5	**இயற்கையும் இறை மாண்பும்**	**14 hours**

பத்துப்பாட்டு – திருமுருகாற்றுப்படை முழுவதும்.

அலகு:6	**சம கால சிக்கல்களை மையப்படுத்தி வலைத்தளக் கருத்தரங்கம் நடத்துதல்** **துறை வல்லுநர்களை அழைத்து பயிலரங்கம் நடத்துதல்**	**2 hours**
	Total Lecture hours	**72 hours**

பாட நூல்கள்

1	எட்டுத்தொகை நூல்கள்
2	பத்துப்பாட்டு நூல்கள்

பார்வை நூல்கள்

1	
2	

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	
2	

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Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	M	M	M	M	M	M	S	M	M	S
CO3	L	M	M	L	M	S	M	M	M	M
CO3	M	M	M	S	M	L	M	S	M	S
CO4	M	S	M	M	L	M	M	L	M	M
CO5	S	M	S	M	M	L	M	M	S	M

*S-Strong; M-Medium; L-Low

பாடக்குறியீட்டு எண்		பாடத்தலைப்பு	L	T	P	C
முதன்மைப்பாடம்		தாள் - 15 தமிழ்மொழி வரலாறு	4		-	4
			பாடப்பிரிவு			

பாட நோக்கம்

1. மொழி அமைப்பையும் வரலாற்றையும் எடுத்துரைத்தல்
2. தமிழ் வரி வடிவங்களை அறிய வைத்தல்
3. தமிழின் பிற மொழி கலப்பு வரலாற்றை விளக்குதல்

பயன்கள் :

1	மொழி வரலாற்றினை உணர்தல்	K1
2	தமிழ் பிராமி கல்வெட்டுகளைப் புரிந்து கொள்ளுதல்	K2
3	தமிழ் சொற்டொடர் அமைப்பை அறிதல்	K4
4	தமிழின் கிளை மொழிகளை அறிந்து கொள்ளுதல்	K3
5	அரசுப் போட்டித் தேர்வுகளுக்கான விழிப்புணர்வுப் பெறுதல்	K5

K1 - Remember; **K2** - Undestand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

அலகு:1	**15 hours**
தோற்றுவாய் - மொழி அமைப்பும் வரலாறும் - மொழி வரலாற்றுச் சான்றுகள் - தொல்-திராவிட மொழியும்	
அலகு:2	**13 hours**
பழங்காலத்தமிழ் - தமிழ்ப் பிராமி கல்வெட்டுகளின் மொழி – தொல்காப்பியத் தமிழ் - சங்க காலத் தமிழ் - சங்க மருவிய காலத் தமிழ்	
அலகு:3	**14 hours**
இடைக்காலத் தமிழ் -பல்லவர் காலத் தமிழ் - சோழர் காலத்தமிழ் - நாயக்கர் காலத் தமிழ் - மராட்டியர் காலத் தமிழ்	
அலகு:4	**14 hours**
தற்காலத் தமிழ் - பத்தொன்பதாம், இருபதாம் நூற்றாண்டுத் தமிழ் - கல்வெட்டுத் தமிழ் - தமிழில் பிற மொழிக் கலப்பு – தமிழ்க் கிளை மொழிகள்	
அலகு:5	**14 hours**
தமிழ்ச் சொற்பொருள் மாற்றம் - தமிழ்த் தொடரியல், தமிழ் வரிவடிவ வரலாறு	
அலகு:6	**2 hours**
சம காலச் சிக்கல்களை மையப்படுத்தி வலைத்தளக் கருத்தரங்கம் நடத்துதல் துறை வல்லுநர்களை அழைத்து பயிலரங்கம் நடத்துதல்	
Total Lecture hours	**72 hours**

பாட நூல்

1. தமிழ்மொழி வரலாறு, சு.சக்திவேல், மணிவாசகர் பதிப்பகம். சென்னை

பார்வை நூல்கள்

1. தெ.பொ.மீனாட்சி சுந்தரனார் - தமிழ் மொழி வரலாறு – காவ்யா பதிப்பகம், சென்னை
2. சூரியநாராயண சாஸ்திரி (பரிதிமாற் கலைஞர்) - தமிழ் மொழியின் வரலாறு – உலகத் தமிழாராய்ச்சி நிறுவனம், சென்னை

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1.

Course Designed By:
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Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	M	M	M	M	M	M	S	M	M	S
CO3	L	M	M	L	M	L	M	M	M	M
CO3	M	M	M	S	M	M	M	M	M	S
CO4	S	L	M	S	M	M	M	L	M	M
CO5	M	S	M	M	M	S	M	M	L	S

*S-Strong; M-Medium; L-Low

Elective Courses

பாடக்குறியீட்டு எண்		பாடத்தலைப்பு	L	T	P	C
விருப்பப்பாடம் -II		அ. ஆட்சித்தமிழ்	4	-	-	4
			பாடப்பிரிவு			

பாட நோக்கம்

1. ஆட்சித்தமிழின் வரலாற்றை அறியச் செய்தல்
2. மொழி வளர்ச்சியே நாட்டின் வளர்ச்சி என்பதனை உணர்த்துதல்
3. தமிழுக்கு நாம் ஆற்றவேண்டிய இன்றியமையாத கடமையைப் புரிய வைத்தல்

பயன்கள்

1	ஆட்சி மொழிச் சட்டம் மற்றும் திட்டம் குறித்த அறிவைப் பெறுதல்	K5
2	தமிழ் வளர்ச்சித் துறைக்கு ஒத்துழைப்புக் கொடுத்தல்	K3
3	கலைச்சொல் உருவாக்கக் கற்றுக் கொள்ளுதல்	K1
4	மொழியாக்கப் பணியில் ஈடுபடுதல்	K4
5	ஆட்சித் தமிழ் வளர்ச்சிப் பணிக்கு உதவுதல்	K6

K1 - Remember; **K2** - Undestand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

அலகு:1		**15 hours**
	ஆட்சி மொழித்திட்டம்	
அலகு:2		**13 hours**
	சட்டங்கள் - ஆணைகள் ஆட்சி மொழியும் தமிழ் வளர்ச்சித் துறையும்	
அலகு:3		**14 hours**
	திட்டச் செயலாக்க நிலை – கலைச்சொற்கள்	
அலகு:4		**14 hours**
	மொழியாக்கம் - சிக்கல்களும் தீர்வுகளும்	
அலகு:5		**14 hours**
	பார்வைக்கும் பயன்பாட்டிற்கும்	
அலகு:6	**சம கால சிக்கல்களை மையப்படுத்தி வலைத்தளக் கருத்தரங்கம் நடத்துதல்** **துறை வல்லுநர்களை அழைத்து பயிலரங்கம் நடத்துதல்**	**2 hours**
	Total Lecture hours	**72 hours**

பாட நூல்

1. ஆட்சித்தமிழ், த. பெரியாண்டவர், வளர்தமிழ் பதிப்பகம், 40, அஞ்சுகம் நகர், சென்னை-600095.

பார்வை நூல்கள்

1. முனைவர் நா.ராசகோபாலன் - தமிழ் ஆட்சி மொழி சிக்கல்களும் தீர்வுகளும், அன்பு பதிப்பகம்,சென்னை
2. புலவர் நா.சுந்தரராசன் - தமிழ் ஆட்சி மொழி, மணிவாசகர் பதிப்பகம், சென்னை

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1.

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Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M	M	M	L	M	M	S	M	M	L
CO3	L	M	M	L	M	L	M	M	M	M
CO3	M	L	M	L	S	M	S	M	S	M
CO4	M	S	M	M	L	M	M	L	M	M
CO5	S	M	M	S	M	S	M	M	L	M

*S-Strong; M-Medium; L-Low

பாடக்குறியீட்டு எண்		TITLE OF THE COURSE	L	T	P	C
விருப்பப்பாடம் -II		ஆ.கோயிற்கலைகள்	4	-	-	4
			பாடப்பிரிவு			

பாட நோக்கம்

1. பண்டைத்தமிழரின் கலை அறிவை அறியச் செய்தல்
2. கலையைக் கற்கும் ஆர்வத்தைத் தூண்டுதல்
3. தமிழ்நாட்டு கோயில்களைக் கால வரிசையில் ஒப்பிட்டு அடிப்படை அறிவு பெறுதல்

பயன்கள் :

1	சங்க காலம் உள்ளிட்ட கலைகளை அறிந்து கலை அறிவு பெறுதல்	K1
2	ஆகம விதிகள், கோயில் இலக்கணம் உள்ளிட்ட துறைகளில் வல்லுநர் ஆகுதல்	K3
3	காலந்தோறும் கோவில்களின் அமைப்பில் அடைந்துள்ள மாற்றத்தை அறிதல்	K4
4	கோபுர நிலைகள் குறித்த அறிவினைப் பெறுதல்	K5
5	சிற்பக் கலையில் சிறந்த திறன் பெறுதல்	K6

K1 - Remember; **K2** - Undestand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

அலகு:1		**15 hours**

சங்ககாலக் கலை – கட்டிடக் கலை – ஓவியக்கலை – சிற்பக் கலை - இசைக்கலை, கூத்து – நாடகம்.

அலகு:2		**13 hours**

தமிழ்நாட்டுக் கோவில்கள் - மன்னர் எடுப்பித்த கோவில்கள் - தேவியர் எடுப்பித்த கோவில்கள் - கோவில்களின் வகை – மனை நூல்கள் - ஆகமங்கள் - கோவில் இலக்கணம்

அலகு:3		**14 hours**

தமிழகக் கோயில்களின் வரலாறு - பல்லவர் கால ஒற்றைக் கற்கோவில்கள் - கட்டிடக் கோவில்கள் - திருவதிகை வீரட்டானம் - பாண்டியர் காலம் - வெட்டுவான் கோவில் - அதியமான் கோவில்கள் - சோழர்காலம் - விஜயாலயர் - அகித்தன் - பழுவேட்டரையர் பராந்தகன் - செம்பியன் மாதேவி - இராஜராஜன் - இராஜேந்திர சோழன் முதலியவர்களால் கட்டப்பட்ட கோயில்கள்

அலகு:4		**14 hours**

தமிழ்நாட்டுச் சோழர்கள் - இராஜசிம்ம பல்லவன் கட்டிய கோபுரங்கள் - விமானங்கள் - தில்லைக் கோபுரம் - விஜயநகரப் பேரரசர் காலக் கோபுரங்கள் - இராயர் கோபுரங்கள்

அலகு:5		**14 hours**

தமிழ்நாட்டுச் சிற்பங்கள் - சுதை உருவங்கள் - கற்சிற்பங்கள் - சோழர்காலச் செப்புத் திருமேனிகள் - செய்முறை – தமிழக ஓவியங்கள்.

அலகு:6	**சம கால சிக்கல்களை மையப்படுத்தி வலைத்தளக் கருத்தரங்கம் நடத்துதல்** **துறை வல்லுநர்களை அழைத்து பயிலரங்கம் நடத்துதல்**	**2 hours**
	Total Lecture hours	**72 hours**

பாட நூல்

1	தமிழகக் கோயிற்கலை – தொல்பொருள் ஆய்வுத்துறை வெளியீடு
2	டாக்டர் ஏ.ஏகாம்பரநாதன் - தமிழகச் சிற்ப ஓவியக் கலைகள், கழக வெளியீடு,
3	தி.இராசமாணிக்கம் - இந்துசமயக் கடவுள்களின் திருவுருவங்கள், கழக வெளியீடு.

பார்வை நூல்கள்

1	அம்பை மணிவண்ணன் - தமிழகக் கோயில்களின் வரலாறு – ஏ.ஆர். பப்ளிக்கேஷன்ஸ், சென்னை

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

Course Designed By: **முனைவர் க.மலர்விழி**
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Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	M	M	S	M	M	M	S	M	M	M
CO3	L	M	M	L	M	L	M	M	M	M
CO3	M	M	M	S	M	M	M	M	M	M
CO4	M	S	M	M	M	S	M	L	M	M
CO5	M	M	L	M	M	L	S	M	M	S

*S-Strong; M-Medium; L-Low

பாடக்குறியீட்டு எண்		பாடத்தலைப்பு	L	T	P	C
விருப்பப்பாடம் - II		இ. இந்தியத் தத்துவம்	4	-	-	4
			பாடப்பிரிவு			

பாடநோக்கம்

1. வேத உபநிடதங்களின் உட்கருத்தை அறிய வைத்தல்
2. வேத நிலை கடந்த சமயக் கருத்துகளை விளக்குதல்
3. அறிவு நிலைக்கு இட்டுச் செல்லும் சித்தாந்த மரபுகளை எடுத்துரைத்தல்

பயன்கள் :

1	இந்தியாவில் வேத உபநிடதங்கள் குறித்து தெரிந்து கொள்ளல்	K1
2	வைதீகத்தில் நின்றும் மாறுபட்ட அவைதீகத் தத்துவங்களை அறிதல்	K1
3	ஐவகை தரிசனம் வழி உலகு அறிவு பெறுதல்	K5
4	வேதாந்த கருத்துக்கள் வழி வாழ்வியலை அணுகுதல்	K4
5	சைவசித்தாந்தம் என்னும் அறிவு நிலை தத்துவத்தை வழிபாட்டு முறையோடு ஒப்பிட்டு சீவனை சிவனாக்குதல்	K4

K1 - Remember; **K2** - Undestand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

அலகு:1		**15 hours**
வேத உபநிடதங்கள்		
அலகு:2		**13 hours**
அவைதிக தத்துவங்கள்		
அலகு:3		**14 hours**
ஐவகை தரிசனம்		
அலகு:4		**14 hours**
மூவகை வேதாந்தம்		
அலகு:5		**14 hours**
சைவ சித்தாந்தம்		
அலகு:6	**சம கால சிக்கல்களை மையப்படுத்தி வலைத்தளக் கருத்தரங்கம் நடத்துதல்** **துறை வல்லுநர்களை அழைத்து பயிலரங்கம் நடத்துதல்**	**2 hours**
	Total Lecture hours	**72 hours**

பாட நூல்

1. இந்தியத் தத்துவ ஞானம் - கி.இலட்சுமணன், பழனியப்பா பிரதர்ஸ், சென்னை

பார்வை நூல்கள்

1. எஸ்.தோதத்திரி, இந்தியத் தத்துவம், நியூ செஞ்சுரி புக் ஹவுஸ், சென்னை
2. ஜெ.கிருஷ்ண மூர்த்தி - இந்தியத் தத்துவம் ஓர் அறிமுகம், பாரதி புத்தகாலயம், சென்னை

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

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Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	M	M	M	M	M	M	S	M	S	M
CO3	M	M	M	L	M	L	M	M	M	M
CO3	M	M	M	S	M	M	L	M	S	M
CO4	S	S	M	M	L	M	M	L	M	M
CO5	M	M	L	M	M	S	M	L	M	M

*S-Strong; M-Medium; L-Low

பாடக்குறியீட்டு எண்		பாடத்தலைப்பு	L	T	P	C
விருப்பப்பாடம் - III		அ. மொழிபெயர்ப்பியல்	4	-	-	4
			பாடப்பிரிவு			

பாட நோக்கம்

1. மொழிபெயர்ப்புத் துறையின் முக்கியத்துவத்தை அறிவுறுத்தல்
2. மொழிபெயர்ப்பு நுட்பங்களைக் கற்றுக் கொடுத்தல்
3. மொழிபெயர்ப்பு துறையின் போக்கை எடுத்துரைத்தல்

பயன்கள்

1	மொழிபெயர்ப்பு ஆற்றல் பெறுதல்	K5
2	தமிழ் ஆங்கில இலக்கணப் ஒப்பாய்வு சிந்தனையைப் பெறுதல்	K3 K5
3	படைப்பாற்றல் மற்றும் இலக்கணப் புலமை அடைதல்	K6
4	இருமொழிப் புலமை பெறுதல்	K3
5	அரசு போட்டித் தேர்வுகளுக்கானத் தகுதி அடைதல்	K5

K1 - Remember; **K2** - Undestand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

அலகு:1		**15 hours**
மொழிபெயர்ப்பின் தோற்றமும் வளர்ச்சியும் - மொழி பெயர்ப்பு – விளக்கம்		
அலகு:2		**13 hours**
மொழிபெயர்ப்பின் வகைகள் - கோட்பாடுகள் - மொழிபெயர்ப்பின் நெறிமுறைகள்		
அலகு:3		**14 hours**
மொழிபெயர்ப்பின் நிகரன்கள் - மொழி பெயர்ப்பின் சிக்கல்கள்		
அலகு:4		**14 hours**
கலைச்சொல்லாக்கம் - மொழிபெயர்ப்புத் தகுதிகள்		
அலகு:5		**14 hours**
மொழிபெயர்ப்பின் நோக்கமும் பயனும் - தமிழின் மொழி பெயர்ப்புகள்		
அலகு:6	**சம கால சிக்கல்களை மையப்படுத்தி வலைத்தளக் கருத்தரங்கம் நடத்துதல்** **துறை வல்லுநர்களை அழைத்து பயிலரங்கம் நடத்துதல்**	**2 hours**
	Total Lecture hours	**72 hours**

பாட நூல்

1. மொழிபெயர்ப்பியல், ந.முருகேச பாண்டியன், உயிர் எழுத்து பதிப்பகம், கரு மண்டபம், திருச்சி-1.

பார்வை நூல்கள்

1. முருகையன் - மொழிபெயர்ப்பு நுட்பம் - ஓர் அறிமுகம், குமரன் புத்தக இல்லம், சென்னை
2. சு.சண்முகவேலாயுதம் - மொழிபெயர்ப்பியல் - உலகத் தமிழாராய்ச்சி நிறுவம், சென்னை

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1.
2.

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Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	M	M	M	M	M	M	S	M	M	S
CO3	S	M	M	L	M	L	M	M	M	M
CO3	M	M	M	S	M	M	M	M	M	M
CO4	M	S	M	M	L	M	M	L	M	M
CO5	M	M	L	M	M	S	M	M	S	L

*S-Strong; M-Medium; L-Low

பாடக்குறியீட்டு எண்		பாடத்தலைப்பு	L	T	P	C
விருப்பப்பாடம் - III		ஆ. சுற்றுலாவியல்	4	-	-	4
			பாடப்பிரிவு			

பாட நோக்கம்

1. சுற்றுலா வளர்ச்சி குறித்து எடுத்துரைத்தல்
2. சுற்றலாத் துறையில் ஏற்படும் நன்மைகள் மற்றும் பொருளாதார விளைவுகளை அறிய வைத்தல்
3. இன்றைய உலகளாவிய நோக்கில் சுற்றுலா குறித்த பரந்துபட்ட அறிவை மேம்படுத்துதல்

பயன்கள் :

1	சுற்றுலா குறித்த அடிப்படை அறிவு பெறுதல்	K1
2	பயணிகள் குறித்த செய்திகளும் சுற்றுலா திட்டமிடுதல் குறித்தும் அறிந்து கொள்ளுதல்	K3
3	சுற்றுலா கழகங்கள் குறித்த அறிவு பெறுதல்	K2
4	பயணப் போக்குவரத்து குறித்த செய்திகளை அறிந்து கொள்ளல்	K3
5	பயண முகவர்களாகவும் வழிகாட்டியாகவும் வேலை வாய்ப்புப் பெறுதல்	K5

K1 - Remember; **K2** - Undestand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

அலகு:1		**15 hours**
சுற்றுலா ஒரு விளக்கம் - உலகநாடுகளில் சுற்றுலா வளர்ச்சி – தமிழ்நாட்டில் சுற்றுலா வளர்ச்சி		
அலகு:2		**13 hours**
பன்னாட்டுப் பலவகைப் பயணிகள் - சுற்றுலாப் பயணிகள் பற்றிய புள்ளி விவரங்கள் - சுற்றுலா திட்டமிடல் - சுற்றுலா மேம்பாடு		
அலகு:3		**14 hours**
சுற்றுலாவியல் - பொருளாதார விளைவுகள் - சுற்றுலாக் கழகங்கள் - சுற்றுலா – சுற்றுலா வணிகச் சந்தை		
அலகு:4		**14 hours**
பயண முகவர்கள் - வழிகாட்டிகள்		
அலகு:5		**14 hours**
பல்வேறு போக்குவரத்துகள் - தமிழ் இலக்கியத்தில் பயணநூல்கள்		
அலகு:6	**சம கால சிக்கல்களை மையப்படுத்தி வலைத்தளக் கருத்தரங்கம் நடத்துதல்** **துறை வல்லுநர்களை அழைத்து பயிலரங்கம் நடத்துதல்**	**2 hours**
	Total Lecture hours	**72 hours**

பாட நூல்

1. சுற்றுலா வளர்ச்சி, வெ.கிருட்டிணசாமி, மணிவாசகர் பதிப்பகம், 8.:.7, சிங்கர் தெரு, பாரிமுனை, சென்னை – 600 108.

பார்வை நூல்கள்

1. எஸ்.ஆர்.ஈஸ்வரன் - சுற்றுலாவியல், பாவை பப்ளிக்கேஷன்ஸ், சென்னை
2. முனைவர் கமலம் சங்கர் - சுற்றுலாவும் பிற துறைகளும், நியூ செஞ்சுரி புக் ஹவுஸ், சென்னை

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1. www.tamildigitallibrary.in
2. www.tamilkalvi.in
3. www.tamilsurangam.in

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Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	M	M	M	M	M	M	S	M	M	L
CO3	L	M	M	L	M	L	M	M	M	M
CO3	S	M	M	S	M	M	L	M	M	S
CO4	M	S	M	M	L	M	M	L	M	M
CO5	S	M	M	L	M	S	M	M	L	S

*S-Strong; M-Medium; L-Low

பாடக்குறியீட்டு எண்		பாடத்தலைப்பு	L	T	P	C
விருப்பப்பாடம் - III		இ. சித்தர் பாடல்கள்	4	-	-	4
			பாடப்பிரிவு			

பாட நோக்கம்

1. பதினெண் சித்தர்கள் குறித்து அறிய வைத்தல்
2. சித்தர்களின் அடிப்படைக் கோட்பாடுகளை விளக்குதல்
3. மனித வாழ்க்கையின் நிலையாமையை அறிவுறுத்துதல்

பயன்கள்

1	சித்தர்களின் அறநெறி வாழ்க்கையை அறிந்து கொள்ளுதல்	K2
2	சித்தர்களின் தன்னலமற்ற வாழ்க்கையை தெரிந்து கொள்ளல்	K4
3	சாதி பேதமற்ற வாழ்வை உணர்தல்	K5
4	உயிர்கள் அனைத்தும் பசிப்பிணி இல்லா நல்வாழ்வு வாழ்வதை உணர்தல்	K3
5	பொறாமை, அகம்பாவம், பேராசை இவற்றை நீக்கி வாழும் முறையை அறிதல்	K3

K1 - Remember; **K2** - Undestand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

அலகு:1		**15 hours**
சிவவாக்கியர் - அறிவுநிலை - 47 முதல் 66 வது பாடல் வரை (20 பாடல்கள்)		
அலகு:2		**13 hours**
பாம்பாட்டிச் சித்தர் : 1. பொருளாசை விலகல் (40 முதல் 49 வரை) 2. பெண்ணாசை விலகல் (50 முதல் 59 வரை) (20 பாடல்கள்)		
அலகு:3		**14 hours**
பட்டினத்தார் : 1.ஆப்பு அசைத்த குரங்கு (2 பாடல்கள்) 2.அன்னை இறந்த போது பாடியவை (10 பாடல்கள்) 3.இறந்த காலத்து இரங்கல் (10 பாடல்கள்)		
அலகு:4		**14 hours**
இடைக்காட்டுச் சித்தர் - நாராயணக் கோனார் கூற்றுக் கண்ணிகள் (11-24) (ப. 243)		
அலகு:5		**14 hours**
கடுவெளிச்சித்தர் - ஆனந்தக் களிப்பு 34 பாடல்கள்		
அலகு:6	**சம கால சிக்கல்களை மையப்படுத்தி வலைத்தளக் கருத்தரங்கம் நடத்துதல்** **துறை வல்லுநர்களை அழைத்து பயிலரங்கம் நடத்துதல்**	**2 hours**
	Total Lecture hours	**72 hours**

பாட நூல்

1	சித்தர் பாடல்கள் பதி.ஆ. முனைவர் ச. மெய்யப்பன், மணிவாசகர் பதிப்பகம். 8.:7, சிங்கர் தெரு, பாரிமுனை, சென்னை – 600 108.

பார்வை நூல்கள்

1	பி.என்.பரசுராமன் - சித்தர்கள் வாழ்க்கை, விகடன் பிரசுரம், சென்னை
2	கே.ராஜாதிருவேங்கடம் - கொல்லிமலை சித்தர்கள், விகடன் பிரசுரம், சென்னை

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	
2	

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Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	M	M	S	M	M	L	M	M	L

CO3	L	M	M	L	M	L	M	M	M	M
CO3	M	M	M	S	M	S	M	L	M	S
CO4	M	S	M	M	L	M	M	L	M	M
CO5	M	M	L	M	M	S	L	M	S	M

*S-Strong; M-Medium; L-Low

பாடக்குறியீட்டு எண்		பாடத்தலைப்பு	L	T	P	C
சார்புப்பாடம்		தாள் - 4 இலக்கியம்	3	-	-	3
			பாடப்பிரிவு			

பாட நோக்கம்

1. தற்கால இலக்கியத்தின் நோக்கும் போக்கும் அறிய வைத்தல்
2. செய்யுள் நயங்களை எடுத்துரைத்தல்
3. படைப்பாற்றல் திறனை மேம்படுத்துதல்

பயன்கள்

1	கவிதை உருவாக்குதல்	K6
2	வாசிப்பு திறன் பெறுதல்	K5
3	நாடக வசனம் எழுதுதல்	K3
4	படைப்பாற்றல் திறன் பெறுதல்	K6
5	மொழிப்பெயர்க்கும் ஆற்றலை வளர்த்துக் கொள்ளுதல்	K5

K1 - Remember; **K2** - Undestand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

அலகு:1		**15 hours**

மரபுக்கவிதை – புதுக்கவிதை புனைதல் - வெண்பா எழுதுதல் - பாக்களை உரக்க வாசித்தல் - தாலாட்டு – குழந்தை – விடுகதை – நாடு – தெம்மாங்கு – அம்மானை – கும்மி – கோலாட்டப்பாடல்கள் தேர்ந்தெடுத்து அறிதல்.

அலகு:2		**13 hours**

செய்யுள் நலம் பாராட்டல் - மோனை – எதுகை - இயைபு, கருத்து, வடிவம் பற்றி திறனாய்தல் - கொடுக்கப்பட்ட செய்யுளின் கருத்தினை எழுதுதல்.

அலகு:3		**14 hours**

செய்யுள் நாடகம் - உரைநடை நாடகம் - ஓரங்க நாடகம் - பாரதி – பாரதிதாசன் - கவி மணி படைப்புக்களில் ஏதேனும் ஒன்றைத் தேர்ந்தெடுத்து வாசித்தல் - சொந்தமாக படைப்புத்திறனை வளர்த்தல் - எழுதுதல்.

அலகு:4		**14 hours**

செய்தித்தாள் அமைப்பும், கட்டுரைகளும் - கல்லூரி ஆண்டறிக்கை – விளையாட்டு, சங்க அறிக்கைகள் தயாரித்தல் - வார, மாத இதழ்களில் வாசித்தலும் எழுதுதலும், கடித இலக்கியம் - அண்ணாவின் கடிதங்கள், கடிதம் எழுதுதல் - பயணக் கட்டுரைகள் - ஆன்மீகக் கட்டுரைகள் எழுதுதல்.

அலகு:5		**14 hours**

விண்ணப்பம் எழுதும் முறை – ஆங்கிலத்திலுள்ள வணிகம். அரசுசார்பு அலுவலக கடிதத்தை தமிழில் மொழிபெயர்த்தல் - பிறமொழி குறிப்பாக தெலுங்கு. கன்னடம், மலையாளம் ஆகிய திராவிட மொழிகளின் தமிழ் மொழிப்பெயர்ப்பு இலக்கியங்கள், கவிதை, சிறுகதை தேர்ந்தெடுத்து வாசித்தல்.

அலகு:6	**சம கால சிக்கல்களை மையப்படுத்தி வலைத்தளக் கருத்தரங்கம் நடத்துதல்** **துறை வல்லுநர்களை அழைத்து பயிலரங்கம் நடத்துதல்**	**2 hours**
	Total Lecture hours	**72 hours**

பாட நூல்கள்

1	
2	

பார்வை நூல்கள்

1	சு.பட்டாபிராமன் -மொழிப்பயன்பாடு –என்.சி.பி.ஹெச். வெளியீடு.
2	கி.வா. ஜகந்நாதன் - கவிபாடலாம் - மணிவாசகர் நூலகம், சென்னை – 1
3	மு. சுதந்திரமுத்து - படைப்புகள் - சுவடு பதிப்பகம், சென்னை – 24
4	முனைவர் ச. திருஞானசம்பந்தம் - வெண்பாக்கட்டுவதில் புதிய உத்திமுறை –இணைப் பேராசிரியர், தமிழ்த்துறை, அரசர் கல்லூரி, திருவையாறு.

5	டாக்டர் சு.சக்திவேல் - நாட்டுப்புறப் பாடல்கள் -.மணிவாசகர் பதிப்பகம், சென்னை
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	
2	

Course Designed By: **முனைவர் க.மலர்விழி**
இணைப்பேராசிரியர் மற்றும் துறைத்தலைவர்
தமிழ்த்துறை
ஸ்ரீ வாசவி கல்லூரி, ஈரோடு
malarvizhivasavi@gmail.com

Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	M	M	M	S	M	L	M	M	S
CO3	L	M	M	L	M	L	M	M	M	M
CO3	M	M	M	S	L	M	M	S	M	L
CO4	M	S	M	M	L	M	M	L	M	M
CO5	S	M	L	S	M	S	L	M	M	L

*S-Strong; M-Medium; L-Low

Value Added Course

பாடக்குறியீட்டு எண்	01	பாடத்தலைப்பு	L	T	P	C
மதிப்புக்கூட்டுப்படிப்பு (100 மதிப்பெண்கள்)		வனவியலில் உயிர்ச்சூழலியல்	2	-	-	2
			பாடப்பிரிவு			

பாடநோக்கம்

1. சூழலியல் குறித்தபுரிதல் ஏற்படுத்துதல்
2. பல்லுயிரினங்களைப் பற்றிவிழிப்புணர்வுஏற்படுத்துதல்

3.இயற்கையோடு இணக்கமாக இருத்தல்

பயன்கள்

1	இயற்கையைப் பாதுகாத்தல்	K4
2	பல்லுயிர்களைப் பேணுதல்	K1
3	சூழலியல் குறித்தவிழிப்புணர்வுஅடைதல்	K5

K1 - Remember; **K2** - Undestand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

அலகு :1 **15 hours**

தமிழ் இலக்கியங்களில் பல்லுயிர்களின் வாழிடங்கள் - புல்வெளிகளும் பெருவனங்களும் - சூழல் காப்பகங்கள் - கானுயிர் வகைகள் - வனங்களும் நீராதாரங்களும் - காப்புக்காடுகள் - விதைப்பரவலும் பறவைகளும் - அடைக்கலப்பறவைகள் - மலையும் பழங்குடிகளும்

அலகு :2 **15 hours**

நொய்யல் நதி–மேற்குதொடர்ச்சிமலை–முக்கியத்துவம் - குறிஞ்சிநிலமும் புலிகளும் - அயல் தாவரங்கள் - மனிதன் விலங்கு.முரண்கள் - வணிகமயமாதலும் சூழல் பின்னடைவும் - சமகாலஊடகங்களில் சூழல் செய்திகள் - சூழல் காக்கும் அமைப்புகளும் முன்னெடுப்புகளும்

பாட நூல்கள்

1	தியேடர் பாஸ்கர் - இன்னும் பிறக்காததலைமுறைக்காக,உயிர்மைபதிப்பகம்,சென்னை
2	ராமசந்திரகுஹா–நுகர்வெனும் பெரும்பசி,எதிர் வெளயீடு
3	கே.உல்லாஸ் கரந்த் (தமிழில்: சு.தியேடர் பாஸ்கர்) –கானுறைவேங்கை - இயற்கைவரலாறும் பராமரிப்பும்
4	கா.சு.வேலாயுதன் - நொய்யல் இன்று,சப்னாபதிப்பகம்
5	கா.சு.வேலாயுதன் - யானைகளின் வருகை, இந்துதமிழ் திசைவெளியீடு
6	கா.சு.வேலாயுதன் - சிட்டுசெல்போன் 2.0,கதைவட்டம் வெளியீடு

பார்வை நூல்கள்

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	wikipidea
2	www.digitallibrary.in
3	www.tamilsurangam.in

Course Designed By: **முனைவர் க.மலர்விழி** இணைப்பேராசிரியர் மற்றும் துறைத்தலைவர் தமிழ்த்துறை, ஸ்ரீ வாசவிகல்லூரி,ஈரோடு	**முனைவர் போ.மணிவண்ணன்** உதவிப் பேராசிரியர்,தமிழ்த்துறை அரசுகலைக்கல்லூரி,ஊட்டி

பாடக்குறியீட்டுஎண்	02	பாடத்தலைப்பு	L	T	P	C
மதிப்புக்கூட்டுப் படிப்பு		இதழியலும் காட்சித் தொடர்பியலும்	2	-	-	2
			பாடப்பிரிவு			

பாடநோக்கம்

1. ஊடகவகைகளைஅறிதல்
2. ஊடகபணிகளைத் தெரிந்துகொள்ளல்
3.தகவல் தொழில்நுட்பத்தின் பரிமாணங்களைஅறிதல்

பயன்கள்

1	செய்தியாளராதல்	K3
2	காட்சிஊடகக்கலைஞராதல்	K3
3	சமூகமாற்றத்தின் படைப்புகளைஉருவாக்குதல்	K6

K1 - Remember; **K2** - Undestand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

அலகு :1		**15 hours**

காட்சிதொடர்பியல் - ஓர் அறிமுகம் -பல்வேறுகாட்சிதொடர்பியல் ஊடகங்கள் - காட்சிதொடர்பியல் தன்மைகள் - ஒலிமற்றும் ஒளிஅமைப்பு - தயாரிப்பு - Case Analysis of visual media

அலகு :2		**15 hours**

இதழியல் மற்றும் வெகுசனதொடர்பு - ஓர் அறிமுகம்,செய்திசேகரித்தல் மற்றும் சப் எடிட்டிங், இதழியல் மற்றும் எலக்ட்ரானிக் ஊடகங்களின் தன்மைகள்,ஊடகங்களின் நிர்வாகஅமைப்பு,செய்தியாளரின் தன்மைகள் மற்றும் பொறுப்புகள்,செய்திகள் அளிக்கும் முகமைகள்,PTI, ANI, UNI, IANS, HINDUSTHAN SAMACHAR, Case Studies, Crime Reporting , political reporting, Legal reporting, and Others

பாட நூல்கள்

1	
2	

பார்வை நூல்கள்

1	வெ.நல்லதம்பி - தொலைக்காட்சியும் பிறதகவல் துறைகளும்,வள்ளுவன் வெளியீட்டகம்,சென்னை.
2	தமிழ்த்திரைப்பட இதழ்கள், இராசிவெளியீடு,சின்னாளப்பட்டி.
3	வெ.கிருட்டிணசாமி,தகவல் தொடர்பியல்,மணிவாசகர் பதிப்பகம்,சென்னை

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	wikipidea
2	www.digitallibrary.in
3	www.tamilsurangam.in

Course Designed By:	
முனைவர் க.மலர்விழி இணைப்பேராசிரியர் மற்றும் துறைத்தலைவர் தமிழ்த்துறை, ஸ்ரீ வாசவிகல்லூரி,ஈரோடு	**முனைவர் போ.மணிவண்ணன்** உதவிப் பேராசிரியர்,தமிழ்த்துறை அரசுகலைக்கல்லூரி,ஊட்டி


Job Oriented
Course

TITLE OF THE JOB ORIENTED CERTIFICATE COURSE	
Name of the Department	Tamil
Name of the Faculty Member i/c With complete Address with Phone and e-mail	
Inter / Intra Department course	Inter / Intra Department course
Duration of the course	30 hours
Eligibility	+2 (Any Group)
Number of Candidates to be Admitted	50
Mode of the course	Both Regular and online
Collaboration if any with companies (if Yes, Full Address of the company Address, Name of the contact Person, Phone, e-mail etc)	–
Registration Procedure	–
Job Opportunities :	
The objectives of the course are :	
The main objectives of this course are to :	

1	காட்சிஊடகங்களைஅறிந்துகொள்ளுதல்
2	நல்லபயனுள்ளஆக்கங்களைவளர்த்தல்
3	சமூகசிந்தனையைவளர்த்தல்
4	திரைகலைஞராகுதல்
5	சிறந்தகுறும்படங்களைஉருவாக்குதல்

course content	Lecture – (30Hours) / Practical/ Project/ internship

Module 1	குறும்படம் வரைவிலக்கணம்,குறும்படம் வரலாறு	6 Hours
Module 2	தமிழ் குறும்படங்கள்,ஆய்வு–தகவல் சேகரிப்பு	6 Hours
Module 3	கதைவடிவமைத்தல்,திரைக்கதைவசனம் தயாரித்தல்	6 Hours
Module 4	கருத்துருவாக்கம். கலைஞர்கள் தேர்வு	6 Hours
Module 5	படப்பிடிப்பு இடம்,படப்பிடிப்புகுறிப்புகள்,படமாக்குதல்	6 Hours
		30 Hours

Book(s) for study	
1	
2	

Book(s) for refernce	
1	குறும்படம் - மருதகுடியும் மகாலட்சுமிஎன்கிறஎருமையும் - இயக்குநர் போ.மணிவண்ணன்
2	குறும்படம் - ஆயிஸா - இயக்குநர் நடராசன்,
3	குறும்படம் - இஈ - இயக்குநர் மார்ட்டின்
4	குறும்படம் - நாக் அவுட் - இயக்குநர் லெனின்,
Related online contents	
1	filmstrips india (Youtube)
2	sramakrishnan.com (Website)
3	Wikipedia

Course Designed By:	
முனைவர் க.மலர்விழி இணைப்பேராசிரியர் மற்றும் துறைத்தலைவர் தமிழ்த்துறை, ஸ்ரீ வாசவிகல்லூரி,ஈரோடு	**முனைவர் போ.மணிவண்ணன்** உதவிப் பேராசிரியர்,தமிழ்த்துறை அரசுகலைக்கல்லூரி,ஊட்டி

பாடத்தலைப்பு–ஆவணப்படம்

பாடக்குறியீட்டுஎண் : 02

TITLE OF THE JOB ORIENTED CERTIFICATE COURSE	
Name of the Department	Tamil
Name of the Faculty Member i/c With complete Address with Phone and e-mail	
Inter / Intra Department course	Inter / Intra Department course
Duration of the course	30 hours
Eligibility	+2 (Any Group)
Number of Candidates to be Admitted	50
Mode of the course	Both Regular and online
Collaboration if any with companies (if Yes, Full Address of the company Address, Name of the contact Person, Phone, e-mail etc)	–
Registration Procedure	–

Job Opportunities :

The objectives of the course are :

The main objectives of this course are to :

1	காட்சிஊடகங்களைஅறிந்துகொள்ளுதல்
2	படைப்பாற்றல் திறனைவளர்த்தல்
3	சமூகத்திற்குவிழிப்புணர்வுஉண்டாக்குதல்
4	தேசப்பற்றுசிந்தனையைத் தூண்டுதல்
5	சிறந்தஆவணப் படங்களைஉருவாக்குதல்

course content	Lecture-(30Hours) / Practical/ Project/Internship

Module 1	ஆவணப்படம் தோற்றம் வரலாறு,தமிழ் ஆவணப்படங்கள்	6 Hours
Module 2	ஆவணப்படக் கலைஞர்கள்	6 Hours
Module 3	தகவல் சேகரிப்பு,கதைவடிவமைத்தல்	6 Hours
Module 4	திரைக் கதைதயாரித்தல் கருத்துருவாக்கம்,வசனம் தயாரித்தல்	6 Hours
Module 5	கலைஞர்கள் தேர்வு, இடம்,படப்பிடிப்புகுறிப்புகள்,படமாக்குதல்	6 Hours
		30 Hours

Book(s) for study

1	
2	

Book(s) for refernce	
1	ஆவணப்படம் - சிறகுகளின் சொர்க்கம் (Wing of Paradise) - இயக்குநர் போ.மணிவண்ணன்
2	ஆவணப்படம் - இராமையாவின் குடிசை -இயக்குநர் பாரதிகிருஷ்ணக்குமார்
3	ஆவணப்படம் - சயாம் மரணரயில் - இயக்குநர் குறிஞ்சிவேந்தன்
Related online contents	
1	filmstrips india (Youtube)
2	Wikipedia

Course Designed By: **முனைவர் க.மலர்விழி** இணைப்பேராசிரியர் மற்றும் துறைத்தலைவர் தமிழ்த்துறை, ஸ்ரீ வாசவிகல்லூரி,ஈரோடு	 **முனைவர் போ.மணிவண்ணன்** உதவிப் பேராசிரியர்,தமிழ்த்துறை அரசுகலைக்கல்லூரி,ஊட்டி

Annexure

இளங்கலை தமிழ் இலக்கியம்

பாரதியார் பல்கலைக்கழக இணைப்புக் கல்லூரிகளுக்குரிய பாடத்திட்டம்

பாடத்திட்டம்

(2020-2021சேர்வோருக்குரியது)

பாடக்குறியீட்டு எண்:



பாரதியார் பல்கலைக்கழகம்

(A State University, Accredited with "A" Grade by NAAC and 13th Rank among Indian Universities by MHRD-NIRF)

கோயம்புத்தூர் 641 046, இந்தியா

பாரதியார் பல்கலைக்கழகம், கோயம்புத்தூர்

VISION: (தொலைநோக்கு)

Imparting quality higher education to produce competent graduates capable of developing the nation by bringing out their creativity and literacy competence through Tamil Language and Literature

MISSION : (குறிக்கோள்)

- To heighten the efficacy of interpreting literary texts in the contexts of Tamil society and Tamil culture
- To re-examine the pedagogical techniques used for literary studies through mother tongue
- To instill critical thinking and evaluating skills to transform students into effective researchers
- To upgrade the literary and linguistic competence of students by exposing them to literatures of varied eras.

General Instructions:

1. **Elective Courses:** Minimum Two for Each Semester.
2. **Supportive Courses:** Minimum One for first three Semesters.
3. **Value Added Courses:** Minimum 2 and maximum 5 for Each Department for Entire Program
4. **Job Oriented Certificate Courses:** Two Courses (Each one on First and Second Year)
5. All the Board of Studies are requested to follow the same template and use the TIMES NEW ROMAN FONT with the Size of 12.
6. The Course Designer should be mentioned in each of the corses.



B. A. Economics

Syllabus

AFFILIATED COLLEGES

Program Code: 21C

2020 – 2021 onwards

BHARATHIAR UNIVERSITY

(A State University, Accredited with "A" Grade by NAAC,
Ranked 13th among Indian Universities by MHRD-NIRF,
World Ranking : Times - 801-1000, Shanghai - 901-1000, URAP - 982)

Coimbatore - 641 046, Tamil Nadu, India

Programme Educational Objectives (PEO)

PEO 1	Creating strong subject knowledge in Economics to develop and uplift the Society.
PEO 2	Applying Economic theories and make the students to understand the practical knowledge on present Economic System.
PEO 3	Creation of continuous improvement in their professional career through life long learning appreciating human Values and Ethics.

PROGRAMME OUTCOME (PO)

PO 1:	Creation of knowledge in fundamentals of Economics, application of Economics with the help of Mathematics, Statistics and Computer Applications is a strong foundation for UG Students.
PO 2:	Train the students to understand the concepts and theories in Economics to practical problems solving in the real world.
PO 3:	Decision making and evaluate the solutions for useful complex economic issues and train the students to meet the specified needs to resolve complex economic problems.
PO 4:	Train the students in Industrial, Agricultural and Service sector economics. This will be helpful for them to get into the concern sector for their Job Oriented goals.
PO 5:	Create knowledge and select the issues to adopt the techniques to understand resource allocation and Macro Economic policies in Indian Economy.
PO 6:	By way of getting complete knowledge in Economics may helpful for them to commit for the professional Ethics and responsibilities taken by them in their professional Career.
PO 7:	Students of undergraduate in Economics are practiced for Basic knowledge in Economics, Mathematics, Statistics and Accountancy. This type of getting knowledge may helpful to students to clear any kind of basic Competitive Examinations.
PO 8:	Knowledge in Economics and creation of domain knowledge will be effectively served to the students to understand the Society, Societal complex problems and for attainment of Comprehensive Solutions.

BHARATHIAR UNIVERSITY, COIMBATORE-641 046
B.A. ECONOMICS (CBCS PATTERN)
(For the students admitted during the academic year 2020-2021 and onwards)

Part	Study Components / Course Title	Inst. Hours/ Week	Examination Duration	CIA $	Uni. Exa	Total	Credit
	Semester I						
I	Language-I	6	3	25	75	100	4
II	English-I	6	3	25	75	100	4
III	Core I – MICRO ECONOMICS – 1	5	3	**20**	**55**	**75**	3
III	Core II – AGRICULTURAL ECONOMICS	5	3	**20**	**55**	**75**	3
III	ALLIED PAPER I HISTORY OF INDIA FROM 1600 TO1857 AD /POLITICAL SCIENCE/ Tourism	6	3	25	75	100	4
IV	**Environmental Studies #**	2	3	-	50	50	2
	Total					**500**	**20**
	Semester II						
I	Language-II	6	3	25	75	100	4
II	English-II	6	3	25	75	100	4
III	Core III – MICRO ECONOMICS – II	5	3	25	75	100	4
III	Core IV - HISTORY OF ECONOMIC DOCTRINE	5	3	25	75	100	4
III	ALLIED PAPER II HISTORY OF INDIA FROM 1858 TO 1964 / /POLITICAL SCIENCE/Demography	6	3	25	75	100	4
IV	**Value Education – Human Rights #**	2	3	-	50	50	2
	Total					**550**	22
	Semester III						
I	Language-III	6	3	25	75	100	4
II	English-III	6	3	25	75	100	4
III	Core V – MACRO ECONOMICS-I	4	3	25	75	100	4
III	Core VI – STATISTICAL METHODS	4	3	25	75	100	4
III	Allied : III - POLITICAL SCIENCE /Constitutional History of India 1773 to 1892/ BUSINESS MANAGEMENT FOR ECONOMICS	5	3	25	75	100	4
IV	Skill based Subject 1 FINANCIAL ACCOUNTING	3	3	**20**	**55**	**75**	3
IV	Tamil@ / Advanced Tamil# (OR) Non-major elective - I (Yoga for Human Excellence)# / Women's Rights#/ Constitution India #	2	3	50		50	2
	Total					**625**	**25**
	Semester IV						
I	Language-IV	6	3	25	75	100	4
II	English-IV	6	3	25	75	100	4
II	Core VII – MACRO ECONOMICS-II	4	3	25	75	100	4

III	Core VIII – MATHEMATICAL ECONOMICS	4	3	25	75	100	4
III	Allied : IV /POLITICAL SCIENCE / Constitutional History of India 1892 to 1950/ COMPUTER APPLICATIONS IN ECONOMICS	5	3	25	75	100	4
IV	Skill based Subject 2 TRADE DOCUMENTATION	3	3	**20**	**55**	**75**	3
IV	Tamil @ /Advanced Tamil # (OR) Non-major elective -II (General Awareness #)	2	3	50		50	2
	Total					**625**	**25**
	Semester V						
III	Core IX – MONETARY ECONOMICS	6	3	25	75	100	4
III	Core X – INDIAN ECONOMIC DEVELOPMENT AND POLICIES	6	3	25	75	100	4
III	Core XI – INTERNATIONAL ECONOMICS	6	3	25	75	100	4
III	Core XII – ENTREPRENEURSHIP DEVELOPMENT	5	3	25	75	100	4
III	Elective –I	4	3	25	75	100	4
IV	Skill based Subject 3 COMPUTER SYSTEM - I – THEORY	2	3	**10**	**40**	**50**	**2**
IV	Skill based Subject 3 COMPUTER SYSTEM - I - PRACTICAL	1	3	**10**	**15**	**25**	**1**
	Total					**575**	**23**
	Semester VI						
III	Core XIII – FISCAL ECONOMICS	6	3	25	75	100	4
III	Core XIV – INDUSTRIAL ECONOMICS	6	3	25	75	100	4
III	Core XV – ENVIRONMENTAL ECONOMICS	5	3	25	75	100	4
III	Elective –II	**5**	**3**	**25**	**75**	**100**	**4**
III	Elective –III	5	3	25	75	100	4
IV	Skill based Subject 4 COMPUTER SYSTEM – II – THEORY	2	3	**10**	**40**	**50**	**2**
IV	Skill based Subject 4 COMPUTER SYSTEM – II - PRACTICAL	1	3	**10**	**15**	**25**	**1**
V	**Extension Activities @**	-	-	50	-	50	2
	Total					**625**	**21**
	Total					**3500**	**140**

$ Includes 25/40% continuous internal assessment marks for theory and practical papers respectively.

@ No University Examinations. Only Continuous Internal Assessment (CIA)

No Continuous Internal Assessment (CIA). Only University Examinations.


First
Semester

Course code		MICRO ECONOMICS-I	L	T	P	C
Core		CORE PAPER – I	3			3
Pre-requisite		The course attempts to equip the students with the basic tools and methods of economic analysis.	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are:

1	Understand the concepts, methodology and the behaviour of the economic agents as a consumer and a producer.
2	Enlighten the students about the economic objectives.
3	To understand the fundamental concepts and theories of Microeconomics.

Expected Course Outcomes:

On the successful completion of the course, student will be able:

1	To improve the knowledge of students on the basics of Micro Economics	K1
2	To analyze the economic relationship between the variables.	K2
3	To enhance the skills of students in the measurement of variables and relationship.	K3
4	To improve the attitude of students towards economic laws.	K4
5	To generate an interest in the application of economics for business decision, planning and forecasting.	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	Definitions and Basic concepts	14 -- hours

Definition of Economics - Adam Smith - Marshall - Robbins - Samuelson - Micro and Macro approach - Inductive and deductive methods - positive vs Normative study - static and dynamic analysis - Economic laws - partial vs General Equilibrium

Unit:2	Basic laws of Economics	14-- hours

Theory of consumer behaviour - Cardinal Utility - Ordinal Utility - Law of diminishing Marginal Utility - Law of Equi Marginal Utility - Law of Demand - Indifference curve analysis - Features of indifference curve - Consumer's Equilibrium - Income, price and substitution effects.

Unit:3	Elasticity of Demand	14-- hours

Elasticity of demand - Types and Degrees - Measurement - Factors influencing elasticity of demand - uses - consumer's surplus

Unit:4	Factors of production	14-- hours

Factors of Production - Land, Labour, Capital and Organization - Laws of returns - Law of variable proportions.

Unit:5	Cost and revenue concepts	14-- hours
Cost and Revenue - concepts of cost and revenue - Average, Marginal and Total cost - Nature of short run and long run average cost curves - Revenue; Total Revenue - Importance of revenue curves		
Unit: 6	**Contemporary Issues**	**2 hours**
	Expert lectures, online seminars – Webinars	
	Total Lecture hours	**75 –hours**

Text Book(s)	
1.	M.L. Jhingan, Micro Economic Theory, Vrinda Publications Ltd., New Delhi, 2002.
2.	HL AHUJA (2009) Advanced Economic Theory S.Chand & Co
Reference Books	
1.	Dr. S. Sankaran, Micro Economics, Margham Publications, Chennai, 2000.
2.	Misra and Puri, Advanced Micro Economics Himalaya Publishing House, Mumbai, 1996.
3.	V. Lokanathan, Principles of Economics, Economic Analysis S. Chand & Co., New Delhi 2003.

Course Designed By: Dr.C.HEMALATHA, Email – hemsi14@gmail.com

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	**M**	**M**	**M**	**M**	**L**	**L**	**S**	**S**
CO2	**S**	**S**	**M**	**S**	**M**	**S**	**S**	**M**
CO3	**S**	**S**	**M**	**S**	**M**	**M**	**S**	**S**
CO4	**S**	**S**	**M**	**L**	**M**	**L**	**M**	**M**
CO5	**M**	**S**	**M**	**M**	**S**	**S**	**S**	**S**

***S-Strong; M-Medium; L-Low**

Course code		AGRICULTURAL ECONOMICS	L	T	P	C
Core		CORE PAPER – II	3			3
Pre-requisite		This subject is mainly educating the students on Indian agriculture and Micro Economics concepts	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are:

1	Make the students to understand the Indian Agriculture
2	To understand the role of Institutional agencies for Agricultural credit
3	To know about agriculture policy in India
4	To equip the students with the knowledge regarding the relationship between Agricultural economy and Indian economy

Expected Course Outcomes:

On the successful completion of the course, student will be able:

1	To improve the knowledge of students on the status of agricultural sector.	K1
2	To encourage the skills of students in the measurement of productivity.	K2
3	To stimulate the students in the applications of Agricultural economics in pricing.	K3
4	To engage the students in the analysis of debt crisis in the farm sector.	K4
5	To prepare on proactive attitude towards the internal and external changes in the agricultural sector.	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	Agriculture and Economic Development	16 -- hours

Definition and scope of Agriculture Economics – Agriculture in a growing Economy – Role of Agriculture in Economic development of a Nation. Interdependence between agriculture and industry-Agricultural development under the 5 year plans.

Unit:2	Productivity	16-- hours

Productivity in Indian Agriculture, Measuring Agriculture Productivity, Farm size, Cropping Pattern –Agricultural Labour and Wages – women in Agriculture, wage discrimination. Green Revolution- Problems of small and marginal farmers.

Unit:3	Agricultural Price Policy	15-- hours

Size of land holdings- Tenancy systems and Land Reforms – Supply of Inputs: Irrigation, Power, Seed and Fertilizer – Pricing of Inputs — Agricultural price policy in India – objectives of price policy, Food security in India, PDS– Crop Insurance.

Unit:4	Agricultural Credit	15-- hours

Agricultural Credit in India - Agricultural Indebtedness – causes – remedies. Institutional agencies supplying Agricultural credit: Co-operatives, Commercial Banks, and

Regional Rural Banks, NABARD.		
Unit:5	**Agricultural Marketing**	**13-- hours**
Agricultural Markets- Definition and Scope – Types of Agricultural markets – co-operative marketing and regulated markets - New Agricultural policy.		
	Total Lecture hours	**75 –hours**

Text Book(s)	
1.	Ruddar Dutt and K.P.M Sundaram, New Edition, Indian Economy, S.Chand & Co Ltd, New Delhi.
2.	Dhingra - Agricultural Economy of India, Sultan Chand, New Delhi, 1982.
3.	.K. Gupta, Agricultural Economics, Vrinda Publication (P) Ltd, New Delhi.
Reference Books	
1	S.K.Mishra & V.K.Puri, 2011, Indian Economy, Himalaya Publishing House, Mumbai.
2	A.N. Agarwal, 2007, Indian Economy Problems of Development and Planning.
3	C.S.Prasad, 2006, Sixty Years of Indian Agriculture.
4	P.Mala, 2014, Agricultural Economics, Dominant Publishers, New Delhi.
Course Designed by : Dr.RATHINAM, E-mail ID - nam.rathi@rediff.com	

COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**
CO1	**M**	**S**	**M**	**M**	**M**	**L**	**S**	**L**
CO2	**S**	**S**	**S**	**S**	**S**	**S**	**S**	**S**
CO3	**M**	**S**	**S**	**M**	**S**	**S**	**S**	**M**
CO4	**M**	**S**	**S**	**S**	**S**	**S**	**S**	**S**
CO5	**M**	**S**	**S**	**M**	**S**	**S**	**S**	**S**

*S-Strong; M-Medium; L-Low

Course code		TOURISM	L	T	P	C
Core		ALLIED PAPER – I	4			4
Pre-requisite		Development of Tourism in India and Economic concepts	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are:

1	Make the students aware of the nature and forms of tourism.
2	Expose the students regarding the possibilities of employment potential and the importance of computer technology in tourism

Expected Course Outcomes:

On the successful completion of the course, student will be able:

1	To improve the knowledge of students on the need and types of tourism.	K1
2	To make a positive attitude on Tourism	K2
3	To analyze the tourism demand and its measurement	K3
4	To enhance the application of economic ideas for tourism development	K4
5	To improve the skill of the students in using modern communication methods and techniques.	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Tourism Concepts	18 -- hours

Tourism concepts - Motivation for Travel - Barriers to Travel - forms of tourism - Travel industry network-Tourism and Tourism product-Meaning & Type - Tourism Planning in India - Government role in planning Tourism - factors influencing tourism development - Pleasure & Religious Travel.

Unit:2	Types of Tourism	18-- hours

Mass Tourism, Individual Tourism - paid holidays - Growth of modern Tourism - The basic components of tourism - Elements of Tourism - Geographical resources for tourism - Domestic Tourism.

Unit:3	Travel & Tourism	19-- hours

Travel Motivation - evolution of demand - Growth factor - Physical motivators - Real and Recreation motivation - Health motivators - ethnic & family motivators - Business motivation. Travel & Tourism statistics - measurement of tourism - merits and demerits of tourism.

Unit:4	Tourism and Economics	19-- hours

Economic dimensions of Tourism - Economic significance - Tourism income multiplier – Development of infrastructural development- Employment generation- multiplier -

Tourism retailer - Travel agency operation - scope of work of travel agency - the Tour operation - Handling a client.		
Unit:5	**Communication**	**16-- hours**
Role of Communication in travel - modern mass techniques - Computer Technology in Tourism - Railways, Hotels, Reservation, Airlines, Videotext system. Tourism in India - India as a tourist paradise - Growth of tourism in India - Role of TTDC for the growth towards tourism industry.		
	Total Lecture hours	**90 --hours**

Text Book(s)

1	A.K. Bhatia -Tourism Development - Principles and Practices, Sterling Publications Pvt. Ltd., New Delhi, 1995.
2	Sampad Kumar Swain & Jitendra Mohan Mishra. - Tourism: Principles and Practices

Reference Books

1.	Virender Kaul -Tourism and the Economy, Har- Anand Publications, New Delhi, 1994 ,
2.	Alister Mathieson & Geoffery Wall-Tourism, Economic, Physical, Social Impacts Longman Inc, New York, 1982.
3.	A.K. Bhatia-International Tourism - Fundamental and Practices, Sterling Publishers Pvt. Ltd., New Delhi, 1994
4.	Jagmohan Negi -Travel Agency & Tour operation Concepts and Principles, Kanishka Publishers, New Delhi, 1997.
5.	Pran Nath Sate & Sushma Seth Bhat -An Introduction to Travel and Tourism Sterling Publications Pvt. Ltd., New Delhi 1977.
6	R.N. Kaul-Dynamics of Tourism Sterling Publications Pvt. Ltd., New Delhi, 1985.
7.	Pran Nath Seth- Successful Tourism Management, Sterling Publications Pvt. Ltd., New Delhi, 1987.
8.	Gulab Nabi - Socio Economic Impact of Tourism, Pioneer Publishers, Jaipur, 2000.
9.	Mukesh Ranga - Tourism Potential in India, Abhijeet Publications, New Delhi, 2003

Course Designed by : Dr.RATHINAM, E-mail ID - nam.rathi@rediff.com

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	M	S	M	M	S	S	S	S
CO2	M	M	S	S	M	S	S	L
CO3	S	M	S	S	M	M	S	M
CO4	S	S	S	M	S	M	S	M
CO5	S	S	S	M	S	S	S	S

*S-Strong; M-Medium; L-Low

Second Semester

Course code		MICRO ECONOMICS-II	L	T	P	C
Core		CORE PAPER III	4			4
Pre-requisite		The course aims at equipping the students with the tools of economic analysis to deal with different types of market.	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are:

1	Imparting knowledge about the behaviour of economic agents namely producer and factor owner.
2	Understanding and analysing the theories of different factors and determining their prices.

Expected Course Outcomes:

On the successful completion of the course, student will be able:

1	To improve the knowledge of students on the markets and competition. .	K1
2	To analyze the business decision process.	K2
3	To improve the skill of students in the findings of market equilibria	K3
4	To motivate the students improving their attitude towards the logics of factor pricing.	K4
5	To enhance the applicability of ideas and concepts	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	Market Structure	14 -- hours

Market Structure - Meaning - Types - Perfect Competition - Time Element Theory - Price and Output Determination - Equilibrium of the firm and industry in short and long run.

Unit:2	Monopoly	14-- hours

Monopoly - Discriminating Monopoly - Degrees of Monopoly - Price and Output determination under Monopoly and discriminating monopoly.

Unit:3	Monopolistic competition	14-- hours

Features of Monopolistic Competition - Selling cost - wastes of monopolistic competition - Oligopoly.

Unit:4	Theories of Factor pricing	14-- hours

The theories of factor pricing - Marginal Productivity Theory - Rent - Ricardian Theory of Rent - Wages - Real and Nominal Wages - Theories of Wages.

Unit:5	Interest and Profit	14-- hours

Interest - Gross Interest and Net Interest - Classical - Neo - Classical and Keynesian Theory of

Interest - Profit - Gross and Net Profit - Theories of Profit.		
Unit: 6	**Contemporary Issues**	**2 hours**
	Expert lectures, online seminars – Webinars	
	Total Lecture hours	**75 --hours**

Text Book(s)	
1	M.L. Jhingan - Micro Economic Theory, Vrinda Publications Ltd., New Delhi 2002.
2	H.L. Ahuja - Principles of Micro Economics, A new look at Economic Theory S. Chand & Company Ltd., New Delhi (1996)
Reference Books	
1	Dr. S. Sankaran- Micro Economics, Margham Publications, Madras 1990
2	Misra and Puri- Advanced Micro Economics Himalaya Publishing House, Mumbai 1996.
3	Loganathan.V - Principles of Economics, Economic Analysis, S. Chand & Co, New Delhi, 2003.
4	Watson - Price Theory and its uses
5	Stonier and Hague - A textbook of Economic Theory.
Course Designed By: : Dr.C.HEMALATHA, Email – hemsi14@gmail.com	

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	**S**	**M**	**M**	**L**	**M**	**L**	**M**	**M**
CO2	**M**	**S**	**M**	**S**	**M**	**M**	**L**	**M**
CO3	**S**	**S**	**S**	**M**	**M**	**M**	**S**	**S**
CO4	**M**	**M**	**M**	**L**	**L**	**M**	**S**	**M**
CO5	**S**	**M**	**S**	**S**	**M**	**S**	**S**	**M**

***S-Strong; M-Medium; L-Low**

Course code		HISTORY OF ECONOMIC DOCTRINE	L	T	P	C
Core		CORE PAPER IV	4			4
Pre-requisite		The core paper deals with the basic knowledge and ideas of economists and philosophers views.	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are:

1	To understand the basic ideas of different economist and philosophers concept.
2	To familiarize the students to learn the origin and development of economic ideas from various thoughts.

Expected Course Outcomes:

On the successful completion of the course, student will be able:

1	To create knowledge on the evaluation of economic ideas.	K1
2	To increase a positive attitude towards economic ideas.	K2
3	To make the analytical interest in the Marxian Economics.	K3
4	To understand the application of economic theories.	K4
5	To enhance the applicability of ideas and concepts	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Ancient Economic Thought	14 -- hours

Introduction – Ancient Economic Thought –The Greek. Plato – Aristotle – The Roman – Kautilya‘s Arthasastra – Thiruvalluvar.

Unit:2	Medieval Economic Thought	14-- hours

Medieval Economic Thought – St. Thomas Aquinas- Mercantilism- Thomas Mun- Physiocrates– Classical Thoughts.

Unit:3	Marxian philosophy	14-- hours

Karl Marx- Marxian philosophy – Interpretation of History- Theory of Class Struggle – Theory of Value and Distribution - Theory of Surplus Value- Marxian Prediction - Scientific Socialism.

Unit:4	Economic ideas	14-- hours

Alfred Marshal- J.B.Clark - J.B.Say - J.S.Mill - Irving Fisher - A.C.Pigou –Walras – Pareto - Their theories and Economic ideas.

Unit:5	Recent Economic Thought	14-- hours

Recent Indian Economic Thought – Dada Bai Naoroji - M.K.Gandhi - B.R.Ambedkar - VKRV Rao – Amartya Sen.

Unit: 6	**Contemporary Issues**	**2 hours**
	Expert lectures, online seminars – Webinars	
	Total Lecture hours	**75 --hours**

Text Book(s)	
1	K. Loganathan – A History Economic Thought
2	B.W. Ganguli- Indian Economic Thought.
Reference Books	
1	Alexander Gray- Development of Economic Doctorines.
2	Gide and Rist- Economic Thought
3	Meenakshi and others- A History of Economic Doctorines.
Course Designed By: Dr.C.HEMALATHA, Email – hemsi14@gmail.com	

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	**S**	**S**	**S**	**M**	**M**	**L**	**L**	**S**
CO2	**S**	**S**	**M**	**L**	**L**	**M**	**L**	**M**
CO3	**M**	**M**	**S**	**M**	**S**	**L**	**L**	**S**
CO4	**S**	**S**	**M**	**M**	**M**	**L**	**L**	**M**
CO5	**S**	**S**	**S**	**M**	**S**	**M**	**L**	**S**

***S-Strong; M-Medium; L-Low**

Course code		DEMOGRAPHY	L	T	P	C
Core		ALLIED PAPER – II	4			4
Pre-requisite		This paper deals with concepts like Population Trends, migration and urbanization and population policy in India	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are:

1	Make the students to understand about the demography.
2	To know about the reasons for migration and trend of population in India
3	To understand the population policy in India
4	To equip the students with the knowledge regarding the relationship between Demography and Economic Development.

Expected Course Outcomes:

On the successful completion of the course, student will be able:

1	To improve the knowledge of students on the growth of population in India.	K1
2	To encourage the students to know about the Population explosion.	K2
3	Construct the knowledge of Fertility, Nuptiality and Mortality.	K3
4	To engage the students in the analysis of migration.	K4
5	To prepare on proactive attitude towards the population policy	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Population and Development	19 -- hours

Population and Development- Meaning and scope of demography; components of population growth and their interdependence; Measures of population change; Structure, distribution and sources of population data; Theories of population – Malthus, Optimum theory of population; theory of demographic transition –Population and development.

Unit:2	Population Trends	19-- hours

Population trends in the twentieth century; Population explosion –Determinants of age and sex structure; Demographic effects of sex and age structure, economic and social implications; Age pyramids and projections.

Unit:3	Fertility, Nuptiality and Mortality	17-- hours

Fertility, Nuptiality and Mortality-Importance of study of fertility – Factors affecting fertility – Socio-economic factors. Nuptiality – Concept and analysis of marital status, single mean age at marriage. Mortality – Death rates, crude and age-specific; Mortality at birth and infant mortality rate.

Unit:4	Migration and Urbanization	19-- hours

Migration and Urbanization-Concept and types – Temporary, internal and international; International migration –Its effect on population growth and pattern; Factors affecting migration; Urbanization – Growth and distribution of rural-urban population in developed and developing countries. Urbanization in India.		
Unit:5	**Population Policy**	**16-- hours**
Population Policy in India-Evolution of population policy in India – The shift in policy from population control to family welfare, to women empowerment; Family planning strategies and their outcomes..		
	Total Lecture hours	**90 --hours**

Text Book(s)

1	M.L. Jhingan ,B.K. Bhatt and J.N. Desai (Reprint2019), 3rd Edition, Vrinda Publication(P)Ltd. New Delhi

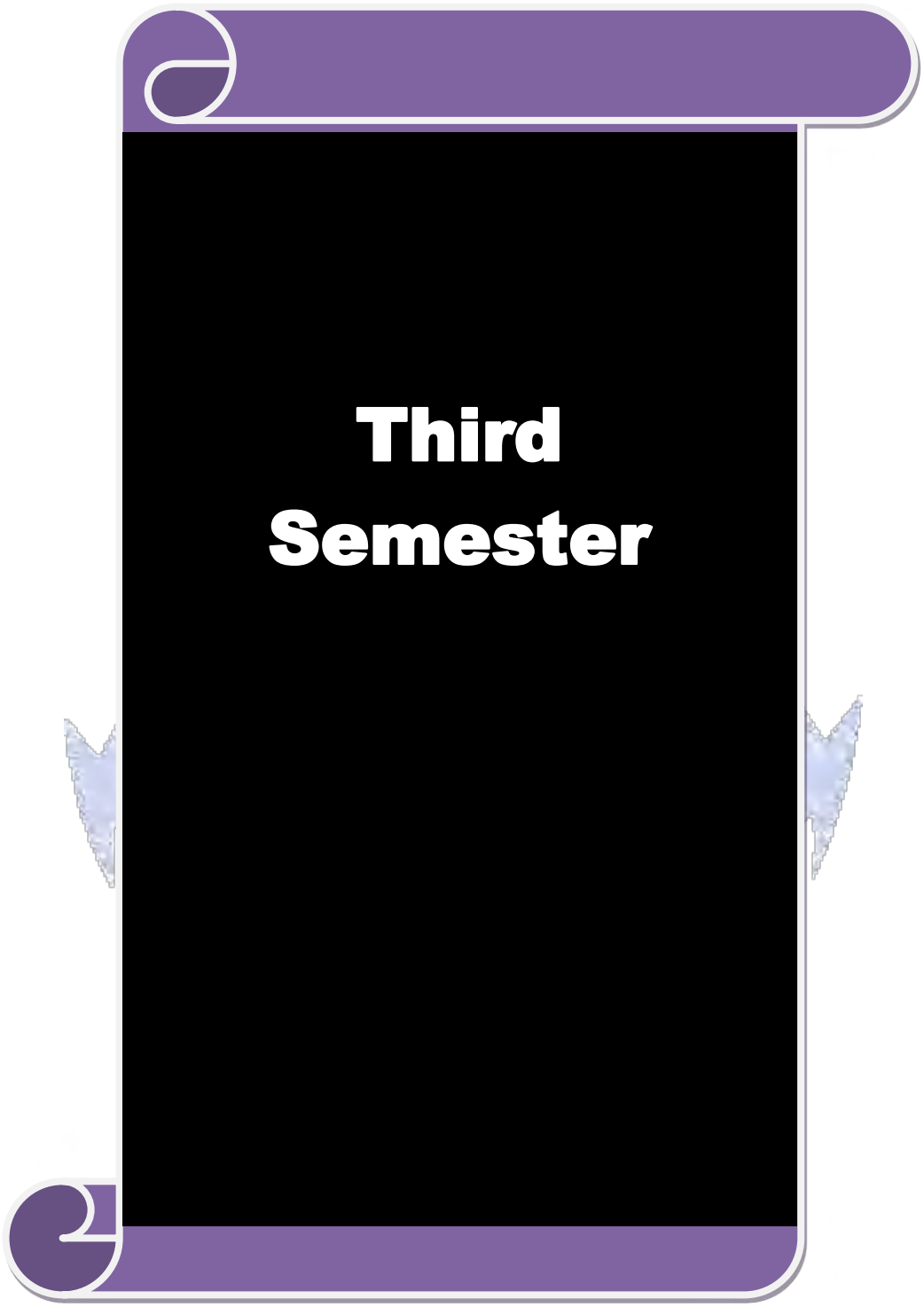
Reference Books

1.	Agarwala, S. N. (1972), India's Population Problem, Tata McGraw Hill Co., Bombay.
2.	Bose, A. (1996), India's Basic Demographic Statistics, B. R. Publishing Corporation, New Delhi.
3.	Bogue, D. J. (1971), Principles of Demography, John Wiley, New York.
4.	Choubey, P. K. (2000), Population Policy in India, Kanishka Publications, New Delhi.
5.	Srinivasan, K. (1998), Basic Demographic Techniques and Applications, Sage, New Delhi.
6.	Gulati, S. C. (1988), Fertility in India: An Econometric Study of a Metropolis, Sage, New Delhi.

Course Designed by : Dr.RATHINAM, E-mail ID - nam.rathi@rediff.com

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	S	S	S	M	S	S	S	S
CO2	M	M	S	S	M	S	M	M
CO3	S	M	S	L	M	M	S	M
CO4	M	S	S	L	S	S	S	L
CO5	S	S	S	M	S	M	S	M

*S-Strong; M-Medium; L-Low


Third
Semester

Course code		MACRO ECONOMICS-I	L	T	P	C
Core		CORE PAPER - V	4			4
Pre-requisite		National income, theory of employment and consumption, saving and investment concepts	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are:

1	It helps the students to know about the basic concepts of Macro Economics.
2	It also helps the students to apply macro principles to solve Macro Economic problems
3	To Provide a strong foundation for the students to clarify the ideas of macro economics

Expected Course Outcomes:

On the successful completion of the course, student will be able:

1	Understand the evolution of Macro Economics and also know the difference between micro and macro economics.	K1
2	Examine the various concepts of National income Accounting and issues related to measurement of National income, and also develop an environmental concern in economic activities	K2
3	Comprehend the classical theory of output, employment and income and consumption function.	K3
4	Apply the knowledge to understand the Consumption function and theories of consumption function.	K4
5	Gain the knowledge about various concepts of investment, determinants of investment, role of MEC.	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Macro Economics	10 -- hours

Nature and Scope of Macro Economics– Origin and growth of Macro Economics- Importance - Limitations – Difference between Micro Economics and Macro Economics - Circular Flow of Income in various sector.

Unit:2	National Income	12-- hours

National Income: Meaning -Definition-Concepts and their interrelationship-methods of measuring National Income- Difficulties in the computation of National Income-Importance of National Income. Social Accounting – Importance and difficulties of Social Accounting.

Unit:3	Employment Theory	13-- hours

Employment: Classical theory of employment-Keynesian Theory of Employment-Say's Law of market -Effective demand-Determinants of effective demand

Unit:4	Consumption Function	14-- hours

Consumption function: Meaning -Properties -Keynes Psychological law of Consumption- Determinants of the consumption function- Theories of the consumption function: The Absolute Income Hypothesis – Relative Income Hypothesis – The Permanent Income hypothesis – Life Cycle Hypothesis.		
Unit:5	**Capital and Investment**	**11-- hours**
Meaning of Capital and Investment: Types-Determinants of the Investment-Marginal Efficiency of Capital –Marginal efficiency of investment- Meaning of saving function – Determinants of Savings -Average Propensity to Save and Marginal Propensity to Save.		
	Total Lecture hours	**60 --hours**

Text Book(s)

1	M.L.Jhinghan - Macro Economic Theory, Virnda Publications(P),New Delhi
2	Sankaran S. - Macro Economics(2000), Margham Publications, Chennai

Reference Books

1.	Ahuja H.L - Macro Economic Theory and Policy (2000),-Advanced Analysis, S.Chand& Company Ltd, New Delhi.
2.	VaishM.C – Macro Economic Theory(2000),Wiley Eastern Limited, New Delhi.
3.	Gupta G.S. - Macro Economics", 3rd Edition, Tata McGraw-Hill Publishing Company Ltd., New Delhi.(2008)
4.	SethM.L – Macro Economics",Lakhsmi Narain Agarwal Publishers, Agra.1993

Course Designed by : Dr.RATHINAM, E-mail ID - nam.rathi@rediff.com

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	S	S	S	M	S	S	M	S
CO2	S	M	S	S	M	S	S	S
CO3	S	M	S	S	M	L	S	S
CO4	S	S	M	M	S	M	S	M
CO5	S	S	S	M	S	M	S	L

*S-Strong; M-Medium; L-Low

Course code		STATISTICAL METHODS	L	T	P	C
Core		CORE PAPER –VI	4			4
Pre-requisite		Essential Concepts of Statistics	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are:

1	To enable the students to acquire knowledge on basic concepts of statistical methods relevant to economic problems.
2	To provide the students with the theoretical and practical knowledge to do applies statistical methods.

Expected Course Outcomes:

On the successful completion of the course, student will be able:

1	To get knowledge of method of collecting data.	K1
2	To understand the skill of draw the various diagram and graphical representation.	K2
3	To improve the analytical skill of measures of Central Tendency.	K3
4	To analyse the Correlation and Regression.	K4
5	To acquire the knowledge on index numbers.	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** – Evaluate

Unit:1	Sources of Data	10 – hours

Introduction - Nature and Scope of statistics - Uses and Limitations of Statistics – Sources of data - Primary and Secondary Data - Collection of Data - Methods of collecting Primary Data - Methods of Sampling.

Unit:2	Frequency Distribution	12—hours

Classification and Tabulation of data - Frequency Distribution - Diagrammatic and Graphic representation
of data - Importance - types - Pie diagram - Line graph - Histogram- Frequency curve - Frequency Polygon.

Unit:3	Measures of Central Tendency	12—hours

Measures of Central Tendency: Mean, Median and Mode - Measures of Dispersion - Range - Inter - Quartile Range - Mean Deviation - Standard Deviation - Co-efficient of variation - Lorenz Curve - Skewness - Kurtosis - Moments.

Unit:4	Correlation and Regression	12—hours

Correlation: Meaning - Types - Methods : Scatter Diagram - Karl Pearson's Co-efficient of correlation - Rank correlation - Regression lines - Least Square Method.

Unit:5	Index Numbers	12—hours
Index Numbers : Definition - Simple and Weighted Index Numbers - Consumer Price Index Number - Tests for ideal index number - limitations of index numbers - Time series Analysis - components – Measurement of Trend Methods- Measurement of seasonal variations - Methods.		
Unit:6	**Contemporary Issues**	**2 – hours**
Expert Lectures, online seminars – webinars		
	Total Lecture hours	**60 –hours**

Text Book(s)

1	S.P. Gupta - Statistical Methods, Sultan Chand & Sons., New Delhi 1991.
2	R.S.N. Pillai & Mrs.Bagavathi - Statistics S. Chand & Company Ltd., New Delhi 1997.

Reference Books

1	Sivathanupillai - Economics and Business Statistics – Progressive Corporation Pvt. Ltd., Bombay 1982.
2	Elhance – Statistics
3	Taro Yasmeen – Statistics

NOTE : Question Papers must contain problems to the extent of 50% of the marks allotted to the subject.

Course Designed By: Dr.S.Ramasamy - ramasamykmc@rediffmail.com

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	M	M	S	M	S	S	S	S
CO2	S	S	S	S	S	S	M	S
CO3	M	S	S	M	M	M	S	M
CO4	S	S	S	M	M	S	M	M
CO5	M	M	L	S	S	M	L	L

*S-Strong; M-Medium; L-Low

Course code		BUSINESS MANAGEMENT FOR ECONOMICS	L	T	P	C
Core		ALLIED PAPER III	4			4
Pre-requisite		Imparting Knowledge of Business Management.	Syllabus Version	2020-2021		

Course Objectives:

The main objectives of this course are:

1	To Understand the principles of management.
2	To Develop the skills of decision making, organizing and management of a business organization

Expected Course Outcomes:

On the successful completion of the course, student will be able:

1	To get the knowledge of nature and functions of management.	K1
2	To acquire skill of various management planning.	K2
3	To know the forecasting techniques and decision making.	K3
4	To acquire knowledge of manpower planning, motivation theory and communication barriers and importance.	K4
5	To understand the importance of leadership in business scenario	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** – Evaluate

Unit:1	Functions of Management	13 -- hours

Management - Nature and Functions of Management - Management as an Art - Science and Profession - Management and administration.

Unit:2	Scientific Management	15-- hours

Scientific Management - Concept - Contribution of F.W. Taylor - Techniques of Scientific Management - Planning - Meaning - Features - Importance - Steps in Planning - Types of Planning - Tools of Planning - Objectives of an Organisation - Concept - Features - Hierarchy of Objectives - Management by Objectives.

Unit:3	Forecasting and Decision Making	14-- hours

Forecasting - Concept - Techniques - Decision Making Need - Types - Factors involved in Decision Making - Decentralisation - Delegation of Authority - Span of Control.

Unit:4	Motivation and Communication	16-- hours

Staffing - Fundamentals of Staffing - Manpower Planning - Objectives and Problems - Source of Manpower supply - Selection Process - Motivation - Meaning - Maslow's theory of Motivation - Communication : Meaning - Importance - Forms of Communication - Formal and Informal

Communication - Barriers to communication.		
Unit:5	**Leadership**	**15-- hours**
Leadership - Definitions - Characteristics - Distinction between leadership and management - Importance of Leadership - Formal and Informal Leaders - Functions and qualities of a Good Leader.		
Unit:6	**Contemporary Issues**	**2 – hours**
Expert Lectures, online seminars – webinars		
	Total Lecture hours	**75 –hours**

Text Book(s)	
1	P.N. Reddy, Tripathy & Others Essentials of Management, Himalaya Publishing House, New Delhi, 1995.
2	K. Natarajan, K.P. Ganesan, Principles of Management, Himalaya Publishing House, New Delhi, 1998.
Reference Books	
1	L.M. Prasad, Principles and Practice of Management, Sultan & Sons., New Delhi, 1987.
2	Dinkar Pagare, Business Management, S. Chand & Company, New Delhi, 1991.
3	Dr. C.B. Gupta, Business Management, S. Chand & Sons., New Delhi, 2000.
4	Lallan Prasad,S.S. Gulshan, Management - Principles & Practice, S. Chand & Company, New Delhi, 1991.
Course Designed By: Dr.S.Ramasamy - ramasamykmc@rediffmail.com	

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	S	M	S	S	S	M	S	S
CO2	S	S	M	S	S	S	S	S
CO3	M	S	S	M	M	S	S	M
CO4	S	S	S	M	M	S	M	S
CO5	M	L	M	L	S	L	M	M

*S-Strong; M-Medium; L-Low

Course code		FINANCIAL ACCOUNTING	L	T	P	C
Core		PART – IV SKILLS BASED SUBJECT PAPER - I	3			3
Pre-requisite		Essential Concepts of Accounting Procedures	Syllabus Version	2020-2021		

Course Objectives:

The main objectives of this course are:

1	To make the students to understand the basic concepts of accounting procedures.
2	To encourage the students to learn modern techniques in the accounting field.

Expected Course Outcomes:

On the successful completion of the course, student will be able:

1	To recall the basic accounting principles and techniques	K1
2	To get knowledge of double entry system, Journals, Ledger and trial balance.	K2
3	To understand the ideas of bank reconciliation statement.	K3
4	To get application knowledge of preparing final accounts.	K4
5	To enhance the application knowledge of Single Entry System, Income & Expenditure Account and Balance Sheet.	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** – Evaluate

Unit:1	Accounting Concepts	8 -- hours

Accounting - Definition, objects, functions and importance, classification of accounts - Double Entry System concept; Journal, ledger and Trial Balance.

Unit:2	Subsidiary Books	8-- hours

Subsidiary Books - Cash Book, Bank Reconciliation Statement.

Unit:3	Final Accounts	9-- hours

Preparation of Final Accounts of sole traders - trading and Profit & Loss A/c. and Balance Sheet - with simple adjustment.

Unit:4	Single Entry System	9-- hours

Single Entry System - Statement of Affairs; Conversion into double entry (Simple Problems)

Unit:5	Accounting of Non – Trading Concerns	9-- hours

Accounts of Non - Trading concerns - Receipts and Payments A/c. Income & Expenditure A/c. and Balance Sheet.

Unit:6	**Contemporary Issues**	**2 – hours**
Expert Lectures, online seminars – webinars		
	Total Lecture hours	**45 –hours**

Text Book(s)

	Principles of Accountancy - N. Vinayakam, P.L. Mani & K.L. Nagarajan.
2	Financial Accounting - R.L. Gupta and V.K. Gupta - Sultan Chand and Sons, New Delhi.

Reference Books

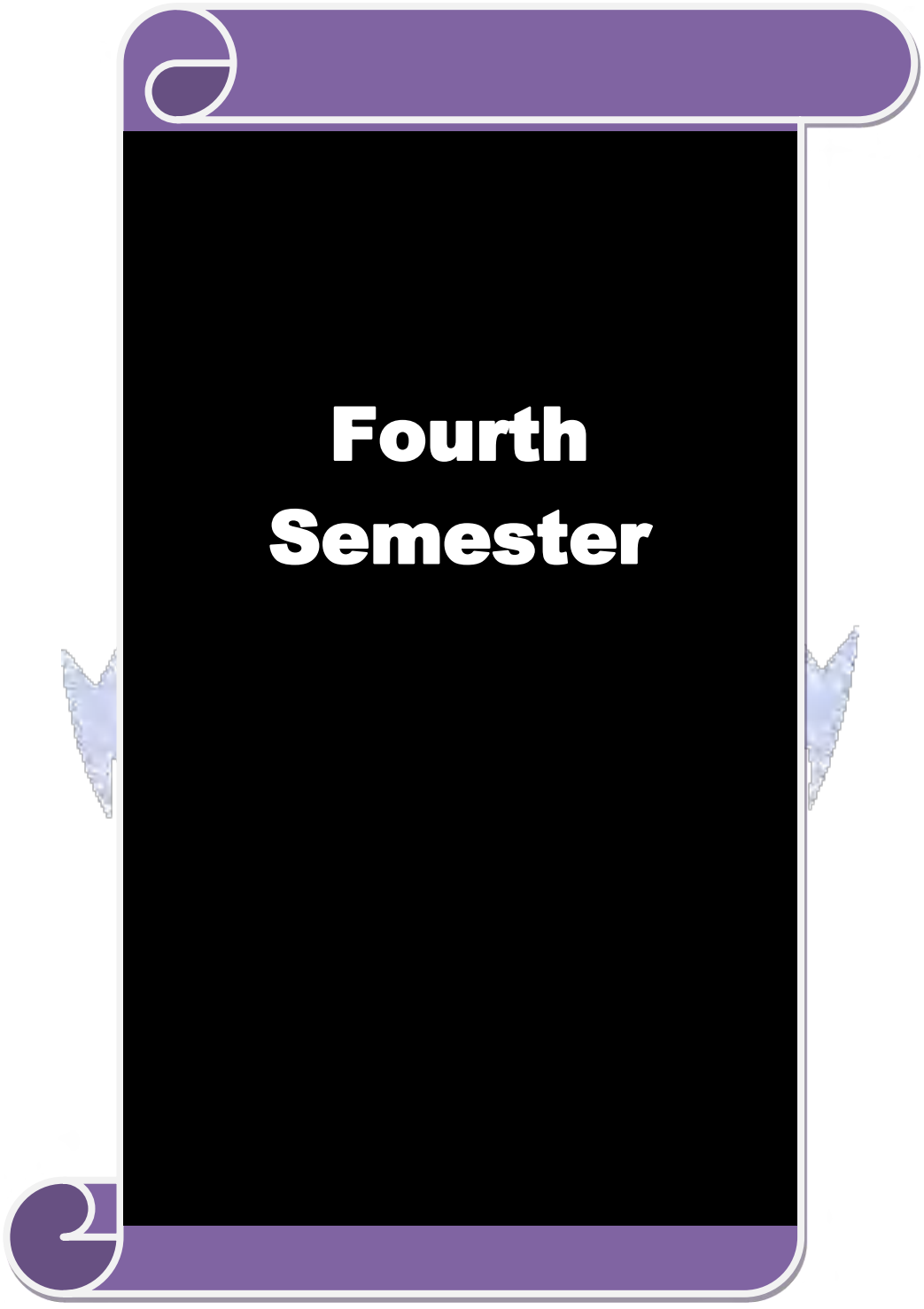
1	Financial Accounting - SP. Jain and K.L. Narang - Kalyani Publishers, Ludhiana.
2	Financial Accounting - Santhana Gopalan and Parthasarathy, Sultan Chand and Sons, New Delhi.
3	Financial Accounting - Reddy and Murthy – Margham, Publications -Chennai - 17.

NOTE: Question Papers must contain problems to the extent of 60% of the marks allotted to the subject.

Course Designed By: Dr.S.Ramasamy

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	S	M	S	M	S	S	S	S
CO2	S	S	S	S	M	S	M	S
CO3	M	S	S	M	S	M	L	M
CO4	S	S	S	S	M	S	M	M
CO5	M	M	L	S	S	M	L	S

*S-Strong; M-Medium; L-Low


Fourth
Semester

Course code		MACRO ECONOMICS – II	L	T	P	C
Core		CORE PAPER –VII	4			4
Pre-requisite		Overview of Macro Economic Issues and Analysis Aggregate Measures	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are:

1	To help the students to know about the basic concepts of Macro Economics.
2	To make the students to understand different dimensions of Macro Economics with applications.

Expected Course Outcomes:

On the successful completion of the course, student will be able:

1	To Explain the principle of Multiplier and Accelerator, Super Multiplier.	K1
2	To Attain the knowledge in classical and Keynesian theories of income and employment.	K2
3	To Analyze the various phases of trade cycle and the theories of trade cycles.	K3
4	To Understand the working conditions of product and money market, Shift in IS and LM curves.	K4
5	To Explain the Economic role of monetary and fiscal policies in developing Economy.	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** – Evaluate

Unit:1	Multiplier and Accelerator	11 -- hours

Multiplier and Accelerator: Definition – importance – working – Assumptions – Types – Leakages of the multiplier. Accelerator: Meaning – Significance – Limitations – Interaction of Multiplier and Accelerator, Super multiplier.

Unit:2	Savings and Investment equality	12-- hours

Savings and Investment equality: The Classical view – the Keynesian view – the others' view. The
Keynesian theory of Income, Output and Employment.

Unit:3	Trade cycle	13-- hours

Trade cycle: Meaning – nature – types and phases of a Trade cycle. Theories of trade cycle-Keynesian of trade cycle. Schumpeter's innovation theory –Hwatrey's monetary theory-Hicks theory of trade cycle .

Unit:4	IS and LM functions	12—hours

IS and LM functions: the product and money market Equilibrium – General Equilibrium of product and money market. Inflation- meaning – inflationary gap – Phillips curve – the relationship between unemployment and inflation.		
Unit:5	**Macro Economic policy**	**10—hours**
Macro Economic policy: Meaning-Targets- instruments, objectives of macroeconomic policy. Monetary Policy –Fiscal policy: meaning –the role of monetary and fiscal policy in a developing economy.		
Unit:6	**Contemporary Issues**	**2 – hours**
Expert Lectures, online seminars – webinars		
	Total Lecture hours	**60 –hours**

Text Book(s)	
1	M .L. Jhinghan: Macro Economic Theory, Virnda Publications (P), New Delhi.
2	Sankaran. S. Macro Economics, Margham Publications, Chennai.
Reference Books	
2	Vaish M.C, Macro Economic Theory, Wiley Eastern Limited, New Delhi.
3	Gupta G.S, Macro Economics, 3rd Edition, Tata McGraw-Hill Publishing Company Ltd., New Delhi.
4	Seth M.L, Macro Economics, Lakshmi Narain Agarwal Publishers, Agra.
Course Designed By: Dr.S.Ramasamy – ramasamykmc@rediffmail.com	

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	S	M	M	S	S	S	S	S
CO2	S	S	S	M	S	S	M	M
CO3	S	M	S	S	M	M	S	S
CO4	S	S	M	M	M	S	M	M
CO5	M	M	L	S	S	L	S	S

*S-Strong; M-Medium; L-Low

Course code		MATHEMATICAL ECONOMICS	L	T	P	C
Core		CORE PAPER – VIII	4			4
Pre-requisite		The main aim of this subject is to inculcate basic mathematical knowledge and its application to economic concepts.	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are:

1	To help the students to know about the basic mathematical knowledge
2	Make the students to understand the importance of mathematic tools in economics
3	Providing elementary analysis of economic concepts
4	To equip the students to know the application of mathematical techniques in economic theories

Expected Course Outcomes:

On the successful completion of the course, student will be able:

1	To create the fundamental knowledge in Mathematics.	K1
2	To encourage the students to understand the concepts.	K2
3	To train the students in the analysis of economics issues.	K3
4	To help the students to calculate the changes in basic economic variables	K4
5	To prepare students in decision making .	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	Basic Mathematical Functions	16 -- hours

Definition and Importance of Mathematical Methods - Rules of Differentiation - Linear equations - Quadratic equations - Logarithmic function.

Unit:2	Basic Economic Concepts	16-- hours

Total, average and Marginal Revenues - Elasticity of Demand - Conditions for Profit Maximization - Partial Differentiation - Total Differential

Unit:3	Set Theory	15-- hours

Notations of Set - Types of Sets - Venn diagram - Laws of set operations - Applications in Economics.

Unit:4	Matrix	15-- hours

Matrix Addition and Subtraction - Matrix Multiplication - Determinants - Properties - Solution of simultaneous equation using Cramer's Rules.

Unit:5	Input- Output Analysis	13-- hours

Input - Output Analysis - Technological co-efficient Matrix - Linear Programming - Graphical method.

	Total Lecture hours	75 --hours

Text books

1	Mehta and Madnani - Mathematics for Economists, Sultan Chand & Sons, New Delhi -

	2000.
	Reference Books
2	Allen, R.G.D.- Mathematical Analysis for Economists, Macmillan, New York.
3	Chiang, - Fundamentals of Mathematical Economics, Macmillan, New York.
4	Stafford - Elementary Mathematics for Economics. Srinath Baruah, Basic Mathematics and its application in Economics - Macmilan India Ltd., Chennai – 2001
Course Designed by : Dr.Thaiyalnayagi- ttnayaki@gmail.com	

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	M	S	M	M	M	L	S	L
CO2	S	S	S	S	S	S	S	S
CO3	M	S	S	M	S	S	S	M
CO4	M	S	S	S	S	S	S	S
CO5	M	S	S	M	S	S	S	S

*S-Strong; M-Medium; L-Low

Course code		COMPUTER APPLICATIONS IN ECONOMICS	L	T	P	C
Core		ALLIED PAPER – IV	4			4
Pre-requisite		This course deals with the basic concepts of computer and the practical knowledge for their employment purposes.	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are:

1	This course is designed to make the students to understand basic computer skills
2	To understand the basic concepts of computer system.
3	Make the students to understand the applications in economics
4	To prepare the students to search for jobs.

Expected Course Outcomes:

On the successful completion of the course, student will be able:

1	To improve the knowledge of students in computer.	K1
2	To encourage the students to acquire knowledge on the basic concepts of computer in economics.	K2
3	To provide knowledge on business applications.	K3
4	To provide the students to develop computer skills and its applications in economics and business.	K4
5	Useful to students to get practical knowledge for their employment purposes.	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	Introduction of Computers	15 -- hours

Introduction to computers - Importance of Computers - History of Computers - Configuration of a Computer - Hardware and Software - Programming Languages - Source Program - Object Program - Interpreter.

Unit:2	Information system	15-- hours

Management Information Systems - Features - Steps in implementation of MIS - Need for Information - Information System for decision making.

Unit:3	Introduction to E-Commerce	15-- hours

Introduction to E-Commerce, Models B-B, B-C, EDI, EDI - Applications in business, Electronic Payment Cash - Smart Cards - Credit Cards.

Unit:4	Introduction to Internet	15-- hours

An Introduction to Internet - Important features - setting up an Internet Connection- Configuring a TCP/IP connection - Starting Internet - Uses - E-mail sending and receiving E-mail.

Unit:5	Database Management	15-- hours

Database Management DBMS Models - Hierarchical Network - Relational Data Warehouses - Data Mining.		
	Total Lecture hours	**75 --hours**
Text Books		
1.	A first Course in Computer - Sanjay Saxena	
2.	Computer Programming and Application - R. Krishnamoorthy.	
	Reference Books	
1.	Computer Applications in Business - Subramanian.K	
2.	The Internet - Harley Kahn	
3	The Internet - Douglas E – Corner	
	Course Designed by : Dr.Thaiyalnayagi-ttnayaki@gmail.com	

COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**
CO1	S	S	S	M	S	S	S	S
CO2	M	M	S	S	M	S	M	M
CO3	S	M	S	L	M	M	S	M
CO4	M	S	S	L	S	S	S	L
CO5	S	S	S	M	S	M	S	M

*S-Strong; M-Medium; L-Low

Course code		TRADE DOCUMENTATION	L	T	P	C
Core		Part IV - Skill Based Subject -II	3			3
Pre-requisite		This course deals with international trade , shipping and documentation methods.	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are:

1	To familiarize the students to learn the procedures of foreign trade and documentation methods.
2	To gain knowledge on foreign trade
3	To familiarize the students about current economic scenario

Expected Course Outcomes:

On the successful completion of the course, student will be able:

1	To help the students to know about the importance of international trade and licensing.	K1
2	To understand the necessary knowledge on shipping procedures.	K2
3	To know about the basic export and import documents.	K3
4	Make the students to gain knowledge on basic export procedures	K4
5	To help the students to search for jobs in export industries.	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	International Trade	10 -- hours

Avenues of International Trade - Direct exporting - Joint venturing - licensing arrangement, Management contracting, foreign investment - turnkey projects, consulting.

Unit:2	Shipping procedures	10-- hours

Role of Shipping - Liners, tramps, Bill of lading - Jettison and general average, particular average, warranties and other shipping terminologies - containerization - Air Transport - Multi Model Transport - Cargo Insurance.

Unit:3	Documents relating to exports	10-- hours

Need, Rationale and Types of document - INCO terms - Ex - works - Free on Truck - cost and freight - Cost Insurance Freight - Free on Board - Document against payment - Document against Acceptance - Invoice, Inspection certificate - Certificate of Origin.

Unit:4	Export and Import Documents	10- hours

Export, Import Licenses - Letter of Credit Mechanism - Uniform Customs and Practices for Documentary Credit (UCPDC) - Duty drawback procedure.

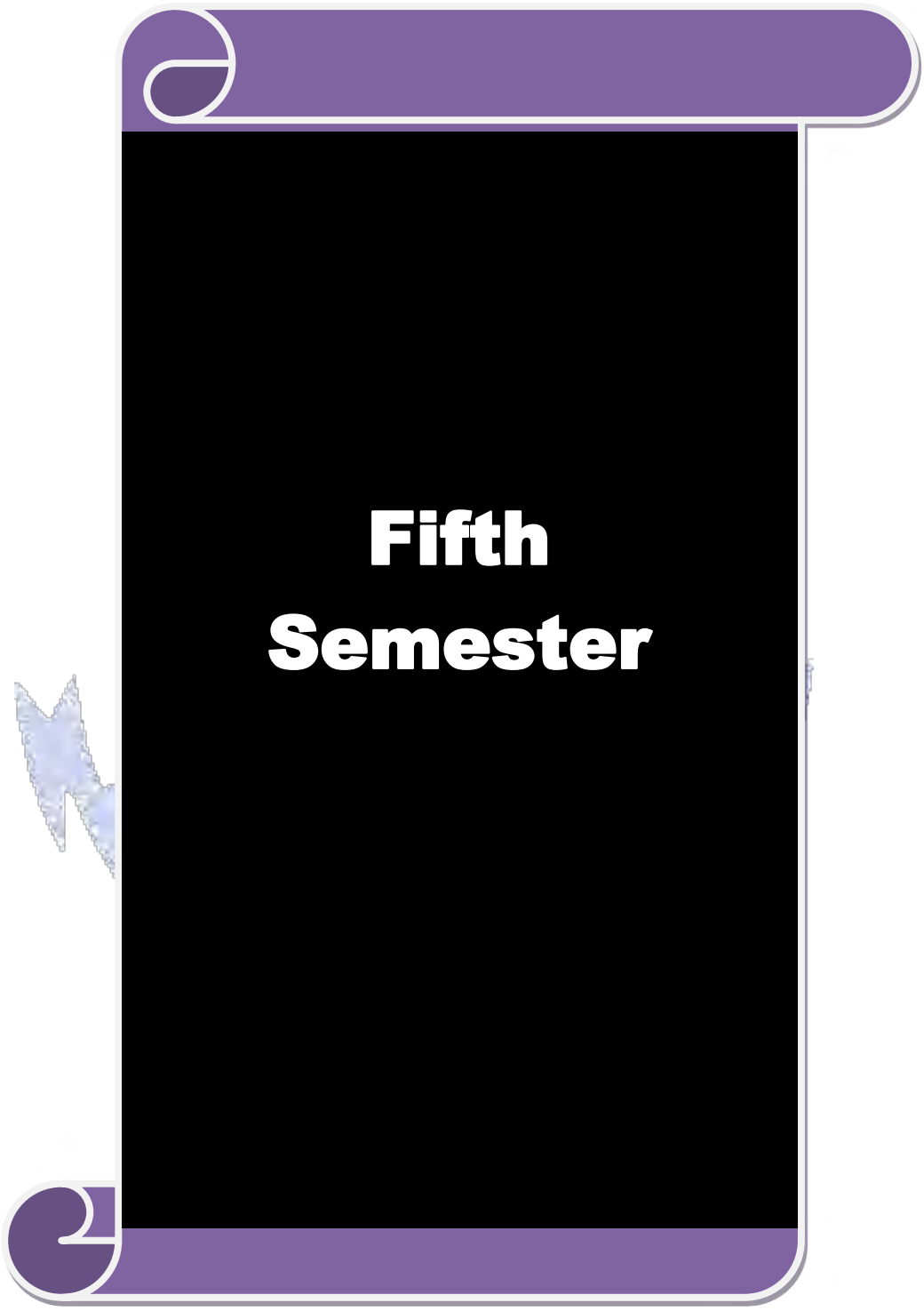
Unit:5	Packing Methods	10-- hours

Packing Methods - Packing List - Quality Control and Inspection - Clearance of Export Cargo - valuation and classification of goods in customs - Warehousing under Customs Act - Post - Shipment Formalities and procedures

	Total Lecture hours	**50 --hours**
Text Books		
1	Balagopal - Export Management, Himalaya Publishing House, Delhi	
	Reference Books	
2.	Paras Ram - Export - What, Where and How - Tata MC Graw Hill International Edition.	
3	Government of India, Handbook of Import and Export procedures..	
	Course Designed by : Dr.Thaiyalnayagi	

COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**
CO1	S	S	S	M	S	S	M	S
CO2	S	M	S	S	M	S	S	S
CO3	S	M	S	S	M	L	S	S
CO4	S	S	M	M	S	M	S	M
CO5	S	S	S	M	S	M	S	M

*S-Strong; M-Medium; L-Low


Fifth
Semester

Course code		MONETARY ECONOMICS	L	T	P	C
Core		Core paper IX	4			4
Pre-requisite		This course deals with the theories of money, capital market and the banking sector	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are:

1	Understand the role of money and theories of money.
2	Analysing the monetary forces, their developmental role and limitations in shaping and influencing the monetary policies
3	To know about the importance of Banking system

Expected Course Outcomes:

On the successful completion of the course, student will be able:

1	To help the students to know about the importance of money in the economy.	K1
2	Make to learn about theories of money.	K2
3	To acquaint the students with the working of money and financial markets	K3
4	To encourage the students to learn about the role of money in different business situations.	K4
5	Help the students to know about the importance of banking system in the economy	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	Definition of Money	18 -- hours

Evolution, scope and functions of money, Barter and its difficulties - Definitions of money - Importance of money in a modern economy - Monetary standard - Monometallism and Bimetallism - causes for the breakdown of gold standard - Paper standard - Principles and methods of note issue-merits and demerits.

Unit:2	Theories of Money	18-- hours

Value of money - demand for money - supply of money - theories of money - Fisher's quantity theory of money - Cambridge Equation - Keynes's Income Theory - Milton Friedman's restatement of the Quantity Theory of Money.

Unit:3	Money, Financial and Capital Market	19-- hours

Financial Market - Kinds of Financial Market - Money Market - Meaning, Functions, Constituents of Money Market - Financial Institutions in the Money Market - Characteristics of a Developed Money Market - Capital Market.

Unit:4	Inflation and Business Cycle	19-- hours

. Inflation - Types -causes - consequences and control - Inflationary gap - deflation - causes - consequences and control - Trade Cycles - Types - various phases of trade cycle.

Unit:5	Banking sector	16-- hours

Functions of commercial banks - Role of commercial banks in economic development - credit creation - Balance Sheet - Functions of Central Bank - RBI and monetary Policy – Role of RBI in demonetization – merits and demerits - Recent trends in Banking - Innovative Banking - ATM - Credit Cards, Factoring Services, E-Banking and mutual funds.

	Total Lecture hours	90-hours

Text books	
1.	K.P.M. Sundaram - Money Banking and Trade
2.	D.M. Mithani - Monetary Theory
	Reference Books
3.	Saravanavel - Banking Law and Practice
4.	Dr. S. Sankaran - Monetary Economics, Himalaya Publishing House, Bombay, 1989.
5.	B.N. Ghosh and Rama Ghosh - Fundamentals of Monetary Economics, Himalaya Publishing House, Bombay, 1989.
6	M.L. Jhingan Monetary Economics, Konark Publishers Pvt. Ltd., New Delhi, - 1997
7.	T.T.Sethi - Monetary Economics, S.Chand & Company Ltd, new Delhi, 1996
	Course Designed by : Dr.Thaiyalnayagi

COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**
CO1	M	S	M	M	S	S	S	S
CO2	M	M	S	S	M	S	S	L
CO3	S	M	S	S	M	M	S	M
CO4	S	S	S	M	S	M	S	M
CO5	S	S	S	M	S	S	S	S

*S-Strong; M-Medium; L-Low

Course code		INDIAN ECONOMIC DEVELOPMENT AND POLICIES	L	T	P	C
Core		Core X	4			4
Pre-requisite		This course deals with the basic knowledge on the nature and important features of Indian economy.	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are:

1	To expose the students of the various issues of the Indian economy.
2	To familiarize the students on sector-wise development issues and critically appraise the current Indian economic problems.

Expected Course Outcomes:

On the successful completion of the course, student will be able:

1	Understand the new economic reforms and the schemes of central and state Government	K1
2	Assessing the role and growth of agriculture and its impact on rural development	K2
3	Examining the population growth in India and its impact on the economy	K3
4	To measure the infrastructural facilities and its role in economic development	K4
5	To analyze the problems of the regional economy	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	New economic reforms	14-- hours

New economic reform and it's impact – primary, secondary and service sectors. New schemes of present central and state Government.

Unit:2	Indian Agriculture	14-- hours

Indian Agriculture - Role and growth of Agricultural Sector in Indian Economy - Green Revolution - National Agriculture Policy - Infrastructure and Rural Development – WTO – subsidies - PDS.

Unit:3	Population in India	14-- hours

Size and growth of population in India - Demographic Indicators - Population Policy in India - Occupational Structure - Work Participation rate - Literacy - Higher Education - Health Infrastructure - HDI - India's Rank and Position.

Unit:4	Infrastructure	14-- hours

Infrastructure and Economic Development - Energy - Power - Transport - Science and Technology - Large Scale Industries - Iron and Steel - Sugar and Cement - Role of Public Sector undertakings - Short comings.

Unit:5	Regional Economy	14-- hours

Regional economy – Agriculture – Industry – Service Sectors in Kongu Nadu – problems and prospects.		
Unit: 6	**Contemporary Issues**	**2 hours**
	Expert lectures, online seminars - Webinars	
	Total Lecture hours	**75 --hours**

Text Book(s)	
1	M.L. Jhingan - Economics of Development and Planning, Vrindha Publications, New Delhi, 2007.
2	Ruddar Dutt and K.P.M. Sundaram - Indian Economy, S. Chand & Company Ltd.,New Delhi, 2007.
Reference Books	
1	Dhingra IC The Indian Economy, Environment and Policy, Sultan Chand, New Delhi.
2	Misra S.K. and V.R. Puri - Indian Economy - Its development experience -Himalaya Publishing House, Mumbai, 2004.
3	Dr. S. Sankaran - Indian Economy, Margham Publications, Chennai, 2004.
4	Alak Ghosh - Indian Economy, The World Press Pvt. Ltd., Calcutta, 1997.
5	Statistical Hand Book (www.coimbatore.tn.nic/handbook.html)
Course Designed By: Dr.HEMASRIKUMAR Email – hema_srikumar@yahoo.com	

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	**S**	**S**	**M**	**M**	**S**	**M**	**L**	**S**
CO2	**S**	**S**	**M**	**S**	**S**	**L**	**M**	**S**
CO3	**S**	**S**	**S**	**M**	**S**	**M**	**L**	**S**
CO4	**S**	**S**	**S**	**M**	**S**	**M**	**L**	**S**
CO5	**S**	**S**	**M**	**S**	**M**	**M**	**L**	**S**

***S-Strong; M-Medium; L-Low**

Course code		INTERNATIONAL ECONOMICS	L	T	P	C
Core		Core XI	6			6
Pre-requisite		The course deals with the theories and policies of International Economics.	Syllabus Version	2020-2021		

Course Objectives:

The main objectives of this course are:

1	To impart the knowledge with the theory, policy as well as the working of the international trade and payment system.
2	To familiarize the students about the present world economic order.

Expected Course Outcomes:

On the successful completion of the course, student will be able:

1	To understand the basic concepts of International Trade	K1
2	To evaluate and apply the comparative cost theory	K2
3	To examine the balance of payments and the terms of trade in an economy	K3
4	To analyse the exchange rate of the economy	K4
5	To assess the functioning of the international financial institutions	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	International Trade	14-- hours

Importance of International Economics - Scope - Basis of International Trade - Features of International Trade - Distinguishing Features of Inter - Regional and International Trade - Free Trade and Protection.

Unit:2	Theories of International Trade	14-- hours

Theories of International Trade - Theory of Comparative Cost - Classical Theory - Heckscher - Ohlin Theory.

Unit:3	Balance of payments	14-- hours

Balance of Payments - Meaning - Importance - Balance of trade and Balance of Payments - Disequilibrium of Balance of Payments - Measures to set-right disequilibrium - Terms of Trade - Types of terms of trade - Factors influencing terms of trade

Unit:4	Exchange Rate	14-- hours

Exchange rates - Flexible and Fixed Exchange Rates -Equilibrium rate of Exchange - purchasing power parity theory - Devaluation - Exchange control.

Unit:5	International financial Institutions	14-- hours

International Financial Institutions - Working of IMF, IBRD, IDA, International Liquidity, UNCTAD, New International Economic Order - WTO.

Unit: 6	Contemporary Issues	2 hours

	Expert lectures, online seminars - Webinars	
	Total Lecture hours	**75 --hours**

Text Book(s)	
1	M.L. Jhingan -International Economics, Konark Publishers, New Delhi, 2007.
2	D.M. Mithani - International Economics, Himalaya Publishing House, Mumbai, 2003.
Reference Books	
1	G. Haberler - Theory of International Trade
2	Francis Cherunilam - International Economics
3	Ellsworth - International Economics
4	Kindleberger - International Economics
5	K.R. Gupta - International Economics
6	S.S.M. Desai - International Economics, Himalaya Publishing House, Mumbai, 1990.
7	K.P.M. Sundaram - Money, Banking and International Trade, S. Chand and Company, New Delhi, 2005
Course Designed By: Dr.HEMASRIKUMAR Email – hema_srikumar@yahoo.com	

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	S	S	M	L	M	M	L	M
CO2	S	S	M	M	S	L	L	S
CO3	S	S	M	S	S	M	L	S
CO4	S	S	L	M	M	L	M	L
CO5	S	S	M	S	S	S	M	M

***S-Strong; M-Medium; L-Low**

Course code		ENTREPRENEURSHIP DEVELOPMENT	L	T	P	C
Core		Core XII	5			5
Pre-requisite		This paper deals with Basic concepts of entrepreneurship, women entrepreneurs, project classification, training objectives and Business correspondence.	Syllabus Version	2020-2021		

Course Objectives:

The main objectives of this course are:

1	To understand the role of entrepreneurship in economic development
2	To familiarize with the opportunities available to become an entrepreneur

Expected Course Outcomes:

On the successful completion of the course, student will be able:

1	To acquire the knowledge regarding characteristics of an entrepreneur	K1
2	To develop an interest in entrepreneurial activity	K2
3	To equip them with entrepreneurial skills for self-employment	K3
4	To assess the training and financial facilities available for entrepreneurs	K4
5	To understand the business correspondence and communication	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Basic concepts of Entrepreneurship	14-- hours

Entrepreneurship – meaning and definition – importance – factors affecting entrepreneurial growth – social, economic and environmental factors. Types of functions of an entrepreneur – Qualities of a successful entrepreneur.

Unit:2	Women entrepreneurs	14-- hours

Women entrepreneurs: concepts, functions and role of women entrepreneurs. Growth and women entrepreneurs, problems of women entrepreneurs – role of women entrepreneurs associations – selection of industry by women entrepreneurs. Types of industries/business suitable for women entrepreneurs – Rural entrepreneurs.

Unit:3	Project classification and identification	14-- hours

Search for a business idea – sources – processing and selection – selection of types of organization – project classification and identification – project objectives – internal and external constraints – format for a report.

Unit:4	Training objectives and institutional finance	14-- hours

Training and finance objectives of training – phases of EDP – special agencies for training – institutional finance with special emphasis of commercial banks. IDBL IFCI, ICICI, IRBI, SFCS,. SIPCOT, Khadi and Village Industries Commission – Micro Finance –Incentives and Subsidies(a Brief Study)

Unit:5	Business correspondence	14-- hours

Business correspondence and communication – Drafting the notices of company meetings – Drafting of resolutions, minutes, structure of business letters – Sales and trade computer based systems – Management information system – merits and demerits.		
Unit: 6	**Contemporary Issues**	**2 hours**
	Expert lectures, online seminars - Webinars	
	Total Lecture hours	**75 --hours**

Text Book(s)	
1	C.B.Gupta & N.P. Srinivasan : Entrepreneurial Development,
2	R.Saravanakumar, R. Parameswaran - A Text Book of Information & T.Jayalakshmi (V Unit) : Technology, Chand & Co Ltd., Delhi, 2003
Reference Books	
1	S.Mohan & R.Elangovan : Current Trends in Entrepreneurship, Deep & Deep Publications Pvt,Ltd., Delhi,2006
2	Gordon & K. Natarajan - Entrepreneurship Development, Himalaya Publishing House, Delhi,2005
3	P.Saravanavel - Entrepreneurial Development, Principles, Policies & Programme Ess Pee Key Publishing House, Madras, 1997
4	R.S.N.Pillai & Bagavathi - Commercial Correspondence & Office Management, S.Chand
Course Designed By: Dr.C.HEMALATHA email – hemsi14@gmail.com	

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	S	S	M	S	M	S	M	M
CO2	S	S	S	S	M	M	M	S
CO3	S	S	S	S	S	S	S	S
CO4	S	S	S	S	S	S	S	S
CO5	S	S	S	S	M	S	M	S

***S-Strong; M-Medium; L-Low**

Course code		COMPUTER SYSTEM – I – THEORY	L	T	P	C
Core		PART - IV SKILL BASED SUBJECT PAPER III	3			3
Pre-requisite		The course deals with the basic knowledge on different concepts of computer applications.	Syllabus Version	2020-2021		

Course Objectives:

The main objectives of this course are:

1	To provide knowledge on different concepts of computer applications
2	To enable the students to understand the importance of computer system.

Expected Course Outcomes:

On the successful completion of the course, student will be able:

1	To understand the basic concepts of computer	K1
2	To analyse the input devices of the computer	K2
3	To examine the output devices of a computer	K3
4	To work practically with tally ERP	K4
5	To enable students to work on different kinds types of vouchers	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Basic concepts of computer	8 - hours

Description of Electronic Computers - CPU Operations - Classification of Computers - Main - Mini - Work Stations - Micro Computers - Super Computers - Personal Computers - Computer Software - Types of Software.

Unit:2	Input devices	8 - hours

Input devices - Mouse - Touch Screens, MICR - OCR, Keyboard, Pen based - Input Digital Scanners - Voice input devices - Sensors.

Unit:3	Output devices	8 - hours

Output devices - Impact Printers - Non Impact Printers - Video display terminals - plotters - Voice output devices - Secondary storage devices - Magnetic disk - Floppy - Magnetic Tape - Optical Disk Storage C.D. Rom.

Unit:4	Tally ERP	8 - hours

Tally ERP 9 - Create New Company with tally vault password, Accounting Master: Groups-create ledger accounts –check trial balance–Inventory Master: create stock group-units-go down- stock items .check stock summary.

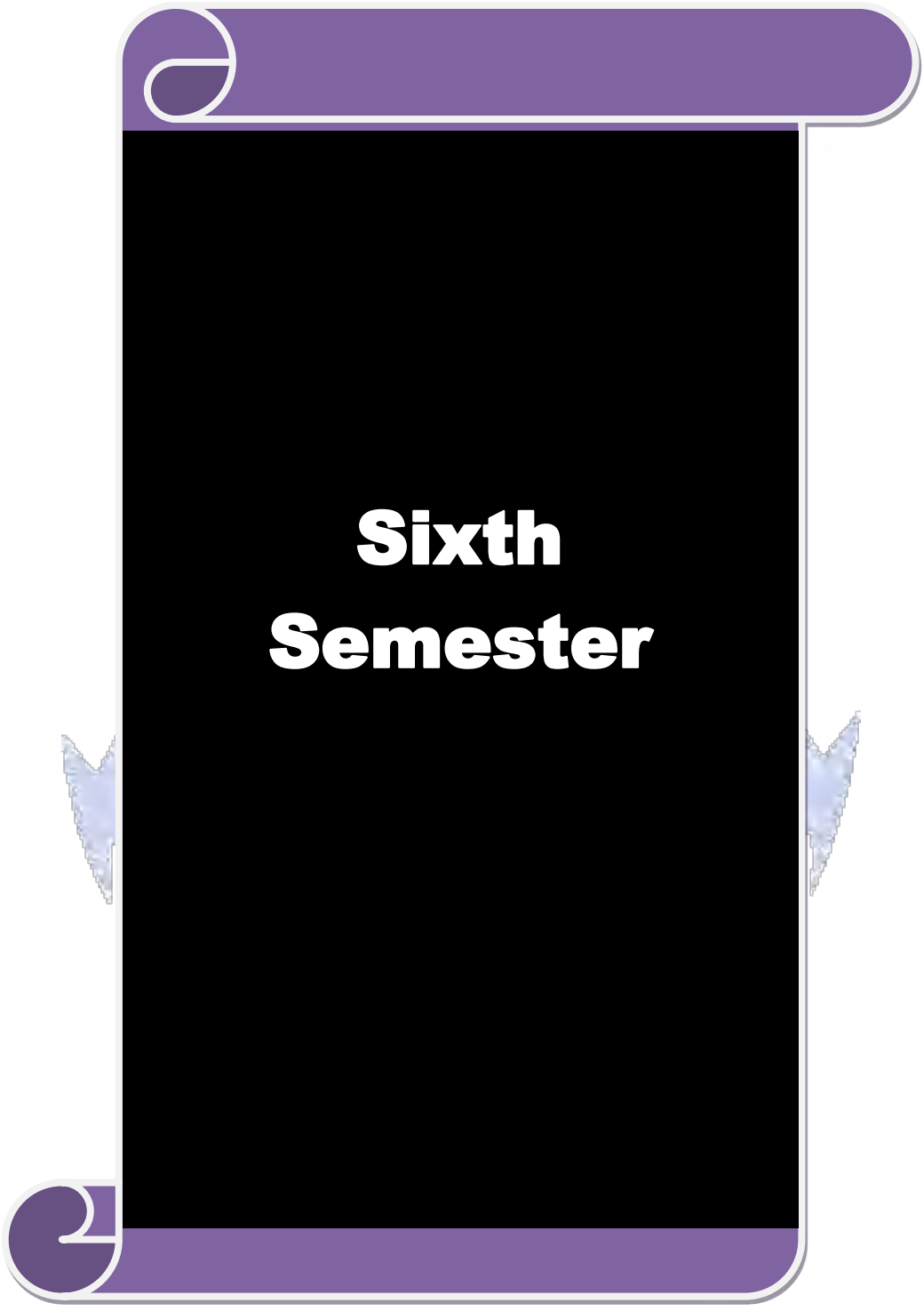
Unit:5	Types of vouchers	6 - hours

Accounting Vouchers-Make Different types of vouchers-prepare Sales invoice-purchase invoice Preparation financial reports : Day book-Trial balance - Books of Accounts – Profit and loss accounts-Balance sheet Inventory Reports : Stock summary-Inventory Books.

Unit: 6	**Contemporary Issues**	**2 hours**
	Expert lectures, online seminars – Webinars	
	Total Lecture hours	**40 -hours**
Text Book(s)		
1	Parameswaran - Computer Applications in Business.	
2	Tally education pvt ltd-Tally pro vol-1	
Reference Books		
1	S. Palanivel - Tally Accounting Software - Margham Publications	
Course Designed By: Dr.HEMASRIKUMAR Email – hema_srikumar@yahoo.com		

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	S	M	M	M	M	S	M	M
CO2	S	M	L	M	L	M	S	M
CO3	S	M	L	M	L	M	S	M
CO4	S	S	S	S	M	S	S	S
CO5	S	S	S	S	M	S	S	S

***S-Strong; M-Medium; L-Low**


Sixth
Semester

Course code		FISCAL ECONOMICS	L	T	P	C
Core		CORE PAPER XIII	6			6
Pre-requisite		The course deals with the revenue and expenditure of the government.	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are:

1	To enable the students understand the fundamentals of public finance.
2	Understanding and analyzing the role and functions of the government and the impact of financial operations on economic activities.

Expected Course Outcomes:

On the successful completion of the course, student will be able:

1	To create knowledge on the scope of fiscal economics	K1
2	To analyze public revenue and the impact of taxation	K2
3	To assess the impact of public expenditure	K3
4	To understand public debt and the budgetary procedure	K4
5	Application of fiscal instruments on the economy	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Scope of Fiscal Economics	14 -- hours

Nature, scope and importance of Fiscal Economics - Public Vs. Private finance - public finance & UDCS - Principle of maximum social advantage.

Unit:2	Public Revenue	14-- hours

Public revenue - sources - Tax and non-Tax - Taxation - classification - Principles - effects - theories of taxation - impact and incidence of taxation – GST – Features – merits and demerits.

Unit:3	Public expenditure	14-- hours

Public Expenditure - principles - classification - effects - growth of public expenditure with special reference to India - control of public expenditure.

Unit:4	Public Debt	14-- hours

Public Debt - meaning - sources - classification - principles - Budget - meaning - features - principles - budgetary procedure.

Unit:5	Fiscal Instruments	14-- hours

Fiscal policy - instruments - federal finance- principles - problems - reports of 10th & 11th Finance Commission - Local Finance.

Unit: 6	Contemporary Issues	2 hours
	Expert lectures, online seminars - Webinars	
	Total Lecture hours	75 –hours

Text Book(s)	
1	B.P. Tyagi - Public Finance, Jai Prakash Nath & Co., Meerut.
2	K.P.M. Sundaram - Fiscal Economics
Reference Books	
1	Andley & Sundaram -Public Finance & Policy
2	Tripathy -Public Finance & Economic Development
3	Cauvery, Sudha Nayak, Girija, Kriparani & Meenakshi - Public Finance, S. Chand & Company Ltd., New Delhi.
4	R.C. Saxena & P.C. Mathur - Public Finance, K. Nath & Co., Meerut.
5	Dr. S. Sankaran – Fiscal Economics, Martha Publications, Chennai.
Course Designed By: Dr.C.HEMALATHA, Email – hemsi14@gmail.com	

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	**S**	**S**	**S**	**M**	**S**	**M**	**M**	**S**
CO2	**S**	**S**	**S**	**S**	**S**	**S**	**S**	**S**
CO3	**S**	**S**	**S**	**M**	**S**	**S**	**S**	**S**
CO4	**S**	**S**	**S**	**S**	**S**	**S**	**M**	**S**
CO5	**S**	**S**	**S**	**S**	**S**	**M**	**S**	**S**

***S-Strong; M-Medium; L-Low**

Course code		INDUSTRIAL ECONOMICS	L	T	P	C
Core		CORE PAPER – XIV	6			6
Pre-requisite		The course is designed to make the students to understand the location and localization of an industry and to learn the industrial financial sources and the recent industrial policies and its impact on productivity of industries.	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are:

1	Make the students to understand the theory of location.
2	To equip the students with the knowledge regarding the relationship between industrial growth and economic development.

Expected Course Outcomes:

On the successful completion of the course, student will be able:

1	To understand the factors determining the size of the firm	K1
2	To examine the factors affecting the location of an industry	K2
3	To understand the impact of industrial finance	K3
4	To evaluate the Industrial policies	K4
5	To assess the Industrial Productivity	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Size of the Firm	14 -- hours

Factors determining the size of the firm - Concept of the optimum firm - Representative firm.

Unit:2	Industrial Location	14-- hours

Location of Industry - Factors determining Industrial Location - Theories of Industrial Location - Weber - Sargant Florence Theory.

Unit:3	Industrial Finance	14-- hours

Industrial Finance - Term Finance: Short Term, Long Term - Specialized Financial Institutions - IFCI - IDBI - ICICI.

Unit:4	Industrial Policies	14-- hours

Industrial Policies - 1948, 1956, 1971, 1977, 1990, 1991 - Role of State - New Industrial Policy and Economic Reforms.

Unit:5	Industrial Productivity	14-- hours

Industrial Productivity - Factors Influencing Productivity - Rationalization - Aspects of Rationalization - Scientific Management - Automation - Benefits - Rationalization in India.

Unit: 6	Contemporary Issues	2 hours
	Expert lectures, online seminars – Webinars	

	Total Lecture hours	**75 --hours**
Text Book(s)		
1	Barthwal, R.R. "Industrial Economics as Introductory" Text Book, Wiley Eastern Ltd., New Delhi, 2000.	
2	Sivayya,K.V. and Das,V.B.M."Indian Industrial Economy" S. Chand & Co., New Delhi, 2004.	
Reference Books		
1	Devine, P.J. "An Introduction to Industrial Economics" George Allen and Unwin, London, 1978.	
2	Sadhu, A.N., and Singh, A. "Industrial Economics" Himalaya Publishing House, Mumbai, 1998.	
3	Dutt and Sondra, K.P.M. "Indian Economy" S. Chand & Co., New Delhi (2007).	
4	Dhingra, I.C., "Indian Industrial Economy" Sultan Chand & Co., New Delhi (1972).	
Course Designed By: Dr.C.HEMALATHA, Email – hemsi14@gmail.com		

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	**S**	**M**	**M**	**M**	**M**	**M**	**M**	**M**
CO2	**S**	**S**	**S**	**S**	**S**	**S**	**M**	**S**
CO3	**S**	**S**	**S**	**S**	**M**	**S**	**S**	**S**
CO4	**S**	**S**	**S**	**S**	**S**	**S**	**S**	**S**
CO5	**S**	**S**	**S**	**M**	**M**	**M**	**M**	**M**

***S-Strong; M-Medium; L-Low**

Course code		ENVIRONMENTAL ECONOMICS	L	T	P	C
Core		CORE PAPER XV	5			5
Pre-requisite		This course relates to the fundamentals environmental Economic Theories and the Concepts of Economics and Ecology.	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are:

1	To know the basic Concepts in Ecology and Economic development.
2	To Aware the Environmental policy and its Management

Expected Course Outcomes:

On the successful completion of the course, student will be able:

1	To familiarize with the theories of environmental economics.	K1
2	To examine the practical environmental problems and offer solutions.	K2
3	To analyze the regulations and prohibition measure to protect the environment	K3
4	To assess India's environmental policies.	K4
5	To measure the government activity against environmental problem	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	Economics and Environment	14-- hours

Introduction - Economics and Environment – Definition – Scope – Role - Significance of Environmental Economics - Economic Growth and Development - Ecology and Economic Development - Relationship between Environment and the Economy - Environment and Economic System

Unit:2	Environment Quality	14-- hours

Environmental Quality - Common Property Resource - Characteristic Tragedy of Commons – Air - Land – Water – Energy – Forest Resources - Wild Life - Man-Made Causes - Environmental Crisis – Pollution - Economic Consequences

Unit:3	Urbanization	14-- hours

Urbanization - Important Trends – Problems - Malthusian predicts - Theory of Demographic Transition - Effects and Remedies.

Unit:4	Environmental Policy	14-- hours

Environmental Policy - Constitutional Protection - Planning and Management - Role of Government - Public Awareness - Law and Environment

Unit:5	Global Warming	14-- hours

Meaning of Global Warming - Green House Effect - Contribution to Global Warming - Response to Green House Effect - Ozone Depletion - Climate Change - Contribution of Nation and State

Unit: 6	Contemporary Issues	2 hours
	Expert lectures, online seminars - Webinars	
	Total Lecture hours	**75 --hours**

Text Book(s)

1	Eugine T., Environmental Economics
2	Sankaran.S., Environmental Economics

Reference Books

1	Varadarajan.S and Elangovan.S, Environmental Economics
2	Richardson H.W, Urban Economics
3	Karpagam.M, Environmental Economics
4	Pearce D.W. Environmental Economics, Longman Group Ltd.

Course Designed By: Dr.C.HEMALATHA email – hemsi14@gmail.com

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	S	S	S	S	M	S	M	S
CO2	S	S	S	S	M	S	M	S
CO3	M	S	S	L	M	M	L	M
CO4	S	S	M	L	M	M	L	S
CO5	S	M	M	L	M	M	L	S

***S-Strong; M-Medium; L-Low**

Course code		COMPUTER SYSTEM - II	L	T	P	C
Core		PART – IV SKILL BASED SUBJECT PAPER IV	3			3
Pre-requisite		This course deals with the different concepts relating to MS Office and computer system	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are:

1	To understand the significance and basic concepts of computer systems.
2	To provide knowledge of the application of computer system in the field of MS. Office

Expected Course Outcomes:

On the successful completion of the course, student will be able:

1	To understand MS office Basics	K1
2	To analyze MS Word	K2
3	To evaluate and work with MS Excel	K3
4	To work with MS Power Point	K4
5	To understand MS Access	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate

Unit:1	MS Office Basics	8-- hours

MS. Office Basics - creating document - entering text -selecting text - giving instructions - using tool bars - menu commands - key board - shortcut - saving files - opening documents - Manipulating windows - simple editing - printing files - file merger.

Unit:2	MS Word	8-- hours

Word Basics - Using Auto text - using Auto correction - word editing techniques - finding and replacing text - checking spelling using templates - formatting - formatting with styles - creating tables.

Unit:3	MS Excel	8-- hours

Excel Basics - entering data - selecting ranges - editing entries - formatting entries - simple calculation - naming cells and ranges - data display - printing work sheets - copying entries between work books - moving sheets between work books - deleting sheets - creating graphs.

Unit:4	MS Power Point	8-- hours

Power Point Basics - editing text - adding subordinate points - deleting slides - working outline view - a design template merging presentation in slider sorter view applying templates - adding graphs - adding organization charts - running an electronic slide - show adding special effects.

Unit:5	MS Access	6-- hours

Access Basics - creating a table entering and adding records - changing a structure - working with records - creating forms - establishing relationships - using queries to extract information - using report to print information.

Unit: 6	**Contemporary Issues**	**2 hours**
	Expert lectures, online seminars – Webinars	
	Total Lecture hours	**40 --hours**

Text Book(s)

1	Sanjay Saxena - A first course in Computer
2	R. Krishnamoorthi - Computer programming and application

Reference Books

1	R.K. Taxali - PC Software for windows made simplex Tata Mcraw Hill Publishers Pvt. Ltd.
2	Stephen.L - Office 2000 Complete reference by BPB
3	Joyce Cox, Polly Urban – Quick Course in Microsoft Office - Galgotial Publications.
4	T. Karthikeyan & Dr.C. Muthu - PC Software for Office Automation - Sultan Chand.
5	A.L. Stevens - Teach; your self-windows.

Course Designed By: Dr.HEMASRIKUMAR Email – hema_srikumar@yahoo.com

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	S	S	M	S	M	S	S	S
CO2	S	M	S	S	M	S	S	S
CO3	S	M	S	S	M	S	S	S
CO4	S	M	S	S	M	S	S	S
CO5	S	M	M	S	M	S	M	M

***S-Strong; M-Medium; L-Low**

-


Elective
Courses

Course code		INVESTMENT POLICIES AND PROGRAMMES	L	T	P	C
Core		SEMESTER-V ELECTIVE I- GROUP –A	4			4
Pre-requisite		The subject deals with the importance of investment and the functions of stock market.	Syllabus Version	2020-2021		

Course Objectives:

The main objectives of this course are:

1	To understand the stock market instruments
2	To analysis the investments

Expected Course Outcomes:

On the successful completion of the course, student will be able:

1	Enlighten the students about the investment policies	K1
2	Understanding the market instruments	K2
3	Understanding and analyzing the various issues related to share market	K3
4	Provide the knowledge of various issues related to portfolio selection	K4
5	To educate the students about Mutual funds in a modern economy	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate

Unit:1	Investment	14 -- hours

Investment - meaning of investment – scope and elements-importance of Investment - Features of an Investment programme. Security valuation-Basic valuation models.

Unit:2	Bonds and Shares	14-- hours

Bonds - Types - public Sector Bonds - Zero Bonds - shares - preference shares and Equity Shares - Bonus and Right Shares-Debentures - Non-convertible- partly convertible, Fully convertible debentures

Unit:3	Share Market	14-- hours

Share market - primary market, New Issue market - Basics of allotment - Secondary market - Functions of Stock Exchange-Role of Stock Market in the India Economy-SEBI

Unit:4	Ratio Analysis	14-- hours

Book value - market value of shares. Growth shares - Ratio Analysis - Earning per share, Price - Earning ratio - payout - ratio - yield - Dividend Policies, Scope, type of investors-role of Depositories

Unit:5	Mutual Funds	14-- hours

Mutual Funds - Types - Advantages and Disadvantages - Net Asset Value - UTI and other Mutual Funds-Schemes of mutual fund.

Unit: 6	Contemporary Issues	2 hours
	Expert lectures, online seminars - Webinars	

	Total Lecture hours	**75 --hours**
Text Book(s)		
1	Preeti Singh - Investment Management	
2	Preeti Singh - Investment Management Security Analysis and Portfolio Management, Himalaya Publishing Home, Mumbai - 2004.	
Reference Books		
1	Ralph Eastman Badger and Harrg G. Guthamann - Investment principles and practice	
2	Dougall Herbert – Investments	
3	B.S. Grewal and Nahjot Grewal - Successful Stock market Investment	
4	S.S. Grewal and Nahjot Grewal - Profitable Investment in shares	
Course Designed By: Dr.C.HEMALATHA, Email – hemsi14@gmail.com		

COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**
CO1	**S**	**S**	**M**	**S**	**S**	**M**	**S**	**S**
CO2	**S**	**S**	**S**	**M**	**S**	**M**	**M**	**S**
CO3	**S**	**S**	**S**	**S**	**S**	**S**	**S**	**S**
CO4	**S**	**M**	**S**	**S**	**S**	**S**	**M**	**S**
CO5	**S**	**S**	**S**	**S**	**S**	**S**	**M**	**S**

***S-Strong; M-Medium; L-Low**

Course code		AUDITING	L	T	P	C
Elective		ELECTIVE PAPER - 1 - GROUP - B	4			4
Pre-requisite		This course is mainly educating the students on Auditing, investigation and essential qualities of auditor.	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are:

1	To impart knowledge about Principles and methods of auditing.
2	To familiarize the students with the techniques of auditing and its applications.
3	To provide the knowledge of voucher of cash transactions and trading transactions.

Expected Course Outcomes:

On the successful completion of the course, student will be able:

1	bility to perform the analysis of various types of audit.	K1
2	o understand the audit procedure and audit programmes.	K2
3	o analyze the vouching and impersonal ledgers.	K4
4	o gain knowledge and to evaluate Verification and valuation of assets and liabilities.	K3
5	o construct the knowledge of Rights and duties of company Auditor – Liabilities of company Auditor.	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Objectives of Auditing	12 -- hours

Definition – objectives of Auditing – Advantages and limitations of auditing –Auditing and investigation – Qualities of an Auditor – Detection of errors and frauds. Various types of audit: Continuous audit – Final audit – Interim audit – Balance sheet audit – Advantages of continuous audit.

Unit:2	Audit Procedure	12-- hours

Audit procedure – Planning of audit – Audit programme – Audit note book – Audit working papers – Internal control and internal check – Internal check as regards cash, wages, sales, etc., Position of external Auditor as to Internal audit.

Unit:3	Vouching	12-- hours

Vouching – Meaning – Definition – Vouchers – Vouching of cash transactions – Trading transactions – Impersonal ledgers.

Unit:4	Verification and Valuation of Assets and Liabilities	11-- hours

Verification and valuation of assets and liabilities – Auditor's position – Auditors duty regarding depreciation – Reserves and provisions.

Unit:5	Company Audit	11-- hours

Company Audit – Appointment and Removal of Auditor – Rights and duties of company Auditor – Liabilities of company Auditor – Audit of Share Capital – Audit of Share Transfer. Audit of Computerized Accounts – e-audit.

Unit:6	Contemporary Issues	2 hours

Expert lectures, online seminars – webinars

	Total Lecture hours	**60 --hours**
Text Book(s)		
1	Auditing S.Sudharsanam : S.Chand & Co.Ltd., Dew Delhi, 2006	
2	R.G.Saxena: Principles and Practice of Auditing Himalaya Publishing House, Mumbai, 2002	
3	R.Sharma: Auditing Lakshmi Narain Agarwal Educational Publishers, Agra, 2000.	
Reference Books		
1	.N.Tandan : A Hand book of Practical	
Course Designed By: Dr. M. KANNAN email id: maknnancbm@gmail.com		

COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**
CO1	M	S	S	M	S	S	M	S
CO2	M	S	S	S	S	S	M	S
CO3	M	S	S	M	M	S	M	M
CO4	M	S	S	M	M	S	M	M
CO5	M	M	S	L	S	M	L	L

*S-Strong; M-Medium; L-Low

Course code		BASIC ECONOMETRICS	L	T	P	C
Elective		ELECTIVE PAPER 1: GROUP- C	4			4
Pre-requisite		This course is mainly educating the students on the Econometrics research tools, how it can be used to estimate and test economic Relationships.	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are:

1	To make the students to understand the tools of econometrics and applying them in practice.
2	The methods thoughts in the course can be employee in the business discipline and in social science discipline.

Expected Course Outcomes:

On the successful completion of the course, student will be able:

1	Ability to perform analysis of economic data based on a broad knowledge of the simple linear regression model.	K1
2	Provide basic knowledge of the statistical foundations of regression analysis with OLS.	K3
3	Provide basic knowledge of hypothesis testing for statistical inference.	K4
4	Basic knowledge of how to detect and treat violations of OLS assumption, such as omitted variables, Heterocedasticity and Multicollinearity, and Autocorrelation.	K3
5	Ability to perform analysis of variance and co variance to determine the variability, between samples and within samples.	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Introduction	12 -- hours

Definition, Scope and Divisions of Econometrics – Objectives and uses of Econometrics – Methodology of Econometrics: Specification, and Estimation and Evaluation of estimates – Basic concepts of Population and Simple regression functions – Meaning and Significance of the error term (u).

Unit:2	Estimation and Testing	12-- hours

Classical Linear Regression Model and its assumptions – Method of Ordinary Least-Square (OLS) to estimate OLS estimators – Statistical tests (‘t’ and ‘F’) of OLS estimates (Simple regression only) – Properties of OLS estimates.

Unit:3	Types of Estimation and Errors	12-- hours

Point and Interval estimation – Confidence interval approach – Statistical properties of point estimate – Types of errors and their implications in the hypothesis testing for statistical inference.

Unit:4	Violation of OLSM Assumptions	11-- hours

Nature, sources, consequences and methods of detection and solutions to problems (Heterocedasticity, Multicollinearity, and Autocorrelation) of single equation regression model (any one method of detection and solution).

Unit:5	Functional Forms and Dummy Variables	11-- hours

Concepts of functional forms and Measurement of growth rate (log-lin function) and elasticity

(log-log function) – ANOVA and ANCOVA models on dummy variables.		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**60 --hours**

Text Book(s)		
1	Damodar N.Gujarathi:	Basic Econometircs, McGraw-Hill, Inc.
2	Damodar N.Gujarathi:	Essential of Econometircs, McGraw-Hill, Inc.
3	Madalla G.S:	Econometrics McGraw-Hill, Inc.
Reference Books		
1	Damodar N.Gujarathi: Econometrics by Example, Palgrave Publications.	

Course Designed By: Dr. M. KANNAN email id: maknnancbm@gmail.com

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	M	S	S	S	L	M	S	S
CO2	S	M	M	S	S	L	M	M
CO3	S	S	S	S	S	S	S	M
CO4	M	L	S	M	M	M	M	S
CO5	S	M	M	S	M	S	M	S

*S-Strong; M-Medium; L-Low

Course code		HEALTH ECONOMICS	L	T	P	C
Elective		ELECTIVE PAPER - II : GROUP- A	5			5
Pre-requisite		This course is mainly educating the students on the demand for and supply of health care, Indian health care system and health financing and insurance.	Syllabus Version			

Course Objectives:

The main objectives of this course are:

1	Understand the importance of Health Economics and Health indicators.
2	Understand the institutional framework for health Care.(i.e., Consumption, Provision and Financing).
3	Understand the health status of population at National and State Level.

Expected Course Outcomes:

On the successful completion of the course, student will be able:

1	It explains the history and need of Health Economics, Issues in Health care, Poverty and Inequality among different countries.	K1
2	List out the Resource allocation between Health Care and other commodities, Health Care and Consumer Choice, Factors Influencing Demand for Medical Care.	K2
3	Discuss the Hospital Production Function, Objectives and constraints of a hospital firm, Optimization of hospital size, Break Even and Shut down Conditions.	K4
4	Explains Health Care Markets, Economic Rationale of Government Intervention, Indian Health Care Systems	K3
5	Discuss the objectives of Health financing, Fiscal functions of Government, Importance of Human Development in Economic Growth	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Introduction	15 -- hours

History of Health Economics – Need for Health Economics – Issues in Health Care – Health – Economic Linkage – Poverty and Inequality in the prevalence of diseases among different countries.

Unit:2	Demand for Health Care	15-- hours

Private and Public goods – Resources allocation between health care and other commodities – relevance of consumer demand theory to health –Demand for medical care – Factors Influencing Demand for medical care.

Unit:3	Supply of Health Care	15-- hours

Health as a durable good – Hospital Production Function – Objectives and constraints of a hospital firm – substitution of inputs – vertical integration – Optimization of hospital size – Hospital costs and efficiency – break-even and shut-down conditions – equilibrium quality.

Unit:4	Health System	14-- hours

Health care, a unique commodity – health care markets (Physician, hospital, inputs, drug, insurance & technology) – inequity, limitations of the price system & market failure – Economic rationale for Government intervention – government failure – Indian health care system. Indian health care system.

Unit:5	Health Financing and Insurance	14-- hours
Objectives of financing – alternative financing strategies – fiscal functions of Government – development finance – community finance – Private insurance – Social insurance – Consumer surplus and health insurance –Importance of Human Resource Development in economic growth.		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**75 --hours**

Text Book(s)

1	Pushpalatha Pattnaik	: Health Economics, Black Prints, New Delhi, 2013.
2	Rana H.P.S	: Health Economics, Alfa Publications, New Delhi, 2009.
3	Raman Kutty V New Delhi, 2010.	: A Primer of Health Systems Economics Allied Publishers Pvt. Ltd,
4	Renuka Devi.V & New Delhi, 2011.	: Health Economics: Issues and Challenges, Deep & Deep Publications,
5	Gowhar Jhan. M Sundar I	: Principles of Health Economics, Sarup Book Publishers Pvt. Ltd, Delhi, 2009.

Reference Books

1	James W. Henderson Ltd, New Delhi, 2011.	: Health Economics and Policy, CENGAGE Learning India Pvt.
2	Dash L.N New Delhi, 2007.	: Economics of Infrastructure: Growth and Development, Regal Publications,

Course Designed By: Dr. M. KANNAN email id: maknnancbm@gmail.com

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	S	L	S	S	S	M	S	S
CO2	S	S	M	M	S	L	M	M
CO3	S	S	S	M	M	S	S	M
CO4	M	M	S	L	M	M	M	S
CO5	S	M	M	S	S	S	M	S

*S-Strong; M-Medium; L-Low

Course code		FINANCIAL ECONOMICS	L	T	P	C
Elective		ELECTIVE PAPER II : GROUP- B	5			5
Pre-requisite		This course exposes students to the theory and functioning of the financial sectors of the economy in various Financial segments.	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are:

1	To familiarize the students with the basic concepts in financial economics and develop comprehensive knowledge on the role of finance in the operation of an economy.
2	To enables them to know the operation of the Indian Financial System and activities in the financial markets.
3	To make the students to aware of the derivative and futures market operations and its functions.

Expected Course Outcomes:

On the successful completion of the course, student will be able:

1	It provides the knowledge on the financial market and instruments money market.	K1
2	To understand the Capital Market segment and role of participants.	K2
3	It provides the application skills to secondary market functions and trading settlement methods.	K3
4	It creates the better knowledge on the derivative market functions and derivative instruments.	K6
5	To gain the knowledge and evaluate the Mutual funds and varies fund schemes.	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	Introduction to Financial system and Financial Markets	15 -- hours

Financial system: Structure – Functions- Role - Financial system and Economic development. Financial markets - Financial Instruments –classification - Industrial Security Market-Government securities market. Money market-Meaning-Functions-Importance -Instruments of money market.

Unit:2	Capital market	15-- hours

Capital market: Meaning – Functions-Structure-Primary and Secondary markets. New issue market (NIM): Functions and intermediaries of NIM-merchant bankers, underwriters, registrar, and share transfer agents, bankers to an issue, stock broker- Instruments of Capital market.

Unit:3	Secondary Market & Trading Cycle	15-- hours

Secondary market: Introduction-Recognition of stock exchanges –NSE-BSE-service of stock exchanges-listing of securities-Registration of Stock brokers-Sub Brokers-code of conduct and functions of stock brokers. NEAT System-on line trading-Depository-Functioning of depository. Settlement and trading in stock exchange- Players in stock exchanges-Types of Speculators.

Unit:4	Derivative Market	14-- hours

Derivative market: Meaning –Definition-Importance -Derivatives in India –Kinds of Derivatives-Forward-Futures-options- Advantages of Future and Options –Call option –Put option. Market Contracts: share option-Index option –Currency options. Swap-kinds of Swap-Advantages and Disadvantages-Recent Developments.

Unit:5	Mutual Funds	14-- hours
Mutual funds: Introduction –Meaning –Classification - Importance - Risks-Legal Structure of Mutual Funds in India-Types of fund/scheme –Entry-Exit- Net Asset value. Fund manager –role of fund manager. Investor rights, General Guidelines.		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**75 –hours**

Text Book(s)	
1	Financial Market and Services –Gordon, Natarajan -Himalaya Publishing House.
2	Financial Institutions and Markets,Gupta- TATA Mc Graw Hill Co Ltd, New Delhi.
3	Indian Financial system, Bharathi V Pathak -TATA Mc Graw Hill Co Ltd, New Delhi.

Reference Books	
1	Monetary Economics Institutions Theory and Policy,Smith- Chand and Co Ltd.
2	Indian Financial system, Preethi Singh -Pierson Education, New Delhi.

Course Designed By: Dr. M. KANNAN email id: maknnancbm@gmail.com

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	M	S	S	S	L	M	S	S
CO2	S	M	M	S	S	L	M	M
CO3	S	S	S	S	S	S	S	M
CO4	M	L	S	M	M	M	M	S
CO5	S	M	M	S	M	S	M	S

*S-Strong; M-Medium; L-Low

Course code		JOURNALISM	L	T	P	C
Elective		ELECTIVE –II – GROUP - C	5			5
Pre-requisite		The content of the course aims at making the students to understand the nature of mass communication and the responsibilities and functions of press.	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are:

1	Understand the characteristics of communication.
2	Imparting knowledge about the qualities of a reporter and newspaper management.

Expected Course Outcomes:

On the successful completion of the course, student will be able:

1	To understand the importance of mass communication	K1
2	To assess the importance of the Indian press	K2
3	To examine the sources of news and the importance of correspondents	K3
4	To evaluate the purpose of Editors	K4
5	To analyse the importance of newspaper management	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Mass Communication	14-- hours

Nature Scope and process of mass communication - Theories of mass Communication - SMCR model of communication - Types of Communication - Characteristics of Communication - Barriers - Mass media of Communication - Merits and Demerits.

Unit:2	Journalism	14-- hours

Journalism - History of Journalism - History of Indian Press - Responsibilities and functions of the press - News agencies - freedom of the press - various professional organizations - press council - press laws.

Unit:3	Sources of news	14-- hours

News - Definition of news - Sources of news - Reporting - Qualities of a reporter - Routine beats of a reporter - Inverted pyramid style of reporting - lead - Definition and types - Crime reporting , Correspondents - Special Correspondents - District correspondents - Investigative reporting - writing for Radio and TV - Free lance Journalism.

Unit:4	Edition	14-- hours

Editing - Edition writing - purpose of editions' - Headlines - definition - Functions and types - what is a copy - Sources of a copy - Sub-edition - Functions of Sub-editor - proof reader - Functions and symbols.

Unit:5	Newspaper Management	14-- hours

Newspaper Management - various departments of a newspaper and their functions -

Advertisement - circulation and Administration.		
Unit: 6	**Contemporary Issues**	**2 hours**
	Expert lectures, online seminars - Webinars	
	Total Lecture hours	**75 --hours**

Text Book(s)	
1	Theory and practice of Journalism - B.N.Ahuja, subject publications, New Delhi.
2	Professional Journalism - M.V. Kawath, Vikas Publishing House.
Reference Books	
1	News Reporting and Editing - K.M. Srivastava Sterling
2	News Writing and Reporting - James M Neal & Suzanne S. Brown, Surjeet Publication
3	Modern Newspaper practice - F.W. Hodgson Heinemann, London.
4	Journalism in Modern India - Roland E. Wolsey
5	The Indian Press - Dr. S.P. Sen
6	The Press - M. Chalapathi Rao
7	Truth about Indian Press - J.N. Sahni
Course Designed By: Dr.HEMASRIKUMAR Email – hema_srikumar@yahoo.com	

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	M	S	M	S	M	S	M	S
CO2	M	M	S	S	M	S	M	S
CO3	M	S	S	S	S	S	M	S
CO4	M	S	S	M	S	S	M	S
CO5	S	M	S	S	S	S	S	S

***S-Strong; M-Medium; L-Low**

Course code		RURAL ECONOMICS	L	T	P	C
Elective		ELECTIVE -III – GROUP -A	5			5
Pre-requisite		The course aims at equipping the students with the growth and development of tourism and effect on employment generation.	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are:

1	The objective of the course is to provide the students with a thorough knowledge and understanding of the foundations of rural economics,
2	Impart knowledge on concepts of the dimensions of rural development
3	Understand the challenges in rural development strategies for rural upliftment.

Expected Course Outcomes:

On the successful completion of the course, student will be able:

1	Understand the concepts and problems of rural economy.	K1
2	Analyse the structure of rural unemployment and the technology used for rural growth.	K2
3	Examine the extent of rural indebtedness, and the measures to remove rural unemployment.	K3
4	Evaluate the causes and consequences of Rural Poverty, and describe the Poverty Alleviation Programmes	K4
5	Improve the knowledge about the tribal economy and analyse the tribal agricultural activities	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Rural Economy	14-- hours

Rural economy: Characteristics – Need for the study of Rural economy – Comparison of Rural Economy and Urban Economy. Concepts: Barter System, Non Monetized Sector – Agricultural Marketing –Farm and Non-Farm Income - Problems of Rural Economy.

Unit:2	Rural Unemployment	14-- hours

Rural Unemployment: Types, Structure, Causes of Unemployment and Remedial measures. Rural Employment Generation Programmes: NRLM, MGNREGA. Technology for rural growth: ICT, mobile, successful programmes.

Unit:3	Rural Credit	14-- hours

Rural credit: Rural indebtedness: Causes and effects of rural indebtedness, Remedies. Rural Credit - Need for Credit – Sources of Rural Credit. Unorganized credit: Money lenders. Organized: Indigenous Bankers - Co-operatives, Commercial banks - Regional Rural banks - Micro-Finance Institutions (MFIs) – NABARD

Unit:4	Rural Poverty	14-- hours

Rural Poverty: Causes and Consequences - Rural Poverty Line – Estimates of poverty –Factors influencing Rural Poverty – Removal of Poverty - Rural Development in India.		
Unit:5	**Tribal Economy**	**14-- hours**
Tribal Economy: Characteristics of Tribal economy – Distribution of Tribal population in India - Tribal Agriculture and allied activities: Horticulture, Floriculture, Animal husbandry, Forest and forest collection. Problems in Tribal areas - Role of NGOs.		
Unit: 6	**Contemporary Issues**	**2 hours**
	Expert lectures, online seminars - Webinars	
	Total Lecture hours	**75 --hours**

Text Book(s)

1	Sankaran S. Rural Economics , Margham Publications
2	Ruddar Dutt and K.P.M Sundaram, 2014, Indian Economy, S. Chand & Co Ltd, New Delhi.

Reference Books

1	Mohapatro, P.C. (1987) Economic Development of Tribal India, Ashish Publishing House, New Delhi.
2	Sahu, N.C. (1986): Economics of Forest Resources: Problems and Policies in a regional, B.R.Publishing Corporation, New Delhi.
3	Reddy, K. V. (2012). Agriculture and Rural Development, Himalaya Publishing house
4	Choudrey, C.M. Rural Economics. . Sunshine Publications, Jaipur 2009

Course Designed By: Dr.HEMASRIKUMAR Email – hema_srikumar@yahoo.com

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	S	S	S	S	S	S	M	S
CO2	S	S	S	M	S	M	M	S
CO3		S	S	S	S	M	M	S
CO4	S	S	S	M	S	S	M	S
CO5	M	M	M	M	S	M	M	S

***S-Strong; M-Medium; L-Low**

Course code		ACCOUNTANCY FOR ECONOMICS	L	T	P	C
Elective		ELECTIVE –III – GROUP -B	5			5
Pre-requisite		The course deals with the simple concepts of Accountancy	Syllabus Version			

Course Objectives:

The main objectives of this course are:

1	To make the students to understand the basic concepts of Accountancy
2	To encourage students to learn modern techniques of Accountancy used in Economics

Expected Course Outcomes:

On the successful completion of the course, student will be able:

1	To understand the time value of money	K1
2	To analyse the financial statement and the comparative statement analysis	K2
3	To assess the fund flow statement	K3
4	To examine the accounting ratios	K4
5	To evaluate the elements of cost	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Time value of money	14-- hours

Time value of Money - Future value of a Single Amount - Future value of Annuity - Present value of a Single Amount - Present value of an Annuity.

Unit:2	Financial statement	14-- hours

Financial statement analysis - Basic concepts underlying Financial Accounting - Balance Sheet Profit and Loss Account - Comparative statement analysis - Common Size Analysis and Trend Analysis.

Unit:3	Fund flow statement	14-- hours

Funds flow statement - Meaning - Uses - Preparation of Fund flow statement

Unit:4	Accounting ratios	14-- hours

Accounting Ratios for Business Decision - Meaning - Importance - Types - Simple Ratios - Limitation of Ratio Analysis.

Unit:5	Elements of cost	14-- hours

Elements of Cost - Cost Sheet - Simple Problems.

Unit: 6	Contemporary Issues	2 hours
	Expert lectures, online seminars - Webinars	
	Total Lecture hours	75 --hours

Text Book(s)

1	Principles of Accountancy - N. Vinayakam, P.L. Mani & K.L. Nagarajan

2	Financial Accounting - S.P. Mani, K.L. Nagaraj
3	S.N. Maheswari - Advanced Accounting
Reference Books	
1	R.L. Gupta - Advanced Accounts
2	Dr. S.N. Maheswari - Principles of Management Accounting
3	S.P. Jain and Narang -Advanced Accounts
4	T.S. Grewal -Principles of Accounting
5	M.C. Shukla and Grewal- Advanced Accounts
6	Pillai and Bhagavathi - Management Accounting
Course Designed By: Dr.HEMASRIKUMAR Email – hema_srikumar@yahoo.com	

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	**S**	**S**	**S**	**M**	**S**	**M**	**M**	**S**
CO2	**S**	**S**	**M**	**M**	**S**	**M**	**S**	**S**
CO3	**S**	**S**	**M**	**S**	**M**	**S**	**M**	**S**
CO4	**S**	**S**	**S**	**S**	**M**	**S**	**S**	**M**
CO5	**S**	**M**	**S**	**M**	**M**	**S**	**M**	**M**

***S-Strong; M-Medium; L-Low**

Course code		FINANCIAL MARKETS	L	T	P	C
Elective		ELECTIVE –III- GROUP - C	5			5
Pre-requisite		This course deals with the financial system, money market, capital market and stock exchange and its regulation.	Syllabus Version			

Course Objectives:

The main objectives of this course are:

1	To acquaint the students with the working of financial market in India and help to foster sound corporate capital structure
2	To learn the procedure regarding trading on stock exchanges through on-line trading
3	To know the progress made in de-mat trading during recent years

Expected Course Outcomes:

On the successful completion of the course, student will be able:

1	To understand the financial concepts, financial instruments and the financial market in India	K1
2	To analyse the money market in India	K2
3	To examine the capital market in India and its growth	K3
4	To assess the stock exchange in India and its trading	K4
5	To evaluate the regulation stock exchange and its impact on share price movements	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Financial system in India	14-- hours

Financial System in India – Functions – Structure – Development – Financial Concepts: Financial Assets – Financial Intermediaries, Financial Markets, Financial Rates of Return and Financial Instruments – Financial Market – Concept, and Constituents – A brief Idea of the Players and Instruments in Money Market, Capital Market, Debt Market, Foreign Exchange, Derivatives Market, Global Financial Markets.

Unit:2	Money market	14-- hours

Money Market – Definition – Features – Objectives – Importance – Composition: Call Money Market. Commercial Bills Market. Treasury Bill Market – Money Market Instruments – Structure and Features of Indian Money Market – Recent Developments Global Money Markets – London and New York.

Unit:3	Capital market	14-- hours

Capital Market – Meaning and Definition – Characteristics – Functions – Importance – Evolution and Growth – Constituents Measures of Reactivation – Measures of Investor Protection – Recent initiative in the Indian Capital Market.

Unit:4	Stock Exchange	14-- hours

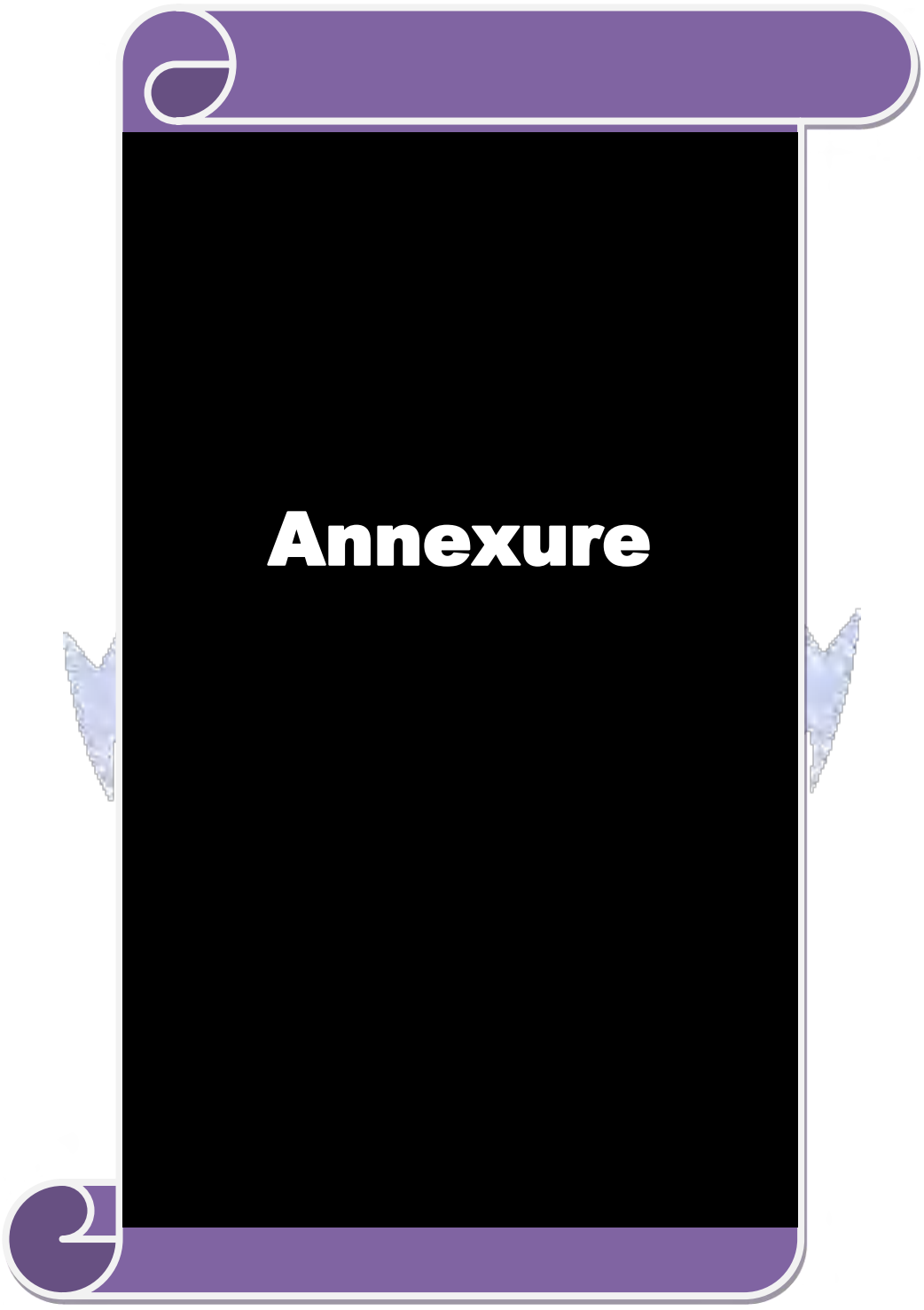
New Issues Market and Secondary Market: Recognition of Stock Exchanges – Services of stock Exchanges – Organization – Listing of Securities – Advantages of Listing - Drawbacks –

Registration of Stock Brokers – Procedure – Kinds- Method of Trading in a Stock Exchange.		
Unit:5	**Regulation of stock exchange**	**14-- hours**
Regulation of Stock Exchange – SEBI – Objectives – Powers – Functions – Organization – SEBI guidelines & Recent Development – NSE, BSE, ISE – Inter Stock Exchange of India. Internet Stock Trading – Demat and On-Line Trading Index Calculations – BSE – Sensex & Nifty – Foreign Institution Investments and its impact on share price movements		
Unit: 6	**Contemporary Issues**	**2 hours**
	Expert lectures, online seminars – Webinars	
	Total Lecture hours	**75 –hours**

Text Book(s)	
1	Dr.S. Gurusamy - Financial Services and Marketing, Vijay Nicole
2	Imprints Private Ltd., Chennai, 2004 Gordon & Natarajan - Financial Markets and Services, Himalaya Publishing House, Mumbai, 2003
Reference Books	
1	Sri Ram Khanna: Financial Markets in India & Protection of Investors, New Century Publications, Delhi, 2004
Course Designed By: Dr.HEMASRIKUMAR Email – hema_srikumar@yahoo.com	

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	S	S	S	M	S	M	M	S
CO2	S	S	M	M	S	M	S	S
CO3	S	S	M	S	M	S	M	S
CO4	S	S	S	S	M	S	S	M
CO5	S	M	S	M	M	S	M	M

***S-Strong; M-Medium; L-Low**


Annexure

List of Elective papers (Colleges can choose any one of the paper as electives)		
Elective – I	**A**	INVESTMENT POLICIES AND PROGRAMME
	B	AUDITING
	C	BASIC ECONOMETRICS
Elective – II	**A**	HEALTH ECONOMICS
	B	FINANCIAL ECONOMICS
	C	JOURNALISM
Elective – III	**A**	RURAL ECONOMICS
	B	ACCOUNTANCY FOR ECONOMICS
	C	FINANCIAL MARKETS
List of Elective papers (Colleges can choose any one of the paper as electives)		

B. A. English Literature

Syllabus

AFFILIATEDCOLLEGES

Program Code: 21F

2020 – 2021 onwards

BHARATHIAR UNIVERSITY

(A State University, Accredited with "A" Grade by NAAC,
Ranked 13th among Indian Universities by MHRD-NIRF,
World Ranking : Times - 801-1000, Shanghai - 901-1000, URAP - 982)

Coimbatore - 641 046, Tamil Nadu, India

Program Educational Objectives (PEOs)	
The **B. A. English Literature** program will enable the students to	
PEO1	To prove competency in the domain knowledge/area and language proficiency
PEO2	Analyse the societal needs and issues through the literary perspective and to Practice lifelong learning for enhancing the ethical values of the society
PEO3	To develop efficiency in LSRW skills and present themselves as efficient language trainers
PEO4	To produce noble research works
PEO5	Improve their understanding about various socio- cultural aspects and find employment in media, freelance writing, content writing and teaching.
PEO6	Improve the possibilities of their employment in various sectors
PEO7	Understand the requirements of the industry and Prepare themselves to face the challenges of competitive environment

Program Specific Outcomes (PSOs)	
After the successful completion of B.A. English Literature program, the students are expected	
PSO1	To demonstrate their competency in the domain area
PSO2	To analysis the literary texts, with a critical insight
PSO3	To impart the critical evaluation on the literary texts
PSO4	To present the learned ideas
PSO5	To assess their communicative competency
PSO6	To understand the role of a literature student in shaping the course of the society
PSO7	To analyse the impact of literature on the society
PSO8	To comprehend the ethical quality of a literary text
PSO9	To acquire the ability in understanding the lifelong learning
PSO10	To produce effective projects

Program Outcomes (POs)	
On successful completion of the B.A. English Literature programme, students will be able to	
PO1	Prove their knowledge and skills in Language and Literature.
PO2	Prove his proficiency in Listening Speaking Reading Writing.
PO3	Analyse a literary text of any genre like poetry, drama, prose, short story and fiction.
PO4	Apply the knowledge of literary theories in analyzing the literary text.
PO5	Write simple poems, short stories and essays.
PO6	Work as a leader and work in a team effectively in the fields related to Language and Literature.
PO7	Understand the need for lifelong learning and hone the required skills related to the industry.
PO8	Analyse the impact of literature on society and work for the betterment of the society.

BHARATHIAR UNIVERSITY: COIMBATORE 641 046B.A.
English Literature for Affiliated Colleges
(For the students admitted during the academic year 2020 – 21 onwards)

Course Code	Title of the Course	Credits	Hours		Maximum Marks		
			Theory	Practical	CIA	ESE	Total
FIRST SEMESTER							
	TAMIL I	4	6		25	75	100
	ENGLISH I	4	6		25	75	100
	CORE I – PROSE I	3	5		20	55	75
	CORE II – FICTION I	3	5		20	55	75
	ALLIED I – Social History of England	4	6		25	75	100
	Environmental Studies	2	2		--	50	50
	PROFESSIONAL ENGLISH COURSE – Add on course.						
	Total	20	30				500
SECONDSEMESTER							
	TAMIL II	4	6		25	75	100
	ENGLISH II	4	6		25	75	100
	CORE III – POETRY I	4	5		25	75	100
	CORE IV – DRAMA I	4	5		25	75	100
	ALLIED II – History of English Literature	4	6		25	75	100
	Value – Education – Human Rights#	2	2		--	50	50
	PROFESSIONAL ENGLISH COURSE – Add on course.						
	Total	22	30				550
THIRD SEMESTER							
	TAMIL III	4	6		25	75	100
	ENGLISH I	4	6		25	75	100
	CORE V – PROSE II	4	4		25	75	100
	CORE VI – FICTION II	4	4		25	75	100
	ALLIED III – Literary Forms	4	5		25	75	100
	JOB ORIENTED COURSE – PAPER 1- Language skill I	3	3		20	55	75
	Tamil@/Advanced Tamil# (OR) Non -Major Elective – I (Yoga for HumanExcellence)#/Women's Rights#	2	2		--	50	50
	Total	25	30				625

FOURTH SEMESTER							
	TAMIL IV	4	6		25	75	100
	ENGLISH IV	4	6		25	75	100
	CORE VII – POETRY II	4	4		25	75	100
	CORE VIII – DRAMA II	4	4		25	75	100
	ALLIED IV –Literary Criticism	4	5		25	75	100
	JOB ORIENTED COURSE – PAPER II- Language skill II	3	3		20	55	75
	Tamil@/Advanced Tamil# (OR) Non -Major Elective –II- General Awareness	2	2		--	50	50
	Total	25	30				625
FIFTH SEMESTER							
	CORE IX – SHAKESPEARE -I	4	6		25	75	100
	CORE X – INDIAN WRITING IN ENGLISH	4	6		25	75	100
	CORE XI – AMERICAN LITERATURE	4	6		25	75	100
	CORE XII – OMMONWEALTH LITERATURE	4	5		25	75	100
	ELECTIVE –I	4	4		25	75	100
	VALUE ADDED COURSE – PAPER I- Study of English Phonetics- I	3	3		20	55	75
	Total	23	30				575
SIXTH SEMESTER							
	CORE XIII – SHAKESPEARE-II	4	6		25	75	100
	CORE XIV – INTENSIVE STUDY OF AN AUTHOR – TAGORE	4	6		25	75	100
	CORE XV– INDIAN LITERATURE IN ENGLISH TRANSLATION	4	5		25	75	100
	ELECTIVE –II	4	5		25	75	100
	ELECTIVE –III	4	5		25	75	100
	VALUE ADDED COURSE – PAPER II- Study of English Phonetics- II	3	3		20	55	75
	Extension Activities@	2	-		50	--	50
	Total	25	30				625
	Grand Total	140					3500

$ - Includes 25/40% Continuous Internal Assessment marks for Theory and Practical Papers respectively. @ - No University Examinations. Only Continuous Internal Assessment (CIA) # - No Continuous Internal Assessment. Only University Examinations

PROFESSIONAL ENGLISH COURSE is an Add on course for all UG students in the first and second semester.

List of Elective Papers		
ELECTIVE	A	ENGLISH FOR COMPETITIVE EXAMS
	B	STUDY OF INDIAN THEATER
	C	PUBLIC SPEAKING
ELECTIVE	A	COMMUNICATIVE ENGLISH
	B	FUNDAMENTALS OF COMPARATIVE LITERATURE
	C	WRITING SKILLS
ELECTIVE	A	INTRODUCTION TO LINGUISTICS
	B	STUDYING NOVELS
	C	TRANSLATION TASKS


First
Semester

FIRST SEMESTER

Course code		PROSE I	L	T	P	C
Core		Core I	3		-	3
Pre-requisite		Basic knowledge of English prose	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are to:

Gain knowledge on the English Prose of different ages
Apply the varied styles in writing and improve language skills

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Comprehend prose passages	**K1, K2**
2	Enhance reading skill	**K2&K3**
3	Analyze the structure and style of Prose pieces	**K4**
4	Create simple paragraph	**K6**

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6**– Create

Unit:1		**15hours**

1. The Suitor andPapa
2. TheSniper

Unit:2		**15hours**

1. A Handful ofDates
2. Two Gentlemen ofVerona

Unit:3		**15hours**

1. Know When to say "It's None of YourBusiness"
2. How to Escape from Intellectual Rubbish

Unit:4		**15hours**

1. A Little Bit of What youFancy
2. The SecondCrucifixion

Unit:5		**15 hours**

1. Humanities vsSciences
2. The Beauty inBlack

	Total Lecture hours	**75hours**

Text Book(s)	
1	**CRUISE** A Journey Through Prose Cambridge University Press
Reference Books	
1	The Literary Heritage: A New Anthology of Prose and Short Story by Hari Mohan Prasad, Ivan Khristo Masih, Chakradhar Prasad Singh, Motilal Banarsidass PublishingHouse
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	http://users.bergen.org/raybat/prose.html https://www.mlbd.in/products/the-literary-heritage-a-new-anthology-of-prose-and-short-story-hari-mohan-prasad-ivan-khristo-masih-chakradhar-prasad-singh-9788120829213-8120829212

COS	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8
CO 1	L	M	S	M	S	M	M	L
CO 2	L	S	L	S	S	M	L	M
CO 3	L	M	S	L	M	L	M	L
CO 4	M	M	M	M	S	M	M	M

*S-Strong; M-Medium; L-Low

Course code		FICTION I	L	T	P	C
Core		Core II	3		-	3
Pre-requisite		Basic knowledge of English Fiction.	Syllabus Version		2020-2021	

Course Objectives:

The paper aims at introducing the students comprehend to the long narrative. To make the students analyse various aspects of fiction like plot, character, techniquesetc.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the plot, setting and structure	**K2**
2	Identify the techniques used in Fictional writing	**K3**
3	Analyse various themes in the fiction	**K4**
4	Evaluate the role of major and minor characters	**K5**

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	**15hours**
Jane Eyre - Charlotte Bronte.	
Unit:2	**15hours**
Kenilworth - Sir Walter Scott	
Unit:3	**15hours**
Oliver Twist - Charles Dickens	
Unit:4	**15hours**
Far From the Madding Crowd - Thomas Hardy	
Unit:5	**15 hours**
Lord of the Flies - William Golding	
Total Lecture hours	**75hours**

Text Book(s)	
1	Jane Eyre - Charlotte Bronte, Penguin Classics
2	Kenilworth - Sir Walter Scott, Penguin Classics
3	Oliver Twist - Charles Dickens, Fingerprint Classics
4	Far From the Madding Crowd - Thomas Hardy, Penguin Classics
5	Lord of the Flies - William Golding, Faber Classics
Reference Books	
1	Critical Approaches to Literature, David Daiches, Kessinger Publishing.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://books.google.co.in/books/about/Critical_Approaches_to_Literature.html?id=UV2XQAAACAAJ&redir_esc=y
2	https://www.mooc-list.com/course/how-read-novel-futurelearn

CO S	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8
CO 1	S	M	L	S	M	M	L	M
CO 3	S	M	S	M	M	M	S	M
CO 3	L	M	S	L	S	M	L	M
CO 4	M	M	S	L	M	L	L	M

*S-Strong; M-Medium; L-Low

Course code		SOCIAL HISTORY OF ENGLAND	L	T	P	C
Core		Allied I	4		-	4
Pre-requisite		Basic knowledge on History of England.	Syllabus Version			2020-2021

Course Objectives:

Thepaper'sobjectiveis
To expose the students to the history, ways and manners, customs and habits of the English society.
To show how the literary works correspond to the changes in the society.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the impact of society on Literature	**K2**
2	Interlink the history of England with British English Literature	**K3**
3	Analyse the socio-cultural aspects of the society on Literature	**K4**
4	Evaluate the literary work by considering its historical aspects	**K5**

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	**15hours**

1. TheRenaissance
2. TheReformation.

Unit:2	**15hours**

1.The Spanish Armada
2.Colonization
3.Civil War

Unit:3	**15hours**

1.Restoration in England
2.American war of Independence

Unit:4	**15hours**

1.The Agrarian Revolution
2.The Industrial Revolution

Unit:5		15hours
1 The ReformBills 2 The Development of Education in Victorianperiod 3 WorldWars		
	Total Lecture hours	**75hours**

	Text Book(s)
1	Social History of England: by A. G. Xavier
	Reference Books
1	Social History of England, Dr. A. Shanmugakani, Manimekala Publishing House
2	Social History of England, Padmaja Ashok, Orient Black Swan
	Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]
1	https://onlinecourses.nptel.ac.in/noc20_hs52/preview
	Course Designed By:

COS	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8
CO 1	S	M	M	M	M	L	L	S
CO 3	S	M	M	S	M	M	M	S
CO 3	M	L	M	M	L	M	M	S
CO 4	M	L	S	M	M	M	L	S

*S-Strong; M-Medium; L-Low


Second
Semester

SECOND SEMESTER

Course code		POETRY – I	L	T	P	C
Core		Core III	4	-	-	4
Pre-requisite		Basic Knowledge of Poetry.	Syllabus Version		2020-2021	

Course Objectives:

To make the students to comprehend poetry of different ages
To make the students familiar with different types of poetry

Expected Course Outcomes:

On the successful completion of the course, students will be able to:

1	Gain knowledge of poetry of different ages	**K1**
2	Understand the literary terms and devices	**K2**
3	Analyse a poem	**K4**
4	Learn new dimensions in connecting emotions and languages and create simple Poems	**K6**

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1 **15hours**

1. **Good Morrow - John Donne**
2. **One Day I wrote her Name - EdmundSpenser**

Unit:2 **15hours**

1. **Sonnet 18 - WilliamShakespeare**
2. **The Temptations - JohnMilton**

Unit:3 **15hours**

1. **The Tyger - WilliamBlake**
2. **To Sleep - WilliamWordsworth**

Unit:4		**15Hours**
1. Kubla Khan - Samuel TaylorColeridge **2. Ode to a Skylark - Percy BysscheShelley**		
Unit:5		**15Hours**
1. Ode to Autumn - JohnKeats **2. The Lotus Eaters - Lord AlfredTennyson**		
	Total Lecture hours	**75hours**

Text Book(s)	
1	ELIXIR An Anthology of Poems Emerald Publication
Reference Books	
1	M.H.Abrams (Ed), The Norton Anthology of English Literarature
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://www.poetryfoundation.org/search?query=Sonnet+18+-+William+Shakespeare+
2	https://kupdf.net/download/norton-anthology-of-english-literature_596d23c5dc0d60035ba88e76_pdf
Course Designed By:	

COS	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8
CO1	S	M	M	L	M	L	L	M
CO2	M	M	S	M	L	M	S	L
CO3	M	L	M	M	S	S	L	S
CO4	L	M	L	M	S	L	M	M

*S-Strong; M-Medium; L-Low

Course code		DRAMA I	L	T	P	C
Core		Core IV	4	-	-	4
Pre-requisite		Basic knowledge of Drama.	Syllabus Version			

Course Objectives:

To introduce the genre drama and its techniques
To make the students to identify plot, characterization and structure of the play

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand and enjoy reading plays	K2
2	Identify the elements of Drama	K3
3	Analyse the plays thematically	K4
4	Evaluate the characters of the plays	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1		**15hours**
Dr. Faustus - Christopher Marlowe		
Unit:2		**15hours**
She Stoops to Conquer – Oliver Goldsmith		
Unit:3		**15hours**
The Alchemist – Ben Jonson		
Unit:4		**15hours**
The Rivals – R.B.Sheridan		
Unit:5		**15 hours**
Strife - John Galsworthy		
	Total Lecture hours	**75hours**

Text Book(s)	
1	Dr. Faustus - Christopher Marlowe, Dover Thrift edition
2	She Stoops to Conquer- Oliver Goldsmith, Peacock Books
3	The Alchemist – Ben Jonson, Peacock Classics
4	The Rivals – R.B.Sheridan. Bloomsbury
5	Strife - John Galsworthy, Macmillan
Reference Books	
1	Critical Approaches to Literature, David Daiches, Kessinger Publishing
2	
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://www.mooc-list.com/tags/theatre
Course Designed By:	

Co s	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8
CO 1	S	L	M	L	M	M	M	M
CO 2	M	L	S	L	M	M	M	L
CO 3	M	M	S	M	S	L	M	L
CO 4	M	L	S	M	M	M	L	M

*S-Strong; M-Medium; L-Low

Course code		HISTORY OF ENGLISH LITERATURE	L	T	P	C
Core		Allied–II	4	-	-	4
Pre-requisite		Basic knowledge on English Literature and history of England.	Syllabus Version		2020-2021	

Course Objectives:

To enrich the students with the wide knowledge of the historical and biographical details of writers of various ages.
To make the students understand the development of British Literature

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Gain knowledge of the History of Literature and great authors of English.	**K2**
2	Interconnect the history, biography of the author and the works	**K3**
3	Analyse the growth of literary genres of specific periods	**K4**
4	Evaluate the role of literary movements and their impact on the literary works	**K5**

K1 - Remember; **K2** - Undestand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1		**15hours**

1. The Age ofChaucer
2. The Age of Shakespeare – Verse, Drama andProse.

Unit:2		**15hours**

3. The Age of Milton –Milton
4. The Age of Dryden- Verse, Drama andProse

Unit:3		**15hours**

5. The Age of Pope- Verse, Drama andProse
6. The Age of Johnson-General Prose and theNovel

Unit:4		**15hours**

7. TheAgeofWordsworth-TheolderPoets, theYoungerPoets.
8. The Age of Tennyson-Verse, General Prose and TheNovel.

Unit:5		**15 hours**
9. The Age ofHardy 10. The PresentAge.		
	Total Lecture hours	**75 hours**

Text Book(s)

1	An Outline History of English Literature. by William Henry Hudson. (B.I Publications Pvt Ltd

Reference Books

1	History of English Literature, Harrows Publications, Chennai.
2	History of English Literature, Emerald Publishers, Chennai.

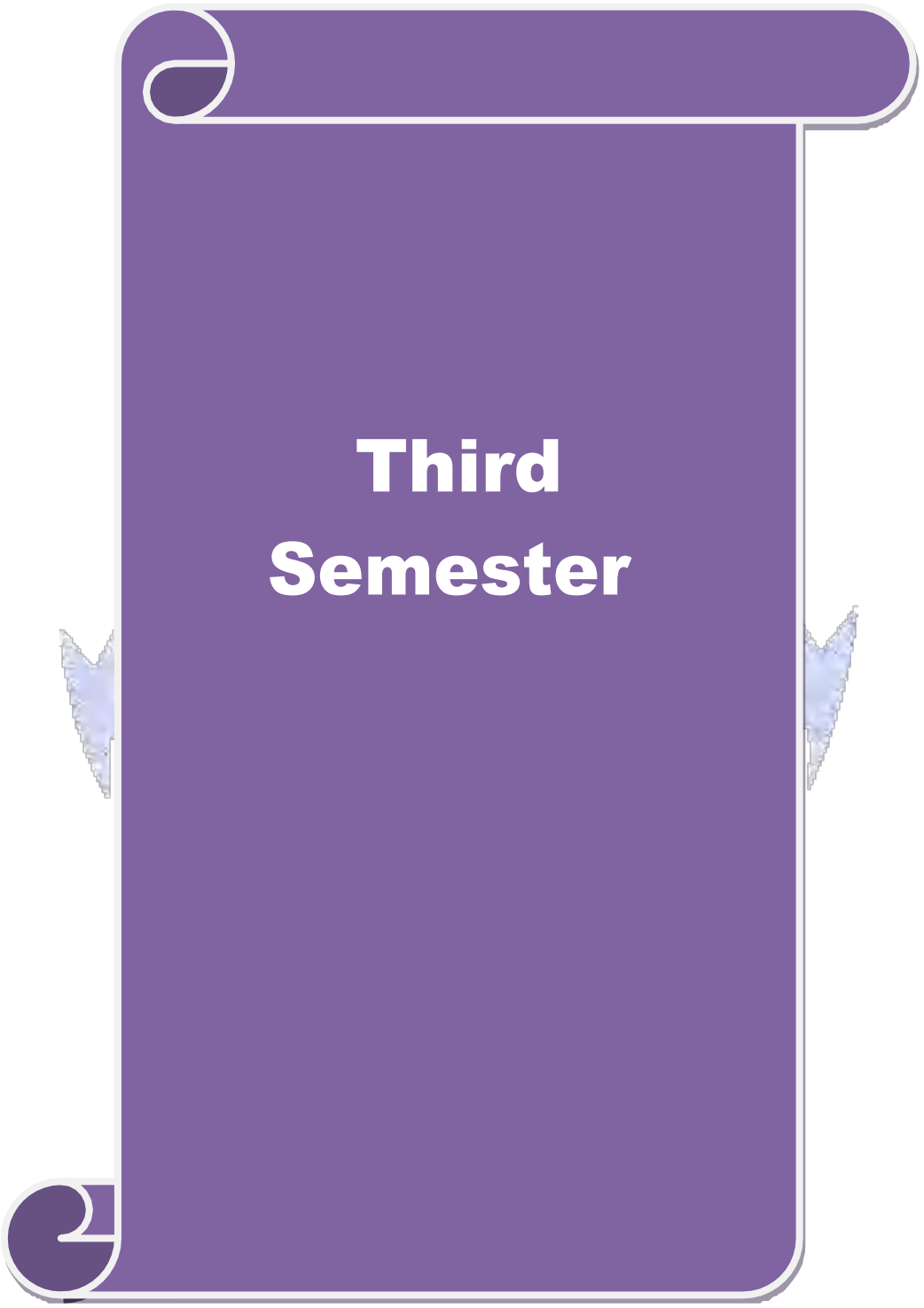
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://www.classcentral.com/course/swayam-history-of-english-language-and-literature-14108
2	https://nptel.ac.in/courses/109/106/109106124/

Course Designed By:

COS	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8
CO 1	S	M	L	M	M	L	L	M
CO 2	L	M	M	M	M	L	L	S
CO 3	M	M	S	S	M	L	L	M
CO 4	M	L	M	L	S	M	L	M

*S-Strong; M-Medium; L-Low


Third
Semester

THIRD SEMESTER

Course code		PROSE II	L	T	P	C
Core		Core- V	4	-	-	4
Pre-requisite		Basic knowledge on English prose	Syllabus Version		2020-2021	

Course Objectives:

To expose the students to the development of prose style in English
To assist in understanding the techniques applied in prose writing

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Gain knowledge on Prose writing	**K1**
2	Identify the literary devices used in writing prose	**K3**
3	Analyse the variety of prose pieces	**K4**
4	Create a simple and short prose passage	**K6**

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1 **15hours**

1. OfStudies
2. OfTruth
3. OfFriendship

Unit:2 **15hours**

4. The SpectatorClub
5. Sir Roger atChurch
6. Sir Roger atTheatre

Unit:3 **15hours**

7. Dream Children : AReverie
8. Dissertation Upon Roast Pig
9. The Praise of the ChimneySweeper

Unit:4		**15Hours**
10. On Goodresolutions 11. On DoingNothing 12. OnSaying‘Please’		
Unit:5		**15 hours**
13. SelectedSnobberies 14. Shooting anElephant 15. Bookshopmemories.		
	Total Lecture hours	**75hours**

Text Book(s)

1	Pleasures of English Prose by Macmillan
2	A Collection of Essays-George Orwell

Reference Books

1	The Norton Anthology of English Literature
2	

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://www.britannica.com/art/English-literature/Prose

Course Designed By:

COS	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8
CO 1	S	S	M	L	L	M	M	L
CO 2	M	M	S	L	M	M	M	L
CO 3	M	L	S	M	L	L	M	M
CO 4	S	M	S	M	S	M	M	L

*S-Strong; M-Medium; L-Low

Course code		FICTION II		T	P	C
Core		CORE VI	4	-	-	4
Pre-requisite		Basic knowledge on English Fiction	Syllabus Version		2020-2021	

Course Objectives:

To provide a deep insight into the world of Fiction in English Literature

To make the students analyse the fiction

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the socio-cultural aspect of the society with the help of fiction	**K2**
2	Identify the literary elements in fiction	**K3**
3	Analyse the plot, character and the techniques in the fiction	**K4**
4	Evaluate the work of fiction contemporary Novelists	**K5**

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1		**15hours**

The Vicar of Wakefield - Oliver Goldsmith

Unit:2		**15hours**

Silas Marner (Macmillan) - George Eliot

Unit:3		**15hours**

Treasure Island – R.L.Stevenson

Unit:4		**15hours**

Lord Jim – Joseph Conrad

Unit:5		**15 hours**

Animal Farm – George Orwell

	Total Lecture hours	**75hours**

Text Book(s)	
1	The Vicar of Wakefield - Oliver Goldsmith, PeacockBooks
2	Silas Marner - George Eliot,Macmillan
3	Treasure Island – R.L.Stevenson, Peacock Books
4	Lord Jim – Joseph Conrad, PeacockBooks
5	Animal Farm – George Orwell, PenguinBooks
Reference Books	
1	Critical Approaches to Literature, DavidDaiches
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://www.mooc-list.com/tags/literary-theory?cf_chl_jschl_tk=1c3afbb9009e9efa7da5681e4c7b42cf8f38e0f6-1602831513-0-AWafyyRVYNEYvBKe7QtAFE4TlDExudd8UahQ-f0gL93iEy16WuJn2FpH4KbD6Poks9Sr6mSwUriFLikpESuczvEuxWpFk7aGOaWNblKKYSHsDCAGlW4-0iVLnYjIVdJIZfrka2OPIB7uH1GED4BRgkJEnRYIdHgXrE7MiCT6ZV0tH0oDJRLAFhQYDr-k9bNBN62kJ9oBTl2H_Yy37ikxMcVLnQAhID8R48Qg3xJjdKFXxARqG5GuFI_PGL9sHv71Cn18fdCmMfBXmckZWv5pt1SnEOKD2ODHmEq5I_Fnha2J
Course Designed By:	

COS	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8
CO 1	S	L	M	S	L	M	M	S
CO 3	M	M	S	M	S	L	M	L
CO 3	M	L	S	L	M	S	L	M
CO 4	M	M	L	L	S	M	L	S

*S-Strong; M-Medium; L-Low

Course code		LITERARY FORMS	L	T	P	C
Core		ALLIED III	4	-	-	4
Pre-requisite		Basic knowledge on forms of writing in Literature	Syllabus Version		2020-2021	

Course Objectives:

To introduce the various literary genres and devices of English Literature.
To make the students understand the salient features of literary forms.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand different literary forms and their charateristics	**K2**
2	Differenciate various literary devices	**K4**
3	Identify literary devices in a work, compare the genres and their features	**K3**
4	Attempt a simple creative writing	**K6**

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	POETRY	15hours

Chapter I- Subjective and Objective
Poetry Chapter II- Poetic Types
Chapter III- Stanza Forms

Unit:2	DRAMA	15hours

Chapter I: Dramatic Art
Chapter II: Dramatic Types (111-133)

Unit:3	DRAMA &PROSE	15hours

Drama: Chapter III: Dramatic Devices (134-139)
Prose: Chapter I: Essay (183-192)

Unit:4	PROSE	15hours

Chapter II: The Novel (193-224)
Chapter III: Short story (225-229)

Unit:5	PROSE	15 hours
Chapter IV: Biography and AutoBiography (230-236)		
	Total Lecture hours	75hours

Text Book(s)

1	A Background to the study of English Literature-by Prasad (Macmillan)

Reference Books

1	A Comparison to Literary Forms, Padmaja Ashok, Orient Black Swan
2	Literary Forms, Ramachandra Nair, Emerald Publishers
3	A Glossary of Literary Terms, M.H. Abrams

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://www.mooc-list.com/course/introduction-literary-studies-saylororg

Course Designed By:

COS	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8
CO 1	S	M	S	M	L	M	L	M
CO 3	M	M	S	L	L	M	S	L
CO 3	M	S	M	L	S	M	L	M
CO 4	M	L	S	L	S	M	M	L

*S-Strong; M-Medium; L-Low


Fourth
Semester

FOURTH SEMESTER

Course code		POETRY-II	L	T	P	C
Core		Core –VII	4	-	-	4
Pre-requisite		Knowledge of Basic English Poetry	Syllabus Version		2020-2021	

Course Objectives:

To Introduce the students to Great Poems of English Literature.
To help the students critically analyse the poetry.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Gain intense knowledge of poetry	**K1**
2	Understand the literary importance of each poetry	**K2**
3	Critically analyse poetry	**K4**
4	Create simple poem by using literary devices	**K6**

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit :1 **15hours**

1. Dover Beach - MatthewArnold
2. My Last Duchess - RobertBrowning
3. Ulysses -Tennyson.

Unit:2 **15Hours**

1. The Darkling Thrush -ThomasHardy
2. The Windhover – G.M.Hopkins
3. Sailing to Byzantium -W.B.Yeats

Unit:3 **15hours**

1.A Prayer for my Daughter -W.B.Yeats
2.The Burial of the Dead, from the Waste Land -
T.S.Eliot 3.Hawk Roasting -TedHughes

Unit:4		**15hours**
1. The Unknown Citizen -W.H.Auden 2. And Death shall have no Dominion - DylanThomas 3. Strange meeting - WilfredOwen		
Unit:5		**15 hours**
1. Church Going - PhilipLarkin 2. The Hound of the heaven – FrancisThompson 3. The Tyger- WilliamBlake		
	Total Lecture hours	**75 hours**

Text Book(s)

1	**ELIXIR -** An Anthology of Poems Emerald Publication

Reference Books

1	The Norton Anthology of English Literature, W.W.Norton

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://www.coursera.org/courses?query=poetry

Course Designed By:

Mapping with Programme Outcomes

Cos	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8
CO1	S	L	M	L	M	M	M	L
CO2	M	L	S	M	L	M	L	M
CO3	M	M	S	M	L	M	L	L
CO4	L	L	M	M	L	S	M	L

*S-Strong; M-Medium; L-Low

Course code		DRAMA II	L	T	P	C
Core		Core VIII	4	-	-	4
Pre-requisite		Knowledge of Popular English Drama	Syllabus Version		2020-2021	

Course Objectives:

To explore the elements of drama contents, performance, styles and theatrical conventions.

To have a detailed analyse of play

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	To carry in depth knowledge of play	K2
2	Analyse the literary devices used in plays	K4
3	Critically evaluate the plays	K5
4	Able to enact the play	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit :1		**15hours**
Pygmalion - G. B. Shaw		
Unit:2		**15hours**
ADoll'sHouse - Henrik Ibsen		
Unit:3		**15hours**
LadyWindermere'sFan - Oscar Wilde		
Unit:4		**15hours**
Riders to the Sea – J.M.Synge		
Unit:5		**15 hours**
Justice - John Galsworthy		
	Total Lecture hours	**75hours**

Text Book(s)	
1	Pygmalion - G. B. Shaw, Finger prints
2	ADoll'sHouse – Henrik Ibsen, Oxford
3	LadyWindermere'sFan - Oscar Wilde, Notion Reads
4	Riders to the Sea – J.M.Synge, Oxford
5	Justice - John Galsworthy
Reference Books	
1	The Norton Anthology of English Literature, W.W. Norton
2	
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://www.mooc-list.com/course/theatre-and-globalization-coursera
Course Designed By:	

Mapping with Programme Outcomes

COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8
CO1	S	S	M	M	M	M	L	L
CO	M	M	S	M	M	L	M	M
CO3	M	M	S	L	S	L	M	L
CO4	M	L	M	L	M	L	S	S

*S-Strong; M-Medium; L-Low

Course code		LITERARY CRITICISM	L	T	P	C
Core		Core VIII	4	-	-	4
Pre-requisite		Basic Knowledge on Literary Criticism	Syllabus Version		2020-2021	

Course Objectives:

To Trace the evolution of English literary criticism from past to present.

To acquire knowledge on criticism and apply it in to analyse a text.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Carry Knowledge of leading Critics and their method of criticism	**K1**
2	Understand the different schools of criticism and their theories	**K2**
3	Interconnect the society, literature and literary criticism to analyse a text	**K4**
4	Evaluate a literary text by applying the ideas of the critics	**K5**

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	**15hours**
1. Aristotle 2. Sir PhilipSydney	
Unit:2	**15hours**
1. JohnDryden 2. Dr.Johnson	
Unit:3	**15hours**
1. WilliamWordsworth 2. S.T.Coleridge	
Unit:4	**15hours**
1. MathewArnold 2. WalterPater	
Unit:5	**15 hours**
1. T.S.Eliot 2. I.A.Richards	
Total Lecture hours	**75hours**

Text Book(s)

1	Introduction to English Criticism by Prasad (Macmillan)

Reference Books	
1	Literary Criticism From Plato to the Present, M.R. Habib, Wiley Blackwell
2	English Literary Criticism and Theory, M.S. Nagarajan, Orient Blackswan
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://www.classcentral.com/course/swayam-literary-theory-and-literary-criticism-7982
Course Designed By:	

Mapping with Programme Outcomes

COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8
CO1	S	L	M	L	L	L	M	M
CO2	M	L	S	S	M	L	L	M
CO3	M	S	L	S	L	M	M	S
CO4	M	L	L	S	M	L	L	M

*S-Strong; M-Medium; L-Low


Fifth
Semester

FIFTH SEMESTER

Course code		SHAKESPEARE -I	L	T	P	C
Core		Core IX	4		-	4
Pre-requisite		Basic knowledge on Shakespeare	Syllabus Version		2020-2021	

Course Objectives:

To help the students to read, understand and appreciate the works of Shakespeare
TomakethestudentsunderstandthetheatreandaudienceofShakespeare'sage

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Comprehend the plays of Shakespeare	**K2**
2	AppreciatethenuancesofShakespeare'sUniversalityanditsimpacton readers.	**K4**
3	Analyse the different types of plays and the devices used.	**K3**
4	Evaluate the themes of different kinds of plays	**K6**

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	**DETAILED**	**15hours**

Othello

Unit:2	**DETAILED**	**15hours**

Twelfth Night

Unit:3	**NON -DETAILED**	**15hours**

Merchant of Venice

Unit:4	**NON DETAILED**	**15hours**

Julius Caesar

Unit:5	NON DETAILED	13 hours
Shakespearean Theatre and Audience		
	Total Lecture hours	75hours

Text Book(s)

1	Othello, Fingerprint
2	Twelfth Night, Dover Thrift Editions
3	Merchant of Venice, Fingerprint
4	Julius Caesar, Fingerprint

Reference Books

1	The Complete Works of William Shakespeare, Wilco Publishing House
2	Muir,Kenneth,Shakespeare'stragicSequence

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1 https://onlinecourses.swayam2.ac.in/ugc19_hs47/preview

Course Designed By:

Mapping with Programme Outcomes

COS	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8
CO 1	S	M	M	L	M	M	L	L
CO 2	M	L	L	M	M	L	L	S
CO 3	M	L	S	M	L	L	M	L
CO 4	M	M	M	L	S	M	L	M

*S-Strong; M-Medium; L-Low

Course code		INDIAN WRITING IN ENGLISH	L	T	P	C
Core		Core-X	4	-	-	4
Pre-requisite		Basic Knowledge on Indian Writing in English	Syllabus Version		2020-2021	

Course Objectives:

To introduce the eminent writers of Indian Writing in English
To critically analyse the literary works in detail

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Familiar with the prominent writers of Indian Writing in English	**K2**
2	Compare the Indian Writing in English with British Literature	**K3**
3	Critically analyse the works of Indian Writing in English	**K4**
4	Evaluate the social issues represented in the literary text	**K6**

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	**DRAMA**	**15hours**
Silence the Court is in Session- Vijay Tendulkar		
Unit:2	**POETRY-DETAILED**	**15hours**
Poems No-1, 2, 3, 7, 8 &14		
Unit:3	**SHORT STORY**	**15hours**
Sweets for Angels – R.K.Narayan The White Flower – R.K.Narayan		
Unit:4		**15hours**
Tyger in the Tunnel – Ruskin Bond		
Unit:5	**NOVEL**	**15 hours**
Kanthapura - Raja Rao		
	Total Lecture hours	**75hours**

Text Book(s)	
1	Indian Verse in English- Poetry Selection for College Classes Macmillan publication
2	Silence the Court is in Session- Vijay Tendulkar, Oxford India
3	Kanthapura - Raja Rao, Modern Classics
Reference Books	
1	Critical Essays on Indian Writing in English, ed. M.K.Naik, S.K.Desai, G.S.Amur
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	http://ugcmoocs.inflibnet.ac.in/ugcmoocs/view_module_ug.php/94

Mapping with Programme Outcomes

COS	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8
CO1	S	L	S	M	L	L	M	L
CO2	M	M	S	M	S	L	M	L
CO3	M	L	S	L	S	M	L	M
CO4	S	L	L	M	S	M	M	S

*S-Strong; M-Medium; L-Low

Course code		AMERICAN LITERATURE	L	T	P	C
Core		Core-XI	4	-	-	4
Pre-requisite		Basic Knowledge on America Literature	Syllabus Version		2020-2021	

Course Objectives:

To introduce the works of eminent writers of American Literature
To appreciate the themes, styles and forms of American Literature

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the diverse group of American authors and their style of writing	**K2**
2	Analyse the key ideas, representation of cultural events of historical periods.	**K4**
3	Compare American Literature with Indian Writing in English	**K5**
4	Create a simple creative writing based on prescribed literary pieces	**K6**

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	POETRY- DETAILED	15hours

1. Passage to India-Whitman
2. I Never Lost as Much But twice- EmilyDickinson
3. Success is counted sweetest- EmilyDickinson
4. A Bird came down the Walk- EmilyDickinson
5. After Apple Picking- RobertFrost
6. Come In- RobertFrost

Unit:2	POETRY- NON-DETAILED	15hours

1. West-Running Brook- RobertFrost
2. The Emperor of Ice Cream- WallaceStevens
3. Anecdote of the Jar- WallaceStevens
4. Skunk Hour- RobertLowell

Unit:3	PROSE –DETAILED	15hours

Walden – Thoreau, Chapter-2,"WhereILivedandWhatILivedFor"

Unit:4	NOVEL -NON-DETAILED	15hours

Tom Sawyer - Mark Twain

Unit:5	DRAMA-DETAILED	15 hours
Glass Menagerie - Tennessee Williams		
	Total Lecture hours	75hours

Text Book(s)

1	Poetry-American Literature edited by Sachidhanandhan (Emerald publishers)
2	Walden, Thoreau, Maple Classsics
3	Tom Sawyer - Mark Twain, Maple Classics
4	Glass Menagerie - Tennessee Williams, Bloomsbury India

Reference Books

1	

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://www.mooc-list.com/course/american-literature-1865-engl-3350-wma

Course Designed By:

Mapping with Programme Outcomes:

COS	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8
CO1	S	M	M	L	L	S	M	M
CO2	M	M	S	M	L	M	M	L
CO3	M	L	L	S	M	M	L	S
CO4	M	L	S	L	S	M	M	L

*S-Strong; M-Medium; L-Low

Course code		COMMONWEALTH LITERATURE	L	T	P	C
Core		Core-XI	4	-	-	4
Pre-requisite		Basic Knowledge on Commonwealth Literature	Syllabus Version			2020-2021

Course Objectives:

To develop analytical and critical reading through commonwealth literature
To understand the socio- political conditions of people in commonwealth nations

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Comprehend the works of prominent authors in commonwealth Literature	**K2**
2	Compare the style of commonwealth writing	**K3**
3	Present critical analyse of prescribed literary works	**K4**
4	Evaluate the commonwealth literature with the help ofknowledgegained on differentcultures	**K5**

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	**POETRY – DETAILED**	**15hours**

1. Australia – A.D. Hope
2.Dying Eagle – E.J.Pratt
3.Telephone Conversation – Chinua Achebe

Unit:2	**DRAMA – DETAILED**	**15hours**

Lion and the Jewel – Wole Soyinka

Unit:3	**PROSE – NON-DETAILED**	**15hours**

"India:AWoundedCivilization" - V.S.Naipaul

Unit:4	**FICTION- NONDETAILED**	**15hours**

The Hungry Tide - Amitav Ghosh

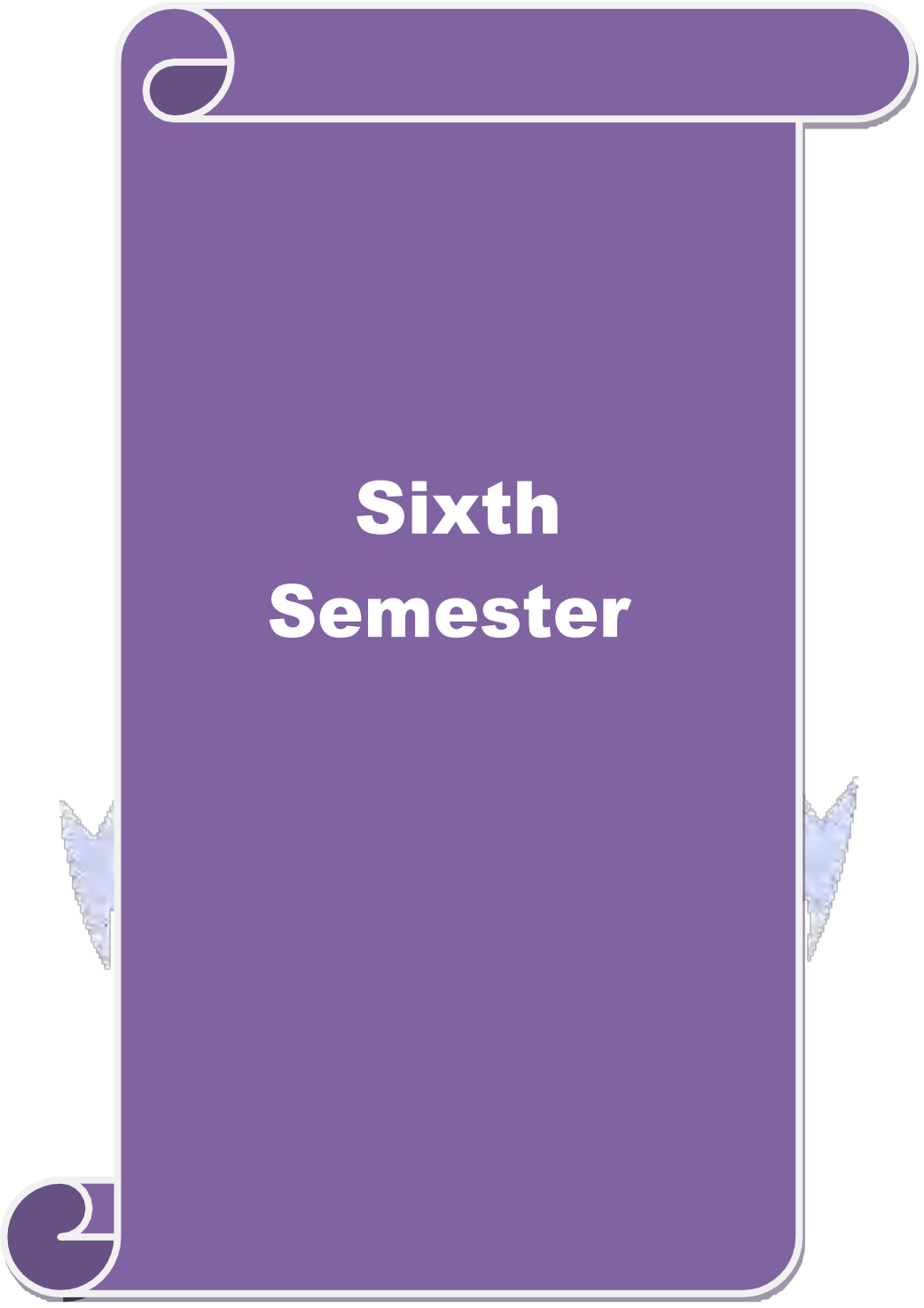
Unit:5	SHORT STORY	15 hours
A Cup of Tea – Katherine Mansfield		
	Total Lecture hours	**75hours**

	Text Book(s)
1	An Anthology of Commonwealth Poetry, C.D. Narasimhaiah, Trinity
2	Lion and the Jewel – Wole Soyinka, Oxford UP
3	India : A Wounded Civilization - V.S.Naipaul, Picador
4	The Hungry Tide by Amitav Ghosh, The Borough Press
5	KatherineMansfield'sCollectedShortstories,WordsworthClassics
	Reference Books
1	Texts and their Worlds II- K. Narayana Chandran, Foundation Books
	Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]
1	https://nptel.ac.in/courses/109/104/109104116/
	Course Designed By:

Mapping with Programme Outcomes

COS	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO8
CO 1	S	M	L	M	M	M	L	L
CO 2	M	L	S	L	M	M	L	L
CO 3	L	M	M	S	L	L	M	S
CO 4	M	M	L	M	S	L	M	M

*S-Strong; M-Medium; L-Low


Sixth
Semester

SIXTH SEMESTER

Course code		SHAKESPEARE –II	L	T	P	C
Core		Core-XIII	4	-	-	4
Pre-requisite		Knowledge on Shakespearean Works	Syllabus Version		2020-2021	

Course Objectives:

To introduce analytical approach in reading Shakepearean plays
To provide deep insight into literary the devices used by Shakespeare

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Intensive knowledge on Shakespearean plays	K2
2	Analyse the universal characterization of Shakespeare	K4
3	Evaluate the versatile writings of Shakespeare	K2, K5
4	Enact a scene from Shakespearean play	K3

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	**15hours**
Macbeth	
Unit:2	**15hours**
As you like it	
Unit:3	**15hours**
Henry IV Part I	
Unit:4	**15hours**
Romeo and Juliet	
Unit:5	**15 hours**
Plot, Characterization, Fools in Shakespearean drama.	
Total Lecture hours	**75hours**

Text Book(s)	
1	Macbeth, Fingerprint
2	As you like it, Fingerprint
3	Henry IV Part I, Peacock Classics
4	Romeo and Juliet, Fingerprint
Reference Books	
1	The Complete Works of William Shakespeare, Wilco Publishing House
2	Muir,Kenneth,Shakespeare'sTragicSequence
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://www.mooc-list.com/tags/william-shakespeare
Course Designed By:	

Mapping with Programme Outcomes

COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8
CO1	S	L	L	M	L	L	M	L
CO2	M	M	S	M	M	M	M	L
CO3	M	L	L	L	S	L	M	S
CO4	L	M	M	M	S	L	S	S

*S-Strong; M-Medium; L-Low

Course code		INTENSIVE STUDY OF AN AUTHOR – RABINDRANATHTTAGORE	L	T	P	C
Core		Core-XIV	4	-	-	4
Pre-requisite		Basic Knowledge Rabindranath Tagore	Syllabus Version		2020-2021	

Course Objectives:

To make the student familiar with the writings of one particular author
To analyse a literary work with the help of Intensive reading

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Carry in-depth knowledge on Tagore'swritingandhisliterarystyle.	K2
2	Analyse the social issues discussed in the works of Tagore	K4
3	EvaluateIndianisminTagore'swriting	K2, K5
4	Compare the works of Tagore with other Indian writers	K3

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	**NOVEL**	**15hours**

The Wreck

Unit:2	**SHORT STORY**	**15hours**

Short Stories: 1 to 4

Unit:3	**SHORT STORY**	**15hours**

Short Stories: 5 to 7

Unit:4	**SHORT STORY**	**15hours**

Short Stories: 8 to 10

DRAM A

Unit:5		**15 hours**
Chitra		
	Total Lecture hours	**75hours**

Text Book(s)	
1	Chitra (Macmillan)
2	Hungry stones and other stories (Macmillan)
3	The Wreck, Rupa
Reference Books	
1	
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://www.nobelprize.org/prizes/literature/1913/tagore/biographical/
Course Designed By:	

Mapping with Programme outcomes:

Co s	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8
CO1	S	L	S	M	M	M	L	L
CO2	M	L	M	L	M	M	M	S
CO3	L	M	L	M	S	L	L	S
CO4	M	M	M	L	M	L	M	S

*S-Strong; M-Medium; L-Low

Course code		INDIAN LITERATURE IN ENGLISH TRANSLATION	L	T	P	C
Core		Core-XV	4	-	-	4
Pre-requisite		Basic Knowledge on Translation studies	Syllabus Version		2020-2021	

Course Objectives:

To make the students aware of the art of translation.

To make the students get familiar with the regional literature translated into English

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the translated works and its nuances.	K2
2	Analyse the works with the help of literary theory, translate simple works of their mother tongue into English Language	K3
3	Knowledge on the ethics and impact of translations in Literature	K4
4	Compare regional literature with English Literature	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	**POETRY**	**15hours**

Gitanjali by Tagore, Verses 1 to 30 (Macmillan)

Unit:2		**15hours**

Non-detailed: Thirukkural 1 to 20 verses

Unit:3	**DRAMA**	**15hours**

Non-Detailed: Aurangzeb - Indira Parthasarathy (Seagull)

Unit:4	**NOVEL**	**15hours**

Chemeen - Thakazhi Sivasankara Pillai

Unit:5		**15 hours**
Sangati - Bama, Trans. Lakshmi Holmstrom – OUI		
	Total Lecture hours	**75hours**

Text Book(s)	
1	Gitanjali by Tagore, Verses 1 to 30, Macmillan
2	Thirukkural, M.Rajaram, Rupa
3	Aurangzeb - Indira Parthasarathy, Seagull
4	Chemeen, Thakazhi Sivasankara Pillai, Harper Perennial
5	Sangati- Bama, Oxford India
Reference Books	
1	
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://www.futurelearn.com/courses/working-with-translation
Course Designed By:	

Mapping with Proramme Outcomes:

Cos	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8
CO1	S	L	M	L	M	L	M	L
CO2	M	M	S	S	M	M	L	M
CO3	M	M	L	M	M	L	M	S
CO4	S	L	M	L	S	M	L	S

*S-Strong; M-Medium; L-Low

JOB ORIENTED COURSE

SECOND YEAR

Semester III

Course code		**JOB ORIENTED COURSE Paper I**	**L**	**T**	**P**	**C**
JOB ORIENTED COURSE		**LANGUAGE SKILL- 1**	**3**	**-**	**-**	**3**
Pre-requisite		**Basic Knowledge on English language.**	**Syllabus Version**		2020-2021	

Course Objectives:

This paper aims at introducing the students to the field of communicative English
To strengthen the grammatical knowledge and vocabulary

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Master framing sentence on differentpattern	**K3**
2	Apply grammar in Speaking and writing	**K3**
3	Prepare grammatically correct passages	**K4**
4	Present short features.	**K6**

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1		**15hours**

CHAPTER I -The sentence
CHAPTER II -Parts of speech CHAPTER III-Nouns
CHAPTER IV-Nouns number & case
CHAPTER V-Adjectives

Unit:2		**15hours**

CHAPTER VI-Comparison of Adjectives
CHAPTER VII -Articles
CHAPTER VIII-Pronouns **CHAPTER XI-**Verbs

Unit:3		**15hours**
CHAPTER XII-Verbs- Mood & tense **CHAPTER XIII**-Concord or Agreement of the verbs with the subject **CHAPTER XIV**- Non- Finite Verbs		
Unit:4		**15hours**
CHAPTER XXXVII-Word formation- The use of Prefixes **CHAPTER XXXVIII**- Word formation- The use of Suffixes **CHAPTER XXXIX**-Word formation- compound words		
		1.
Unit:5		**15hours**
COMPOSITION **CHAPTER XLIII**- Paragraph writing **CHAPTER XLVI**- Expansion of passages		
	Total Lecture hours	**75hours**

Text Book(s)

1	Active English Grammar and composition – Trinity / Laxmi Publications

Reference Books

1	Applied English Grammar and Composition, PC Das, NCBA
2	J.C. Nesfield, Advanced English Grammar and Usage,Macmillan,2002

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://www.coursera.org/specializations/improve-english

Course Designed By:

Mapping of Programme Outcomes:

COS	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8
CO1	S	S	L	M	L	M	L	L
CO2	M	S	M	L	M	L	M	L
CO3	L	M	S	M	S	M	L	M
CO4	M	L	L	M	S	M	M	M

*S-Strong; M-Medium; L-Low

SECOND YEAR

Semester IV

Course code		**JOB ORIENTED COURSE– Paper II**	**L**	**T**	**P**	**C**
Job Oriented Course		**Language Skill 2**	**3**	**-**	**--**	**3**
Pre-requisite		**Basic Knowledge on English language.**	**Syllabus Version**		2020-2021	

Course Objectives:

This paper aims at introducing the students to functions of basic grammar and frame sentences without grammatical errors.

To improve language proficiency of the students

To strengthen the grammatical knowledge and vocabulary

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Transform sentences into different kinds and learn synthesis & transformation of sentences	**K1**
2	Apply grammar in LSRW	**K2**
3	Analyse the usage of words, comprehend the writings and composition	**K3**
4	Adapt professional Writing	**K5**

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1		**15hours**

CHAPTER XIX- Adverbs
CHAPTER XXXI – Sequence of Tenses & Direct &Indirect speech

Unit:2		**15hours**

CHAPTER XX- Preposition
CHAPTER XXI- Conjunctions
CHAPTER XXXIII- Verb Patterns & Sentences

Unit:3		**15hours**
CHAPTER XXVIII- Synthesis of sentences **CHAPTER XXIX-** Transformation of sentences		
Unit:4		**15hours**
CHAPTER XLI- Words often confused **CHAPTER XLII-** Words with appropriate Prepositions		
Unit:5		**15hours**
COMPOSITION **CHAPTER XLIV-** Letterwriting **CHAPTER XLV-** PrecisWriting **CHAPTER XLVIII-** Writing stories from outlines.		
	Total Lecture hours	**75hours**
Text Book(s)		
Active English Grammar and composition – Laxmi Publications		
Reference Books		
J.C. Nesfield, Advanced English Grammar and Usage,Macmillan,2002		
Applied English Grammar and Composition, PC Das, NCBA		
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]		
https://www.mooc-list.com/course/write-professional-emails-english-coursera		
Course Designed By:		

Mapping with ProgrammeOutcomes:

Cos	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8
CO1	S	S	M	M	L	M	L	M
CO2	S	S	M	L	M	L	M	L
CO3	S	S	S	L	M	L	L	M
CO4	M	M	L	M	L	S	M	L

*S-Strong; M-Medium;L-Low


VALUE ADDED
COURSE

THIRD YEAR

Semester V

Course code		**VALUE ADDED COURSE – Paper I**	**L**	**T**	**P**	**C**
VALUE ADDED COURSE		**Study of English Phonetics 1**	**3**	**-**	**-**	**3**
Pre-requisite		**Basic Knowledge on English language**	**Syllabus Version**		2020-2021	
Course Objectives are						
To make the students get familiarize with phonetics and phonetic symbols of English To inculcate a scientific approach towards the study of language						
Expected Course Outcomes:						
On the successful completion of the course, student will be able to:						
1	Learn phonetics symbols with sounds					**K1**
2	Use right accent and rhythm in speaking					**K2**
3	Analyze the syllable and accent					**K4**
4	Classify the speak sound					**K5**
K1 - Remember; **K2** - Undestand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create						
Unit:1						**15hours**
CHAPTER I – List of Phonetic Symbols **CHAPTER II**– Language, Linguistics & Communication						
Unit:2						**15hours**
CHAPTER III- Components of Linguistic CHAPTER IV- Phonetics: The articulation of speech sounds						
Unit:3						**15hours**
CHAPTER V- Classification of Speech Sounds CHAPTER VI- Classification & Description ofconsonants						

Unit:4		**15hours**
CHAPTER VII- Classification & Description of Vowels CHAPTER VIII- Phonology- Phonemes and Allophones		
Unit:5		**15hours**
CHAPTER IX – The Syllable **CHAPTER X**- The pure vowels & Diphthongs of English		
	Total Lecture hours	**75hours**

Text Book(s)

1	A Textbook of English Phonetics for Indian Students- T. Balasubramanian- Trinity Press

Reference Books

1	A.G. Gimson: An introduction to the pronunciation of English, Hodder Arnold, 1989
2	Daniel Jones: Outline of English Phonetics, B.G. Teubnee,1922

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://www.mooc-list.com/course/teach-english-now-second-language-listening-speaking-and-pronunciation-coursera

Course Designed By:

Mapping with Programme Outcomes:

COS	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8
CO 1	S	M	L	M	M	M	L	M
CO 3	S	S	L	M	L	M	L	L
CO 3	M	S	M	L	M	L	M	M
CO 4	M	L	M	L	M	L	S	M

*S-Strong; M-Medium; L-Low

THIRD YEAR

Semester VI

Course code		VALUE ADDED COURSE- II	L	T	P	C
VALUE ADDED COURSE		Study of English phonetics- II	3	-	-	3
Pre-requisite		Basic KnowledgeonEnglishlanguage	Syllabus Version	2020-2021		

Course Objectives:

This paper aims at introducing the students to the field of English phonetics
To make the students get familiar with correct English Pronunciation

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	The concept of general Indian English	**K2**
2	Apply intonation accent rhythm in Speaking	**K3**
3	Master phonetics symbols and sounds	**K4**
4	Transcript into Phonetic language	**K5**

K1 - Remember; **K2** - Undestand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1		**15hours**

CHAPTER XI- The consonants of English
CHAPTER XII- Consonant Clusters in English

Unit:2		**15hours**

CHAPTER XIII- The Concept of General Indian English

Unit:3		**15hours**

CHAPTER XIV- Word-accent in English
CHAPTER XV- Accent & Rhythm in Connected Speech

Unit:4		**15hours**
CHAPTER XVI- Intonation		
Unit:5		**15hours**
CHAPTER XVII- Assimiliation and Elision **CHAPTER XVIII-** Practice in Phonetic Transcription		
	Total Lecture hours	**75hours**

Text Book (s)

1	A Textbook of English Phonetics for Indian Students- T. Balasubramanian- Trinity Press

Reference Books

1	A.G. Gimson: An introduction to the pronunciation of English, Hodder Arnold, 1989
2	Daniel Jones: Outline of English Phonetics, B.G. Teubnee,1922

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://www.coursera.org/courses?query=english%20pronunciation

Course Designed By:

Mapping with Programming Outcomes:

COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8
CO 1	S	S	L	M	M	L	M	L
CO 2	M	S	L	M	L	M	L	M
CO 3	M	S	M	L	S	L	M	M
CO 4	M	L	M	L	S	L	S	M

*S-Strong; M-Medium; L-Low


Professional
English

PROFESSIONAL ENGLISH
ADD ON COURSE
(For all first year students)

Professional English- Arts and Social Sciences

OBJECTIVES:

•Todevelopthelanguageskillsofstudentsbyofferingadequatepracticeinprofessionalcontexts.

•Toenhancethelexical,grammaticalandsocio -linguistic and communicative competence of first year social sciences students

•Tofocusondeveloping students'knowledgeofdomainspecificregistersandtherequired language skills.

•Todevelopstrategiccompetencethatwillhelpinefficientcommunication

•Tosharpenstudents'criticalthinkingskillsandmakestudentsculturallyawareofthetarg et situation.

•DeveloptheircompetenceintheuseofEnglishwithparticularreferencetotheworkplace situation.

•Enhancethecreativityofthestudents,whichwillenablethemtothinkofinnovativewaysto solve issues in the workplace.

•Developtheircompetenceandcompetitivenessandtherebyimprovetheiremployabilityskills.

•Helpstudentswitharesearchbentofminddeveloptheirskillsinwritingreportsandresearch proposals.

OUTCOMES OF THE COURSE:

At the end of the course, learners will be able to,

•Recognisetheirownabilitytoimprovetheirowncompetenceinusingthelanguage

•Uselanguageforspeakingwithconfidenceinanintelligibleandacceptablemanner

•Understandtheimportanceofreadingforlife

•Readi ndependently unfamiliar texts with comprehension

•Understandtheimportanceofwritinginacademiclife

•Writesimplesentenceswithoutcommittingerrorofspellingorgrammar

•Attendinterviewswithboldnessandconfidence.

•Adapteasilyintothewo rkplace context, having become communicatively competent.

•ApplytotheResearch&Developmentorganisations/sectionsincompaniesandofficeswith winning proposals.

Course code		PROFESSIONAL ENGLISH I	L	T	P	C
Part II English II				-	-	
Pre-requisite		BASIC LANGUAGE SKILLS	Syllabus Version		2020-2021	

Course Objectives:

The main objective of this course is to:
To develop the language skills of students
To enhance the lexical, grammatical and socio-linguistic and communicative competence

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand correct usage of vocabulary and grammar in speaking and writing	K1, K2
2	Enrich the language skills through academic writing	K3
3	Develop the communicative skills by responding to given situations	K4
4	Improve the leadership quality and team building	K5
5	Comprehend the information in various circumstances	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	COMMUNICATION	12hours

Listening: Listening to audio text and answering questions - Listening to Instructions
Speaking: Pair work and small group work.
Reading: Comprehension passages –Differentiate between facts and opinion
Writing: Developing a story with pictures.
Vocabulary: Register specific - Incorporated into the LSRW tasks

Unit:2	DESCRIPTION	12hours

Listening: Listening to process description-Drawing a flow chart.
Speaking: Role play (formal context) Reading: Skimming/Scanning-
Reading passages on products, equipment and gadgets.
Writing: Process Description –Compare and Contrast Paragraph-Sentence Definition and Extended definition- Free Writing.
Vocabulary: Register specific -Incorporated into the LSRW tasks.

Unit:3	NEGOTIATION STRATEGIES	12hours

Listening: Listening to interviews of specialists / Inventors in fields(Subject specific)
Speaking: Brainstorming. (Mind mapping). Small group discussions (Subject- Specific)
Reading: Longer Reading text. Writing: Essay Writing (250 words)
Vocabulary: Register specific - Incorporated into the LSRW tasks

Unit:4	**PRESENTATION SKILLS**	**12hours**
Listening: Listening to lectures. Speaking: Short talks. Reading: Reading Comprehension passages Writing: Writing Recommendations Interpreting Visuals inputs Vocabulary: Register specific - Incorporated into the LSRW tasks		
Unit:5	**CRITICAL THINKING SKILLS**	**12 hours**
Listening: Listening comprehensionListening for information. Speaking: Making presentations (with PPT- practice). Reading : Comprehension passages –Note making. Comprehension: Motivational article on Professional Competence, Professional Ethics and Life Skills) Writing: Problem and Solution essay– Creative writing –Summary writing Vocabulary: Register specific - Incorporated into the LSRW tasks		
	Total Lecture hours	**60hours**

Text Book(s)	
1	PROFESSIONAL ENGLISH –TANSCHE
Reference Books	
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	
2	

Course code		PROFESSIONAL ENGLISH II	L	T	P	C
Part II English II				-	-	
Pre-requisite		BASIC LANGUAGE SKILLS	Syllabus Version		2020-2021	

Course Objectives:

The main objective of this course is to:

To develop their competence in the use of English with particular reference to the workplace situation.

To enhance the creativity of the students, which will enable them to think of innovative ways to solve issues in the workplace.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the importance of language competence in workplace situations	K2
2	Develop LSRW skills for academic and career purposes	K2
3	Enhance employability skills through various speaking and writing tasks	K4
4	Improve the communication suitable for workplace	K5
5	Enhance digital competence with innovation and imagination	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	COMMUNICATIVE COMPETENCE	12hours

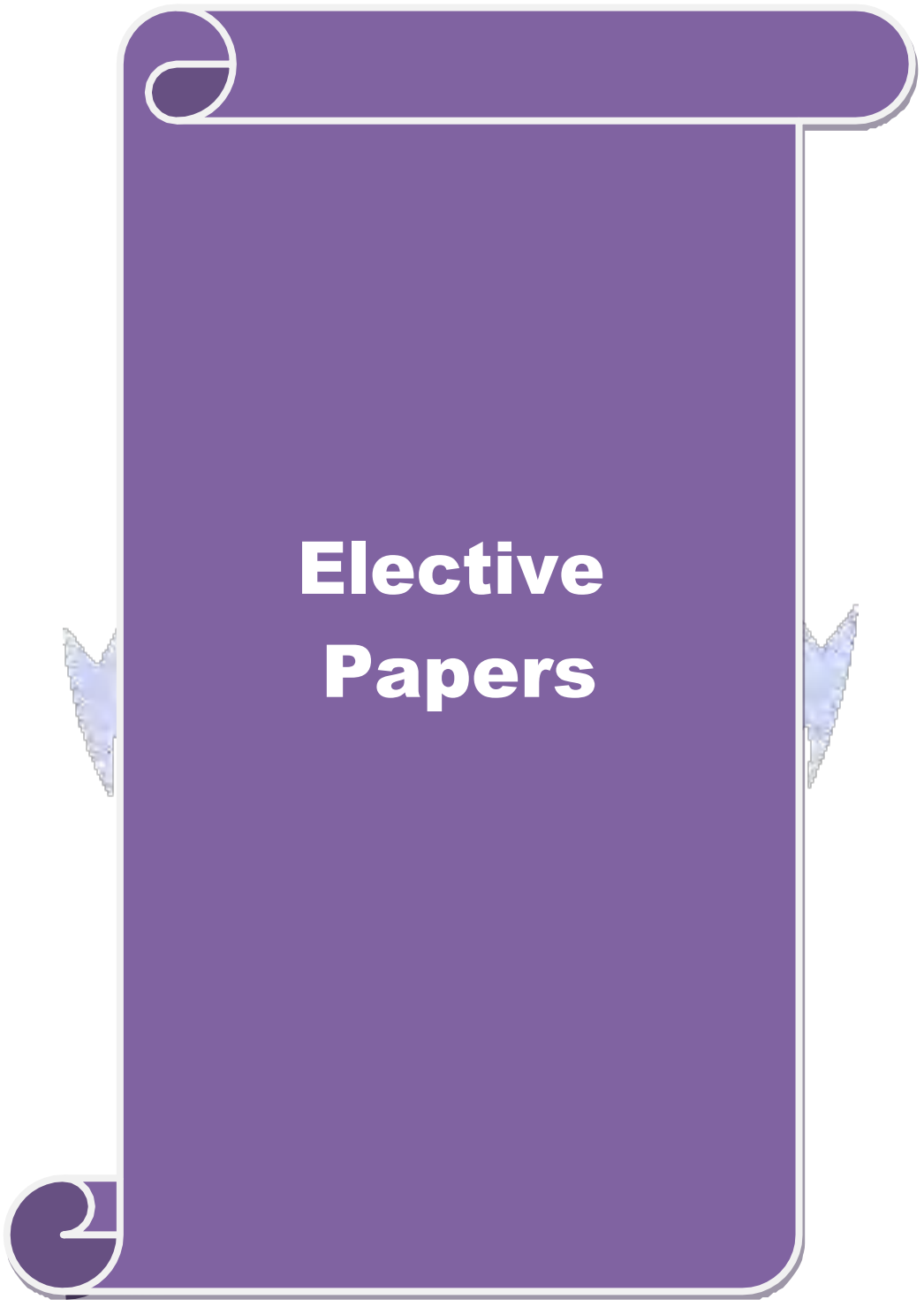
Listening – Listening to two talks/lectures by specialists on selected subject specific topics -(TED Talks) and answering comprehension exercises (inferential questions)
Speaking: Small group discussions (the discussions could be based on the listening and reading passages- open ended questions
Reading: Two subject-based reading texts followed by comprehension activities/exercises
Writing: Summary writing based on the reading passages.

Unit:2	PERSUASIVE COMMUNICATION	12hours

Listening: listening to a product launch- sensitizing learners to the nuances of persuasive communication
Speaking: debates – Just-A Minute Activities
Reading: reading texts on advertisements (on products relevant to the subject areas) and answering inferential questions
Writing: dialogue writing- writing an argumentative /persuasive essay.

Unit:3	DIGITAL COMPETENCE	12hours

Listening to interviews (subject related) Speaking: Interviews with subject specialists (usingvideo conferencing skills) Creating Vlogs (How to become a vlogger and use vlogging to nurture interests – subject related) Reading: Selected sample of Web Page (subject area) Writing: Creating Web Pages Reading Comprehension: Essay on Digital Competence for Academic and Professional Life. The essay will address all aspects of digital competence in relation to MS Office and how they can be utilized in relation to work in the subject area		
Unit:4	**CREATIVITY AND IMAGINATION**	**12hours**
Listening to short (2 to 5 minutes) academic videos (prepared by EMRC/ other MOOC videos on Indian academic sites – E.g. https://www.youtube.com/watch?v=tpvicScuDy0) Speaking: Making oral presentations through short films – subject based Reading: Essay on Creativity and Imagination (subject based) Writing – Basic Script Writing for short films (subject based) - Creating webpages, blogs, flyers and brochures (subject based) - Poster making – writing slogans/captions(subject based)		
Unit:5	**WORKPLACE COMMUNICATION& BASICS OF ACADEMIC WRITING**	**12 hours**
Speaking: Short academic presentation using PowerPoint Reading & Writing: Product Profiles, Circulars, Minutes of Meeting. Writing an introduction, paraphrasing Punctuation(period, question mark, exclamation point, comma, semicolon, colon, dash, hyphen, parentheses, brackets, braces, apostrophe, quotation marks, and ellipsis) Capitalization (use of upper case)		
	Total Lecture hours	**60hours**
Text Book(s)		
1	PROFESSIONAL ENGLISH –TANSCHE	
Reference Books		
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]		
1		
2		


Elective
Papers

ELECTIVES SEMESTER: V

Elective – I-A ENGLISH FOR COMPETITIVE EXAMINATIONS.

SUBJECT DESCRIPTION:

This Paper aims at preparing the students for Various Competitive Examinations.

OBJECTIVE:

1. To know of Various tools that are essential for Competitive Exams

CONTENS: AllChapters.

Book Prescribed:

English for Competitive Examinations by R.P Bhatnagar (Macmillan)

Elective – I-B STUDY OF INDIAN THEATRE

OBJECTIVE:

1. To help students develop histrionictalents
2. To enable students to manipulate the communicative potentials ofdrama
3. To give them an orientation in dramaticwriting

Unit I - Introduction to Indian Theatre Unit II - Traditions of Performance

Unit III - How to Write a Play

Unit IV - How to Produce a Play

Unit V - Review of a Play - Project or Dialogue for a Situation

Books for Reference:

Study of Indian Theatre - ENNES Publications Contact Nos: 04252 – 226283 93622 11949

Elective – I-C PUBLIC SPEAKING

OBJECTIVE:

1. To help students overcome the fear of facing anaudience
2. To train students in planning a speech and then draftit
3. To acquaint students with the major practices in effective public speakingUnit

I - Rudiments of Public Speaking(Theory)

Unit II - Techniques of Public Speaking

Unit III - Planning and Writing a Speech

Unit IV - Overcoming fear and

understanding audience Unit V -

Model speeches

1. I have a dream - Martin LutherKing
2. Yes We Can –Obama
3. Chicago - SwamiVivekananda

Book for Reference: Dale Carnegie - Public Speaking

SEMESTER: VI

Elective – II-A Communicative English Subject

SUBJECT DESCRIPTION:

This Paper gives the students knowledge of

Communicative skills. OBJECTIVE:

To excel in Communicative skills.

CONTENTS: All Chapters from Developing

Communication Skills Book Prescribed:

Developing Communication Skills, by Krishnamohan and Meera Benerji. (Macmillan)

Elective – II-B FUNDAMENTALS OF COMPARATIVE LITERATURE

OBJECTIVE:

1. To enable students to have an understanding of literatures of theworld
2. To orient them towards understanding of differentcultures
3. To train them in the logic and

principles of comparison Unit I -

Introduction to Comparative

Literature

Unit II - Principles of Comparative Literature

Unit III - Oriental and Occidental Literature

– Comparative Study Unit IV - Aesthetics -

Eastern and Western

Unit V - Project – A Comparative Study of a Short Story or a Poem EachfromaLanguageofStudent'sChoiceandEnglish.

Book for Reference:

Fundamentals of Comparative Literature - ENNES Publications.

Elective – II-C THE FOUR SKILLS FOR COMMUNICATION

OBJECTIVE:

1. To sensitize students to effectivewriting
2. To expose them to higher order writing in different situations inlife.
3. To train students in specified types of formalwriting.

Unit I - Study Skills Unit II - Precis Writing Unit III - Report Writing
Unit IV - Commercial Correspondence Unit V - Drafting LSRW Skills
Book Prescribed: Writing Skills by Dr.Thailambal (ENNESPublications)

SEMESTER VI

Elective – III-A Introduction to Linguistics.

SUBJECT DESCRIPTION:

This Paper gives the student

knowledge of Linguistics.

OBJECTIVE:

On successful completion of the paper the students should have come to know of Linguistics.

CONTENTS:

UNIT I: SECTION I- On Language &

Languages (Unit 1 to 8) UNIT II: SECTION

II- Linguistics (Unit 9 to 13)

UNIT III: SECTION III-Structural Linguistic

(Unit 14 to 23) UNIT IV : SECTION VI-

Other Approaches (Unit 39 to 41)

UNIT V: SECTION VII- Some Applications of Linguistics (Unit 42 to 45)

Book to be prescribed: Modern Linguistics. An Introduction by S. K. Verma, N. Krishnaswamy. (Oxford University Press)

Elective – III-B STUDYING NOVELS

OBJECTIVE

To help students segment and classify different aspects of a Novel

1. To enable students to recognize themes andtechniques

2. To train themin

writing critiques of

novels Unit I – Authors

Unit II – Characters Unit III – Setting

Unit IV - Plot and Story Unit V - Themes

Book for Reference: Mastering English Literature - Richard Gill (MacMillan)

Elective – III-C TRANSLATION TASKS

OBJECTIVE:

1. To familiarize students with administrationterminologies in English and MotherTongue
2. To help them acquire a working knowledge in that field Unit I - Word and PhraseClassification

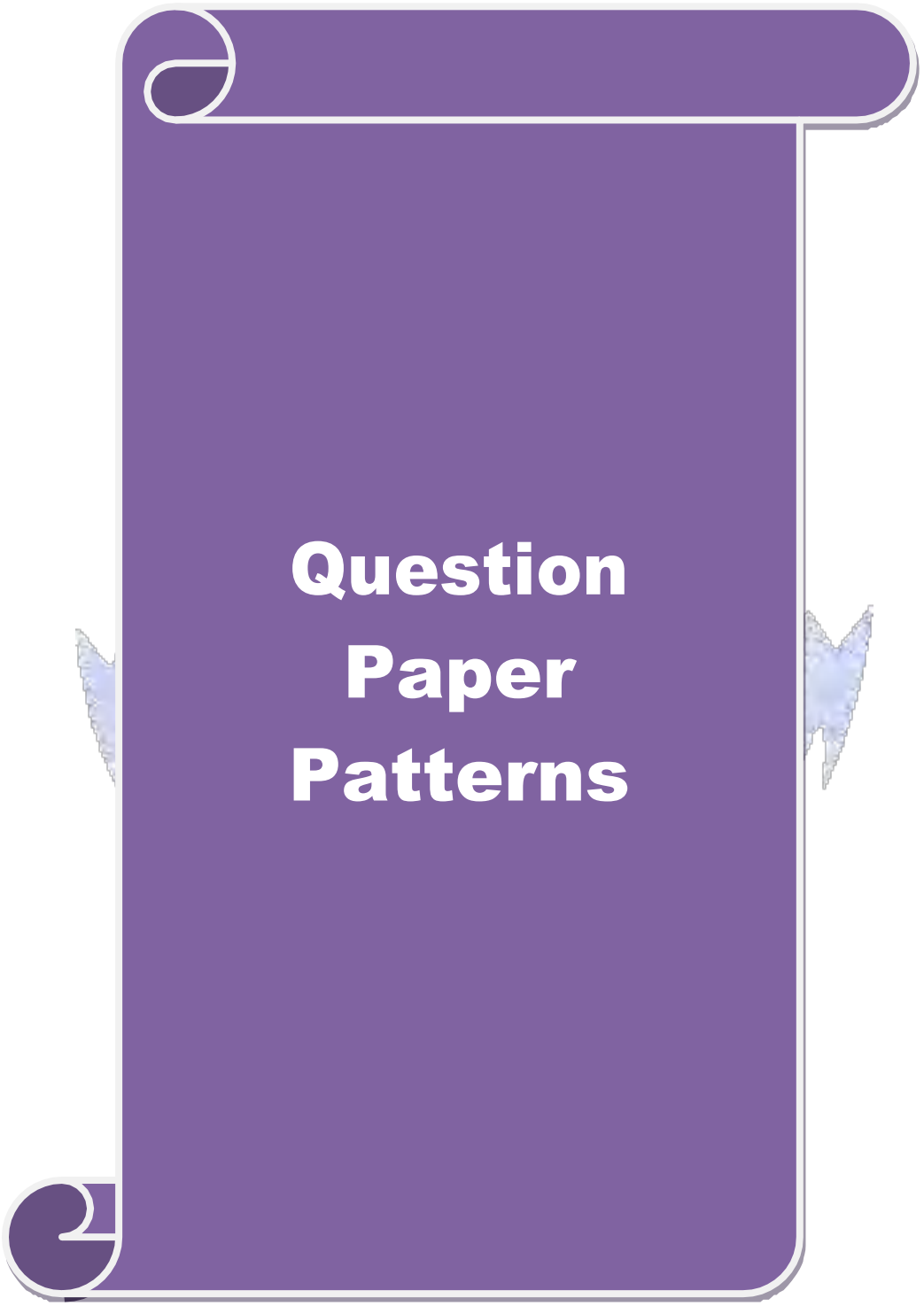
Unit II - Note terms, forms of endorsement

Unit III - Note Order, Official Letters

Unit IV - Circulars, Proceedings

Unit V - Government Orders, Announcements, Advertisements in Newspapers, Official Notes.

Book for Reference: Translation Tasks - ENNES Publications


Question
Paper
Patterns

QUESTION PAPER PATTERNS FOR PAPERS – Maximum 75 Marks:

Section A – 10 Marks

Ten objective type questions from all

units (10 X 1 = 10) , Section B – 25

Marks

Five either or type questions of 5 marks each from all

units. (5 X 5 = 25), Section C – 40 Marks

Five either or type questions from all units (5 X 8 = 40)

QUESTION PAPER PATTERNS FOR PAPERS – Maximum 55 Marks:

Section A – 10 Marks

Ten objective type questions from all

units (10 X 1 = 10) , Section B – 15

Marks

Five either or type questions of 3 marks each from all

units. (5 X 3 = 15), Section C – 30 Marks

Five either or type questions from all units (5 X 6 = 30)

Question Paper remains unchanged except in Section A .

All the questions in Section A should be only multiple choice questions.

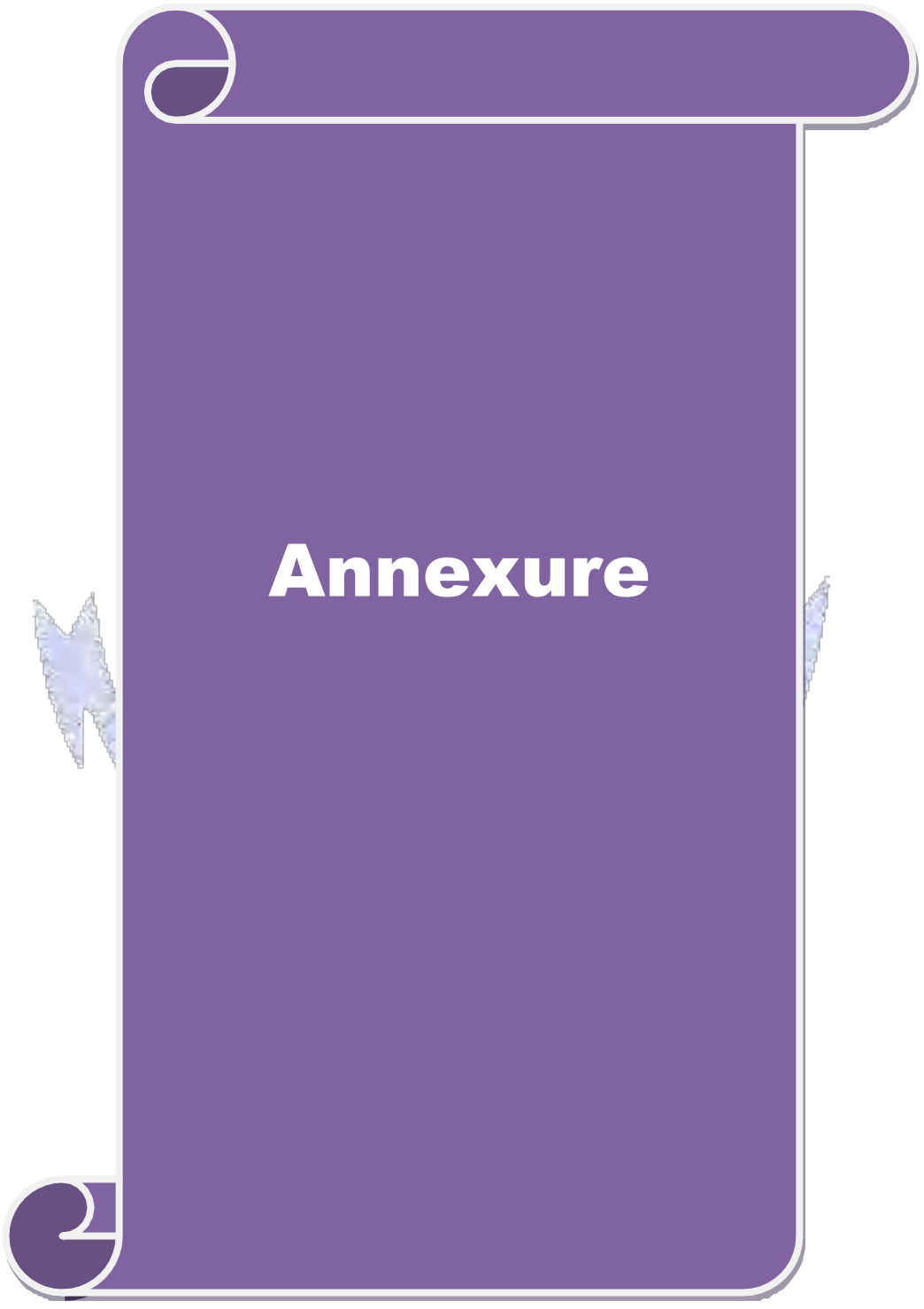
All the questions should be multiple choice questions in Drama I and Drama II from the following texts alone.

Drama I- Dr. Faustus,

She Stoop to Conquer ,

Drama II –Pygmalion,

TheDoll'sHouse


Annexure

Existing question paper pattern to be followed

Date: 07/08/2020

Rectification of syllabus in English - UG

With reference to the letter received from KSG College, Coimbatore.

No Change in Part II English

There is no change in the Part II English syllabus for four semesters (Paper I, II, III, IV) (with reference to the letter from the Principal, KSG College mentioning B.Sc. Bio Technology and
B.A. English Literature with CA)

Changes in the Scheme of Syllabus (2018-19)

The syllabus for B.A. English literature and B.A. English Literature with Computer Applications (CBSC pattern, Affiliated Colleges) for the students admitted during the academic year 2018-19 onwards has the changes in the Scheme of Examination. The subjects and the hours/week have been corrected asfollows:

The following changes must be incorporated in the Scheme for B.A. English Literature (For the students admitted during the academic year 2018-19 onwards) in Semester IV

SemesterIV

Part	Course Title	Inst. Hours/ Week	Examination				Credit
			Duration	CIA	Uni. Exam	Total	
I	TAMIL IV	4	3	25	75	100	4
II	ENGLISH IV	4	3	25	75	100	4
III	CORE VII – POETRY II	4	3	25	75	100	4
III	CORE VIII – DRAMA II	4	3	25	75	100	4
III	**ALLIED IV – Literary Criticism**	4	3	25	75	100	4

IV	Skill Based Subject 2 COMMUNICATIV E ENGLISH – Paper II	3	3	20	55	75	3
IV	**Tamil @ /Advanced Tamil # (OR) Non-major elective -II (General Awareness #)**	**2**	3	50		50	2

பாரதியார் பல்கலைக்கழகம்
BHARATHIAR UNIVERSITY
COIMBATORE - 641 046, TAMIL NADU, INDIA
State University | Re-Accredited with "A" Grade by NAAC | Ranked 14th among Indian Universities by MHRD-NIRF

The following changes must be incorporated in the Scheme for B.A. English Literature with CA (For the students admitted during the academic year 2018-19 onwards) in Semester IV.

Semester IV

Part	Course Title	Inst. Hours/ Week	Examination				Credit
			Duration	CIA	Uni. Exam	Total	
I	TAMIL IV	4	3	25	75	100	4
II	ENGLISH IV	4	3	25	75	100	4
III	CORE VII – POETRY II	4	3	25	75	100	4
III	CORE VIII – SOFTWARE ENGINEERING	4	3	25	75	100	4
III	**ALLIED IV – Literary Criticism**	4	3	25	75	100	4
IV	Skill Based Subject 2 COMMUNICATIVE ENGLISH – Paper II	3	3	20	55	75	3
IV	**Tamil @ /Advanced Tamil # (OR) Non-major elective - II (General Awareness #)**	2	3	50		50	2

B. A. History

Syllabus

AFFILIATED COLLEGES

Program Code: 21E

2020 – 2021 onwards

BHARATHIAR UNIVERSITY

(A State University, Accredited with "A" Grade by NAAC,
Ranked 13th among Indian Universities by MHRD-NIRF,
World Ranking: Times -801-1000,Shanghai -901-1000, URAP - 982)

Coimbatore - 641 046, Tamil Nadu, India

Program Educational Objectives (PEOs)	
The **B.A. History** program describe accomplishments that graduates are expected to attain within five to seven years after graduation	
PEO1	Learn about past human behaviour that is relevant to the intellectual growth and development as an individual and can endow with valuable insight for future generations.
PEO2	To enable the students to improve their competency skills in the field of Education and Teaching.
PEO3	To equip the students to acquire skills and knowledge required to pursue higher studies in the field of Archaeology, Museology, Epigraphy, Journalism, Tourism and Administration.
PEO4	To make the students to acquire a broad knowledge of history to become teachers.
PEO5	To motivate the students to take up professional courses in the field of education and law.
PEO6	To train the students to appear for the competitive examinations.

Program Specific Outcomes (PSOs)	
After the successful completion of B.A. History program, the students are expected to	
PSO1	Learn and understand history with the ability to know the different historical times of world and acquire knowledge of culture, events, facts, terminologies, conventions and methodology.
PSO2	Expand their vision to recognize the diversity of human experience in ethnicity,caste, class, religion, sex and make them work towards UniversalBrotherhood.
PSO3	Equip with the essentialities of their chosen career.
PSO4	Acquire the knowledge of world cultures and their inter-connections with multi cultural sensitivity.
PSO5	Recognize and evaluate the achievements of man in history and progress of ideas.
PSO6	Develop practical skills which help in the study and understanding of historical events.
PSO7	Install the feeling of patriotism in the hearts of the pupils.
PSO8	Analyze the relationship between the past and the present is lively presented in the history.
PSO9	Evaluate and recognize the values of History.
PS10	Equip to appear for Competitive Examination

Program Outcomes (POs)	
On successful completion of the B.A. History program, students will be able to	
PO1	Remember and obtain a wider knowledge of World History, Indian History, Regional History, Archaeology, Tourism, Journalism, and Computer application in History.
PO2	Understand the political, social and cultural facets of the world and develop their historical knowledge.
PO3	Apply his knowledge in the field of Politics, Education and Research.
PO4	Analyze the causes for changes in the course of history.
PO5	Evaluate the role of leaders in society.
PO6	Create an environment conducive to peaceful co-existence.
PO7	Acquire modern skills, aptitude and potentialities of most creative mode in history.
PO8	Worthy intellectual attitude will be developed among students.
PO9	Appreciate the achievements and values of their own times.

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B.A. HISTORY Curriculum (CBCS Pattern)Colleges

*(For the students admitted during the academic year **2020 – 2021** onwards)*

Part	Course Code	Title of the Course	Credits	Hours / week		Maximum Marks		
				Theory	Practical	CIA[$]	ESE	Total
FIRST SEMESTER								
I		Language-I	4	6	-	25	75	100
II		English-I	4	6	-	25	75	100
III		Core-I: History of India upto 647 A.D.	3	5	-	20	55	75
III		Core-II: History of India from 647 A.D. to 1526 A.D.	3	5	-	20	55	75
III		Allied-I	4	6	-	25	75	100
IV		Environmental Studies #	2	2	-	-	50	50
	Total		20					500
	SECOND SEMESTER							
I		Language-II	4	6	-	25	75	100
II		English-II	4	6	-	25	75	100
III		Core-III: History of India from 1526 A.D. to 1707 A.D.	4	5	-	25	75	100
III		Core-IV: History of India from 1707 A.D. to 1857 A.D.	4	5	-	25	75	100
III		Allied-II	4	6	-	25	75	100
IV		Value Education-Human Rights #	2	2	-	-	50	50
	Total		22					550
	THIRD SEMESTER							
I		Language-III	4	6	-	25	75	100
II		English-III	4	6	-	25	75	100
III		Core-V: History of India from 1858 A.D. to 1947 A.D.	4	4	-	25	75	100
III		Core-VI: History of India from 1947 A.D. to 2000 A.D.	4	4	-	25	75	100

III		Allied-III	4	5	-	25	75	100
IV		Skill Based Subject-I: Origin and Growth of Tourism	3	3	-	20	55	75
IV		Tamil @/ Advanced Tamil # (OR) Non-Major Elective I(Yoga for Human Excellence) #/Women'sRights#/ Constitution of India	2	2	-	50		50
		Total	25					625
	FOURTH SEMESTER							
I		Language-IV	4	6	-	25	75	100
II		English-IV	4	6	-	25	75	100
III		Core-VII: History of Tamil Nadu upto 1336 A.D.	4	4	-	25	75	100
III		Core-VIII: History of Tamil Nadu from 1336 A.D. to 1977 A.D.	4	4	-	25	75	100
III		Allied-IV	4	5	-	25	75	100
IV		Skill Based Subject-II: History and Disaster Management	3	3	-	20	55	75
IV		Tamil @/ Advanced Tamil # (OR) Non-Major Elective- II: (General Awareness #)	2	2	-	50		50
		Total	25					625
	FIFTH SEMESTER							
III		Core-IX: History of Europe from 1789 A.D. to 1945 A.D.	4	6	-	25	75	100
III		Core-X: History of England from 1603 A.D. to 1945 A.D.	4	6	-	25	75	100
III		Core-XI: History of USA upto 1865 A.D	4	6	-	25	75	100
III		Core-XII: India and Her Neighbours	4	5	-	25	75	100
III		Elective-I	4	4	-	25	75	100

IV		Skill Based Subject-III: Computer Application in History (Industry-4.0)- I	3	3	-	20	55	75
	Total		23					575
	SIXTH SEMESTER							
III		Core-XIII: World History from 1945 A.D. to 2000 A.D.	4	6	-	25	75	100
III		Core-XIV: History of USA from 1865 A.D. to 1990 A.D.	4	6	-	25	75	100
III		Core-XV: Applied History for Civil Service Examinations	4	5	-	25	75	100
III		Elective-II	4	5	-	25	75	100
III		Elective-III	4	5	-	25	75	100
IV		Skill Based Subject-IV: Computer Application in History–I(Fully Practical)	3	-	3	25	50	75
V		Extension Activities @	2	-	-	50	-	50
Total			25					625
Grand Total			140					3500
ONLINE COURSES								

$ Includes 25 marks to Continuous Internal Assessment for theory and practical papers respectively.

@ No University Examinations. Only Continuous Internal Assessment (CIA)

No Continuous Internal Assessment (CIA). Only University Examinations.

The topics for Expert Lectures, Online seminars - Webinar on Contemporary Issues of Unit 6 in all courses can be decided by the Departments.

First Semester

SEMESTER I

Course code		HISTORY OF INDIA UPTO 647 A.D.	L	T	P	C
Core- I			3	-	-	3
Pre-requisite		Basic knowledge in Indian History at School level.	Syllabus Version		2020-21	

Course Objectives:

The main objectives of this course are to:

1. Equip the students to know about the geographical features and itseffects on India.
2. Educate the unifying factors amidst diversity.
3. Learn the political and religious condition of India from 6th Century B.C.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Recall the basic concepts and distinguish the different sources for the study of Indian History.	K1
2	Understand the importance of geography for history.	K2
3	Explain the teachings of Buddha and Mahavira.	K3
4	Realize the importance of Unity in Diversity.	K4
5	Evaluate the career of Asoka, Chandragupta, Kanishka, Harsha.	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	SOURCES OF STUDY	15 hours

Effects of Geography on Indian History - Unity in diversity - Pre-Historic Culture - Sources - Harappan Civilization - Vedic Civilization.

Unit:2	RISE OF KINGDOMS AND RELIGION	15 hours

Mahajanapadas - Rise of Magadha - Life and teachings of Buddha and Mahavira - Invasion of Alexander and its impact.

Unit:3	RISE OF MAURYAN EMPIRE	15 hours

Rise and Consolidation of the Mauryan Empire - Asoka and the spread of Buddhism - The Mauryan Administration - Art and Architecture - The Sungas.

Unit:4	THE KHUSHANS AND THE GUPTA EMPIRE	14 hours

Kanishka -Mahayanism - Gandhara Art - Rise and Consolidation of the Gupta Empire: Samudra Gupta and Chandra Gupta II - Administration - Social and Economic life of the people - Art and Culture - Decline of the Guptas.

Unit:5	HARSHA'S ADMINISTRATION	14 hours
Harsha's career and achievements - Administration - Social and Economic life of the people - Accounts of the foreign travellers. **Maps:** 1. Indus valley civilization, 2. Maurya Empire - Asoka, 3. Gupta Empire, 4. Harsha Empire.		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**75 hours**

Book(s) for Study	
1	Hans Raj,*History of Ancient India*, Surjeet Publications, Delhi, 1985.
2	Ramalingam T. S.,*History of India upto 1206 AD*, TSR Publications, 1982.
3	Sathyanatha IyerR.,*History of India Vol I.*
Book (s) for Reference	
1	Basham A. L.,*The Wonder that was India*, Macmillan, India 2004.
2	Kundra,*History of India*, Kamal Arora Publishers, New Delhi, 1997
3	Mahajan V. D.,*History of Ancient India*, S. Chand Publishing, 2016.
4	Majumdar R. C., Dutta K. K. and Roy Choudry - *Advanced History of India*, Macmillan India Ltd, Madras, 1985.
5	Neelakanda Sasthri K.A.,*History of South India*, Oxford, 1997.
6	Phalaksha,*History of Ancient Period Vol-1*, Shahshi Prakashana, 2013
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://www.youtube.com/watch?v=NFczNHrbXB0
2	https://www.youtube.com/watch?v=W8Lc2-RYGNc
3	https://www.jagranjosh.com/general-knowledge/the-harshavardhana-era-1437388149-1

Course Designed By: **Prof. M. THANGAVEL, Asst. Prof. of History, Sri Vasavi College, Erode. Email: thangavelhistorysvc@gmail.com**

Mapping with Programme Outcomes										
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	M	S	M	S	S	M	S	S
CO2	S	S	M	S	M	S	S	M	M	M
CO3	S	S	S	S	M	M	M	S	S	S
CO4	S	S	M	S	M	S	M	M	M	S
CO5	S	S	M	S	S	M	M	S	S	M

*S-Strong; M-Medium; L-Low

SEMESTER I

Course code		HISTORY OF INDIA FROM 647 A.D. TO 1526 A.D.	L	T	P	C
Core - II			3	-	-	3
Pre-requisite		Basic knowledge in Indian History at School level.	Syllabus Version		2020-21	

Course Objectives:

The main objectives of this course are to:

1. Make the students to understand the political condition of India from 6th Century A.D. to 15th Century A.D.
2. ImpartthehistoryofArab'sconquestofSindandruleofDelhi Sultanate.
3. Educate about the administration of the Delhi Sultanate.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Know the Arab Invasion of Sind.	K1
2	Understand the effects of Arab and Turkish invasions.	K2
3	Illustrate the Muslim dynasties that ruled Delhi in the Medieval period.	K3
4	Analyze the social and cultural impact of period.	K4
5	Evaluate and differentiate the various dynasties of Delhi Sultanate.	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	RISE OF KINGDOMS IN NORTH INIDA	15 hours

Rise of Palas - Prathiharas - Rastrakutas - Rajput kingdoms - Condition of society on the eve of Arab Invasion - Mohamed-Bin-Qasim.

Unit:2	TURKISH INVASION AND THE SLAVE DYNASTY	15 hours

Invasion of Mohammad of Ghazni - Ghori - Qutb-ud-din Aibak - Iltutmish - Raziya Begum - Balban.

Unit:3	KHILJIS AND TUGLAQS	15 hours

Alauddin Khilji - Malik Kafur's invasion - Mohammad-bin-Tughlak – Firoz Tughlak - Timur's invasion.

Unit:4	**LODI DYNASTY**	**14 hours**
The Lodis:Bahlol Lodi - Sikandar Lodi- Administration under Delhi Sultanate- Decline of the Sultanate.		
Unit:5	**SOCIETY AND CULTURE**	**14 hours**
Social and Economic life - Art and Architecture under the Sultanate- Bhakti movement. **Maps:** 1. Ghor Invasion, 2. Alauddin Khilji Empire, 3. Tughlaq Empire –Mohammed – bin-Tughlak,4.Malikkafur'sSouthIndiancampaigns.		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**75 hours**

Book(s) for Study	
1	Kundra,*History of India*, Kamal Arora Publishers, New Delhi, 1997.
2	Phalaksha,*History of Ancient Period Vol-1*, Shahshi Prakashana, 2013.
Book (s) for Reference	
1	Mahajan V. D.,*Medieval India*, S Chand, Eleventh edition, 1991.
2	Majumdar R. C., Dutta K. K., and Roy Choudry,*Advanced History of India*, Laxmi Publications Pvt. Ltd.; Fourth edition, 2016.
3	Pandey, A.B., *Early Medieval India*, ed. 2 (Allahabad, Central Book Depot, 1970).
4	Sathyanatha Iyer R.,*History of India Vol II*, S. Viswanathan, 1941.
5	Satish Chandra, *Medieval India, From Sultanate to the Mughals*, Delhi, Har Anand Publications, 1997.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://www.youtube.com/watch?v=ZBgYc8Ed5WY
2	https://en.wikipedia.org/wiki/Medieval_India
3	https://www.tutorialspoint.com/medieval_indian_history/medieval_indian_history_tutorial.pdf

Course Designed By: **Dr. S. Z. Niazudeen, Asst. Prof. of History, Sri Vasavi College, Erode.**
Email:niazudeensz78@gmail.com

Mapping with Programme Outcomes										
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	S	S	M	M	M	M	M	S
CO2	S	S	M	S	M	M	S	M	M	S

CO3	S	S	S	S	M	S	S	S	S	M
CO4	S	M	S	S	M	S	M	S	S	M
CO5	S	S	S	S	S	S	M	S	S	S

*S-Strong; M-Medium; L-Low

Second Semester

SEMESTER II

Course code		HISTORY OF INDIA FROM 1526 A.D. TO 1707 A.D.	L	T	P	C
Core - III			4	-	-	4
Pre-requisite		Elementary knowledge of Indian History	Syllabus Version		2020-21	

Course Objectives:

The main objectives of this course are to:

1. Trace the history of Mughals and the key events that happened in between 1526 A.D. to 1707 A.D.
2. Acquaint the students about the Mughals, Marathas and Vijayanagar ruler Krishnadevaraya.
3. Inculcate the knowledge of political difference of the period and its impact on society and culture.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Remember the important historical developments of mughal rule.	K1
2	Classify and compare the regimes of different dynasties and recognize and articulate about the diversity of historical experience.	K2
3	Apply and accept the concept of religious harmony and its significance to India	K3
4	Analyze the drawbacks of political and religious animosities of the period.	K4
5	Evaluate the contributions of Mughals.	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	ESTABLISHMENT OF MUGHAL RULE	15 hours

Sources of Mughal History - India ontheeveofBabur'sinvasion - Early career of Babur - Battle of Panipet and major campaigns - Causes for the success of Babur - Haumayun and his difficulties

Unit:2	SUR INTERLUDE AND THE REIGN OF MUGHALS	15 hours

Sher Shah and his rise to power - Shershah'sadministration - Akbar - Conquests of Akbar-Religious policy - Rajput policy - Mansabdari system - Raja Todarmal - Jehangir - Nurjahan Junta - Shah Jahan.

Unit:3	DISINTEGRATION OF MUGHALS	15 hours

Aurungazeb - Conquest - Religious Policy - Rise of Marathas - Shivaji - Maratha Administration-Factors for the decline of Mughal Empire

Unit:4	POLITY IN SOUTH	14 hours

Krishna Devaraya - Achievements and Administration - Social and Economic life - Art and Architecture - The fall of the Bahmani kingdom and the emergence of Deccani Sultanates-Relation

with Vijayanagar-Deccan Policy of Mughals.		
Unit:5	**SOCIETY AND CUTLTURE**	**14 hours**
Condition of society – Nobility - Position of Women - Administration of the Mughals - Mughal Art and Architecture – Paintings – Literature - Abul Fazal. **Maps:** 1.Akbar'sEmpire,2.Aurangazeb'sEmpire,3.Shivaji'sEmpire,4.VijayanagarEmpireunder Krishna Devaraya.		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**75 hours**

Book(s) for Study	
1	Mahajan V.D., History of Medieval India, S. Chand, 1991.
3	Salma Ahamed Farooqi, *A Comprehensive History of Medieval India from Twelfth to the Mid Eighteen Century,* Pearson Education India, 2011.
2	Satish Chandra, *History of Medieval India*, Orient Black Swan Pvt. Ltd., Hyderabad, 2015.
4.	Srivastava A.L., *The Mughal Empire*, Shiva Lal Agarwala & Co., 1970.
Book (s) for Reference	
1	Athar Ali M., *Mughal India: Studies in Polity, Ideas, Society, and Culture,* OUP India, 2008.
2	Banerji S. K.,*Humayun Badshah*, Vol. I, Nabu Press, 2011.
3	Beni Prasad,*History of Jahangir*, Bharatiya Kala Prakashan, 2013.
4	Ishwari Prasad, *Life and Times of Humayun Padshah,* S. C. Ghose at Calcutta Press Private Limited, 1955.
5	Mohd. Azhar Ansari, *Socio-Cultural Life of the Great Mughals (1526-1707 AD)*, Sandeep Prakashan, 2008.
6	Muzaffar Alam & Sanjay Subrahmanyam, *The Mughal State (1526-1750)*, Oxford University Press, 2000.
7	Qanungo. K.A.,*Sher Shah and His Times*, Orient Longmans, 1965.
8	Raychaudhuri T., (ed.) *Cambridge Economic History of India*, vol. I, Cambridge University Press, 1982.
9	Rushbrook Williams: *An Empire Builder of the Sixteenth Century,* Kessinger Publishing, 2010.
11	Sharma S. R.,*The Religious Policy of the Mughal Emperors,* Book Enclave, 2001.
10	Saksena B. P.,*History of Shah Jahan of Delhi*, Bharatiya Kala Prakashan, 2013.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	e-Pathasala, https://epgp.inflibnet.ac.in/Home/ViewSubject?catid=829, **Subject**: Indian Culture, Paper 1: Outlines of Indian History, E Text and Self Learning Module: M-24 to 29.
2.	https://www.rarebooksocietyofindia.org/book_archive/196174216674_10154899028046675.

	pdf (Religious Policy of Mughals by R.S. Sharma)
3.	e-Pathasala, https://epgp.inflibnet.ac.in/Home/ViewSubject?catid=829 , **Subject**: Indian Culture, Paper 10: Outlines of Indian History, E Text and Self Learning Module: M-24 to 29.
4.	https://en.wikipedia.org/wiki/Mughal_emperors
5.	http://www.historyworld.net/wrldhis/PlainTextHistories.asp?ParagraphID=hkj https://www.youtube.com/watch?v=m2KLMxyWh9Q https://www.youtube.com/watch?v=5T_Q_VWjZGU (Social and Political Formation and Economy of Vijayanagar Empire)

Course Designed By: **Dr. S. Z. NIAZUDEEN, Asst. Prof. of History, Sri Vasavi College, Erode**
Email:niazudeensz78@gmail.com

Mapping with Programme Outcomes										
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	S	M	M	S	M	S	M	S
CO3	S	S	S	M	M	M	S	M	S	S
CO3	S	S	S	M	M	S	M	S	S	S
CO4	S	S	S	S	M	S	S	M	S	S
CO5	S	S	S	M	S	M	S	M	S	S

*S-Strong; M-Medium; L-Low

SEMESTER II

Course code		HISTORY OF INDIA 1707 A.D. TO 1858 A.D.	L	T	P	C
Core - IV			4	-	-	4
Pre-requisite		Elementary knowledge of Indian History	Syllabus Version		2020-21	

Course Objectives:

The main objectives of this course are to:

1. Trace the establishment of British power in Bengal.
2. AcquaintthestudentsaboutthecontributionofWarrenHasting'sAdministrativereformsin British India.
3. Make the students to know about the British imperialistic policy in India.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Remember the British Administrators and their reforms.	K1
2	Understand the colonial wars and their impact.	K2
3	Apply the constitutional provisions to understand the present political developments.	K3
4	Analyze the role of Dalhousie in modernization in India.	K4
5	Evaluate the social reforms and changes in Indian society.	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	MARATHA CONFEDERACY	15 hours

Maratha Confederacy -Peshwas - Balaji Viswanath - Baji Rao I - Balaji Baji Rao - Third Battle of Panipat.

Unit:2	ADVENT OF EUROPEANS	15 hours

Advent of the Europeans - English East India Company - Carnatic Wars – Annexation of Bengal - Robert Clive.

Unit:3	WARREN HASTINGS'S ADMINISTRATIVE REFORMS	15 hours

LordWarren Hastings - Administrative Reforms - Trial of Warren Hastings - Anglo - Maratha Relations.		
Unit:4	**COLONIAL ADMINISTRATION**	**14 hours**
Lord Cornwallis - Permanent Land Revenue Settlement - Anglo-Mysore relations - Lord Wellesley - Subsidiary Alliance - Merits and Demerits.		
Unit:5	**COLONIAL ADMINISTRATION**	**14 hours**
Lord Hastings - Reforms - Gurkha War - Pindaris - Lord William Bentinck - Reforms - Lord Dalhousie - Administration - Doctrine of Lapse -Burmese Wars - Revolt of 1857 A.D.- Causes - Course - Results. **Maps:** 1. Carnatic wars, 2. India under Wellesley, 3. India under Dalhousie, 4. The Revolt of 1857.		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	TotalLecture hours	**75 hours**

Book(s) for Study	
1	Mahajan. V.D.,*An Advanced History of India*, Mac Milan, New Delhi, 2002.
2	Khurana A. L.,*Modern India (1707 A.D-1967 A.D.)*, Lakshmi Narain Agarwal, 2017.
Book (s) for Reference	
1	Bipin Chandra, *Modern India*, Orient Black Swan, 2018.
2	Choudhary B. P.,*History of India*, Abhijeet Publication, New Delhi, 2012.
3	Mahajan V.D., *Modern India*, S. Chand & Company Ltd, New Delhi, 2012.
4	Majumdar. R.C & Roy Choudri. H.C,*An Advanced History of India*, Macmillan Publishers, India Ltd, New Delhi, 1978.
5	Ramalingam T.S., *History of India 1707 to the present Day*, TSR Publications, Madurai, 1994.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://en.wikipedia.org/wiki/The_History_of_British_India
2	https://www.tutorialspoint.com/modern_indian_history/modern_indian_history_tutorial.pdf
3	https://www.tutorialspoint.com/modern_indian_history/modern_indian_history_tutorial.pdf
Course Designed By: **Prof. S. PANDIYALAKSHMI, Asst. Prof. of History, Sri Vasavi College, Erode. Email:**	

Mapping with Programme Outcomes

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	M	S	S	M	M	S	S	S
CO3	S	S	M	S	S	S	M	S	S	S
CO3	S	S	S	S	M	M	M	M	S	M
CO4	S	S	M	S	M	M	S	S	M	S
CO5	S	S	M	S	S	S	S	M	M	S

*S-Strong; M-Medium; L-Low



Third Semester

SEMESTER III

Course code		HISTORY OF INDIA 1858 A.D. TO 1947 A.D.	L	T	P	C
Core – V			4	-	-	4
Pre-requisite		Elementary knowledge of Indian History	Syllabus Version		2020-21	

Course Objectives:

The main objectives of this course are to:

1. Educate about the emergence of Indian Nationalism.
2. Inculcate the knowledge about the values cherished in the freedom movement.
3. Teach the role played by the freedom fighters against the alien rule.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	RememberthehistoricaleventsafterQueen'sProclamation.	K1
2	Understand the factors responsible for emergence of Nationalism.	K2
3	Apply the principles of Ahimsa and Satyagraha.	K3
4	Evaluate the importance to Independence.	K5
5	Analyze the impact of Colonialism.	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	**BRITISH PARAMOUNTCY**	**12 hours**

Queen's proclamation 1858- Lord Canning- Lord Lytton- Lord Ripon- Lord Curzon

Unit:2	**BIRTH OF INDIAN NATIONAL CONGRESS**	**12 hours**

Birth of Indian National Congress- Moderates and Extremists- Muslim League- Home Rule Movement.

Unit:3	**GANDHIAN ERA**	**12 hours**

Gandhian Era: Non Co-Operation Movement- Civil Disobedience Movement-Round Table Conferences- Individual Satyagraha- Cripps'sProposal.

Unit:4	**TOWARDS INDEPENDENCE**	**11 hours**

Quit India Movement– Indian National Army -Wavell Plan - Cabinet Mission plan - Mountbatten Plan

Unit:5	**FREEDOM FIGHTERS**	**11 hours**

Indian Independence Act 1947A.D. - Great Leaders: Gopala Krishna Gokhale, Mahatma Gandhi, Jawaharlal Nehru, Sardar Vallabhai Patel, V. O. Chidambaram, Rajaji. **Maps:** 1. India under Lord Lytton, 2. India under Lord Curzon, 3. French and Portuguese settlements in India on the eve of Independence. 4. Partition of India in 1947 A.D.		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**60 hours**

Book(s) for Study	
1	Keswani. K. B., *History of Modern India from 1800 A.D-1984 A.D*, Himalaya Publishing House, Bombay, 1985.
2	Venkatesan G.,*History of Freedom Struggles in India*, Rainbow Publication, Coimbatore, 1985.
Book (s) for Reference	
1	Agarwal. R. C,*Constitutional Development of India and National Movement*, S. Chand & Carnet, New Delhi, 1986.
2	Mahajan V.D., *History of National Movement in India*, S. Chand & Carnet, New Delhi, 1985, Ed-III.
3	Majumdar R. C., *An Advanced History of India Part III*, MacMillan, 1988.
4	Sathianathaier, *History of India Vol. III*, S. Viswanathan, Madras, 1969.
5	Sharma S.R., *Indian Movement 1857 A.D. – 1947 A.D.*, B.R. Publishing Corporation, Delhi, 1988,Ed-1.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://en.wikipedia.org/wiki/Indian_independence_movement#:~:text=The%20Indian%20Independence%20Movement%20was,Indian%20independence%20emerged%20from%20Bengal.
2	https://epgp.inflibnet.ac.in/Home/ViewSubject?catid=829 Module: 33 to 40
3	https://en.wikipedia.org/wiki/History_of_the_Indian_National_Congress

Course Designed By: **Prof. M. THANGAVEL, Asst. Prof. of History, Sri Vasavi College, Erode.**
Email: thangavelhistorysvc@gmail.com

Mapping with Programme Outcomes										
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	S	S	M	S	M	S	M	S
CO3	S	S	M	S	M	S	M	M	S	S
CO3	S	S	S	S	M	S	S	S	S	S

CO4	S	S	S	S	M	M	S	M	S	S
CO5	S	S	M	S	S	M	S	M	S	S

*S-Strong; M-Medium; L-Low

SEMESTER III

Course code		**HISTORY OF INDIA FROM 1947 A.D. TO 2000 A.D.**	**L**	**T**	**P**	**C**
Core – VI			**4**	**-**	**-**	**4**
Pre-requisite		**Basic knowledge of history**	**Syllabus Version**		**2020-21**	

Course Objectives:

The main objectives of this course are to:

1. Learn about the history of Modern India in the Post- Independent period and the role of chief architects in building it.
2. Know about the evolution of the Indian Constitution.
3. Impart the role of planning commission, five year plans and the development of science and technology in India.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	List out the important events after the post Independence period of India.	K1
2	Understand the foreign policy of India.	K2
3	Apply the ideals of national leader towards a better society.	K3
4	Analyze the economic developments during the congress ministries.	K4
5	Evaluate the National Front government and Kargil war.	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	**INDIA ON THE EVE OF INDEPENDENCE**	**12 hours**

Dawn of Independence - Partition of India - Sardar Vallabai Patel-Integration of Princely States-Republican Constitution of 1950 A.D.

Unit:2	**NEHRUVIAN ERA**	**12 hours**

Planning and Development - India's Foreign Policy - NAM- Linguistic Reorganization of Indian states - Growth of Education-Public Service Commission and its Role.

Unit:3	**INDIA AFTER NEHRU**	**12 hours**

Lal Bahadur Sastri-Tashkhent Agreement-Indira Gandhi – Reforms- Pokhran-I-Foreign Policy-Emergency.

Unit:4	IMPACT OF EMERGENCY	11 hours
Janata Party Rule-Morarji Desai-Charan Singh-Rolling Plan-Indira Gandhi's second tenure - Operation Blue Star.		
Unit:5	**NEW ECONOMIC POLICY**	**11 hours**
India's Role in World Affairs from 1964 to 1984-Rajiv Gandhi-National Front government - V.P. Singh- Narasimha Rao - Vajpayee - Pokhran Explosion-Bus Diplomacy. **Maps:** 1. State Reorganization - 1956 A.D. 2. India and SAARC 3. Major ports and Airports in India 4. Important Dams in India (Bakranangal, Heerakut, Damodar, Krishnaraj Sagar, Mettur Dam, Pykara and Nagarjuna)		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**60 hours**

Book(s) for Study	
1	Kundra, *History of India*, Kamal Arora Publishers, New Delhi, 1997.
2	Phalaksha,*History of Modern Period Vol-IV*, Shahshi Prakashana, 2013.
3	Stanley A Wolpert,*New History of India*, Oxford University Press, 2003.
Book (s) for Reference	
1	Agarwal. R. C,*Constitutional Development of India and National Movement*, S. Chand & Carnet, New Delhi, 1986.
2	Bipan Chandra,*Modern India*, Orient BlackSwan, 2009.
3	Bipan Chandra,*India since Independent*, Penguin Publications, 2001.
4	Keswani.K.B, *History of Modern India 1800 A.D.-1984 A.D.*, Himalaya Publishing House, Bombay, 1985.
5	Radhey Shyam Chaurasia, History of Modern India: 1707 A.D. to Upto 2000 A.D., Atlantic Publishers, New Delhi, 2002.
6	Thakur, Ramesh,*The Government and Politics of India*, Houndenville, Macmillan, 1995.
7	Venkatesan.G, *History of Contemporary India*, V.C. Publications, Madurai, 2012.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://www.youtube.com/watch?v=x7cAW76QoM8
2	http://ndl.iitkgp.ac.in/
3	https://en.wikipedia.org/wiki/History_of_the_Republic_of_India
4	http://egyankosh.ac.in/handle/123456789/20125 Foreign policy of India http://egyankosh.ac.in/handle/123456789/22968

Course Designed By: **Prof. M. THANGAVEL, Asst. Prof. of History, Sri Vasavi College, Erode. Email: thangavelhistorysvc@gmail.com**

Mapping with Programme Outcomes										
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	M	S	M	S	S	S	S	S
CO3	S	S	M	S	M	M	S	S	M	S
CO3	S	S	S	S	M	S	M	M	S	S
CO4	S	S	M	S	M	M	M	S	M	S
CO5	S	S	M	S	S	M	M	M	S	S

*S-Strong; M-Medium; L-Low

SEMESTER III

Course code		**ORIGIN AND GROWTH OF TOURISM**	**L**	**T**	**P**	**C**
Skill Based Subject - I			**3**	**-**	**-**	**3**
Pre-requisite		**Basic knowledge about Tourism**	**Syllabus Version**		**2020-21**	

Course Objectives:

The main objectives of this course are to:

1. Enable the students to understand the importance of tourism with focus on origin and growth of Tourism.
2. Highlight the significance of Tourism
3. Know the employability in Tourism Industry.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Know about the meaning and concepts of Tourism.	K1
2	Classify the types of tourism.	K3
3	Understand the establishments of WTO, PATA, ITDC, TTDC etc.,	K2
4	Analyze the qualities of a Tourist Guide.	K4
5	Evaluate the contribution of tourism to the development of economy.	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	**TRAVEL THROUGH AGES**	**9 hours**

Definition of Tourism - Travel through the Ages - Effects of Tourism- Industrial Development and Balance of payments.

Unit:2	**ELEMENTS & FACTORS PROMOTING TOURISM**	**9 hours**

Elements of Tourism - Factors promoting Tourism: Hospitality, Travel Agency - Tour operator -

Transportation Facilities: Road, Rail, Water and Air - Accommodation.		
Unit:3	**TYPES OF TOURISM**	**9 hours**
Types of Tourism: Pleasure Tourism, Religious Tourism, Sports Tourism, Medical Tourism and Eco - Tourism.		
Unit:4	**DOMESTIC TOURISM**	**8 hours**
Concept of Domestic Tourism - Growth of domestic tourism in India- Benefits of Home Tourism - Role of Hotels in Domestic Tourism - Functions of TTDC.		
Unit:5	**INTERNATIONAL TOURISM**	**8 hours**
International Tourism: Growth and Development - International Economic Activity- Tourism and International Organizations -WTO, PATA, IAEA, ICAO - Functions.		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**45 hours**

Book(s) for Study

1	Bhatia A.K.,*Tourism Development, Principles and Practices*,Sterling c Publishers (P) Ltd, New Delhi, 2002.
2	Parveen Sethi,*Hand book of Tourism*, Anmol Publication, New Delhi, 1999.

Book (s) for Reference

1	Anand N.M,*Tourism and Hotel Industry in India*, Sterling Publishers (P) Ltd, New Delhi, 1976.
2	Anand Ballabh,*Fundamentals of Travel And Tourism*, Akansha Publishing, 2005.
3	Bhatia.A. K,*Tourism Management and Marketing*, Sterling Publishers, Delhi, 1997.
4	Chistopher J. Holloway,*The Business of Tourism*, Macdonald and Evans 1983.
5	Kaul E.H.,*Dynamics of Tourism*, Stosius Inc/Advent Books Division, 1985.
6	Sharma K. K.,*Tourism And Culture*, Sarup & Sons, 1999.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	http://egyankosh.ac.in/handle/123456789/60069
2	http://egyankosh.ac.in/handle/123456789/42322
3	https://epgp.inflibnet.ac.in/Home/ViewSubject?catid=1827 (Tourism P-1, M-01)

Course Designed By: **Prof. M. THANGAVEL, Asst. Prof. of History, Sri Vasavi College, Erode. Email: thangavelhistorysvc@gmail.com**

Mapping with Programme Outcomes										
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	S	M	S	M	M	S	M	S
CO3	S	S	S	M	S	M	S	S	S	S
CO3	S	S	S	M	S	S	M	M	S	S
CO4	S	S	S	S	S	S	S	M	S	M
CO5	S	S	S	M	S	S	S	S	M	M

*S-Strong; M-Medium; L-Low



Fourth Semester

SEMESTER IV

Course code		HISTORY OF TAMIL NADU UPTO 1336 A.D.	L	T	P	C
Core- VII			4	-	-	4
Pre-requisite		Basic history at School level.	Syllabus Version		2020-21	

Course Objectives:

The main objectives of this course are to:

1. Teach about the early history of Tamil Nadu and the contribution of Chola, Chera, Pallava and Pandya to the development of Art, Architecture and religion.
2. Study the Cholas administrative setup and their contribution culture.
3. Study in detail the socio-economic development of the Second Pandyan Empire.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Remember the social and economic development of people from the Sangam Age.	K1
2	Understand and recognize the administration of the Pallavas and art of making sculpture during that period.	K2
3	Understand the development of art in ancient Tamilagam.	K2
4	AnalysetheimpactofMalikKafur'sinvasion.	K3
5	Apply the ideas and culture of Tamils in their life.	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	INTRODUCTION TO TAMILAGAM	12 hours

Geography - Literary and Archaeological Sources - Pre-History of Tamil Nadu.

Unit:2	THE SANGAM AGE	12 hours

The Age of Sangam - Sangam Literature - Thiruvalluvar - a Tamil poet (monograph) - Cheras - Cholas - Pandyas - Administration - Society - Economy - Religion - the Kalabhras.

Unit:3	THE PALLAVAS	12 hours

The Pallavas - Origin - Kings - Administration - Pallava conflict with Chalukyas and Pandyas - Art and Architecture - Religion.

Unit:4	IMPERIAL CHOLAS	11 hours

Imperial Cholas - Vijayalaya to Kulothunga I - Administration, Art and Architecture - Literature - Society.

Unit:5	PANDIYA EMPIRE	11 hours

Pandya Empire -First and Second Pandya Empire - Muslim invasion - Madurai Sultanate - Fine Arts - Literature.

Unit:6	Contemporary Issues	2 hours
Expert lectures, online seminars – webinars		
	Total Lecture hours	**60 hours**

Book(s) for Study	
1	Devanesan. A,*History of Tamil nadu*, Renu Publications, Marthandam, 1998.
2	Maharajan S.,*Thiruvalluvar* (Tamil poet)- (Monograph), Pp. 96, Reprint 2017, ISBN – 978-81-260-5321-6.
3	Rajayyan. K, *Tamil Nadu - A Real History*, Ratna Publications, Madurai, 2005.
Book (s) for Reference	
1	C. Meenakchi,*Administration and Social Life under the Pallavas*, University of Madras, Madras, 1938.
2	Neelakanta SastriK. A.,*History of South India*, Oxford University Press, Delhi, 2002.
3	Pillay K. K., *A Social History of the Tamil Nadu: Her People and Culture*, Tamil Nadu Course Book: Society, 1977.
4	Manian N.S., *History of Tamil Nadu*, Annai Publications, Palayamkottai, 1976.
5	Subramanian N.,*History of Tamil nadu*, Koodal Publishers, Madurai, 1976.
6	Srinivasa Aiyangar. P. T,*The History of the Tamils*, Asian Educational Services, 2001.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://ta.wikipedia.org/wiki/%E0%AE%A4%E0%AE%AE%E0%AE%BF%E0%AE%B4%E0%AE%95_%E0%AE%B5%E0%AE%B0%E0%AE%B2%E0%AE%BE%E0%AE%B1%E0%AF%81
2	https://www.youtube.com/watch?v=YCExapKqgh8
3	https://www.youtube.com/watch?v=feJRgHRB4NU

Course Designed By: **Prof. S. PANDIYALAKSHMI, Asst. Prof. of History, Sri Vasavi College, Erode. Email:sarveskavishs@gmail.com**

Mapping with Programme Outcomes										
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	S	M	S	S	S	S	M	M
CO3	S	S	S	M	S	S	M	M	M	S
CO3	S	S	S	M	S	M	S	M	M	S
CO4	S	S	S	S	S	M	S	S	S	S
CO5	S	S	S	M	S	S	M	S	S	S

*S-Strong; M-Medium; L-Low

SEMESTER –IV

Course code		HISTORY OF TAMILNADU FROM 1336 A.D. TO 1977 A.D.	L	T	P	C
Core- VIII			4	-	-	4
Pre-requisite		Basic history at school level.	Syllabus Version		2020-21	

Course Objectives:

The main objectives of this course are to:

1. Know the history of Tamil Nadu.
2. Learn the socio economic, political and cultural changes in Tamil Nadu.
3. Make them to learn about the precursor of Indian freedom struggle in Tamil Nadu.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Remember the historical events of the period.	K1
2	Understand the Nayak Rule in Tamil Nadu.	K2
3	Evaluate the establishment of the British rule in Tamil Nadu and evaluate the role of Tamils in Freedom movement	K5
4	Analyze the rise of various Political Parties and contribution of leaders.	K4
5	Create interest on Art and Literature of Tamil Nadu.	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	VIJAYANAGARA EMPIRE	12 hours

Tamil Nadu under the Vijayanagar rulers - Expedition of Kumarakampana - Battle of Talaikkotta.

Unit:2	TAMIL NADU UNDER THE NAYAKS	12 hours

Nayaks of Madurai - Nayaks of Tanjore - Nayaks of Jinji - Administration - Art and Architecture - Literature - Religion.

Unit:3	NAWABS AND OTHER DYNASTIES	12 hours

Nawabs of Arcot - Rulers of Ramnad, Sivaganga and Pudukkottai.

Unit:4	EUROPEANS IN TAMILNADU	11 hours

Europeans in Tamilnadu -Trade centers - Carnatic Wars - Vellore Mutiny - Freedom Movement in

Tamilnadu.		
Unit:5	**POLITICAL ASPECTS OF TAMIL NADU**	**11 hours**
Justice Party - E.V. Ramasamy Periyar - Congress Administration: Rajaji - Kamaraj- Bhaktavatsalam - DMK Administration: C. N. Annadurai - M. Karunanidhi - Economic development since Independence - Art and Literature.		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**60 hours**

Book(s) for Study	
1	Krishnaswamy A., *Nayaks of Madura*, Annamalai University.
2	Krishnaswamy .A,*Tamil Country under Vijayanagar*, Annamalai University, 1964.
3	Rajayyan K.,*History of Tamilnadu*, Raj Publishers, 1982.
4	Ma. Po. Sivagnanam, *History of freedom movement in Tamil Nadu*, Tamil University Publication, Thanjavur, 1988.
5	Subramanian N., *Social and Cultural History of Tamilnadu upto 1984.*
Book (s) for Reference	
1	Boag G.T.,*The Madras Presidency*, Government Press, 1933
2	Burton Stein, *Vijayanagar*, New Cambridge History, 2005.
3	Caldwell. R, *History of Tinnevelly*, Asian Educational Services, 1989.
4	Dirks Nicholas,*The Hollow Crown Ethno history of an Indian Kingdom (Cambridge South Asian Studies)*, Cambridge University Press, 2007.
5	Mahalingam T.V., *Administration and Social life under the Vijayanagar*, University of Madras, 1969.
6	Raju Kalidas,*Social and Cultural History of Tamilnadu*.
7	Vaidyanathan K. S.,*The Ancient Geography of the Kongu Country*, Coimbatore, 1983.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://en.wikipedia.org/wiki/History_of_Tamil_Nadu
2	https://www.britannica.com/place/Tamil-Nadu/Cultural-life
3	https://www.britannica.com/topic/Tamil , https://en.wikipedia.org/wiki/Indian_independence_movement_in_Tamil_Nadu

Course Designed By: **Prof. M.THANGAVEL, Asst. Prof. of History, Sri Vasavi College, Erode. Email:thangavelhistorysvc@gmail.com**

Mapping with Programme Outcomes										
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	M	S	M	S	M	S	M	M
CO3	S	S	S	S	M	M	S	M	M	S
CO3	S	S	M	S	S	S	S	S	S	S
CO4	S	S	M	S	S	S	S	M	M	M
CO5	S	S	S	S	M	M	S	S	S	S

*S-Strong; M-Medium; L-Low

SEMESTER - IV

Course code		**HISTORY AND DISASTER MANAGEMENT**	**L**	**T**	**P**	**C**
Skill Based Subject- II			**3**	**-**	**-**	**3**
Pre-requisite		**Basic knowledge of Disaster at school level.**	**Syllabus Version**		**2020-21**	

Course Objectives:

The main objectives of this course are to:

1. Acquaint the students about the major disaster in history and the importance of disaster management.
2. Educate about the different kinds of Disasters.
3. Teach about the preparedness during the emergencies.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Remember the important disasters in history and evolution of Disaster Management in India.	K1
2	Understand the social and economic effects of destructions of disasters.	K2
3	Assess the importance of prevention and preparedness before disasters.	K3
4	Identify the issues of Global warming, climate change and pollution.	K4
5	Judge the role of NDMA, SDMA, NDRF, Fire service and Rescue Force and youth during disaster.	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6**– Create

Unit:1	**HISTORY OF DISASTERS**	**9 hours**

Meaning, Nature and Importance of Disaster Management - History of Disasters - Major Natural Disaster in the History of India - Evolution of Disaster Management in India.

Unit:2	NATURAL DISASTERS	9 hours
Classification of Disasters - Wind Related - Storms, Cyclones, Tornados and Tidal Waves - Water Related- Floods - Cloudburst - Excessive Rains and Droughts - Earth Related - Earthquakes, Tsunamis, Avalanches, Landslides, Volcanic Eruptions.		
Unit:3	**MAN MADE DISASTER**	**9 hours**
Fire-Forest Fire-Oil Fire-Fire Fighting-Industrial Mishaps-Contamination-Terrorist Activities-Ecological-Pollution-Warfare-Conventional, Chemical, Biological, Nuclear.		
Unit:4	**EMERGING CONCERNS**	**8 hours**
Climate Change-Global Warming-Ozone-Epidemics-Effects of Disasters-Prevention and Mitigation-Preparedness and Response-Warning system.		
Unit:5	**NATIONAL DISASTER MANAGEMENT STRUCTURE**	**8 hours**
Civil Defence Organisations in India-NDMA (National Disaster Management Authority)-SDMA (State Disaster Management Authority)-Role of NDRF (National Disaster Response Force)- Role of Fire service and Rescue Force-Role of youth in Disaster Management-Relief measures in the aftermath of disasters.		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**45 hours**

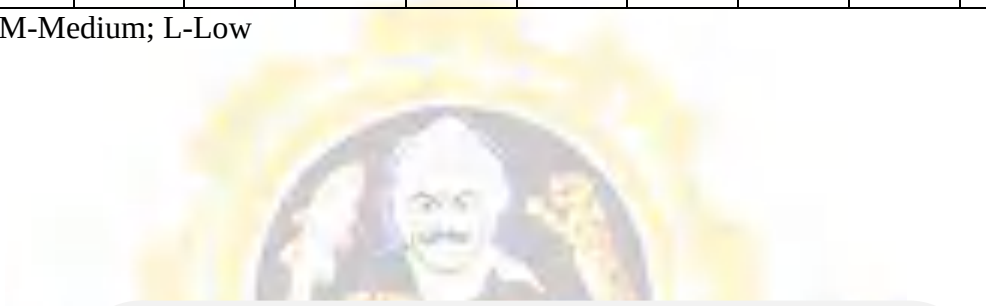
Book(s) for Study	
1	Harsh K Gupta, *Disaster Management*, Sangam Books Ltd., 2003.
2	Vaidyanathan S, *A Introduction to Disaster Management: Natural Disasters & Man Made Hazards*, Ikon Publication, 2011.
Book (s) for Reference	
1	Pradyumna P Karan &Shanmugam P. Subbaiah, *The Indian Ocean Tsunami: The Global Response to a Natural Disaster*, University Press of Kentucky, 2010.
2	Government of India, Ministry of Home Affairs, Disaster Management in India, https://www.undp.org/content/dam/india/docs/disaster_management_in_india.pdf
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	http://www.ndrf.gov.in/inland-operations (Rescue and Relief operations of NDRF)
2	http://www.ndma.gov.in/en/
3	https://www.ndma.gov.in/images/policyplan/dmplan/draftndmp.pdf file:///C:/Users/Admin/Desktop/DISASTER%20MANAGEMENT.pdf (National Disaster Mgt. Plan-I)
4	https://www.youtube.com/watch?v=jEJGqu91Lzo https://www.youtube.com/watch?v=GDEE080tgDY (Bhopal Disaster) https://www.youtube.com/watch?v=K-7xtubIdxE (Disaster and Disaster Mgt. in India) https://lecturenotes.in/notes/14515-note-for-disaster-management-dm-by-jntu-

	heroes?reading=true Lecture Notes

Course Designed By: **Dr. S.Z. NIAZUDEEN, Assistant Professor in History, Sri Vasavi College, Erode. Email:niazudeensz78@gmail.com**

Mapping with Programme Outcomes										
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	M	M	M	S	S	M	M	M
CO3	S	S	S	S	M	S	S	M	S	S
CO3	S	S	M	M	M	S	M	S	M	M
CO4	S	S	M	S	M	M	S	M	S	S
CO5	S	S	M	M	S	S	M	S	S	S

*S-Strong; M-Medium; L-Low



Fifth Semester

SEMESTER V

Course code		HISTORY OF EUROPE FROM 1789 A.D. TO 1945 A.D.	L	T	P	C
Core- IX			4	-	-	4
Pre-requisite		Should possess basic historical knowledge on world affairs	Syllabus Version		2020-21	

Course Objectives:

The main objectives of this course are to:

1. Provoke mankind a desire to live in peace across cultures in harmony.
2. Teach about the revolutions and the liberal ideas of Modern Europe.
3. Enable student to understand the formation of nation states and to understand the Politicalalliances and world after world wars.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Remember about social movements in Europe and the formation of nation states.	K1
2	Understand about the expansion of imperial powers, the process of colonization, and democratic.	K2
3	Provide opportunities for debates, discussion in small groups, quiz programs and activities requiring to act out the important European events.	K3
4	Analyze the causes for outbreak of the two world wars.	K4
5	Evaluate the efforts of UNO in promoting world peace.	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	FRENCH REVOLUTION AND ITS AFTERMATH	18 hours

French Revolution of 1789 A.D. - Napoleon Bonaparte - The Congress of Vienna-1815 A.D. - Napoleon III.

Unit:2	UNIFICATION OF ITALY AND GERMANY	18 hours

Balkan Crisis (1830 A.D.-1870 A.D.) - Crimean War- Unification of Italy - Unification of Germany - Eastern Question.

Unit:3	FIRST WORLD WAR AND ITS IMPACT	18 hours

The First World War 1914 A.D. -1918 A.D.- Treaty of Paris, 1920 A.D. - League of Nations - Russian Revolution of 1917 A.D.- Spanish flu and its impact on Europe

Unit:4	DICTATORSHIP	17 hours

Dictatorship in Turkey - Dictatorship in Italy - Dictatorship in Germany - Axis Powers.

Unit:5	**SECOND WORLD WAR AND IS**	**17 hours**
Second World War 1939 A.D.-1945A.D. - United Nations Organization- European Economic Community- Marvels of Science and Technology.		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**90 hours**

Book(s) for Study

1	MahajanV. D.,*History of Modern Europe since1789 A.D*, S. Chand & Company, 2010.
2	Rao. B.V,*History ofEurope 1789 A.D– 2013 A.D*, Sterling Publications Pvt. Ltd., 2018.
3	Thomas P. C., *History of Europe 1789 A.D – 1945 A.D*, Har Anand Publications, India, 2007.

Book (s) for Reference

1	Fisher H.A.L.,*A History of Europe (2 Volumes)*, HarperCollins Distribution Services, 1969.
2	Swain James Edgar,*History of World civilization*, McGraw-Hill Book Co., 1947.
3	Taylor J.P.,*The Struggle for mastery in Europe in 19th and 20th Century*, OUP Oxford, 1971.
4	Vandana Joshi, *Modern European History*, Pearson Education India, 2016.
5	Davis. H. A., Revised by Blount D.H.C., *An Outline History of the World*. New Delhi: Oxford University Press, 1968.
6	Hobsbawm E.J.,*The Age of Revolution, 1789 A.D-1848 A.D*, Phoenix press, London, 1977.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	http://ugcmoocs.inflibnet.ac.in/ugcmoocs/view_module_ug.php/65
2	http://www.gutenberg.org/files/6589/6589-h/6589-h.htm
3	https://en.wikipedia.org/wiki/History_of_Europe

Course Designed By: **R.PRAKASH, Assistant Professor in History, Sri Vasavi College, Erode**
Email:prakashero80@gmail.com

Mapping with Programme Outcomes										
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	M	M	S	S	M	M	M	M
CO3	S	S	S	M	S	M	M	S	S	M
CO3	S	S	S	S	S	S	S	S	S	M

CO4	S	M	M	S	M	S	S	M	M	S
CO5	M	S	M	S	S	M	S	S	M	S

*S-Strong; M-Medium; L-Low

SEMESTER V

Course code		**HISTORY OF ENGLAND FROM 1603 A.D. TO 1945 A.D.**	**L**	**T**	**P**	**C**
Core- X			**4**	**-**	**-**	**4**
Pre-requisite		**Should possess basic historical knowledge on world affairs**	**Syllabus Version**		**2020-21**	

Course Objectives:

The main objectives of this course are to:

1. Acquaint the student about the Modern History of England.
2. Learn about the Glorious Revolution in England.
3. Study the impact of Industrial and Agrarian revolutions

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Gain the knowledge of glorious revolution and its effects.	K1
2	Understand the Constitutional development of England.	K2
3	Analyze the importance of development of Cabinet system and it relation with English monarchs.	K4
4	Evaluate the impact of Industrial and Agrarian revolution.	K5
5	Know the role of England in World Wars.	K1

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	**LONG PARLIAMENT**	**18 hours**

James I and his Parliament - Charles I and Eleven years Tyranny - Long Parliament and Civil war - Oliver Cromwell.

Unit:2	**GLORIOUS REVOLUTION**	**18 hours**

Charles II and Restoration - Glorious Revolution and its effects - Reign of William and Mary - Act of Union with Scotland.

Unit:3	**17TH AND 18TH CENTURY ENGLAND**	**18 hours**

George I and Walpole - George II - George III and American War of Independence - Act of Union with

Ireland.		
Unit:4	**INDUSTRIAL AND AGRARIAN REVOLUTION**	**17 hours**
Industrial Revolution - Agrarian Revolution - Reform Act of 1832 A.D.- Victorian Era.		
Unit:5	**ENGLAND AND THE WORLD WARS**	**17 hours**
England and First World War - Statue of West Minister - Abdication of Edward VIII - England and Second World War.		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**90 hours**

Book(s) for Study	
1	Krishnamurthy V. M., *History of England*, Vijayalakshmi Publications, Mundy, Noyyur 1980.
2	Trevelyn G.M., *History of England*, Cambridge University Press, 1951.
Book (s) for Reference	
1	Basil Williams, *The Whig Supremacy*, Oxford Clarento Press 1964.
2	Maunce, Powicie, *The Thirteenth Century England*, Oxford Clarento Press, 1964.
3	Padmaja Ashok,*Social History Of England*, Orient Blackswan, 2011.
4	Simon Schama,*A History of Britain, Vol. 2: The Wars of the British, 1603 A.D-1776 A.D*, Miramax, 2001.
5	Stevem Watson J., *The Reign of George III*, Oxford Clarento Press 1960.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://en.wikipedia.org/wiki/History_of_England#:~:text=in%20the%20south%20east.,and%20of%20the%20English%20people.
2	https://en.wikipedia.org/wiki/George_II_of_Great_Britain
3	https://en.wikipedia.org/wiki/George_III_of_the_United_Kingdom

Course Designed By: **Prof. M. THANGAVEL, Asst. Prof. of History, Sri Vasavi College, Erode.**
Email:thangavelhistorysvc@gmail.com

Mapping with Programme Outcomes										
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	M	S	M	S	S	S	M	M	M
CO3	S	S	S	S	S	M	M	M	S	M
CO3	M	S	M	M	M	S	S	S	M	M
CO4	S	M	S	S	S	M	S	S	M	S

CO5	M	S	M	M	M	M	M	M	S	S

*S-Strong; M-Medium; L-Low

SEMESTER V

Course code		**HISTORY OF USA UPTO 1865 A.D.**	**L**	**T**	**P**	**C**
Core- XI			**4**	**-**	**-**	**4**
Pre-requisite		**Basic knowledge of World History**	**Syllabus Version**		**2020-21**	

Course Objectives:

The main objectives of this course are to:

1. Give insight on Colonization and Independence of USA.
2. Provide knowledge on federal constitution
3. Enable students to understand various democratic ideas
4. Impart knowledge on slavery and its impact

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand about the effects of the colonization of USA.	K2
2	Analyze the causes and significance of American War of Independence.	K4
3	Infer the making of American Constitution.	K2
4	Perceive various democratic practices.	K4
5	Dissent the system of slavery and racism.	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	**COLONIZATION IN AMERICA**	**18 hours**

Physical Features-Impact of Geography-Exploration: Portuguese, Spanish, French, English - Colonization.

Unit:2	**AMERICAN WAR OF INDEPENDENCE**	**18 hours**
Anglo-French Rivalry-Seven Years War-American War of Independence: causes, course and results and its significance.		
Unit:3	**MAKING OF THE CONSTITUTION**	**18 hours**
Making of the Constitution-Formation of Confederation-PhiladelphiaConvention-Framing of the Constitution.		
Unit:4	**EVOLUTION OF AMERICAN DEMOCRACY**	**17 hours**
Evolution of American Democracy-Federalists: Jeffersonianism, Jacksonianism-Rise of Political Parties- The War of 1812- Monroe Doctrine.		
Unit:5	**ISSUE OF SLAVERY**	**17 hours**
Westward Expansion-Manifest Destiny-Mexican War-Slavery and its Abolition Movement, the Civil War.		
Unit:6	**CONTEMPORARY ISSUES**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**90 hours**

Book(s) for Study

1	Majumdar R.C. and Srivastava. A.L.,*History of United States of America*, 5th ed, Surjeet Publications, 2017.
2	Subramanian N.,*A History of the USA*, 3rd ed, Ennes Publications, Udumalpet, 2006.

Book (s) for Reference

1	Beard Charles.A& Mary R.Beard, *New Basic History of the United States*, Doubleday & Co., 1960
2	Bernard Bailyn, Robert Dallek, David Davis, David Donald, John Thomas,*The Great Republic: A History of the American People*, Volume I, 4th ed, Cengage Learning, 1991.
3	Elson H. W.,*History of the United States of America***,** Macmillan, 1913.
4	Hill C.P.,*A history of the United States*, Edward Arnold, 1942.
5	Parkes H.B.,*The United States of America: A History*, Knopf, 1953

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://en.wikipedia.org/wiki/History_of_the_United_States
2	https://www.youtube.com/watch?v=cW2v2TR1i8U
3	https://en.wikipedia.org/wiki/American_Revolutionary_War

Course Designed By: **Prof. Shangameshwaran, Head & Assistant Professor, Chikkanna Government Arts College, Erode. Email:shangamesh75@gmail.com**

Mapping with Programme Outcomes										
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	M	M	M	M	M	S	S	M	M	S
CO3	S	S	S	S	S	S	M	S	S	S
CO3	S	S	S	M	M	S	M	M	S	S
CO4	S	S	S	S	S	M	S	M	S	M
CO5	M	M	M	M	M	M	S	S	M	S

*S-Strong; M-Medium; L-Low

SEMESTER V

Course code		**INDIA AND HER NEIGHBOURS**	**L**	**T**	**P**	**C**
Core- XII			**4**	**-**	**-**	**4**
Pre-requisite		**Basic knowledge of World History**	**Syllabus Version**		**2020-21**	

Course Objectives:

The main objectives of this course are to:

1. Learn the foreign policy of India.
2. Know the diplomatic relationship of India with the neighbouring countries.
3. Impart the economic and cultural relations with neighbouring countries.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	UnderstandthefeaturesofIndia'sforeignpolicy.	K2
2	Identify the problems and challenges of India with neighbouring countries.	K5
3	Get the knowledge of the role of Indira Gandhi in the liberation of Bangladesh.	K1
4	Evaluate the ethnic issues of Sri Lanka.	K5

5	Analyze the role of various organizations in maintaining good relations with neighbouring countries.	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	**GENESIS OF INDIAN FOREIGN POLICY**	**15 hours**
Genesis of India's Foreign policy - Features - Nehru's Foreign Policy –India-China relations - Economic Co-operation.		
Unit:2	**INDO-PAK RELATIONS**	**15 hours**
India-Pakistan diplomatic relations - Tashkant Agreement - Bus diplomacy		
Unit:3	**LIBERATION OF BANGLADESH**	**15 hours**
Smt. Indira Gandhi -Liberation of Bangladesh - Commercial relations.		
Unit:4	**INDO-SRI LANKAN RELATIONS**	**14 hours**
India-Sri Lanka - Historical relations - Ethnic issue - Nepal - Bhutan - Afghanistan.		
Unit:5	**INDIA'S ROLE IN WORLD PEACE**	**14 hours**
NAM - SAARC - India'sNuclearPolicy - India as a Champion of World Peace and Justice.		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**75 hours**

Book(s) for Study

1	Jayapalan N,*India and Her Neighbours*, Atlantic Publishers & Distributors Pvt Ltd., 2000.
2	Mohammed Badrul Alam,*India And Her Neighbours: Towards A Proactive Partnership*, Kalpaz Publications, 2015.

Book (s) for Reference

1	Gurucharandas,*India Unbound*, Penguin Publications, New Delhi, 2008.
2	Jawaharlal Nehru,*Discovery of India*, Govt. of India Publications, New Delhi, 1957.
3	Newspapers, The Hindu, The Times of India, The Indian Express and Dinamani.
4	Palme Dutt R.,*India Today*, Read Books, 2006.
5	Trivedi Ramesh,*India's Relations with Her Neighbours*, Isha Books, 2008.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	http://egyankosh.ac.in/handle/123456789/54636
2	http://egyankosh.ac.in/handle/123456789/55997

3	https://epgp.inflibnet.ac.in/Home/ViewSubject?catid=29 (India's Foreign Policy, M1 TO M29)
Course Designed By: **Prof. M. Thangavel, Asst. Prof. of History, Sri Vasavi College, Erode. Email:thangavelhistorysvc@gmail.com**	

Mapping with Programme Outcomes										
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	S	M	M	S	M	M	M	S
CO3	S	S	S	S	M	S	S	M	M	M
CO3	M	M	M	S	S	M	M	S	S	M
CO4	S	S	S	M	M	S	S	M	S	S
CO5	S	S	S	S	M	S	S	S	S	M

*S-Strong; M-Medium; L-Low

SEMESTER V

Course code		**COMPUTER APPLICATION IN HISTORY (INDUSTRY-4.0)-I**	**L**	**T**	**P**	**C**
Skill Based Subject- III			**3**	**-**	**-**	**3**
Pre-requisite		**Basic knowledge in Computer**	**Syllabus Version**		**2020-21**	

Course Objectives:

The main objectives of this course are to:

1. Acquaint the students about the generations of Computers.
2. Educate about the components of Computers.
3. Teach about the softwares, hardwares and recent trends (4.0).

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Remembers the components of computers.	K1
2	Understand the utilization of input and output devices.	K2
3	Apply the knowledge of computer in the practical utilization.	K3
4	Analyze various tools and operations of Computer.	K4
5	Kindle interest on Internet of Things.	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	**HISTORY OF COMPUTERS**	**9 hours**
Introduction to computer - Generation of computers.		
Unit:2	**CLASSIFICATION OF COMPUTER**	**9 hours**
Classifications of computer - Analog, Digital and Hybrid Computers		
Unit:3	**HARDWARE**	**9 hours**
Computer Organization: CPU and Memory Organization - RAM - Types of Random Access Memories - ROM - Types of Read only Memory - Other types of Memories.		
Unit:4	**INPUT AND OUTPUT UNITS**	**8 hours**
Input/output units - Driver - Recorder - Printer - Cathode Ray Tube - Key board and Terminals - MICR, OCR, Scanners Mark sensor.		
Unit:5	**SOFT WARE**	**8 hours**
Software - System software Application software - Uses of computer in the study of History-Online Classes - Apps - Conduct of Webinar and Conference - History of 4.0 - Introduction to Internet of Things.		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**45 hours**

Book(s) for Study

1	Rapidex computer courses.
2	Peter Norton,*Introduction to Computers,* McGraw Hill Education, *2017.*
3	Subramanian C.S.,*Introduction to Computer and Foundations.*

Book (s) for Reference

1	Donalo H. Sanders,*Computer Today,* McGraw-Hill Companies, 1987.
2	Taxali R. K.,*PC Software made simple IV edition,* McGraw Hill Education, 2017.

3	Sinha P. K., *Computer Fundamentals*, BPB Publications, 2004.
4	Dr. Subramanian N.,*Computer Genesis, Programming, Software Applications.*
5	Subramanian N., *Computers* McGraw Hill Education India Pvt. Ltd., 2001.
6	Dr. Kaliraj P., Dr. Devi T., Higher Education for Industry 4.0 and Transformation to Education 5.0, 2020.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://en.wikipedia.org/wiki/History_of_software
2	https://en.wikibooks.org/wiki/History_of_Computers/Applications_Development_History
3	https://prezi.com/vwsvnkjmidq9/the-history-of-computers-and-computer-applications/?frame=c26681e681d90a98e37cc4061c271a6e3745f312
Course Designed By: **Dr.S.Z.NIAZUDEEN, Assistant Professor in History, Sri Vasavi College, Erode. Email:niazudeensz78@gmail.com**	

Mapping with Programme Outcomes										
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	M	S	M	M	S	M	M	M
CO3	S	S	M	S	M	M	S	S	S	M
CO3	S	S	S	S	M	S	M	M	S	M
CO4	S	S	S	S	M	M	S	S	S	S
CO5	S	S	S	S	M	S	M	S	M	S

*S-Strong; M-Medium; L-Low

SEMESTER VI

Course code		WORLD HISTORY FROM 1945 A.D. TO 2000 A.D.	L	T	P	C
Core- XIII			4	-	-	4
Pre-requisite		Basic knowledge of World History	Syllabus Version		2020-21	

Course Objectives:

The main objectives of this course are to:

1. Know about the concept of Polar Politics and Diplomacy.
2. Impart the knowledge about the establishment of UNO and its role in world peace.
3. Teach about the importance of disarmament to world peace.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Know the role of UNO in establishing World Peace.	K1
2	Understand the nature of the balance of power, regional alliances, the UNO and its achievements.	K2
3	Analyze the causes for world wars and conditions of peace.	K4
4	Understand the Cold War between capitalist and communist blocks.	K2
5	Evaluate the need for disarmament to world peace.	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	COLD WAR	18 hours

Bipolar - Multi polar - Unipolar- Détente - Regional Arrangements and World Peace- NATO - CENTO - SEATO -WARSAW.

Unit:2	ROLE OF UNO IN WORLD PEACE	18 hours

The U.N.O - Organs - Specialized Agencies Achievements - Collective Security - U.N. Settlement of International Disputes.

Unit:3	NUCLEAR DISARMAMENT	18 hours

Nuclear Disarmament - NTBT - Nuclear Non-Proliferation Treaty - CTBT SALT I and SALT II Bacteriological Toxin Warfare.

Unit:4	ORGANIZATION OF AFRO-ASIAN COUNTRIES	17 hours

Organization for African Unity-Contribution of Nelson Mandela - Palestinian Issue-Arab-Israel War Oil Crisis-Iran-Iraq war implications.

Unit:5	OTHER ORGANISATIONS	17 hours
Common Wealth of Nations-ASEAN-SAARC Summits-BRICS.		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**90 hours**

Book(s) for Study	
1	Jayabalan N.,*History of Europe*, Atlantic Publishers And Distributors Pvt Ltd, 1999.
2	Rao B. V., *World History*, Sterling Publishers Pvt Ltd-New Delhi; 2ndEdition (2012), 1984.
3	Ramalingam T.S.,*History of Modern Europe from 1789 to present day*, TSR Publications, 1983.
Book (s) for Reference	
1	Gupta Ramesh,*Contemporary World since 1939*, Surjeet Publications, New Delhi.
2	Kurushresthra. K. K,*A Short History of International Relations*.
3	Nayak P. K.,*History of the Twentieth Century World (1945 A.D-2000 A.D)*, Kalpaz Publications (2017).
4	Palmer & Perins,*International Relations*, CBS Publishers & Distributors, 2001.
5	Sharma .R,*Organs of International Relations.*
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://en.wikipedia.org/wiki/Cold_War
2	https://www.un.org/en/about-un/
4	https://en.wikipedia.org/wiki/Disarmament

Course Designed By: **Dr. R. Shangameshwaran, Asst. Prof. of History, Chikkanna Govt. Arts College, Tiruppur. Email:shangamesh75@gmail.com**

Mapping with Programme Outcomes										
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	M	S	S	S	M	M	M	S
CO3	S	S	S	M	S	S	S	M	S	S
CO3	S	S	M	M	S	M	S	S	S	S
CO4	S	S	S	S	S	S	S	M	M	S
CO5	S	S	M	S	S	M	S	S	M	M

*S-Strong; M-Medium; L-Low

SEMESTER VI

Course code		HISTORY OF USA 1865 A.D. TO 1990 A.D.	L	T	P	C
Core- XIV			4	-	-	4
Pre-requisite		Basic Knowledge in World History	Syllabus Version		2020-21	

Course Objectives:

The main objectives of this course are to:

1. Enable student to learn the history of the U.SA.
2. Make the student know about the sufferings of the Negroes.
3. Learn the importance of emergence of the U.S.A. as a super power.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Remember the important historical events in the U.S.A.	K1
2	Understand the sufferings of Negroes and support against apartheid.	K2
3	Apply the reforms of F. D. Roosevelt.	K3
4	Analyze the merits and demerits of the foreign policy of the U.S.A.	K4
5	Evaluate the role of U.S.A. in the Cold War.	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	CIVIL WAR AND RECONSTRUCTION	18 hours

America after Civil war - Reconstruction - Presidential - Congressional – Radical- Black Reconstruction - Emancipation of the Negroes.

Unit:2	RISE OF BIG BUSINESS	18 hours

Rise of Big Business-Railroad - Oil and Steel - John D. Rockfeller - Andrew Carnegie - Populist Movement.

Unit:3	AMERICAN IMPERIALISM	18 hours

Urbanization and its impact - Growth of American Imperialism - The Spanish American War -

Theodore Roosevelt - William Howard Taft - Woodrow Wilson - America and First World War		
Unit:4	**THE U.S.A. BETWEEN WORLD WARS**	**17 hours**
The Great Crash - F. D. Roosevelt and New Deal - America and Second World War		
Unit:5	**THE U.S.A AND COLD WAR**	**17 hours**
Truman - Cold War and its impact - D. Eisenhower - Nixon - Water Gate Scandal - General Ford - Jimmy Carter - Ronal Reagan - George - H.W-Bush and Gulf War.		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**90 hours**

Book(s) for Study	
1	David A. Shannon, *Twentieth Century America, The progressive Era Vol. I*, Rand Mc MNolly, 1977.
2	Majumdar and Srivatsava. A.L., *History of the United States of America*, SBD, Publications, 2001.
3	Subramanian N., *History of the United States of America*, Ennes publications, Madurai, 1990.
Book (s) for Reference	
1	Bernard Bailyn, *The Great Republic*, DC Heath & Co, Edition: 3, 1985.
2	David B. Davis, *The Problem of Slavery in the Age of Revolution*, OUP USA, Subsequent edition, 1999.
3	Lee Benson, *The Concept of Jackson Democracy*, Princeton University Press, 2015.
4	Foster Rhea Dulles - *The United States since 1865 AD*, University of Michigan, 1969.
5	Krishnamurthi,*History of the United States of America*, 1492-1965, Madurai Printers, Madurai, 1980.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://en.wikipedia.org/wiki/History_of_the_United_States_(1865%E2%80%931918)
2	https://en.wikipedia.org/wiki/United_States_in_World_War_I
3	https://en.wikipedia.org/wiki/Military_history_of_the_United_States_during_World_War_II
Course Designed By: **Dr. S. Z. Niazudeen, Asst. Prof. of History, Sri Vasavi College, Erode. Email:niazudeensz78@gmail.com**	

Mapping with Programme Outcomes										
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**

CO1	S	S	S	S	S	S	M	M	M	M
CO3	S	S	M	S	M	S	S	M	S	M
CO3	S	S	S	M	S	M	S	M	S	S
CO4	S	S	S	S	S	S	M	S	M	M
CO5	S	S	M	M	M	M	S	S	S	S

*S-Strong; M-Medium; L-Low

SEMESTER VI

Course code		**APPLIED HISTORY FOR CIVIL SERVICE EXAMINATIONS**	**L**	**T**	**P**	**C**
Core- XV			**4**	**-**	**-**	**4**
Pre-requisite		**A basic knowledge about Indian and world history**	**Syllabus Version**		**2020-21**	

Course Objectives:

The main objectives of this course are to:

1. Equip students with widespread knowledge about Indian and world history
2. Train students opting for history as optional subject for civil service examination.
3. Furthermore enhance the scope and employability of students.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Remember the Indian and global events in history.	K1
2	Understand history subject and opt it as an optional subject in civil service examination.	K2
3	Apply the acquired knowledge to successfully qualify in civil service examination.	K3
4	Scrutinize all the fact and information for competitive examinations.	K4
5	Evaluate his/her capability of answering to multiple choice questions in competitive exam.	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	**ANCIENT INDIA**	**15 hours**

Pre historic India - Indus Valley Civilization - Early Vedic & Later Vedic India - Mauryas -

Kushanas - Guptas – Cholas		
Unit:2	**MEDIEVAL INDIA**	**15 hours**
Aibak - Illtutmish - Alauddin khaliji- Mohammed bin Tuglaq - Lodi'sreign - Akbar - Shah Jahan - Aurangzeb - Adminstrative Systems -Society.		
Unit:3	**MORDERN INDIA**	**15 hours**
IndiaunderEastIndiaCompany'sRule - The Great Revolt of 1857- Socio - Religious Reform Movements in the19th century India - India'sFreedomMovement - Gandhian Era-Dawn of Indian Independence		
Unit:4	**WORLD HISTORY**	**14 hours**
First World War - Russian Revolution- League of Nations - Rise of Fascism and Nazism -Second World War - Causes – Results		
Unit:5	**CONTEMPORARY WORLD**	**14 hours**
U.N.O and its role in World Peace. Cold Wars - Super Powers - Regional Security Agreements - NATO, SEATO and Warsaw Pact) -Growth of Atomic Weapons - Missiles - Peace Efforts - Fall of Socialist States - Liberalization - Globalization - World Today		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**75 hours**

Book(s) for Study	
1	Agarwal J. C.,*Ancient India*, S Chand & Company, 2017.
2	Sathish Chandra,*Essays on Medival Indian history*, Oxford University Press, 2004.
3	Aggarwal R. C.,*Indian freedom struggle*.
4	Krishna Reddy,*World history for civil service Examination*, McGraw Hill Education, 2017.
Book (s) for Reference	
1	Bhasham A.L., *Wonder that was India*, Picador, Indian ed, 2004.
2	Chandra Bipan, Mukherjee, Mridula, Mukherjee, Aditya, Mahajan, Sucheta, Panikkar K. N., *India's Struggle for Independence*. New Delhi: Penguin Books
3	Jawaharlal Nehru,*Glimpses of world history*, Penguin India; 1 edition, 2004.
4	Mahajan V. D., *History of Medieval India*, S Chand, Eleventh edition, 1991.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://www.youtube.com/watch?v=JWJLpLQMlH8
2	https://ndl.iitkgp.ac.in/homestudy/humanities
3	http://www.gutenberg.org/files/6589/6589-h/6589-h.htm

4	http://ugcmoocs.inflibnet.ac.in/ugcmoocs/view_module_ug.php/65

Course Designed By: **Prof. R.PRAKASH, Assistant Professor in History, Sri Vasavi College, Erode. Email:prakashero80@gmail.com**

Mapping with Programme Outcomes										
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	M	M	M	S	M	M	M	S
CO3	S	S	M	M	M	M	M	S	S	S
CO3	S	S	S	M	M	S	S	S	S	S
CO4	S	S	S	S	M	M	S	S	M	S
CO5	S	S	S	M	S	M	S	S	S	S

*S-Strong; M-Medium; L-Low

SEMESTER VI

Course code		**COMPUTER APPLICATION IN HISTORY - II (FULLY PRACTICAL)**	**L**	**T**	**P**	**C**
Skill Based Subject-IV			**-**	**-**	**3**	**3**
Pre-requisite		**Basic practical knowledge of Computers**	**Syllabus Version**		**2020-21**	

Course Objectives:

The main objectives of this course are to:

1. Acquire the practical knowledge of Computer Application.
2. Learn the application of computer knowledge in Information systems and Multimedia
3. Educate the use of computers in searching e-resources of History.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Remember short cut keys and learn the speedy operation of computers	K1
2	Understand the utilization of internet.	K2
3	Apply his computer knowledge in searching educational resources.	K3
4	Analyze the concept of working of M.S. Office, M.S Word and Excel.	K4
5	Able to create Web pages.	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create		
Unit:1	**MICROSOFT WINDOWS**	**9 hours**
Introduction to Microsoft Windows.		
Unit:2	**M.S.OFFICE AND EXCEL**	**9 hours**
M. S. Office - M.S. Word - Creating Web pages – Excel.		
Unit:3	**MULTIMEDIA**	**9 hours**
Automation and Information system - Multimedia - E-mail system - Fax.		
Unit:4	**INTERNET**	**8 hours**
Internet - Introduction to Internet -Resources of the Internet Top - Level Domains.		
Unit:5	**HISTORY AND COMPUTERS**	**8 hours**
Use of internet in History using the Web -Search Engines - Reading a Historical Web pages.		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**45 hours**

Book(s) for Study	
1	Subramanian N., *Computers*, McGraw Hill Education India Pvt Ltd, 2001.
2	Subramanian C.S.,*Introduction to Computer and Foundations.*
Book (s) for Reference	
1	Donalo H. Sanders, *Computer Today*, McGraw-Hill, 1988.
2	Dr. Subramanian N., *Computer Genesis, Programming, Software Applications*.
3	Taxali R. K., *PC Software made simple IV edition*, Tata Mcgraw Hill Publishing Co Ltd, 2015.
4	Rapidex computer courses.
5	Scott D. James, *Introduction to the Internet*, Prentice Hall, 2000.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://en.wikibooks.org/wiki/Computers_for_Beginners/The_Basics
2	https://www.youtube.com/watch?v=S-nHYzK-BVg
4	https://www.tutorialspoint.com/basics_of_computer_science/basics_of_computer_science_multimedia.htm
Course Designed By: **Dr. S. Z. NIAZUDEEN, Assistant Professor of History, Sri Vasavi College, Erode. Email:niazudeensz78@gmail.com**	

Mapping with Programme Outcomes										
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	M	S	M	M	S	M	M	M
CO3	S	S	M	S	M	S	S	M	S	S
CO3	S	S	S	S	M	M	S	S	S	M
CO4	S	S	M	S	M	S	S	S	S	S
CO5	S	S	M	S	M	M	S	S	S	M

*S-Strong; M-Medium; L-Low



BHARATHIAR UNIVERSITY: COIMBATORE

ALLIED SUBJECT

(For B.A. Economics / Defence Studies Candidates)

HISTORY OF INDIA FROM 1600 AD TO 1857 AD - I

WITH EFFECT FROM 2007-2008 and onwards

Course code		**HISTORY OF INDIA FROM 1600 A.D. TO 1857 A.D.**	**L**	**T**	**P**	**C**
Allied-			**4**	**-**	**-**	**4**
Pre-requisite		**Basic knowledge in History at school level**	**Syllabus Version**		**2020-21**	

Course Objectives:

The main objectives of this course are to:

1. Provide Knowledge about the Portuguese, Dutch, English, French and Danes who came to India.
2. Make students to understand the policy of English East India Company.
3. To acquaint the students about the causes for the defeat of the French and the success of the English.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Know the effects of the coming of the Europeans in India.	K1
2	Recall the importance of European settlements in India.	K1
3	Understand the achievements of the Portuguese in India.	K2
4	Describe the causes for the outbreak of Carnatic Wars.	K4
5	Recognize the magnificent Governor generals.	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create		
Unit:1	**COMING OF THE EUROPEANS**	**18 hours**
Coming of the Europeans: Portuguese - French East India Company - English East India Company.		
Unit:2	**ANGLO – FRENCH RIVALRY**	**18 hours**
Anglo - French Rivalry: Carnatic Wars - Establishment of British power in Bengal - Battle of Plassey-1757 - Battle of Buxar-1764.		
Unit:3	**GOVERNOR GENERALS**	**18 hours**
Lord Warren Hastings - Lord Cornwallis -Lord Wellesley -Lord William Bentinck.		
Unit:4	**REVOLT OF 1857**	**17 hours**
Dalhousie - Doctrine of Lapse - Revolt of 1857 - Queen'sProclamation.		
Unit:5	**CONSTITUTIONAL DEVELOPMENT**	**17 hours**
Constitutional Development: Regulating Act- 1773 - Pitt'sIndiaAct - 1784, Charter Act of 1813, Charter Act of 1833 and 1853.		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**90 hours**

Book(s) for Study	
1	Ramalingam T.S., *History of Modern India 1707 to present day*, TSR Publications, Madurai, 1983.
2	William Andrew Pettigrew, Mahesh Gopalan,*The East India Company, 1600A.D-1857A.D: Essays on Anglo-Indian Connection*, Routledge Taylor & Francis Group, 2017.
Book (s) for Reference	
1	Bipin Chandra, *Modern India*, Orient Black Swan, 2018.
2	Choudhary. B. P,*History of India*, Abhijeet Publication, New Delhi, 2012.
5	Grover, B.L.A New Look on Modern Indian History, reprint, S.Chand & Co, 1998.
4	Mahajan V.D.,*Modern India*, S. Chand & Company Ltd, New Delhi, 2012.
5	Majumdar. R.C &Ray ChaudhuriH.C,*An Advanced History of India*, Macmillan Publishers, New Delhi, 1978.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://en.wikipedia.org/wiki/Company_rule_in_India
2	https://en.wikipedia.org/wiki/Carnatic_Wars
3	https://en.wikipedia.org/wiki/List_of_governors-general_of_India

4	https://www.youtube.com/watch?v=ataW-bloIEY

Course Designed By: **Prof. M. THANGAVEL, Assistant Prof. of History, Sri Vasavi College, Erode. Email:thangavelhistorysvc@gmail.com**

Mapping with Programme Outcomes										
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	M	S	M	S	M	M	S	S
CO3	S	S	S	S	S	M	S	M	S	S
CO3	S	S	S	S	S	M	S	M	S	S
CO4	S	S	S	S	S	S	M	S	S	S
CO5	S	S	M	S	M	S	S	S	M	S

*S-Strong; M-Medium; L-Low

BHARATHIAR UNIVERSITY: COIMBATORE

ALLIED SUBJECT

(For B.A. Economics / Defence Studies Candidates)

HISTORY OF INDIA 1858 A.D. TO 1964 A.D. - II

WITH EFFECT FROM 2007-2008 and onwards

Course code		**HISTORY OF INDIA FROM 1858 A.D. TO 1964 A.D.-II**	**L**	**T**	**P**	**C**
Allied-			**4**	**-**	**-**	**4**
Pre-requisite		**Basic knowledge in History at school level**	**Syllabus Version**		**2020-21**	
Course Objectives:						
The main objectives of this course are to:						

1. Study the history of British India under Viceroyalties.
2. Impart the Freedom struggles of great leaders.
3. Realize the importance of Indian Independence from British.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Recall the role of Freedom Fighters in the freedom movement.	K1
2	Understand the Gandhian Principles which paved the way to freedom in India.	K2
3	Identify Tamil Nadu as a pioneer in the freedom movement.	K3
4	Analyze the working of social movements to reform the society.	K4
5	Estimate the role of Nehru and Kamaraj as the Makers of the Modern India.	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	**VICEROYS**	**18 hours**

Administration of Lord Canning - Lord Lytton - Lord Ripon - Lord Curzon

Unit:2	**FREEDOM STRUGGLE**	**18 hours**

Foundation of Indian National Congress - Moderates - Extremists - Home Rule Movement.

Unit:3	**GANDHIAN ERA**	**18 hours**

Non Co-operation movement - Civil Disobedience Movement - Quit India Movement - Subash Chandra Bose and INA.

Unit:4	**FREEDOM FIGHTERS OF TAMIL NADU**	**17 hours**

VOC - Rajaji - Subramania Siva - E.V. Ramasamy – SocialReform movements.

Unit:5	**INDIA SINCE INDEPENDENCE**	**17 hours**

Nehru Era - IntegrationofIndianStates,TamilNaduunderKamaraj's Chief Ministership.

Unit:6	**Contemporary Issues**	**2 hours**

Expert lectures, online seminars – webinars

	Total Lecture hours	**90 hours**

Book(s) for Study

1	Agarwal R.C,*Constitutional History of India and National Movement,*S. S. Chand & Carnet, New Delhi, 1986. Ed-I
2	Mahajan V.D,*History of National Movement in India*, S. S. Chand & Carnet,

	NewDelhi,1985,Ed-III
Book (s) for Reference	
1	Krishnamurthy B.,*History of Tamil Nadu*, Palayankottai.
2	Joshi D.L. and Gholkar S.V.,*History of Modern India, 1800 AD to 1964 AD*, S. Chand & Co. Ltd., 1980.
3	Venkatesan G.,*History of Freedom Struggle in India*,VC Publications, Rajapalayam, 2018.
4	Majundar R.C.,*Freedom Movement in India*, Bharathiya Vidhya Bhavan Series, Bombay, South Asia Books, 1988.
5	Sathianathaier,*History of India Vol.III*, S. Viswanathan, Madras, 1969,
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://en.wikipedia.org/wiki/Indian_independence_movement
2	https://www.slideshare.net/yashwanth6966/mahatma-gandhi-54366079
3	https://en.wikipedia.org/wiki/Indian_independence_movement_in_Tamil_Nadu
Course Designed By: **Prof. M. THANGAVEL, Assistant Prof. of History, Sri Vasavi College, Erode. Email: thangavelhistorysvc@gmail.com**	

Mapping with Programme Outcomes										
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	S	M	M	S	M	S	M	S
CO3	S	S	M	S	S	M	M	S	M	S
CO3	S	S	S	M	M	S	S	M	S	S
CO4	S	S	M	S	M	M	S	S	M	S
CO5	S	S	S	M	S	M	S	M	S	S

*S-Strong; M-Medium; L-Low

Allied Course

BHARATHIAR UNIVERSITY : COIMBATORE

ALLIED SUBJECT

(Allied subject for History / Economics/ Defence Studies major subjects)

PRINCIPLES OF POLITICAL SCIENCE - I

WITH EFFECT FROM 2007-2008 and onwards

Course code		**PRINCIPLES OF POLITICAL SCIENCE – I**	**L**	**T**	**P**	**C**
Allied			**4**	**-**	**-**	**4**
Pre-requisite		**Basic knowledge in Social Science**	**Syllabus Version**		**2020-21**	

Course Objectives:

The main objectives of this course are to:

1. Deal with basic concepts and ideas of Political Science.
2. Teach the elements and theories of states.
3. Make the students to understand that political groups form the government.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the theories and principles of Political science.	K2
2	Analyze the theory of origin and functions of the states.	K4
3	Know the Power theory of Sovereignty.	K1
4	Evaluate the powers and function of states.	K5
5	Create interest in participating in the elections.	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	**PRINCIPLES OF POLITICAL SCIENCE**	**15 hours**

Meaning, Nature and Scope of Political Science, Methodology of Social Sciences.

Unit:2	**ELEMENTS & FUNCTIONS OF THE STATE**	**15 hours**

State – Definition; Characteristics, Elements of the state; Association and Community; Functions of the State.

Unit:3	**THEORIES OF STATE**	**15 hours**

Theories of Origin of the state - Social Contract Theory; Force Theory; Evolutionary theory.

Unit:4	THEORIES OF SOVEREIGNTY	14 hours
Sovereignty; Kinds of Sovereignty; Power Theory of Sovereignty. Powers and Authority- Limits of State Authority.		
Unit:5	**POLITICAL GROUPS**	**14 hours**
Groups of Political obligation - Various theories.		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**75 hours**

Book(s) for Study

1	Kapur A.C.,*Principles of Political Science*, S Chand & Company, 1987.
2	Ruphael D. D,*Problems of Political Philosophy*, Chapters 1, 2, 3 and 4, Palgrave Pub Humanities Press, 1970.

Book (s) for Reference

1	Gilchrist R. N.,*Principles of Political Science*, Longmans, Green And Co, 1921.
2	Johari J. C.,*Principles of Modern Political Science*, Sterling Publication, 1989.
3	Mahajan V. D., *Principles of Political Science*, S. Chand & Company, 1970.
4	Pickles D M,*An Introduction to Politics*, Chapters 1, 2, 3 and 4, Methuen young books, 1964.
5	Urmila Sharma and S.K. Sharma,*Principles and Theory in Political Science*, Atlantic Publishers & Dist, 2000.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://www.politicalsciencenotes.com/political-science/political-science-definition-theory-nature-and-scope/711
2	https://www.politicalsciencenotes.com/essay/state/theories-on-the-origin-of-state-essay-theories-political-science/1513
3	https://iep.utm.edu/poli-obl/

Course Designed By: **Prof. M. THANGAVEL, Asst. Prof. of History, Sri Vasavi College, Erode.**
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Mapping with Programme Outcomes										
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	S	S	S	S	M	S	M	M
CO3	S	S	M	S	S	M	S	M	M	M

CO3	S	S	M	S	M	M	M	S	M	M
CO4	S	S	S	S	M	S	S	M	S	S
CO5	S	S	M	S	S	S	S	M	S	M

*S-Strong; M-Medium; L-Low

BHARATHIAR UNIVERSITY: COIMBATORE

ALLIED SUBJECT

(For B.A. History/ History and Tourism)

PRINCIPLES OF POLITICAL SCIENCE - II

WITH EFFECT FROM 2007-2008 and onwards

Course code		**PRINCIPLES OF POLITICAL SCIENCE – II**	**L**	**T**	**P**	**C**
Allied			**4**	**-**	**-**	**4**
Pre-requisite		**Basic knowledge in Political Science**	**Syllabus Version**		**2020-21**	

Course Objectives:

The main objectives of this course are to:

1. Teach the theories of fundamental rights and duties.
2. Make the students to know the concept of Liberty.
3. Make the students to acquire knowledge of Right to Justice.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Gain knowledge on Theories of Fundamental Rights and Duties.	K1
2	Understand to live according to the constitution.	K2
3	Know the main concepts of Equality and how people should be equally treated.	K3
4	Analyze that Democratic importance in the forming of Government.	K4
5	Create new ideas on International democracy.	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	**THEORIES OF FUNDAMENTAL RIGHTS AND DUTIES**	**15 hours**

Rights - Theories of Rights - Fundamental and Constitutional Rights; Rights and Duties.

Unit:2	**RIGHT TO LIBERTY**	**15 hours**

Liberty - Meaning - Kinds - Concepts - Liberty and Law, Liberty and Authority.

Unit:3	**RIGHT TO EQUALITY**	**15 hours**

Equality - Kinds - Concepts - Liberty and Equality; Marxist View on Liberty and Equality. Justice and Equality.		
Unit:4	**RIGHT TO JUSTICE**	**14 hours**
Justice - Meaning - Nature - Kinds - Equality and utility Morality - Law and Morality.		
Unit:5	**DEMOCRATIC GOVERNMENT**	**14 hours**
Democracy, Direct and Indirect Democratic Heads - Democratic Government - Democracy in International Society.		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**75 hours**

Book(s) for Study	
1	Kapur A.C.,*Principles of Political Science*, S Chand & Company, 1987.
2	Pickles D. M,*An Introduction to Politics*, Chapters 1, 2, 3 and 4, Methuen young books, 1964.
Book (s) for Reference	
1	Agarwal R. C.,*Political Theory*, S. Chand & Company, 2018.
2	Gilchrist R. N., *Principles of Political Science*, Longmans, Green And Co, 1921.
3	Roy & Singh,*Indian Political System*, Pearson, India, 2012.
4	Ruphael D. D,*Problems of Political Philosophy*, Chapters 1, 2, 3 and 4, Palgrave Pub Humanities Press, 1970.
5	Urmila Sharma and Sharma S.K.,*Principles and Theory in Political Science*, Atlantic Publishers & Dist, 2000.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://en.wikipedia.org/wiki/Fundamental_rights_in_India
2	http://www.legalservicesindia.com/article/1688/Right-To-Equality--A-Fundamental-Right.html
3	https://en.wikipedia.org/wiki/Democracy
Course Designed By: **Prof. M. THANGAVEL, Asst. Prof. of History, Sri Vasavi College, Erode. Email:thangavelhistorysvc@gmail.com**	

Mapping with Programme Outcomes										
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	S	S	M	M	S	M	M	S
CO3	S	S	S	S	M	S	M	S	S	M
CO3	S	S	S	S	M	S	M	S	M	S

CO4	S	S	S	S	S	S	S	S	S	S
CO5	S	M	S	S	M	M	S	M	S	M

*S-Strong; M-Medium; L-Low

BHARATHIAR UNIVERSITY: COIMBATORE

ALLIED SUBJECT

For B.A. HISTORY

CONSTITUTIONAL HISTORY OF INDIA FROM 1773A.D. TO 1892A.D. - I

WITH EFFECT FROM 2007-2008 and onwards

Course code		**CONSTITUTIONAL HISTORY OF INDIA FROM 1773 A.D. TO 1892 A.D. – 1**	**L**	**T**	**P**	**C**
Allied -			**4**	**-**	**-**	**4**
Pre-requisite		**Basic knowledge of History at school level.**	**Syllabus Version**		**2020-21**	

Course Objectives:

The main objectives of this course are to:

1. Teach the Constitutional history from the enactment of Regulating Act to the framing of Indian Constitution.
2. Know the fundamental concepts of constitution and basis of the evolution of Indian Constitution.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the provisions of Charter Acts.	K2
2	Analyze the Government of India Acts passed by the British government.	K4
3	Learns about the historical evolution of the Indian Constitution.	K3
4	RemembertheQueen'sProclamationguaranteedtotheIndians.	K1
5	Know the Indian councils as the law making bodies.	K3

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	REGULATING ACT	15 hours
The circumstance leading to the passing of the Regulating Act of 1773 – Merits and defects - Pitt's India Act of 1784 - merits and defects.		
Unit:2	**CHARTER ACTS**	**15 hours**
Charter Act of 1793 - Charter Act of 1813 and its significance - Parliamentary legislations between 1813 and 1833.		
Unit:3	**ORIGIN OF LEGISLATIVE ASSEMBLY**	**15 hours**
Charter Act of 1833 - Law making and Law commission - Charter Act of 1853 and the emergence of a separate Law making body.		
Unit:4	**QUEEN'S PROCLAMATION**	**14 hours**
TheQueen'sP roclamation and the Government of India Act of 1858 - Home Government - Government of India and the Provinces.		
Unit:5	**COUNCIL ACTS**	**14 hours**
Indian Councils Acts of 1861 and 1892 - their significance - Nature of Law making bodies.		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**75 hours**

Book(s) for Study	
1	Aggarwal R.C,*Nationalist Movement & Constitutional Development of India*, S Chand & Company, 2005.
2	Chabra G.S,*Constitutional History of India*, Parkash Bros., 1964.
3	Sethi & Mahajan,*Constitutional History of India*, Delhi, 1960.
Book (s) for Reference	
1	Chabra G.S,*Advanced Study in the History of Modern India (3 Vols.)*, Lotus Press, 2004.
2	Gupta D,*Indian National Movement and Constitutional Development*, Stosius Inc/Advent Books Division, 1983.
3	Keith A.B,*The Constitutional History of India*, Pacific Publication (2010).
4	Purnian K. V,*The Constitutional History of India*.
5	Sapre G.S,*The Growth of Indian Constitution & Administration*, Gale, Making of Modern Law, 2014.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://en.wikipedia.org/wiki/Regulating_Act_of_1773
2	https://en.wikipedia.org/wiki/Charter_Act_of_1813

3	https://abhipedia.abhimanu.com/Article/IAS/MTA4NzUy/Governemnt-of-India-and-Council-Acts---1858-1919--Indian-Polity-IAS

Course Designed By: **Prof. M. THANGAVEL, Asst. Prof. of History, Sri Vasavi College, Erode.**
Email: thangavelhistorysvc@gmail.com

Mapping with Programme Outcomes										
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	S	S	M	M	S	S	S	S
CO3	S	S	S	M	M	S	M	S	M	S
CO3	S	S	S	S	M	S	S	M	S	S
CO4	S	S	S	M	S	M	S	S	M	S
CO5	S	S	S	M	S	S	M	M	S	M

*S-Strong; M-Medium; L-Low

BHARATHIAR UNIVERSITY : COIMBATORE

ALLIED SUBJECT

For B.A. HISTORY

CONSTITUTIONAL HISTORY OF INDIA FROM 1892 A.D. TO 1950 A.D. - II

WITH EFFECT FROM 2007-2008 and onwards

Course code		**CONSTITUTIONAL HISTORY OF INDIA FROM 1892 A.D. TO 1950 A.D. – II**	**L**	**T**	**P**	**C**
Allied -			**4**	**-**	**-**	**4**
Pre-requisite		**Basic knowledge in history**	**Syllabus Version**		**2020-21**	

Course Objectives:

The main objectives of this course are to:

1. Study the various changes and developments of Constitutional History of India.
2. Highlight the significance of Government of India Act of 1935
3. Learn the constitutional legacy of the British rule in India

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Describe the constitutional development of India since 1892.	K1
2	Understand the changes in home government, Bicameral legislature and provincial autonomy.	K2

3	Acquire the knowledge of Government of India act of 1935 as the Federal system of Government.	K3
4	Analyze the proposals of Mount Patten and the impact of partition of India.	K4
5	Recognize the importance of Republican constitution of India	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	**MINTO - MORLEY REFORMS ACT**	**15 hours**

Minto - Morley Reforms of 1909 - merits and demerits of the reforms act- Separate electorate for the Muslims.

Unit:2	**BICAMERAL LEGISLATURE**	**15 hours**

The World War I and its impact on constitutional development - 1917 - August Declaration – The Govt. of India Act of 1919 - Changes in Home Govt. Bicameral Legislature - Provincial Government and Dyarchy.

Unit:3	**WORKING OF DYARCHY**	**15 hours**

Dyarchy in operation - Indian reaction - Simon Commission - Round Table Conferences.

Unit:4	**FEDERAL GOVERNMENT**	**14 hours**

Government of India Act of 1935 - The Federal Government - Provincial Autonomy - Cripps Mission - Cabinet Mission Plan - Mountbatten Plan.

Unit:5	**REPUBLIC INDIA**	**14 hours**

Indian Independence Act of 1947 - Republican Constitution of India.

Unit:6	**Contemporary Issues**	**2 hours**

Expert lectures, online seminars – webinars

	Total Lecture hours	**75 hours**

Book(s) for Study

1	Aggarwal R.C,*Nationalist Movement & Constitutional Development of India*, S Chand & Company, 2005.
2	Chabra G.S,*Constitutional History of India*, Parkash Bros., 1964.
3	Sethi & Mahajan,*Constitutional History of India*, Delhi, 1960.

Book (s) for Reference

1	Chabra G.S,*Advanced Study in the History of Modern India (3 Vols.)*, Lotus Press, 2004.
2	Gupta D,*Indian National Movement and Constitutional Development*, Stosius Inc/Advent Books Division, 1983.
3	Keith A.B,*The Constitutional History of India*, Pacific Publication (2010).

4	Purnian K. V,*The Constitutional History of India*
5	Sapre G.S,*The Grown of Indian Constitution & Administration*, Gale, Making of Modern Law, 2014.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://byjus.com/free-ias-prep/ncert-notes-morley-minto-reforms/
2	https://www.youtube.com/watch?v=MTo-l0VRe80
3	https://en.wikipedia.org/wiki/Preamble_to_the_Constitution_of_India
Course Designed By: **Prof. M. THANGAVEL, Asst. Prof. of History, Sri Vasavi College, Erode.** **Email: thangavelhistorysvc@gmail.com**	

Mapping with Programme Outcomes										
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	M	S	M	S	M	M	S	S	S
CO3	S	M	M	S	S	S	S	M	S	M
CO3	S	M	S	S	S	S	S	M	S	S
CO4	S	S	M	S	S	M	M	S	M	S
CO5	M	S	S	S	S	S	M	M	M	S

*S-Strong; M-Medium; L-Low

BHARATHIAR UNIVERSITY : COIMBATORE

ALLIED SUBJECT

(For B.A. History/ History and Tourism)

PRINCIPLES OF GOVERNMENT

WITH EFFECT FROM 2007-2008 and onwards

Course code		**PRINCIPLES OF GOVERNMENT**	**L**	**T**	**P**	**C**
Allied			**4**	**-**	**-**	**4**
Pre-requisite		**Basic knowledge in history.**	**Syllabus Version**			

Course Objectives:

The main objectives of this course are to:

1. Impart the students to know the theories and principles of government.
2. Make the students to understand the framing of law in Legislative assembly.
3. Teach the students the Independence of Judiciary.

Expected Course Outcomes:		
On the successful completion of the course, student will be able to:		
1	Understand the meaning and different types of constitution.	K2
2	Gain knowledge about the working of legislature.	K3
3	Know the Indian Judicial System.	K1
4	Realize that all citizens are equal in front of law.	K4
5	Evaluate the working of Indian Constitution.	K5
K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create		
Unit:1	**DEFINITION OF CONSTITUTION**	**15 hours**
Meaning of constitution - Written and Unwritten constitution - Rigid and Flexible constitution - Unitary and Federal forms of Government.		
Unit:2	**COMPOSITION OF LEGISLATURE**	**15 hours**
Legislature: Unicameral and Bicameral Legislature - Merits and Demerits - Composition of legislature (lower and upper house) - powers and functions of Legislature.		
Unit:3	**PARLIAMENTARY EXECUTIVE**	**15 hours**
Kinds of Executive - Parliamentary, Presidential and Plural Executive - Theory of Separation of powers.		
Unit:4	**INDEPENDENT JUDICIARY**	**14 hours**
Judiciary: Organization of Judiciary -Functions of Judiciary - Independence of Judiciary - Judicial Review - Rule of Law - Administrative Law.		
Unit:5	**RIGHTS AND DUTIES OF CITIZEN**	**14 hours**
Political Parties - Pressure groups - Electoral system - Anti-defection - Public Opinion - Democracy -Rights and duties of citizens - Women in Electoral process.		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**75 hours**
Book(s) for Study		
1	Nathaniel Chipman,*Principles of Government, A Treatise on Free Institutions Including the Constitution of the United States*, The Law book Exchange, Ltd., 2011.	
2	Warren L. McFerran,*The Principles of Constitutional Government: Political Sovereignty*, Pelican Publication, 2009.	
Book (s) for Reference		

1	Appadurai A.,*Substance of Politics*, Oxford University Press, 2000.
2	Charles F. Bahmueller,*Elements of Democracy: The Fundamental* Principles, Concepts, Social Foundations, and Processes of Democracy, Center for Civic Education, 2007.
3	Gilchrist R. N.,*Principles of Political Science*, Orient Black Swan (1975).
4	Nathaniel Chipman, *Sketches of the Principles of Government*, Rutland [Vt.], 1793.
5	Strong C. F.,*Modern Constitutions*, Sidgwick & Jackson Ltd, 1972.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://en.wikipedia.org/wiki/Constitution
2	https://en.wikipedia.org/wiki/Legislature
3	https://en.wikipedia.org/wiki/Fundamental_Rights,_Directive_Principles_and_Fundamental_Duties_of_India
Course Designed By: **Prof. M. THANGAVEL, Asst. Prof. of History, Sri Vasavi College, Erode. Email:thangavelhistorysvc@gmail.com**	

Mapping with Programme Outcomes										
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	S	M	S	S	S	M	S	S
CO3	S	M	S	M	S	M	S	S	S	S
CO3	M	S	S	S	S	M	M	M	S	S
CO4	M	M	S	S	S	S	S	S	S	M
CO5	M	S	M	S	S	S	M	S	M	M

*S-Strong; M-Medium; L-Low

BHARATHIAR UNIVERSITY : COIMBATORE

ALLIED SUBJECT

(For B.A. History/ History and Tourism)

INDIAN CONSTITUTION.

WITH EFFECT FROM 2007-2008 and onwards

Course code		**INDIAN CONSTITUTION**	**L**	**T**	**P**	**C**
Allied			**4**	**-**	**-**	**4**
Pre-requisite		**Basic knowledge in Indian Constitution**	**Syllabus Version**		**2020-21**	
Course Objectives:						

The main objectives of this course are to:

1. Make the students to understand the historical background of the Indian Constitution.
2. Teach the powers and functions of Executive, Legislative, Judiciary and Autonomous bodies of the constitution.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the evolution of Indian Constitution.	K2
2	Get interest on Politics, voting right, secularism, equality and citizenship.	K5
3	Familiarizes the significance of fundamental rights and duties.	K1
4	Highlight the powers of state executive.	K4
5	Acquire knowledge about the functions of Election Commission.	K3

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	**FORMATION OF INDIAN CONSTITUTION**	**15 hours**

Formation of Constituent Assembly - Drafting Committee - Framing of the Constitution - Salient Features.

Unit:2	**RIGHTS AND DUTIES**	**15 hours**

Preamble - Fundamental Rights and Duties - Directive Principles of State Policy - Mode of Amendment.

Unit:3	**UNION EXECUTIVE**	**15 hours**

Union Executive - President - Vice President - Union Legislature: Lok Sabha - Rajya Sabha - Prime Minister - Cabinet Minister.

Unit:4	**STATE EXECUTIVE**	**14 hours**

State Executive - Governor - Chief Ministers - Council of Ministers - Judiciary - Supreme Court - High Court.

Unit:5	**ELECTION COMMISSION OF INDIA**	**14 hours**

Election Commission of India - State Election Commission - Political Parties: National and Regional - Pressure Groups - Union and State Service Commissions.

Unit:6	**Contemporary Issues**	**2 hours**

Expert lectures, online seminars – webinars

	Total Lecture hours	**75 hours**

Book(s) for Study	
1	Durga Das Basu,*Commentary on the Constitution of India*, LexiNexis, 2017.
2	Durga Das Basu,*Introduction to the Constitution of India*, Lexis Nexis, 2011.
Book (s) for Reference	
1	Durga Das Ragul Roy,*Introduction to the Constitution of India*, Lexis Nexis, 2013.
2	Huns Raj Khanna,*MakingofIndia'sConstitution* , Eastern Book Company, 2008.
3	Jayabalan,*Constitutional History of India*, Atlantic Publishers & Distributors (P) Limited, 1998.
4	Pratap Kumar Ghosh,*The Constitution of India: How it has been framed*, World Press, 1966.
5	Pylee M.V.,*Constitutional Government in India*, S Chand & Company, 2004.
6	Pylee M.V.,*Indian'sConstitution* , S Chand & Company, 2016.
7	Thirumalai .P.S.,*Constitutional Law of India*
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://en.wikipedia.org/wiki/Constitution_of_India
2	https://www.yourarticlelibrary.com/political-science/executive-definition-functions-and-types-of-executive/40360
3	https://en.wikipedia.org/wiki/Election_Commission_of_India
Course Designed By: **Prof. L. AMSA, Asst. Prof. of History, Chikkiah Naicker College, Erode Email: amsalena1983@gmail.com**	

Mapping with Programme Outcomes										
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	S	M	M	S	S	M	S	S
CO3	S	M	S	M	M	S	M	M	S	M
CO3	S	S	S	S	M	M	M	S	M	S
CO4	S	M	S	S	M	M	S	S	M	M
CO5	S	S	M	S	M	S	S	M	S	M

*S-Strong; M-Medium; L-Low

ELECTIVE PAPERS
SEMESTER V
ELECTIVE I-A

Course code		ARCHAEOLOGY	L	T	P	C
Elective I-A			4	-	-	4
Pre-requisite		Basic knowledge of Historical sources	Syllabus Version		2020-21	

Course Objectives:

The main objectives of this course are to:

1. Learn the aspects of Archaeological field works.
2. Teach the students about the Ancient Indian cultures and excavation techniques.
3. Study the important Archaeological Sites.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the importance of Archaeology.	K2
2	Apply the method of Exploration and Excavation in their Research.	K3
3	Analyze the Archaeological Artefacts.	K4
4	Remember and Integrate the knowledge of archaeology in studying history.	K1
5	Create more Interest on Archaeological sites of Tamil Nadu.	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	SCOPE OF ARCHAEOLOGY	12 hours

Meaning and Scope of Archaeology - Archaeology as a source material - Kinds of Archaeology - Methods of Exploration and Excavation - Kinds of Excavations - Dating Methods.

Unit:2	PRE-HISTORIC CULTURE	12 hours

Pre-Historic Culture - Stone Age cultures - Paleolithic - Microlithic, Neolithic and Megalithic cultures of India - Pottery types and their importance.

Unit:3	HARAPPAN CULTURE	12 hours

Harappan Culture - Chalcolithic culture of Western and Central India and the Deccan - Early Iron Age cultures -Painted Grey Ware and Northern Black polished ware culture - Megalithic - Black and Redware culture of South India.

Unit:4	ARCHAEOLOGICAL SURVEY OF INDIA	11 hours

Archaeological Survey of India -Alexander Cunningham - Sir John Marshal - Sir Martimer Wheeler

- Archaeological sites in Tamil Nadu - Arikkalamedu - Adichanallur - Kodumanal - Keezhadi.		
Unit:5	**INSCRIPTIONS**	**11 hours**
Paleography - Brahmi Script and Vattezhuthu - Epigraphy - its importance - Language and types of inscriptions with special reference to South India - Numismatics - its illustration - Coins of the Guptas, Cholas, Pandyas and Vijayanagar.		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**60 hours**

Book(s) for Study	
1	Childe. G,*Introduction to Archaeology*, Frederick Miller, 1956.
2	RamanK. V.,*Principles and Methods of Archaeology*, Parthajan Publications, 1986.
3	Sankalia. H. D,*Indian Archaeology Today*, Asia Publishing House, 1962.
Book (s) for Reference	
1	Brown C.,*Indian Coins*, Bharatiya Kala Prakashan,2009.
2	Dilip K. Chakrabarti,*History of Indian Archaeology: The Beginning to 1947*, Munshiram Manoharlal Publishers, 1995.
3	Mahalingam T.V,*Early south Indian Paleography*, University of Madras, 1967.
4	Ramaswamy Venkatraman,*Indian Archaeology: A Survey*, Ennes Publications, 1985.
5	Subramanian T.N,*Pandia Tamil Eluthukkal* (Tamil)
6	Wheeler M,*Early India and Pakistan*, Thames & Hudson, 1968.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	www.tnarch.gov.in>>e-publication
2	https://asi.nic.in>>Central ArchaeologicalLibrary>>E-Publication
3	Youtube – e-PG Pathshala

Course Designed By: **Dr. R. SANTHANAM, Asst. Prof. of History, Sri Vasavi College, Erode.**
Email: rsanma86@yahoo.in

Mapping with Programme Outcomes										
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	S	S	M	S	S	S	S	S
CO3	S	S	S	S	M	S	M	S	S	S
CO3	S	S	S	S	M	M	S	M	M	M
CO4	S	S	S	S	M	S	S	S	M	S

CO5	S	S	S	S	M	M	M	M	S	S

*S-Strong; M-Medium; L-Low

SEMESTER -V
ELECTIVE I-B

Course code		**HUMAN RESOURCE MANAGEMENT**	**L**	**T**	**P**	**C**
Elective I-B			**4**	**-**	**-**	**4**
Pre-requisite		**Basic knowledge in Human Resource Management.**	**Syllabus Version**		**2020-21**	

Course Objectives:

The main objectives of this course are to:

1. Prescribe the evolution and organization of Human Resource Management.
2. Teach the students to learn the basic principles of human resource management.
3. Make the students to understand the Job analysis and performance in human resource management.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Remember the different types of jobs in government and private sectors.	K1
2	Understand the basic principles of job design.	K2
3	Apply the skill of interview techniques.	K3
4	Analyze his/her ability of performance in career oriented jobs.	K4
5	Evaluate the human relations and nature of human needs.	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	**ORGANISATION AND JOB DESIGN**	**121 hours**

Introduction - Definition of Personnel Management - Role of Personnel Manager - Challenges of Modern Personnel Management - Organisation objectives, Organisation structure Job Design - Job enlargement, Job enrichment - Strategic Control - The Personnel Audit.

Unit:2	**JOB ANALYSIS & HUMAN RESOURCES REQUIREMENTS**	**11 hours**

Job Analysis Process - Job description - Role Analysis - Job Specification - Uses of Job Analysis - Information - Human resources planning - Absenteeism - Turn over.

Unit:3	**RECRUITMENT AND THE HIRING PROCEDURES**	**12 hours**

Internal & External recruitment - Recruitment evaluation - The Hiring Procedures - Types of interviews - Principles of interviewing - Approval of the Supervisor - Physical Examination

Introduction / Orientation – Development - Operative Training On the job training, Vestituce Schools, apprenticeship programme special courses - Executive Development, Executive needs & Developmental programs - Decision making skills, Interpersonal skills, Job knowledge, Organization Knowledge, General knowledge - Organization Development		
Unit:4	**PERFORMANCE APPRAISAL**	**12 hours**
Performance Appraisal System - The appraisal programme - Nature of carriers - Careers anchors - Career Development - Programme compensation - Factors affecting compensation - Policy Equity + Compensation - Job Evaluation & Job Evaluation System - Fringe benefits - Principles of Employee - Benefit programme - Payments for time not worked - Guaranteed Annual wage - Life Insurance - Medical Services - Recreational Programme -Cafeterias & Housing Legal & Financial – counselling - Educational Tuition.		
Unit:5	**NATURE OF HUMAN AND SEPARATION**	**12 hours**
Nature of human - Importance of Human relations - Nature of Human needs Motivations -Theories of Abraham, Mastar, MC Gregar & Hezberz. The Start of Labour union - Nature of Labour union, Types of union -Starting unions - Separation processes -Retirement, Mandatory VS Voluntary Retirement, Retirement Programmes, Lay-off Out-Placement, Discharge		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**60 hours**

Book(s) for Study	
1	Gary Dessier,*Human Resource Management*, 7th ed. Prentice hall of India, Pearson, 2017.
2	Rao S.P.,*Human Resource Management- Text and Cases*, Excel Books, New Delhi, 2000.
Book (s) for Reference	
1	Rao, AVLN,*Management Science*, SciTech Publications (India), Pvt. Ltd., Chennai, 2004.
2	Robert L Mathews and John H. Jackson,*Personnel Human Resource Management*, Edition 14, Cengage Learning, 2013.
3	Subramanian C V,*Human Resource Management*, S. Chand & Co, Ramnagar, New Delhi, 2003.
4	Venkatapathy and Assissi Menacheri,*Industrial Relations and Labour Welfare*, Adhitya Publications, Coimbatore, 2001.
5	Dessler Gary,*Fundamentals of Human Resource Management*, Pearson Education; Fourth edition, 2017.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://en.wikipedia.org/wiki/Human_resource_management
2	https://www.youtube.com/watch?v=c8_avX9miag
3	http://www.whatishumanresource.com/human-resource-management

Course Designed By: **Prof. M. THANGAVEL, Asst. Prof. of History, Sri Vasavi College, Erode. Email:thangavelhistorysvc@gmail.com**

Mapping with Programme Outcomes										
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	M	S	M	S	S	M	S	M
CO3	S	S	M	S	M	S	S	M	S	M
CO3	S	S	M	S	M	M	S	S	S	S
CO4	S	S	M	S	M	M	S	M	M	S
CO5	S	S	M	S	M	M	S	S	M	M

*S-Strong; M-Medium; L-Low

SEMESTER -V
ELECTIVE I-C

Course code		**TOURIST CENTERS IN INDIA AND ABROAD**	**L**	**T**	**P**	**C**
Elective I-C			**4**	**-**	**-**	**4**
Pre-requisite		**Basic Knowledge in Tourism.**	**Syllabus Version**		**2020-21**	

Course Objectives:

The main objectives of this course are to:

1. Impart the importance of tourist centres in the world.
2. Educate the students to know the rules and regulations of tourism and travel management.
3. Encourage the students to visit the tourist places in India and abroad.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Remember the important tourist centres in India and abroad.	K1
2	Understand the rules and regulation in tourism management.	K2
3	Apply the Travel documents like Visa, Passport to travel abroad.	K3
4	Analyze the importance of tourist centres around the world.	K4
5	Create the awareness of protecting the tourist places.	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	**IMPORTANCE OF TOURIST CENTRES**	**12 hours**

Introduction - Importance of tourist centres - Advantages - Foreign exchange - Travel documents - Visa, Passport, Airport clearance, Currency exchange -Diplomatic relationship - Classifications.

Unit:2	**TOURIST CENTRES IN ASIA**	**12 hours**

INDIA: Kashmir - Delhi, Agra - Calcutta - Mysore - Goa - Trivandrum - Kanyakumari - Tanjore – Mammallapuram,MALDIVES, PAKISTAN: Lahore – Karachi. BANGALADESH: Dacca. NEPAL.

SRILANKA: Colombo - Kandy - Anuradhapura. CHINA: Great wall - Peking - Shanghai. JAPAN: Tokyo. VIETNAM: THAILAND - SINGAPORE - MALAYSIA - INDONESIA – CAMBODIA - AUSTRALIA: Sydney, Canberra, Melbourne. KUWAIT – ARABIA: Mecca - Madhina.		
Unit:3	**TOURIST CENTRES IN EUROPE**	**12 hours**
ENGLAND: London - SCOTLAND – IRELAND- FRANCE: Paris - French Rivera. SPAIN: Barcelona - Madrid. GERMANY: Bonn -Berlin. SWITZERLAND: Zurich – Lausanne - Berne. NETHERLANDS: Amsterdam. ITALY: Rome, Sicily. GREECE: Athens.		
Unit:4	**TOURIST CENTRES IN AFRICA, EGYPT**	**11 hours**
SOUTHAFRICA: Cape Town - Safari – EGYPT: Cairo - Luxor –Alexandria - TANZANIA - MADAGASKAR: Antananarivo.		
Unit:5	**TOURIST CENTRES IN AMERICA**	**11 hours**
CANADA: Ottawa - Toronto. USA: New York - Niagara. PANAMA: California - Disneyland. Tourist Centres in ARGENTINA –CUBA - HAVANA - BRAZIL - PERU.		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**60 hours**

Book(s) for Study	
1	David L. Edgell,*The formulation of Tourism Policy*, Routledge, 2013.
2	Dennis: L. Foster, *First class: An Introduction to Travel and Tourism*, McGraw-Hill Inc., US, 1990.
Book (s) for Reference	
1	Anurag Mathur, Prof. Agam Prasad Mathur and 8 more,*Indian Tourism: Tourist Places of India*, Kindle Edition, Self Publisher, 2016.
2	Brent Ritchie T.R. & Charles. R. Goeldrer,*Travel, Tourism and Hospitality Research*, Wiley, 2nd Edition, 1994.
3	Krishnamoorthy. V,*Tourism Development.*
4	Md. Abu Barkat Ali,*Travel and Tourism Management*, Prentice Hall India Learning Pvt. Ltd., 2015
5	Sophia Simone,*Incredible India: A Beautiful Picture*, Asia-Pacific Holdings Private Limited.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://wikitravel.org/en/Asia
2	https://wikitravel.org/en/India
3	https://www.vueindiatours.com/blog/top-15-most-visited-places-in-india-by-foreign-tourists/
4	https://wikitravel.org/en/Europe

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Mapping with Programme Outcomes										
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	S	M	M	S	S	M	S	S
CO3	S	S	S	M	M	S	S	S	S	M
CO3	S	S	S	M	M	M	S	S	M	M
CO4	S	S	S	M	M	S	S	M	M	S
CO5	S	S	S	M	M	S	M	S	S	M

*S-Strong; M-Medium; L-Low

SEMESTER- VI

ELECTIVE II-A

Course code		**INTRODUCTION TO JOURNALISM AND MASS COMMUNICATION**	**L**	**T**	**P**	**C**
Elective II-A			**4**	**-**	**-**	**4**
Pre-requisite		**Should possess basic knowledge about news and day to day events**	**Syllabus Version**		**2020-21**	

Course Objectives:

The main objectives of this course are to:

1. Describe the role of journalism and mass media in Freedom Struggle.
2. Educate the students about the structure and functions of print media organization
3. Develop students as a responsible media person

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Remember the historical significance of journalism in Indian freedom struggle.	K1
2	Understand the importance, functions & scope of communication and media.	K2
3	Apply their knowledge in News writing; News editing and choose careers in Journalism and Mass media.	K3
4	Analyze more about newspapers, editing pages.	K4
5	Create more interest on various national and international news agencies.	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	**INTRODUCTION TO JOURNALISM**	**15 hours**

Nature and definition of Journalism and mass communication - Communication process - SMCR model - Mass Media - History of the press in India- Role of the press in Freedom

Movement.		
Unit:2	**LEADING NEWS PAPERS AND TAMIL JOURNALISM**	**15 hours**
Leading Newspapers of India (Linguistic and English), Brief History of Tamil Journalism - Freedom of thePress.		
Unit:3	**CAREER OPPORTUNITIES**	**15 hours**
Career aspects of Journalism - Structure of a Newspaper organization - Characteristics of a Journalist.		
Unit:4	**JOURNALISTIC COMPONENTS**	**14 hours**
Principles of Reporting - Definitions, Components and sources of news- Writing the news - Types of Lead, body- Principles of Editing - Editing techniques- Writing Headlines and types of Headlines		
Unit:5	**NEWS AGENCIES**	**14 hours**
Law of Defamation - News Agencies (Indian and International) - Recent trends in Indian press.		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**75 hours**

Book(s) for Study	
1	Rayadu C. S., *Communication*, Himalaya Publication, 2015.
2	Mehta D S, *Mass Communication Journalism in India*, Allied Publishers, 1979.
Book (s) for Reference	
1	Ahuja B. N.,*Theory and practice of Journalism*, New Delhi, 2007.
2	Basu D D, *Law of the Press*, Lexis Nexis, Fifth edition, 2010.
3	Journalism and Mass Communications - we series Tata McGraw Hill.
4	Keval J. Kumar,*Mass Communication in India*, Jaico Publishing House, 1994.
5	Parthasarthy and Rangaswami, *Journalism in India*, Sterling Publishers Pvt. Ltd., New Delhi, 1989.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://en.wikipedia.org/wiki/Freedom_of_expression_in_India
2	http://ndl.iitkgp.ac.in/
3	https://www.youtube.com/watch?v=YBC0VBAG9SY&t=43s
4	https://epgp.inflibnet.ac.in/Home/ViewSubject?catid=24
Course Designed By: **R.PRAKASH, Assistant professor in History, Sri Vasavi College , Erode**	

Email:prakashero80@gmail.com

Mapping with Programme Outcomes										
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	S	M	M	S	S	M	M	S
CO3	S	S	S	M	M	M	S	M	S	M
CO3	S	M	S	M	M	S	S	S	S	M
CO4	S	S	M	M	M	M	S	M	M	M
CO5	S	M	S	M	M	M	S	S	S	M

*S-Strong; M-Medium; L-Low

SEMESTER- VI

ELECTIVE II-B

Course code		**INDIAN CULTURAL HERITAGE**	**L**	**T**	**P**	**C**
Elective II-B			**4**	**-**	**-**	**4**
Pre-requisite		**A basic knowledge in Indian History**	**Syllabus Version**		**2020-21**	

The main objectives of this course are to:

1. Acquires knowledge about Muslim Invasions and its impact on Indian culture.
2. Teach the students to know the Indian cultural revivalism.
3. Analyze the role of social reformers in reforming the Indian society.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Remember the present Indian society and culture.	K1
2	Understand the unique of Ancient Indian Values, the Teachings of Social Reformers, the need and development of ethics.	K2
3	Apply to know the salient features of the Indian culture.	K3
4	Analyze the impact of west on Indian culture.	K4
5	Evaluate the role of social reformers in reforming the society.	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	**MUSLIMS ON INDIAN CULTURE**	**15 hours**
Muslim invasions, Delhi Sultanate-Society, Religion Literature and Arts under the sultans of Delhi - Muslims impact on Indian culture - Bhakti Movement - Kabir - Guru Nanak, Chaitanya.		
Unit:2	**CULTURE UNDER VIJAYANAGAR RULE**	**15 hours**
Society and culture under Vijayanagar - Nayaks of Madurai – Jinji - Tanjore.		
Unit:3	**CULTURE UNDER MOGHAL RULE**	**15 hours**
Mughals and their impact on Indian culture, Society, Economy, Religion, Literature and Art.		
Unit:4	**IMPACT OF WEST ON INDIAN CULTURE**	**14 hours**
Impact of west on Indian culture. Portuguese. Dutch - French and British - Impact of Christianity on Indian culture.		
Unit:5	**SOCIAL REFORM MOVEMENTS**	**14 hours**
Arya Samaj - Brahma Samaj - Ramakrishna mission - Theosophical Society - Dravidian Rational Movement - Developments in India after the British -Railways - Postal and Telegraphy - Industrial Revolution - emergence or Educational Institutions.		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**75 hours**

Book(s) for Study	
1	Mallev O.,*Indian and west*, Oxford University Press, 1968.
2	Relevant chapter in Bharathiya Vidya Bhavan : (History of the Indian People).
Book (s) for Reference	
1	Anurag Mathur,*Indian Culture & Heritage: 1*, Create space Independent Pub, 2017.
2	Basham A.L.,*A Cultural History of India*, Oxford Publication, 1997.
3	Haridas Bhattacharyya,*Cultural Heritage of India*, Ramakrishna Mission Inst of culture, 2002.
4	Romila Thapar,*Indian Cultures as Heritage: Contemporary Pasts*, Aleph Book Company, 2018.
5	Sathyanathaiyer R.,*History of India Vols I and II*, S. Viswanathan, 1952.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://swayam.gov.in/nd2_nos19_hs03/preview
2	https://www.youtube.com/watch?v=NOA9iN9vrU8
3	http://www.indiaculture.nic.in/world-heritage

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Mapping with Programme Outcomes										
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	M	S	M	S	S	M	M	S
CO3	S	S	S	S	S	S	S	S	S	S
CO3	S	S	M	S	M	S	S	S	M	S
CO4	S	M	S	S	M	S	S	M	S	S
CO5	S	S	M	S	S	M	S	M	M	S

*S-Strong; M-Medium; L-Low

SEMESTER- VI
ELECTIVE II-C

Course code		**PUBLIC ADMINISTRATION**	**L**	**T**	**P**	**C**
Elective II-C			**4**	**-**	**-**	**4**
Pre-requisite		**Basic knowledge in Public Administration**	**Syllabus Version**		**2020-21**	

Course Objectives:

The main objectives of this course are to:

1. Make the students to identify the core mechanisms of public administration, including the organization and management of human and financial resources.
2. Explain how different environments impact public policy and administration.
3. Organize and communicate information clearly to a variety of audiences by means of oral presentation, written documents, reports, etc.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Remember the Public Administrative system and the laws of Administration.	K1
2	Understand of theories, concepts and practices relevant to public administration and its sub-fields.	K2

3	Apply the appropriate skills to be able to administer public programs.	K3
4	Analyze their knowledge and integrity in public service and reflect on ways to incorporate public service.	K4
5	Create proficiency in clear oral and written communication by presenting succinct, well-organized materials.	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	**INTRODUCTION**	**15 hours**

Measuring scope and significance of Public Administration, Public and Private Administration, Wilson's vision of Public Administration. Evolution of the discipline and its present status, New Public Administration. Public choice approach and New Public Management perspective, Features of Entrepreneurial Government, Good Government: Concept and application.

Unit:2	**THEORIES OF ADMINISTRATION**	**15 hours**

Nature and typologies, Scientific Management (Taylor and the Scientific Management Movement), Classical theory (Fayol, Urwilck, Gulick and others), Bureaucratic theory. (Marxist view, Weber's model and its critique, post-we Brian developments.) Ideas of Mary Parker Follett and (C. L. Barnard) Human Relations School (Elton Mayo and others). Behavioral Approach to Organization Analysis. Participative Management; (McGregor, Likert and others). The Systems Approach Open and closed systems.

Unit:3	**STRUCTURE OF PUBLIC ORGANIZATIONS**	**15 hours**

Typologies of Political Executive and their functions, Forms of Public organizations: Ministries and Departments: Corporations; Companies, Boards and Commissions; Ad hoc and Advisory bodies - Headquarters and field relationships. Administrative Behavior: Decision making with special reference to Herbert Simon, Theories of Leadership, Communication, Morale, Motivation (Maslow and Hertzberg.)

Unit:4	**ACCOUNTABILITY AND CONTROL**	**14 hours**

Concepts of Accountability and Control; Legislative Executive and Judicial Control over Administration. Citizen and Administration, Role of civil society, people's participation, Right to information. Administrative corruption, machinery for reducers of citizen's grievances. Citizen Charter.

Unit:5	**ADMINISTRATIVE LAW**	**14 hours**

Meaning and significance. Delegated Legislation: Types, Advantages: limitations, Safeguards, Administrative Tribunals limitations and methods of ensuring effectiveness.

Unit:6	**Contemporary Issues**	**2 hours**

Expert lectures, online seminars – webinars

	Total Lecture hours	**75 hours**

Book(s) for Study

1	Dr. Maheswari A., *Public Administration*, New Delhi, 1970.
2	Dr. Maheswari A., *Public Administration*, NCERT, New Delhi, 1983.
Book (s) for Reference	
1	Anupama Puri Mahajan,*Public Administration*, Pearson, 2018.
2	Avasthi,*Public Administration*, Lakshmi Narain Agarwal, 2017.
3	Laxmikanth M.,*Public Administration*, McGraw Hill Education, 2011.
4	Myneni S.R,*Principles of Public Administration*, Allahabad Law Agency, 2016.
5	J. Steven Ott and RussellE. W.,*Introduction to Public Administration*, Pearson Publication, 2000.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://swayam.gov.in/nd2_cec19_hs16/preview
2	https://www.youtube.com/watch?v=ORWOn8om63M
3	https://www.britannica.com/topic/public-administration
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Mapping with Programme Outcomes										
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	M	S	M	M	S	S	M	M	M
CO3	S	M	S	M	M	M	S	M	S	M
CO3	S	M	S	M	M	S	S	S	M	M
CO4	S	M	S	M	M	M	S	M	S	M
CO5	S	M	S	M	M	M	M	S	M	M

*S-Strong; M-Medium; L-Low

SEMESTER- VI

ELECTIVE III-A

Course code		**TOURISM IN TAMIL NADU**	**L**	**T**	**P**	**C**
Elective III-A			**4**	**-**	**-**	**4**
Pre-requisite		**Basic Knowledge in Tourism**	**Syllabus Version**		**2020-21**	
Course Objectives:						
The main objectives of this course are to: 1. Make the students to understand the important Historical tourist places in Tamil Nadu. 2. Know the cultural and eco-tourist centres in Tamil Nadu. 3. Educate the students to recognize Tamil Nadu as one of the tourist attraction to promote						

economic activities.		
Expected Course Outcomes:		
On the successful completion of the course, student will be able to:		
1	Remember the significance of tourist places in Tamil Nadu.	K1
2	Learn about the Architecture and Sculpture of the Temples in Tamil Nadu.	K2
3	Highlight the significance of Hill Stations and commercial cities of Tamil Nadu.	K2
4	Get motivated to choose a career in tourism.	K3
5	Analyze the Eco-tourist spots in Tamil Nadu.	K4
K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create		
Unit:1	**HISTORICAL TOURIST PLACES**	**15 hours**
Historical places - Chennai - Kancheepuram - Mahabalipuram - Tanjore - Madurai - Vellore.		
Unit:2	**CULTURAL CENTERS**	**15 hours**
Cultural centres - Velankanni - Nagore - Rameshwaram – Thiruvannamalai - Srirangam- Kuduthurai of Bhavani		
Unit:3	**ECO-TOURIST CENTERS**	**15 hours**
Eco Tourist Centres - Western Ghats - Eastern Ghats - Mudumalai - Aanaimalai - Tirunelveli - Kalakkadu.		
Unit:4	**SUMMER RESORTS**	**14 hours**
Hill Stations - The Nilgiris - Ooty – Kodaikanal, Yercaud, Yelagiri.		
Unit:5	**COMMERCIAL CENTERS**	**14 hours**
Commercial Centres - Chennai - Coimbatore - Madurai - Salem - Erode - Tirupur.		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**75 hours**
Book(s) for Study		
1	Bhatia A.K.,*Tourism Development, Principles and Practices*, Sterling c Publishers (P) Ltd, New Delhi, 2012.	
2	Tamil Nadu Tourism Development Corporations Publications, Chennai.	

Book (s) for Reference	
1	Anand N. M,*Tourism and Hotel Industry in India,*Sterling Publishers (P) Ltd, New Delhi.
2	Chistpher J. Holloway,*The Business of Tourism,* Macdonald and Evans 1983.
3	Kaul E.H,*Dynamics of Tourism,* Stosius Inc/Advent Books Division, 1985.
4	Subramania PillaiS.,*Tourism in Tamil Nadu: Growth and* Development, MJP Publisher, 2019.
5	Sura Books Editorial Team,*Tourist Guide to Tamil Nadu,* Sura Books, 2012.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	http://www.ttdconline.com/
2	https://epgp.inflibnet.ac.in/Home/ViewSubject?catid=1827 (Tourism P-1, M-01)
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Mapping with Programme Outcomes										
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	S	M	M	S	S	M	M	S
CO3	S	S	S	M	M	S	S	S	S	S
CO3	S	S	S	M	M	S	M	S	S	S
CO4	S	S	S	M	M	M	M	S	S	S
CO5	S	S	S	M	M	S	S	M	M	S

*S-Strong; M-Medium; L-Low

SEMESTER- VI
ELECTIVE III-B

Course code		**SOCIOLOGY**	**L**	**T**	**P**	**C**
Elective III-B			**4**	**-**	**-**	**4**
Pre-requisite		**Basic knowledge in Sociology**	**Syllabus Version**		**2020-21**	
Course Objectives:						

The main objectives of this course are to:

1. Teach students the concepts, theories, and methods of the Sociology.
2. Introduce students to the basic social processes of society, social institutions and patterns of social behaviour.
3. Train students to understand and to interpret objectively the role of social processes, social institutions and social interactions in their lives.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Identify how social structures create and reproduce different forms of social inequality, locally and globally.	K1
2	Understand sociological knowledge to inform public understanding and policy debates.	K2
3	Apply sociological concepts and theories to understand social phenomena.	K3
4	Analyze social scientific data and quantitative data.	K4
5	Evaluate explanations of human behaviour, social phenomena, and social processes locally and globally.	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	**SOCIOLOGY-THE DISCIPLINE**	**15 hours**

Sociology as a Science and as an interpretive discipline; Impact of industrial and French Revolution on the emergence of Sociology; Sociology and its relationship with History, Economics, Political science, Psychology and Anthropology.

Unit:2	**ORIGIN, NATURE AND SCOPE OF SOCIOLOGY**	**15 hours**

Relationship with other Social Sciences - Social groups - Social Control.

Unit:3	**CULTURE**	**15 hours**

Marriage, family and kinship, Economic Institution - Political Institutions.

Unit:4	**RELIGION AND CULTURE**	**14 hours**

Education, Culture, Society and Personality - Individual and socialization.

Unit:5	**CULTURE AND PERSONALITY FORMATION**	**14 hours**

Methods of research - Unity and Diversity - Social Demography.

Unit:6	**Contemporary Issues**	**2 hours**

Expert lectures, online seminars – webinars

	Total Lecture hours	**75 hours**
Book(s) for Study		
1	Amit Kumar Sharma**,** *Structure of Indian Society***,** NCERT, New Delhi, 2003.	
2	Boopendra K. Nagla and Sheo Bahal Singh, *Introducing Sociology***,** NCERT, New Delhi, 2002.	
Book (s) for Reference		
1	George Ritzer,*Sociological Theory*, Fifth edition, McGraw-Hill, 2011.	
2	Haralambos M, Heald R.M.,*Sociology: Themes and Perspectives*, Oxford Publication, 1997.	
3	Dr. Sartaj Ahmad,*A Textbook of Sociology*, University Book House Pvt. Ltd., 2019.	
4	Shankar Rao C.N.,*Sociology Principles Of Sociology*, S Chand, 2019.	
5	ushan and SachdevaD R,*Fundamentals of Sociology*,Pearson Publication, 2016.	
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]		
1	https://swayam.gov.in/nd2_nce19_sc24/preview	
2	https://en.wikipedia.org/wiki/Sociology	
3	https://www.youtube.com/watch?v=TryHsjdV6_Y	
Course Designed By:**Prof. M. THANGAVEL, Asst. Prof. of History, Sri Vasavi College, Erode.** **Email:thangavelhistorysvc@gmail.com**		

Mapping with Programme Outcomes										
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	M	S	S	M	S	S	M	S	M
CO3	S	S	S	S	M	S	S	M	S	M
CO3	S	M	S	M	M	M	S	S	M	M
CO4	S	S	S	S	M	M	S	M	M	M
CO5	S	M	S	M	M	S	S	S	M	M

*S-Strong; M-Medium; L-Low

SEMESTER- VI
ELECTIVE III-C

Course code		GEOGRAPHY	L	T	P	C
Elective III-C			4	-	-	4
Pre-requisite		Geographical knowledge at School Level.	Syllabus Version		2020-21	

Course Objectives:

The main objectives of this course are to:

1. Teach a general grounding of the fundamental knowledge of geography.
2. Able to explain territorial diversity and complexity, and the interrelations of natural environmental phenomena
3. Enable graduates to take postgraduate or specialization courses in which a territorial component is dealt with.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Remember the geography of India and world.	K1
2	Understand and appreciate the relationship between geography and culture.	K2
3	Locate on a map major physical features, cultural regions, and individual states and urban centres.	K3
4	Analyze the physical geographic process, the global distribution of landforms and ecosystems, and the role of the physical environment on human populations.	K4
5	Evaluate the impacts of human activities on natural environments special reference to India.	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	**MAJOR RESOURCES OF THE EARTH**	**15 hours**

World Distribution of Resources.

Unit:2	**NATURAL RESOURCE**	**15 hours**

Production and Conservation of resources - Utilization of Natural resources.

Unit:3	**AGRICULTURE**	**15 hours**

Major crops - Secondary Production.

Unit:4	**TERRITORY OCCUPATIONS**	**14 hours**

Transport and Communication - Modern Means of Communication.

Unit:5	**POPULATION AND SETTLEMENTS**	**14 hours**

Distribution and Density - Population growth -Rural and Urban Population - Impact of Rapid

Population growth on development.		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**75 hours**

Book(s) for Study	
1	Majid Husain, *Human and Economic Geography***,** NCERT, New Delhi, 1978. Prepared by Dr. N. Balasubramaniam, Reader and Head of the Department, Department of History, CBM College, Coimbatore 641 042.
2	Rajiv Ahir,*Geography*, Spectrum Books Pvt. Ltd, 2020.

Book (s) for Reference	
1	Dhillon S. S.,*Agricultural Geography*, Tata McGraw-Hill Education, 2004.
2	Husain Majid,*Human Geography*, Rawat Publication, 2011.
3	John V. Walther,*Earth's Natural Resources*, Jones and Bartlett Publishers, Inc, 2013.
4	Mohan Singh,*Environmental Geography*, ABD Publishers, 2011.
5	Siddhartha K.,*Models & Theories in Geography*, Kitab Mahal, Fourth Edition, 2016.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://swayam.gov.in/nd2_nce19_sc20/preview
2	https://en.wikipedia.org/wiki/Geography
3	https://www.youtube.com/watch?v=8McizDCj6qE

Course Designed By:**Prof. M. THANGAVEL, Asst. Prof. of History, Sri Vasavi College, Erode.**
Email:thangavelhistorysvc@gmail.com

Mapping with Programme Outcomes										
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	M	S	M	S	S	M	M	S
CO3	S	S	M	S	M	S	S	M	S	M
CO3	S	S	M	S	M	M	S	M	S	M
CO4	S	S	M	S	M	S	S	S	M	M
CO5	S	S	M	M	M	S	S	S	M	M

*S-Strong; M-Medium; L-Low

Annexure

B. A. HISTORY

Syllabus

(With effect from 2020-2021)

Program Code:

DEPARTMENT OF HISTORY

Bharathiar University

(A State University, Accredited with "A" Grade by NAAC and 13th Rank among Indian Universities by MHRD-NIRF)

Coimbatore 641 046, INDIA

BHARATHIAR UNIVERSITY:: COIMBATORE - 641046

DEPARTMENT OF HISTORY (UG)

MISSION

- To comply with vision and mission of the College and Bharathiar University.
- To make the students to understand the political, social and cultural facets of the world and develop their historical knowledge.
- To make the students acquire modern skills, aptitude and potentialities of most creative mode in the discipline of history.
- To expand the vision of students to recognize the diversity of human experience in time and space without any distinction of ethnicity, caste, class, religion, sex, etc. and make them work towards Universal Brotherhood.
- To equip the students with the essentialities of their chosen career and help them towards better job opportunities.

The following Allied subjects are to be offered:

ALLIED SUBJECTS

FIRST YEAR – FIRST SEMESTER / SECOND YEAR - THIRD SEMESTER

1. Constitutional History of India from 1773 A.D. to 1892 A.D.-I

or

2. Principles of Government

or

3. General Economics - 1

or

4. Principles of Political Science -1

FIRST YEAR – SECOND SEMESTER / SECOND YEAR - FOURTH SEMESTER

1. Constitutional History of India from 1892 A.D. to 1950 A.D. -II

or

2. Indian Constitution

or

3. General Economics - II

or

4. Principles of Political Science - II.

List of Elective subjects (Colleges can choose any one of the subject as electives)

Elective - IA. Archaeology
(For Semester-V)B. Human Resource Management
C. Tourist Centres in India and Abroad

Elective - II **A.** Introduction to Journalism and Mass Communication
(For Semester-VI)B. Indian Cultural Heritage
C. Public Administration

Elective - III **A.** Tourism in Tamil Nadu
(For Semester-VI)B. Sociology
C. Geography

Three hours practicals per week
Lab Ms Office – Word
1. Prepare a Error Free Document
2. Prepare a Document
3. Prepare the Tables
4. Prepare a Document in Newspaper column Layout
5. Perform Mail Merge operation
6. Create a web page
7. Create an Excel Sheet

Question Paper Pattern for Practical in ESE
Choose any 2 out of 5 questions - 2×25=50 marks

The following Allied subjects are to be offered:

ALLIED SUBJECTS

FIRST YEAR – FIRST SEMESTER / SECOND YEAR - THIRD SEMESTER

1. Constitutional History of India from 1773 A.D. to 1892 A.D.-I

or

2. Principles of Government

or

3. General Economics - 1

or

4. Principles of Political Science -1

FIRST YEAR – SECOND SEMESTER / SECOND YEAR - FOURTH SEMESTER

1. Constitutional History of India from 1892 A.D. to 1950 A.D. -II

or

2. Indian Constitution

or

3. General Economics - II

or

4. Principles of Political Science - II.

B. Sc. Chemistry

Syllabus

AFFILIATED COLLEGES

Program Code: ***

2020 – 2021 onwards

BHARATHIAR UNIVERSITY

(A State University, Accredited with "A" Grade by NAAC,
Ranked 13th among Indian Universities by MHRD-NIRF,
World Ranking: Times -801-1000,Shanghai -901-1000, URAP - 982)

Coimbatore - 641 046, Tamil Nadu, India

Program Educational Objectives (PEOs)	
The **B. Sc. Chemistry** program describe accomplishments that graduates are expected to attain within five to seven years after graduation	
PEO1	To produce efficient chemistry graduates with strong fundamentals in various fields of chemistry
PEO2	To make students capable to assess and relate issues to environmental and practice it with integrity and ethics
PEO3	To provide an in-depth knowledge in chemistry and enable them with tools needed for industrial applications
PEO4	To integrate the inter-disciplinary knowledge of physics, mathematics or biological sciences to wide variety of fields
PEO5	To develop the ability to communicate the scientific information in written and oral formats
PEO6	To inculcate leadership qualities and mold them as good team players to function effectively in multidisciplinary teams

Program Specific Outcomes (PSOs)	
After the successful completion of **B. Sc. Chemistry** program, the students are expected to	
PSO1	Apply chemistry knowledge to solve the problems in various areas.
PSO2	Acquire a skill for safe handling of chemicals, apparatus and instruments
PSO3	Identify and analyze problems and gain skills to interpret chemical information
PSO4	Gain practical knowledge and analytical skills in designing and carrying out chemical experiments
PSO5	Have enough chemistry knowledge to go for higher studies and become entrepreneur

Program Outcomes (POs)	
On successful completion of the **B. Sc. Chemistry** program	
PO1	Understand the chemistry and apply their knowledge in day-to-day life
PO2	Explore the knowledge of analytical techniques to the industries for various analysis
PO3	Develop skills to carry out experiments in various fields of chemistry
PO4	Identify, formulate and solve the technological problems of the industry
PO5	Apply their theoretical knowledge to make the common people to understand the chemistry behind every chemical changes.
PO6	Confidence with skills and techniques necessary to succeed in the competitive examinations
PO7	Have the knowledge of science principles to practical situations in their respective professional career.

BHARATHIAR UNIVERSITY: COIMBATORE 641 046
B. Sc. Chemistry – Revised Scheme of Examinations (CBCS Pattern)
(For the students admitted during the academic year 2020 – 21 onwards)

Course Code	Title of the Course	Credits	Hours		Maximum Marks		
			Theory	Practical	CIA	ESE	Total
FIRST SEMESTER							
11T	Language – I	4	6	-	25	75	100
12E	English – I	4	6	-	25	75	100
13A	Core I – Paper I General Chemistry I	4	7	-	25	75	100
23P	Core Chemistry Practical - I	-	-	3	-	-	-
	Allied A:Paper I* (or)	4	6	-	25	75	100
	Paper I**	3	4	-	20	55	75
	Allied Practical**	-	-	2	-	-	-
1FC	Environmental Studies #	2	2	-	-	50	50
	Total	17	25	5	95	330	425
SECOND SEMESTER							
21T	Language – II	4	6	-	25	75	100
22E	English – II	4	6	-	25	75	100
23A	Core II – Paper II General Chemistry II	4	7	-	25	75	100
23P	Core III – Practical I (Inorganic Qualitative Analysis)	4	-	3	40	60	100
	Allied A:Paper II*(or)	4	6	-	25	75	100
	Paper II**	3	4	-	20	55	75
	Allied Practical**	2	-	2	20	30	50
2FB	Value Education – Human Rights #	2	2	-	-	50	50
	Total	23	25	5	155	420	575
THIRD SEMESTER							
31T	Language – III	4	6	-	25	75	100
32E	English – III	4	6	-	25	75	100
33A	Core IV – Paper III Inorganic Chemistry I	4	3	-	25	75	100
33B	Core V – Paper IV Physical Chemistry I	4	3	-	25	75	100
	Core Chemistry Practical - II	-	-	2	-	-	-
	Allied A:Paper II*(or)	4	6	-	25	75	100
	Paper II**	3	4	-	20	55	75
	Allied Practical**	-	-	2	-	-	-
4ZB	Skill based Subject – I Chemistry of Natural and Synthetic Fibers	3	2	-	20	55	75

	Tamil @ / Advanced Tamil# (OR) Non-major elective - I (Yoga for Human Excellence)# / Women's Rights	2	2	-	-	50	50
	Total	24	26	4	140	460	600
FOURTH SEMESTER							
41T	Language – IV	4	6	-	25	75	100
42E	English – IV	4	6	-	25	75	100
43A	Core VI - Paper V Organic Chemistry I	4	4	-	25	75	100
43P	Core VII – Practical II (Volumetric and Organic Analysis)	4	-	3	40	60	100
	Allied A:Paper II*(or)	4	6	-	25	75	100
	Paper II**	3	4	-	20	55	75
	Allied Practical**	2	-	2	20	30	50
4ZB	Skill based Subject – II Technology or Dyeing of Natural Fibers	3	3	-	20	55	75
	Tamil @ /Advanced Tamil # (OR) Non-major elective -II (General Awareness #)	2	2	-		50	50
	Total	26	25	5	175	475	650
FIFTH SEMESTER							
53A	Core VIII – Paper VI Inorganic Chemistry II	4	5	-	25	75	100
53B	Core IX – Paper VII Spectroscopy	4	5	-	25	75	100
53C	Core X – Paper VIII Electrochemistry	4	5	-	25	75	100
53D	Core XI – Paper IX Analytical Chemistry	4	4		25	75	100
	Core Chemistry Practical III	-	-	4	-	-	-
5EA	Elective I	4	4	-	25	75	100
5ZC	Skill based Subject – III Water & Effluent Treatment And Pollution Control	3	3	-	20	55	75
	Total	23	26	4	145	430	575
SIXTH SEMESTER							
63A	Core XII – Paper X Organic Chemistry II	4	5	-	25	75	100
63B	Core XIII – Paper XI Physical Chemistry II	4	5	-	25	75	100
63P	Core XIV Practical III (Gravimetric And	4	-	7	40	60	100

	Physical)						
6EC	Elective II	3	4	-	20	55	75
6EE	Elective III	3	4	-	20	55	75
63Q	Core XV – Practical for Elective Subjects	4	-	3	40	60	100
6ZP	Skill Based Subject – IV Textile Chemistry Practical	3	-	2	30	45	75
	Extension Activities @	2	-	-	50	-	50
	Total	27	18	12	250	425	675
	Grand Total	**140**	145	35	960	2540	**3500**

* For subjects without practical ** For subjects with practical
@ No University Examinations. Only Continuous Internal Assessment (CIA)
No Continuous Internal Assessment (CIA). Only University Examinations.

Allied Subjects(Colleges can choose any two subjects)

1. Mathematics, 2. Physics, 3. Botany, 4. Zoology, 5. Biochemistry

List of Elective papers

(Colleges can choose any one of the paper as electives)

Elective – I	**A**	Polymer Chemistry
	B	Agro Industrial Chemistry
	C	Pharmaceutical Chemistry
Elective – II	**A**	Leather Chemistry
	B	Chemistry of Plant Based Products
	C	Dye Chemistry
Elective – III	**A**	Analytical Chemistry II Lab Techniques
	B	Environmental Chemistry
	C	Textile Chemistry

First Semester

Course code	13A	GENERAL CHEMISTRY - I	L	T	P	C
CORE		Core I – Paper - I	6	1	-	4
Pre-requisite		Higher Secondary Level Chemistry	Syllabus Version		2019-2020	

Course Objectives:

The main objectives of this course are to:

1. Explain the properties of periodic table and bonding theories
2. Outline the reactivity of alkenes and alkynes and conformation of alkanes
3. Describe the laws of thermodynamics and black body radiation

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the properties of period and groups in periodic table	**K1, K2**
2	Able to name the hydrocarbons and Identify the products of elimination and addition reactions.	**K2-K4**
3	Discuss the various polar effects in alkanes and alkenes. Describe the preparation of cycloalkanes	**K1-K3**
4	Explain the theory of black body radiation	**K1, K2**
5	Understand the first and second law of thermodynamics	**K1, K2**

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Periodic Properties and Theory of Bonding	21 hours

1. Periodic table-Introduction-Periodic properties- Ionisation energy, Electron affinity, Electronegativity and their variations along the period and groups.
2. Hybridization and geometry of $BeCl_2$, BF_3, CH_4, PCl_5, IF_7 and SF_6. VSEPR Theory. Covalent Bond-Molecular orbital theory-application to molecules such as H_2^+ He_2, F_2, O_2, N_2, CO and NO.

Unit:2	Reaction of Alkenes and Alkynes	21 hours

1. Nomenclature of acyclic alkane, alkene and alkyne.
2. Alkenes: Preparation by Wittig reaction – Mechanisms of beta elimination – E1, E2 and cis elimination – Hoffmann's rule and Saytzeff's rule. Addition reactions with hydrogen, halogen, hydrogen halide (Markownikoff's rule) and hydrogen bromide (Peroxide effect). Dienes: Stability of isolated and conjugated dienes-1, 2 and 1, 4 additions, Diels -Alder reaction. Free Radical addition – Polymerization – synthetic rubber.
3. Alkynes: Acidity of Alkynes – formation of acetylides-addition of water with $HgSO_4$ catalyst-hydroboration.

Unit:3	Polar Effects and Conformations of Alkanes	21 hours

1. Polar effects – inductive effect, mesomeric effect, electromeric effect, hyper conjugation and steric effects. Classification of reagents: Electrophiles, Nucleophiles and Free radicals. Types of reaction: Polar reactions involving carbonium ions and carbanions with simple examples.
2. Aliphatic Hydrocarbons: Restricted rotation about single bond preferred rotational conformations.
3. Cycloalkanes: Preparation by Dieckmann ring closure and by reduction of aromatic hydrocarbons – ring opening reactions of cyclopropane with H_2, Br_2 and HI.

Unit:4	Liquid Crystals and Black Body Radiation	21 hours

1. Liquid crystals–the concept of mesomorphic state-typical liquid crystalline substances and their properties.

2. Failure of classical theory in explaining black body radiation- Planck's theory of quantization of energy – Einstein's theory of photoelectric effect-Compton effect. de-Broglie theory of wave-particle dualism. Particle in one dimensional box (Wave length determination only) - Schrodinger equation.		
Unit:5	**Laws of Thermodynamics**	**21 hours**
The laws of thermodynamics, generalities and Zeroth law – kinds of energy – Scope of the first and second laws of thermodynamics-thermodynamic terms-definitions – heat – work of expansion – work of compression – maximum and minimum quantities of work – Reversible and irreversible transformations of energy. First law of thermodynamics – properties of energy changes in relation to properties of system- isothermal and adiabatic changes – meaning of the thermodynamic state function – properties of exact and inexact differentials – Joule Thomson experiment.		
	Total Lecture hours	**105 hours**

Text Book(s)	
1	Principles of Inorganic Chemistry, B.R. Puri L.R. Sharma, S.Chand& Co.
2	Inorganic Chemistry, P.L.Soni, Sultan Chand & Sons.
3	Organic Chemistry, Vol. 1, 2 & 3, S. M. Mughergee, S.P. Singh, R.P. Kapoor, Wiley Eastern.
Reference Books	
1	Advanced Organic Chemistry, B.S. Bahl, Arunbahl, S.Chand & Co.
2	Essentials of Physical Chemistry, B.S. Bahl and G.D. Tuli, S.Chand & Co.
3	Text book of Physical Chemistry, P.L.Soni, D.B. Dharmarke, S.Chand & Co.
4	Principles of Physical Chemistry, B.R.Puri, L.R.Sharma and M.S.Phathania, S.Chand & Co.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://nptel.ac.in/content/storage2/courses/104101005/downloads/LectureNotes/chapter%207.pdf
2	https://www.youtube.com/watch?v=4LQ8jdKZTEo
3	https://www.khanacademy.org/science/organic-chemistry/bond-line-structures-alkanes-cycloalkanes/conformations-alkanes-cycloalkanes/v/conformational-analysis-of-ethane
Course Designed By: Dr. S. P. Rajasingh	

Mapping with Programme Outcomes

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	S	M	M	S	S	S	S
CO2	M	M	M	M	S	S	M
CO3	M	M	S	S	S	M	M
CO4	S	M	S	S	M	S	S
CO5	S	S	M	S	S	S	M

*S-Strong; M-Medium; L-Low

Second Semester

Course code	23A	GENERAL CHEMISTRY - II	L	T	P	C
CORE		Core II – Paper - II	6	1	-	4
Pre-requisite		Higher Secondary Level Chemistry	Syllabus Version		2019-2020	

Course Objectives:

The main objectives of this course are to:

1. Outline the fundamentals of volumetric estimations
2. Explain electrophilic and nucleophilic substitution reactions
3. Describe the application of boron and silicate chemistry
4. Discuss thermodynamics and solid state chemistry

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the principles of volumetric analysis and estimate an unknown	**K1, K2**
2	Outline the structure and properties of boron and silicate compounds	**K1, K2**
3	Explain the aromatic electrophilic substitution and aliphatic nucleophilic substitution reactions with mechanism	**K2-K4**
4	Understand the relation between thermodynamic properties	**K1-K3**
5	Understand the packing and structure of crystals	**K1, K2**

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Volumetric Analysis and Redox Reactions	21 hours

1.Principles of Volumetric Analysis: Terms used in volumetric analysis, primary and secondary standard substances, standardization of solutions.

2. Concentration units: ppm, molality, formality, molarity, mole fraction, normality, weight percent and volume percent. Determination of equivalent weight of acids, bases, oxidant, reductant and simple salts. Types of volumetric titrations, acid-base, redox, precipitation and complexometric titrations.

3. Indicators: Effect of change in pH, neutralization, redox, adsorption and metal ion indicators.

4. Oxidation and reduction reactions: balancing redox equations by oxidation number and ion-electron method.

Unit:2	Boron and Silicates	21 hours

Chemistry of Boron family – Group discussion – Electron acceptor behaviour and electron deficiency of boron hydrides; bonding in diboranes; $NaBH_4$ and borazole - preparation, properties, structure and uses. Silicates-Classification of silicate- simple silicates, chain silicates and sheet silicates only.

Unit:3	Electrophilic and Nucleophilic Substitution	21 hours

Structure of benzene-Aromaticty-Huckel'srule. Electrophilic substitution in benzene with mechanism - Nucleophilic substitution reaction – SN_1, SN_2 and SN_i reactions – Grignard reagent and synthetic applications-Elimination versus substitution-Benzyne mechanism and intermediate complex mechanism.

Unit:4	Thermodynamics	21 hours

Relation between E and H, C_P and C_v. The heat of reaction – conventions in the values of H. Hess's law – heats of combustion – determination by Bomb Calorimeter – Bond energies –

Resonance energies – Heats of solution – integral and differential heat of dilution – Heats of reaction at constant volume – dependence of the heat of reaction on temperature and Kirchoff's equation.

Unit:5	**Solid State Chemistry**	**21 hours**

Crystalline and amorphous solids, crystal systems, Bravis lattice, unit cell, law of rational indices (Weiss indices), Miller indices, Symmetry elements in crystals (for cubic system only). X-ray diffraction by crystals - derivation of Bragg's equation - Bragg method - powder method. Crystal structure of NaCl, Wurzite, CaF_2 and TiO_2- radius ratio rules and packing in crystals.

	Total Lecture hours	**105 hours**

Text Book(s)

1	Principles of Inorganic Chemistry, B.R. Puri L.R. Sharma, S.Chand& Co.
2	Text book of Physical Chemistry, P.L.Soni, D.B. Dharmarke, S.Chand& Co.
3	Essentials of Physical Chemistry, B.S. Bahl and G.D. Tuli, S.Chand& Co.

Reference Books

1	Inorganic Chemistry, P.L.Soni, Sultan Chand & Sons.
2	Advanced Organic Chemistry, B.S. Bahl, ArunBahl, S.Chand& Co.
3	Physical chemistry, G. N. Castellan, Addison- Wesley Pub. Co.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://web.iit.edu/sites/web/files/departments/academic-affairs/academic-resource-center/pdfs/SN1_SN2.pdf
2	https://nptel.ac.in/content/storage2/courses/104101005/downloads/LectureNotes/chapter%209.pdf

Course Designed By: Dr. M. Sivakumar

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	S	M	M	S	S	S	S
CO2	M	M	M	M	S	S	M
CO3	M	M	S	S	S	M	M
CO4	S	M	S	S	M	S	S
CO5	S	S	M	S	S	S	M

*S-Strong; M-Medium; L-Low

Course code	23P	INORGANIC QUALITATIVE ANALYSIS	L	T	P	C
CORE		CORE III - CHEMISTRY PRACTICAL I	-	-	3	4
Pre-requisite		Higher Secondary Level Practical Knowledge	Syllabus Version		2010-2011	

Course Objectives:

The main objectives of this course are to:

1. Impart knowledge to the students in handling laboratory equipment and reagents
2. Improve the skill of inorganic mixture analysis.
3. Make the students to analyze and identify the cations and anions in the mixture of salts.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Do preliminary tests and identify interfering and non-interfering radicals and confirm their presence	**K1-K5**
2	Remove interfering anions, carry out a systematic analysis and identify the cations in a given sample	**K1-K5**

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Part I	ANALYSIS OF CATIONS	45 hours

CATIONS TO BE STUDIED: Lead, Copper, Bismuth, Cadmium, Iron, Aluminum, Zinc, Manganese, Cobalt, Nickel, Barium, Calcium, Strontium, Magnesium and Ammonium.

Part II	ANALYSIS OF ANIONS	45 hours

ANION TO BE STUDIED: Carbonate, Sulphate, Nitrate, Chloride, Bromide, Fluoride, Borate, Oxalate, and Phosphate.

	Total Practical hours	90 hours

Text Book(s)

1	Basic Principles of Practical Chemistry, Kulandaivelu A.R., Veeraswamy R., Venkateswaran, Sultan Chand & Sons, 2017.
2	Practical Chemistry for B.Sc Chemistry, A.O. Thomas

Reference Books

1	A Text Book of Qualitative Analysis including semi-micro methods, A.I.Vogel.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://www.youtube.com/watch?v=O9ba90MJws0
2	https://www.youtube.com/watch?v=oz1LNl90SSU
3	https://www.youtube.com/watch?v=QQo1e-BUZWs

Course Designed By: Dr. S. P. Rajasingh

Mapping with Programme Outcomes							
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**
CO1	M	S	S	M	S	M	S
CO2	S	M	S	S	M	S	S

*S-Strong; M-Medium; L-Low

Third Semester

Course code	33A	INORGANIC CHEMISTRY - I	L	T	P	C
CORE		Core IV – Paper III	3	-	-	4
Pre-requisite		Higher Secondary Level Chemistry	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are to:

1. Explains the fundamental concepts involved metallurgical process for extraction of metals.
2. Discuss the theories and stability of metal complexes.
3. Outline the importance of organometallic compounds and their catalytic applications.
4. Describe the structure & functioning of biomolecules and role of metals in biology

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Explain various chemical and electrochemical principles involved in the extraction of metals.	**K1,K3**
2	Make use of the occurrence and extraction of important metals and their compounds	**K2,K3**
3	Outline the importance of solvents and solubility in chemical reactions	**K2**
4	Define and classify the structure and properties of organometallic compounds	**K1-K3**
5	Describe the structure & functioning of biomolecules and role of metals in biology	**K1,K2**

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	**Methods of Extraction**	**9 hours**

General methods of Extraction: Concentration – Gravity separation, Froth Flotation, magnetic separation, Extraction – Chemical and Electrolytic methods of refining, Zone refining, Van Arkel refining and Electrolytic refining with examples. Occurrence, extraction, properties and uses of Germanium and Titanium and their important compounds such $GeCl_4$ and TiO_2.

Unit:2	**Extraction of Metals and Their Compounds**	**9 hours**

Occurrence, extraction, properties and uses of Zirconium, Vanadium, Molybdenum and Tungsten - their important compounds such as V_2O_5, $ZrOCl_2$, $(NH_4)_2MoO_4$, WO_2, and tungsten bronzes.

Unit:3	**Role of Solvents**	**9 hours**

The solvents- solubility of compounds – effect of temperature on solubility – Role of water as solvent- chemical structure and solubility. Classifications of solvents – general behaviour – properties of ionizing solvents. Types of reactions in non-aqueous solvents – protonic solvents – ammonia, hydrogen fluoride. Non Protonic solvents-SO_2 and BrF_3. Organic solvents – C_2H_5OH and Ether.

Unit:4	**Organometallic Compounds**	**9 hours**

Definition – Nomenclature of Organometallic compounds – Synthesis of organometallic compounds of Be, Mg, Zn, B and Al – Ferrocene: Preparation – Aromaticity of: Ferrocene, cyclic C_nH_n Ligands – Application of: Grignard reagent and Gilman Reagent - alkene polymerization using Ziegler-Natta catalyst.

Unit:5	**Bioinorganic Chemistry**	**9 hours**
Importance of metals in biological systems – chemistry of hemoglobin and myoglobin – Role of: Na^+ and K^+ ions – Mg^{2+} and Ca^{2+} ions – Biological functions and toxicity of trace elements: Cr, Mn, Co, Ni and Cu – Ultra trace elements: As, Se, Mo, I, Fe and Zn – Biological fixation of nitrogen – Metallo-enzymes: Carbonic anhydrase, Carboxy peptidase.		
	Total Lecture hours	**45 hours**

Text Book(s)	
1	Principles of Inorganic Chemistry, B.R. Puri L.R. Sharma, S.Chand & Co.
2	Principles of Inorganic Chemistry, B.R. Puri, L.R. Sharma and K.C. Kalia, , Milestone Publishers (2012)
3	Inorganic Chemistry, P.L.Soni, Sultan Chand & Sons.
Reference Books	
1	Huheey, J. E.; Keiter, E. A.; Keiter, R. L. Inorganic Chemistry, Principles of Structure and Reactivity, 4th ed., Harper Collins, 1993.
2	Lee. J.D, Concise Inorganic chemistry, V edition, Chapman & Hall Ltd, London ,2000
3	Shriver, D. F.; Atkins, P. W.; Langford, C. H. Inorganic Chemistry, 3rd ed., Oxford University Press, 2000.
4	Cotton, F. A.; Wilkinson, G.; Murillo, C. A.; Bochmann, M. Advanced Inorganic Chemistry, 6th ed., John Wiley, 1999.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://nptel.ac.in/content/storage2/courses/104101005/downloads/LectureNotes/chapter%207.pdf
2	https://youtu.be/BZ_tY88o0oI, Co-ordination chemistry, IIT Kharagpur, Prof. D. RaY.
3	https://youtu.be/FziKko-ZQww for bioinorganic chemistry.
Course Designed By: Dr. S. P. Rajasingh and Dr. P. Rajesh	

Mapping with Programme Outcomes							
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**
CO1	M	S	S	S	S	S	S
CO2	M	M	S	M	S	M	S
CO3	S	M	S	M	S	S	S
CO4	S	M	M	M	M	S	S
CO5	S	M	M	M	S	S	S

*S-Strong; M-Medium; L-Low

Course code	33B	PHYSICAL CHEMISTRY - I	L	T	P	C
CORE		Core V – Paper IV	3	-	-	4
Pre-requisite		Basics of Physical Chemistry	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are to:

1. Enable the students in understanding the second and third law of thermodynamics
2. Explain various system in phase rule and their application
3. Application of the computer C programming in chemistry

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the concepts of thermodynamics, Second law, and Entropy change.	**K1, K2**
2	Understand the Spontaneity and its conditions, Gibb's free energy and knowledge of third law.	**K2, K3**
3	Understand the concepts of Phase rule and its applications to various systems.	**K2 -K4**
4	Know the different laws of solutions and evaluate the Colligative properties	**K3, K5**
5	Understand the C-Program and evaluate the various parameters.	**K2, K5**

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Thermodynamics I	9 hours

Need of second law of thermodynamics – Carnot cycle – entropy – Definition – Entropy changes in isothermal transformation –Trouton's rule. Entropy as function of T and V – Entropy as a function of T and P – Changes of entropy with T, Entropy changes in ideal gas – entropy of mixing of ideal gases.

Unit:2	Thermodynamics II	9 hours

General conditions of equilibrium and spontaneity - conditions of equilibrium and spontaneity– definition of A and G – physical significance of dA and dG - Temperature and pressure dependence of G – Gibbs – Helmholtz equation. Chemical equilibrium – The concept of chemical potential – chemical potential in a mixture of ideal gases – Van't Hoff Isotherm, and isochore – Third law of thermodynamics – statement and applications - Exception to third law.

Unit:3	Phase Rule	9 hours

Phase equilibria – equilibrium condition - Stability of phase of a pure substance – Pressure dependence of μ and T curves. The Clapeyron and Clapeyron-Clausius equations. Derivation of Gibbs phase rule. Phase equilibria in one component system – Water and Sulphur systems. Reduced phase rule – Phase diagram for two component system – construction of the phase diagram-Thermal analysis method – Phase Diagram of Simple eutectic systems: Pb-Ag System - extraction of Silver from Argentiferous Lead, Compound forming type – Congruent melting point: Zn-Mg, Incongruent melting point: Na-K systems.

Unit:4	Solutions	9 hours

Ideal and non-ideal – Raoult's law- Positive and negative deviation Henry's law – Nernst

distribution law and its applications. Colligative properties - relative lowering of vapour pressure, elevation of boiling point, depression of freezing point and osmotic pressure- their applications.

Unit:5	**C Program for Chemistry**	**9 hours**

Structure of C program, Variables in C, Keywords and constants in C, Operators in C – Arithmetic, Increment, Decrement, relational and logical operators - Program: To calculate the pH of solutions– Calculation of pH of solution using Henderson equation- to compute the rate constant of a first order reaction – to compute half-life period of a reaction – to compute the energy of activation of a reaction.

	Total Lecture hours	**45 hours**

Text Book(s)

1	Principles of physical chemistry, B.P. Puri, L.R. Sharma and M.S. Phathania, S.Chand& Company
2	Physical chemistry G,W.Castelan, Narosa Publishers.
3	Physical chemistry (Vol.ll) – N.B.Singh, ShivasaranDas, A.K.Singh – New Age International Publishers – First edition (2009)

Reference Books

1	Elements of Physical Chemistry, Puri Sharma, Pathania, 2013-14 Edn., Vishal Publishing Co. Jalandhar, Delhi.
2	Principles of Physical chemistry, Puri Sharma Pathania, 46thEdn. Vishal Publishing Co. Jalandhar
3	Computer for Chemists – By Pundir Bansal – Pragati Prakasam Pubs.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://nptel.ac.in/courses/112/108/112108148/
2	https://www.youtube.com/watch?v=2LywAiZBQW4

Course Designed By: Dr. P. Rajesh

Mapping with Programme Outcomes

COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**
CO1	S	L	M	L	S	S	M
CO2	S	L	S	M	M	S	S
CO3	M	S	M	L	L	M	M
CO4	S	S	M	M	S	L	L
CO5	M	S	L	M	M	S	M

*S-Strong; M-Medium; L-Low

Course code	3ZA	CHEMISTRY OF NATURAL AND SYNTHETIC FIBERS	L	T	P	C
SBS		Skilled Based Subject – I	2	-	-	2
Pre-requisite		Higher Secondary Level Chemistry	Syllabus Version		2010-2011	

Course Objectives:

The main objectives of this course are to:

1. Detail explanation of the classification of natural fiber, its merits and demerits
2. Outline about the preparation, properties and uses of viscose, synthetic and acrylic fiber
3. Describe the reaction of nylon and polyester fiber

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	To understand the classification, properties and uses of natural fibers.	**K1, K2**
2	Able to know about the chemical structure of cellulose fiber. Wet spinning process.	**K1 – K3**
3	Discuss about synthetic and acrylic fiber. Detail about fiber forming polymer and schio process.	**K1,K2, K4, K6**
4	Explain the naming reaction of nylon fiber. Explanation of structure and uses of Kevlar fiber.	**K1, K2**
5	Discuss about polyester fiber. Synthesis of DMT, ethylene glycol and PET	**K1, K3, K4**

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Natural Textile Fibers	6 hours

Natural Textile Fibers: Definition, Classification of Natural Textile Fibers - Vegetable fibers, Animal fibers. Properties, Uses and Features of Cotton, Wool, Silk and Jute fibers. Genetically Modified Cotton: its merits and demerits.

Unit:2	Viscose Fiber	6 hours

Viscose Fibre: Chemical structure, chemistry of regenerated cellulose. Production of Viscose Fibre: a simple flow chart, wet spinning of viscose filaments. Properties and uses of Viscose Fibre.

Unit:3	Synthetic and Acrylic Fibers	6 hours

Synthetic Fibers: Definition of monomers, polymers and polymerization. Simple examples of Condensation and Addition Polymerization reactions. Criteria for fibre forming polymers.
Acrylic fibers: Synthesis of Acrylonitrile from propylene (Sohio Process), solution polymerization of acrylonitrile. Properties and uses of acrylic fibers.

Unit:4	Nylon Fibers	6 hours

Nylon Fibres: Synthesis of caprolactum from aniline, adipic acid from cyclohexane and hexamethylene diamine from adiponitrile. Polycondensation reactions leading to the formation of Nylon 6 and Nylon 6,6. Properties and uses of Nylon fibers. Structure and uses of Kevlar fibers.

Unit:5	Reaction of Polyester Fibers	6 hours

Polyester Fibers: Synthesis of Dimethyl Terephthalate (DMT) from p – xylene, terephthalic acid from benzoic acid (Henkel-II process) and synthesis of ethylene glycol. Chemical reactions of Poly Ethylene Terephthalate (PET). Preparation, properties and uses of Polyester

fibers.		
	Total Lecture hours	**30 hours**
Text Book(s)		
1	Moses, J. Jeyakodi, and M. Ramasamy. "Quality Improvement on Jute and Jute Cotton Materials Using Enzyme Treatment and Natural Dyeing". *Man-Made Textiles in India*. Vol. 47, no. 7 (Jul. 2004): 252–255. (AN 14075527)	
2	"cotton". The Columbia Encyclopedia, Sixth Edition. 2001-07.	
3	A.A.Vidya,. ed.:Production of Synthetic Fibers, Prentice-Hall of India, 1988, New-Delhi.	
Reference Books		
1	Stephen Yafa (2004). *Cotton: The Biography of a Revolutionary Fiber*. Penguin (Non-Classics), 16. ISBN 0-14-303722-6.	
2	Kadolph, Sara J., ed.: *Textiles*, 10th edition, Pearson/Prentice-Hall, 2007, ISBN 0-13- 118769-4.	
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]		
1	https://www.youtube.com/watch?v=ypUkIR894AM	
2	https://www.youtube.com/watch?v=0hoHvN289Xs	
Course Designed By: Dr. N. Sivakumar		

Mapping with Programme Outcomes							
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**
CO1	S	S	S	S	S	S	S
CO2	M	S	M	S	S	S	M
CO3	S	M	S	S	S	M	M
CO4	S	M	S	S	M	S	S
CO5	S	S	M	S	S	S	S

Fourth Semester

Course code	43A	ORGANIC CHEMISTRY - I	L	T	P	C
CORE		Core VI – Paper V	4	-	-	4
Pre-requisite		Basics of Organic Chemistry	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are to:

1. Understand the carbonyl compound's reactivity and various reduction reactions
2. Explain the reactivity of active methylene compounds with electrophiles
3. Outline the reactivity of monohydric alcohols and amines.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Know the knowledge of Preparation and Properties of Carbonyl Compounds.	**K1**
2	Understand the mechanism of certain name reactions.	**K2, K3**
3	Understand the concepts of active Methylene compounds and Geometrical isomerism of certain organic compounds.	**K2, K4**
4	Know the classification of Phenols, Preparation of phenolic compounds with chemical properties.	**K2**
5	Know the concepts of amines, types, separation and their basic nature.	**K3, K4**

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Chemistry of Carbonyl Compounds – I	12 hours

Nomenclature, Preparation & Properties: Structure of carbonyl - general physical properties - Reaction with: Grignard reagent, NH_3, primary amine – Reaction Mechanism of haloform reaction, Reformatsky reaction.

Reduction Reactions: with $LiAlH_4$ and $NaBH_4$– Clemmensen reduction, Wolff Kishner reduction, MPV reduction

Unit:2	Chemistry of Carbonyl Compounds – II	12 hours

Mechanism of: - Aldol condensation, Cannizzaro reaction, Perkin reaction, Knoevanagel reaction, Claisen- Schmidt reaction, benzoin condensation, Mannich reaction.

Unit:3	Active Methylene Compounds	12 hours

Acetoacetic ester: preparation from Ethyl acetate – synthesis of succinic acid, 1,3-diketones, antipyrine - Malonic ester: Preparation from potassium cyanoacetate – synthesis of cinnamic acid, keto acids, barbituric acid - cyanoacetic ester: preparation from chloroacetic acid – synthesis of malonic acid and adipic acid - Tautomerism of acetoacetic ester.

Geometrical isomerism: Cis & Trans, E & Z notations – Geometrical isomerism in maleic acid and fumaric acid - physical and chemical properties of geometrical isomers.

Unit:4	Phenols	12 hours

Classification of phenols – Preparation of phenol from chlorobenzene, cumene – Reaction with mechanism: Schotten – Bauman and Gattermann reactions

Di and Trihydric phenols: Preparation of Catechol, Resorcinol, Quinol, Pyrogallol and Phloroglucinol – Houben-Hoesch reaction

Unit:5	**Amines**	**12 hours**
Preparation of aliphatic and aromatic primary, secondary and tertiary amines – their separation, comparison of their basicity **Reactions of Aromatic Amine**: ring substitution, diazotization and coupling reaction – Diazomethane: preparation and synthetic applications		
	Total Lecture hours	**60 hours**

Text Book(s)	
1	Advanced Organic Chemistry, B.S.Bahl, Arunbahl, S.Chand & Co.,
2	Text book Organic Chemistry, P.L. Soni, S.M. Chawla, Sultan Chand & Sons
Reference Books	
1	Stereochemistry, Conformation and mechanisms, Kalsi, Wiley- Eastern Ltd.,
2	Organic chemistry, R.T.Morrison and R.W. Boyd, Prentice –Hall.
3	Fundamentals of Organic Chemistry, T.W.Graham Solomen, John-Wiley & Sons
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://nptel.ac.in/content/storage2/courses/104101005/downloads/LectureNotes/chapter%2010.pdf
2	https://www.youtube.com/watch?v=JgmzmehMiWM
Course Designed By: Dr. S. P. Rajasingh and Dr. A. Thirumoorthi	

Mapping with Programme Outcomes							
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**
CO1	S	L	M	L	M	M	L
CO2	M	L	S	L	L	M	M
CO3	L	M	S	M	L	L	S
CO4	S	M	S	L	M	M	L
CO5	S	L	M	M	L	M	L

*S-Strong; M-Medium; L-Low

Course code	43P	VOLUMETRIC AND ORGANIC ANALYSIS	L	T	P	C
CORE PRACTICAL		CORE VII - CHEMISTRY PRACTICAL II	-	-	3	4
Pre-requisite		Basics Knowledge on Volumetric and Organic Reactions	Syllabus Version		2010-2011	

Course Objectives:

The main objectives of this course are to:

1. Inculcate the students how to skilfully handle the laboratory equipments, reagents, lab apparatus and preparation of standard solutions.
2. Impart the first-hand knowledge and experience on estimation of an ion, acid and base both directly as well as indirectly.
3. Provide the student knowledge on analysis of an unknown organic substance using Preliminary and confirmation test and prepare a suitable derivative.
4. Make the student skilful enough and prepare for a position in an analytical laboratory or a company.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Estimate the amount of ion present in the given solution through volumetric analysis both by direct and indirect method	**K1-K6**
2	Find the groups/elements and characters present in the given organic substance through qualitative analysis and prepare a suitable derivative.	**K1-K6**

K1 – Remember; **K2** – Understand; **K3** – Apply; **K4** – Analyze; **K5** – Evaluate; **K6** – Create

Part I	VOLUMETRIC ANALYSIS	45 hours

A. Acidimetry&Alkalimetry: Estimation of Na_2C0_3

B. Permanganometry:

1. Estimation of Ferrous sulphate & Oxalic acid
2. Estimation of Calcium-Direct method.

C. Dichrometry: Estimation of Ferrous iron using internal indicator.

D. Iodimetry:

1. Estimation of $K_2Cr_2O_7$
2. Estimation of Copper.
3. Estimation of As_2O_3.

Part II	ORGANIC ANALYSIS	45 hours

Systematic analysis of an organic compound Preliminary tests, detection of elements present, Aromatic or Aliphatic, Saturated or unsaturated, nature of the functional group, confirmatory tests and preparation of derivatives.

Substances - Aldehydes, Ketones, Amines, Amides, Diamide, Carbohydrates, Phenols, Acids, Esters & Nitro compounds.

	Total Practical hours	90 hours

Text Book(s)

1	Basic Principles of Practical Chemistry, Kulandaivelu A.R., Veeraswamy R.Venkateswaran, Sultan Chand & Sons, 2017.
2	Practical Chemistry, Pandey D.N., Sultan Chand Publishers, 2018

Reference Books

1	Vogel's Text book of Practical Organic Chemistry, Brian S. Furniss, Antony J.

	Hannaford, Peter W. G. Smith, Fifth Edition, Bath Press, Great Britan, 1989
2	Vogel's Textbook of Quantitative Chemical Analysis, G H Jeffery, J Bassett, J Mendham, R C Denney, Fifth Edition, Bath Press, Great Britan, 1989
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://nptel.ac.in/courses/104/106/104106108/
2	https://www.youtube.com/watch?v=n4esSHxz_J8
3	http://wwwchem.uwimona.edu.jm/lab_manuals/c10expt25.html/
4	https://www.youtube.com/watch?v=7bmQkQW8bbs
5	https://www.youtube.com/watch?v=wRAo-M8xBHM
Course Designed By: Dr. S. P. Rajasingh	

Mapping with Programme Outcomes							
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**
CO1	S	S	S	S	S	S	S
CO2	S	S	S	S	S	S	S

*S-Strong; M-Medium; L-Low

Course code	4ZB	TECHNOLOGY OF DYEING OF NATURAL FIBERS	L	T	P	C
SBS		Skilled Based Subject – II	2	-	-	2
Pre-requisite		Basic Knowledge in Fibers	Syllabus Version		2010-2011	

Course Objectives:

The main objectives of this course are to:

1. To impart knowledge and skill in career oriented with a special reference to dying textile industry.
2. To help students to acquire additional knowledge of dyeing auxiliaries and methods used in textile industry.
3. To give students an over view on process and mechanism of dyeing.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	State the basic aspects of colour and dyeing auxiliaries.	**K2,K4,**
2	Outline various methods of dyeing.	**K2,K3**
3	Demonstrate the process of azoic dyes and their applications.	**K2,K3**
4	Acquire knowledge in vat dyes and the procedures followed for dyeing.	**K2,K3**
5	Summarize the properties and mechanism of dyeing particularly sulfur and acid dyes.	**K3,K4, K5**

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	**Introduction to Dyeing**	**6 hours**

Theory of Colour, chromophore, auxochrome, chromogen. Primary and Secondary colour. Chromatic and Achromatic Colours – Classification of dyes. Definition – Affinity, Substantivity, Exhaustion, % Shade, Adsorption, Diffusion, Aggregation, Migration – Effects of M:L ratio, salt, time and temp. of dyeing. Properties of direct dyes – Application of direct dyes of Cotton: Mechanism of dyeing. Stripping and Redyeing. After treatment with $CuSO_4$, $K_2Cr_2O_7$ and dye fixing agents.

Unit:2	**Methods of Dyeing**	**6 hours**

Reactive dyes – properties, Cold Brand, Hot Brand, Vinyl sulphone dyes, LS dyes, HE dyes, bifuctional dyes, Mechanism of dyeing. Exhaust dyeing, pad-batch, pad-steam, pad-cure, pad-silicate Methods. Stripping and redyeing.

Unit:3	**Napthols and Fast Bases**	**6 hours**

Naphthols and Fast Bases: properties and application – Diazotisation and coupling. Brief study on dissolution (classification of naphthols, cold and hot dissolution methods). Bases – direct and indirect method of diazotization. Application procedure of any one naphthols and base using Jigger and pad-dry-develop method. Stripping and Redyeing.

Unit:4	**Vat Dyes**	**6 hours**

Types of Vat dyes. Details of vatting, dyeing, oxidation and soaping. Application procedure: Leuco vat, vat acid – pigment padding – pad steam process. Merits and demerits of above methods. Dyeing of yarn with vat dyes by conventional method.

Unit:5	**Properties and Application of Dyes**	**6 hours**

Brief study – solubilised vat dyes – properties – advantages and disadvantages over vat

dyes – application – exhaust dyeing method. Sulphur dyes – Properties of Sulphur dyes – application. Jigger and continuous dyeing defects. Bronziness and acid tendering – Stripping and redyeing. Use of hydros. Properties of basic dyes mordants used for cotton. Dyeing wool & silk with basic dyes. Eco-friendly sulphur dyeing. Acid dyes – Properties, classification of dyes – leveling acid dyes, milling acid dyes – supermilling acid dyes – application to wool and silk. Mechanism of dyeing – Dyeing of nylon with acid dyes.

	Total Lecture hours	**30 hours**

Text Book(s)

1	Shenai V.A., Technology of Textile Processing Vol. 1 and 2, Chemistry of Dyes and Principle of Dyeing Ed. 3, 1983, Sevak Publication, 306, Sri Hanuman Industrial Estate, GC Ambedkar Road, Wadala, Bombay 400 031.
2	Chakravarthy RR and Trivedi S.S., Technology of Bleaching and Dyeing of Textile Fibre Vol 1, Part 1, 1979, Mahajan Book Publi shres, Supermarket Basement, Near Nataraj Cinema, Ashram Road, Ahmedabad 380 009.
3	Srivastava SB, Recent Process of Textile Bleaching, Dyeing and Finishig, 1981, SB Srivastava, S B P Board Consultant, S B P Buildings, 4/45 Roopnagar, Delhi 110 007.

Reference Books

1	Trotman E.R, Dyeing and Chemical Technology of Textile Fibre, Charles Griffin & Co, 42, Dhury lane, Londan WC2
2	Gokhle S.V. and Shah.R.C., Cotton Piece dyeing, 1981, Ahmedabad Textile Industrial Research Assn. (ATIRA), PO Polytechnic, Ahmedabad 380 015.
3	Prayag R.S., The bleaching and deying of Cotton material 1983, Weaver's Service Cent., 15A, Mamparamanand Marg, Near Roxy Cinema, Bombay 400 004.
4	D.M. Lewis, Wool Dyeing, SDC Publications, UK.
5	J.K.Aspland, Textile Dyeing and Colouration, AATCC Publications, USA.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://onlinecourses.swayam2.ac.in/cec19_te01/preview
2	https://www.classcentral.com/course/swayam-textile-finishing-14326

Course Designed By: Dr. S. Rajalakshmi

Mapping with Programme Outcomes

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	S	S	S	S	S	S	S
CO2	S	S	M	M	S	S	S
CO3	S	M	S	M	S	S	S
CO4	S	S	M	M	S	M	S
CO5	S	S	M	M	M	M	S

*S-Strong; M-Medium; L-Low

Fifth Semester

Course code	53A	INORGANIC CHEMISTRY - II	L	T	P	C
CORE		Core VIII – Paper - VI	5	-	-	4
Pre-requisite		Basics of Inorganic Chemistry	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are to:

1. To acquire knowledge on nuclear reactions, reactivity of atom bomb and hydrogen bomb, the importance of nuclear reactors in production of electricity.
2. To describe the structure of metals and alloys along with its classifications and to impart basics on semiconductors along with its uses.
3. To develop chemistry knowledge on isotopes, the importance of radioactive compounds in food preservation, archaeological dating and medical diagnosis and treatment.
4. To study about the concepts related to the coordination compounds.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Rationalise the conductivity of metals, semiconductors along with its applications.	**K1, K2,K3**
2	Understand the types of nuclear reactions and its importance in generation of electricity.	**K1,K2**
3	Acquire enormous knowledge on uses of isotopes and radioactive substances.	**K1,K2**
4	Understand the terms - ligand, chelate, coordination number and various types of isomerism possible in coordination compounds.	**K3,K4**
5	Outline various theories of coordination compounds and complete understanding on Crystal Field and Valence Bond Theory.	**K2,K3**

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Metals and Solid Solutions	15 hours

Structure of metals and alloys-substitutional and interstitial solid solution-Hume Rothery ratios-metallic bonding-electrical, optical and mechanical properties of metals-semiconductors, intrinsic and extrinsic-their uses. Super conductors-An elementary treatment.

Unit:2	Radioactivity and Nuclear Reactions	15 hours

Artificial radio activity. Artificial transmutation of elements, synthesis of radio isotopes and. nuclear fission and fusion. Nuclear reactors – principle of working – production of electrical energy – atomic projects in India – Safety measures; disposal of reactor wastes – pollution. Nuclear reactions, mechanisms and different types of stellar energy.

Unit:3	Isotopes and Their Applications	15 hours

Nature of isotopes and isobars – detection and isolation of isotopes – various methods – importance of discovery of istopes – uses of isotopes in various fields. Nuclear stability n/p ratio, magic numbers, C-12 atomic weight scale, C-14 dating, mass defect and nuclear binding energies. Radioactive disintergration series.

Unit:4	Co-ordination Chemistry - I	15 hours
Co-ordination chemistry – I Types of ligands, IUPAC Nomenclature, Isomerism - Ionisation, hydrate, linkage, ligand and coordination isomerism. Stereoisomerism-geometrical and optical isomerism in 4 & 6 coordinated complexes. Theories of coordination compounds – Werner's and Sidgwick's EAN concept , Valence Bond theory – hybridisation, geometry and magnetic properties of $[Ni(CN)_4]^{2-}$, $[NiCl_4]^{2-}$,$[Fe(CN)_6]^{4-}$, $[Co(NH_3)_6]^{3+}$ and $[CoF_6]^{3-}$.		
Unit:5	**Co-ordination Chemistry - II**	**15 hours**
Limitations of valance bond theory, an elementary idea of crystal field theory, crystal field splitting in octahedral, tetrahedral and square planner complexes, low spin & high spin complexes, factors affecting the crystal-field parameters. Explanation of colour and magnetic properties using CFT, comparison of VBT and CFT. A brief outline of thermodynamics stability of metal complexes and factors affecting the stability, stability constants of complexes and their determination, substitution reactions of square planar complexes.		
	Total Lecture hours	**75 hours**

Text Book(s)

1	Malik,Wahid U., G.D. Tuli and R.D .Madan . Selected Topics in InorganicChemistry,7th ed., New Delhi S. Chand& Company Ltd., 2007.
2	B. R. Puri, L. R. Sharma, K. C. Kalia, Principles of Inorganic Chemistry, Shoban Lal Nagin Chand and Co., Delhi, 1996.
3	H. J. Arnikar, Essentials of Nuclear Chemistry, 4th ed., New Age International, New Delhi, 1995.

Reference Books

1	J. E. Huheey, E. A. Kieter and R. L. Keiter, Inorganic Chemistry, 4th ed., Harper Collins, New York, 1993.
2	F. A. Cotton, G. Wilkinson, C. Murillo and M. Bochman, Advanced Inorganic Chemistry, 6th ed., John Wiley, New York, 1999.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://nptel.ac.in/courses/104/105/104105033/
2	https://www.encyclopedie-environnement.org/en/physics/radioactivity-and-nuclear-reactions/

Course Designed By: Dr. S. P. Rajasingh and Mr. C. Sudhakar

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	M	S	M	S	M	S	S
CO2	M	M	M	M	S	S	M
CO3	S	M	S	M	S	M	M
CO4	M	M	S	S	S	M	M
CO5	S	S	M	M	S	M	S

*S-Strong; M-Medium; L-Low

Course code	53B	SPECTROSCOPY	L	T	P	C
CORE		CORE IX - PAPER VII	5	-	-	4
Pre-requisite		Knowledge on basic structure and reactions of simple organic compounds.	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are to:

1. Understand the basic concepts and theory behind the principles of different spectroscopic methods.
2. Study the instrumentation and applications of UV-Visible, IR, Raman, NMR, Mass and ESR spectroscopic techniques.
3. Predict the structure of organic compounds using IR, NMR and mass spectrometry.

Expected Course Outcomes:

On the successful completion of the course, students will be able to:

CO1	Gain the knowledge of different electromagnetic radiations, basic concepts, instrumentation and applications of UV-Visible spectra.	**K2, K3**
CO2	Know different types of vibrational frequencies, comparison between IR and Raman spectroscopy as well as their applications.	**K2, K3**
CO3	Study the basic principles, instrumentation and applications of NMR spectroscopy pertaining to some simple organic compounds.	**K2, K3, K4**
CO4	Acquire the knowledge on the basic concepts, instrumentation and applications associated with ESR.	**K2, K3, K4**
CO5	Understand the different concepts of mass spectrometry along with the determination of molecular formula.	**K2 – K5**

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Ultra Violet – Visible Spectroscopy	15 hours

Spectroscopy: Absorption and Emission spectra – Fundamental concepts – Electromagnetic spectrum with relative energies in each region.

Ultra Violet – Visible Spectroscopy: Introduction – Beer–Lambert's law – Instrumentation (block diagram) – Formation of absorption bands – Theory – Types of Electronic Transitions – Transition probability – The Chromophore and Auxochrome concepts – Absorption and Intensity shifts (Bathochromic, hypsochromic, hyperchromic and hypochromic shifts) – Types of absorption bands – Frank Condon principle – Applications of UV – Visible spectra.

Unit:2	IR and Raman Spectroscopy	15 hours

IR Spectroscopy: Principle – Types of molecular vibrations – Vibrational frequencies – Factors affecting vibrational frequencies – Instrumentation (block diagrams with description of components) – Finger print region – Characteristic absorption bands of various functional groups – Applications of IR spectra.

Raman Spectra: Theory - Comparison of IR and Raman spectra – Applications of Raman Spectra.

Unit:3	NMR Spectroscopy	15 hours

Introduction and basic principles – Spin – Spin relaxation, Spin – lattice relaxation – Instrumentation (Block diagram) – Chemical shift – Importance of TMS – Factors influencing chemical shift – Shielding and deshielding effects – Number of signals – Applications of NMR

to simple molecules like Ethyl alcohol (Pure and Impure), Toluene, Phenol, Acetaldehyde and Diethyl ether.		
Unit:4	**ESR Spectroscopy**	**15 hours**
Basic Principle – The g factor – Hyperfine splitting – Instrumentation –Applications to methyl radical and Naphthalene negative ion.		
Unit:5	**Mass Spectrometry**	**15 hours**
Basic Principles – Theory – The molecular ion – Determination of molecular formula – McLafferty rearrangement – Metastable peaks – Nitrogen rule – Retro Diels –Alder reaction.		
	Total Lecture hours	**75 hours**

Text Book(s)

1	Elementary Organic Spectroscopy (Principles and chemical applications) – Y.R.Sharma, S. Chand & Company Ltd. Publications, Fifth revised Edn, 2017.
2	Organic Spectroscopy (Principles and Applications) – Jag Mohan, Narosa Publishing House, Second Edn, 2012.

Reference Books

1	Spectroscopy of Organic compounds – P.S. Kalsi, New Age International Ltd. Publishers, Sixth Edn, 2005.
2	Analytical Chemistry (Theory and Practice) – U.N. Dash, S. Chand & Sons, Second Edition, 2005.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://ndl.iitkgp.ac.in/
2	https://nptel.ac.in/course.html
3	https://ocw.mit.edu/
	https://www.oercommons.org/advanced-search

Course Designed By: Dr. A. Thirumoorthi

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	M	S	S	M	M	S	M
CO2	M	S	S	S	M	S	S
CO3	S	S	H	S	M	S	S
CO4	M	M	M	M	L	M	M
CO5	M	S	M	M	M	S	M

*S-Strong; M-Medium; L-Low

Course code	53C	ELECTRO CHEMISTRY	L	T	P	C
CORE		Core X – Paper VIII	5	-	-	4
Pre-requisite		Higher Secondary Level Knowledge	Syllabus Version		2016-2017	

Course Objectives:

The main objectives of this course are to:

1. Make the students understand basic electrochemical principles
2. Give them an insight into the types of storage cells & their applications
3. Enable the student to understand the construction & working of different types of electrodes

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Describe the principle of solubility product and relate the pH of a solution containing a mixture of the two components to the acid dissociation constant, Ka	**K1-K3**
2	Understand the difference between metallic conductance & electrolytic conductance	**K1,K2**
3	Recognize the different types of electrochemical cells and calculate the cell potential from standard cell potential	**K2,K3**
4	Distinguish between cells and use the Nernst equation for calculating EMF of a cell.	**K1-K4**
5	Understand the working principles of fuel cells, storage cells and battery design.	**K2-K4**

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Ionic Equilibrium	15 hours

Ionic Equilibria -Solubility and solubility product-determination of solubility product- Applications of solubility product principle. Dissociation of weak acids and bases-Dissociation constants-pH scale-common ion effect-buffer solutions- Determination of pH values of buffer mixtures-Henderson's equation-Hydrolysis of salts-Degree of hydrolysis.

Unit:2	Conductivity of Ions	15 hours

Electrical conduction, conduction in metals and in electrolytic solutions. Measurement of conductivity in electrolytic solutions. Migration of ions-Kohlrausch's law. Arrhenius theory of electrolytic dissociation-Ostwald's dilution law. Theory of strong electrolytes-Debye-Huckel-Onsagar theory (elementary account only) verification. Debye-Falkenhagen effect-Wien effect-Transport numbers-Determination. Conductometric titrations.

Unit:3	Electrochemical Cells	15 hours

Electrochemical cells. Electrode potentials-The standard hydrogen electrode kinds of electrodes and their potentials-Nernst equation. EMF-computation and measurement of cell EMF. Single electrode potential-Determination and significance of electrode potentials- electro chemical series- temperature dependence of the cell EMF- Thermodynamic quantities of cell reactions.

Unit:4	Electrode Potential	15 hours
Reference electrodes-Electrodes for measurement of pH-concentration cells with and without transport-liquid junction potential-applications of EMF measurements. Redox potential-Redox indicators-uses. Potentiometric titrations.		
Unit:5	**Fuel and Storage Cells**	**15 hours**
Fuel cells: Hydrogen- oxygen cell and hydrocarbon - oxygen cell. Storage cells. Lead storage cell and Nickel cadmium cell. Decomposition voltage-over voltage-Deposition and discharge potential.		
	Total Lecture hours	**75 hours**

Text Book(s)

1	B.R. Puri and L.R. Sharma, Principles of physical chemistry, Shoban Lal Nagin Chand and Co. 33rd edition, 1992.
2	S.H. Maron and J.B. Lando, Fundamentals of physical chemistry, Macmillan limited, New York, 1966.

Reference Books

1	S.K. Dogra and S. Dogra, Physical chemistry through problems, New age international, 4th edition 1996.
2	P.W. Atkins, Physical chemistry, Oxford university press, 1978
3	K. L. Kapoor, A textbook of Physical chemistry, (volume-2 and 3) Macmillan, India Ltd, 1994.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://chem.pg.edu.pl/documents/175289/4235721/Electrochemistry-supplement%20text.pdf
2	https://nptel.ac.in/courses/104/106/104106105/
3	https://nptel.ac.in/content/storage2/courses/103108100/module6/module6.pdf

Course Designed By: Dr. N. Bhuvaneshwari

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	S	M	M	S	S	M	M
CO2	M	S	M	S	S	L	M
CO3	M	M	S	M	S	S	M
CO4	S	S	M	M	M	S	S
CO5	S	L	S	M	M	M	M

*S-Strong; M-Medium; L-Low

Course code	53D	ANALYTICAL CHEMISTRY	L	T	P	C
CORE		Core XI – Paper IX	4	-	-	4
Pre-requisite		Higher Secondary Level	Syllabus Version		2009-2010	

Course Objectives:

The main objectives of this course are to:

1. Understand the principles of various analytical techniques and their applications
2. Analyze errors and perform various tests for analytical data
3. Outline the concepts of gravimetric methods in quantitative analysis

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the principles of various analytical techniques and their applications	**K2, K3**
2	Evaluate different types of errors and correct them.	**K1, K5**
3	Perform various tests for set of analytical data	**K3, K4**
4	Understand the theory of quantitative analysis	**K1, K6**
5	Determine an analyte quantitatively using gravimetric methods	**K3, K5**

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Analytical Techniques	12 hours

Basic principles and applications of Analytical techniques such as Precipitation, filtration, sample drying, transfer of precipitates, distillation, vacuum distillation, fractional distillation and steam distillation. Sublimation, crystallization, fractional crystallization and Refractive Indices.

Unit:2	Data Analysis	12 hours

Evaluation of Analytical data: Accuracy and precision, methods for their expression, classification of errors, detection and correction of determinate and indeterminate errors. The normal law of Distribution of Indeterminate errors.

Unit:3	Statistical Tests and Significant Figures	12 hours

The F test and the T test, rejection of data- the method of least squares, propagation of errors in computation- significant figures.

Unit:4	Quantitative Analysis and Chemical Equilibrium	12 hours

Theory of Quantitative Analysis; Application of Chemical equilibrium to analytical separations and estimations: The equilibrium constants, activity coefficients. Acid-Base equilibria, solubility equilibria, distribution equilibria, Complex ion equilibria and stability constant Separations and estimations: illustrated with examples.

Unit:5	Gravimetric Methods	12 hours

Theory of indicators, Theory of precipitation, Co-precipitation, Post-precipitation, theory of purifying the precipitates, Acid-Base, redox, Complexometric and precipitation Titrations, Volumetric analysis.		
	Total Lecture hours	**60 hours**
Text Book(s)		
1	Elements of Analytical Chemistry. R. Gopalan, Sultan Chand & Sons	
Reference Books		
1	Quantitative Chemical Analysis, A.I. Vogel.	
2	Instrumental Methods of Analysis, Skoog.	
3	Instrumental Methods of Analysis, Willard, Dean, Merrit and Settle, CBS.	
4	Vogel's Textbook of Quantitative Chemical Analysis, G H Jeffery, J Bassett, J Mendham, R C Denney, Fifth Edition, Bath Press, Great Britan, 1989	
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]		
1	https://www.mobt3ath.com/uplode/book/book-19965.pdf	
2	https://chem.libretexts.org/Courses/University_of_California_Davis/UCD_Chem_105/Chapters/5._Errors_in_chemical_analysis	
Course Designed By: Dr. S. P. Rajasingh and Dr. S. Sivakumar		

Mapping with Programme Outcomes

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	S	M	L	S	S	S	M
CO2	S	M	M	S	S	M	S
CO3	M	M	S	S	S	M	S
CO4	S	S	S	M	S	M	S
CO5	S	M	L	M	S	S	S

*S-Strong; M-Medium; L-Low

Course code	5ZC	WATER & EFFLUENT TREATMENT AND POLLUTION CONTROL	L	T	P	C
SBS		Skilled Based Subject – III	3	-	-	2
Pre-requisite		Higher Secondary Level Chemistry	Syllabus Version		2010-2011	

Course Objectives:

The main objectives of this course are to:

1. Over view of impact of man on the environment
2. Detail view of pollutions and water softening techniques
3. Description about water effluent treatment and pollution analysis techniques

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	To understand urbanization and biodiversity along with environmental pollution.	**K1, K2**
2	Acquires the knowledge about water pollution and water softening methods.	**K1,K2, K3, K4**
3	Importance about water analysing methods along with determination of BOD, COD and toxicity.	**K2,K3, K4,**
4	Detail explanation of primary, secondary and tertiary water treatment methods.	**K2,K3, K4,K5**
5	Discuss about effect of noise pollution along with brief study on modern methods for pollution analysis.	**K1,K2, K4**

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Sources of Pollution	6 hours

Impact of man on the Environment – an over view of Urbanization and Biodiversity. Environmental pollution – classification of pollution – Effect of industrial effluents – a detailed study of effluents discharged by Soap and detergent manufacture industry and Textile processing industry (study includes origin of effluent, important characteristic and general mode of treatment). Constituents of water and their effect on Textile wet processing – Water pollution – Harmful effects of water pollution and source of water pollution.

Unit:2	Water Pollution and Softening Methods	6 hours

WHO, ISO standards for raw water criteria – A general study on raw water pollution and consequence of river water pollution – Effluent discharge standards for inland surface water public sewers, on land for irrigation, marine coastal areas and drinking water parameters- A general study on boiler water requirements which includes problem caused by water and effect and feed water requirements for low and medium pressure boilers and at a pressure of 450 – 500 psi. Water softening – study includes Cation Exchange softening, lime soda softening, softening by Sequestering agents and De-mineralization with schematic diagram of removal of carbon di oxide and silica.

Unit:3	Analysis Techniques for Water	6 hours

Removal of colour and turbitity (simple Coagulation, Flocculation and Filtration methods). General study on removal of Iron and Manganese by Aeration, setting and filtration method- Water analysis – colour, pH value, dissolved solids, suspended solids, total hardness (Calcium + Magnessium). EDTA Titrimetric method, total iron- thiocyanate method, Determenation of Alkalinity by Titrimetric method – thiocyanate method, Determination of Alkalinity by

Titrimetric method- Datermination of chlorides by silver nitrate method- Determination of dissolved oxygen by iodimetry – Determination of BOD,COD TDS and Toxicity.		
Unit:4	**Water Treatment Methods**	**6 hours**
Effect of effluents – General treatment procedure parameters to be determined at Sizing, Desizing, Kier boiling, Bleaching, Mercerizing, Dyeing, Printing, Combined effluent treatment of industrial of wastes- Brief study on Screening, Sedimentation, Equalization, Neutralization, Coagulation, Secondary treatment – Tricking filtration Activated sludge process, oxidation ponds, Anaerobic Digestion, Tertiary treatment- Evaporation (solar & steam). Reverse osmosis, ion exchange, chemical precipitation and removal by Algae and activated carbon treatment.		
Unit:5	**Analysis Techniques for Pollution**	**6 hours**
Model schematic diagram for waste water treatment plant for textile mills-Primary & secondary units –Effects of air pollution –Effects of Sulphur oxide on human health – Ambient air quality standards- Noise pollution –ill effects of noise-Noise level in decibels. Brief study on modern methods for pollution analysis like molecular luminescence, BOD incubator, ion exchange chromatography and HPLC.		
	Total Lecture hours	**30 hours**

Reference Book(s)	
1	Environment Pollution control Engineering by C.S.Rao. New age International Ltd & Publishers.
2	Industrial safety & Pollution control Hand Book by National safety council and Associate Data Publisher Pvt Ltd.
3	Industrial Effluents by N.Manivasakam, Sakthi Publications, Coimbatore.
4	Water used in Textile Processing by N. Manivaskam, Sakthi Publications, Coimbatore.
5	Tamilnadu state publications and Hand book of pollution control –Central Board of pollution control.
6	Textile Effluents by Padma Varkar, NCUTE Publications, IIT,Delhi.
7	Environmental Chemistry and pollution Control, S.S.Dhara, S.Chand & Co., Delhi.
8	Pollution in Textile Industry, K.B.Krishnakumar, SSMITT Students Cooperative Stores, Komarapalayam.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://nptel.ac.in/courses/105/104/105104102/
Course Designed By: Dr. S. P. Rajasingh and Dr. S. Rajalakshmi	

Mapping with Programme Outcomes							
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**
CO1	S	S	S	M	S	S	S
CO2	M	S	M	S	S	S	M
CO3	S	M	S	S	S	M	M
CO4	S	M	S	S	M	S	S
CO5	S	S	M	S	S	S	S

*S-Strong; M-Medium; L-Low

Sixth Semester

Course code	63A	ORGANIC CHEMISTRY - II	L	T	P	C
CORE		CORE XII - PAPER X	5	-	-	4
Pre-requisite		Knowledge on basic structure and reactions of simple organic compounds.	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are to:

1. Understand the optical activity of various molecules and their naming patterns.
2. Study the mechanism of different rearrangement reactions.
3. Acquire the knowledge on reactions and structures of heterocyclic compounds, amines and proteins.
4. Predict the structure of natural products like vitamins, alkaloids, terpenoids and harmones.

Expected Course Outcomes:

On the successful completion of the course, students will be able to:

CO1	Gain the knowledge on different types of optically active molecules and their naming methods.	**K2, K4, K5**
CO2	Understand the mechanisms of inter and intramolecular rearrangement reactions with examples.	**K2, K4**
CO3	Acquire the knowledge on the preparation, properties and uses of heterocyclic compounds, amino acids and proteins.	**K2, K3**
CO4	Know the classification, structural elucidation and synthesis of terpenoids and vitamins.	**K2, K4, K5**
CO5	Understand the different types and structural elucidation of alkaloids and harmones.	**K2, K4, K5**

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Stereochemistry	15 hours

Optical activity – Asymmetric carbon – Racemisation – Resolution – Asymmetric synthesis – D, L and R,S notation. Optical activity due to restricted rotation in biphenyls, allenes and spiranes – Molecular overcrowding.

Unit:2	Molecular Rearrangements	15 hours

Mechanism of Pinacol – Pinacolone rearrangement – Beckmann rearrangement – Hoffmann rearrangement – Curtius rearrangement – Benzilic acid rearrangement – Schmidt rearrangement – Lossen rearrangement – Cope rearrangement and Claisen rearrangement.

Unit:3	Heterocyclic Compounds and Proteins	15 hours

Heterocyclic Compounds: Chemistry of Furan, Pyrrole, Thiophene, Pyridine – Synthesis and uses of Quinoline, Isoquinoline and Indole.

Proteins: Amino acids – Classification – Peptide linkage – Proteins – Classification based on physical properties and biological functions – Primary, Secondary and Tertiary structure – Uses.

Unit:4	Terpenoids and Vitamins	15 hours

Terpenoids: Introduction – Classification – General methods of isolation – Isoprene rule-structural elucidation and synthesis of Geraniol, Terpineol and dipentene.

Vitamins: Introduction – Importance of vitamins – Structural elucidation and synthesis of Retinol, Riboflavin and Ascorbic acid.		
Unit:5	**Alkaloids and Hormones**	**15 hours**
Alkaloids: Introduction – Classification and General Characteristics – General methods of determining structures – Hoffmann's exhaustive methylation – Structural elucidation and synthesis of Nicotine, Piperine and Papaverin. **Harmones**: Introduction – Structural elucidation and synthesis of Adrenaline and Thyroxine.		
	Total Lecture hours	**75 hours**

Text Book(s)

1	Advanced Organic Chemistry – B.S.Bahl and Arun Bahl, S.Chand & Co., 2012.
2	Organic Chemistry, R.T.Morrison and R.N. Boyd, Pearson Education, Sixth Edn., 2002.
3	Text book Organic Chemistry, P.L. Soni, S.M. Chawla, Sultan Chand & Sons, 2007.

Reference Books

1	Organic Chemistry – Vol. 1 and Vol. 2, I.L Finar, Pearson Education, Sixth Edn., 2006.
2	Stereochemistry of Organic compounds, D. Nasipuri, New Age International (P) Ltd, Second Edn., 2005.
3	Stereochemistry: Conformation And Mechanism - P. S. Kalsi, New Age International Private Ltd., 2015

Online References (Go to the following websites and search with the specific topics / keywords)

1	https://ndl.iitkgp.ac.in/
2	https://nptel.ac.in/course.html
3	https://ocw.mit.edu/
4	https://www.oercommons.org/advanced-search

Course Designed By: Dr. A. Thirumoorthi

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	M	S	S	S	M	S	M
CO2	L	M	M	S	L	S	S
CO3	S	S	M	M	M	S	S
CO4	S	M	S	S	M	S	S
CO5	S	S	S	S	M	S	S

*S-Strong; M-Medium; L-Low

Course code	63B	PHYSICAL CHEMISTRY II	L	T	P	C
CORE		Core XIII – Paper XI	5	-	-	4
Pre-requisite		Higher Secondary Level Chemistry	Syllabus Version		2010-2011	

Course Objectives:-

The main objectives of this course are to:
1. Impart knowledge on electrical and magnetic properties of molecules
2. Describe the order and molecularity of reaction and determination of order of reactions
3. Broad description of theoretical aspects and experimental techniques of kinetics of different types of reactions.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the electrical properties of molecules and its application	**K1-K3**
2	Understand magnetic properties of molecules and its application for solving problem for structure determination	**K1-K3**
3	Know about the order and molecularity of reaction and also determination of order of reactions	**K2-K4**
4	Understand and learn the theoretical and experimental aspects of kinetics of reactions	**K1-K4**
5	Gain detailed knowledge on photochemical and thermal reactions.	**K1-K3**

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	Electrical Properties of Molecules	15 hours

Electrical properties of molecules: Molar polarization, Orientation polarization and Distortion polarization polar and non-polar molecules. Determination of dipolemoment of polar gases, liquids and solids-Applications of dipole moment in the study of simple molecules.

Unit:2	Magnetic Properties of Molecules	15 hours

Magnetic properties of molecules; Meaning of the terms magnetic susceptibility, magnetic moment, diamagnetism, paramagnetism and ferromagnetism, Determination of magnetic susceptibility by Guoy's method. Application of magnetic properties in solving structural problems.

Unit:3	Order and Molecularity of Reactions	15 hours

Empirical laws and experimental aspects.Rate laws, Stoichiometry, order and molecularity of reactions- Setting up and solving simple differential equation for first order, second order, third order and zero order reactions. Characteristics of I,II,III and Zero order reactions. Determination of order of reactions.

Unit:4	Kinetics of Reaction	15 hours

Experimental techniques involved in following kinetics of reaction. Volumetry, manometry, polarimetry and colorimetry, typical examples for each of the techniques.

Theoretical aspects. Effect of temperature on rate constant. The activation energy. The collision theory of reaction rates and its limitation. Lindemann theory of unimolecular reactions. The theory of Absolute reaction rates. Comparison of the collision theory with the Absolute reaction rate theory.		
Unit:5	**Photochemical Reactions**	**15 hours**
Thermal chain reaction H_2/Br_2 reaction.Kinetics of photochemical reactions. Absorption of light and photochemical process. The Stark-Einstein law of photochemical equivalence. Photochemical chain reaction H_2/Br_2 reaction. Quantum yield of photochemical ractions. Comparison of thermal & photochemical kinetics of H_2/Br_2 reaction. Photosensitized reactions. Fluoresence, phosphorescence and chemiluminesence.		
	Total Lecture hours	**75 hours**

Text Book(s)

1	Principles of Physical Chemistry, B.R.Puri, L.R.Sharma and M.S.Phathania, Shobanlal Nagin Chand & Co
2	Essentials of Physical Chemistry, B.S.bahl and G.D. Tuli,S. Chand & Co
3	Text book of physical Chemistry, P.L.Soni, Dharmarke; Sultan Chand & Son

Reference Books

1	Physical Chemistry,P.W.Atkins, Oxford
2	Physical Chemistry, R.A.Alberty, John. Wiley &Sons
3	Elements of physical Chemistry, S.Glasstone and D.Lewis, McMillan

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://archive.org/details/2015.135344.ElementsOfPhysicalChemistryEd2nd/page/n9/mode/2up
2	https://nptel.ac.in/content/storage2/courses/122101001/downloads/lec-26.pdf
3	https://www.youtube.com/watch?v=W8FhlGNnMkg&t=5447s

Course Designed By: Dr. T. Selvaraju

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	S	S	M	S	M	S	S
CO2	M	S	S	M	S	S	S
CO3	S	M	S	L	S	M	M
CO4	S	S	L	S	M	S	S
CO5	S	M	S	S	M	S	M

*S-Strong; M-Medium; L-Low

Course code	63P	GRAVIMETRIC ANALYSIS AND PHYSICAL CHEMISTRY	L	T	P	C
CORE PRACTICAL		CORE XIV - CHEMISTRY PRACTICAL III	-	-	7	4
Pre-requisite		Basics Knowledge on Analytical and Physical Chemistry	Syllabus Version		2019-2020	

Course Objectives:

The main objectives of this course are to:

1. Make the students to learn a technique to determine the amount of an analyte (cation) through the measurement of mass.
2. Impart understanding about conductance of a solution by the addition or removal of ions.
3. Realize and explore the fundamentals of basic physical chemistry experiments, including chemical kinetics, phase diagram and molecular weight determinations.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the concept of gravimetric analysis.	**K1-K6**
2	Find a suitable precipitation method and perform effective precipitation to determine the amount of the cation.	**K1-K6**
3	Calculate the conductance of the solution at various stages of neutralization	**K2-K5**
4	Determine the rate and dissociate constant for a reaction	**K2-K4**
5	Perform graphical analysis to arrive experimental results based on the physical chemistry experiments.	**K1-K6**

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Part I	Sintered Crucible Based Gravimetric Analysis	45 hours

1. Estimation of Barium as Barium Chromate.
2. Estimation of Lead as Lead Chromate.
3. Estimation of Nickel as Nickel Dimethyl Glyoxime.

Part II	Silica Crucible Based Gravimetric Analysis	30 hours

1. Estimation of Sulphate as Barium Sulphate
2. Estimation of Calcium as Calcium Oxalate.

Part III	Conductometric Physical Experiments	45 hours

1. Conductometric titrations, strong-acid-strong base.
2. Conductometric titrations, Weak-acid-strong base.
3. Determination of cell constant, specific conductivity and equivalent conductivity of strong electrolyte.

Part IV	Physical Organic Experiments	30 hours

1. Determination of rate constant of acid-catalysed hydrolysis of an ester (Methyl acetate or Ethyl acetate).
2. Determination of dissociation constant of a weak acid (acetic acid).

Part V	Temperature Based Physical Experments	60 hours

1. Determination of Kf / molecular weight by Rast's macro method-Naphthalene, Diphenyl and diphenylamine
2. Determination of critical solution temperature of Phenol-Water system.
3. Effect of impurity (NaCl, /succinic acid) on CST.

4. Phase Diagram – Simple Eutectic system. 5. Determination of the transition temperature	
Total Practical hours	**210 hours**

Text Book(s)	
1	Basic Principles of Practical Chemistry, Kulandaivelu A.R., Veeraswamy R., Venkateswaran, Sultan Chand & Sons, 2017.
2	Practical Chemistry for B.Sc Chemistry, A.O. Thomas
Reference Books	
1	Vogel's Textbook of Quantitative Chemical Analysis, G H Jeffery, J Bassett, J Mendham, R C Denney, Fifth Edition, Bath Press, Great Britan, 1989
2	Advanced Practical Physical Chemistry, Yadav J.B., Goel Publishing House, 2014.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://www.youtube.com/watch?v=6Kd0qIczD24
2	https://www.youtube.com/watch?v=peMyqdJ57dA (Estimation of Nickel)
3	https://www.youtube.com/watch?v=-GS6uoFf3qQ (strong-acid-strong base)
4	https://www.youtube.com/watch?v=Dc4aUdADqY8 (week acid-strong base)
5	https://www.youtube.com/watch?v=xo1wNSZpE4w (Kinetics of Ester Hydrolysis)
6	https://www.youtube.com/watch?v=5oVnpYhmMVU (CST of Phenol-Water System)
7	https://www.youtube.com/watch?v=2VzEpsEZOYo (Rast's Macro Method)
Course Designed By: Dr. S. P. Rajasingh and Dr. A. Thirumoorthi	

Mapping with Programme Outcomes							
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**
CO1	S	S	S	S	S	S	S
CO2	S	S	S	S	S	S	S
CO3	M	S	S	S	M	S	M
CO4	M	S	M	S	M	M	M
CO5	M	S	M	S	S	M	M

*S-Strong; M-Medium; L-Low

Course code	63Q	PRACTICAL FOR ELECTIVE SUSBJECTS	L	T	P	C
CORE PRACTICAL		CORE XV	-	-	3	4
Pre-requisite		Basics Knowledge on Organic, Inorganic and Physical Chemistry	Syllabus Version		2010-2011	

Course Objectives:

The main objectives of this course are to:

1. Impart skills in the student to analyse a substance by finding their physical constants.
2. Impart knowledge to prepare various organometallic and organic substances using complexation, oxidation, reduction, hydrolysis and other techniques.
3. Make the students learn the technique of estimation of a substance using Complexometric titrations.
4. Inculcate the knowledge and skills in the estimation of a substance using colour and light

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Use the physical constants in the analysis of a substance.	**K1-K5**
2	Prepare inorganic complexes	**K1-K6**
3	Perform organic transformation involving substitution and oxidation reactions	**K1-K5**
4	Use effectively the Complexometric method to estimate hardness of water	**K2-K6**
5	Colorimetric methods in the estimation of various salts and ions.	**K1-K5**

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Part I	**Determination of Melting and Boiling Point**	**3 hours**

1. Determination of Melting point/Boiling point of an organic substance.

Part II	**Preparation of Inorganic Complexes**	**18 hours**

(a) Tetrammine copper (II) sulphate
(b) Potassium Trioxalato chromate (III)
(c) Prussian Blue
(d) Hexammine Cobalt (II) chloride
(e) Potassium Trioxalato Ferrate(III)
(f) Sodium Cuprous Thiosulphate.

Part III	**Organic Preparation**	**12 hours**

Preparation involving, Hydrolysis, Oxidation, Halogenation, Nitration and Benzoylation.

Part IV	**Estimation Using EDTA Method**	**3 hours**

Estimation of Hardness of Water using EDTA.

Part V	**Estimation Using Calorimetric Method**	**9 hours**

Calorimetric experiments involving Nessler's tubes.
(a) Extimation of Fe^{3+} with Ammonium thiocyanate.
(b) Extimation of Ni as Nickel Dimethyl glyoxime.
(c) Estimation of Mn^{2+} in Potassium permanganate

	Total Practical hours	**45 hours**

Text Book(s)

1. Basic Principles of Practical Chemistry, Kulandaivelu A.R., Veeraswamy R., Venkateswaran, Sultan Chand & Sons, 2017.
2. Practical Chemistry, Pandey D.N., Sultan Chand Publishers, 2018

Reference Book	
1	Vogel's Textbook of Quantitative Chemical Analysis, G H Jeffery, J Bassett, J Mendham, R C Denney, Fifth Edition, Bath Press, Great Britan, 1989
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://nptel.ac.in/courses/104/101/104101006/
2	https://nptel.ac.in/content/storage2/courses/104105033/Questions%20Answers%20Coordination.pdf
3	https://www.youtube.com/watch?v=EQxvY6a42Dw
4	https://www.youtube.com/watch?v=noUSORH5JWo
5	https://en.wikipedia.org/wiki/Colorimetric_analysis
Course Designed By: Dr. K. Velumani	

Mapping with Programme Outcomes							
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**
CO1	S	S	S	M	S	M	S
CO2	S	S	S	S	S	S	S
CO3	S	S	S	S	S	S	S
CO4	S	S	S	S	S	M	S
CO5	S	S	S	S	S	S	S

*S-Strong; M-Medium; L-Low

Course code	6ZP	TEXTILE CHEMISTRY PRACTICAL	L	T	P	C
SKILL BASED SUBJECT		TEXTILE CHEMISTRY PAPER – IV	-	-	2	3
Pre-requisite		Knowledge of Higher Secondary Level and Dye Chemistry	Syllabus Version		2015-2016	

Course Objectives:

The main objectives of this course are to:

1. Impart skills and knowledge to the students in handling laboratory equipment and reagents
2. Make the students learn the technique in the analysis of water quality using pH and volumetric techniques for industrial use.
3. Impart skills in the estimation of various industrial substances
4. Impart knowledge in the preparation of various industrial dyes and dyeing.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Analyze the quality of water for industrial use as well as various substances of industrial use	**K1-K6**
2	Learn the various methods of dye preparation and dyeing.	**K1-K6**

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Part I	Analysis	15 hours

1. Estimation of pH- paper, digital pH meter, pH solution
2. Volumetric analysis of Sodium Nitrite
3. Estimation of available chlorine in bleaching powder
4. Analysis of acidity of water by Volumetry
5. Analysis of alkalinity of water by Volumetry

Part II	Preparation of Dyes	15 hours

1. Methyl Red
2. Malachite Green
3. Methyl Orange
4. Para nitro benzene azo beta naphthol
5. Azo amino benzene.

	Total Practical hours	30 hours

Text Book(s)

1	Elementary Idea of Textile Dyeing, Printing and Finishing" Kanwar Varinder Pal Singh, Kalyani Publishers, 2009
2	Instrumental Methods of chemical *Analysis*, B.K Sharma, 2014
3	The Complete Technology Book on Dyes & Dye Intermediates by National Institute of Industrial Research, 2004

Reference Books

1	Handbook of Water Analysis, 3rd Edition by Nollet, Taylor and Francis, 2013.
2	Vogel's text book of quantitative Chemical *Analysis*, Sixth edition- J Mendham, R C Denney, J D Barnes, M J K Thomas, Pearson Eduction Publshers, 2009.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://nptel.ac.in/content/storage2/courses/105101010/downloads/Lecture27.pdf
2	https://en.wikipedia.org/wiki/Analysis_of_water_chemistry
3	https://www.youtube.com/watch?v=cNiRWfMjQMU
4	https://nptel.ac.in/courses/103/107/103107081/
5	https://study.com/academy/lesson/chemicals-dyes-used-in-the-textile-industry.html
Course Designed By: Dr. S. P. Rajasingh	

Mapping with Programme Outcomes							
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**
CO1	S	S	S	S	S	S	S
CO2	S	S	S	S	S	S	S

*S-Strong; M-Medium; L-Low

Course code	5EA	POLYMER CHEMISTRY	L	T	P	C
ELECTIVE		Elective – I (A)	4	-	-	4
Pre-requisite		Higher Secondary Level Chemistry	Syllabus Version		2019-2020	

Course Objectives:

The main objectives of this course are to:

1. To understand the types, nature and the various methods of preparation polymers.
2. To learn about the different types of polymerisation reaction mechanism, bonding and properties of polymers.
3. To study the molecular weight determination methods, preparation and properties of commercially important polymers.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Classify Polymers based on their origin, mechanism of formation, citing example. Understand the methods of preparation process and apply the - correct method of preparation for a particular polymer.	**K1-K3**
2	Analyze the reaction mechanisms of polymerization.	**K1,K4**
3	Understand the relation between the bond forces and structural properties of polymers.	**K2,K4**
4	Understand the principles behind the molecular determination methods and applying them to calculate the different molecular weights of polymers.	**K2,K4**
5	Explain the basic preparation methods and have a good knowledge on the Industrial Applications of Polymers.	**K2,K3**

K1 - Remember; **K2** - Undestand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Classification and Preparation of Polymers	12 hours

1. Classification Of Polymers-Natural Polymers And Synthetic Polymers. Synthetic Polymers-Addition Polymers, Condensation Polymers.
2. Methods Of Preparation Of Polymers-Bulk, Solution ,Suspension And Emulsion

Unit:2	Types of Polymerization	12 hours

Different Types Of Polymerization-Step Growth Polymerization, Addition Polymerization And Co-Polymerization -Random, Alternate, Block And Graft Polymerization.

Unit:3	Properties of Polymers	12 hours

Primary And Secondary Bond Forces In Polymers-Coherence Energy-Structure Property Relationship

i) Mechanical Properties ii) Thermal Stability-Glass Transition Temperature iii) Flame Resistance iv) Chemical Resistance v) Degradability vi) Electrical Conductivity

Unit:4	Determination of Molecular Weight Methods	12 hours

Molecular Weight Of Polymers-Number Average And Weight Average Molecular Weight Methods.

Number Average Molecular Weight Methods.

1. Osmometry (membrane) 2. Cryoscopy & Ebullioscopy 3. Osmometry (Vapour pressure)

4. Viscometry 5. End Group Analysis.

Weight Average Molecular Weight Methods.

1. Light scattering 2. Ultra centrifugation

Molecular weight distribution.

Unit:5	**Industrial Polymers**	**12 hours**

Important industrial polymers, preparation and applications of

i) Polyethylene, polypropylene ii) Polyamides iii) Polyvinyl chloride and polymethylmethacrylate

iv) Polyesters and polycarbonates v) Polyurethanes vi) Phenol-formaldehyde and melamine-formaldehyde vii) Polysilanes and polysiloxanes viii) Polyaniline

	Total Lecture hours	**60 hours**

Text Book(s)

1	Polymer Science - V R Gowariker; N V Viswanathan; Jayadev Sreedhar -New Age International - 2003

Reference Books

1	Polymer chemistry an introduction-M.P.Stevens, Oxford-1990
2	Textbook of polymer Science-FW Billmeyer, Wiley-1984.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://youtu.be/k_RErdKwaAg
2	https://youtu.be/H1Y1oxQ5eUA
3	https://youtu.be/7AWQyFr_GLA

Course Designed By: Dr. S. P. Rajasingh and Dr. K. Velumani

Mapping with Programme Outcomes

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	S	M	L	S	S	S	M
CO2	S	M	M	S	S	M	S
CO3	M	M	S	S	S	M	S
CO4	S	S	S	M	S	M	S
CO5	S	M	L	M	S	S	S

*S-Strong; M-Medium; L-Low

Elective Courses

Course code		AGRO INDUSTRIAL CHEMISTRY	L	T	P	C
ELECTIVE		Elective I (B)	4	-	-	3
Pre-requisite		Basic Knowledge in Agriculture	Syllabus Version		2010-2011	

Course Objectives:

The main objectives of this course are to:

1. Let students know the sources of water for agriculture. Impart the knowledge of water and soil analysis.
2. Inculcate the students about available fertilizers and pesticides and their role
3. To describe the various stages of process in sugar production and starch fermentation.
4. Knowledge on oil, fats and waxes and their contribution to day to day life.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Have knowledge on the sources of water for agriculture and analysis of water and basics on waste water treatment	**K2-K4**
2	Acquires the knowledge about soil, soil fertility and various parameters involved in evaluation of soil.	**K1-K5**
3	Describe the importance of nutrients, fertilizers and pesticides for plant growth	**K2 –K4**
4	Understand the sources and production of sugar and uses of molasses.	**K1-K6**
5	Outline the chemistry of oils, fats and waxes and their role in everyday life	**K2-K6**

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Water source for agriculture- Water Treatment & Analysis	12 hours

Sources of water supply for agriculture. Hard and soft water. Water softening methods: lime soda process, phosphate conditioning, permutit and ion-exchange processes. Water analysis; determination of hardness of water, acidity, alkalinity, pH value, amount of free CO2, fluoride content, chloride content and their estimation. Biological oxygen demand (BOD), chemical oxygen demand (COD), chlorine demand and their determinations. Recycling of water.

Unit:2	Chemistry of soil-soil classification and soil analysis	12 hours

Definition of soils. Classification of soils. Properties of soils-physical properties and mechanical analysis. Structure and Texture. Soil water, soils air and soil temperature. Chemical properties-soil mineral matter-soil colloids, ion-exchange reactions. Soil fertility and its evaluation. Soil organic matter and their influence on soil properties –N ratio effects. Soil reactions. Soil pH, acidity, alkalinity, buffering of soils and its effects on the availability of N, P, K, Ca, Mg, I, AI, Mn & sulphuric acid. soils salinity, acid & alkaline soils- their formation and reclamation.

Unit:3	Fertilizers and Pesticides	12 hours

Fertilizers: 1. Effect of N,P,K, secondary nutrients and micro nutrients on plant growth and development.

2. Importance of nitrogenous fertilizers. Nitrogen cycle and fixation of atmospheric nitrogen. principle and manufacture of ammonium nitrate, ammonium sulphate, and urea

3. Phosphate fertilizers. Preparation and uses of mono and diammonium phosphates, super phosphate and triple super phosphate.

4. Potassium fertilizers-potassium nitrate, potassium chloride, potassium sulphate. Mixed

fertilizers. Methods of compost in green manuring, concentrated organic manures and their chemical composition. Oil cakes, horn and hoof metal.

Pesticides Classification-Insecticides, fungicides and herbicides. General methods of preparation, application and toxicity. Insect attractants and repellants-fluorine compounds, boron compounds, arsenic compounds, organomercuric compounds, DDT, BHC,2,4 –D compounds, pyridine compounds.

Unit:4	**Chemistry of sugar and fermentation**	**12 hours**

1. Details of manufacture of sucrose from cane sugar-extraction of juice, purification, concentration, crystallization, separation and refining of crystals, recovery of sucrose from molasses. Manufacture of sucrose from beetroot. Estimation of sucrose and inversion sugar by polarimetry. 2. Manufacture of alcohol from molasses and starch by fermentation process.

Unit:5	**OILS, fats and Waxes**	**12 hours**

Classification of oils fats and waxes: distinction between oil, fats and waxes Hydrogenation of oils-principle and manufacturing details. Definition and determination of soapanification value, acid value, iodine value RM value and Hehner value and their signification. Elaidin test for oils. Some common waxes like spermaceti, Bees wax, baybeery wax and their uses. Soap and its manufacture; toilet and transparent soaps. Cleansing action of soap. Detergent.

	Total Lecture hours	**60 hours**

Text Book(s)

1	Soil Chemistry – Shivanand Tolanur, CBS Publishers & Distributors 2nd Edition, 2018.
	Insecticides, Pesticides and Agro based Industries – R.C.Palful, K.Goel, R.K.Gupta
2	Industrial Chemistry-B.N Chakrabarty, Oxford & IBH Publishing Co, New Delhi,1981
3	Industrial Chemistry-B.K.Sharma, GOEL Publishing House, 2000

Reference Book

1	Nature and properties of soils - Nyle C.Brandy, Ray R.Weil, Pearson Education India; 14th Edition, 2013.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://www.cdc.gov/healthywater/other/agricultural/index.html
2	http://nmsp.cals.cornell.edu/publications/NMSPLabManual2017.pdf
3	https://www.youtube.com/watch?v=R9J7pOU5FSg
4	https://webstor.srmist.edu.in/web_assets/srm_mainsite/files/2017/Oils-Fats-Waxes-Notes.pdf

Course Designed By: Dr. S. P. Rajasingh and Dr. M. Sivakumar

Mapping with Programme Outcomes							
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**
CO1	S	S	S	M	S	M	S
CO2	S	M	M	S	S	S	S
CO3	S	M	S	M	S	S	S
CO4	S	S	S	S	S	S	S
CO5	S	S	S	S	S	S	S

*S-Strong; M-Medium; L-Low

Course code		PHARMACEUTICAL CHEMISTRY	L	T	P	C
ELECTIVE		Elective I (C)	4	-	-	3
Pre-requisite		Basic Knowledge in Chemistry and Biology	Syllabus Version		2010-2011	

Course Objectives:

The main objectives of this course are to:

1. Give an overview on pharmaceutical chemistry and terminologies used in.
2. Outline the structure and properties of molecules in biological systems
3. Impart knowledge about medicinally important compounds
4. Describe the role of various drugs in cardiovascular

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Have knowledge on terminologies used in pharmaceuticals and their clinical chemistry	**K1, K2**
2	Understand the chemistry and uses of alkaloids, analgesics, antibiotics and sulfonamides	**K1,K2, K3, K4**
3	Understand how molecules play important role as medicine	**K2,K3, K4,**
4	Have knowledge on bioinorganic chemistry and their role in various diseases	**K2,K3, K4,K5**
5	Outline the importance of drugs with special emphasize on cardiovascular related diseases	**K1,K2, K4**

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Introduction to Pharmaceutical Chemistry	12 hours

1. Important terminologies used in pharmaceutical chemistry-Definition of the following terms-drug, pharmacology, pharmacognosy, pharmacy, therapeutics, toxicology, chemotherapy, pharmacopoeia (BP, IP, USP), National formulary, pharmacophore, bacteria, virus, vaccines, toxoids, primary immunization, additive effect, synergism, antagoinism, plaubo, LD50, ed50 and therapeutic index
2. Routes of drug administration-local, enema, oral or external, parental-advantages and disadvantages oral and parental routes-inhalation, intradermal, subcutaneous, intramuscular, intravenous-intrathecal-intraarticular-transcutaneous-transmuscusal.
3. Clinical chemistry-A Diagnostic test and one method of estimation bilirubin and cholesterol in serum or plasma or urine. Biuret test for urea.
4. First aid to prevent bleeding and maintain breathing
5. Causes and symptoms of food poisoning, botulism-mushroom and plant poisoning-first aid.
6. Causes, symptoms and treatment of anemia, diabetis, tuberclosis, asthma, jaundice, piles, leprosy, typhoid, malaria, cholera and filarial.
7. Indian medicinal plants and their importance. Spices and their medicinal uses.

Unit:2	Alkaloids, Analgesics, Antibiotics and Sulfonamides	12 hours

1. Alkaloids- definition-general methods of isolation-colour tests for identification-source, isolation, structure and use of atropine-source, extraction, structure, SAR and uses of morphine and quinine.
2. Analgesics-definition different types of pain (superficial, deep non visceral, visceral, referred

and pshycogeneic), classification – morphine and its derivatives. Synthesis assay and uses of pethidine and methadone-antipyretic analgesics-salicylic acid derivatives-paracetamol, phenacetin-propanoic acid derivative-Ibuprofen.

3. Antibiotics: definition –microbial synthesis structure, assay and uses of chloramphenicol and pencilin-structure and use of streptomycin and tetracyclines.

4. Sulphanonamides: Definition-mechanism of action-classification-SAR- synthesis and use of sulpha acetamide, sulpnathiazole, phthalyl sulphathiazole- sulphadiazine and sulpha pyridine-assay.

Unit:3	Molecules to Medicine	12 hours

1. Antiseptics and disinfectants: Definition and distinction- phenol coefficient- examples-phenolic compounds, dyes, cationic surfacts and chloro compounds. Tranquilizers-definition and examples. Psychodelic drugs LSD and marijuana.

2. Anaesthetics – Definition –Classification –volatile anaesthetics (N_2O, ethers, halohydrocarbons, chloroform, haloethane)-ferguson principle –intravenous anaesthetics-structure of thiopental sodium-local anaesthetic cocaine-source and structure – preparation and uses of procaine orthocaine and benzocaine.

3. Vitamins-Definition-classification, sources and deficiency diseases of vitamins A,B,C,D,E and K. Importance of vitamin A in vision (rhodopsin cycle).

4. Definition of cancer and antineoplastic drugs-examples antimetabolite, natural substances harmones, alkylating agents, inorganic complexes and other compounds-definition of hypoglycemic drugs-types and cause for diabetics-examples (Sulphonyl ureas and biguanides)

Unit:4	Medicinally Important Compounds	12 hours

1. Medicinally important compounds of Al_2P_2As, Hg and Fe. Uses of the following $MgSO_4$ $7H_2O$, milk of magnesia, magnesium trisilicate-Aluminium hydroxide gel, dihydroxy aluminium amino acetate, Aluminium acetate and aluminium monostearate-paroxon-phosphorine, cyclophosphosphomide-tricyclophos-preparation and use of thiotepa-sodium and copper cacodylates-preparation and uses of aromatic aresericals (carbosone, triparasomide, acetarsonide, neoarsphenamine, oxophenarisince)- $HgCl_2$, Hgl_2 and $Hg(CN)_2$ as disinfectations-importance of organic mercury compounds-structure and uses of thiomersal, netromersal merbromine and mersalyl acid-Ferous gluconate, $FeSO_4$, scale preparation (ferric ammonium acetate), ferrous fumarate, ferrous succinate and ferrous chlorinate.

2. Organic pharmaceutical aids-Definition-agents for kidney function (aminophippuric acid)-liver function (sulphobrophthalein sodium, rose Bengal)-corneal ulcer detection (Fluoescein sodium)-Blood volume determination (Evans Blue) pituitary function (metyrapone)-ointment bases-preservatives-antioxidants-sequeshants, colouring, sweetening, flavouring, emulsifying and stabilizing agents.

3. AIDS-cause HIV-prepagation-prevention and treatment.

Unit:5	Cardiovascular and related drugs	12 hours

1. Blood-composition-grouping-Rh factor-buffers in blood-Functions of plasma proteins-clotting mechanism-blood pressure. 2. Coagulants and anticoagulants-definitions and examples. 3. Antianemic drugs (iron, vitamin B12, folic acid). 4. Cardiovascular drugs : definition and names of drugs for each of the following - antiarrythmic drugs - antihypertensive drugs-antianginal agents-vasodilators-lipid lowering agents-sclerosing agents

	Total Lecture hours	60 hours

Text Book(s)	
1	Pharmaceutical Chemistry by S. Lakshmi, Sultan Chand & Sons, 2nd ed (1998).
2	Pharmacolgy and pharmatherapeutics, Vol.1 & 2, R.S. Satoskar and S.D. Bhandarkar 11th Ed, Popular prakashan, Mumbai, 1989.
3	Bentleys, Text book of pharmacutics, 8th Ed. E.A. Raubins, 1992, All India traveler book sellers, Delhi.
4	Medicinal Chemistry, Ashutosh kar, New Age International, 1992.
5	A text book of pharmaceutical chemistry, Jayashree ghosh, S. Chand, 1997.
Reference Book(s)	
1	From molecules to medicines-J.L.Sussman, P. Spadon, Springer; 2009th edition.
2	Organic medicinal and pharmaceutical chemistry-J.M. Beale, J.H. Block, Wolters Kluwer India Pvt. Ltd.; 12th edition 2010.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://www.youtube.com/watch?v=jN34FZJ_--U
2	https://www.youtube.com/watch?v=Wn33DQhmLbg
3	https://www.youtube.com/watch?v=9xSqezCMHnw
Course Designed By: Dr. M. Asaithambi	

Mapping with Programme Outcomes							
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**
CO1	M	S	M	M	S	M	S
CO2	M	M	S	M	M	S	S
CO3	S	M	S	L	S	M	M
CO4	S	M	M	M	M	M	L
CO5	M	S	M	L	M	M	M

*S-Strong; M-Medium; L-Low

Course code		LEATHER CHEMISTRY	L	T	P	C
ELECTIVE		Elective II (A)	4	-	-	3
Pre-requisite		Higher Secondary Level Chemistry	Syllabus Version		2010-2011	

Course Objectives:

The main objectives of this course are to:

1. To understand the basics of skins, leather and their composition.
2. Impart the principle involved in pre-tanning and structure and process of various tannings
3. Inculcate the methods of curing hides and skins and process of dyeing leather
4. Knowledge on the water pollution by tannery industry and it's effluent treatment

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the structure and composition of hides and skins and principle involved in pre-tanning	**K1-K3**
2	Have knowledge on various types of tanning and their physic-chemical properties	**K2, K3**
3	Interpret the chemistry behind the chrome tanning process	**K2-K4**
4	Analyze the process involved in curing of hides and skin and their preservation	**K1-K4**
5	Have clear idea on sources of tannery effluents and their treatment	**K2,K3**

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	**Hides, Skins and Leather**	**12 hours**

1. Hides, Skins,Leather-An elementary knowledge of the structure and composition of hides and skins. Proteins and their characteristics, Anatomy and histology of protein constituents of leather (an elementary concept).
2. Basic principle involved in pre-tanning such as soaking, liming, deliming, bating , pickling involved in pre-tanning such as soaking, liming, deliming, bating, pickling and depickling.

Unit:2	**Types of Natural and Synthetic Tannings**	**12 hours**

1. Types of tanning-vegetable and mineral tanning, Different types of vegetable tanning-materials classification and chemistry of vegetable tanning. Factros and Physio-chemical principle involved in vegetable tanning, Fixation of vegetable tanning.
2. Synthetic tannings-their classifications, general methods of manufacture and use.

Unit:3	**Chemistry of Chrome Tanning**	**12 hours**

1. The preparation and chemistry of chrome tanning liquids, Olation, Oxolation and hydrolysis of chrome liquids. Effect of adding tanning agents-Role of pH in the reaction of chromium complexes with hide proteins. Factors governing chrome tanning-chemistry of neutralization process. A brief survey of chemistry of other tanning like Al, Zr and Te salts and their relative merit in contrast with chrome tanning 2. Chemistry of combination of tannages involving vegetable tanning aldehydes, chrome and other mineral tanning agents.

Unit:4	**Preservation of Hides and Skins and Leather Dyeing**	**12 hours**

1. Chemical methods of curing and preservation of hides and skins in acid and alkaline solution.
2. Principles of analytical methods employed in curing, liming, deliming, bating, pickling.

Analysis of vegetable tanning materials and extract.

3. Process of dyeing leather-Use of mordants, dyeing auxillaries such as leveling, wetting and dispersing agents-Dye fixations.

Unit:5	**Source and Treatment of Tannery Effluents**	**12 hours**

1. Animal bye-products-their collection, handing and preservation methods (such as hair, blood, bones, glands, Kerationus materials and their utilization).

2. Tannery effluents and treatment: Types of water pollution-phsical, chemical, physiological and biological. Different types of tannery effluents and wastes-beam-house waste-liquors-tanning and finishing yard waste liquors, solid waste-origin and disposal.

	Total Lecture hours	**60 hours**

Reference Book(s)

1	Tanning Chemistry: The Science of Leather-A.D. Covington, W.R.Wise, Royal Society of Chemistry, 2019.
2	Tanning processes- A.C. Orthmann, Read Books Publishers, 2011.
3	The Chemistry of Leather manufacture- G.D.Mclaughlin, Read Books, 2011.
4	Vegetable tanning materials- F.N. Howes, Butterworths Scientific Publications, 2007.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://blog.walnutstudiolo.com/2019/04/25/kinds-of-leather-by-tanning-process-veg-tan-vs-chrome-tan/
2	https://www.lowimpact.org/lowimpact-topic/skins-hides/
3	https://envibrary.com/wastes-from-tannery-industries/

Course Designed By: Mr. C. Sudhakar

Mapping with Programme Outcomes

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	M	M	S	M	S	M	S
CO2	S	S	M	L	M	S	M
CO3	M	L	S	M	M	L	M
CO4	L	M	M	L	M	M	S
CO5	M	M	S	L	M	M	S

*S-Strong; M-Medium; L-Low

Course code		CHEMISTRY OF PLANT BASED PRODUCTS	L	T	P	C
ELECTIVE		Elective II (B)	4	-	-	3
Pre-requisite		Basic Knowledge about Starch, Cellulose and Protein	Syllabus Version		2010-2011	

Course Objectives:

The main objectives of this course are to:

1. To impart the knowledge about structure and properties of starch, cellulose and proteins
2. Describe the students the process involved in the manufacture of them and their applications
3. To inculcate the chemistry of various cellulose derivatives and their application in paper industry

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the structure, physical and chemical properties and manufacture of starch and their applications	**K1-K5**
2	Identify the sources, structure, properties and reactions of cellulose	**K1,K2,K4**
3	Describe the structure, Properties, manufacture and uses of proteins	**K1-K5**
4	Give the structure of derivatives of cellulose	**K1-K3**
5	Outline the chemistry behind paper industry with special emphasis on cellulose	**K1-K6**

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	**Chemistry of Starch**	**12 hours**

Structure, physical and chemical properties. Manufacture and uses of unmodified and modified starch, dextrin, sugar syrup, hydrolysis of starch to edible and industrial glucose applications of starch in textile sizing and in fermentation industries.

Unit:2	**Chemistry of Cellulose**	**12 hours**

Structure physical and chemical properties general reactions, major sources and uses of cellulose, chemical and enzymatic hydrolysis of cellulose. Statistics and economics and cellulose. Chemistry of minor products of wood like lignin, pentosans, resins etc, laboratory preparation, manufacture and uses of chemical cellulose.

Unit:3	**Chemistry of proteins**	**12 hours**

Structure, Properties, Major sources, technological uses, hydrolysis of proteins and protein isolates. Manufacture, Properties and uses of gelatin, casein, collagen, protein isolates.

Unit:4	**Cellulose Derivatives**	**12 hours**

Cellulose nitrate, cellulose acetate, ethyl and methyl cellulose, sodium cellulose sulphate, sodium, carboxy, hydroxyl, methyl, cellulose, regenerated cellulose, major cellulose-platics-sodium carboxy methyl cellulose.

Unit:5	**Application of Cellulose**	**12 hours**

Different methods of pulping, manufacture and uses of different quality of paper products like card-board, newsprint, writing paper, tissue piper and filter paper. A short discussion of the pollution problems and by-products utilization of industries based on starch cellulose and proteins.

	Total Lecture hours	**60 hours**

Text Book(s)	
1	Fundamentals of Biochemistry-J.L.Jain, S.Jain, N.Jain, S Chand; Seventh edition, 2016.
2	Cellulose Derivatives: Synthesis, Structure, and Properties – T. Heinze, O.A.El Seoud, A. Koschella, Springer International Publishing, 2018.
Reference Book(s)	
1	Starch: Chemistry and Technology-J.N. BeMiller, R. L. Whistler, Academic Press; 3rd edition, 2009.
2	Cellulose chemistry and its application-T.P.Nevell, Halsted Press, 1985.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://starch.eu/starch/
2	https://en.wikipedia.org/wiki/Cellulose
3	https://www.youtube.com/watch?v=gDJ0QvtGjVE
Course Designed By: Dr. M. Sivakumar and Mr. C. Shudhakar	

Mapping with Programme Outcomes							
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**
CO1	S	M	M	S	S	M	S
CO2	S	S	M	M	S	S	S
CO3	M	M	M	M	S	M	S
CO4	S	S	S	S	M	S	S
CO5	S	M	S	S	S	S	S

*S-Strong; M-Medium; L-Low

Course code	6EC	DYE CHEMISTRY	L	T	P	C
ELECTIVE		Elective II (C)	4	-	-	3
Pre-requisite		Knowledge on Structure of Organic Molecules	Syllabus Version			2019-2020

Course Objectives:

The main objectives of this course are to:

1. Outline the fundamentals of volumetric estimations
2. Explain electrophilic and nucleophilic substitution reactions
3. Describe the application of boron and silicate chemistry
4. Discuss thermodynamics and solid state chemistry

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the principles of colour and its relation with compound's structure	**K1 – K5**
2	Analyze and classify dyes based on their chemical structure and applications	**K1 – K3**
3	Describe the synthesis of di and triphenyl methane dyes and their applications	**K2, K3,**
4	Understand chemistry of nitrogen containing dyes and their applications	**K2, K3**
5	Outline the importance of pigments in various fields	**K1 – K4**

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Chemistry and Theory of Colours	12 hours

Colour and constitution-Relationship of colour observed-to wave length of light absorbed-Terms used in colour chemistry-Chromophores, Auxochromes, Bathochromic shift, Hypsochromic shift. Colour of a substance-Quinonoid theory and molecular orbital approach.

Unit:2	Classification of Dyes	12 hours

Classification of Dyes-chemical classification-classification according to their applications-Acid dyes-Basic dyes. Azoic dyes, mordant dyes, vat dyes, Sulphur dyes, Disperse dyes, Nitro dyes-and Nitroso dyes process of dyeing (simple treatment).

Azo dyes-Principles governing azo coupling-mechanism of diazotization-Coupling with amines, coupling with phenols Classification according to the number of azo group & application-Tautomerism in azo dyes.

Unit:3	Synthesis and Applications of Dyes - I	12 hours

Synthesis, reactions and applications of Di and Triphenyl methane dyes-phthalein dyes-Xanthen dyes-acridine dyes-sulphur dyes. Phthalocyanines-Cyanine dyes. Malachite green, Para-rosaniline, crystal violet.

Unit:4	Synthesis and Applications of Dyes - II	12 hours

Azine, Oxazine and Triazine Dyes. Synthesis and applications of quinonoid dyes including vat dyes based on anthraquinone.

Unit:5	**Pigments and Their Applications**	**12 hours**
Requirements of a pigment: Typical Organic and Inorganic pigments-application and their uses in paints. Reaction of dyes with fibres and water-Fluorescent Brightening agents. Application of dyes in other areas-medicine, chemical analysis, cosmetics, colouring agents, food and beverages.		
	Total Lecture hours	**60 hours**

Text Book(s)	
1	Synthetic Dyes – G.R. Chatwal, Himalaya Publishing House, 2009.
2	The chemistry of synthetic dyes Vol, I, II, III & IV - K.Venkataraman, Academic Press N.Y., 1949.
3	The Hand book of Synthetic Dyes and Pigments – K.M. Shah, Publisher Edutech, 2013.
Reference Books	
1	The chemistry of synthetic dyes and pigments - H.A. Lubs, New York, Hafner Pub. Co., 1965.
2	Organic chemistry Vol.I - I.L.Finar, Pearson India, 6th edition, 2012.
3	Dyes and Pigments: New Research – A.R. Lang, Nova Science Publishers, Inc.; UK ed. Edition, 2013.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://nptel.ac.in/courses/116/104/116104046/
2	https://www.internetchemistry.com/chemistry/dye-chemistry.php
Course Designed By: Dr. S. P. Rajasingh	

Mapping with Programme Outcomes							
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**
CO1	S	S	S	S	S	S	S
CO2	S	M	M	M	S	S	M
CO3	S	M	M	M	S	M	M
CO4	S	M	M	M	S	M	S
CO5	S	S	S	S	S	S	S

*S-Strong; M-Medium; L-Low

Course code		ANALYTICAL CHEMISTRY II-LAB TECHNIQUES	L	T	P	C
ELECTIVE		Elective III (Group A)	4	-	-	3
Pre-requisite		Higher Secondary Level Chemistry	Syllabus Version		2010-2011	

Course Objectives:

The main objectives of this course are to:

1. The students understand the basic principles and components of chromatography
2. To inculcate the theory, instrumentation and applications of various spectrophotometry
3. Introduce the theory, techniques and applications of polarimetry and electrochemical Methods
4. Give an insight into synthesis and purification of some organic and inorganic compounds

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Describe the principles of various chromatography	**K1-K4**
2	Understand the theory behind UV, IR and NMR spectrophotometry and their applications.	**K1-K3**
3	Describe the instrumentation of polarimetry	**K2,K3**
4	Know the various electrochemical methods of analysis and their applications	**K2-K4**
5	Outline the synthesis and purification steps of some of organic and inorganic compouds	**K2, K3**

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	**Chromatography**	**12 hours**

Classification of the chromatographic methods, principles of differential migration, Adsorption phenomenon, nature of the adsorbent, solvent systems. Rf. Values. Column chromatography, Partition chromatography, paper chromatography, TLC, -theory and techniques.

Unit:2	**Spectroscopy**	**12 hours**

Theory, instrumentation and application of (i) UV and visible spectrophotometry (ii) IR spectrophotometry (iii) Flame Photometry (iv) NMR spectroscopy

Unit:3	**Polarimetry**	**12 hours**

Theory, instrumentation, experimental procedure and application.

Unit:4	**Electrochemical Methods of Analysis**	**12 hours**

Polarography, cyclic voltametry, differential pulse polarography and calorimetry: Theory, techniques and applications.

Unit:5	**Preparation and Purification of Compounds**	**12 hours**

Preparation and purification of organic and inorganic compounds like, (i) Aspirin from salicylic acid (ii) Acetanilide from aniline (iii) Benzanilide from aniline (iv) iodoform from ethanol/and (v) Meta di nitro benzene acetone (vi) Methyl orange/methyl red (vii)preparation of Nylon 66 (viii) Caffine from tea leaves (ix) Caesin and lactose from milk (x) Nicotine and Nicotine sulphate (xi) Bakelite from phenol and From tobacco waste formaldehyde (xii)As_2 O_3 Sol, Fe $(OH)_3$ Sol (xiii) Tetrammine-copper sulphate (xiv) Tetrammine Cobalt carbonate (xv) Sodium thiosulphate and (xvi) Cuprous chloride dithionate

	Total Lecture hours	**60 hours**
Text Book(s)		
1	Vogel's Text Book of Quantitative Chemical Analysis – J. Mendham, RC Denney, JD Barnes, M. Thomas, B. Sivasankar, Pearson Publishers 6th edition 2009.	
Reference Book(s)		
1	Physical methods for chemistry-R.S.Drago, W B Saunders Co Ltd; 2nd Revised edition, 1992.	
2	Spectroscopy in Inorganic chemistry-C.N.R Rao and JR Ferraro Academic Press Inc, 1971.	
3	Fundamentals of Analytical Chemistry - D.A.Skoog, D.M.West, S. Jose, F.J.Holler Cengage Learning, 2004	
4	Instrumental methods of Chemical Analysis-B.K. Sharma Krishna Prakashan Media (P) Ltd. 2014.	
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]		
1	https://www.youtube.com/watch?v=Zp-BHsdqsRw	
2	https://nptel.ac.in/courses/104/106/104106122/	
3	https://www.slideshare.net/SihamAbdallaha/electrochemical-method-of-analysis-31352857	
4	https://gtu.ge/Agro-Lib/Vogels_TEXTBOOK_OF_QUANTITATIVE_CHEMICAL_ANALYSIS_5th_ed__-_G_H_Jeffery.MsuCity.pdf	
Course Designed By: Dr. M. Sivakumar and Dr. A. Thirumoorthi		

Mapping with Programme Outcomes							
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**
CO1	M	S	S	M	M	M	M
CO2	S	S	S	M	M	M	M
CO3	S	M	M	M	M	L	M
CO4	L	S	M	L	L	M	M
CO5	M	M	L	M	L	M	M

*S-Strong; M-Medium; L-Low

Course code	6EE	ENVIRONMENTAL CHEMISTRY	L	T	P	C
ELECTIVE		Elective III (B)	4	-	-	3
Pre-requisite		Basics of Environment Science	Syllabus Version		2019-2020	

Course Objectives:

The main objectives of this course are to:

1. Explain clearly Environmental segments and composition of atmosphere
2. Understand the Natural Cycles of the environment
3. Detailed explanation of the different types of pollution

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the concepts ,environmental segments and composition of the atmosphere	**K1,K2**
2	Know about the environment cycles and their significance	**K1**
3	Discuss the water pollution,sewage and Industrial waste water treatment	**K1,K2**
4	Describe the reactions in air pollution ,particulates and analysis of pollutants	**K2,K4**
5	Explain the thermal,noise and radioactive pollution and their effects and methods of control	**K1-K3**

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Chemistry of Environment and Atmosphere	12 hours

Concept and scope of environmental chemistry-Nomenclature: Pollutant, contaminant, receptor, sink, pathways of a pollutant, speciation, dissolved oxygen, chemical oxygen demand (COD), biochemical oxygen demand (BOD)-Environmental segments.

Composition of the atmosphere-atmospheric structure-earth's radiation balance – particles, ions and radicals in the atmosphere-formation of inorganic particulate matter- formation of organic particulate matter-ions and radicals-photochemical reactions in the atmosphere-formation of NO_2, SO_2, organic compounds, greenhouse effect.

Unit:2	Cycles of Environment	12 hours

Biological cycles & their significance-Gaseous and sedimentary cycles.

(a) Oxygen cycle and ozone chemistry (b) Carbon cycle (c) Nitrogen cycle (d) Sulphur cycle (e) Phosphours cycle

Unit:3	Water Pollution and Treatment	12 hours

Water pollution: Hydrological cycle –aquatic environment-classification of water pollution – organic pollutants, inorganic pollutants, sediments, radioactive materials, thermal pollution, BOD & COD –signification-experimandal determination. Trace elements in water. Chemical speciation of copper, lead and mercury.

Eutrophication-sewag treatment-primary and secondary treatments. Industrial waste water treatment by 1) activated charcoal/synthetic resins 2) membrane techniques.

Unit:4	Air Pollution	12 hours

1. Air pollutants-primary pollutants-sources of carbon monoxide, nitrogen oxides, sulphur dioxide; sink and control. Hydrocarbons, photochemical smog, acid rain.
2. Particulates: sources-inorganic and organic particulate matters-effects on human beings, materials, climate control of particulate emission- of atmospheric pollution, corrosion of metals-

indoor reactions of air pollutants-sinks of atmospheric gases.
Air quality standards: Monitoring –Analysis of carbon monoxide-nitrogen oxides-sulphur dioxides-hydrocarbons.

Unit:5	**Thermal and Electromagnetic Pollution**	**12 hours**

1. Thermal pollution-definition, sources-environmental effects-control and prevention. Solar energy as alternative source of energy, strategies for energy conservation.
2. Noise pollution: Sources and effects of noise pollution-control and prevention-solutions to abuse. Supersonic jets and its effects.
3. Radioactive pollution: Sources of radioactive pollution-environmental threat of nuclear reactors-breeder reactors-environmental conflicts between nuclear powers Methods of control and prevention.

	Total Lecture hours	**60 hours**

Text Book(s)

1	Environmental Chemistry-A.K .De, New Age International(P) Ltd., New Delhi(2010).
2	Environmental Chemistry- V.K. Ahluwalia,Ane Books India., New Delhi(2013).
3	Sodhi, G.S., Fundamantal Concepts of Environmental Chemistry, Narosa Publishing House Pvt. Ltd., New Delhi, Third Edition, (2009).

Reference Books

1	A text book of Environmental Chemistry-Krishnan & Kannan, Anmol Publications, New Delhi (1992).
2	Environmental chemistry & pollution control – Dhar, S.Chand &Co., New Delhi (1995).

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://nptel.ac.in/courses/122/106/122106030/
2	https://nptel.ac.in/noc/courses/noc20/SEM2/noc20-ce57/
3	https://nptel.ac.in/content/storage2/courses/105101010/downloads/Lecture27.pdf

Course Designed By: Dr. T. Selvaraju and Mr. C. Sudhakar

Mapping with Programme Outcomes

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	S	M	L	S	S	S	M
CO2	S	M	M	S	S	M	S
CO3	M	M	S	S	S	M	S
CO4	S	S	S	M	S	M	S
CO5	S	M	L	M	S	S	S

*S-Strong; M-Medium; L-Low

Course code		TEXTILE CHEMISTRY	L	T	P	C
ELECTIVE		Elective III (C)	4	-	-	3
Pre-requisite		Higher Secondary Level Chemistry	Syllabus Version		2010-2011	

Course Objectives:

The main objectives of this course are to:

1. Make the students to understand the structure, Properties and uses of natural and synthetic fibers.
2. Outline the impurities present in cotton and silks and the way to remove them.
3. Impart the knowledge about various dyes and dyeing of wools and silks

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the structure, production, properties and uses of natural fibers	**K1-K3**
2	Understand the structure, production, properties and uses of synthetic fibers	**K2- K5**
3	Identify the impurities present in cotton and silk and know the processes to remove them	**K2, K3**
4	Describe the various dyeing methods and natural dyes used for cotton fiber	**K1-K6**
5	Outline different methods available for dyeing wools and silks	**K2-K6**

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	**Classification and Structure of Natural Fibers**	**12 hours**

1. Fibre theory –polymers and polymerization-Morphology of fibres – Molecular arrangements in fibres.
2. General classification of fibres-chemical structure, production, properties and uses of the following natural fibres (a)natural cellulosic fibres (cotton and jute) (b) natural protein fibre (wool and silk).

Unit:2	**Properties and Uses of Synthetic Fibers**	**12 hours**

Chemical structure, production, properties and uses of the following synthetic fibres. (i) Man made cellulosic fibres (Rayon, modified cellulosic fibres) (ii) Man made protein fibres (Azions) (iii) Poly amide fibres (different types of nylons) (iv) Poly ester fibres (v) Acrylic fibres and (vi) Olefin fibres.

Unit:3	**Impurities in fibers and their removal**	**12 hours**

Impurities in raw cotton and grey cloth, wool and silk- general principles of the removal – Scouring – bleaching – Desizing – Kierboiling- Chemicking –Chemical and machinery use- Degumming and Bleaching of silk Scouring and Bleaching of wool.

Unit:4	**Classification of Dyes**	**12 hours**

Dyeing – Classification of dyes and their properties- applications – direct, basic, sulphur and azoic dyes on cotton. Application of Vat and solubilised vat dyes on cotton and viscose. Mordant mineral colours and black. Application of vegetable and other colour to cotton.

Unit:5	**Dyeing of Fibers**	**12 hours**

1. Dyeing of wool and silk –Fastnerss properties of dyed materials – dyeing of nylon, terylene and other synthetics.

2. Finishes given to fabrics- Mechanical finishes on cotton, wool and silk, method used process of mercerizing –Anti-crease and Anti-shrink finishes –Water proofing.		
	Total Lecture hours	**60 hours**
Text Books(s)		
1	Text Book of Applied Chemistry-M.A.Islam, Sonali Publications; 1st edition, 2011.	
2	Chemistry of dyes & Principles of Dyeing -V.A.Shenai, Sevak Publications, 1983.	
Reference Book(s)		
1	The Identification of Textile Fibres – Bruno Luniak, Isaac Pitman & Sons, Limited, 1953.	
2	Dyeing and chemical Technology of Textile fibres-5th Edition, E.R.Trotman, Charles Griffin & Co Ltd, 1970. (Digitalized 2010).	
3	Chemical Technology of fibrous Materials – F.I. Sadov, M.V. Horchagin and A.Matetsky, Mir Publishers, 1978. (Digitalized 2008).	
4	Textile Scouring and Bleaching E.R.Trotman, Charles Griffin & Co Ltd.1968.	
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]		
1	https://blogionik.org/blog/2017/04/02/natural-synthetic-fiber/	
2	https://www.assignmentpoint.com/science/textile/textile-fiber.html	
Course Designed By: Dr. S. P. Rajasingh		

Mapping with Programme Outcomes							
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**
CO1	S	S	M	M	M	M	S
CO2	M	S	S	M	S	L	M
CO3	M	S	S	S	M	M	L
CO4	S	S	S	M	S	S	M
CO5	S	M	S	S	S	S	M

*S-Strong; M-Medium; L-Low

Annexure

B. Sc. CHEMISTRY

Syllabus
(2020-2021)

Program Code: 22D



DEPARTMENT OF CHEMISTRY
(Affiliated Colleges)
Bharathiar University
(A State University, Accredited with "A"Grade by NAAC and
13th Rank among Indian Universities by MHRD-NIRF)
Coimbatore 641 046, INDIA

BHARATHIAR UNIVERSITY: COIMBATORE 641046

DEPARTMENT OF CHEMISTRY

(Affiliated Colleges)

MISSION

To provide the fundamental knowledge of chemistry, empower students for higher studies and acquire potential jobs.

Modification in B.Sc. Chemistry 2019-2022 Batch – Semester V

CORE VIII - CHEMISTRY PAPER VI

Teaching hour: 60 hours per semester (4 hours per week)

Subject description: This paper presents the principle of radio activity, organometallic, coordination compounds and solvents.

Goals: To enable the students to know about the organometallic compounds, radio activity, isotopes, coordination compounds and the role of solvent in chemical reactions.

Objectives: To understand the principles of radio activity.

UNIT I :

Definition – Nomenclature of Organometallic compounds – Synthesis of organometallic compounds of Be, Mg, Zn, B and Al – Ferrocene: Preparation - Aromaticity of: Ferrocene, cyclic CnHn Ligands – Application of: Grignard reagent and Gilman Reagent - alkene polymerization using Ziegler-Natta catalyst.

UNIT II :

Artificial radio activity. Artificial transmutation of elements, synthesis of radio isotopes and. nuclear fission and fusion. Nuclear reactors – principle of working – production of electrical energy – atomic projects in India – Safety measures; disposal of reactor wastes – pollution. Nuclear reactions, mechanisms and different types of stellar energy.

UNIT III :

Nature of isotopes and isobars – detection and isolation of isotopes – various methods – importance of discovery of isotopes – uses of isotopes in various fields. Nuclear stability n/p ratio, magic numbers, C-12 atomic weight scale, C-14 dating, mass defect and nuclear binding energies. Radioactive disintegration series.

UNIT IV :

Co-ordination compounds – Nomenclature – conductivity and precipitation studies – Werner Co-ordination theory – electronic interpretation of coordinate bond by SidgeWick. Isomerism: Examples of Geometrical and optical isomerism in square planar and octahedral coordination compounds – magnetic properties of coordination compounds and their interpretation by Pauling's valence bond theory and crystal field theory.

UNIT V :

The solvents- solubility of compounds – effect of temperature on solubility- Role of water as solvent- chemical structure and solubility. Classifications of solvents-general behaviourproperties of ionizing solvents. Types of reactions in non aqueous solvents-protonic solvents - ammonia, hydrogen fluoride. Non Protonic solvents-SO2 and BrF3. Organic solvents - C2H5OH and Ether.

B.SC. PHYSICS

Syllabus

AFFILIATED COLLEGES

Program Code: 22C

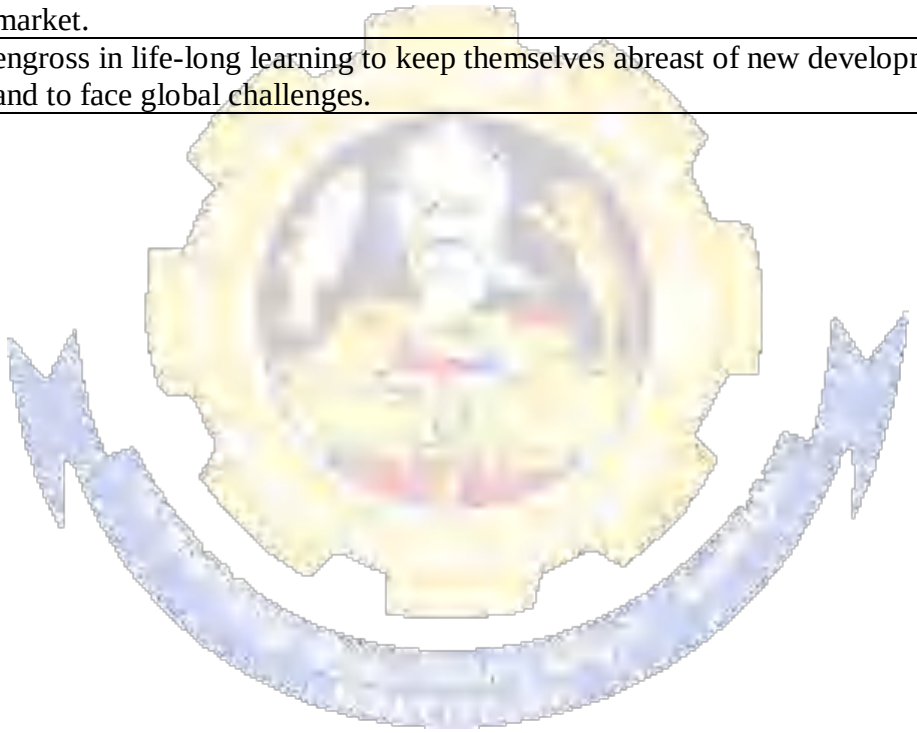
2020 – 2021 onwards

BHARATHIAR UNIVERSITY

(A State University, Accredited with "A" Grade by NAAC,
Ranked 13th among Indian Universities by MHRD-NIRF,
World Ranking : Times - 801-1000, Shanghai - 901-1000, URAP - 982)

Coimbatore - 641 046, Tamil Nadu, India

Program Educational Objectives (PEOs)	
On obtaining an undergraduate degree the students will be able to,	
PEO1	have strong foundation in basic sciences, mathematics and computational platforms.
PEO2	acquire professional and ethical attitude, develop communicative skills, teamwork spirit, multidisciplinary approach, and an ability to relate and solve scientific/ technical issues.
PEO3	enter into higher studies leading to post-graduate and research degrees.
PEO4	apply and advance the knowledge and skills acquired to become a competent professional in their chosen field.
PEO5	serve the society with scientific advancement and to actively take part in building knowledge-based society.
PEO6	comprehend, analyze, design and create novel products and solutions for the real life problems through good scientific and technical knowledge.
PEO7	become an entrepreneur who can make and sell scientific products in the market.
PEO8	engross in life-long learning to keep themselves abreast of new developments and to face global challenges.



Program Specific Outcomes (PSOs)	
After the successful completion of B.Sc., Physics program, the students are expected to,	
PSO1	realize the role of Physics in day to day life.
PSO2	communicate explicitly and exchange ideas with regard to the impacts of various components of Physics on environment and society.
PSO3	expertise in various domains of Physics.
PSO4	design and develop the skills towards the futuristic needs of the industry/ society utilizing both theoretical and practical knowledge acquired in basic Physics.
PSO5	identify and access the diverse applications of Physics using mathematical concepts enriching towards career opportunities.



Program Outcomes (POs)	
On successful completion of the B. Sc. Physics program, the students will be able to,	
PO1	understand the basic concepts and significance of various physical phenomena.
PO2	transform ideas into action i.e. lab to land.
PO3	acquire a wide range of problem solving skills, both analytical and computational and to apply them.
PO4	develop an independent and self-disciplined specialized learning in tune with the changing socio-technological scenario.
PO5	get motivated to pursue higher education and research activities in Physics to find professional level employment.
PO6	identify, analyse and formulate novel ideas to yield, substantial results in the fields of research utilizing the principles of Physics.
PO7	develop creative thinking and innovative tools.
PO8	communicate effectively in order to acquire employability/ self – employment.
PO9	acquire a broad interdisciplinary knowledge.
PO10	update themselves in the current developments and discoveries related to Physics.

BHARATHIAR UNIVERSITY: : COIMBATORE 641 046

B. Sc. PHYSICS Curriculum (Affiliated Colleges)

(For the students admitted during the academic year 2020 – 21 onwards)

Part	Course Code	Title of the Course	Credits	Hours/week		Maximum Marks		
				Theory	Practical	CIA	ESE	Total
	FIRST SEMESTER							
I	11T	Language-I	4	6	-	25	75	100
II	12E	English-I	4	6	-	25	75	100
III	13A	Core I – Mechanics, Properties of Matter and Sound	4	6	-	25	75	100
III		Core Practical I	-	-	3	-	-	-
III	1AA	Allied A – Mathematical Paper I *	4	7	-	25	75	100
	1AH	(or) Chemistry Theory I **	3	4	-	20	55	75
III	-	Allied Practical**	-	-	2	-	-	-
IV	1FA	Environmental Studies #	2	2	-	-	50	50
		Total	**18**					**450**
	SECOND SEMESTER							
I	21T	Language-II	4	6	-	25	75	100
II	22E	English-II	4	6	-	25	75	100
III	23A	Core II – Heat and Thermodynamics	4	6	-	25	75	100
III	23P	Core Practical I	4	-	3	40	60	100
III	2AA	Allied A - Mathematical Paper II *	4	7	-	25	75	100
III	2AH	(or) Chemistry Theory II **	3	4	-	20	55	75
III	2PH	Allied Practical**	2	-	2	20	30	50
IV	2FB	Value Education - Human Rights #	2	2	-	-	50	50
		Total	**22**					**550**
	THIRD SEMESTER							
I	31T	Language-III	4	6	-	25	75	100
II	32E	English-III	4	6	-	25	75	100
III	33A	Core III – Optics	4	5	-	25	75	100
III	-	Core Practical II	-	-	2	-	-	-
III	3AA	Allied B - Mathematical Paper I * (or)	4	7	-	25	75	100
III	3AH	Chemistry Theory I **	3	4	-	20	55	75
III	-	Allied Practical**	-	-	2	-	-	-
IV	3ZA	Skill Based Subject – Instrumentation I	3	3	-	20	55	75
IV	3FC	Tamil @ / Advanced Tamil# (OR) Non-major elective - I	2	2	-	-	50	50

		(Yoga for Human Excellence)# / Women's Rights #						
		Total	**20**					**500**
	FOURTH SEMESTER							
I	41T	Language-IV	4	6	-	25	75	100
II	42E	English-IV	4	6	-	25	75	100
III	43A	Core IV – Atomic Physics and Spectroscopy	4	5	-	25	75	100
III	43P	Core Practical II	4	-	2	40	60	100
III	4AA	Allied A - Mathematical Paper II * (or)	4	7	-	25	75	100
III	4AH	Chemistry Theory II **	3	4	-	20	55	75
III	4PH	Allied Practical**	2	-	2	20	30	50
IV	4ZB	Skill based Subject - Instrumentation II	3	3	-	20	55	75
IV	4FE	Tamil @ /Advanced Tamil # (OR) Non-major elective -II (General Awareness #)	2	2	-	-	50	50
		Total	**26**					**650**
	FIFTH SEMESTER							
III	53A	Core V – Mathematical Physics	4	4	-	25	75	100
III	53B	Core VI – Electronics	4	4	-	25	75	100
III	53C	Core VII – Solid State Physics	4	4	-	25	75	100
III	53D	Core VIII – Electricity and Magnetism	4	4	-	25	75	100
III	-	Core Practical III - Electronics	-	-	2	-	-	-
III	-	Core Practical IV - Digital and Micro Processor	-	-	2	-	-	-
III	5EA	Elective –I	4	4	-	25	75	100
III	-	Practical V- C and C++	-	-	3	-	-	-
IV	5ZC	Skill based Subject - Instrumentation III	3	3	-	20	55	75
		Total	**23**					**575**
	SIXTH SEMESTER							
III	63A	Core IX – Quantum Mechanics and Relativity	4	6	-	25	75	100
III	63B	Core X - Nuclear Physics	4	6	-	25	75	100
III	63P	Core Practical III - Electronics	3	-	2	30	45	75
III	63Q	Core Practical IV - Digital and Micro	3	-	2	30	45	75

		Processor						
III	6EA	Elective –II	4	4	-	25	75	100
III	6EB	Elective –III	4	4	-	25	75	100
III	63R	Practical V - C and C++	4	-	3	40	60	100
IV	6ZP	Skill based Subject Practical – Instrumentation	3	-	3	30	45	75
V	67A	Extension Activities @	2	-	-	-	-	50
		Total	**31**					**775**
		Grand Total	**140**					**3500**

*For subjects without practical
** For subjects with practical
@ No University Examinations. Only Continuous Internal Assessment (CIA)
No Continuous Internal Assessment (CIA). Only University Examinations.


First Semester

SEMESTER I

Course code	13A	MECHANICS, PROPERTIES OF MATTER AND SOUND	L	T	P	C
Core/Elective/SBS		CORE PAPER I	6	0	0	4
Pre-requisite		The students are expected to know the fundamental properties of matter and sound	Syllabus Version		2020-21	

Course Objectives:

The main objectives of this course are to:

1. explore the basic laws governing the behavior of matter in everyday life.
2. demonstrate practical knowledge and skill in understanding the elastic properties of solids.
3. identify the behavior of simple harmonic waves
4. access the importance of Ultrasonics

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	understand and define the laws involved in mechanics.	K1
2	gain deeper understanding of mechanics and its fundamental concepts.	K2
3	understand the concept of properties of matter and to recognize their applications in various real problems.	K3
4	analyze the universal behavior of wave motion.	K4
5	learning the basic concepts of elasticity, surface tension, Gravitation, viscosity, and sound and evaluating their values for various materials.	K5
6	explore the production and application of ultrasonic wave	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Conservation Laws	18 hours

Impulse – Impact – Direct and oblique impact – Final velocity and loss of kinetic energy –Motion of a particle in a vertical circle – friction – Laws of friction – angle of friction – resultant reaction – cone of friction – Equilibrium of a body on a rough inclined plane to the horizontal and when the inclination is greater than the angle of friction.

Unit:2	Motion of Rigid Body	18 hours

Moment of inertia – Parallel and perpendicular axes theorem – M.I. of rectangular Lamina and Triangular lamina – M. I of a solid sphere about an axis through its C.G. – Compound pendulum – torque and angular momentum – Relation – Kinetic rotation – conservation of angular momentum.

Unit:3	Gravitation	18 hours

Kepler's Laws of planetary motion – Laws of gravitation – Boy's method for G –Gravitational potential – Gravitational field at a point due to spherical shell – Variation of 'g' with latitude, altitude and depth. **Elasticity:** Elastic modules – Poisson's ratio – relation between them – Expression for bending moment – determination of Young's modulus by uniform and non-uniform bending – I section girders – Rigidity modulus – Static Torsion – Expression for couple per unit twist – Torsional oscillation.

Unit:4	Surface Tension	16 hours

Definition and dimension of surface Tension – Excess of Pressure over a curved surface – Variation of S.T. with temperature – Jaeger's Experiment. **Viscosity:** Definition – Rotation viscometer-viscosity of gases, Meyer's Modification of Poiseuille's formula – Rankine's method for viscosity of a gas.		
Unit:5	**Sound**	**18 hours**
Simple Harmonic vibration – Progressive waves – properties – Composition of two S.H.M. and beats – stationary waves – Properties Melde's Experiment for the frequency of electrically maintained tuning fork – Transverse and longitudinal modes – Ultrasonics –Properties and application.		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars - webinars		
	Total Lecture hours	**90**

Text Book(s)

1	Properties of Matter and Acoustics, R. Murugesan, 2nd Edition, S.Chand & Co. Ltd. (2017).
2	Properties of Matter, Brijlal and N.Subrahmanyam, 3rd Edition, S.Chand & Co. (2005).

Reference Books

1	Elements of Properties of Matter, D.S. Mathur, 11th Edition, S.Chand & Co., (2010).
2	A text book of Sound, Brijlal N.Subramaniam, Vikas Publishing House Pvt. Ltd, 2nd edition, (2010).
3	A Textbook of Sound, M.N.Srinivasan, Himalaya Publishing house, (1991).

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	**https://www.physicstutoronline.co.uk/alevelphysicsnotes/**
2	**https://latestcontents.com/bsc-physics-mechanics-notes/**
3	**www.khanacademy.org/science/physics/elasticity/surface tension**
4	**https://sites.google.com/brown.edu/lecture-demonstrations/home?authuser=0**

Course Designed By: **Mrs.J.Jayachitra.**

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	M	M	S	S	S	L	S	S
CO2	S	S	M	M	S	S	S	L	S	S
CO3	S	S	M	L	S	M	L	M	S	M
CO4	S	S	M	M	S	S	S	L	S	M
CO5	S	S	S	S	S	S	S	M	M	S
CO6	M	M	M	L	S	S	M	L	S	S

*S-Strong; M-Medium; L-Low

Second Semester

SEMESTER II

Course code	23A	HEAT AND THERMODYNAMICS	L	T	P	C
Core/Elective/SBS		CORE PAPER II	6	0	0	4
Pre-requisite		The students are expected to know the fundamental concepts of heat and thermodynamics	Syllabus Version		2020-21	

Course Objectives:

The main objectives of this course are to:

1. investigate the role of various laws of heat and thermodynamics in our daily life
2. substantiate the concepts of heat and thermodynamics experimentally
3. explore the applications of heat engines

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	realise various principles and laws of heat	K2
2	derive expressions and find experimental verifications for the laws studied	K3
3	analyse the applications of heat and thermodynamics in various areas and solve the real life problems.	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Calorimetry	17 hours

Definitions – Newton's law of cooling – specific heat of a liquid calendar and Barne's continuous flow method – two specific heats of a gas – specific heat of a gas by Joly's differential steam calorimeter – Regnault's method – Dulong and Petit's law – variation of specific heat and atomic heat with temperature.

Unit:2	Transmission of Heat	17 hours

Conduction: Co-efficient of thermal conductivity – Cylindrical flow of heat – Thermal conductivity of rubber – Lee's disc method for bad conductors. **Radiation:** Black body – Wein's displacement law – Raleigh-Jean's law – Stefan's law – Experimental Determination of Stefan's constant – Mathematical derivation of Stefan's law.

Unit:3	Kinetic Theory of Gases	18 hours

Maxwell's law of distribution of molecular velocities – Experimental verification – equilibrium speed distribution of velocities. Mean free path – transport phenomena – diffusion – viscosity and thermal conduction of gases – Vander walls equation – relation between Vander Wall's constant and critical constants.

Unit:4	Laws of Thermodynamics	18 hours

First law of thermodynamics – Isothermal and Adiabatic process – gas equation during an adiabatic process – Work done in adiabatic expansion of gas – Determination of γ by Clement and Desorme's method – second law of thermodynamics – Carnot's engine- Working – efficiency – Carnot's refrigerator – Carnot's Theorem.

Unit:5	Concept of Entropy	18 hours

Entropy – Change in entropy – Change in entropy in a reversible cycle – Principle of increase of entropy – temperature entropy diagram – Entropy of a perfect gas – Thermo dynamic variables –

Maxwell's thermodynamical relations – Applications: Joule Thomson effect – Temperature of inversion - Claussius and Clapeyron's equation.		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars - webinars		
	Total Lecture hours	**90**

Text Book(s)	
1	Thermal Physics, R. Murugesan, S.Chand&Co (2008).
2	Heat & Thermodynamics, Brijlal & N. Subramaniam, S.Chand&Co (2007)
3	Heat – M. Narayanamurthi and N. Nagaratnam, National Publishers.
Reference Books	
1	Heat and Thermodynamics – Zemansky and R.H. Dcltanann, TMH (2017)
2	Heat and Thermodynamics – D.S. Mathur, S. Chand & Co, Edi (2002).
3	Heat and Thermodynamics – Agarwal, Singhal, Sathyaprakash, KedarNath Ramnath and Co. (2003).
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://www.askiitians.com/revision-notes/physics/heat-transfer/
2	https://www.askiitians.com/revision-notes/physics/kinetic-theory-of-gases/
3	https://www.askiitians.com/revision-notes/physics/heat-phenomena/
4	https://www.askiitians.com/revision-notes/physics/thermodynamics/
Course Designed By: **Dr P. Sagunthala**	

Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	M	S	S	M	S	S	M	M	M
CO2	S	S	S	S	M	M	M	S	M	S
CO3	M	S	S	S	S	S	S	S	S	S

*S-Strong; M-Medium; L-Low

SEMESTER I & II

Course code	23P	CORE PRACTICAL I (Examination at the end of Second Semester)	L	T	P	C
Core/Elective/SBS		CORE PRACTICAL	0	0	3	4
Pre-requisite		Should have the fundamental knowledge of experimental Physics	Syllabus Version		2020 - 21	

Course Objectives:

The main objectives of this course are to:

1. develop the experimental skills in Mechanics and Properties of matter
2. gain knowledge about the experiments based on Electricity and Magnetism
3. motivate the students to apply the experimental techniques in Optics and Sound.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	analyze the concepts of Viscosity, Surface Tension and Young's Modulus of different substances	K4
2	explore the knowledge of Spectrometer and other Optical instruments	K5
3	realize principles and applications of Potentiometer, Sonometer, Magnetometer and PN junction diode.	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

LIST OF EXPERIMENTS (Any twelve experiments) — **84 Hours**

1. Acceleration due to gravity - Compound Pendulum
2. Surface tension of a liquid – Drop Weight Method
3. Viscosity by Capillary flow method
4. Comparison of Viscosities – Capillary Flow Method
5. Rigidity modulus – Static Torsion – Scale and Telescope
6. Young's Modulus – Non- Uniform bending – Pin and Microscope
7. Young's Modulus – Uniform bending – Optic lever
8. Young's Modulus – Cantilever – Dynamic method
9. Frequency of A.C. - Sonometer
10. Frequency of Vibrator - Melde's Strings
11. Refractive index of Solid Prism - Spectrometer
12. Determination of wave length λ - Grating – Minimum deviation - Spectrometer
13. Refractive index of Prism - (i-d) Curve - Spectrometer
14. Refractive index of liquid - Hollow prism – Spectrometer
15. Thickness of Wire - Air Wedge
16. Low range voltmeter Calibration - Potentiometer
17. Low range Ammeter Calibration - Potentiometer
18. Velocity of Sound - Resonance Column apparatus
19. Moment of magnet – Tan C Position
20. Characteristics of a Junction Diode

Contemporary Issues — **6 Hours**

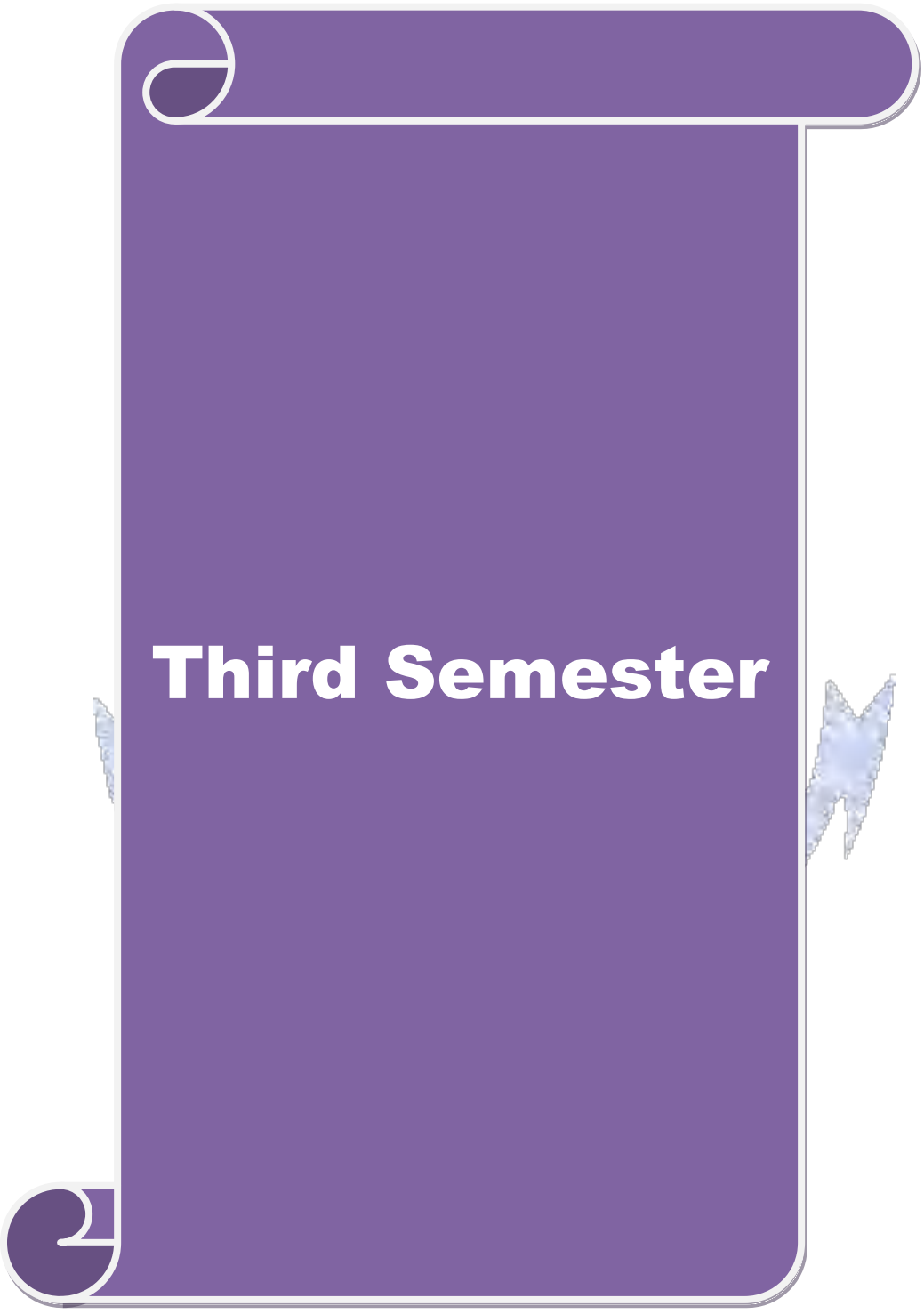
Online workshop, Webinars on Experimental Physics

Total Practical hours: 90

Reference Books	
1	A text book of practical Physics, M.N.Srinivasan, S.Balasubramanian, R.Ranganathan, Sultan Chand&Sons(2017)
2	Practical Physics and Electronics, C.C.Ouseph, U.J.Rao, V.Vijayendran, S.Viswanathan Publishers(2007)
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://nptel.ac.in/course.html/physics/experimental physics I, II and III
2	https://nptel.ac.in/courses/115/105/115105110/
3	https://www.youtube.com/playlist?list=PLuiPz6iU5SQ8-rZn_LgLofRX7n8z4tHYK
Course Designed By: **Dr U. Karunanithi**	

Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	M	M	M	S	M	L	M	S
CO2	S	S	S	M	M	M	L	M	S	S
CO3	M	M	S	S	L	M	S	S	S	M

*S-Strong; M-Medium; L-Low


Third Semester

SEMESTER III

Course code	33A	OPTICS	L	T	P	C
Core/Elective/SBS		CORE PAPER III	4	0	0	4
Pre-requisite		The students should acquire knowledge basic properties of light. They should be familiar with the behaviour of light in different medium.	Syllabus Version		2020-21	

Course Objectives:

The main objectives of this course are to:

1. gain knowledge towards geometrical and physical optics
2. provide a good platform in the field of Optics
3. provide a basic knowledge on the behavior of light energy and their propagation
4. inspire the concepts of LASER and their applications.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	remember the behavior of light on passing through lens, prism, thin film and grating	K1
2	understand the phenomena of light like Interference, diffraction, polarization and population inversion	K2
3	analyze and apply the concepts of dispersive power, refractive index, resolving power, double refraction, specific rotation and optical pumping for different materials	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	Geometrical Optics	10 hours

Aberrations - Spherical aberrations in lens - coma - Astigmatism - chromatic aberration - dispersion by a prism - Cauchy's dispersion formula - dispersive power, achromatism in prism - deviation without dispersion - chromatic aberrations in a lens - circle of least confusion - achromatic lens - condition for achromatism of two thin lenses separated by a finite distances.

Unit:2	Physical Optics - Interference	12 hours

Fresnel's Biprism – Interference in thin films due to reflected light – Fringes due to wedge shaped thin film – Newton's rings – Refractive index of the Liquid – Michelson interferometer – Determination of a wave length of monochromatic light – difference in Wave length between two neighboring spectral lines – Fabry Perot Interferometer.

Unit:3	Diffraction	12 hours

Fresnel's assumptions – rectilinear propagation of light – half period zone – Zone Plates – Action and Construction – comparison with a convex lens – Fresnel and Fraunhofer diffraction – Fraunhofer diffraction at a Single light – Diffraction grating – Resolving power & Dispersive power of Grating.

Unit:4	Polarization	12 hours

Double Refraction – Huygen's explanation --Optic axis in the plane of incidence, inclined and perpendicular to the crystal surface – Production and Detection of Plane, Circularly and Elliptically Polarized light – Optical Activity – Fresnel's explanation – Specific rotation – Half Shade Polarimeter.

Unit:5	**Quantum Optics**	**12 hours**
Light quanta and their origin – Resonance radiation – Metastable states – Population Inverse – Optical pumping – Spontaneous and Stimulated emission – Einstein's coefficient – Ruby, He- Ne, CO_2 laser – Resonant cavities – elements of non-linear optics – second harmonic generation– threshold condition for laser – Stimulated Raman scattering.		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**60**

Text Book(s)

1	A Text book of Optics, Brijlal & Subramaniam, S. Chand Limited (2001)
2	Modern Physics, R Murugesan, S. Chand Publishing, 18th Edition (2017)

Reference Books

1	Optics and Spectroscopy, R Murugesan, S. Chand Publishing, 5th Edition (2013)
2	Optoelectronics, Ajoy Kumar Ghatak,K. Thyagarajan, Cambridge University Press (1989).

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://www.youtube.com/watch?v=ML7HcZo6IaE
2	https://www.khanacademy.org/science/physics/light-waves/introduction-to-light-waves/v/polarization-of-light-linear-and-circular
3	https://nptel.ac.in/courses/104/104/104104085/

Course Designed By: **Dr. K. Selvaraju**

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	M	M	M	S	M	M	M	S
CO2	S	M	S	M	S	M	M	M	S	S
CO3	M	M	M	S	S	S	S	S	S	S

*S-Strong; M-Medium; L-Low

SEMESTER III

Course code	3ZA	INSTRUMENTATION - I	L	T	P	C
Core/Elective/SBS		SKILL BASED SUBJECT	3	0	0	3
Pre-requisite:		Students should know the importance of measurement and accuracy	Syllabus Version		2020-21	

Course Objectives:

The main objectives of this course are to:

1. understand the basic principles of measurement devices, their performance under various external conditions and sources of error in measurement.
2. enable students to select appropriate standards of measurement and methods of calibration.
3. select an appropriate transducer for basic temperature, pressure and flow measurement.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	use the concepts of measurement.	K1
2	understand a typical instrument design.	K2
3	apply statistical error analysis for measurement	K3
4	choose a transducer/sensor for typical measurement of temperature, pressure and flow.	K4
5	evaluate the performance and reliability of measurement devices available in market.	K5
6	design a basic measurement device.	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	Basic Concept of Measurement	7 hours

Introduction – System configuration – Problem Analysis – Basic Characteristics of measuring devices – Calibration. **Transducers:** Capacitive transducers – Piezoelectric transducers – Photoelectric effect – Photoconductive transducers – Ionization transducers – Hall Effect transducers – Digital displacement transducers.

Unit:2	Performance Characteristics of an Instrumentation system	9 hours

Introduction – Generalized measurement – Zero order system – first and second order system – Dead time element – Specification and testing of dynamic response.

Unit:3	Pressure Measurement	9 hours

Mechanical Pressure measurement devices – Bourdon tube Pressure gauge – The Bridgeman Gauge – Dead weight tester – Low Pressure measurement – The McLeod gauge – Pirani thermal Conducting gauge – The Knudsen gauge.

Unit:4	Flow Measurement	9 hours

Positive displacement methods – Flow Obstruction methods – Flow measurement by drag effects – Hot wire and Hot film anemometers – Magnetic flow meters

Unit:5	Measurement of Temperature	9 hours

Temperature scales – The ideal gas thermometer – temperature measurements by mechanical effects - temperature measurements –Thermistors-Thermoelectric effects.

Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**45**

Text Book(s)

1	Instrumentation Devices and Systems, C.S. Rangan, G. R. Sarma and V. S. Mani, 2nd Edition, Tata McGRaw Hill, New Delhi (1983)
2	Experimental Methods for Engineers, J. P. Holman, 7th Edition, McGRaw Hill, New Delhi, (2007)

Reference Books

1	H. S. Kalsi, Electronic Instrumentation, 3rd edition, Tata McGraw Hill, New Delhi (2012)
2	Measurement System Applications and Design, E.O. Doebalin, 5th edition, McGraw Hill International, (2007)
3	Transducers and Instrumentation, D. V. S. Murthy, 2nd edition, Prentice Hall of India (2010)

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

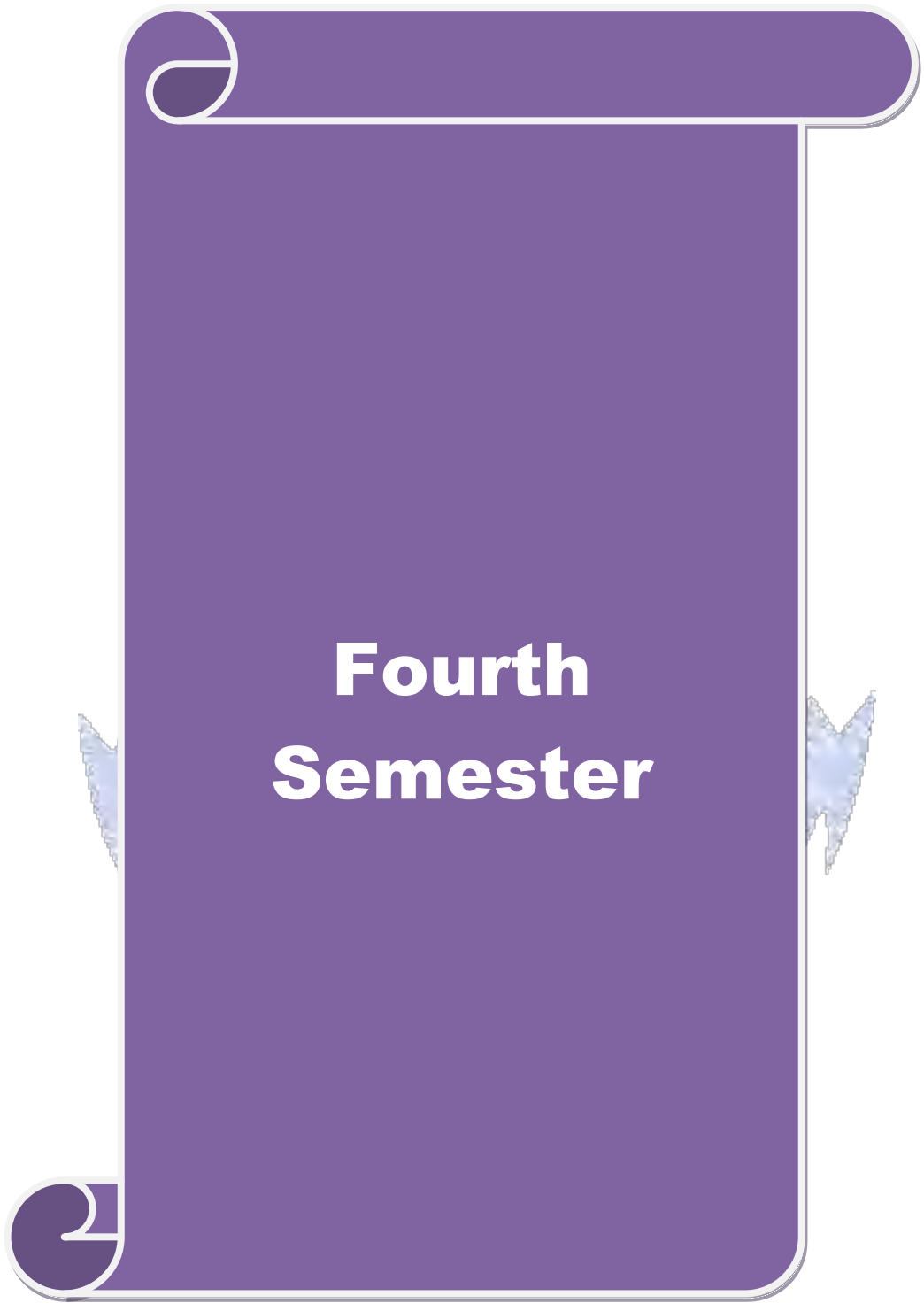
1	Static and dynamic measurement https://youtu.be/DFdTRPUwK_I
2	Pressure measurement https://youtu.be/sHmjE21Fp9w
3	Temperature measurement Lecture Series on Industrial Automation and Control by Prof. S. Mukhopadhyay, Department of Electrical Engineering, IIT Kharagpur. https://youtu.be/As5kzxkyT24
4	NPTEL https://www.youtube.com/watch?v=3eYmFjHnQjY&list=PLbRMhDVUMngcoKrA4sH-zvbNVSE6IpEio
5	Open courseware- University of Malaysia, Pahang http://ocw.ump.edu.my/course/view.php?id=272

Course Designed By: **Mrs J.Jayachitra, Dr.L.Priya**

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	M	M	M	S	M	M	L	S	S
CO2	S	S	S	M	M	M	M	L	S	S
CO3	S	S	S	M	S	M	M	M	S	S
CO4	S	S	S	S	S	S	M	M	S	S
CO5	S	M	S	M	M	S	S	M	M	M
CO6	M	S	S	M	M	S	S	S	M	M

*S-Strong; M-Medium; L-Low


Fourth
Semester

SEMESTER IV

Course code	43A	ATOMIC PHYSICS AND SPECTROSCOPY	L	T	P	C
Core/Elective/SBS		CORE PAPER IV	4	0	0	4
Pre-requisite		The students should have the awareness on structure of atoms, photoelectric effect and on X rays	Syllabus Version		2020-21	

Course Objectives:

The main objectives of this course are to:

1. provide a detailed study of atom
2. learn the impact of magnetic fields on spectra
3. study the concept of photo electric cells

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	analyse various types of spectrographs to study about the positive rays	K4
2	explain magneto optical properties of materials	K5
3	find applications of photo electrical cells and X Rays	K3

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	Positive Rays	11 hours

Positive rays – Discovery – Properties – Positive ray analysis – Thomson's Parabola method – action of Electric and Magnetic fields – Determination of e/m – determination of mass – discovery of stable isotopes– Limitations – Dempster's mass spectrograph –Aston's mass spectrograph- mass defect and packing fraction – polarization of X –rays – scattering of X- rays (Thomson's formula).

Unit:2	Structure of the Atom	12 hours

The Bohr atom model – Critical Potentials – Method of excitation of atoms – Experimental determination of critical potentials by Davison and Goucher's method - Sommerfield's relativistic model– Vector atom model – Quantum numbers associated with Vector atom model – coupling schemes (LS, JJ coupling) – Pauli's exclusion principle – Periodic classification of elements.

Unit:3	Magneto Optical Properties of Spectrum	12 hours

Magnetic dipole moment due to orbital motion of the electron – Magnetic dipole moment due to spin – The Stern and Gerlach experiment – Optical spectra – Fine Structure of the sodium D line – Zeeman effect – Experiments – Lorentz classical theory – Expression for the Zeeman shift – Larmor's theorem – Quantum mechanical explanation of the normal Zeeman effect – Anomalous Zeeman effect – Paschen – Back effect – Stark effect.

Unit:4	Photoelectric Effect	11 hours

Introduction – Richardson and Compton experiment – Relation between Photoelectric current and retarding potentials – Relation between velocity of Photo electrons and the frequency of light – Laws of Photoelectric emission – Failure of electromagnetic theory – Einstein's Photo electric equation – Experimental verification – Millikan's Experiments – Photo electric cells – Photo emissive cell – Photo Voltaic cell – Photo conductive cell – Applications of Photo electric cells.

Unit:5	X-Ray Spectra	12 hours

X-ray – Coolidge tube – Properties – X-ray Spectra – Continuous and characteristics X-ray

spectrum – Mosley's law (Statement, Explanation and Importance) – Compton effect – Expression for change of wave length - X-ray diffraction-Bragg's law- Bragg's spectrometer- Powder crystal method – **Quantum theory**: The distribution of energy in the spectrum of a black body – its results - Planck's hypothesis – derivation of Planck's law of radiation.

Unit:6	**Contemporary Issues**	**2 hours**

Expert lectures, online seminars – webinars

Total Lecture hours	**60**

Text Book(s)

1	Modern Physics, Murugesan R. and Kiruthiga Sivaprasath. S. Chand and Company, 18th edition (2016).

Reference Books

1	Modern Physics, Sehgal D.L. Chopra K.L. and Sehgal N.K. Sultan Chand & Sons, 9th edition, (2004)
2	Atomic Physics, Rajam J B, S. Chand and Company Ltd, New Delhi, 20th edition (2009).

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://www.askiitians.com/revision-notes/physics/atomic-physics/
2	https://nptel.ac.in/courses/115/101/115101003/
3	https://www2.physics.ox.ac.uk/sites/default/files/2011-10-19/atomic_physics_lectures_1_8_09_pdf_pdf_18283.pdf

Course Designed By: **Dr N. Sasi**

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	M	M	M	S	M	M	M	M	S
CO2	S	M	S	S	M	M	S	M	M	M
CO3	M	S	S	S	S	S	S	S	S	S

*S-Strong; M-Medium; L-Low

SEMESTER III & IV

Course code	**43P**	**CORE PRACTICAL II** (Examination at the end of Fourth Semester)	**L**	**T**	**P**	**C**
Core/Elective/SBS		**CORE PRACTICAL**	**0**	**0**	**2**	**4**
Pre-requisite		Should have the fundamental knowledge of Physics	**Syllabus Version**		**2020 - 21**	

Course Objectives:

The main objectives of this course are to:

4. develop the experimental skills in Mechanics and Properties of matter
5. gain knowledge about the experiments based on Electricity and Magnetism
6. motivate the students to apply the experimental techniques in Optics.

Expected Course Outcomes**:**

On the successful completion of the course, student will be able to:

1	apply the concepts of Specific heat capacity and Young's Modulus of different substances	K3
2	acquire the knowledge of Physical optics using Spectrometer	K4
3	evaluate principles and applications of Potentiometer, Magnetometer and BG.	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

LIST OF EXPERIMENTS (Any twelve experiments)	**56 hours**

1. Rigidity Modulus – Torsional Pendulum – With & Without symmetrical masses
2. Specific heat capacity – Newton's Law of cooling – Spherical Calorimeter
3. Determination of wave length λ - Grating – Normal Incidence - Spectrometer
4. Refractive index of Prism - (i – i') curve - Spectrometer
5. Determination of Cauchy's constants - Spectrometer
6. Dispersive Power of Prism - Spectrometer
7. Refractive index of a lens - Newton's rings
8. Comparison of magnetic moments – Deflection magnetometer – Tan A position
9. Magnetic field intensity - Field along the axis of a circular coil
10. Young's Modulus – Cantilever – Depression – Pin and Microscope
11. Young's Modulus – Koenig's Method – Non-Uniform bending
12. Young's Modulus – Koenig's Method – Uniform bending
13. Specific resistance of a wire - Potentiometer
14. EMF of a thermocouple - Potentiometer
15. Calibration High range voltmeter - Potentiometer
16. Temperature Coefficient of Resistance - Thermistor - Carey Foster's Bridge
17. Characteristics of Zener diode
18. Figure of Merit – Charge sensitivity - Ballistic Galvanometer
19. Comparison of Mutual Inductance - BG
20. Determination of High Resistance by leakage- BG

Contemporary Issues	**4 hours**

Online workshop, Webinars on Experimental Physics

Total Practical Hours:	**60**

Reference Books	
1	A text book of practical Physics, M.N.Srinivasan, S.Balasubramanian, R.Ranganathan, Sultan Chand&Sons(2017)
2	Practical Physics and Electronics, C.C.Ouseph, U.J.Rao, V.Vijayendran, S.Viswanathan Publishers(2007)
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://nptel.ac.in/course.html/physics/experimental physics I, II and III
2	https://nptel.ac.in/courses/115/105/115105110/
3	https://www.youtube.com/playlist?list=PLuiPz6iU5SQ8-rZn_LgLofRX7n8z4tHYK
Course Designed By: **Dr. U. Karunanithi**	

Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	M	S	S	M	S	M	M	M	S
CO2	S	M	S	M	S	S	M	L	M	S
CO3	M	S	S	S	L	M	S	S	S	M

*S-Strong; M-Medium; L-Low

SEMESTER IV

Course code	4ZB	INSTRUMENTATION II	L	T	P	C
Core/Elective/SBS		SKILL BASED SUBJECT	3	0	0	3
Pre-requisite		Students should know the importance of measurements in large scale	Syllabus Version		2020-21	

Course Objectives:

The main objectives of this course are to:

1. make the students to understand the principles of measurements in industry conditions
2. make students to understand the process of vibration sensing
3. select an appropriate air pollution and sampling techniques

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	use thermal and nuclear radiation detectors	K1
2	understand the high temperature process in transient and industrial conditions	K2
3	use adequate equipment to determine the state of pollution in the environment	K3
4	design and use simple instrumentation for measurement of mechanical properties	K4
5	understand the living conditions in industrial areas	K5
6	apply modelling concepts for the prediction and determination of random vibrations	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Temperature Measurement by Radiation	9 hours

Effects of heat transfer and temperature measurements – Transient response of thermal systems – Thermocouple compensation – Temperature measurement flow in high speed flow. **Thermal and transport property Measurement:** Thermal conductivity measurements – Thermal conductivity of liquids and gases – measurement of Viscosity–Gas diffusion – Calorimetry.

Unit:2	Force, Torque and Strain Measurements	9 hours

Introduction – Mass balance measurements – Elastic elements for force measurements – Torque Measurement – Stress and Strain measurements – Electrical resistance – strain gauges.

Unit:3	Vibration	9 hours

Random Vibration – Shock – Analysing vibration sensing devices – Generalized second order system – Absolute displacement – Absolute velocity and acceleration vibrating sensing devices – Velocity transducer –bonded strain gauge accelerometers–Piezoelectric accelerometers- Digital accelerometer.

Unit:4	Thermal and Nuclear Radiation Measurements	9 hours

Introduction – Detection of thermal radiation – Measurement of emissivity – Reflectivity and Transmittivity measurements – Solar radiation measurements – Detection of Nuclear radiation – The Geiger Muller counter– Scintillation counter.

Unit:5	Air Pollution Sampling and Measurements	7 hours

Introduction – Units of pollution measurements – Air pollution standards – General air sampling –

Train gas sampling techniques – Particulate sampling techniques – Sulphur dioxide measurements.		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**45**

Text Book(s)	
1	Instrumentation Devices and Systems, C.S. Rangan, G. R. Sarma and V. S. Mani, 2nd Edition, Tata McGRaw Hill, New Delhi (1983)
2	Experimental Methods for Engineers, J. P. Holman, 7th Edition, McGRaw Hill, New Delhi (2007)
Reference Books	
1	Measurement System Applications and Design, E.O. Doebalin, 5th edition, McGraw Hill International (2007)
2	Transducers and Instrumentation, D. V. S. Murthy, 2nd edition, Prentice Hall of India (2010)
3	Mechanical and Industrial Measurement, R. K. Jain, Khanna Applications (2013)
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	Thermal radiation detector https://www.youtube.com/watch?v=QiOfz1-_7uw
2	Nuclear Security and Safeguards Education Portal- youtube channel- https://youtu.be/Me7XA2vv4F4
3	Nuclear Detector https://chem.libretexts.org/Bookshelves/General_Chemistry/Book%3A_ChemPRIME_(Moore_et_al.)/19%3A_Nuclear_Chemistry/19.10%3A_Instruments_for_Radiation_Detection#:~:text=Perhaps%20the%20most%20common%20instrument,to%20discover%20the%20atomic%20nucleus).
4	Air pollution http://web.iyte.edu.tr/~serifeyalcin/lectures/chem201/cn_8.pdf
Course Designed By: **Mrs. J.Jayachitra, Dr.L.Priya**	

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	L	L	M	M	M	M	L	M	S
CO2	S	S	L	M	S	S	L	L	L	M
CO3	S	S	S	S	S	S	S	M	S	S
CO4	S	S	M	M	M	S	S	M	L	S
CO5	S	S	S	L	M	S	M	M	S	S
CO6	S	S	S	S	S	S	S	M	S	S

*S-Strong; M-Medium; L-Low

Fifth Semester

SEMESTER V

Course code	53A	MATHEMATICAL PHYSICS	L	T	P	C
Core/Elective/SBS		CORE PAPER V	4	0	0	4
Pre-requisite		Should have the basic knowledge of Mathematics and Mechanics	Syllabus Version		2020 - 21	

Course Objectives:

The main objectives of this course are to:

1. enable the students to acquire the problem solving ability
2. apply the equations for the situation of different physical problems.
3. motivate the students to apply the mathematical principles of in their day–to–day life.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	derive Lagrange's and Hamilton's equations	K2
2	apply Lagrange's and Hamilton's equations to physical problems	K3
3	analyze gamma and beta functions and their applications	K3
4	solve problems on Matrices and apply them to relevant problems	K4
5	apply Stoke's and Gauss theorems to suitable physical problems	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Classical Mechanics - I	12 -- hours

Constraints and Degrees of Freedom – Generalized coordinates – Generalized displacement – Velocity – Acceleration – Momentum – Force – Potential Energy – D'Alembert's Principle – Lagrangian equation from D'Alembert's principle – Application of Lagrange's equation of motion to Linear Harmonic Oscillator, Simple Pendulum and Compound Pendulum.

Unit:2	Classical Mechanics – II	12 hours

Phase Space – Hamiltonian function – Hamiltonian Principle – Hamilton's canonical equations of motion- Physical significance of H – Applications of Hamiltonian equations of motion to Simple Pendulum, Compound Pendulum and Linear Harmonic Oscillator.

Unit:3	Special Functions	12 hours

Definition – The Beta function – Gamma function – Evaluation of Beta function – Other forms of Beta function – Evaluation of Gamma function – Other forms of Gamma function – Relation between Beta and Gamma functions – Problems.

Unit:4	Matrices	10 hours

Introduction – special types of Matrices – Transpose of a Matrix – The Conjugate of a Matrix – Conjugate Transpose of a Matrix – Symmetric and Anti symmetric – Hermitian and skew Hermitian – Orthogonal and Unitary Matrices – Properties – Characteristic equation – Roots and characteristic vector – Diagonalization of matrices – Cayley–Hamilton theorem –Problems

Unit:5	Vector Calculus	12 hours

∇ Operator – Divergence – Second derivative of Vector functions or fields – The Laplacian Operator – Curl of a Vector – Line Integral – Line Integral of a Vector field around an infinitesimal rectangle – Curl of Conservative field – Surface Integral – Volume Integral (without problem) – Gauss's Divergence theorem and it's proof - Simple problems – Stoke's theorem and its proof - Simple problems.

Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars - webinars		
	Total Lecture Hours	**60**

Text Book(s)

1	Mathematical Physics, B.D. Gupta-Vikas Publishing House, 4 th Edition (2006)
2	Classical Mechanics, S.L.Gupta, V. Kumar&H.V.Sharma, PragatiPrakashan (2017)

Reference Books

1	Mathematical Physics, Sathya Prakash, Sultan Chand, 6th edition (2014)
2	Mathematical Physics Rajput, Pragathi Prakasan Pub., (2017)
3	Mathematical Physics, H.K. Dass, S. Chand & Co., Eighth edition (2018)
4	Classical Mechanics, J.C.Upadhyaya, Himalaya Publishing House(2012)

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://nptel.ac.in/course.html/Physics/Introduction to classical mechanics
2	https://nptel.ac.in/course.html/Physics/Integrals and vector calculus
3	https://nptel.ac.in/course.html/Physics/Matrix analysis and with applications

Course Designed By: **Dr. U. Karunanithi**

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	M	L	M	S	M	M	S	M	M
CO2	S	S	M	S	M	S	L	M	S	M
CO3	S	M	M	S	S	M	L	M	S	S
CO4	S	S	L	M	S	M	M	M	S	S
CO5	S	S	M	L	M	S	S	M	M	S

*S-Strong; M-Medium; L-Low

SEMESTER V

Course code	53B	ELECTRONICS	L	T	P	C
Core/Elective/SBS		CORE PAPER VI	4	0	0	4
Pre-requisite		Should have the basic knowledge of Semiconducting devices	Syllabus Version		2020 - 21	

Course Objectives:

The main objectives of this course are to:

1. acquire knowledge and apply it to various electronic instruments.
2. gain knowledge about the development of the electronic instruments.
3. motivate the students to apply the principles of electronics in their day-to-day life.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	differentiate between different types of amplifiers and their applications	K2
2	design different types of oscillators	K3
3	apply switching ideas to various devices	K3
4	analysing the power electronic devices and their uses	K4
5	design operational amplifier circuits and to analyse their properties	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create;

Unit:1	Amplifiers	12 hours

Voltage and power amplifiers: Classification of amplifiers – Transistor amplifiers in cascade– Power amplifiers – Class A power amplifier – Push Pull connection – push pull class B Power amplifier – Characteristics of an amplifier. **Feedback amplifiers:** feedback and related terms- block diagram of a feedback amplifier- Transfer gain of an amplifier with feedback- Emitter follower circuit.

Unit:2	Oscillators	11 hours

Introduction - Types of oscillators - Fundamental principle of oscillator - Concept of feedback oscillator -Tuned collector oscillator - Analysis - Hartley oscillators – Analysis – Colpitt's oscillator – Analysis - Phase shift oscillator-Analysis - Wien bridge oscillator - Analysis - Crystal oscillator – Analysis.

Unit:3	Solid state switching circuits	12 hours

Introduction - switching circuit- electronic switches - important terms - switching action of a transistor – multivibrators – types of multi vibrators –transistor astable multivibrator – transistor mono stable multivibrator - Differentiating circuit - Integrating circuit - Clipping circuits – Clamping Circuits - basic idea of a clamper- Positive clamper – negative clamper.

Unit:4	Power Electronics	12 hours

Introduction - power electronics - The Triac – Construction - Operations – Characteristics - Applications. The Diac – Operations – Applications of Diac – Lamp dimmer – heat controller. Unijunction transistor – Construction – Operations - equivalent circuit of UJT –Characteristics of UJT - advantages of UJT – applications of UJT – UJT relaxations Oscillator - UJT over voltage detector.

Unit:5	Operational Amplifier	11 hours

Differential amplifier – Basic circuit – Operation – CMRR -Operational amplifier – Characteristics

– Circuit symbol - Frequency response - Slew rate – Applications - Inverting amplifier - Non inverting amplifier - Adder - Subtractor - Integrator- Differentiator.		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars - webinars		
	Total Lecture hours	**60**

Text Book(s)	
1	Foundations of Electronics, D Chattopadhyaya & P C Rakshit, New Age Intrenational Publishers, Second Edition (2005)
2	Principles of Electronics, V K Mehta, Rohit Mehta, S. Chand Company, Eleventh revised Edition (2015)
Reference Books	
1	A textbook of Applied Electronics, R S Sedha, S. Chand Company, First Edition (2010)
2	Integrated Electronics, Jacob Millman and Christos C. Halkias, Tata McGraw Hill Publishing Company, Second edition (2015)
3	Electronic devices and Circuits, S. Salivahanan and N. Sureshkumar, Tata McGraw Hill Publishing Company, Fourth edition (2016)
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://nptel.ac.in/course.html/Electronics/Basic electrnics
2	https://www.askiitians.com/revision-notes/physics/solid-and-electronic-device/
3	https://nptel.ac.in/course.html/electronics/operational amplifier
Course Designed By: **Dr. U. Karunanithi**	

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	M	L	M	S	M	L	S	M	M
CO3	S	S	M	S	M	S	M	L	S	M
CO3	S	M	M	S	S	M	L	M	S	S
CO4	S	S	L	M	S	M	M	M	S	S
CO5	S	S	M	L	M	S	S	M	M	S

*S-Strong; M-Medium; L-Low

SEMESTER V

Course code	53C	SOLID STATE PHYSICS	L	T	P	C
Core/Elective/SBS		CORE PAPER VII	4	0	0	4
Pre-requisite		The students should know the fundamentals on kinds of bonds and classification of solids	Syllabus Version		2020-21	

Course Objectives:

The main objectives of this course are to:

1. learn about the crystal structure and properties of solids.
2. know about bond theory and optical properties of solids.
3. gain knowledge on magnetic, electric and dielectric materials and their application.
4. understand the superconducting process for the fabrication of new devices.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	choose the right material for a given application based on Fermi level concept	K3
2	analyze the magnetic materials for utilization in varied fields.	K4
3	design new components or devices using dielectrics and superconductors.	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Crystallography	12 hours

Distinction between crystalline and amorphous solids – Different features of the crystal – Crystal lattice – Basis – Crystal structure – Unit cell – Number of lattice points per unit cell- Bravais lattices – Miller indices – Elements of Symmetry – Structure of KCl and NaCl crystal – Atomic Packing – Atomic radius –-Lattice constant and density- Crystal structure (sc; hcp; fcc;bcc.)

Unit:2	Bond Theory of Solids	10 hours

Classification of solids – Basics of Bond theory – Optical properties of solids – Specific heat capacity of solids – Dulong and Pettit's law – Einstein's theory of specific heat of solids – Fermi levels .

Unit:3	Magnetic Properties of Materials	12 hours

Introduction – Langevin's theory of diamagnetism –Langevin's theory of Paramagnetism – Ferromagentism – Weiss theory of Ferromagentism –Nuclear magnetic resonance – Ferroelectricity – Ferroelectric crystals – Quantum theory of paramagnetism – Cooling by adiabatic demagnetization of a paramagnetic salt.

Unit:4	Free Electron Theory	12 hours

Free electron theory – Drude Lorentz theory – Explanation of Ohm's law – Electrical conductivity – Thermal conductivity – Wide-Mann and Franz ratio – Sommerfield model – Schotcky effect – Hall effect – Hall voltage and Hall coefficient – Mobility and Hall angle – Importance of Hall effect – Experimental determination of Hall coefficient.

Unit:5	Dielectrics and Super Conductivity	12 hours

Dielectrics- Dielectric constant and displacement vector- Clausiss Mossotti relation- Atomic or molecular polarizability – Types of polarizability -Super conductivity – Phenomena – magnetic properties – Super conductor – Meissner effect – Experimental facts – Isotopes effect – Thermodynamic effect.

Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars - webinars		
	Total Lecture hours	**60**

Text Book(s)	
1	Solid State Physics Gupta and Kumar, K. Nath & Co. (2018)
2	Modern Physics R Murugesan , S Chand Publishing; Eighteenth edition (2016)
Reference Books	
1	Introduction to Solid State Physics Charles Kittel, Wiley (2019)
2	Solid State Physics A J Dekker, Macmillan (2011)
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://youtu.be/RImqF8z91fU
2	https://nptel.ac.in/courses/115/105/115105099/

Course Designed By: **Mr J.William Charles**

Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	M	S	S	S	M	M	S	M
CO2	M	M	S	S	M	S	S	M	M	S
CO3	M	S	S	S	S	S	S	S	S	S

*S-Strong; M-Medium; L-Low

SEMESTER V

Course code	53D	ELECTRICITY AND MAGNETISM	L	T	P	C
Core/Elective/SBS		CORE PAPER VIII	4	0	0	4
Pre-requisite		The students are supposed to have the basic knowledge of electricity and magnetism	Syllabus Version		2020-21	

Course Objectives:

The main objectives of this course are to:

1. make the students familiar with the laws of electricity and magnetism and their verifications
2. understand the properties of electric and magnetic materials
3. acquire experimental skills to construct technically useful devices.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	define and derive the laws of electricity and magnetism	K2
2	update the knowledge of properties and magnetism	K3
3	expertise the skills to manufacture devices	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Gauss Theorem and its Applications	12 hours

Gauss theorem – applications of Gauss theorem: Electric intensity at a point due to a charged sphere – Electric intensity at a point near an infinite charged conductor - Electric intensity at a point between two parallel plane charged conductors - Electric intensity at a point outside two parallel plane charged conductors - Energy stored in unit volume of an electric field. **Capacitors:** Introduction – principle of a capacitor – capacitance of a spherical capacitor – outer sphere earthed – inner sphere earthed – cylindrical capacitor – capacity of a parallel plate capacitor – effect of a dielectric – capacitors in series and parallel – Guard-Ring condenser – mica capacitor – uses of capacitors.

Unit:2	Magnetic Properties of Materials	12 hours

Electron theory of magnetism; dia, para, ferromagnetism and their properties magnetic field B; magnetization M; magnetic field intensity H; magnetic susceptibility and magnetic permeability; magnetic materials and magnetization; magnetic hysterisis – area of the hysterisis loop; determination of susceptibility: Guoy's method – magnetic circuits –comparison of electrical circuit with magnetic circuit.

Unit:3	Thermo Electricity	11 hours

Seebeck effect – Laws of thermo e.m.f – Peltier effect; Peltier Co- efficient – determination of Peltier co-efficient – thermo dynamical consideration of Peltier effect – Thomson effect – Thomson Co-efficient – e.m.f generated in a thermocouple taking both Peltier effect and Thomson effect in the metals – Thermo electric power – Application of thermodynamics to Thermocouple – Thermoelectric diagrams and their uses.

Unit:4	Helmholtz Equation of Varying Current	11 hours

Growth and decay of current in an inductive – resistive circuit – charging and discharging of a capacitor through a resistance – growth of charge in a circuit with inductance, capacitance and resistance (LCR) - torque on a current loop in a magnetic field – Theory of Ballistic

Galvanometer – correction for damping – current and voltage sensitivities.		
Unit:5	**Dynamics of Charged Particles**	**12 hours**
Motion of charged particle in uniform electric field – longitudinal – transverse – motion of charged particle in alternating electric field – motion of charged particle in uniform constant magnetic field – Motion of charged particle in crossed electric and magnetic field. **Electromagnetic Induction:** A conducting rod moving through a uniform magnetic field – inductance in series – inductance in parallel – self-inductance of co-axial cylinders – self-inductance of toroidal coil of rectangular cross section – self -inductance of toroidal coil of circular cross section.		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars - webinars		
	Total Lecture hours	**60**

Text Book(s)	
1	Electricity and Magnetism, Brijlal and Subramaniam, Educational and University Publishers (1984)
2	Electricity and Magnetism, R. Murugesan, S.Chand&Co (2017)
Reference Books	
1	Electricity and Magnetism, D.N. Vasudeva, S.Chand&Co, twelfth edition (2007)
2	Electricity and Magnetism, Nagarathanam and Lakshminarayanan,
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	**https://www.askiitians.com/revision-notes/physics/current-electricity.html**
2	**https://www.askiitians.com/revision-notes/physics/electromagnetic-induction-and-alternating-current/**
Course Designed By: **Dr P. Sagunthala and Dr. K.A.Vijayalakshmi**	

Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	M	S	M	M	S	S	M	M	S
CO2	S	M	M	M	S	M	M	S	S	M
CO3	S	S	S	S	S	S	S	S	S	S

*S-Strong; M-Medium; L-Low

SEMESTER V

Course code	5ZC	INSTRUMENTATION III	L	T	P	C
Core/Elective/SBS		SKILL BASED SUBJECT	3	0	0	3
Pre-requisite		The students should be able to distinguish between analog and digital measurement and their importance	Syllabus Version		2020-21	

Course Objectives:

The main objectives of this course are to:

1. give an insight into the working of digital and analog techniques used in measurement devices.
2. enable the students to use electronic testing instruments.
3. introduce medical instrumentation.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	understand the principles of biomedical instruments.	K1
2	enable the students to understand the working of basic electromagnetic and electronic instruments.	K2
3	appropriately chose electronic components.	K3
4	carry out minimal testing and maintenance of lab equipment.	K4
5	troubleshoot simple electronic circuits using multi meters and oscilloscopes.	K5
6	interpret results of Biomedical measurement.	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Data Acquisition and Conversion	7 hours

Introduction – Signal conditioning of the inputs – Single channel data acquisition systems – Data conversion – Digital to Analog converter – Analog to Digital converter.

Unit:2	Basic meter movements	9 hours

Permanent magnetic moving coil movements – Practical PMMC movements — Moving ion type instrument – Concentric vane repulsion type (Moving ion type) – Display devices: LED – LCD.

Unit:3	Digital Instruments	9 hours

Introduction – Digital Multi meter – Digital panel meters – Digital frequency meters – Digital Measurement of time – Universal counter – Digital measurement of frequency – Digital Tacho meter.

Unit:4	Oscilloscope	9 hours

Introduction – Basic principles – CRT features – Basic principles of signal displays – Block Diagram of oscilloscope – Simple CRO – Vertical amplifier – Horizontal deflecting system – Delay line in triggered sweep – CRT connection.

Unit:5	Biomedical Instrumentation	9 hours

Basics of Biomedical Instrumentation system – Blood flow measurement – magnetic blood flow rate – Ultrasonic meter – ECG-EEG-EMG –X-ray Imaging and CT scan- MRI scan.

Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**45**

Text Book(s)	
1	Instrumentation Devices and Systems, C.S. Rangan, G. R. Sarma and V. S. Mani, 2nd Edition, Tata McGRaw Hill, New Delhi (1983)
2	Electronic Instrumentation, H. S. Kalsi, , 3rd edition, Tata McGraw Hill, New Delhi (2012)
3	Electronics in Medicine and Biomedical Instrumentation, N. K. Jog, 2nd Edition, Prentice Hall India, New Delhi (2013)
Reference Books	
1	Measurement System Applications and Design, E.O. Doebalin, 5th edition, McGraw Hill International (2007)
2	Transducers and Instrumentation, D. V. S. Murthy, 2nd edition, Prentice Hall of India (2010)
3	Biomedical Instrumentation and Measurements, Leslie Crombwell, Fred.J.Weibell, Trich.A.Pfeiffer, Prentice Hall of India (1997).
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	PMMC https://youtu.be/n1MinLtvnPY
2	NPTEL Play list https://www.youtube.com/watch?v=3eYmFjHnQjY&list=PL227ZNwByTlTGq1atJsFst_qnEptI870O
3	Biomedical instrumentation- nptel -youtube channel https://www.youtube.com/watch?v=f949gpKdCI4&list=PLCDqPRbvMlPCt0pnGB-I5ftPSGCMOuDv0
Course Designed By: **Mrs J.Jayachitra, Dr.L.Priya**	

Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	L	L	M	S	M	M	M	S	S
CO2	S	S	L	S	S	S	S	M	M	M
CO3	S	S	S	S	S	S	S	M	S	S
CO4	S	S	S	M	S	S	M	M	S	M
CO5	S	S	M	M	M	L	M	M	L	M
CO6	S	L	L	M	S	M	L	M	S	S

*S-Strong; M-Medium; L-Low

Sixth Semester

SEMESTER – VI

Course code	63A	QUANTUM MECHANICS AND RELATIVITY	L	T	P	C
Core/Elective/SBS		CORE PAPER IX	6	0	0	4
Pre-requisite		The students are expected to have the knowledge of particle nature and wave nature of matter	Syllabus Version		2020-21	

Course Objectives:

The main objectives of this course are to:

1. understand the wave property of matter
2. acquire knowledge of uncertainity principle and its applications
3. apply the concept of relativity to solve various physical problems

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	acquire the knowledge of wave nature of matter and its experimental verification	K2
2	understand Heisenberg uncertainity principle and apply it to verify problems in atomic and nuclear Physics	K3
3	Identify the reason behind various physical problems using relativity and to solve them	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Wave Properties of Matter	17 hours

Introduction – de Broglie wavelength – Phase velocity – Expression for Phase velocity – Group velocity – Analytical treatment – Expression for group velocity – Relation between group velocity (v_g) and phase velocity (v_p) – Velocity of de Broglie wave – (i)Phase velocity (v_p) – (ii)Group velocity (v_g). Verification of de Broglie relation – Davisson and Germer's experiments – G P Thomson's experiment.

Unit:2	Uncertainty Principle	17 hours

Introduction – Uncertainty Principle – Elementary proof between – Displacement and Momentum – Energy and Time – Physical Significance of Heisenberg's Uncertainty Principle – Illustration – Diffraction of electrons through a slit – Gamma ray microscope thought experiment – Applications – Non-existence of free electrons in the nucleus – Size and Energy in the ground state of Hydrogen atom.

Unit:3	Schrödinger's Wave Equation	18 hours

Introduction – Wave function for a free particle – Schrödinger's one dimensional wave equation – Time-dependent and Time independent – Limitations of wave function – Normalization of wave function – Operators – Eigen function – Eigen Value – Eigen equation – Operator for Momentum, Kinetic Energy and Total Energy – Postulates of Quantum Mechanics – Orthogonality of Energy Eigen function – Proof – Ehrenfest's theorem – Statement and proof.

Unit:4	**Spherical Symmetrical systems**	**18 hours**
Three dimensional Schrödinger's wave equation –Hydrogen atom – Wave equation for the Motion of an electron – Separation of variables – Azimuthal wave equation and its solution – Radial wave equation and it's solutions – Polar wave equation and its solution – Ground size of the Hydrogen atom.		
Unit:5	**Relativity**	**18 hours**
Galilean Transformation equation – Ether Hypothesis – Michelson-Morley experiment – Explanation of the Negative results – special theory of Relativity – Lorentz transformation equation – Length contraction – Time dilation – Addition of Velocities – Variation of Mass with velocity – Mass energy equivalence.		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars - webinars		
	Total Lecture hours	**90**

Text Book(s)

1	Elements of Quantum Mechanics, Kamal Singh, S.P Singh, S.Chand&Co (2005)
2	Quantum Mechanics, S.P Singh, M. K Bagde, S.Chand&Co, second edition (2004).
3	Modern Physics, R Murugesan, S.Chand&Co (2016)

Reference Books

1	Quantum Mechanics, Sathya Prakash, C.K.Singh, Kedar Nath Ram Nath&Co.(1997)
2	Quantum Mechanics, Schiff, Tata McGraw-Hill, second edition, (1968).

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://www.youtube.com/playlist?list=PLbMVogVj5nJTDMhThY9xu2Tvg0u1RPuxO
2	https://medium.com/predict/what-is-quantum-mechanics-what-is-theory-of-relativity-fdbe87eb9c79
3	https://www.askiitians.com/revision-notes/physics/special-theory-of-relativity/

Course Designed By: **Dr P. Sagunthala**

Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**O9**	**O10**
CO1	S	M	M	M	M	M	S	M	M	M
CO2	S	S	S	M	S	S	M	M	S	S
CO3	M	S	S	S	S	S	S	S	S	S

SEMESTER VI

Course code	63B	NUCLEAR PHYSICS	L	T	P	C
Core/Elective/SBS		CORE PAPER X	6	0	0	4
Pre-requisite		The students should have knowledge about the basic constituents of atoms. They should be familiar with the structure of atoms and nucleus.	Syllabus Version		2020-21	

Course Objectives:

The main objectives of this course are to:

1. acquire the knowledge to understand about nucleus and nucleus structure.
2. familiarize with different types of radiation detectors and particle accelerators
3. study the radioactivity phenomenon of nucleus
4. motivate the students to analyze the energy released by the nucleus during fission and fusion process
5. acquire the basic knowledge of cosmic rays and elementary particles.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	understand the General properties of Nucleus	K2
2	analyze the construction and working of radiation detectors	K4
3	device instruments utilizing the behavior of nuclear particles	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	Introduction to the Nucleus	16 hours

General properties of Nucleus (Size, Mass, Density, Charge, Spin, Angular momentum, Magnetic dipole moment) – Binding energy – BE/A and stability of Nucleus – Packing fraction – Nuclear stability – Nuclear forces – Definition – Properties – Meson theory – Model of Nuclear Structure – The Liquid Drop model – Semi-Empirical mass formula – The Shell model – Evidence for Shell model –The collective model.

Unit:2	Detector and Particle Accelerators	18 hours

Interaction between the energetic particles and matter – Heavy charged particles – Electrons – Gamma ray-Ionization chamber – Solid State detector – GM counter – Wilson Cloud chamber – Nuclear emission – Linear accelerators – Cyclotron – Betaron.

Unit:3	Radioactivity	18 hours

Natural Radioactivity – Alpha, Beta and Gamma rays – Properties – Determination of e/m of Alpha particle – Determination of Charge of Alpha particle – Determination of e/m of Beta particle – determination of Wavelength of Gamma rays (Dumond Spectrometer) – Origin of Gamma rays – Laws of Radioactivity – Soddy-Fajan's displacement law – Law of Radioactive disintegration – Half life period – Mean life period (Definitions, Expression) – Units of Radioactivity – Artificial Radioactivity – Preparation of radio elements – Application of radio isotopes.

Unit:4	Nuclear Fission and Fusion Reactions	18 hours

Nuclear fission – Energy released in Fission – Bohr and Wheelers theory of Nuclear fission – Chain reaction – Multiplication factor – Critical size – Natural Uranium and chain reactions – Atom Bomb – Nuclear reactor – Nuclear fusion – Source of Stellar energy – Carbon Nitrogen cycle

– Proton-Proton cycle – Hydrogen bomb – Controlled thermo nuclear reactions.		
Unit:5	**Cosmic Rays and Elementary Particles**	**18 hours**
Cosmic rays – Origin of cosmic rays – Latitude effect – Azimuthal effect – Attitude effect – Seasonal, Diagonal changes – Primary and Secondary Cosmic rays – cascade theory of shower – Pair production and Annihilation – Van Allen Belts – Elementary particles – Introduction – particles and antiparticles – Antimatter – The fundamental interactions – The Quark model.		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**90**

Text Book(s)	
1	Modern Physics, R Murugesan, S. Chand Publishing, 18th Edition (2017).
2	Nuclear Physics, D C Tayal, Publisher Himalaya Publishing House (2009).
Reference Books	
1	Concept of Modern Physics, Arthur Beiser, McGraw-Hill, (2007).
2	Introduction to Modern Physics, F K Richtmyer Etal, McGraw-Hill; 6th edition (1969).
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://nptel.ac.in/courses/115/104/115104043/
2	https://nptel.ac.in/courses/115/103/115103101/
3	https://www.youtube.com/watch?v=xrk7Mt2fx6Y
Course Designed By: **Dr. K. Selvaraju**	

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	M	M	S	M	M	M	S	M	M
CO2	M	S	S	M	L	M	S	M	S	S
CO3	S	M	S	S	S	S	S	S	S	S

*S-Strong; M-Medium; L-Low

SEMESTER V&VI

Course code	**63P**	**CORE PRACTICAL III ELECTRONICS** (Examination at the end of Sixth Semester)	**L**	**T**	**P**	**C**
Core/Elective/SBS		**CORE PRACTICAL**	**0**	**0**	**2**	**3**
Pre-requisite		Should have the fundamental knowledge of Basic Electronics	**Syllabus Version**		**2020 - 21**	

Course Objectives:

The main objectives of this course are to:

1. transform the principles of Basic Electronics into Experimental techniques
2. gain knowledge about different electronic gadgets.
3. motivate the students to apply the principles of electronics in their day-to–day life.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	design different types of Power supplies, Amplifiers and Oscillators	K4
2	to analyze the characteristics of various Electronic devices like BJT, UJT, LDR, and Solar cell	K4
3	acquire the knowledge of the characteristics of an operational amplifier	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

LIST OF EXPERIMENTS (Any twelve experiments)	**56 hours**

1. Logic Gates using diodes and transistor.
2. Bridge rectifier with Zener voltage regulator
3. Regulated Power Supply - IC
4. Dual Power Supply
5. Voltage Doubler
6. Characteristics of Transistor - CE mode
7. Differentiating and Integrating Circuits.
8. Clipping and Clamping Circuits
9. R.C. Coupled Amplifier –Single stage - Transistor
10. Emitter Follower
11. Series and Parallel resonance circuits
12. Hartley Oscillator – Solid State
13. Colpitt's Oscillator – Solid State
14. Square wave generator using IC 555 Timer
15. Astable Multivibrator
16. Study of Solar Cell
17. Study of LDR
18. Characteristics of UJT
19. Inverting and Non inverting amplifiers - Op-amp (IC 741)
20. Adder and Subtractor circuits - Op-amp (IC 741)

Contemporary Issues	**4 hours**

Online workshop, Webinars on Experimental Electronics

Total Practical Hours:	**60**

Reference Books

1	Practical Physics and Electronics, C.C.Ouseph, U.J.Rao, V.Vijayendran, S.Viswanathan Publishers(2007)

2	A text book of practical Physics, M.N.Srinivasan, S.Balasubramanian, R.Ranganathan, Sultan Chand&Sons(2017)
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://www.slideshare.net/mobile/sunilrathore77398/basicanalogelectronics
2	https://www.slideshare.net/mobile/PatruniChidanandaSas/basics-of-electronics-53962342
Course Designed By: **Dr. U. Karunanithi**	

Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	M	S	S	S	M	L	M	S	M
CO2	S	S	M	S	S	L	M	S	S	S
CO3	M	M	S	S	L	M	S	S	S	M

*S-Strong; M-Medium; L-Low

SEMESTER V&VI

Course code	63Q	DIGITAL AND MICROPROCESSOR (Examination at the end of sixth semester)	L	T	P	C
Core/Elective/SBS		CORE PRACTICAL IV	0	0	2	3
Pre-requisite		Should have the fundamental knowledge of Digital Electronics and Microprocessors	Syllabus Version		2020 - 21	

Course Objectives:

The main objectives of this course are to:

1. understand the principles and applications of Digital Electronics
2. gain knowledge about the development of the Microprocessors.
3. motivate the students to apply the principles of Digital Electronics in their day–to–day life.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	analyze the different types of digital circuits and their applications	K4
2	realize the applications of registers in computers	K5
3	update the knowledge of Microprocessor programming	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

LIST OF EXPERIMENTS — **56 hours**

(Any twelve experiments by choosing **at least five** from each division)

I. DIGITAL ELECTRONICS

1. Verification of truth tables of logic gates using IC's: OR, AND, NOT, XOR, NOR and NAND.
2. NAND as universal building block- AND, OR, NOT and Ex-OR
3. NOR as universal building block- AND, OR, NOT and Ex-NOR
4. Verification of De Morgan's theorem.
5. Boolean Algebra – problem solving
6. Study of RS Flip-Flop.
7. Half adder and Half Subtractor
8. Full adder
9. Full Subtractor.
10. 4 Bit – Binary Adder/ Subtractor using 7483

II. MICROPROCESSORS

11. 8085 ALP for 8 bit Addition and Subtraction
12. 8085 ALP for 8 bit addition with carry and subtraction with borrow
13. 8085 ALP for 8 Bit Multiplication
14. 8085 ALP for 8 Bit Division
15. 8085 ALP for One's Complement, Masking off most significant 4 bits and setting bits.
16. 8085 ALP for Two's compliment Addition and Subtraction
17. 8085 ALP for finding the biggest number element in the array and Sum of the elements in the array.
18. 8085 ALP for arranging Ascending and Descending order of the given set of numbers
19. 8085 ALP for conversion of Hexadecimal into Decimal number.

20. 8085 ALP for conversion of Hexadecimal into Binary number.	
Contemporary Issues	**4 hours**
Online workshop, Webinars on Experimental Digital Electronics and Microprocessors	
Total Practical Hours:	**60**

Reference Books

1	Practical Physics and Electronics, C.C.Ouseph, U.J.Rao, V.Vijayendran, S.Viswanathan Publishers(2007)
2	A text book of practical Physics, M.N.Srinivasan, S.Balasubramanian, R.Ranganathan, Sultan Chand&Sons(2017)

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	http://www.sircrrengg.ac.in/images/Others/CSE/MP-LAB-MANUAL.pdf
2	https://www.youtube.com/playlist?list=PL_pGb42kre_QXwuaizYb21tSYpoHyXsCQ

Course Designed By: **Dr. U. Karunanithi**

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	M	S	M	L	S	M	S	M
CO2	S	M	M	S	S	L	S	M	S	S
CO3	S	M	S	M	L	M	M	S	S	M

*S-Strong; M-Medium; L-Low

SEMESTER V&VI

Course code	63R	C AND C++ PROGRAMMING (Examination at the end of sixth semester)	L	T	P	C
Core/Elective/SBS		PRACTICAL V	0	0	3	3
Pre-requisite		Should have the fundamental knowledge of C and C++ Programming	Syllabus Version		2020 - 21	

Course Objectives:

The main objectives of this course are to:

1. Develop Programming concepts in C and C++
2. Apply Programming concepts of C and C++ to various programmes
3. Write C and C++ programmes for Physics oriented problems.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Write and execute programmes in C and C++	K3
2	Analyze the programming concepts for Physics problems	K4
3	Evaluate the solutions for different Mathematical problems	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

LIST OF EXPERIMENTS — **84 hours**

(Any twelve experiments by choosing **at least five** from each division)

I. PROGRAMMING IN C

1. Write a C program to convert integer in the range 1 to 100 into words.
2. Write a C program that uses functions to compare two strings input by user. The program should state whether the first string is less than, equal or greater than the second string.
3. Write a C program to compare two files printing the character position where they are equal and where they differ.
4. Write a C program for Matrix addition
5. Write a C program for Matrix multiplication.
6. Write a C program to convert Celsius scale into Fahrenheit scale.
7. Write a C program to find resultant value of the three resistances R_1, R_2 and R_3 connected in (i) series and (ii) parallel.
8. Write a C program to calculate refractive index of the material of the prism.
9. Write a C program to measure resonant frequency of the LCR series circuit.
10. Write a C program to calculate De Broglie wavelength of a material for the given value of momentum p.

PROGRAMMING IN C++

11. Write a C^{++} program to read any two numbers through the key board and to perform simple arithmetic operations (Use Do While loop).
12. Write a C^{++} program to display the name of the day in a week, depending upon the number entered through the keyboard using Switch – case statement.
13. Write a C^{++} program to perform Matrix addition.
14. Write a C^{++} program for matrix multiplication.
15. Write a C^{++} program to find the inverse of a matrix.

16. Write a C^{++} program to find the modulus of the given number.
17. Write a C^{++} program to compare two files printing the character position where they are equal and where they differ.
18. Write a C^{++} program to find resultant value of three capacitances C_1, C_2 and C_3 connected in (i) series and (ii) parallel.
19. Write a C^{++} program to measure the resonant frequency of the LCR parallel circuit.
20. Write a C^{++} program to estimate the half-life period of a radioactive substance for the given value of decay constant λ.

Contemporary Issues	**6 hours**
Online workshop, Webinars on C and C++ programming	
Total Practical Hours:	**90**

Reference Books

1	Programming in ANSI C by E. Balagurusamy, Tata McGraw Hill, sixth Edition(2012)
2	Object Oriented Programming with C++ by E. Balagurusamy, Tata McGraw Hill, Sixth Edition (2013)

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://nptel.ac.in/course.html/computerscience and engineering//C, C++ programming
2	https://www.geeksforgeeks.org/introduction-to-c-programming-language/

Course Designed By: **Dr. U. Karunanithi**

Mapping with Programme Outcomes

COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	M	M	S	L	M	S	M	S	M
CO2	M	S	S	M	S	L	S	M	S	S
CO3	S	M	S	M	L	M	M	S	S	M

*S-Strong; M-Medium; L-Low

SEMESTER VI

Course code	6ZP	INSTRUMENTATION PRACTICALS	L	T	P	C
Core/Elective/SBS		SKILL BASED SUBJECT	0	0	3	3
Pre-requisite		Should have the fundamental knowledge in Instrumentation	Syllabus Version		2020 - 21	

Course Objectives:

The main objectives of this course are to:

1. acquire the knowledge in working with different laboratory instruments.
2. service laboratory instruments like spectrometer, telescope etc.
3. examine some of the simple house hold instruments like iron box, mixie etc. and rectify the problems.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	service and rectify the defects in laboratory instruments	K5
2	service and rectify the defects in simple house hold devices.	K5
3	device new instruments applying the knowledge of instrumentation.	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

LIST OF EXPERIMENTS (Any twelve experiments) — **42 hours**

1. Construction and Service of Power supply - 2, 4, 6 Volts
2. Regulated power supply construction and service – (+5V & - 12V)
3. Dual power supply construction and service - (- 12V) – 0 - (+12V)
4. Regulated power supply construction and service – (+ 12V & - 5V)
5. Servicing - Microscope
6. Servicing - Telescope
7. Servicing - Spectrometer
8. Servicing - Galvanometer,
9. Servicing - Voltmeter
10. Servicing - Ammeter.
11. Servicing - UPS
12. Servicing – Stop clock and Stop watch
13. Servicing – Physical Balance
14. Servicing – Mixie
15. Servicing – Resistance box and Capacitance box
16. Servicing – Signal Generators
17. Fixing and servicing a B.G.
18. Cutting, drilling, polishing and trimming.
19. Servicing – Iron Box
20. Conversion of Galvanometer to an ammeter and volt meter

Contemporary Issues — **3 hours**

Expert lectures, online seminars - webinars

Total Practical Hours: **45**

Reference Books

1	Laboratory Instrumentation, Mary C. Haven, Gregory A. Tetrault, Jerald R. Schenken, John Wiley & Sons,(1994).

2	Principles and Applications of Laboratory Instrumentation, Sheshadri Narayanan, ASCP Press, (1989).
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://www.macallister.com/parts-service/maintenance-tips/
2	https://www.youtube.com/playlist?list=PLOU3kcAncZZtRFMLCFMyxEp_JYZIOLkbM
3	https://www.slideshare.net/mobile/selvaprakash549/maintenance-and-repair-strategies
Course Designed By: **Dr. U. Karunanithi**	

Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	M	S	M	M	S	M	L	M
CO2	M	S	M	S	S	L	M	S	M	S
CO3	S	M	S	M	L	M	M	S	S	M

*S-Strong; M-Medium; L-Low

Elective Course

LIST OF ELECTIVE PAPERS
SEMESTER V

Course code	5EA	PRINCIPLES OF PROGRAMMING CONCEPTS AND C PROGRAMMING	L	T	P	C
Core/Elective/SBS		ELECTIVE PAPER – I A	4	0	0	4
Pre-requisite		The students are expected to procure foundational knowledge on programming concepts and C programming	Syllabus Version		2020-21	

Course Objectives:

The main objectives of this course are to:

1. develop logics which will aid in developing programs and applications
2. solve problems using functional and object-oriented paradigm
3. use ideas from various paradigms when programming in a language of different paradigm

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	design features of programming languages, and justify their own design decisions	K2
2	critically evaluate what paradigm and language are best suited for a new problem	K5
3	use C programming to solve Physics problems.	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Constants, Variables and Data types	10 hours

Introduction – character sets – constants – keywords – identifiers – variables – data types – declaration of variables – assigning values to variables – defining symbolic constants.

Unit:2	Operators and Expressions	12 hours

Arithmetic operators – relational operators – logical operators – assignment operators – increment and decrement operators – conditional operators – special operators – arithmetic expression – evaluation of expression. – Precedence of arithmetic operators – type conversion in expression – operator precedence and associativity – mathematical functions.

Unit:3	Input and Output Operations	12 hours

Reading and writing character – formatted input and output – decision making: IF statement: Simple IF, IF... ELSE, Nesting of IF… ELSE and ELSE IF Ladder – Switch Statement – ?: operator – go to statement – while, do – while statement – For loop.

Unit:4	Arrays	12 hours

Introduction – One dimensional array – declaration of array – Initiating on two and multidimensional arrays – declaring and initializing string variables – reading strings from terminal – writing strings on the screen.

Unit:5	User Defined Functions	12 hours

Need for user defined functions – A multifunction program – The form of C Functions - RETURN values and their Types - Calling a function - Call by Value - Call by Reference- Recursive functions.

Unit:6	Contemporary Issues	2 hours

Expert lectures, online seminars - webinars

	Total Lecture hours	**60**
Text Book(s)		
1	Programming in ANSI C, E. Balagurusamy, TMH (2008)	
2	The C Programming Language, Brian Kernighan, Dennis Ritchie, Prentice Hall, (1978)	
Reference Books		
1	Programming in C by Ashok N. Kamthane First Indian Print, Pearson (2004).	
2	Computing Fundamentals and C Programming, E. Balagurusamy, TMH(2011)	
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]		
1	https://www.programiz.com/c-programming	
2	https://www.geeksforgeeks.org/c-language-set-1-introduction/	
3	https://beginnersbook.com/2014/01/c-tutorial-for-beginners-with-examples/	
Course Designed By: **Dr P. Sagunthala and Dr. V. Kalaiselvi**		

Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	M	S	M	S	M	S	M	S	S
CO2	M	S	M	M	M	M	S	S	M	S
CO3	S	S	S	S	M	S	M	M	S	S

*S-Strong; M-Medium; L-Low

SEMESTER V

Course code	5EA	ENERGY PHYSICS	L	T	P	C
Core/Elective/SBS		ELECTIVE PAPER - I B	4	0	0	4
Pre-requisite		The students should know the fundamental principle of motor and classification of energy	Syllabus Version		2020-21	

Course Objectives:

The main objectives of this course are to:

1. learn about the production of electricity.
2. know about fibre optical communication system.
3. gain knowledge on atomic, molecular energy and thermal energy.
4. understand the non-conventional energy resources and utilization.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	understand the heating effect of current and application of it.	K2
2	select the correct material for making waveguide based on basic optical laws.	K3
3	understand Maxwell's law of equipartition of energy.	K2
4	analyze the distribution of energy in the thermal spectrum.	K4
5	Calculate effective utilization of solar radiation, power in the wind and tidal energy	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Electrical Energy	12 hours

Principle of production of A.C. – A.C generators – D.C generators –D.C Motors. Heat developed in current carrying conductor – Application of heating effect – Electric heater or stove – Electric radiation and Electric Iron – Electric welding and electric furnace – Carbon arc – Electric Lamp – Efficiency of a Lamp – Measurement of Electric Power.

Unit:2	Optical Energy	12 hours

Characteristics of Light – Light sources – LED, LASER – optical fibre – Light propagation through optical fibres: Basic optical laws used in optical fibres – Optical parameters of optical fibres: Acceptance angle and Numerical aperture – Types of optical fibres: Based on material, Number of modes and refractive index profile – Fibre optical communication system – Block Diagram – Source – Transmitter – Optical fibre – Receiver.

Unit:3	Atomic And Molecular Energy	12 hours

Degrees of freedom – Number of Degrees of Freedom of Mono, Di and Tri Atomic system – Maxwell's Law of equipartition of Energy – Molar Specific heat capacity at constant volume and constant pressure – Total Internal Energy and Ratio of Heat capacities in monoatomic gas, Diatomic gas, Non Linear and Linear type of Tri atomic gas molecular system.Gas and Vapour Distinction – Measurement of saturated and unsaturated vapour Pressure: Regnault's statistical method – Their characteristics – Graphical Illustration of Gas laws.

Unit:4	Thermal Energy	12 hours

Definition of Total thermal Energy density - Spectral Energy density – Spectral Emissive power – Emissivity – Emissive power – Absorptive power – Reflective power – Kirchoff's Law of radiation and its proof – verification of Kirchoff's Results: Ritche's Experiment. Distribution of Energy in the

thermal spectrum – Lummer and Pringsheim Experiment and its Results – Wien's Displacement Law and Radiation Law – Rayleigh Jean's Law Planck's Radiation Law – Deduction of Wien's Law and Rayleigh – Jean's Law from Planck's law. Solar constant – Temperature of sun – Disappearing filament optical Pyrometer - **Pyrheliometers**: Angstrom Pyroheliometer – Water flow Pyrohelio meter.

Unit:5	**Nonconventional Energy**	**10 hours**

Solar Energy: Solar radiation – Solar radiation outside the earth's atmosphere Solar radiation at the earth's surface – Solar Thermal Energy – Solar Thermal devices and systems: Solar water heater – Sub components of solar water heater – Solar Cooker and its merits and demerits. **Wind Energy**: Power in the wind – Types of wind energy systems –Horizontal axis wind Turbine – Vertical axis wind Turbine. **Ocean Energy**: Tidal Energy – Ocean Thermal Energy Conversion (OTEC) – Closed Cycle OTEC system – Open Cycle OTEC System.

Unit:6	**Contemporary Issues**	**2 hours**

Expert lectures, online seminars - webinars

Total Lecture hours	**60**

Text Book(s)

1	Renewable Energy Environment and Development - Maheshwar Dayal. Konark Publishers, (1989)
2	Engineering Physics - I- G. Senthil Kumar, VRB Publishers, (2011)

Reference Books

1	Solar Energy Utilization - G.D. Rai Khhanna Publishers, (1995)
2	Engineering Physics - II- M. Arumugham, Anuradha Publishers (2010)

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://www.askiitians.com/revision-notes/physics/heat-phenomena/
2	https://www.askiitians.com/revision-notes/physics/thermodynamics/

Course Designed By: **Mr. J. Williams Charles**

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	M	S	M	M	S	M	M	S	M
CO2	M	S	S	S	M	S	S	M	S	M
CO3	S	M	M	S	S	M	M	S	M	S
CO4	S	S	M	M	M	M	M	S	S	M
CO5	S	S	S	S	S	S	S	S	S	S

*S-Strong; M-Medium; L-Low

SEMESTER V

Course code	5EA	AGRICULTURAL PHYSICS	L	T	P	C
Core/Elective/SBS		Elective Paper I C	4	0	0	4
Pre-requisite		Students should possess the fundamental knowledge on agronomy which is described using physical sciences.	Syllabus Version		2020-21	

Course Objectives:

The main objectives of this course are to:

1. have knowledge of physical phenomena in agricultural environment.
2. evoke logical thinking in the field of farming.
3. improve practical knowledge of the student.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	understand the role of physics in daily life.	K2
2	introduce technological applications into agriculture.	K3
3	explore the physical properties of soil and water.	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Soil Physics	12 hours

Mechanical composition of soil – physical properties of soil, pore space, bulk density, particle density – classification – significance of clays – plasticity, shrinkage, flocculation and deflocculation – Soil structure – soil colour – Thermal properties of soil and soil temperatures – types of soil water – its retention, movement – viscosity, swelling – soil moisture losses – Elementary ideas of soil water conservation.

Unit:2	Water Physics	10 hours

Water qualities – Rain fall – Ground water – surface water pollution – instrumentation and sampling – water quality monitoring

Unit:3	Electric Power	12 hours

Principle of production of A.C. – Average value of A.C. voltage or current – R.M.S. value of alternating voltage or current – power consumed in A.C. Circuits – kilo watt hour – A.C. generator – Three phase A.C. – Distribution of three phase A.C. Three phase power system – The choke- The transformer – Transmission of electric power over long distances.

Unit:4	Hygrometry and Pumps	12 hours

Absolute Humidity – Relative Humidity – Dew point, Daniell's Hygrometer, Regnault's hygrometer. Advantages of Regnault's hygrometer – wet and Dry and Bulb hygrometer. Water pumps – common pump – force pump – Fire engine, inflator (or) compression pump – pressure after n strokes – Exhaust pump (or) common air pump.

Unit:5	Solar Collector and Applications	12 hours

Solar Air heaters- Application of solar air heaters. Solar Drying with various driers – Heating and Drying of Agricultural products – Theory of solar drying – moisture content and its measurement – solar ponds – Application of solar ponds – Solar pumping – Solar pump system components –

Turbine driven pump – Application of solar energy to agricultural crops.		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars - webinars		
Total Lecture hours		**60**

Text Book(s)	
1	The Nature and Properties of Soil, H.O. Buckman, Brady, Macmillan, (1967).
2	Soil Physics, H. Kohnke, McGraw-Hill, (1968).
3	Systematic Hydrology, John C. Rodda, Richard A. Downing, Frank M. Law, Newnes-Butterworths, (1976).
Reference Books	
1	Electricity and Magnetism, R. Murugesan, S.Chand, (2017).
2	Hydrostatics, A. S. Ramsey, Cambridge University Press, (2017).
3	Solar energy Utilization, G.D. Rai, Khanna Publisers, (1987).
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://www.sciencedirect.com/topics/agricultural-and-biological-sciences/soil-physics
2	https://www.sciencedirect.com/science/article/pii/S1631071304002780
3	https://www.sciencedirect.com/topics/engineering/solar-energy-application
Course Designed By: **Dr P. Sagunthala**	

Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	M	M	M	M	M	S	M	S	M
CO2	M	S	S	S	S	S	M	S	M	M
CO3	M	S	S	M	S	M	S	S	S	S

*S-Strong; M-Medium; L-Low

SEMESTER VI

Course code	6EA	DIGITAL AND MICROPROCESSOR	L	T	P	C
Core/Elective/SBS		ELECTIVE II A	4	0	0	4
Pre-requisite		The students should have basic understanding in functioning of digital circuits and micro processors	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are to:

1. give description for the students in order to make use of digital devices and microprocessors
2. learn the concepts of logic circuits and to construct the logic circuit for any Boolean equation
3. acquire basic knowledge of binary addition
4. understand the action of flip flops.
5. learn basic programming with microprocessor 8085.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	draw and construct the logic circuit for any Boolean equation.	K2
2	apply the Karnaugh Map to simplify Boolean equation and draw a simplified circuit	K3
3	understand the function of data processing and arithmetic circuits	K4
4	understand the Mnemonics and Opcodes in the Microprocessor	K4
5	develop programming skills using the basic concepts.	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	Logic Circuits	12 hours

Boolean algebra – NOT operation – OR operation – AND operation – Boolean equations with Logic circuits – Boolean laws & Theorems – Basic laws – De Morgan's theorems – Duality theorems – Sum of Product method – Truth table to Karnaugh Map – Pairs, Quads and Octets – Karnaugh simplification – Product of Sum method.

Unit:2	Data Processing Circuits	12 hours

Multiplexer – Demultiplexer – 1 to 16 decoders – BCD to Decimal decoders - Seven segment decoder – Encoders - Parity generator – checkers – Read Only Memory – Programmable array logic. **Number systems and codes:** Binary to Decimal conversion – Decimal to Binary conversion – Octal numbers – Hexadecimal numbers – The ASCII code – The Excess 3 code – The Gray code.

Unit:3	Arithmetic Circuits	12 hours

Binary addition - Binary Subtraction – Unsigned Binary numbers – sign magnitude numbers –2's complement representation – 2's complement Arithmetic – Arithmetic building blocks – The Adder – Subtractor. **Flip – Flops:** RS flip flop – Clocked RS flip flop – D flip flop – Edge triggered D flip flop – JK flip flop – JK Master Slave flip flop – Schmitt trigger

Unit:4	Microprocessor and Data Representation	12 hours

Basic concepts – what is Microprocessor, 4, 8, 16, 32 – Organization of Microprocessor – Microprocessor Programming – Instruction – Machine and Mnemonic codes – Machine and Assembly Language Programming – High level Language programming – Representation of Integers – Positive integers – Maximum Integer – Negative Number representation – Minimum Integer - Representation of Real numbers – Conversion of Real numbers.

Unit:5	**Programming a Microprocessor**	**10 hours**

Organization of 8085 – Data and Address buses addressing – The I/O devices – Register in 8085 – Instruction types – Classification of Instruction – Addressing modes – Programming the 8085 – The Programming concepts– Simple programs with 8085 – addition, subtraction, multiplication, and division.

Unit:6	**Contemporary Issues**	**2 hours**

Expert lectures, online seminars - webinars

Total Lecture hours	**60**

Book(s) for Study

1	Digital Principles and Applications – Albert Paul Malvino& Donald P Leach,TMH, Fourth Edition (2006)
2	Introduction to Microprocessors, Aditya P Mathur TMH, 6th Edition (2006)

Book(s) for Reference

1	Integrated Electronics – Millmann& Halkias, TMH, (2017)
2	Microprocessors Architecture Applications and Programming, R.S.Goenkar, Penaram International(1999)

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://www.tutorialspoint.com/microprocessor/microprocessor_overview.html
2	https://www.geeksforgeeks.org/introduction-of-microprocessor/

Course Designed By: Dr L.Chandra Naagarajan

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	S	M	S	L	S	M	L	S
CO2	M	S	S	S	S	S	M	S	S	L
CO3	S	M	S	M	L	M	S	S	M	S
CO4	L	L	M	L	M	S	S	L	S	M
CO5	M	S	M	S	S	M	L	S	S	S

*S-Strong; M-Medium; L-Low

SEMESTER VI

Course code	6EA	OPTICAL FIBRES AND FIBRE OPTIC COMMUNICATION SYSTEMS	L	T	P	C
Core/Elective/SBS		ELECTIVE II B	4	0	0	4
Pre-requisite		The students must know the basic optical laws and properties of optical fibre.	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are to:

1. learn about the propagation of light waves in an optical fibre.
2. know about fibre fabrication and cables.
3. gain knowledge on fibre losses and dispersion.
4. understand the structures of light sources for optical fibre optic communication.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	understand the fibre classification.	K2
2	test the cables during installation of cable based on cable selection criteria.	K3
3	analyze the attenuation and dispersion in an optical fibre.	K4
4	calculate the efficiency, modulation bandwidth and spectral emission of light sources.	K5
5	use the knowledge to make varied link and networking.	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Fibre Classification	12 hours

Propagation of light waves in an optical fibre – Acceptance angle and Acceptance cone of a fibre – Numerical Aperture (NA) – NA of a graded Index Fibre – Mode of propogation. Fibres – classification – stepped index fibre – stepped index monomode fibre – Graded index multimode fibre – Comparison of step and graded index fibres.

Unit:2	Fibre Fabrication and Cables	12 hours

Classification of Techniques – External chemical vapour deposition – Characteristics – Internal chemical vapour deposition (1st method only) – Characteristics – Phasil system Fibre cable construction – losses incurred during installation of cable – Testing of cables – cable selection criteria.

Unit:3	Fibre Losses and Dispersion in Optics	12 hours

Attenuation in optic fibre – Rayleigh Scattering losses – Absorption losses – Bending losses – Radiation induced losses – Inherent defect losses – Core and Cladding losses. Dispersion in an Optical Fibre – Inter-modal dispersion – Material Chromatic Dispersion – Dispersion Power penalty – Total Dispersion delay.

Unit:4	Light Sources For Optical Fibres	10 hours

LED – The process involved in LEDs – Structures of LED – Fibre – LED Coupling – Modulation bandwidth and Spectral Emission of LEDs.

Unit:5	Applications	12 hours

Introduction – Video Link Satellite Link – Computer Link – Nuclear Reaction Link – Community Antenna Television – Switched Star CATV – Networking		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars - webinars		
	Total Lecture hours	**60**

Text Book(s)	
1	Optical Fibres and Fibre Optic Communication Systems, Subir Kumar Sarkar, S. Chand Limited, (2007)
2	Fiber Optics Communication, D.C.Agarwal, S.Chand (2010)
3	Optical fiber Communication, Keiser, McGraw Hill (2010)
Reference Books	
1	Optical Fibres and Fibre Optic Communication Systems, R.K.Puri and V.K.Babbar, S. Chand & CO
2	Introduction to Fiber Optics, Ajoy Ghatak, K. Thyagarajan, Cambridge (2009)
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://nptel.ac.in/courses/115/107/115107095/
2	https://www.youtube.com/playlist?list=PLq-Gm0yRYwTgr7v3HhdrI_Kcc38369fw-
Course Designed By: **Mr. J. William Charles**	

Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	M	M	S	M	S	M	M	S	S
CO2	M	S	M	M	S	S	S	M	M	M
CO3	S	M	S	S	M	M	M	M	S	M
CO4	S	S	M	M	S	S	S	S	S	S
CO5	S	S	S	M	M	S	S	S	S	S

*S-Strong; M-Medium; L-Low

SEMESTER VI

Course code	6EA	BIO PHYSICS	L	T	P	C
Core/Elective/SBS		ELECTIVE PAPER – II C	4	0	0	4
Pre-requisite		The students are expected to have basic knowledge in the area of biophysics.	Syllabus Version		2020-21	

Course Objectives:

The main objectives of this course are to:

1. deal with how physics applies to the processes of biology.
2. discover how to modify micro-organisms for producing bio fuel.
3. replace bio-electricity in the place of coal and petroleum products for producing electricity.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	understand interactions between various systems of cells.	K2
2	provide life-saving treatment methods like radiation therapy.	K4
3	find powerful vaccines against infectious diseases.	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Structure of Biomolecules	12 hours

Introduction - Atomic structure - Hydrogen atom - Bonds between atoms and molecules - secondary or weak bonds - Bond energy - Disulphate bonds – Peptide bond - Structure of Proteins - Molecular weight determination - Kinetic methods - Static methods - Structure of nucleic acids - DNA - RNA.

Unit:2	Kinetics of Molecules I	10 hours

Diffusion: Factors affecting diffusion·- Simple diffusion – Fick's law of diffusion - Diffusion of electrolytes - Biological significance of diffusion. **Osmosis:** Osmosis - Osmotic pressure - Laws of osmosis - osmometry - osmotic pressure of electrolytes. **Filtration:** Filtration - Passage of fluid though blood vessels - Formation of Urine- Dialysis Principle of dialysis in artificial kidney - kinds of dialysis.

Unit:3	Kinetics of Molecules II	12 hours

Adsorption: Adsorption - Factors affecting adsorption - Adsorption of ions by Solids and Liquids - adsorption of Gases by solids - Biological significance of adsorption. **Hydrotropy**: Hydrotropy - Biological importance of hydrotropy. **Precipitation:** Precipitation - Biological significance. **Colloids:** Types of colloids - characteristics of colloids - stability of colloids - Gel - Emulsions - Techniques for the separation of colloids - Biological importance of colloids – Gibb's Donnan Equilibrium.

Unit:4	Optical Techniques in Biological Studies	12 hours

Characteristics of light- compound· microscope - Ultraviolet microscope - Electron microscope Transmission electron microscope - Scanning Electron microscope - Monochromator - Light sensitive detectors- Spectrophotometer - Atomic absorption flame photometer - Electromagnetic radiation Spectroscopy - Ultraviolet, visible, infrared and fluorescent spectroscopy - Atomic absorption and emission spectroscopy - mass spectroscopy - Raman spectroscopy – X-ray diffraction crystallography.

Unit:5	Bioelectricity and Radiation Biology	12 hours
Membrane potential - Resting membrane potential - Action potential and nerve impulse conduction Rate of nerve impulse conduction- Recording of nerve impulses by C.R.O - Resting membrane potential -.J Injury potential- Monophasic and diphasic action potentials - Radioactivity - Natural radioactivity Artificial or induced radioactivity - Radioactive disintegration - units of Radioactivity.		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars - webinars		
	Total Lecture hours	**60**

Text Book(s)	
1	Biophysics: Principles and Techniques, M.A. Subramanian, MJP Publishers, (2015).
2	Principles of biophysics, Dr S. Palanichamy, Dr.M. Shanmugavelu, Palani Paramount Publications, (1996).
Reference Books	
1	Biophysics, S. Thiravia Raj, Saras Publication, (2009).
2	Basic Biophysics for Biologist, M. Daniel, Agro-Bios, (1998).
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://www.sciencedirect.com/topics/earth-and-planetary-sciences/biophysics
2	https://onlinecourses.nptel.ac.in/noc20_ph02/preview
Course Designed By: **Dr. P. Sagunthala**	

Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	M	M	M	S	M	M	M	S	M
CO2	M	S	S	M	S	S	S	M	S	S
CO3	M	S	S	S	S	S	M	S	S	S

*S-Strong; M-Medium; L-Low

SEMESTER VI

Course code	6EB	Object Oriented Programming with C++	L	T	P	C
Core/Elective/SBS		ELECTIVE III A	4	0	0	4
Pre-requisite		The students are expected to possess fundamental knowledge in object-oriented programming with C++	Syllabus Version		2020-21	

Course Objectives:

The main objectives of this course are to:

1. understand how C++ improves C with object-oriented features.
2. learn how to write inline functions for efficiency and performance.
3. learn the syntax and semantics of the C++ programming language.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	understand the concept of data abstraction and encapsulation	K2
2	learn how to design C++ classes for code reuse.	K6
3	learn how to use exception handling in C++ programs.	K3

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Tokens, Expressions and Control Structures	12 hours

Structure of C++ Program – Tokens – Keywords – Identifiers and constant basic data types – user defined data types – derived data types – symbolic constants – type compatibility – declaration of variables – dynamical initialization of variables – reference variables – operator in C++ - scope resolution operators.

Unit:2	Functions in C++	12 hours

The main function – function prototyping – call be reference – inline functions-Function overloading – Math library functions – specifying a class – defining member functions– C++ program with class – making an outside function Inline- Nesting of member functions – Static Data members – Static member functions – Friendly functions.

Unit:3	Constructors	12 hours

Constructors – Parameterized constructors – Multiple constructors in a class - Constructors with Default Arguments – copy constructor – Dynamic Constructors

Unit:4	Destructors	12 hours

Destructors - Defining Operator Overloading – Overloading unary operators – Overloading Binary operators – Rules for overloading operators.

Unit:5	Inheritance	10 hours

Inheritance - Defining derived classes – single Inheritance - Multilevel inheritance – Multiple Inheritance - Hierarchical Inheritance

Unit:6	Contemporary Issues	2 hours

Expert lectures, online seminars - webinars

Total Lecture hours	60

Text Book(s)	
1	Object Oriented Programming with C++, E. Balagurusamy, TMH Publications (2019).
2	Programming with C++, John R. Hubbard, TMH Publications, (2002).
Reference Books	
1	The C++ Programming Language, Bjarne Stroustrup, Addison – Wesley, (1985).
2	Programming: Principles and Practice Using C++, Bjarne Stroustrup, Addison- Wesley Professional, (2008)
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://www.programiz.com/c-programming
2	https://www.geeksforgeeks.org/c-language-set-1-introduction/
3	https://beginnersbook.com/2014/01/c-tutorial-for-beginners-with-examples/
Course Designed By: **Dr P. Sagunthala and Dr. V. Kalaiselvi**	

Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	M	M	S	M	M	S	M	M	M
CO2	S	S	S	S	S	M	S	M	M	M
CO3	M	S	S	S	S	S	S	S	S	M

*S-Strong; M-Medium; L-Low

SEMESTER VI

Course code	6EB	GEOPHYSICS	L	T	P	C
Core/Elective/SBS		ELECTIVE PAPER – III B	4	0	0	4
Pre-requisite		Students are expected to have fundamental knowledge in the field of natural science concerned with the physical properties of Earth.	Syllabus Version		2020-21	

Course Objectives:

The main objectives of this course are to:

1. study the physical properties of earth and how it works.
2. study various features of earth using gravity, magnetic, electrical and seismic methods.
3. understand all physical parameters of the geothermal field.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	study the genesis and the propagation of seismic waves in geological materials.	K2
2	apply different techniques to solve complex problems and evaluate large areas of subsurface rapidly.	K5
3	do modeling and calculations using computers.	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Seismology	10 hours

Introduction – Seismology –P waves, S waves, their velocities - Time distance curves and the location of epicenters - Effect of boundaries - Major discontinuities and resulting phase of seismic waves - Derivation of properties from the velocities.

Unit:2	Surface Waves and Seismometry	12 hours

Surface waves: Rayleigh waves and Love waves - Study of earth by surface waves.

Seismometry: Horizontal seismograph and seismography equation – Strain seismograph.

Unit:3	Earthquakes and Gravity	12 hours

Earthquakes: Focus, magnitude, frequency - Detection and prediction.

Gravity: The potential (Laplace's equation and Poisson's equation) - Absolute and relative measurements of gravity - Hammond Faller method - Worden gravimeter.

Unit:4	Geomagnetism and Internal Structure of the Earth	12 hours

Geomagnetism: Fundamental equations - Measurements: method of Gauss, saturation induction magnetometers, proton precession magnetometers, alkali vapour magnetometers - Theories of earth's magnetism - Causes of the main field -Dynamo theories. **Internal structure of the earth**: The core variation of mechanical properties with depth - Materials and equation of state of the interior of the earth.

Unit:5	Geochronology and Geothermal Physics	12 hours

Geochronology: Radioactivity of the earth - Radioactive dating of rocks and minerals Geological time scale - The age of the earth. **Geothermal physics**: Flow of heat to the surface of the earth - Sources of heat within the earth - Process of heat transport – Internal temperature of the earth.

Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars - webinars		
	Total Lecture hours	**60**

Text Book(s)

1	Introduction To Geophysics Mantle Core And Crust, G. D. Garland, Philadelphia, W.B.Saunders, (1971).
2	Physics of the Earth and Planets, A. H. Cook, McMillan, (1973).

Reference Books

1	Fundamentals of Geophysics, William Lowrie, Andreas Fichtner, Cambridge University Press, (1997).
2	Exploration Geophysics, Mamdouh R. Gadallah, Ray Fisher, Springer Science & Business Media, (2008).

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://nptel.ac.in/content/storage2/courses/105101083/download/lec5.pdf
2	https://www.youtube.com/playlist?list=PLfk0Dfh13pBPXtgn8BT-dpkfaWMRusJwI

Course Designed By: **Dr. P. Sagunthala**

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	M	M	S	M	S	M	M	S	M
CO2	M	S	M	S	S	M	M	S	M	S
CO3	M	S	S	M	S	S	S	S	M	S

*S-Strong; M-Medium; L-Low

SEMESTER VI

Course code	**6EB**	**INDUSTRY AUTOMATION & ITS APPLICATIONS (INDUSTRY 4.0)**	**L**	**T**	**P**	**C**
Core/Elective/SBS		**Elective Paper III C**	**4**	**0**	**0**	**4**
Pre-requisite		The students are expected to know the fundamental concepts about windows, internet and their application.	**Syllabus Version**		**2020-21**	

Course Objectives:

The main objectives of this course are to:

1. explore the idea of office maintenance using computers.
2. discuss and develop practical skills in using internet and Google apps.
3. identify the internet of things and get awareness regarding hacking.

Expected Course Outcomes:

On the successful completion of the course, students will be able to:

1	understand the basics of windows and internet of things.	K1
2	be aware of ethical Hacking.	K2
3	practice Google apps and recognize their applications in day-to-day life	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	**Windows**	**12 hours**

UNIT–I: Definition of Operating System, Functions of OS, and types of OS. Desktop icons and their functions: My computer, My documents, My Network Place, Recycle Bin, Files, Folder, Local Disk Drive, CD/DVD Drive, Pen Drive, SD Card. **Basics of Networks:** LAN, WAN, MAN, Wireless, Home Networks, Connection-oriented and connectionless services, DNS – E-mail.

Unit:2	**Ethical Hacking**	**12 hours**

Introduction to Ethical Hacking – Hacker and Cracker. Fundamentals of Computer Fraud - Foot printing and scanning – Malware Threats: Viruses and Worms, Trojans, Spyware, Malware Counter measures. **Connectivity Ports:** PS/2 keyboard and mouse port, USB OTG, Ethernet port, serial port, parallel port, HDMI port, VGA port, display port, USB A-Type, USB B-Type, USB C-Type, Type A Mini and micro port, Type B Micro.

Unit:3	**Internet of Things**	**12 hours**

Introduction, Definition & characteristics of IOT, IOT in everyday life, Internet of everything. **IOT Applications**: Satellite system, Smart signals in cities and location sharing, smart satellites and radar, IOT in education. Development of India in IOT: Solar Plant System, ATM chip card system, IOT in health care industry, IOT in Wireless Devices. **Challenges in IOT**: Big Data Management, Connectivity challenges

Unit:4	**Google Apps for Education**	**12 hours**

Basics of Google Docs, Google Sheets, Google Slides, Google Drive.

Unit:5	**Google Applications**	**10 hours**

Basics of Google Play store, Google Calendar, Google Contacts, and Google Meet.
Social Media Applications: WhatsApp, Telegram, Facebook, Twitter, YouTube, Instagram.

Unit:6	**Contemporary Issues**	**2 hours**

Expert lectures, online seminars - webinars

Total Lecture hours	**60**

Text Book(s)

1	Quick Course in Microsoft Office- Joyce Cox & Polly Urban, GOLGOTIA Publications. .
2	Internet of Things-A hands on Approach , Arshdeep Bahga, Vijay Madisetti, Universities press
3	Ethical Hacking: A Beginners Guide to Learning the World of Ethical Hacking, Lakshay Eshan, Shockwave Publishing (2018)
4	The Google Apps Guidebook: Lesson, Activities and Projects Created by Students for Teachers Paperback, Kern Kelley, Tech Sherpas, (August 2, 2016)
Reference Books	
1	PC Software for Windows Made Simple, R.K. Taxali, Tata McGrawHill Publishing Company, (1998).
2	Internet of Things, Srinivasa K.G., Siddesh G.M.,Hanumantha Raju R., Cengage Learning India Pvt. Ltd (2018)
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	Google Docs: https://www.youtube.com/watch?v=xJiUTXGv3PE&vl=en
2	Google Sheet : https://www.youtube.com/watch?v=FIkZ1sPmKNw
3	Google Calendar and Google Meet : https://youtu.be/PKuBtQuFa-8
4	IOT : https://www.youtube.com/watch?v=UrwbeOIlc68
Course Designed By: **Dr. S. Prasath**, Coordinator, E-learning cell, Nandha Arts & Science College, Erode	

Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	M	M	S	S	S	L	S	S
CO2	S	S	M	M	S	S	S	L	S	S
CO3	S	S	M	L	S	M	L	M	S	M

*S-Strong; M-Medium; L-Low

Value Added Course

VALUE ADDED COURSE I

Value added course	OPTOELECTRONICS	L	T	P	C
		30	0	0	4
Pre-requisite	Students are expected to possess some basic knowledge in the field of Semiconductor technology.	**Syllabus Version**		**2020-21**	

Course Objectives:

The main objectives of this course are to:

1. understand the optical process in a semiconductor.
2. understand the basic optoelectronics devices-LED, OLED, photo detector and photovoltaic devices.
3. be familiar with recent trends in optoelectronics.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	describe basic laws and phenomena that define behaviour of optoelectronic devices.	K1
2	describe the development and application of optoelectronic systems	K2
3	interpret the acquired data and measured results.	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Module:1	**2 hours**
Electron - hole pair formation and recombination, absorption in semiconductor direct and indirect band gap semiconductors.	
Module:2	**2 hours**
Effect of electric field on absorption, Franz-Keldysh effect in semiconductors.	
Module:3	**2 hours**
Light Emitting Diodes — Materials for light emitting diodes, Principle of action of LED, expression for light power in terms of photon energy, homo structured LED and Hetero junction LED, drawbacks of homo structured LED.	
Module:4	**2 hours**
Types of LED structures—planar, dome type, surface emitter, edge emitter, super luminescent structure.	
Module:5	**2 hours**
Performance characteristics of LED—Optical output power-current characteristics, forward current voltage characteristics.	
Module:6	**2 hours**
Performance characteristics of LED—Optical output power-current characteristics, forward current voltage characteristics, Modulation bandwidth, power bandwidth product, Lifetime, Rise time/fall time, reliability,	
Module:7	**2 hours**
Internal quantum efficiency, advantages / disadvantages of using LED. Numerical problems	
Module:8	**2 hours**
Organic light emitting diodes (OLED), The principle of OLED, characterisation, structure,	

efficiency, multilayer OLED.	
Module:9	**2 hours**
Important parameters of photo detectors, Detector responsivity, spectral response range, response time, quantum efficiency, capacitance, noise characteristics.	
Module:10	**2 hours**
Absorption of radiation—absorption coefficient, mention of expression for photocurrent, long wavelength cut off, direct and indirect absorption T.	
Module:11	**2 hours**
Types of photodiodes—Junction photodiodes, pin diode, avalanche photodiodes, CCD photodetectors; Comparison of different detectors, Photomultiplier tubes.	
Module:12	**2 hours**
Phototransistors—characteristics. Photo conductive detectors—expression for photoconductive gain. Numerical problems.	
Module:13	**2 hours**
Solar cell—IV characteristics, efficiency, materials	
Module:14	**2 hours**
Organic photovoltaic diodes (OPVD)—fundamental process, exciton absorption, exciton dissociation	
Module:15	**2 hours**
Charge transport, charge collection, characterisation. numerical problems	
Total Lecture hours	**30**
Text Book(s)	
1	Fibre Optics Communications, Harold Kolimbiris, Prentice Hall, (2004).
2	Optical Fibre Communications, Keiser G, McGraw Hill, (2000).
Reference Books	
1	Fibre Optic Communication, Agarwal D C, Wheeler Publications, (1996).
2	Optical Communication, Katiyar S, S K Kataria and Sons, (2010).
3	Optoelectronics and Photonics: Principles and Practices, Kasap S O, Pearson, (2013).
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://nptel.ac.in/courses/115/102/115102026/
2	https://moodle.usth.edu.vn/course/view.php?id=362#section-1
3	https://www.classcentral.com/course/swayam-semiconductor-optoelectronics-10043
Course designed by: **Dr. S. Krishnaveni**	

VALUE ADDED COURSE II

Value added course	**NON – DESTRUCTIVE TESTING**	**L**	**T**	**P**	**C**
		30	**0**	**0**	**4**
Pre-requisite	Students should be aware of some fundamental principles of non – destructive testing and thermography.	**Syllabus Version**		**2020-21**	

Course Objectives:

The main objectives of this course are to:

1. learn the fundamentals of NDT and its applications which will be used for solving problems in industries to produce flawless components.
2. acquire the knowledge about different types of Non-Destructive testing methods and to apply those principles to identify defects in various products produced in industries.
3. study and understand various Non-Destructive evaluations, testing methods, theories and their industrial applications.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	understand the magnetic testing methods and interpretation of results and applications.	K2
2	understand the application of Thermography, eddy current testing method, ultrasonic and acoustic emission testing.	K3
3	understand the instrumentation of various Radiography and testing techniques such as Fluoroscopy, Xerography, Computed Radiography and Computed Tomography.	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6**– Create

Module:1	**2 hours**
Introduction of materials testing -Classification of materials tests – Overview of non-destructive testing methods.	
Module:2	**2hours**
Various NDT methods- selection of NDT methods-Visual Inspection.	
Module:3	**2hours**
Introduction-principle-types of visual testing- Experiments used in visual inspection -Applications.	
Module:4	**2 hours**
Liquid Penetrant Testing – Principles - Testing Process - penetrant materials – Developers.	
Module:5	**2 hours**
Penetrant testing methods- Interpretation of results- Applications.	
Module:6	**2 hours**
Magnetic Particle Testing- Magnetic testing methods-Interpretation and evaluation of test indications. - Application of Magnetic particle Inspection.	
Module:7	**2 hours**
Thermography principles- Contact and non-contact inspection methods-Techniques for applying liquid crystals-Advantages and limitation.	
Module:8	**2 hours**

Infrared radiation and infrared detectors-Generation of eddy currents, Properties of eddy currents	
Module:9	**2 hours**
Eddy current sensing elements, Probes, Instrumentation, Types of arrangement, Applications, advantages, Limitations, Interpretation/Evaluation.	
Module:10	**2 hours**
Ultrasonic and acoustic emission testing - Basics of ultrasonic waves- Principle- Equipment for ultrasonic testing- Testing methods.	
Module:11	**2 hours**
Ultrasonic transducers- Mode of displays- Application.	
Module:12	**2 hours**
Introduction- Basic principle- Instrumentation of acoustic emission testing- Modes- Four channel data acquisition- Applications.	
Module:13	**2 hours**
Radiography testing - Principle-Equipment of Radiography Testing-film and film less techniques-types and use of filters and screens.	
Module:14	**2 hours**
Characteristics of films -graininess, density, speed, contrast-characteristic curves- Radiographic techniques.	
Module:15	**2 hours**
Fluoroscopy- Xerography-Computed Radiography- Computed Tomography.	
Total Lecture hours	**30**
Text Book(s)	
1	Practical Non-Destructive Testing, Baldev Raj, T.Jayakumar, M.Thavasimuthu, Narosa Publishing House, (2014).
2	Non-Destructive Testing Techniques, Ravi Prakash, New Age International Publishers, (2010).
Reference Books	
1	Handbook of Non-destructive evaluation, Charles, J. Hellier, McGraw Hill Professional, (2001).
2	Introduction to Non-destructive testing: a training guide, Paul E Mix, Wiley, 2nd Edition New Jersey, (2005).
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://nptel.ac.in/courses/113/106/113106070/
Course designed by: **Dr. D.M.Suresh and Dr. K Saravana kumar**	

VALUE ADDED COURSE III

Value added course	**Biomedical instrumentation**	**L**	**T**	**P**	**C**
		30	**0**	**0**	**4**
Pre-requisite	Students are expected to have some basic knowledge in the field of physiology, operations and instruments used in medical field.	**Syllabus Version**		**2020-21**	

Course Objectives:

The main objectives of this course are to:

1. understand the working principles of Biomedical Instruments.
2. find applications of various biomedical instruments.
3. impart the knowledge of electronics on various biomedical instruments.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	study the safety instrumentation against radiation, physiological effects due to current passage and electrical accidents in the hospitals.	K1
2	analyse the theory of Bio-Telemetry, its problems and uses.	K4
3	evaluate the advances in biomedical instrumentation such as lasers in medicine, endoscope, CT scan, ultrasonic imaging, MRI and biofeedback instrumentation	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Module:1	**2 hours**

Physiological Assist Devices: -Introduction – pacemakers – pace maker batteries.

Module:2	**2 hours**

Artificial heart valves – nerve and muscle stimulators.

Module:3	**2 hours**

Heart lung machine – kidney machine.

Module:4	**2 hours**

Operation theatre equipment: Introduction – surgical diathermy – ventilators – anesthesia machine.

Module:5	**2 hours**

Cardiac output measurements – pulmonary function analysers – gas analysers.

Module:6	**2 hours**

Blood gas analysers – oxymeters – elements of intensive care monitoring.

Module:7	**2 hours**

Bio-Telemetry: Elements of bio-telemetry system.

Module:8	**2 hours**

Design of a bio-telemetry system – radio telemetry system.

Module:9	**2 hours**

Problems in implant telemetry – uses of bio-telemetry.

Module:10	**2 hours**

Safety instrumentation Introduction – radiation safety instrumentation.

Module:11	**2 hours**

Physiological effects due to 50 Hz current passage – electrical accidents in hospitals.

Module:12	**2 hours**
Devices to protect against electrical hazards – hospital architecture.	
Module:13	**2 hours**
Advances in bio-medical instrumentation: Introduction – computers in medicine – lasers in medicine.	
Module:14	**2 hours**
Endoscopes – cryogenic surgery – CT scan – ultrasonic imaging.	
Module:15	**2 hours**
MRI – biofeedback instrumentation – biomaterials.	
Total Lecture hours	**30**

Text Book(s)	
1	Biomedical instrumentation, M. Arumugam, AnuradhaPublicatios, (2009).
2	Introduction to biomedical electronics, Joseph Dubovy, Tata McGraw Hill Company (1978).
Reference Books	
1	Biomedical Instrumentation and Measurements, Leslie Cromwell, Fred J. Weibell And Erich A. Pfeiffer, Measurements Prentice Hall of India (1997).
2	Handbook of biomedical instruments, Khandpur. R.S, Tata McGraw Hill Company (2003).
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://nptel.ac.in/courses/108/105/108105101/
2	https://onlinecourses.nptel.ac.in/noc20_ee41/preview
3	https://www.classcentral.com/course/bioengineering-20126

Course designed by: **Dr. P. Sagunthala and Dr. K Saravana kumar**

VALUE ADDED COURSE IV

Value added course	**Modern Display Devices and Storage Materials**	**L**	**T**	**P**	**C**
		30	**0**	**0**	**4**
Pre-requisite	Students are expected to know some basic concepts of display devices, its usage and about some storage materials.	**Syllabus Version**		**2020-21**	

Course Objectives:

The main objectives of this course are to:

1. acquire knowledge about different types of electronic devices and about some storage materials.
2. understand the selection process which will be used in industries.
3. create various electronic and optoelectronic devices using suitable materials.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	evaluate display performances which are necessary to appropriately select a LCD in clinical situations.	K1
2	present information in visual or tactile form.	K2
3	apply these concepts for electronic visual displays.	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Module:1	**2 hours**
Selection of materials for different devices: Selection Criteria- Operating Parameters-Manufacturing Process-Functional Requirements-Cost consideration.	
Module:2	**2 hours**
Engineering Requirements-Types of Materials-Examples of selection criteria.	
Module:3	**2 hours**
Modern Engineering materials: Metallic Glasses-Structure-Preparation-Properties-Applications.	
Module:4	**2 hours**
Shape memory alloys- Introduction-Structural Changes-General Characteristics-Characterization Techniques-Commercial SMAs-Applications.	
Module:5	**2 hours**
IC Packaging Materials. Introduction-IC packing-Package type-Package materials.	
Module:6	**2 hours**
Display Devices: Introduction-Electroluminescence process- LED materials.	
Module:7	**2 hours**
Fabrication of LED - Applications - Active and passive display devices.	
Module:8	**2 hours**
Liquid crystals-Types -General features of liquid crystals-liquid crystal display systems-TN-LED (twisted nematic liquid crystal display) - merits and Demerits**.**	
Module:9	**2 hours**
Magnetic Data Storage Devices: Basics of magnetic materials and their parameters - Memory concepts	
Module:10	**2 hours**

Magnetic surface storage devices-magnetic Disc Memories	
Module:11	**2 hours**
Flexible disc storage systems-Floppy disks- Magnetic Tapes and drives-Magnetic Bubble materials	
Module:12	**2 hours**
Rare earth garnets-Magnetic Bubble memories - Charge Couple devices – Applications**.**	
Module:13	**2 hours**
Optical Data Storage Devices: Principle-Disc data storage- Structure and operating principle of CD-ROM.	
Module:14	**2 hours**
Magneto-optical storage system (recording and reading) - Data storage and retrieval methods.	
Module:15	**2 hours**
Holography data storage-principle-storing and retrieving digital data-Applications of Holography.	
Total Lecture hours	**30**

Text Book(s)	
1	Semiconductor Physics and Optoelectronics, V.Rajendran, J.Hemalatha, M.Stalin Mano Gibson, Vikas Publishing House PVT Ltd, (2003).
2	A Text book of Material Science, K.G.Aswani, S. Chand & Company ltd, (2001).
Reference Books	
1	Material science, O.P.Khanna, Dhanpat Rai Publications, (2004).
2	Semiconductor Physics and Optoelectronics, M.Arumugam, Anuradha Agencies,(2003).
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://www.slideshare.net/mobile/thesaifeye/material-handling-storage-system
2	https://www.slideshare.net/mobile/jerinmartin/display-devices-44886026
Course designed by: **Dr. D.M.Suresh and Dr. K Saravana kumar**	

Allied Course

BHARATHIAR UNIVERSITY, COIMBATORE
ALLIED PHYSICS PAPERS FOR B. Sc., MATHS / CHEMISTRY
2020-2021 BATCH AND ONWARDS

SEMESTER I / III

Course code	**1AF/ 3AF**	**ALLIED PHYSICS-I**	**L**	**T**	**P**	**C**
Allied Paper			**4**	**0**	**0**	**4**
Pre-requisite		The students are expected to know the fundamental of properties of matter, heat and electricity.	**Syllabus Version**		**2020-21**	

Course Objectives:

The main objectives of this course are to:

1. understand the behavior of matter in everyday life.
2. acquire .skill of solving related problems.
3. get clear idea about properties of matter, electricity and magnetism.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	understand and define the laws involved in gravitation and elasticity.	K2
2	develop the knowledge about heat and thermodynamics, sound and spectroscopy.	K3
3	understand the concept of properties of matter and to recognize their applications in various real problems.	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit: I	**Properties of Matter**	**12 hours**

Gravitation: Newton's law of Gravitation - Determination of G by Boy's method - mass and density of earth – acceleration due to gravity - Determination of g by compound pendulum.
Elasticity: Basic concepts – bending of beams – depression of cantilever- Determination of Y by uniform and non- uniform bending method- Torsion in a wire- Determination of rigidity modulus by torsional pendulum.

Unit: II	**Heat and Thermodynamics**	**12 hours**

Vanderwaal's equation of state - critical constants of a gas - derivation of critical constants in terms of Vanderwaal's constants – Joule-Thomson effect – Porous plug experiment – liquefaction of gases: liquefaction of helium – K-Onnes method – properties of liquid Helium I and II. **Sound**: Doppler effect – derivation and applications – Frequency of A.C by Sonometer – Ultrasonics: production – Piezoelectric method, properties and applications

Unit: III	**Atomic Spectroscopy**	**12hours**

Pauli's exclusion principle - Some examples of electronic configuration with their modern symbolic representation – Optical spectra - Fine structure of sodium D line - Zeeman effect – Experimental arrangement, Expression for Zeeman Shift. **X-Rays**: Introduction – Production - Coolidge tube – Bragg's law – derivation – X-Ray spectra – Continues – Characteristic – Moseley law and its importance.

Unit: IV	**Electricity**	**12 hours**

Conversion of galvanometer into ammeter and voltmeter – Ballistic Galvanometer – principle-construction – theory – figure of merit — current and voltage of sensitiveness – measurement of

Thermo EMF and resistance by potentiometer – applications of electromagnetic induction – Transformers: Theory, energy loss and applications		
Unit: V	**Magnetism**	**10 hours**
Magnetic properties of materials: Magnetic induction B – Magnetisation M – Magnetising field H – Relation between – B, H and M – Magnetic susceptibility – Magnetic permeability – Properties of dia, para and ferro magnetic materials – Curie temperature – Energy loss due to hysteresis – importance of hysteresis curves – magnetic circuit.		
Unit: VI	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars - webinars		
	Total Lecture hours	**60**

Text Book(s)	
1	Properties of Matter and Acoustics, R. Murugesan, 2nd Edition, S.Chand & Co. Ltd. Reprint (2017).
2	Modern Physics, R.Murugesan, Kiruthiga Sivaprasath, Twelth Revised Edition, S.Chand & Co. Ltd. Reprint (2006).
3	Heat and Thermodynamics, Brijlal N.subramaniyam, S.Chand & Co. LtdReprint(2006).
4	Electricity and magnetism , R. Murugesan ,Revised edition , S.Chand & Co Reprint (2014)
,	
Reference Books	
1	Heat Thermodynamics and Satistical Physics, Brijlal N.subramaniyam,P.S.Hemme, S.Chand & Co,Revised edition (2007).
2	Thermodynamics and Statistical Physics, Agrawal Prakash, Pragati Prakashan, 27th edition (2015)
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://www.physicstutoronline.co.uk/alevelphysicsnotes/
2	https://www.askiitians.com/revision-notes/physics/atomic-physics/
3	www.khanacademy.org/science/physics/elasticity/surface tension
4	https://sites.google.com/brown.edu/lecture-demonstrations/home?authuser=0
Course Designed By: **Dr. P. Sagunthala, Dr. P. Yasotha**	

Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	M	M	M	S	S	S	L	S	S
CO2	S	S	M	S	L	M	S	M	M	S
CO3	M	S	S	L	S	M	L	M	S	M

*S-Strong; M-Medium; L-Low

SEMESTER II / IV

Course code	**2AF/ 4AF**	**ALLIED PHYSICS-II**	**L**	**T**	**P**	**C**
Allied paper			**4**	**0**	**0**	**4**
Pre-requisite		The students are expected to know the fundamentals of Nuclear Physics, Lasers, Semiconductors and electronics.	**Syllabus Version**		**2020-21**	

Course Objectives:

The main objectives of this course are to:

1.gain a well understanding of various physics concepts involved in day-to-day life.
2.aquire knowledge in physics concepts and problem solving skills
3.developing skills to meet competitive exams

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Acquire knowledge on basic concepts of photoelectric effect and fission, fusion and to get clear idea on wave mechanics.	K1
2	Understand the features of Nuclear forces, photo electric cells, semiconductor diodes and their fundamental concepts.	K2
3	Understand the concept of Laser properties, digital electronics and to recognize their applications in real life.	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit: I	**Modern Physics**	**12 hours**

Photo electric effect – Laws of photo electric effect – Einstein's photo electric equation – verification of Einstein's photo electric equation by Millikan's experiment – photo electric cells – applications. **Wave mechanics:** De Broglie matter waves – determination of De Broglie wave length – Experimental study of De Broglie matter wave by G.P. Thomson experiment.

Unit: II	**Nuclear Physics**	**11 hours**

Characteristics of nuclear forces – nuclear structure by liquid drop model – Binding energy – mass defect – particle accelerators – cyclotron and betatron – artificial transmutations by α – particles - nuclear Fission and nuclear Fusion – elementary particles – Leptons, Mesons and Baryons

Unit: III	**Laser Physics**	**11 hours**

Purity of spectral lines – Coherence length and time – spontaneous and induced emissions – population inversion – meta stable state – conditions for laser actions – Ruby laser – Helium – neon laser – applications of lasers – Raman effect – Raman shift – stokes and anti-stokes lines – Laser Raman Spectrometer.

Unit: IV	**Semiconductor Physics**	**12 hours**

Volt – Ampere Characteristics of P-N junction Diode – Zener diode – applications of Zener diodes – photo diode-Principles of LED– Frequency Modulation and Amplitude modulation – basic principles of antennas – block diagram of Superhetrodyne receiver – block diagram of monochrome TV receiver – basic principles and applications of RADAR

Unit: V	Digital Electronics	12 hours
Integrated Electronics Steps in fabrication of Monolithic IC's – General applications of IC's. **Analog and digital computers** – organization of digital computers – number systems – conversion of binary into decimal – conversion of decimal to binary – binary addition and subtraction – Basic logic gates – NAND and NOR as an universal logic gates – Demorgan's theorems – Boolean algebra – applications of Demorgans theorems – Half adder and full adder circuits.		
Unit: VI	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars - webinars		
	Total Lecture hours	**60**

	Text Book(s)
1	Modern Physics, R.Murugesan , Kiruthiga Sivaprasath, Twelth Revised Edition, S.Chand & Co. Ltd. Reprint (2006)
2	Principles of Electronics, V.K. Metha , Reprint, S.Chand & Co (2000)
	Reference Books
1	A Text Book of electronics, R.S Sedha, S.Chand & Co. Ltd. Reprint (2008).
2	Modern Physics, Sehgal.Choppa, Sehgal, S.Chand & Co
	Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]
1	https://www.askiitians.com/revision-notes/physics/atomic-physics/
2	https://www.askiitians.com/revision-notes/physics/nuclear-physics/
3	https://www.askiitians.com/revision-notes/physics/solid-and-electronic-device/
Course Designed By: **Dr. P. Sagunthala and Dr. P. Yasotha**	

Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	M	M	S	S	S	L	S	S
CO2	S	M	S	M	M	S	S	L	M	S
CO3	M	S	M	L	S	M	L	M	S	M

SEMESTER I&II / SEMESTER III&IV

Course code	2PF/4PF	ALLIED PHYSICS PRACTICALS	L	T	P	C
Allied Practicals		(Examination at the end of II/ IV semester)	0	0	2	3
Pre-requisite		Should have the fundamental knowledge of Basic Experiments in physics	Syllabus Version		2020 - 21	

Course Objectives:

The main objectives of this course are to:

1. Understand the basics of Experimental techniques and to apply it
2. Gain knowledge about different light and optical properties..
3. Motivate the students to apply the principles of physics in their day-to–day life.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	attain skill to Understand the usage of basic laws and theories to determine various properties of the materials given.	K3
2	to analyze the characteristics of various diodes and construct power supply.	K4
3	acquire the knowledge of the potentiometer and to apply it for various experiments.	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

LIST OF EXPERIMENTS (Any twelve experiments)	**56 hours**

1. Acceleration due to gravity-Compound pendulum method
2. Moment of inertia – Torsional pendulum method
3. Young's modulus - Uniform bending - Optic lever method
4. Young's modulus - Non-uniform bending - Pin and microscope
5. Rigidity modulus – Static torsion method.
6. Frequency of A.C - Sonometer
7. Thermal conductivity - Lee's disc method.
8. Refractive index of a solid prism – Spectrometer
9. Refractive index of a liquid prism – Spectrometer
10. (i-d) curve - solid prism - Spectrometer
11. Wavelength of spectral lines – Grating - Minimum deviation - Spectrometer
12. Radius of curvature of lens - Newton's rings method.
13. Viscosity of highly viscous liquid – Stoke's method.
14. Surface tension - Drop weight method
15. Low range voltmeter calibration - Potentiometer
16. Low range ammeter calibration - Potentiometer
17. Construction of IC regulated power supply
18. Characteristics of PN Junction diode
19. Characteristics of Zener diode
20. Verification of truth tables of logic gates

Contemporary Issues	**4 hours**

Online workshop, Webinars on Experimental Electronics

Total Practical Hours: 60

Reference Books

1. Practical Physics and Electronics, C.C.Ouseph, U.J.Rao, V.Vijayendran, S.Viswanathan Publishers (2007)

2	A text book of practical Physics, M.N.Srinivasan, S.Balasubramanian, R.Ranganathan, Sultan Chand&Sons (2017)
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://nptel.ac.in/courses/115/105/115105110/
2	https://www.youtube.com/playlist?list=PLuiPz6iU5SQ8-rZn_LgLofRX7n8z4tHYK
3	https://www.slideshare.net/mobile/sunilrathore77398/basicanalogelectronics
Course Designed By: **Dr. P. Sagunthala and Dr. P. Yasotha**	

Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	M	S	S	S	M	L	M	S	M
CO2	S	S	M	S	S	L	M	S	S	S
CO3	M	M	S	S	L	M	S	S	S	M

*S-Strong; M-Medium; L-Low

Annexure

B. Sc. PHYSICS

Syllabus
(With effect from 2020 – 21)

Program Code:

DEPARTMENT OF PHYSICS
Bharathiar University
(A State University, Accredited with "A" Grade by NAAC and 13th Rank among Indian Universities by MHRD-NIRF)
Coimbatore 641 046, INDIA

LIST OF ELECTIVE PAPERS (Colleges can choose any one of the papers from each section as electives)		
Elective – I	**A**	Principles of Programming Concepts and C Programming
	B	Energy Physics
	C	Agricultural Physics
Elective – II	**A**	Digital and Microprocessor
	B	Optical Fibers and Fiber Optic Communication Systems
	C	Bio-Physics
Elective - III	**A**	Object Oriented Programming with C++
	B	Geo Physics
	C	Industry Automation & Its Applications **(Industry 4.0)**

LIST OF VALUE ADDED COURSES (OPTIONAL)

(Only Internal and no external exam – 100 Marks)

- OPTOELECTRONICS
- NON–DESTRUCTIVE TESTING
- BIOMEDICAL INSTRUMENTATION
- MODERN DISPLAY DEVICES AND STORAGE MATERIALS

MARKS DISTRIBUTION (EXTERNAL AND INTERNAL (CIA))

I. THEORY

TOTAL MARKS	EXTERNAL		INTERNAL	Overall Passing Minimum (Internal + External)
	Max. Marks	Passing Minimum	Max. Marks	
100	75	30	25	40
75	55	22	20	30

S. No	Theory – CIA Breakups		
	Maximum Marks	25	20
1	Tests (one best test out of two of 2 hours each)	10	8
2	End semester model test (3 hours)	10	8
3	Assignments- 2 No.s	5	4

II. PRACTICALS

TOTAL MARKS	EXTERNAL		INTERNAL	Overall Passing Minimum (Internal + External)
	Max. Marks	Passing Minimum	Max. Marks	
100	60	24	40	40

75	45	18	30	30
50	30	12	20	20

S. No	Practical – CIA Breakups			
	Maximum CIA Marks	**40**	**30**	**20**
1.	Minimum 10 experiments to be completed.	20	15	8
2.	Tests: One best test out of two tests.	15	10	7
3.	Record	5	5	5

QUESTION PAPER PATTERN

The following question paper patterns shall be followed for OBE pattern syllabi for the candidates admitted from the academic year 2020-21 wherever applicable otherwise provided in syllabi itself.

	Maximum 75 Marks – wherever applicable		
SECTION A	Multiple choice questions with four options	10*1=10	10 questions – 2 from each unit
SECTION B	Short answer questions of either / or type	5*5=25	5 questions – 1 from each unit
SECTION C	Essay-type questions of either / or type	5*8=40	5 questions – 1 from each unit

	Maximum 55 Marks – wherever applicable		
SECTION A	Multiple choice questions with four options	10*1=10	10 questions – 2 from each unit
SECTION B	Short answer questions of either / or type	5*3=15	5 questions – 1 from each unit
SECTION C	Essay-type questions of either / or type	5*6=30	5 questions – 1 from each unit

The General Awareness paper to have multiple choice questions (with four option) to be evaluated by using OMR. For other courses in Part IV namely, Environmental Studies, Value Education – Human Rights, Yoga for Human Excellence and Women's Rights the question paper pattern should be 5 out of 10. Each question carries 10 marks.

B. Sc. Zoology

Syllabus

AFFILIATED COLLEGES

Program Code:22F

2020 – 2021 onwards

BHARATHIAR UNIVERSITY

(A State University, Accredited with "A" Grade by NAAC,
Ranked 13th among Indian Universities by MHRD-NIRF,
World Ranking: Times -801-1000,Shanghai -901-1000, URAP - 982)

Coimbatore - 641 046, Tamil Nadu, India

PROGRAM EDUCATIONAL OBJECTIVES (PEOs)

PROGRAM EDUCATIONAL OBJECTIVES (PEOS)	
The **B. Sc. Zoology** program describe accomplishments that graduates are expected to attain within five to seven years after graduation	
PEO1	Enhanced the professional skills by means of continuous education and development.
PEO2	Express a mastery of discipline, precise information and exhibit analytical and practical skills.
PEO3	Exhibit professional interigrity and the capability for ethical decision making.
PEO4	Graduate will recognize the need and apply their knowledge in general and various discipline areas.
PEO5	Pursue lifelong learning and continuous improvement of their knowledge and skills in the diverse field with the highest professional and ethical standards.
PEO6	Skill to function on multidiscipline environment to meet desired needs within realistic constraints such as environmental, social, ethical, health, safety, and sustainability.
PEO7	Understand the local, National and global issues related to the development and to be considerate of the impact of the issues.
PEO8	Exhibit the ability to communicate effectively and to function successfully as a team member and leader.
PEO9	Ability to explore and assess research work on the field of emergencies and adversity particularly in the field of the Public Health aspects.
PEO10	Capacity to obtain, analyses, and communicate in order to formulate strategies for mitigation in future scenarios with the ability to clearly present and discuss their conclusions and the knowledge behind them.

PROGRAM SPECIFIC OUTCOMES (PSOs)

PROGRAM SPECIFIC OUTCOMES (PSOS)	
After the successful completion of B.Sc., Zoology program, the students are expected to	
PSO1	To provide Knowledge of various animals from primitive to highly evolved forms.
PSO2	To understand prospective of various branches of Zoology and analyze the interaction between animals with their ecosystems.
PSO3	Understanding the morphology and functional characteristic at cellular and sub-cellular (molecular) level.
PSO4	To equip students with laboratory skills as well as field based studies to make a successful career in Zoology.
PSO5	To highlight biodiversity and its need, make aware about methods of conservation and sustainability.
PSO6	Understand the applications of Zoology in daily life, Medicine, Apiculture, Aquaculture, Industrial Microbiology and Agriculture.
PSO7	Gain knowledge about research methodologies, problem solving methods and effective communication skills.
PSO8	To ensure quality performance, achieve excellence in education and scientific research in the field of Zoology.

PROGRAM OUTCOMES (POs)

PROGRAM OUTCOMES (POS)	
On successful completion of the B. Sc. Zoology program	
PO1	Students are able to study animals of diverse phyla, their distribution and their association with the surroundings.
PO2	Students gain information and skill in the fundamentals of animal sciences, understands the multifarious connections along with different living organisms.
PO3	Students achieve knowledge of internal structure of cell, its functions in control of various metabolic functions of organisms. Correlates the physiological, Biochemical processes of animals and relationship of organ systems.
PO4	Students will be able to compare and distinguish the characteristics of animals that discriminate them from other forms of life.
PO5	Understands the complex evolutionary processes and behavior pattern of different animals.
PO6	Understanding of environmental conservation processes, pollution control methods and its importance. Students also gain knowledge and awareness about biodiversity as well as the importance of protection of endangered species.
PO7	Achieve knowledge in applied fields like Sericulture, Poultry forming and Apiculture alongside Statistical and Laboratory techniques.
PO8	Understands about various concepts and importance of Biotechnology, Bioinformatics, Genetics, Genetic engineering in industry and day today human life.
PO9	Apply ethical principles and assign to professional ethics and responsibilities in delivering his duties.
PO10	Understanding of Zoology to one's own life and apply the knowledge judicially and remain constantly employable.

BHARATHIAR UNIVERSITY: COIMBATORE 641 046
B. Sc., ZOOLOGY CURRICULUM
(For the students admitted during the academic year 2020 – 21 onwards)

Part	Course Code	TITLE OF THE COURSE	Credits	HOURS		MAXIMUM MARKS		
				Theory	Practical	CIA	ESE	Total
	FIRST SEMESTER							
I	11T	Language I	4	6	-	25	75	100
II	12E	English I	4	6	-	25	75	100
III	13A	Core Course I: Animal Diversity – Non Chordate	4	6	-	25	75	100
III		Core Practical I	-	-	4	-	-	-
III	1AH	Allied A Course I **Chemistry/Botany/ Biochemistry**	3	4		20	55	75
III		Allied Practical	-	-	2	-	-	-
IV	1FA	Environmental Studies	2	2	-	-	50	50
		Total	**17**	-	-	-	-	**425**
	SECOND SEMESTER							
I	2IT	Language II	4	6	-	25	75	100
II	22E	English II	4	6	-	25	75	100
III	23A	Core Course II: Animal Diversity – Chordate	4	6	-	25	75	100
III	23P	Core Practical I	4	-	4	40	60	100
III	2AH	Allied A Course II **Chemistry /Botany/Biochemistry**	3	4	-	20	55	75
III	2PH	Allied Practical	2	-	2	20	30	50
IV	2FB	Value Education – Human Rights	2	2	-	-	50	50
		Total	**23**	-	-	-	-	**575**
	THIRD SEMESTER							
I	3IT	Part I-Language III	4	6	-	25	75	100
II	32E	Part II-English III	4	6	-	25	75	100
III	33A	Core Course III: Comparative Anatomy of Vertebrates.	4	5	-	25	75	100
III		Core Practical II	-	-	2	-	-	-
III	3AJ	Allied B Course I**Botany /Chemistry/ Biochemistry**	3	4	-	20	55	75
III		Allied Practical	-	-	2	-	-	-
IV	3ZA	Skill Based I: Sericulture	3	3	-	20	55	75
IV	3FC	Non Major Elective I *	2	2	-	-	50	50
		Total	**20**	-	-	-	-	**500**

	FOURTH SEMESTER							
I	41T	Part I-Language IV	4	6	-	25	75	100
II	42E	Part II-English IV	4	6	-	25	75	100
III	43A	Core Course IV: Ecology, Evolution and Zoogeography	4	5	-	25	75	100
III	43P	Core Practical II	4	-	2	40	60	100
III	4AJ	Allied B Course II **Botany/Chemistry/ Biochemistry**	3	4	-	20	55	75
III	4PJ	Allied Practical	2	-	2	20	30	50
IV	4ZB	Skill Based II: Biostatistics and Computer Applications	3	3	-	20	55	75
IV	4FE	Non Major Elective I *	2	2	-	-	50	50
		Total	**26**	-	-	-	-	**650**
	FIFTH SEMESTER							
III	53A	Core Course V: Cell Biology and Biochemistry.	4	5	-	25	75	100
III	53B	Core Course VI: Microbiology	4	5	-	25	75	100
III	53C	Core Course VII: Genetics and Immunology	4	5	-	25	75	100
III		Core Practical III	-	-	2	-	-	-
III		Core Practical IV	-	-	2	-	-	-
III	5EB	Elective Course I: A/B/C#	3	3	-	20	55	75
III	5EE	Elective Course II: A/B/C#	3	3	-	20	55	75
III		Elective Course III: Practical#	-	-	2	-	-	-
IV	5ZC	Skill Based Course III: Biophysics and Instrumentation.	3	3	-	20	55	75
		TOTAL	**21**	-	-	-	-	**525**
	SIXTH SEMESTER							
III	63A	Core Course VIII: Animal Physiology.	4	5	-	25	75	100
III	63B	Core Course IX: Developmental Biology.	4	5	-	25	75	100
III	63C	Core Course X: Biotechnology.	4	5	-	25	75	100
III	63P	Core Practical III	4	-	2	40	60	100
III	63Q	Core Practical IV	4	-	2	40	60	100
III	6EB	Elective Course I: A/B/C#	3	3	-	20	55	75
III	6EE	Elective Course II: A/B/C#	3	3	-	20	55	75
III	63R	Elective Course III: Practical#	2	-	2	20	30	50

IV	6ZP	Skill Based Course IV: Practical	3	-	2	30	45	75
V	67A	Extension activities**	2	1	-	-	-	50
		TOTAL	**33**	**-**	**-**	**-**	**-**	**825**
		GRAND TOTAL	**140**					**3500**
		ONLINE COURSES						
		1.	**SWAYAM**					
		2.	**MOOC'S**					

***** Non Major Elective I: Basic Tamil I / Advanced Tamil I / Yoga / Women studies and Non major Elective II: Basic Tamil II / Advanced Tamil II / General Awareness.

***** It is compulsory that those who opt for any languages other than Tamil, they should chooseBasicTamil(Whodon'tstudiedTamil)orAdvancedTamil(Forthosewhostudied Tamil up toHSC).

** Only internal marks.

Elective Courses

List of Elective courses(Colleges can choose one course from Elective I & II, Elective III will be the practical of Elective II)		
Elective Course I	A	Human Genetic and Counseling – Course I & II,
	B	Pest and their control – Course I & II.
	C	Wild life management and Conservation – Course I & II.
Elective Course II	A	Pathology and clinical laboratory technology – Course I & II.
	B	Poultry science & Management – Course I & II.
	C	Apiculture – Course I & II.
Elective Course III	A	Pathology and clinical laboratory technique – Practical.
	B	Poultry science and Management – Practical.
	C	Apiculture – Practical.

#VALUE ADDED COURSE (OPTIONAL)

S. No	**PAPAERS**	**TOTAL MARKS**
1.	Medical Emergence Management.	100
2.	Vermitechnology	100
3.	Economics of Conservation	100
4.	Intellectual Property Rights	100

First Semester

Course code	13A	ANIMAL DIVERSITY - NONCHORDATA	L	T	P	C
Core/Elective/ SBS		Core Course - I	4	0	0	4
Pre-requisite		Basic Knowledge of Non-Chordata	Syllabus Version		2020 – 2021	

Course Objectives:

1. To identify the phyla of invertebrate animals, and recognize their distinguishing features.
2. To understand the taxonomy, relationship and evolution ofanimals.
3. To understand the role of invertebrates in biological communities, ecological interactions, and conservationproblems.
4. To appraise the diversity of animals in a phylogeneticcontext.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the diversity and general taxonomic rules on animal distribution	K2
2	The learner will be able to identify the animal at basiclevel and get an idea of adaptation and importance of non-chordata.	K2
3	Imparts theoretical knowledge about distribution of invertebrate fauna in different zoogeographical realms	K3
4	Understand the importance of its conservation, sustainable economic utilization and its potentials intechnological prospects.	K2

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	CLASSIFICATION AND PROTISTA	17 hours

Concept of five kingdom classification of life.
Introduction to Protista and Animal kingdom – Systems of Classification and Nomenclature - levels of organization - Types of symmetry. General characters of Protista and Classification withexamples.
Type study: Paramecium.
General Topics: Parasitic Protozoa, Life cycle of Plasmodium, Locomotion and Nutrition in Protozoa.

Unit:2	PORIFERA AND COELENTERATA	17 Hours

Characters and classification (up to class) of Porifera and Coelenterate with examples.
Salient features of *Ctenophora*.
Type study:*Leucosolenia*, *Obelia* Colony.

General Topics: Canal system in sponge, Polymorphism in Coelenterate, Diversity (Types) of corals and structure of coral polyp, Coral reefs.

Unit:3	PLATYHELMINTHES, ASCHELMENTHIES AND ANNELIDA	18 Hours

Characters and classification (up to class) of Platyhelminthes, Aschelmenthiesand Annelida with

examples. **Type study:** *Taenia, Ascaris, Megascolex.*

General Topics: Coelom, Coelomoducts and Metamerism, Parasitic adaptations in Helminthes and Annelids, Filter feeding in Polychaetes.

Unit:4	**ARTHROPODA**	**18 Hours**

Characters and classification (up to class) of Arthropoda with examples.
Brief descriptions of *Limulus* (living fossil), Sacculina (Parasitic castration), Copepods, Scorpion, Spider, *Peripatus* (Affinities), Millipeds and Centipeds.
Type study: Cockroach and Prawn,

General Topics: Crustacean larvae.

Unit:5	**MOLLUSCA, ECHINODERMATA AND HEMICHORDATA.**	**18 Hours**

Characters and classification (up to class) of Mollusca and Echinodermata with examples. Characters of Hemichordata. Brief descriptions of Fresh water Mussel, *Chiton*, *Sepia*, Starfish, Sea cucumber and Balanoglossus

Type study: Pila, Starfish (External Features and Water Vascular system)

General Topics: Larval forms of Mollusca, Torsion and De-torsion in Mollusca, Economically important Mollusca, Echinoderm larva, Evolutionary affinities of Hemichordate.

Unit:6	**CONTEMPORARY ISSUES**	**2 Hours**
Expert lectures, Online Seminars - Webinars and Field Visits.		
	Total Lecture hours	**90 Hours**

Text Book(s)

1. Arumugam N. (2002). *InvertebrateZoology*, Saras publication, Nagercoil, Tamilnadu.
2. Kotpal RL. (2012).*Modern Text Book of Zoology – Invertebrata*, Rostagi, publication, Meerut.
3. Nair NC, Leelavathy S, SoundaraPandian N, Murugan T and Arumugam N. (2010). *A Text Book of Invertebrates*, Saras PublicationNagercoil, Tamilnadu.

Reference Books

1. Barnes RD. (1980). *Invertebrate Zoology*, 6th edition. Holt Saunders International Edition, Philadelphia.
2. Ekambaranatha Ayyar and. Ananthakrishnan TN. (1994). *Manual of Zoology Vol – I, Part I and IIS, Viswanathan* Pvt. Ltd.Chennai.
3. Hyman LH, (1940).*The Invertebrates (6 vols).* McGraw-Hill Companies Inc.New York.
4. Jordan EL and Verma PS (2015). *InvertebrateZoology*, S. Chand and Co, NewDelhi.
5. Kotpal RL, Agarwal SK and Khetarpal RP. (1990).*Invertebrates*, Rastogi Publications,Meerut.
6. Margulis, L, Schwartz KV and Dolan M. (1994). *The Illustrated Five Kingdoms: A Guide To The Diversity Of Life On Earth*. HarperCollins College Publishers, New York.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://swayam.gov.in/nd2_cec19_bt05/preview
2	http://agritech.tnau.ac.in/sericulture/seri_dept%20of%20seri_training.html
Course Designed By: Dr. A. RAJA RAJESWARI,Asst. Prof, Sri Vasavi College, Erode.	

Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	L	S	S	M	L	L	M	M
CO2	S	S	M	S	S	L	L	M	M	M
CO3	S	S	M	S	S	L	L	M	S	M
CO4	S	S	L	S	S	S	M	L	S	M

*S-Strong; M-Medium; L-Low


Second
Semester

Course code	23A	ANIMAL DIVERSITY - CHORDATA	L	T	P	C
Core/Elective/ SBS		Core Course - II	4	0	0	4
Pre-requisite		Basic knowledge of Chordata	Syllabus Version		2020 – 2021	

Course Objectives:

1. To understand the taxonomy and relationship and evolution of animals.
2. To identify the class of vertebrate animals, and recognize their distinguishing features.
3. To appraise the diversity of animals in a phylogenetic context.
4. To understand how different body designs solve biological problems related to physiological and environmental challenges.
5. To develop an appreciation for the role of vertebrates in biological communities, ecological interactions, and conservation problems.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the diversity of chordates and their classification.	K2
2	Analyze the significant adaptive features in Fishes, Amphibians, Reptiles, Aves and Mammals.	K4
3	Understand physiological and anatomical peculiarities, adaptations necessary to survive in diverse adaptive zones.	K2
4	Familiarize with gradual development of habit and habitats of various animals and physiological system of chordate	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	FISHES	17 Hours

General characters and classification of Chordata (up to class) with examples. Brief descriptions of *Amphioxus*, *Ascidia*, Hag fish, *Scolidon*, Mullet, *Anabas*, Cat fish, Sea horse.
General topics: Affinities of Prochordates, Accessory respiratory organs in Teleost, Types of Fins and function Comparison of Teleost and elasmobranches, Evolutionary significance of Dipnoi, Migration of Fishes.

Unit:2	AMPHIBIA	17 Hours

Classification and characters of Amphibia (up to order with examples). Habitat, classification, examples and brief descriptions of Frog, Toad, Salamander, Ambystoma, Tree frog.
General topics: Origin of Amphibia, Metamorphosis of Frog, Limbless amphibians, Parental care in amphibian, Paedomorphosis.

Unit:3	REPTILITA	18 Hours

Classification and characters of Reptilia (up to order with examples). Habitat, classification,

examples and descriptions of *Calotes*, *Sphenodon*, Varanus, Chameleon, Snakes, Chelonia and Crocodilia **General topics:** Identification of Poisonous and non-poisonous snakes – Poison apparatus and types ofpoison.		
Unit:4	**AVES**	**18 Hours**
Classification and characters of Aves (up to order with examples). Habitat, classification, examples and brief descriptions of Pigeon, Horn bills, Kingfisher, Heron, Parrot, Wood pecker, Finches and Sunbird. **General topics:** Flightless Birds, Flight Adaptations in Birds, Feet and Beak modifications, Wetland birds, Sound production in Birds.		
Unit:5	**MAMMALS**	**18 Hours**
Classification and characters of Mammals (up to order with examples). Habitat, classification, examples and brief descriptions of Kangaroo, Bat, Rabbit, *Panthera*, *Hyena*, Monkey, Apes, Deer, Elephant and *Rhinoceros.* **General topics:** Diversity of Marsupials, Affinities of Echidna, Dentition in Mammals, Aquatic mammals and adaptation, Odd and even toed ungulates, Insectivorous mammals, Adaptive radiation in Mammals, Oestrous cycle in mammals. .		
Unit:6	**CONTEMPORARY ISSUES**	**2 Hours**
Expert lectures, Online Seminars - Webinars and Field Visits.		
	Total Lecture hours	**90 Hours**

Text Book(s)	
1	Arumugam N. (2019). *Animal Diversity - Volume - 2 - Chordata*, Saras Publication,Nagercoil, Tamilnadu.
2	Kotpal RL. (2019). *Mordern Text Book of Zoology Vertebrates*, 4th edition Rastogi Publications,Meerut.
3	Thangamani A, Prasannakumar S, Narayanan LM, Arumugam N. (2006). *A Text Book of Chordates*, Saras Publication,Nagercoil, Tamilnadu.
4	Verma PS.(2013).*Chordate Zoology*, S Chand Publishers, NewDelhi
Reference Books	
1	Barrington EJW. (1967). *Invertebrate Structure and Functions*. English Language Book Society.
2	Ekambaranatha Ayyar and Ananthakrishnan TN.(1995). *Manual of Zoology Vol – II*, S. Viswanathan Pvt. Ltd.Chennai.
3	Kotpal RL. (2007).*Mordern Text Book of Zoology Vertebrates*, 4th edition Rastogi Publications,Meerut.
4	Pough Harvey F, Christine M, Janis and John B. Heiser. (2002). *Vertebrate Life*, Pearson Education Inc. NewDelhi.
5	Young JZ. (1950). *Life of Vertebrates.* Clarendon Press, Oxford, UK.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://knowledgeuniverseonline.com/ntse/Biology/Phylum-Chordata.php
2	https://www.onlinebiologynotes.com/phylum-chordata-characteristics/
Course Designed By: Dr. A. RAJA RAJESWARI, Asst. Prof, Sri Vasavi College, Erode.	

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	M	S	S	M	M	L	S	S
CO2	M	S	S	S	M	M	S	L	S	S
CO3	M	S	S	M	S	M	S	L	M	M
CO4	S	S	M	S	S	L	M	L	M	M

*S-Strong; M-Medium; L-Low

Course code	23P		L	T	P	C
Core/Elective/ SBS		CORE PRACTICAL - I	0	0	4	4
Pre-requisite		Practical knowledge of Non-Chordata and Chordata	Syllabus Version		2020 – 2021	

Course Objectives:

1. Learn and be familiar with the Laboratory techniques by means of using digital different methodologies.
2. Examine and understand the external and internal anatomy of Invertebrate and Chordate.
3. To understand the taxonomic position, body organization and evolutionary relationship of animals.
4. To inculcate the significance of various non chordates and chordates.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Evaluate the biological significance and structure and functions of various animals.	K5
2	Able to enlighten the adaptation and unique characters of animals and their role in the development.	K2
3	Apply knowledge and come to know how to handle different organisms.	K3
4	Analyze and to observe various specimens by using Microscope.	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

INSTRUCTION:

The Board of studies do not encourage the dissection of animals and advised to rely of alternative digital methods. Those departments undertaking dissection should compulsorily constitute a dissection monitoring committee as per UGC rules. It is to be ensured that the animals used for dissection is not removed from the wild and is in compliance with UGC regulations time to time. It is the duty of the college/department to adhere strictly to the Wildlife Protection Act and its amendments.

MAJOR PRACTICAL

Prawn / Cockroach / Earthworm/ Fish (Any two) Digestive System and Nervous system.
Micrometry measurement of given Protozoan /Micro arthropod / Any sample.

MINOR PRACTICAL

1.Prawn/ Cockroach/Mosquito (Any two): Mounting of Appendages /
Mouth parts Earth worm: Mounting of body setae
2.Fish: Mounting of Scales
3. Motility of Paramecium – Hanging drop method.

SPOTTERS

1.Classify Giving Reasons:
Paramecium, *Obelia*, Liver Fluke, *Ascaris*, *Pila*, Star Fish, *Balanoglossus*, Any Fish, Tree Frog, Snake, King Fisher And Bat.

2.Draw Labeled Sketches:
Trochophore, Any Echinoderm Larvae.

3.Biological Significance:

Paramecium –Conjugation, Malaria Parasite, Gemmules, *Limulus*, Hippo Campus, Nautilus. Axolotl Larva,

4.Relate Structure And Function:

Spicules Of Sponges, Scolex Of Tapeworm, *Nereis* Parapodium, Carapace And Plastron, Electric Organ – *Narcine*.

5.Descriptive Notes:

Hydra, Physalia, Rotifer, Sea Cucumber, Chiton, Placoid Scales, Chameleon, Quill Feather.

VISITANDSUBMISSIONOF REPORT

1. To any nearby area of biodiversity significance (Report should be included in record).

2. Photo Album of invertebrates and Vertebrates with identification and classification (Evaluation of report should be based on field effort, diversity of photos, classification and identification. Costly presentation of photos albums should compulsorily be discouraged, as the objective of this is to make students familiar with fauna).

QUESTION PATTERN: 60 MARKS

Major: 20, Minor: 10, Record: 5, Spotter: 15 (5 spotters each carry 3 marks), Album: 10 marks.

Total Practical hours **60(Each Semester) x 2 = 120 HoursPer Year**

Text Book(s)

1	Arumugam N, Thangamani A, Prasanna Kumar S, Narayanan LK, Jayasurya.(2013).*Practical Zoology Volume 2 Chordata*, Saras Publication, Nagercoil, Tamilnadu.
2	Jayasurya, Ram Prabhu R, Arumugam N, Nair NC, Leelavathy S, Soundara Pandian N, Murugan T.(2013). *Practical Zoology Volume 1Invertebrate*, Saras Publication, Nagarcoil,TamilNadu..
3	Lay SS. (2004). *A text book of Practical Zoology Invertebrate*. Rastogi Publications, Shivaji Road, Meerut, India
4	Verma, PS.(2000).*A Manual of Practical Zoology- Chordates*, S Chand Publications, New Delhi.

Course Designed By: Dr. A. RAJA RAJESWARI, Asst. Prof, Sri Vasavi College, Erode.

Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	M	S	S	L	M	M	S	S
CO2	S	S	M	S	S	L	M	L	S	S
CO3	S	S	L	S	M	L	M	L	S	S
CO4	S	S	L	S	M	L	S	L	S	S

*S-Strong; M-Medium; L-Low


Third Semester

Course code	33A	COMPARATIVE ANATOMY OF VERTEBRATES	L	T	P	C
Core/Elective/ SBS		Core Course - III	4	0	0	4
Pre-requisite		Basic knowledge on Structural Anatomy of Vertebrates	Syllabus Version		2020 – 2021	

Course Objectives:

1. Recognition of the morphological and anatomical structure for the major groups of vertebrates from an evolutionary point of view.

2.Gain understanding of how organism form, function and diversity evolved

3. To understand the structural complexity in advancedtaxa.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Familiarize with structural organization, biology, and functioning of each organ and formation of organ systems.	K2
2	Students also gain knowledge about fundamental steps in vertebrate development and understand the increasing complexity of organ systems with advancement ofevolution.	K2
3	The students will be able to describe the vertebrate structures and relate morphology, function and evolution.	K3
4	Relate the concepts of homology, analogy, morphogenesis, ontogeny, and phylogeny relative to the anatomical features of vertebrates.	K3
5	Provide a strong basic insight in understanding advanced courses like Physiology andBiochemistry.	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	DIGESTIVE AND RESPIRATORY SYSTEM	15 Hours

Comparative account of Digestive system of shark, frog, pigeon and rabbit – Ruminant stomach and function. Gills of fishes – Pharyngeal derivatives – Swim Bladder - Comparative account of Lungs and air ducts in Vertebrates.

Unit:2	NERVOUS SYSTEM	14 Hours

Comparative account on structure of Brain, Cranial and spinal nerves of Shark, Frog and Rabbit. Sense organs of vertebrates.

Unit:3	SKELETAL SYSTEM	15 Hours

Regions of Vertebral column - Structure of typical vertebrae - Types of vertebrae – Ribs and sternum. Comparison of Skull, Pelvic, pectoral girdle and limbs of Shark, Frog and Rabbit. Account of skull of Reptiles. Exoskeleton of Vertebrates (Scales, Feathers, hairs etc.).

Unit:4	CIRCULATION AND MUSCULATURE	15 Hours

Aorta and aortic arches – Comparative account of heart, arterial system and venous system in shark, frog, *Calotes*, pigeon and rabbit. Brief account of appendicular musculature – Electric organs in fish.		
Unit:5	**UROGENITAL SYSTEM**	**14 Hours**
Comparison of Pronephros – Mesonephros and Metanephros with examples. Comparison of Urogenital system of frog		
Unit:6	**CONTEMPORARY ISSUES**	**2 Hours**
Expert lectures, Online Seminars - Webinars and Field Visits.		
	Total Lecture hours	**75 Hours**

Text Book(s)

1	Arumugam N. (2019). *Animal Diversity - Volume - 2 - Chordata*, Saras Publication,Nagercoil,Tamilnadu.
2	Kotpal Rl. (2017-2018).*Chordata And Comparative Anatomy*, 1st edition, Rastogi Publications,Meerut.
3	Thangamani A, Prasannakumar S, Narayanan LM, Arumugam N. (2006). *A Text Book of Chordates*, Saras Publication,Nagercoil, Tamilnadu.

Reference Books

1	EkambaranathaAyyar and Ananthakrishnan TN.(1969). *Manual of Zoology Vol – II*, S. Viswanathan Pvt. Ltd.Chennai.
2	Kent GC. (2015). *Comparative Anatomy of Vertebrates*, 9th edition, McGraw-Hill, Newyork.
3	Kulshrethra SK. (2002). *Comparative Anatomy of Vertebrates*, Anmol Publications Pvt Ltd. NewDelhi.
4	Saxena RK and SumithraSaxena.(2015). *Comparative Anatomy of Vertebrates*, 2nd Revised edition, Viva Books Private Limited, New Delhi.
5	Waterman AJ. (1971).*Chordate Structure and Function*, MacMillan and Co LTD, New York.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://www.athabascau.ca/syllabi/biol/biol320.php

Course Designed By: Dr. A.RAJA RAJESWARI, Asst. Prof, Sri Vasavi College, Erode.

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	M	S	S	M	M	L	S	M
CO2	M	S	S	S	S	M	M	L	M	M
CO3	M	S	S	S	S	L	M	M	M	S
CO4	M	S	S	S	S	L	M	L	M	M
CO5	M	S	S	S	S	L	M	S	M	M

*S-Strong; M-Medium; L-Low.

Course code	3ZA	SERICULTURE	L	T	P	C
Core/Elective/ SBS		Skill Based Course - I	3	0	0	3
Pre-requisite		Basic knowledge on Silkworms and Rearing Techniques	Syllabus Version		2020 – 2021	

Course Objectives:

1. Introduce the concepts of origin, growth and study of Sericulture as science.

2. To develop a basic skill and knowledge inSericulture.

3. Enlighten the general aspects of Sericulture industry.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	The learner will be able to practice Sericulture as a passion orprofession.	K2
2	Understand the scientific approach of mulberry Cultivation and silk worm rearing techniques.	K2
3	Able to identifying and follow regulation practices for the disease and pest control of the mulberry plant and silk worm.	K3
4	Learn about the various skills that are necessary for self employment.	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	MULBERRY CULTIVATION	9 Hours

Brief outline of History of Sericulture - Scope and opportunities in Sericulture – Types of Silk - Organic Silk - Vanya Silk. Mulberry cultivation: Nursery – Planting – irrigation – Pruning – harvesting.

Unit:2	SILK WORMS	8 Hours

Morphology of Silk worm –Types of Silkworm –Silk glands - Life cycle of Silkworm. Brief out line of non-mulberry sericulture and its potential.

Unit:3	REARING	9 Hours

Silkworm rearing – Outdoor and Indoor rearing – Rearing house – Hatching – Incubation – Feeding Silkworms – Protection and raring – Rearing Appliances –Mounting and Harvesting.

Unit:4	DISEASES	9 Hours

Hygiene conditions in silk production – Diseases of silk worm-Bacterial and Viral diseases – Prevention – Fungal infection to Cocoon. Disease of Mulberry trees- Protozoan and Bacterial diseases and Prevention.

Unit:5	PROCESSING	8 Hours

Silk fiber formation – Properties of cocoon filament – Pre reeling process – Cocoon boiling. Reeling technology – re-reeling technology – raw silk industry – byproducts of Silk industries.

Unit:6	CONTEMPORARY ISSUES	2 Hours

Expert lectures, Online Seminars - Webinars and Field Visits.		
	Total Lecture hours	**45 Hours**
Text Book(s)		
1	Ganga G and Sulochana Chetty J. (2006). *An introduction to Sericulture.* 2nd edition, Oxford and IBH publishing co. pvt.Ltd, New Delhi.	
2	Ganga G. (2017). Comprensive Sericulture.2nd edition, Oxford and IBH publishing co. pvt.Ltd, New Delhi.	
3	Dandin S B, Jayant Jayaswal and Giridhar K. (2000). *Handbook of Sericulture Technologies*. Central Silk Board, Bangalore.	
4	Madan Mohan Rao M. (2019). *An Introduction to Sericulture*. BS publications, BSP books, Hyderabad.	
5	Manisha Bhattacharyya. (2019). *Economics of Sericulture*. Rajesh Publications, Delhi.	
6	Shankar . Reddy JPAR. (2009). *Sericulture*, Commonwealth Publishers, Delhi.	
Reference Books		
1	*Diseases and Pests of Mulberry and Their Control*. (1991) Pub. By Director Central Silk Board and Training Institute, Mysore.	
2	Hrccrama Reddy G. (1988). *Silkworm Breeding*. Oxford and IBH Publishing Co. Pvt. Ltd, New Delhi.	
3	Pradan S. (1983. *Agricultural Entomology and Pest Control.* Published by ICAR, New Delhi	
4	Sarkar DC. (1988). *Ericulture in India.* Central Silk Board, Government of India,Bangalore.	
5	Tanaka Y. (1964). *Sericology*, Central Silk Board Publication,Bangalore.	
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]		
1	https://swayam.gov.in/nd2_cec19_bt05/preview	
2	http://agritech.tnau.ac.in/sericulture/seri_dept%20of%20seri_training.html	
Course Designed By: Dr. A. RAJA RAJESWARI, Asst. Prof, Sri Vasavi College, Erode.		

Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	M	S	M	S	M	M	S	L	S	S
CO2	M	S	M	M	M	M	S	L	S	S
CO3	S	S	L	M	M	M	S	L	S	S
CO4	S	S	M	L	M	M	S	L	S	S

*S-Strong; M-Medium; L-Low


Fourth
Semester

Course code	43A	ECOLOGY, EVOLUTION AND ZOOGEOGRAPHY	L	T	P	C
Core/Elective/ SBS		Core Course - IV	4	0	0	4
Pre-requisite		Knowledge on Ecosystem Structure and Functions, Animal Relationship, Environmental Pollution, Evolution and Zoogeographical Regions.	Syllabus Version		2020-2021	

Course Objectives:

1. To develop awareness about the environment and the interaction of various components.
2. Learn about the adaptations and its significance in relation to evolution.
3. To make the students aware of how organic evolution occurred and how the various life forms come into existence.
4. To make the students aware of the historical periods during the evolution of earth and status of fauna during the particular age.
5. Know about the various zoogeographical regions and their climatic and faunal peculiarities.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	The students will be able to present an overview of diversity of life forms in an ecosystem.	K2
2	The learner can correlate choice of habitat for organisms to abiotic factors, aspects of energy transfer and will be able to explain the necessity for and adaptations, providing examples.	K3
3	To describe the history and development of evolutionary thought, list and describe the evidence for evolution and its required corollaries and mechanisms by which evolution occurs.	K2
4	Able to explain the history of life on earth, climatic and faunal peculiarities.	K2
5	Understand the Zoogeographical regions, distribution, climate change and gain knowledge about evolution of human.	K2

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	ECOLOGICAL CONCEPTS	15 Hours

Ecosystem structure and function. Limiting factors. Biogeochemical cycles: Carbon, Nitrogen, water and Phosphorous. Concept of Species, Population dynamics and Growth curves. Food web Pyramids and Trophic levels. Animal relationships: - Mutualism, commensalism, parasitism, competition, predation.

Unit:2	ECOSYSYEMS	14 Hours

Habitat ecology: Freshwater, Estuarine and Terrestrial ecosystems (Detailed study). Ecotone and edge effect. Air, Water, Noise and thermal Pollution. E-Waste – definition and management. Fundamentals of Machine Learning.

Unit:3	THEORIES OF EVOLUTION	14 Hours

Theories of Organic evolution. Fossils – types and formation. Evidences of evolution Convergent and Divergent evolution. Natural selection – Isolation Speciation.

Unit:4	GEOLOGICAL TIME SCALE	15 Hours
Hardy Weinberg Equilibrium and Genetic drift. Colouration - Mimicry types and Significance. Geological time scale (Pre-Cambrian Eon; Up to periods for Paleozoic and Mesozoic era; up to epoch for Cenozoic era).		
Unit:5	**ZOOGEOGRAPHY**	**15 Hours**
Zoogeographical regions – Palaearctic, Nearctic, Neotropical, Oriental, Australian and Ethiopian regions - their Climatic and faunal peculiarities. Wallace line, Discontinuous distribution - Continental Drift. Brief outlines of Human evolution.		
Unit: 6 **CONTEMPORARY ISSUES 2Hours**		
Expert lectures, online seminars – webinars		
	Total Lecture hours	**75 Hours**

Text Book(s)

1. Arumugam N and Meyyan RP. (2014).*Cell Biology, Molecular Biology, Genetics, Evolution and Ecology*, Volume-I, Saras Publication, Nagercoil, Tamilnadu.

2. Gupta PK. (2005).*Cytology, Genetics and Evolution*. Rastogi Publications, Meerut.

3. Verma PS and Agarwal VK. (2006).*Cell Biology, Genetics, Evolution and Ecology*. S Chand Publishers, New Delhi.

References

1	Arumugam N. (2007).*Organic Evolution*, Saras Publication, Nagercoil, Tamilnadu.
2	Barton NH, Briggs DEG, Eisen JA, Goldstein DB and Patel NH. (2007).*Evolution*. Cold Spring, Harbour Laboratory Press.
3	Benton AH and Werner WE.(1976). *Field Biology and Ecology*, Tata McGraw Hill, New Delhi.
4	Chapman JL and Reiss MJ.(1992). *Ecology: Principles and Applications*.Cambridge University Press, New Delhi
5	Odum EP.(1971).*Fundamentals of Ecology*, 3rd edition,W.B Saunders College Publishing, Philadelphia
6	Sharma PD. (2014).*Elements of Ecology*, Rastogi Publications, Meerut.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://www.classcentral.com/report/swayam-moocs-course-list/
2	https://nptel.ac.in/gate_paper.html
3	https://swayam.gov.in/nd2_cec20_hs31/preview
4	https://www.swayamprabha.gov.in/
5	www.kanchiuniv.ac.in/assets/SWAYAM-BOOKLET.pdf

Course Designed By: Dr. K. SARASWATHI, Assistant Professor, Chikkaiah Naicker College, Erode.

Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	S	S	M	S	S	S	M	S
CO2	S	S	S	S	M	S	S	S	M	S
CO3	S	S	S	S	S	S	S	M	S	S
CO4	S	S	S	S	S	S	S	M	S	M
CO5	M	M	L	M	S	M	L	M	S	S

*S-Strong; M-Medium; L-Low

Course code	4ZB	BIOSTATISTICS AND COMPUTER APPLICATIONS	L	T	P	C
Core/Elective/ SBS		Skill Based Course - II	3	0	0	3
Pre-requisite		Basic knowledge on Statistical tools and Computer Applications	Syllabus Version		2020 – 2021	

Course Objectives:

1. To develop awareness about the application of statistics in Zoology.
2. To train how the biological data are processed and interpretations are made.
3. To give an introduction to computer and data bases.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	The course will give an idea how data should be managed and Processed.	K2
2	Express statistical reasoning skills correctly and contextually.	K4
3	The course will develop the research aptitude of the students.	K3
4	Apply basic statistical concepts commonly used in Use basic analytical techniques to generate results	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	SAMPLING AND GRAPHS	9 hours

Types of Sampling –Concept of Sampling in Biology. Frequency distribution – Individual, discrete and Continuous series.

Drawingpractice: Histogram, Ogive, Bar, Pie chart.

Unit:2	MEASURES OF CENTRAL TENDENCY	8 hours

Concepts and equations of Mean and Deviation (individual, discrete and continuous series).

Problem Solving: Mean, median, mode and Standard Deviation (individual series alone).

Unit:3	CO-RELATION AND REGRESSION	8 hours

Concept and types of Co-relation and regression.

ProblemSolving*:* Co-efficient of Correlation, Regression for X on Y and Y on X.

Unit:4	TEST OF SIGNIFICANCE	9 hours

Concept of Students "t" test and Chi square test.

Problem Solving: "t" test – independent and dependent, Chi square test.

Unit:5	COMPUTER APPLICATIONS	9 hours

Central Processing Unit – Output and Input devices – Storage devices – Software and Hardware – Basic Operatio of MS Word, Excel and Power point – Browsers and search engines.
Introduction to Biological Databases – Significance of NCBI.

Unit:6	CONTEMPORARY ISSUES	2 hours

Expert lectures, Online Seminars - Webinars and Field Visits.

	Total Lecture hours	45 hours

Text Book(s)

1 Arumugam N. (2015).*Basic Concepts of Biostatistics*, Sara'sPublicationNagercoil,Tamilnadu.

2	Ramakrishnan P. (2019).*Biostatistic*, Saras Publication Nagercoil, Tamilnadu.
3	Sundaralingam R, Arumugam N, Kumaresan V, Gopi A and Meena A. (2014). *Bio Statistics, Computer Application and Bioinformatics.* Saras Publication Nagercoil, Tamilnadu.
Reference Books	
1	Banerjee PK.(2007). *Introduction to Biostatistics,* S. Chand Publication, New Delhi.
2	Baxevanis A and Outllette.(2005). *Bioinformatics a Practical Guide To The Analysis of Genes and proteins,* Willy – Intersience, Hoboken, NJ. USA.
3	Kulkarni AP. (2005). *Basics of Biostatistics,* CBS Publishers, Delhi.
4	Satguru prasad. (2018). *Elements of Biostatistics*, 3rd edition, Rastogi publication, Meerut.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://www.edx.org/learn/biostatistics
2	https://www.classcentral.com/tag/biostatistics
Course Designed By:Dr. P.STALIN, Asst,Prof, Erode Arts and Science College,Erode.	

Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	M	M	L	L	M	M	S	S	S	S
CO2	M	M	L	M	M	M	S	S	M	M
CO3	M	M	M	L	M	M	S	S	M	S
CO4	M	M	L	M	M	M	S	S	M	S

*S-Strong; M-Medium; L-Low

Course code	43P		L	T	P	C
Core/Elective/ SBS		CORE PRACTICAL - II	0	0	2	2
Pre-requisite		Practical knowledge on Ecology, Anatomy and Evolution	Syllabus Version		2020 – 2021	

Course Objectives:

1. To train and be familiar with the Laboratory techniques by means of using multimedia (digital) methodologies.
2. To understand how change in population affect the ecosystem.
3. To inculcate the significance of various species and evolutionary relationship of animals.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Get practical knowledge about the species identification, diversity and their ecological significance	K2
2	Gain knowledge about the various systems of animals.	K2
3	Understand about the water pollution due to anthropogenic activity through various practical estimations.	K2
4	Apply practical knowledge on digital techniques and plankton analysis.	K3
5	Analyze and able to describe specific fauna in relation to practical and filed knowledge.	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

INSTRUCTION:

The Board of studies does not encourage the dissection of animals and advised to rely of alternative digital methods. Those departments undertaking dissection should compulsorily constitute a dissection monitoring committee as per UGC rules. It is to be ensured that the animals used for dissection is not removed from the wild and is in compliance with UGC regulations time to time. It is the duty of the college/department to adhere strictly to the Wildlife Protection Act and its amendments.

MAJOR PRACTICAL

1. Estimation of dissolved oxygen of river, pond, sewage and industrial effluent.
2. Estimation of salinity.
3. Estimation of free Carbon-di-oxide of water samples.
4. Estimation of Carbonate and Bicarbonates.
5. Demonstration of Vertebrate (Frog / Rat) :

Dissection using Multimedia – Digestive, Brain, 5th Cranial, 10th Cranial, 6.Urinogenital System (Wherever possible digital dissections recommended).

MINOR PRACTICAL

1. Estimation of pH of given water Samples.
2. Estimation of Temperature of Given Water Samples.
3. Mounting of Zooplankton (from local waterbody)
4. Identification of Zoogeographical realms from the world Map and describe the specific fauna.

SPOTTERS

1.Identify the given Vertebrae / Skull:

Fish, Frog, *Calotes*, Pigeon,Rat.

2.Identify the Fore/Hind Limb:
Fish, Frog, *Calotes*, Pigeon,Rat.

3.Comment of Animal Relation Ship:
Sacculina on Crab /Hermit Crab and SeaAnemone.

4.Ecological Adaptation:
Chameleon, Balanus, Chaetopterus, Anabas.

5.Comment on the Evolutionary Significance:
Fossil, Limulus, Analogous and Homologousorgans.

VISIT AND SUBMISSION OF REPORT

Visit to any Polluted / Pond Ecosystem and submission of a study report with Photos.

QUESTION PATTERN: 60 MARKS

Major: 20, Minor: 10, Record: 5, Spotter: 20 (5 spotters each carry 4 marks), Report: 5marks.

Total Practical hours **30(Each Semester) x 2 = 60 Hours Per Year**

Text Book(s)

1	Jaysura and Arumugam N (2013). *Practical Zoology Vol.3*, Saras Publication, Nagarcoil, Tamil Nadu.
2	Lal SS. (2008). *A text book of Practical Zoology*, Rastogi Publications, Shivaji Road, Meerut
3	*"StandardMethodsfortheExaminationofWaterandWastewater",* (2005)21th Edition, American Public Health Association, Washington. D.C..

Course Designed By: Dr.A.RAJA RAJESWARI, Asst.Prof, Sri Vasavi College, Erode.

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	M	S	S	L	M	L	S	S
CO2	M	M	S	S	S	L	S	L	S	S
CO3	M	M	M	M	M	S	S	L	S	S
CO4	S	S	M	S	M	M	S	L	S	S
CO5	S	S	M	S	S	L	S	L	S	S

*S-Strong; M-Medium; L-Low

Fifth Semester

Course code	53A	CELL BIOLOGY AND BIOCHEMISTRY	L	T	P	C
Core/Elective/ SBS		CORE PAPER - V	4	0	0	4
Pre-requisite		Basic Knowledge of Cell Organelles and Biochemical Nature	Syllabus Version		2020 – 2021	

Course Objectives:

1. T o understand the cytological techniques, types of microscopes and structure and functions of cell organelles.
2. To Learn about cellular components underlying the mitotic division.
3. To explain the co-ordination of several organelles which bring out the cellular function.
4. Know about the structure classification and mechanism of different pathways and biochemical reactions.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the structures and purposes of basic components of cells, especially bimolecular, membranes, and organelles.	K 3
2	Students can understands how the cellular components are used to generate and utilize energy in cells	K2
3	Able to explain the cellular components underlying mitotic cell division.	K2
4	Gain knowledge of genetic code and process of protein synthesis.	K4
5	Apply their knowledge of cell biology to selected examples of changes or losses in cell function. These can include responses to environmental or physiological changes, or alterations of cell function brought about by mutation.	K 3

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	INTRODUCTORY CYTOLOGY	14 Hours

Cell theory - Prokaryotic and Eukaryotic cells. Cytological techniques: Fixation– Sectioning and Staining. Principles and Resolving power of compound microscope, Confocal microscope and electron microscope. Cell Junctions - Ultra structure and functions of plasma membrane.

Unit:2	CELL ORGANELLES	14 Hours

Nucleus and Nucleolus. DNA structure and function - DNA Replication - Chromatin – Nucleosome. Chromosomes: – Structure, types, giant chromosomes. Ultra structure and functions of Endoplasmic reticulum, Golgi body and Ribosomes

Unit:3	METABOLISM AND CELL CYCLE	15 Hours

Ultra structure and functions of Lysosomes, Centrosomes, Mitochondria. Glycolysis and Krebs cycle. Electron transport chain and formation of ATP. Cell cycle - Mitosis, Meiosis -regulation. Apotosis and Cancer (brief outlines)

Unit:4	PROTEIN SYNTHESIS	15 Hours

Types and role of RNA- Structure of t-RNA. Ultra structure, function and types of ribosome. Properties of Genetic code - Detailed study of Protein synthesis – Polysome – differences in eukaryotes – Short outline of post transcriptional modifications.

Unit:5	BIOCHEMISTRY	15 Hours

Structure and Classification of Carbohydrates, Protein and lipids. Enzymes: - mechanism of action -

classification and factors influencing enzyme action. Glycogenesis – Glycogenolysis, Gluconeogenesis and HMP shunt. Beta oxidation of fats.		
Unit:6	**CONTEMPORARY ISSUES**	**2 Hours**
Expert lectures, Online Seminars - Webinars and Field Visits.		
	Total Lecture hours	**75 Hours**

Text Book(s)	
1	Arumugam N. (2014). *Cell Biology and Molecular Biology*,Sara'sPublications,Nagercoil, Tamilnadu.
2	Fatima D , Narayanan LM , Meyyan RP, Nallasingam K, Prasannakumar S, Arumugam N. (2010). *Biochemistry*, Saras Publication, Nagercoil, Tamilnadu.
3	Verma PS and Aggarwal VK. (2016).*Cell Biology*. S. Chand Publishers, New Delhi.
4	Satynanarayana U and Chakrapani U. (2019).*Essentials Of Biochemistry*, 3rd Edition, Books and Allied Ltd, Delhi.
Reference Books	
1	**A**mbika Shanmugam. (2012). *Fundamentals of Biochemistry for Medical Students*, Wolters Kluwer (India) Pvt Ltd, New Delhi.
2	De Robertis EDP and De Robertis EMF. (1987). *Cell and Molecular Biology*, Lippincott Williams and Wilkins, Philadelphia
3	Gupta PK.(2019).*Cell Biology*, 5th revised edition, Rastogi Publications, Meerut.
4	Jain JL, Jain N and Jain S. (2016).*Fundamentals of Biochemistry*, S. Chand Publications, New Delhi.
5	Pawar CB. (2018). *Cell Biology*, Himalaya Publications, India.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://www.classcentral.com/report/swayam-moocs-course-list/
2	https://www.classcentral.com/course/swayam-cell-biology-13937
3	https://swayam.gov.in/NPTEL
4	https://nptel.ac.in/courses/102/106/102106025/
Course Designed By: Dr. K. SARASWATHI, Asst. Prof, Chikkaiah Naicker College, Erode.	

Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	S	S	M	S	S	S	S	S
CO2	S	S	S	S	M	S	S	S	S	S
CO3	S	S	S	S	S	S	S	M	S	S
CO4	S	S	S	S	S	S	S	M	S	S
CO5	S	S	S	S	S	S	S	S	S	S

*S-Strong; M-Medium; L-Low

Course code	53B	MICRO-BIOLOGY	L	T	P	C
Core/Elective/ SBS		Core Course - VI	4	0	0	4
Pre-requisite		Basic Knowledge about Diversity, Structure and Applications of Microbiology	Syllabus Version		2020-2021	

Course Objectives:

1. The course is intended to make aware of the students about the classification, diversity, organization, application and pathogenicity of the microorganisms existing the ecosystem.
2. The course will help the students to learn about the various microbial culture techniques and its handling.
3. The course will give an idea that how microbes are used in various industries for generation of various products related to day to day life.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Provides basic knowledge about taxonomy, diversity and general structure of micro-organisms.	K2
2	Familiarize with the culture, sterilization, handling, identification and assessing growth characters of microorganisms.	K3,
3	Understand the general microbial techniques for isolation of pure cultures of bacteria, fungi and algae.	K2
4	Get idea about the microbial spoilage and the potentials in the usage of microbes in agriculture.	K3
5	Familiarize with various aspects of microbial diseases and preventive measures.	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6**– Create

Unit:1	CLASSIFICATION	15 Hours

Characters and basic classification of Kingdom Monera and Fungi. Systematic position of Virus – classification - Structure of bacteriophage and HIV. Viroids and Prions. Ultra-structure of *E. coli*.- - bacterial cell wall. General structure of fungi.

Unit:2	BACTERIAL CULTURE	15 Hours

Bacterial growth and growth curve – factors influencing bacterial growth. Types of Culture medium – Culture of Bacteria – Sterilization - Medium – techniques. Maintenance – Characteristics of colonies – staining of bacteria – Bio fermenters and it role in mass culture.

Unit:3	FOOD AND AGRICULTURE	15 Hours

Control of Microbes. Preservation of Milk. Food Spoilage: Botulism – Staphylococcal –Salmonellosis. Culture of Yeast and economic importance. Microbial Nitrogen fixation - Rhizobium – Azotobacter – Azospirillum - BGA Bio-fertilizer – VAM fungi – Mycorrhiza.

Unit:4	INDUSTRIAL MICROBIOLOGY	14 Hours

Role of microbes in Industry –Stages – types and methods of Fermentation. Products of fermentation industry – Ethanol - Citric acid - enzymes Antibiotics –food & dairy products. Basics concepts of Probiotics.		
Unit:5	**MEDICAL MICROBIOLOGY**	**14 Hours**
Causative organism, transmission and preventive measures of Cholera, Typhoid, Tuberculosis, Leprosy, Syphilis, AIDS, Chicken pox ,Hepatitis-B, Polio, Rabies, swine flu, Chikungunya and Dengue.		
Unit:6	**CONTEMPORARY ISSUES**	**2 Hours**
Expert lectures, Online Seminars - Webinars and Field Visits.		
	Total Lecture hours	**75 Hours**

Text Book(s)

1	Dubey RC and Maheshwari DK. (2013). *A Textbook of Microbiology*. S. Chand Publishers, New Delhi.
2	Mani A, Selvaraj AM , Narayanan LM , Arumugam A.(2017).*Microbiology*, Saras Publication, Nagercoil, Tamilnadu.

Reference Books

1	Atlas RM. (1995).*Principles of Microbiology*, 1st edition, Mosby-Yearbook, Inc, Missouri.
2	Power CH and Daginawla HF.(2001).*General Microbiology*, Himalaya Publishing House, New Delhi.
3	Pelczar MJ, Chan EC, Pelczar MF. (1981).*Elements of Microbiology*. McGraw-Hill International Book Company.
4	Ryan KJ, Ray CG, editors. (2018).*Sherris Medical Microbiology*.7th edition, McGraw-Hill Education, Singapore.
5	Willey JM, Sherwood L, Woolverton CJ.(2017). *Prescott's Microbiology*, McGraw-Hill, Singapore.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://nptel.ac.in/courses/102/103/102103015/
2	https://nptel.ac.in/courses/102/103/102103015/
3	https://nptel.ac.in/courses/102/103/102103015/

Course Designed By:
S. SUDHA,Asst.Prof, LRGGovt.ArtsCollegefor Women, Tirupur

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	S	S	S	S	L	S	L	S
CO2	M	S	M	S	S	M	L	S	M	M
CO3	M	S	M	S	S	S	M	M	L	S
CO4	M	S	S	S	M	S	M	M	M	S
CO5	S	S	S	S	S	S	M	S	M	S

*S-Strong; M-Medium; L-Low

Course code	53C	GENETICS AND IMMUNOLOGY	L	T	P	C
Core/Elective/ SBS		Core Course - VII	4	0	0	4
Pre-requisite		Basic Knowledge of Genetics, Recombination and Concepts of Immune System	Syllabus Version		2020-2021	

Course Objectives:

1. To learn the basic principles of inheritance at the molecular, cellular and organismal levels.
2. To understand causal relationships between molecule/cell level phenomena and organism-level patterns of heredity.
3. To learn the mechanism of Mutation and will able to understand how mutations bring changes in an organism.
4. To give an insight to the cellular components involved in the immunity.
5. To give an awareness of the mechanism, types and concepts regarding immune response.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Students will be able to describe and apply the principles of Mendelian genetics.	K3
2	Capable to describe the flow of genetic information from DNA to RNA to protein.	K2
3	Make clear how genes are regulated. The students will be able to explain how mutations occur and how its role in adaptation and speciation occurs.	K3
4	Able to develop an idea about the cellular and molecular basis of immune response.	K3
5	Understand the principles of self-tolerance and autoimmunity and will be able to relate the potentials of immunology in relation to biotechnology and applied sciences	K2

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	FUNDAMENTALS OF GENETICS	14 Hours

Importance of Drosophila in genetics – Culture methods - sex identification – common mutations. Mendelian Laws of Inheritance and Non Mendelian inheritance (Incomplete dominance – Co-dominance – Polygenic inheritance – Epistasis –Lethal genes). Crossing over – Linkage in drosophila.

Unit:2	RECOMBINATION AND GENETICAL DISORDERS	15 Hours

Recombination in bacteria: – Transformation – Conjugation – F factor -Sexduction – Transduction –Generalised and Specialised - Plasmids. Chromosome variation (Ploidy) - Euploidy – Aneuploidy – Gene Balancing – Gynandromorphs – Barr bodies – Chromosomal aberrations- Non disjunction - Klinefelter, Turner and Down syndrome.		
Unit:3	**MUTATION**	**14 Hours**
Gene Mutations – Types of Mutations – Physical and Chemical mutagens – DNA repair. Sickle cell anemia – Alkaptonuria – Phenyl ketonuria – albinism. Operon concept- Lac and trp operons (outlines)**.**		
Unit:4	**CELLS OF IMMUNE SYSTEM**	**15 Hours**
Cells of immune system - Types of Immunity – Innate and acquired - Antigens - Structure, function and types of antibodies. B and T cell epitopes, haptens, adjuvants. - Antigen-antibody reactions - T-Cell and B-Cell activation - Monoclonal antibodies.		
Unit:5	**BASIC CONCEPTS OF IMMUNE SYSTEM**	**15 Hours**
Basic concepts of major histocompatibility complex. - Basic properties and functions of Cytokines, Interferons and complement proteins - Humoral and Cell mediated immunity. Types of hyper sensitivity. Concepts of autoimmunity and immunodeficiency - Vaccines.		
Unit:6	**CONTEMPORARY ISSUES**	**2 Hours**
Expert lectures, Online Seminars - Webinars and Field Visits.		
	Total Lecture hours	**75 Hours**

Text Book(s)

1	Verma PS and Agarwal VK. (2010). *Genetics*, S. Chand Publishers, 9th edition, New Delhi.
2	Meyyan RP. (2017). *FundamendalsofGenetics*, Saras Publication , 5th edition, Nagercoil, Tamilnadu.
	Ramesh SR. (2017).*Immunology*. McGraw Hill Education India Private Limited. New York.

Reference Books

1	Gardner EJ. (2006). *PrinciplesofGenetics*. 8th edition. John Wiley and Sons, Inc. London, UK.
2	Primrose SB and Twyman R. (2013). *PrinciplesofGeneManipulationandGenomics*. John Wiley and Sons; Inc. London, UK.
3	Delves PJ, Martin SJ, Burton DR, Roitt IM. (2017). *EssentialImmunology*.13th Edition, John Wiley and Sons;Inc. London, UK.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://swayam.gov.in/nd2_cec20_ma13/preview
2	https://swayam.gov.in/nd2_cec20_bt05/preview

Course Designed By:
DR.PAWLIN VASANTHI JOSEPH, Asso. Prof, Nirmala College for Women, Coimbatore.

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	L	S	S	M	L	L	L	S	L	S
CO3	L	M	S	M	M	L	L	S	L	S
CO3	L	M	M	L	M	L	L	S	L	S

CO4	L	M	S	L	L	L	L	S	L	S
CO5	L	M	S	L	L	L	L	S	M	S

*S-Strong; M-Medium; L-Low

Course code	**5ZC**	**BIOPHYSICS AND INSTRUMENTATION**	**L**	**T**	**P**	**C**
Core/Elective/ SBS		**Skill Based Course - III**	**3**	**0**	**0**	**3**
Pre-requisite		Basic Knowledge of Bio-molecular Interaction and Principles of Instrumentation	**Syllabus Version**		**2020-2021**	

Course Objectives:

1. To develop skill in understanding and handling molecular science and instrumentation.
2. To make the students capable of understanding the under lying principles of various reaction and biological interactions.
3. To understand the principles and applications of various laboratory instruments.

Expected Course Outcomes

On the successful completion of the course, student will be able to:

1	Able to know the basics about the molecular bonds and interactions	K2
2	The learner will be trained in preparing solutions and handling instruments at basic level.	K3
3	The students will be capable of interpreting and understanding the basis of bioenergetics in living system.	K2
4	Gain the knowledge in the area of enzyme and its action.	K2
5	Understand and apply skills in biological tools and techniques.	K3

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6**– Create

Unit:1	**BIMOLECULAR INTERACTIONS**	**9 Hours**

Valence of carbon - Polar and non polar molecules – Covalent, ionic and Co-ordinate bonds. Hydrogen bonding - weak interactions, ester linkage, electrostatic, Disulphide and peptide bonds - Van-der Waals forces. Isomerism and optical activity.

Unit:2	**SOLUTIONS**	**8 Hours**

Hydrophiles and hydrophobes - Acid-Base concept, Molarity, Molality and Normality, Ampholyte, pH and pKa value -.Redox potential – Principles of diffusion and Osmosis – Hypo, hyper and isotonic solutions.

Unit:3	**THERMODYNAMICS**	**9 Hours**

First and Second laws of thermodynamics, Biological applications of enthalpy, free energy, activation energy, unavailable energy and entropy, Thermodynamics of passive and active transport - high energy phosphate bond - Electron-transport chain.		
Unit:4	**SIGNALING AND KINETICS**	**9 Hours**
Enzyme action: Michaelis-Menton equation - Vmax - Km - Line Weaver Burk plot. Action potential – refractory period – synaptic potential. Excitation and conduction of heart beat. Radio-labeling and Tracer techniques.		
Unit:5	**INSTRUMENTATION PRINCIPLES**	**8 Hours**
Principles of light microscopy and Electron microscopy - pH meter – Centrifugation – Chromarography – Electrophoresis - Colorimeter and Spectrophotometer – ECG – interpretation of electrocardiograph.		
Unit:6	**CONTEMPORARY ISSUES**	**2 Hours**
Expert lectures, Online Seminars - Webinars and Field Visits.		
	Total Lecture hours	**45 Hours**

Text Book(s)

1	Arumugam N and Kumaresan V.(2017). *Bio Physics and Bioinstrumentation,* Saras Publication, Nagercoil, Tamilnadu.
2	Bajpai PK. (2008.) *Biological Instrumentation and Methodology*. S. Chand and Co. Ltd. New Delhi.

Reference Books

1	Arumugam N and Kumaresan V. (2015). *Principles and Techniques in Biophysics*, Saras Publication, Nagercoil, Tamilnadu.
2	Jain JL, Jain N and Jain S. (2009). *Fundamentals of Biochemistry*, S. Chand Publications, New Delhi.
3	Setlow RB and pollard EL. (1962). *Molecular Biophysics*, Pergamon Press.
4	Mohan P Arora (2015). *Bio-Physics*, Himalaya Publishing House, Nagpur.
5	Veerakumari L. (2010). *Bioinstrumentation*, MJP-Publishers, Chennai.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://nptel.ac.in/courses/102/105/102105034/
2	https://nptel.ac.in/courses/102/103/102103083/

Course Designed By:
S. SUDHA,Asst.Prof, LRGGovt.ArtsCollegefor Women, Tirupur

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	L	M	L	L	L	S	S	S
CO2	S	S	M	S	M	L	L	S	S	S
CO3	S	S	M	S	M	M	M	M	S	S
CO4	S	S	S	S	M	M	M	M	S	S
CO5	S	S	S	M	S	M	M	S	S	S

*S-Strong; M-Medium; L-Low

Sixth Semester

Course code	63A	ANIMAL PHYSIOLOGY	L	T	P	C
Core/Elective/ SBS		Core Course - VIII	4	0	0	4
Pre-requisite		Basic Knowledge of various Physiological Aspects	Syllabus Version		2020-2021	

Course Objectives:

1. To familiarize students with the principles and basic facts of Animal Physiology.
2. To give students an insight about the molecular and cellular basis of physiological functions in animals.
3. To give an idea about the regulation of organ system functions in a whole animal using a conceptual model of feedback to explain homeostasis.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Associate the transport of gases and its influence on metabolism of major food constituents.	K2
2	Explain the mechanism of circulation and excretion among different vertebrates.	K2
3	Present the structure of a muscle and a nerve and infer its functions.	K3
4	Relate the structure and mechanism of sense organs in animals.	K3
5	Categorize the impact of hormones in the reproductive mechanism of the male and female organism.	K4

K1 – Remember; **K2** – Understand; **K3** – Apply; **K4** – Analyze; **K5** – Evaluate; **K6** – Create

Unit:1	NUTRITION AND RESPIRATION	15 Hours

Nutrition: Digestion and absorption of carbohydrates proteins and lipids. Mineral and Vitamins – its deficiency. Hormonal control of digestion. Respiratory pigments- structure of haemoglobin, Transport of O2 and CO2- Bohr effect – Regulation of respiration – carbon monoxide poisoning, bronchitis, asthma – Physiological effects of smoking.

Unit:2	CIRCULATION AND EXCRETION	15 Hours

Blood- composition and functions of blood plasma and formed elements, Mechanism of blood clotting, Types of Hearts – Heartbeat and pace maker – Cardiac cycle – ECG – Pulse and blood pressure. Nephron structure and mechanism of urine formation, Excretory products, Osmo-regulation in fishes.

Unit:3	MUSCLE AND NERVE PHYSIOLOGY	14 Hours

Brief account of types of muscles – Ultra structure of striated muscle, Muscle contraction and properties. Neurons – structure and types – Impulse propagation, synaptic transmission, neuro transmitters – Reflex action, Nerve disorders – Epilepsy, Alzheimer'sdisease,Parkinson'sdisease.

Unit:4	SENSE ORGANS	15 Hours

Structure of eye, physiology of vision, visual elements and pigments, photo chemistry of vision –

Eye defects – myopia, hyperopia, presbyopia, astigmatism, cataract – Structure of ear and mechanism of hearing – Hearing impairments – deafness, labyrinthine disease – Olfactory, gustatory and tactile sense organs.		
Unit:5	**REPRODUCTIVE PHYSIOLOGY**	**14 Hours**
Puberty, adolescence, pregnancy, parturition, lactation and birth control. Endocrine glands in man – Hormones, action and disorders – Feed-back mechanism, Outlines of mechanism of hormonal activity.		
Unit:6	**CONTEMPORARY ISSUES**	**2 Hours**
Expert lectures, Online Seminars – Webinars and Field Visits.		
	Total Lecture hours	**75 Hours**

Text Book(s)	
1	Arumugam**.** N and Mariakuttikan A (2014).*AnimalPhysiology*. Saras Publication, Nagercoil, Tamilnadu.
2	VeerbalaRastogi. (2007).*AnimalPhysiology*. KedarNathaRamNath Publishers, Meerut.
Reference Books	
1	Lehninger AL, Michael Cox, Nelson DL. (2017).*Biochemistry*, 7th edition, Macmillan, New York.
2	Reddy PB. (2015). *Text Book of Animal Physiology,* IMRF Publishing house, Andra Pradesh, India.
3	Verma PS and Agarwal (2000).*AnimalPhysiology*. S Chand and Company Ltd, New Delhi
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://www.classcentral.com/course/swayam-animal-physiology
Course Designed By: **Dr.ROSILINE MARY, Asst,Prof, Nirmala College For Women, Coimbatore.**	

Mapping with Programme Outcomes										
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	M	L	S	M	M	L	L	M	M	S
CO2	M	M	S	M	S	L	L	M	S	S
CO3	L	M	S	M	M	L	L	M	S	S
CO4	L	M	S	S	M	L	M	M	S	S
CO5	M	M	S	S	M	L	L	M	S	S

*S-Strong; M-Medium; L-Low

Course code	63B	DEVELOPMENTAL BIOLOGY	L	T	P	C
Core/Elective/ SBS		Core Course - IX	4	0	0	4
Pre-requisite		Basic Knowledge of Embryology and Techniques in Developmental Biology	Syllabus Version	2020-2021		

Course Objectives:

1. To make aware of the students about the theories, concepts and basics of Developmental Biology.
2. To provide students the idea of sex cells, fertilization, cleavage, differentiation and development of organs.

Expected Course Outcomes:

1	Understand the concepts of basic developmental biology and needs of Artificial intelligence.	K2
2	Able to know about pattern, plans and morphogenetic techniques of developing egg.	K3
3	Gain knowledge about the development of organs in different animals.	K3
4	Know and apply the techniques involved in embryology field.	K3
5	Familiar with reproductive technology and embryo transfer technology.	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	GAMETES AND FERTILIZATION	15 Hours

Basic concepts of developmental biology – theories - Structure human Spermatozoa - Structure of mammalian egg - Egg membranes Patterns of egg - Spermatogenesis – Oogenesis. Fertilization – mechanism and significance – Parthenogenesis. Introduction- Fundamentals-Need for Artificial Intelligence.

Unit:2	BLASTULATION AND GASTRULATION	14 Hours

Cleavage - Planes and Patterns of cleavage - Factors controlling cleavage - Fate map. Blastulation – Morphogenetic movements - gastrulation Frog and Chick.

Unit:3	ORGANOGENESIS	14 Hours

Development of Brain, Eye and Heart in frog. Development of Nervous system in chick and Foetal membranes in Chick and Mammals.

Unit:4	APPLIED EMBRYOLOGY	15 Hours
Organizer concept –Structure – mechanism of induction and competence. Nuclear transplantation - teratogenesis – Regeneration: types - events and factors. Transgenic mice - Retroviral method – Microinjection method - Embryonic stem cell method. Methods to culture embryo.		
Unit:5	**PLACENTATION AND TECHNIQUES**	**15 Hours**
Placentation in Mammals –Ostrous - Menstrual cycle and menopause - Pregnancy – trimesters – development. *Erythroblastosisfoetalis* -Twins – types. Infertility – causes - Test tube baby and Assisted Reproductive Technology – Embryo transfer – Amniocentesis.		
Unit:6	**CONTEMPORARY ISSUES**	**2 Hours**
Expert lectures, Online Seminars - Webinars and Field Visits.		
	Total Lecture hours	**75 Hours**

Text Book(s)

1	Arumugam N. (2014).*A Text Book of Embryology*. 15th edition, Saras publication, Nagercoil,Tamilnadu.
2	Verma PS and Agarwal VK. (2010).*ChordateEmbryology*. S Chand and Company Ltd, New Delhi.

Reference Books

1	Balinsky BI and Fabian BC. (2012).*AnIntroductiontoEmbryology*, 5th edition, CBS College Publishers, Cengage Learning India Pvt. Ltd. New Delhi.
2	Madhavan KS. (2017). *Developmental Biology*, Arjun publishing house, India.
3	Rastogi. (2014).*ChordateEmbryology*, Kedar Nath Ram Nath, Meerut.
4	Sastry KV and Shukla V. *Developmental Biology*, 2nd edition, Rastogi publication, Meerut.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://swayam.gov.in/nd1_noc20_bt35/preview
2	https://www.mooc-list.com/course/developmental-biology-saylororg?

Course Designed By:
Dr.ROSILINE MARY, Asst,Prof, Nirmala College For Women, Coimbatore.

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M	M	S	M	L	L	M	S	S	M
CO2	L	M	S	M	L	L	S	S	S	M
CO3	L	M	S	L	L	L	S	M	M	M
CO4	L	M	S	L	L	L	S	M	M	M
CO5	M	M	S	M	L	L	S	S	S	M

*S-Strong; M-Medium; L-Low

Course code	63C	BIOTECHNOLOGY	L	T	P	C
Core/Elective/ SBS		Course Course - X	4	0	0	4
Pre-requisite		Basic Knowledge about Principles and Techniques in Biotechnology	Syllabus Version		2020-2021	

Course Objectives:

1. Give a firm foundation in the fundamentals of modern Molecular techniques.
2. The course will give an insight to the mechanism of Gene Expression and Regulation.
3. The course will give idea about various protocols followed in Biotechnology in relation to Animal science.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Give an idea about the various techniques used in modern biotechnology.	K2
2	The course will give an insight into the current applications of biotechnology and advances in the different areas like medical, microbial, environmental, bioremediation, agricultural, animal and forensics.	K2
3	Able to understand how microbes are used to engineer various genes.	K3
4	Explain the general principles of generating genetically modified organisms and modern artificial methods in biotechnology.	K3
5	Appreciate the importance of Biotechnology in enzyme production, cryopreservation and biosensors	K3

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	RECOMBINANT DNA TECHNOLOGY	15 Hours

Restriction endonuclease – sequence recognition. DNA Ligase. Identification and isolation of gene of interest - Cloning vectors and recombination. Screening of recombinant DNA. Application of recombinant DNA technology. Commercial production of Insulin. Human Genome Project.

Unit:2	MOLECULAR TECHNIQUES	14 Hours

Methods to isolate DNA – PCR types, Principle and applications. Electrophoresis – types and Principle. Blotting – types – applications. DNA finger printing and its applications –RAPD – FISH- RFLP. DNA probes and diagnosis.

Unit:3	ANIMAL TISSUE CULTURE	15 Hours
Applications – Primary culture. Steps involved in mammalian cell culture- He la and WI38 cell lines – Maintenance of cell lines – Techniques and Application of organ culture. Animal cloning – Dolly.		
Unit:4	**APPLICATIONS**	**15 Hours**
Genetically modified Animals- Single cell Protein from microbes – Biofuels – Solid waste management – Liquid Waste Management – Biogas production - Biopesticides. Production of bacterial, fungal, algal and yeast biomass – Mushroom Culture.		
Unit:5	**ENZYME BIOTECHNOLOGY**	**14 Hours**
EnzymeBiotechnology: Microbial production and application of enzymes – Ribozymes- Artificial enzymes, Immobilization of enzymes- methods and its application. Biosensors, Cryobiology – Methods of cryo-preservation.		
Unit:6	**CONTEMPORARY ISSUES**	**2 Hours**
Expert lectures, Online Seminars - Webinars and Field Visits.		
	Total Lecture hours	**75 Hours**

Text Book(s)

1	Dubey RC. (2012). *A Text Books of Biotechnology*, S. Chand and Company, New Delhi.
2	Kumaresan V. (2015). *Biotechnology* Saras Publication, Nagercoil, Tamilnadu.
3	Verma PS and Agarwal VK.(2017). *Genetic Engineering*, 9th edition, S. Chand Publishers, New Delhi.

Reference Books

1	Brown TA. (1995).*Gene cloning*,Chapman and Hall, Publicatio, London.
2	Gupta PK. (20170. *Molecular Biology and Biotechnology*, Rastogi publication, Meerut.
2	Mohan P Arora. (2003). *Biotechnology*, First Edition, Edited by Chander Kanta, Published by Himalaya Publishing House.
3	Primrose SB, Twyman R. (2013). *Principles Of Gene Manipulation And Genomics*. John Wiley and Sons, India.
4	Seema S Sambrani. (2017). *A Text Book of Plant and Animal Tissue Culture*, 2nd edition, Vision publications, Pune, India.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://swayam.gov.in/nd2_cec20_bt07/preview
2	https://swayam.gov.in/nd1_noc19_bt20/preview

Course Designed By:
DR.PAWLIN VASANTHI JOSEPH, Asso.Prof, Nirmala College for Women, Coimbatore.

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	L	M	M	L	L	L	L	S	S	S
CO3	L	M	M	L	L	L	L	S	S	S
CO3	L	M	M	L	L	L	L	S	S	S

CO4	L	S	M	L	L	L	M	M	S	S
CO5	L	M	M	L	L	L	L	L	S	S

*S-Strong; M-Medium; L-Low

Course code	**63P**	**CELL BIOLOGY AND BIOCHEMISTRY ANIMAL PHYSIOLOGY AND DEVELOPMENTAL BIOLOGY**	**L**	**T**	**P**	**C**
Core/Elective/ SBS		**CORE PRACTICAL - III**	**0**	**0**	**2**	**2**
Pre-requisite		Practical Knowledge in the field of Cell biology, Physiology adaptations and Developmental Stages of Cells	**Syllabus Version**	**2020 – 2021**		

Course Objectives:

1. To observe and identify different cell types and structures using different microscopic techniques.

2. To get awareness of physiological processes of cell and physiological activities of aquatic organisms.

3. To learn the developmental stages of organisms by permanent microscopic slides.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Apply concepts and knowledge of the general terminology, cell structure and function.	K3
2	Utilize some of the useful techniques in the field of cell biology (Hematology and staining) and understand the basic concepts behind these techniques.	K2
3	Assess and able to examine various practical techniques in physiological field.	K3
4	Demonstrate an understanding the scientific methods of physiological adaptations of animal.	K2
5	Able to discriminate the developmental stages of cells of various living organisms.	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

MAJOR PRACTICAL

1. Squash Preparation of Onion root tip – stages of Mitosis.
2. Estimation of RBC and WBC in human Blood (Not for colleges offering CLT).
3. Oxygen consumption of fresh water fish.
4. Identification of given biochemical sample:
   Monosacchride, Polysacchride, Aminoacid, Protien, Lipid.
5. Analysis of excretory products- Ammonia, urea and uric acid.

MINOR PRACTICAL

1. Study of Opercula movement of a fish at 10 degree increase and Q10.
2. Activity of salivary amylase (Qualitative analysis).
3. Preparation of Haemin crystals.
4. Estimation of Haemoglobin.

SPOTTERS

1. Giant Chromosome (Demonstration of Polytene chromosomepreparation).
2. Meiosis sub stages in Prophase I. (Demonstration suggested with Pollen of any Liliacea).
3. Kymograph (Demonstration of Muscle twitch withPowerPoint).
4. T.S of Pituitary, Thyroid, Adrenal, Ovary andtestis.
5. Sperm ofMan.
6. Egg ofFrog.
7. Blastula ofFrog.
8. Gastrula ofFrog.
9. Development of Chick 18, 24, 48, 72hr.
10. Placenta of Sheep and Rabbit.

QUESTION PATTERN: 60 MARKS

Major: 20, Minor: 10, Record: 5, Spotter: 25 (5 spotters each carry 5 marks).

Total Practical hours **30(Each Semester) x 2 = 60 Hours Per Year**

Text Book(s)

1. Jayasurya, Arumugam N, Dulsy Fatima. (2013). *Practical Zoology Vol 3,* Saras Publication, Nagercoil, Tamilnadu.
2. Dr. Renu Gupta, Dr. Seema Makhija, Dr. Ravi Toteja. (2018).*Cell Biology: Practical Manual*, Prestige Publishers, New Delhi.
3. Trigunayat MM. (2019).*A Manual of Practical Zoology: Biodiversity, Cell biology, Genetics and Developmental Biology part 1*, Scientific publishers, India.

Course Designed By: Dr. A. RAJA RAJESWARI, Asst. Prof, Sri Vasavi College, Erode.

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M	M	S	S	M	L	S	S	S	S
CO2	M	M	S	M	M	L	S	M	S	S
CO3	M	M	S	S	M	L	S	L	S	S
CO4	M	S	S	S	M	L	S	L	S	S
CO5	M	M	M	S	S	L	S	L	M	M

*S-Strong; M-Medium; L-Low



Course code	63Q	MICROBIOLOGY, GENETICS, IMMUNOLOGY AND BIOTECHNOLOGY	L	T	P	C
Core/Elective/ SBS		CORE PRACTICAL - IV	0	0	2	2
Pre-requisite		Practical Knowledge of various techniques in Microbiology, Genetics and Biotechnology	Syllabus Version		2020 – 2021	

Course Objectives:

1. To impart hands-on training in basic microbiological techniques.
2. To understand the concepts and obtain practical knowledge in genetics and biotechnology through experiments.
3. To familiarize students with various immunological techniques.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Familiar with practical skills in the use of tools, technologies and methods common to microbiology and biotechnology.	K3
2	Able to test the microbiological quality of samples from different sources and differentiate between Gram-positive and Gram-negative bacteria.	K4
3	Gain knowledge about basic immunological principles involved in clinical and applied science.	K2
4	Trained in basic enzyme and immunological assays and be taught to present the results both qualitatively and quantitatively.	K4
5	Understand different sterilization procedures, mounting techniques and media preparation when handling advanced Biotechnological equipments.	K2

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

MAJOR PRACTICAL

1. Isolation of DNA from any fruit/tissue.
2. Preparation of Culture Media : Liquid and Solid
3. Enumeration of microbes in soil
4. Gram staining Technique.
5. Thin layer chromatography of any Biological sample (Optional).
6. Estimation of activity of Protease and Amylase.

MINOR PRACTICAL

1. Quality of Milk – MBR test.
2. Mounting of given fungi.
3. Antigen – Antibody reaction: ABO blood group.
4. Sterilization of the Culture Medium in Autoclave / pressure cooker.
5. Estimation of sugar in given wine sample.
6. Determination of Motility of Microbe:
   Hanging drop technique (Do not use curd as Lactobacillus is not motile).

SPOTTERS

Genetics:

Genetic importance - Drosophila male and female, Giant Chromosome.

Microbiology:

Autoclave/Pressure Cooker, Electrophoresis unit, Culture media-Plate, Slant and Broth.

Immunology:

Thymus gland, WIDAL kit, VDRL kit, Antibiotic sensitivity test.

Biotechnology:

Spirullina, Yeast, Penicillin, Azolla, Mushroom seeds, Bio-pesticide (BT/Fungi), Biofertiliser (Nitrosomonas/ Rhizobium/Phosphobacter)

VISIT AND SUBMISSION

Visit to an industry or lab of Biotechnology or Microbiological importance. Report should be submitted in the Practical.

QUESTION PATTERN: 60 MARKS

Major: 20, Minor: 10, Record: 5, Spotter: 20 (5 spotters each carry 4marks), Report: 5.

Total Practical hours **30(Each Semester) x 2 = 60 Hours Per Year**

Text Book(s)

1	Das S. (2020).*Microbiology Practical Manual,* CBS Publication,Delhi.
2	Janarthanan S.(2018). *Practical Biotechnology:Methods and Protocols,* Kindle Edition, Publication Universities Press (India) Private Limited.
3	Senthilkumar Balakrishnan, Karthik Kaliaperumal and Senbagam Duraisamy. (2017). *PracticalImmunologyaLaboratoryManual*, lap lambert academic publishing, Germany.
4	Trigunayat MM. (2019).*A Manual of Practical Zoology: Biodiversity, Cell biology, Genetics and Developmental Biology part 1,* Scientific publishers, India.

Course Designed By: Dr. A. RAJA RAJESWARI, Asst. Prof, Sri Vasavi College, Erode.

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	L	M	S	M	L	L	S	S	S	S
CO2	M	M	L	M	L	L	S	S	S	S
CO3	L	M	M	L	L	L	S	S	S	S
CO4	L	M	M	L	L	L	S	S	S	S
CO5	L	M	M	M	M	L	S	S	S	S

*S-Strong; M-Medium; L-Low

Course code	6ZP	SKILL BASED PRACTICAL	L	T	P	C
Core/Elective/ SBS		SKILL BASED COURSE - IV	0	0	2	2
Pre-requisite		Practical Knowledge in Sericulture, Statistical tools and Principles of Instrumentation	Syllabus Version		2020 – 2021	

Course Objectives:

1. To understand the working principles of the instruments in biological instruments.
2.To inculcate the practical knowledge on moriculture and sericulture,
3. To discuss about the basic principles of physics in biology.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Relate knowledge on Silkworm rearing and evaluate the quality of cocoon and silk.	K3
2	Apply the concepts of computer science related with the statistical analysis.	K3
3	Familiarize with the applications of statistics and able apply in the different fields of biology.	K4
4	Understand the basic operations of MS Office in computer applications	K2
5	Gain knowledge and understands the working principles of the instruments in biology.	K3

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

MAJOR PRACTICAL

1. Preparation of Chromate solution at various 5 concentration, measure the OD to verify Beer Lambertlaw.

2. Prepare isotonic, hypotonic and hypertonic solution and put a drop of blood and observe under themicroscope.

3. Measure the length of given leaf samples or any other of choice (minimum 20 samples) and calculation of Mean, Median, Mode and StandardDeviation.

4. Given are two groups of samples A and B. A contain 10 leaves (or any other of choice) of a locality and B from other species or locality. Measure the length and check do the samples differ significantly usingstudents“t”.

MINOR PRACTICAL

1. Preparation of Buffer (acetate/ phosphate/ citrate/ borate) of givenpH.

2. Identification, sorting and percentage calculation of different types ofcocoons.

3. Based on the given values calculate the Correlationcoefficient.

4. Based on the given values calculate the regression equation based on avariable.

SPOTTERS

Mulberry leaf, Silk worm moth, Different instars of larvae, Cocoon, Fungal Parasite of Silk Worm.

Light microscope, pH Meter, Centrifuge, Chromatograph, Colorimeter.

VISIT AND SUBMISSION

Visit to an industry or lab of Biotechnology or Microbiological importance. Report should be submitted in the Practical.

QUESTION PATTERN: 45 MARKS

Major: 15, Minor: 10, Record: 5, Spotter: 10 (5 spotters each carry 2 marks), Report: 5 marks.

Total Practical hours **30 Hours Per Year(Practical for end semester only)**

Text Book(s)

1	Arumugam N, Prasanna kumar S, Narayanan LM, Kumaresan V, Meyyan RP, Mariakuttikan A, Dulsy fatima, Nallasingam K, Jayasurya. *Practical Zoology Volume 3*, Saras publication, Nagercoil, Tamil Nadu.
2	Ganga G. (2020). *An introduction to Sericulture*,2nd edition,Oxford and IBH publishing, Delhi.
3	Rana SVS. (2009). *Biotechniques-TheoryandPractice*, 2nd edition. Rastogi Publication, Meerut.
4	Subramanian MA. (2005). *Biophysics -Principles and Techniques,* 1st edition.- MJP Publishes, Chennai.
5	Veer Bala Rastogi. (2009). *Fundamentals of Biostatistics,* 2nd edition. Ane Books, Pvt. Ltd. New Delhi.

Course Designed By: Dr.A.RAJA RAJESWARI, Asst.Prof, Sri Vasavi College, Erode.

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	M	S	M	L	S	M	S	S
CO2	L	L	L	L	M	L	S	S	S	S
CO3	L	M	M	M	L	L	S	S	S	S
CO4	L	L	L	L	L	M	S	S	S	S
CO5	L	M	M	L	L	L	S	M	S	M

*S-Strong; M-Medium; L-Low


Elective Course

Course code	5EB	HUMAN GENETICS AND COUNSELING I	L	T	P	C
Core/Elective/ SBS		Elective I-A	3	0	0	3
Pre-requisite		Basic Knowledge of Chromosomes, Inheritance and Syndromes	Syllabus Version		2020 – 2021	

Course Objectives:

1. The objective of this course is to give a firm foundation on the fundamentals of human chromosomes and their nomenclature and banding methods.
2. The give an idea about various aspects of human genetics, heredity and genetic diseases.
3. Students to gain the knowledge of pedigree analysis and to identify the complications to the basic patterns.
4. To make the students aware of the chromosomal syndromes.
5. To train the students to seek the possibilities of identifying Human genetics as a Profession.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	The course will give an idea about the various genetic disorders.	K2
2	Students get the knowledge to apply the real life situations.	K3
3	Give an idea to employ the scientific method to generate new knowledge and to solve problems, regarding human heredity.	K4
4	Able to explain the genetic disorders and prompt them to undertake genetics as subject of research in higher studies.	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	CHROMOSOMES	8 Hours

Human chromosome – International system of Nomenclature - Chromosome number, Idiogram, Banding methods (Q, C, G and R banding).

Unit:2	INHERITANCE	9 Hours

Monogenic traits, autosomal inheritance, dominant, recessive, Sex-linked inheritance, Sex-limited and sex-influenced traits, mitochondrial inheritance, MIM number, consanguinity and its effects,

Unit:3	PEDIGREE	8 Hours

Pedigree, gathering family history, pedigree symbols, construction of pedigrees, presentation of molecular genetic data in pedigrees, - Complications to the basic pedigree patterns.

Unit:4	SYNDROMES	9 Hours

Human chromosomal disorders (Syndromes) Disorders of chromosome structure and disorders of chromosome number-Trisomy18,Down'ssyndrome,Trosomy13,Cri -du chat syndrome, Parder-ville syndrome, Jacob's syndrome Robertson Syndrome,Cystic fibrosis, Muscular dystrophy, Thalassemia, Major Fragile x Syndrome.

Unit:5	METABOLIC ERRORS	9 Hours

Non-Mendelian Inheritance-Mitochondrial disorder, Sex mosaicism - uniparaentalDisomy and Genomic Imprinting. In-born errors of metabolism: Alkaptoneuria – Galactosemia - Gaucher's disease - Glucose-6-phosphate dehydrogenase deficiency -Tay-Sach's disease, Niemann Pick disease.

Unit:6	CONTEMPORARY ISSUES	2 Hours

Expert lectures, Online Seminars - Webinars and Field Visits.

	Total Lecture hours	45 Hours

Text Book(s)	
1	Meyyan RP. (2014). *Fundamendals of Genetics,* Saras Publication, Nagercoil, Tamil Nadu.
2	Verma PS and Agarwal VK.(2010). *Genetics*, S. Chand Publishers, New Delhi
Reference Books	
1	Bhatnagar SM, Kothari Lopa ML.(1999). *Essentials of Human Genetics,* 4th edition-(Reprint 2004) – Orient Longman (P) Ltd., India.
2	Gangane SD.(2017).*Human Genetics.*Publisher-Reed Elsevier India Pvt.Ltd, India.
3	Gardner EJ.(2015).*Principles of genetics*,7th edition, John Wiley Sons, Inc., London, UK.
4	Strickberger MW.(1976).*Genetics,*Published by Macmillian Publishing Co., Inc.,NewYork.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	www.classcentral.com ›Subjects›Science›Biology
2	nptel.ac.in ›courses›noc20›SEM1›noc20 -bt06
3	swayam.gov.in ›explorer
4	swayam.gov.in ›nd1_noc20_bt06›preview
Course Designed By: Dr. K. SARASWATHI, Asst. Prof, Chikkaiah Naicker College, Erode.	

Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	S	S	M	M	S	S	S	S
CO2	S	S	S	S	M	M	S	S	S	S
CO3	S	S	S	S	S	S	S	M	S	S
CO4	S	S	S	S	S	S	S	M	S	M

*S-Strong; M-Medium; L-Low

Course code	6EB	HUMAN GENETICS AND COUNSELING II	L	T	P	C
Core/Elective/ SBS		Elective I-A	3	0	0	3
Pre-requisite		Basic Knowledge of Diseases, Diagnosis and Behavioral Genetics	Syllabus Version		2020 – 2021	

Course Objectives:

1. The give an idea about various aspects of human genetics, heredity and genetic disease and various methods of prenatal diagnosis.
2. To make the students aware of the human genome project promises and achievements.
3. To make the students understand the central and unifying position of genetics in biological services and to create awareness for a better community.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	The students will be able to get the knowledge of physiology and genetics of blood groups.	K2
2	Knowledge of research principles and methods applicable in the discipline of genetic testing approach taken for specific genetic disorders.	K2
3	Gain knowledge of the role of genetics as the underlying cause of various disorders of the human body.	K3
4	The course will give an idea about genes related to behavior and behavioral disorders.	K4
5	To train the students to seek the possibilities of identifying Human genetics and counseling as a Profession.	K3

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	BLOOD GROUP	8 Hours

Blood groups (major types) - Blood transfusion – Erythroblastosis foetalis. Physiology and genetics of blood groups. Population genetics: Hardy-Weinberg principle and its application in human population.

Unit:2	DIAGNOSIS	9 Hours

Prenatal diagnosis: Chorionic villi sampling, foetoscopy, ultrascopy, amniocentesis - peripheral blood leucocyte culture. Dermatoglyphics: Terminology, methods of observation and printing, dermatoglyphic features of syndrome.

Unit:3	BRAIN DISEASES	9 Hours

Degenerative brain diseases: Stroke - Alzheimer's disease - Parkinson disease. Chromosomal position effect and gene variegation - epigenetic control of gene activity. Molecular medicines in cancer therapy. Microarray as a tool for detection of human genetic disorders

Unit:4	BEHAVIOURAL GENETICS	9 Hours

Genes related to behaviour - Genetic and environmental manipulations, learning and memory. Dementia – Schizophrenia - Mood disorders - Anxiety disorders - childhood personality disorders - antisocial personality - criminal behavior.		
Unit:5	**HUMAN GENOME PROJECT**	**8 Hours**
Human Genome Project – History - Sequencing of Human Genome - Promises and Achievements - Ethical, Legal and Social issues. Other Genome Projects initiated as a direct consequence of HGP completion,Human Genome Diversity Project.		
Unit:6	**CONTEMPORARY ISSUES**	**2 Hours**
Expert lectures, Online Seminars - Webinars and Field Visits.		
	Total Lecture hours	**45 Hours**

Text Book(s)

1	Mandal S. (2002). *Fundamentals of Human Genetics.* 2nd edition, New Central Book Agency (P) Limited, 8/1 Chintamanai Das Lane, Kolkatta.
2	Meyyan RP. (2014). *Fundamendals of Genetics,* Saras Publication, Nagercoil,Tamilnadu.
3	Verma PS and Agarwal VK. (2010). *Genetics*, S. Chand Publishers, New Delhi.

Reference Books

1	Gangane SD. (2017).*Human Genetics.*Publisher-Reed Elsevier India Pvt.Ltd, India.
2	Gardner EJ. (2015).*Principles of genetics*, 7th edition, John Wiley Sons, Inc., London, UK.
3	Strickberger MW. (1976).*Genetics,*Published by Macmillian Publishing Co., Inc. NewYork.
4	Rickie Lewis. (2011). *Human Genetics – Concept and Application*, 2nd edition, McGraw-Hill Education Publisher, Europe.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	www.classcentral.com ›Subjects›Science›Biology
2	nptel.ac.in ›courses›noc20›SEM1›noc20 -bt06
3	swayam.gov.in ›explorer
4	swayam.gov.in ›nd1_noc20_bt06›preview

Course Designed By: Dr. K. SARASWATHI, Asst. Prof, Chikkaiah Naicker College, Erode.

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	S	S	M	M	S	S	M	S
CO2	S	S	S	S	M	M	S	S	M	S
CO3	S	S	S	S	S	S	S	M	S	S
CO4	S	S	S	S	S	S	S	M	S	L
CO5	S	S	S	S	S	S	S	S	S	L

*S-Strong; M-Medium; L-Low



Course code	5EB	PEST AND THEIR CONTROL - I	L	T	P	C
Core/Elective/ SBS		Elective I-B	3	0	0	3
Pre-requisite		Basic Knowledge in Identification of Pests and Control Measures	Syllabus Version		2020 – 2021	

Course Objectives:

1. To make the learner aware of various pest, pest outbreak and its controlmethods.
2. Learn to manage pest and diseases in diverse environment.
3. To study the different theories related to the ecology of the insects.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the basic classification and identify the insects using taxonomic keys.	K2
2	Able to explain the external morphology of insects and their modifications and adaptations suitable to the eco-system.	K2
3	Acquired the knowledge about various methods and tools adopted for pest control strategies.	K4
4	Gain knowledge about the various biological agents, entomopathogenic organisms and the importance of IPM in pest management.	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	INTRODUCTION,CLASSIFICATION AND IMPORTANCE	8 Hours

Introduction, definition and causes for insect assuming pest status Classification of pest Types of damage caused by pests Importance of pest control Pest surveillance and forecasting and pestoutbreak.

Unit:2	GENERAL CHARACTERS, BIONOMICS AND CONTROL MEASURES	9 Hours

Paddy pest:

1. *Tryporyza incertulus* (Lepidoptera) 2. *Orseoliaoryzae* (Diptera)
3. *Hieroglyphu sbanian* (Orthoptera) 4. *Dicladisarmigera* (Coleoptera)

Wheat pest:

1. *Anaphothripssudanensis* (Thysonoptera) 2.*Odentodermis obesis* (Isoptera)
3. *Mythimana separate* (Lepidoptera).

Unit:3	GENERAL CHARACTERS, BIONOMICS AND CONTROL MEASURES	9 Hours

Sugarcane pest:

1. Chilo infuscatellus (Lepidoptera) 2. *Pyrillaperpusilla* (Hemiptera)
3. Aleurolovus barodensis (Hemiptera) 4. *Scirphophaganivella* (Lepidoptera)

Cotton pest:

1. Pectinophora gossypiella (Lepidoptera) 2. *Aphid gossypii*(Hemiptera)
3.Earias vitella (Lepidoptera) 4. *Dysder cuscingulatus* (Hemiptera).

Unit:4	GENERAL CHARACTERS, BIONOMICS AND CONTROL MEASURES	9 Hours

Cereals:

1. *Chilopartellus* (Lepidoptera) 2. *Antherigonasoccata* (Diptera).

Pulses:

1. *Helicoverpa armigera* (Lepidoptera) 2. *Melanogromyza* obtuse (Diptera)

Vegetables:

1. *Leucinodes orbonalis* (Lepidoptera) 2. *Pieris brassicae* (Lepidoptera)

Fruits:

1. *Papilio demolues* (Lepidoptera) 2. *Daccus cucurbitae* (Diptera).

Unit:5	**GENERAL CHARACTERS, BIONOMICS AND CONTROL MEASURES**	**8 Hours**

Stored Grain pest:

1. *Triboliumcastraneum* (Coleoptera) 2. *Sitophilusoryzae* (Coleoptera).

House Hold pest:

1. Bed bug 2.House fly 3. Human louse 4. Cockroach 5. Mosquitoes.

Unit:6	**CONTEMPORARY ISSUES**	**2 Hours**
Expert lectures, Online Seminars - Webinars and Field Visits.		
	Total Lecture hours	**45 Hours**

Text Book(s)

1	Ashok Kumar and Prem Mohan Nigam. (2000). *Economic and Applied Entomology*, Emkay Publication, New Delhi.
2	Nalina Sundari MS. (2006). *Entomology*, M.J.P Publications, Chennai
3	Jawaid Ahsan and Subhas Prasad Sinha. (2000). *A Handbook on Economic Zoology*, S. Chand and co., Ltd., New Delhi.
4	Vasantharaj David and Kumaraswami K. (1988). *Elements of Economic Entomology*, Popular Book Depot, Chennai.

Reference Books

1	Imms AD. (1972). *Text book of Entomology*, Vol. I and II Ed. By Richard and Owen.ELBS
2	Jawaid Ahsan and Subhas Prasad sinha. (2000). *A Handbook on Economic Zoology*, S. Chand and co., Ltd., New Delhi.
3	Nair KK, Anandhakrishnan TN and David BV. (1992). *General and Applied Entomology*, Tata Mc.Graw Hill Publication, Delhi.
4	Rajendra Singh. (2007). *Elements of Entomology*, Rastogi publicatios, Meerut.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://ucanr.edu/blogs/blogcore/postdetail.cfm?postnum=5007
2	https://www.pestcontrolcourses.com/pest-control-training-courses-online/

Course Designed By: Dr. A. RAJA RAJESWARI, Asst. Prof, Sri Vasavi College, Erode.

Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**

CO1	S	S	S	S	M	S	M	M	M	M
CO3	S	M	M	S	S	M	M	L	L	L
CO3	S	M	M	S	S	S	S	L	S	M
CO4	S	S	M	M	M	S	S	L	S	S

*S-Strong; M-Medium; L-Low

Course code	**6EB**	**PEST AND THEIR CONTROL - II**	**L**	**T**	**P**	**C**
Core/Elective/ SBS		**Elective I-B**	**3**	**0**	**0**	**3**
Pre-requisite		Basic Knowledge of Principles and Methods of Pest Control and Insecticide Technologies	**Syllabus Version**		**2020 – 2021**	

Course Objectives:

1. To make the learner aware of various pest, pest outbreak and its controlmethods.
2. Learn to manage pest and diseases in diverse environment.
3. To study the different theories related to the ecology of the insects.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Gain knowledge and apply various techniques in the field to control the pest.	K2
2	Familiarized with classification of insecticides, pesticide residue and environmental pollution due to toxic insecticides.	K2
3	Acquired the knowledge about various methods and tools adopted for pest control strategies.	K4
4	Aware about the various techniques and the importance of IPM in pest management.	K5
5	Realize the interaction between plants and insects.	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	**PRINCIPLESANDMETHODSOFPESTCONTROL**	**9 Hours**

:
Using techniques such as mechanical, biological, ecological, cultural, genetic techniques – sterile male techniques, Quarantine, legislative measures.

Unit:2	**CLASSIFICATIONOFINSECTICIDES**	**9 Hours**

Based on Mode entry, Mode of action
Chemical nature - Inorganic, Organic compounds- DDT, Endosulfan, Fenitrothion, Malathion, Monocrotophous, Oxime Carbamates.

Unit:3	**INSECTICIDEFORMULATIONS ANDAPPLICATIONTECHNOLOGY**	**9 Hours**

Aerosols, Fumigants, Baits.
Dusting and dusters, sprayers – Manually operated – Hydraulic sprayers, Power operated – Pneumatic sprayer,

Unit:4	**INTEGRATED PEST MANAGEMENT**	**8 Hours**

Integrated Pest Management (IPM), Chemosterilants, Sex attractants, Pheromonal control.

Unit:5	**OTHER PESTS**	**8 Hours**

Crab, Snail, Peacock, Parrot and Rat

Concept of host-pest interaction.		
Unit:6	**CONTEMPORARY ISSUES**	**2 Hours**
Expert lectures, Online Seminars - Webinars and Field Visits.		
	Total Lecture hours	**45 Hours**

Text Book(s)

1	Ashok Kumar and Prem Mohan Nigam. (2000). *Economic and Applied Entomology*, Emkay Publication, New Delhi.
2	Nalina Sundari MS. (2006). *Entomology*, MJP-Publications, Chennai
3	Jawaid Ahsan and Subhas Prasad sinha. (2000). *A Handbook on Economic Zoology*, S. Chand and co., Ltd., New Delhi.
4	Vasantharaj David and Kumaraswami K. (1988). *Elements of Economic Entomology*, Popular Book Depot, Chennai.

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1	Imms AD. (1972). *Text book of Entomology*, Vol. I and II Ed. By Richard and Owen.ELBS
2	Jawaid Ahsan and Subhas Prasad sinha. (2000). *A Handbook on Economic Zoology*, S. Chand and co., Ltd., New Delhi.
3	Nair KK, Anandhakrishnan TN and David BV. (1992). *General and Applied Entomology*, Tata Mc.Graw Hill Publication, Delhi.
4	Rajendra Singh. (2007). *Elements of Entomology*, Rastogi publicatios, Meerut.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://ucanr.edu/blogs/blogcore/postdetail.cfm?postnum=5007
2	https://www.pestcontrolcourses.com/pest-control-training-courses-online/

Course Designed By: Dr. A. RAJA RAJESWARI, Asst. Prof, Sri Vasavi College, Erode.

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	S	S	M	S	M	M	M	M
CO3	S	M	M	S	S	M	M	L	L	L
CO3	S	M	M	S	S	S	S	L	S	M
CO4	S	S	M	M	M	S	S	L	S	S
CO5	S	S	M	S	S	S	M	L	S	S

*S-Strong; M-Medium; L-Low



Course code	5EB	WILDLIFE MANAGEMENT AND CONSERVATION I	L	T	P	C
Core/Elective/ SBS		Elective I-C	3	0	0	3
Pre-requisite		Basic Knowledge in Wildlife Conservation and its Importance	Syllabus Version		2020-2021	

Course Objectives:

1. The course is framed to give introduction to Wildlife management and Conservation.
2. To make student aware of the various areas of wildlife and Job opportunities.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	The course will give an idea about the wildlife Management techniques	K2
2	The course train the students to assess various conservation strategies	K3
3	Gain knowledge about terminology and identification of birds and butterflies.	K3
4	Understand the importance of fauna in different reserves.	K2

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	INTRODUCTION TO WILDLIFE	9 Hours

Scope and opportunities of Wildlife Sciences – Major types of forest types of India - Protected areas – Sanctuaries - National Parks – Tiger reserves – Biosphere Reserves and their role.

Unit:2	WILDLIFE CONSERVATION	9 Hours

IUCN Red Data list – CITES – Endangered Mammals of India and Conversation – Project Tiger and Project Elephant. Conservation of Indian rhino, lion and Thar. Importance of Zoo in Conservation

Unit:3	ORNITHOLOGY	9 Hours

Terms used in description of Birds Plumage and parts – Types of Bills – Types of feet – Identification of birds in the field based on tail, bill, crest, leg and colour.

Unit:4	INDIAN BUTTERFLIES	8 Hours

Butterflies and Moths – Identification of types of Swallowtails: Club tails – Roses - Bird wings – Mime –Mormon – Raven - Helen - peacock – Jay – Blue bottles – Sword tails – Zebra. Whites, sulfurs and orange-tips.

Unit:5	IMPORTANT RESERVES	8 Hours

History, Location, Habitats, Fauna and importance of Mudumalai Tiger Reserve – Sathyamangalam Tiger Reserve – Kalakkad Mundanthurai Tiger Reserve – Anamalai
Tiger Reserve – Gulf of Mannar.

Unit:6	CONTEMPORARY ISSUES	2 Hours

Expert lectures, online seminars – webinars, field visits

	Total Lecture hours	45 Hours

Text Book(s)

1 Balakrishnan M. (2016). *Wild Life Ecology and Conservation.* Scientific publishers,Jodhpur, India.

2	Caughley G and Sinclair AR. (2006). *Wildlife Ecology and Management.* Blackwell Science,United Science.
3	Ranga MM. (2002). *Wild LifeManagement and Conservation.* Agro-Bios publications, Jodhpur, India.
4	Reena Mathur. (2018). *Wild Life Conservation and Management.*Rastogi publication, Meerut.
5	Sale JB and Berkmueller K. (1998).*Manual of Wildlife Techniques for India.* Establishment of the Wildlife Institute, India. Field document 11.
Reference Books	
1	Ali S, Ripley SD. (1983).*Handbook of The Birds of India and Pakistan.* Compact edition. Oxford University Press and BNHS, Mumbai.
2	Divan S and Rosencranz A.(2001). *Environmental Law and Policy in India: Cases, Materials and Statutes.* New Delhi: Oxford University Press.
3	Kehimkar ID.(2008).*Book of Indian Butterflies.* Oxford University Press.
4	Prater SH and Barruel P.(1997). *The Book of Indian Animals.* Bombay: Bombay Natural History Society.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://www.worldwildlife.org/teaching-resources
2	https://www.nwf.org/Educational-Resources/Wildlife-Guide
3	https://swayam.gov.in/nd1_noc20_bt38/preview
4	https://swayam.gov.in/nd1_noc19_bt32/preview
Course Designed By: Dr. SANIL R., Associate Professor, Government Arts College, Ooty	

Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	M	S	M	S	M	L	S	S
CO3	S	S	L	S	M	S	L	L	S	S
CO3	S	S	M	S	S	S	L	L	S	S
CO4	S	S	L	S	M	S	L	L	S	S

*S-Strong; M-Medium; L-Low



Course code	6EB	WILDLIFE MANAGEMENT AND CONSERVATION II	L	T	P	C
Core/Elective/ SBS		Elective I-C	3	0	0	3
Pre-requisite		Basic Knowledge about Wildlife Techniques, Census and Animal Behavior	Syllabus Version		2020-2021	

Course Objectives:

1. The course is framed to train the students about various wildlife techniques.

2. To train the students to find job opportunities as biologists in Reserves.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	The course will give an idea about the wildlife Management techniques	K2
2	The course trains the students to conduct wildlife related surveys and analyses the wildlife related threats.	K3
3	Gain knowledge about different behavior of wild animals.	K2
4	Get aware about the management of forest and importance of conservation of wild animals.	K3
5	Familiarized with diversity act and eco- tourism as a career development.	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	WILDLIFE TECHNIQUES.	8 Hours

Peadometer – Field Compass – GPS – Introduction to GIS – Camera traps – Quadrates - Line transects – Presence/Absence Survey.

Unit:2	WILDLIFE CENSUS.	9 Hours

Planning census – sample counts – Block counts – Roadside counts – Dung count – Pugmark and waterhole census – Identifying animals based on indirect signs – Capture recapture techniques – tiger, co-predator monitoring census methods (WII) – usage of Mstripes.

Unit:3	ANIMAL BEHAVIOUR	9 Hours

Foraging behaviour - group foraging - Breeding seasons - factors - courtship, polyandry, polygamy - promiscuity - brood parasites –Aggression – Competition – Social spacing – Territory –Social behaviour of elephants and lion.

Unit:4	WILDLIFE CONSERVATION	9 Hours

Joint Forest Management - Tribes and forestry programmes - Watershed management – Deforestation – impacts – Afforestation – Habitat fragmentation – corridors – Human Animal Conflicts – Mitigation of Conflicts

Unit:5	WPA AND ECOTOURISM	8 Hours

Brief outlines of WPA 1972 and amendments - Biological diversity Act 2002 - Forest right Act 2008. Ecotourism – Potentials of eco-tourism as Career of a Zoology graduate.

Unit:6	CONTEMPORARY ISSUES	2 Hours

Expert lectures, online seminars – webinars, field visits

	Total Lecture hours	**45 Hours**
Text Book(s)		
1	Balakrishnan M. (2016). *Wild Life Ecology and Conservation.* Scientific publishers,Jodhpur, India.	
2	Caughley G and Sinclair AR. (2006). *Wildlife Ecology and Management.* Blackwell Science,United Science.	
3	Ranga MM. (2002). *Wild LifeManagement and Conservation.* Agro-Bios publications, Jodhpur, India.	
4	Reena Mathur. (2018). *Wild Life Conservation and Management.*Rastogi publication, Meerut.	
5	Sale JB and Berkmueller K. (1998).*Manual of Wildlife Techniques for India.* Establishment of the Wildlife Institute, India. Field document 11.	
Reference Books		
1	Ali S, Ripley SD. (1983).*Handbook of The Birds of India and Pakistan.* Compact edition. Oxford University Press and BNHS, Mumbai.	
2	Divan S and Rosencranz A.(2001). *Environmental Law and Policy in India: Cases, Materials and Statutes.* New Delhi: Oxford University Press.	
3	Kehimkar ID.(2008). *Book of Indian Butterflies.* Oxford University Press.	
4	Prater SH and Barruel P.(1997). *The Book of Indian Animals.* Bombay: Bombay Natural History Society.	
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]		
1	https://www.worldwildlife.org/teaching-resources	
2	https://www.nwf.org/Educational-Resources/Wildlife-Guide	
3	https://swayam.gov.in/nd1_noc20_bt38/preview	
4	https://swayam.gov.in/nd1_noc19_bt32/preview	
Course Designed By: Dr. SANIL R., Associate Professor, Government Arts College, Ooty		

Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	M	S	M	S	M	L	S	S
CO3	S	S	L	S	M	S	M	L	S	S
CO3	S	S	M	S	S	S	M	L	S	S
CO4	S	S	M	S	S	S	M	L	S	S
CO5	M	M	L	M	M	S	L	L	S	S

*S-Strong; M-Medium; L-Low



Course code	5EE	PATHOLOGY AND CLINICAL LABORATORY – I	L	T	P	C
Core/Elective/ SBS		ELECTIVE II-A	3	0	0	3
Pre-requisite		Basic Knowledge about Clinical Laboratory Principles and Techniques	Syllabus Version		2020 – 2021	

Course Objectives:

1. To evaluate laboratory and pathologic testing and to learn the pathogenesis of a variety of common and uncommon diseases.

2. To develop knowledge of basic pathologic processes and skills to interpret laboratory data as well as make clinic pathologic correlations.

3. To provide experience in laboratory direction and encourage residents to assume a leadership role in the education of other physicians and allied health professionals.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the pathologic basis of disease for which a particular test is performed.	K2
2	Greater knowledge related to specimen collection, handling methodologies, and the skills of individuals performing those tests.	K2
3	Gain knowledge to Practice the technical and mechanical aspects of laboratory pathology and effectively manage a laboratory.	K3
4	Familiarize with the following blood bank and serology testing, hematologic tests, microscopic examination, Gram-stained techniques etc.,	K4
5	Able to identify and understand the limitations of such studies in order to select proper tests suited to a particular diagnostic problem.	K3

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	BASIC LABORATORY PRINCIPLES	9 Hours

Organization of clinical laboratory - Safety measures - Chemical, fire and Electrical - Lab Technician Duties and Responsibilities - Professionalism and Ethics in laboratory workers, Modern Laboratory set up - Clinic borne infection and personnelhygiene.

Unit:2	BASIC LABORATORY EQUIPMENTS	8 Hours

Light Microscope – Incubator - Hot Air Oven – Autoclave - Laminar Air flow Chamber - Water Bath-Centrifuge –Haemocytometer -Albuminometer – Urinometer haemoglobinometer - Microtome - Glassware –Description of Glassware, its use, handling and care.

Unit:3	PREPARATIONOFREAGENTS	9 Hours

Buffer and pH - Preparation of Normal, Per cent and Molar solutions - Physiological saline, Clinical

Laboratory records- -Quality control: Accuracy, Precision, and Reference values, use of chemicals and their interactions, danger signs, production techniques, and disposal methods.		
Unit:4	**BASICCLINICALCHEMISTRY**	**9 Hours**
Collection of blood – Anticoagulants - Separation of Serum and Plasma - Blood cell count and differential count – Estimation of Haemoglobin (Sahlis and Cyanmethemoglobin) - Clotting time - bleetting time – ESR – PCV – Blood smear and for observation parasites.		
Unit:5	**AUTOMATIONINCLINICALLABORATORY**	**8 Hours**
Semi and Fluid Auto Analyzer – ELISA – Use of PCR – Haemotology Analyser – Cell counter – HPLC Analysis for Haemoglobin Fraction		
Unit:6	**CONTEMPORARY ISSUES**	**2 Hours**
Expert lectures, Online Seminars - Webinars and Field Visits.		
	Total Lecture hours	**45 Hours**

Text Book(s)

1	Mukherjee KL. (2010).*Medical Laboratory Technology*. Volume 1, 2 and 3. Tata McGraw-Hill Education, India.
2	Sachdev KN. (1999). *Clinical Pathology and Clinical Bacteriology*. Jaypee Brothers Publishers,New Delhi.
3	Talib VH, Khurana SR. (2009).*Handbook of Medical Laboratory Technology*. CBS Publishers, Delhi.
4	Varley H. (2008). *Practical Clinical Biochemistry*. CBS Publishers, Delhi.

Reference Books

1	Pagana KD, Pagana TJ. *Mosby'sManualofDiagnosticandLaboratoryTests*-E-Book. Elsevier HealthSciences.
2	Vandana Puri, Praeen Kr Gupta. (2020). *Complex Review of Pathology and Hematology for NBE*. 6th edition, CBS Publishers, Delhi.
3	Ajmani PS. (2017). *HandbookofClinicalLaboratoryTechniques*, AITBS Publisher, India.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://www.emagister.in/distance_learning_pathology_courses-tdist-236.htm

Course Designed By: Dr.A.RAJA RAJESWARI, Asst.Prof, Sri Vasavi College, Erode.

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M	M	M	M	S	M	S	M	S	S
CO2	M	L	L	M	S	M	S	M	S	S
CO3	L	S	S	L	M	L	S	L	S	S
CO4	L	S	S	L	M	M	S	L	S	S
CO5	L	M	S	L	M	M	L	L	S	S

*S-Strong; M-Medium; L-Low



Course code	6EE	PATHOLOGY AND CLINICAL LABORATORY - II	L	T	P	C
Core/Elective/ SBS		ELECTIVE II-A	3	0	0	3
Pre-requisite		Basic Knowledge to Practice and Manage a Clinical laboratory	Syllabus Version		2020 – 2021	

Course Objectives:

1. To evaluate laboratory and pathologic testing and to learn the pathogenesis of a variety of common and uncommon diseases.

2.To develop knowledge of basic pathologic processes and skills to interpret laboratory data as well as make clinic pathologic correlations

3.To provide experience in laboratory direction and encourage residents to assume a leadership role in the education of other physicians and allied health professionals

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Greater knowledge related to specimen collection, handling methodologies, and the skills of individuals performing those tests.	K2
2	Able to prepare culture and histopathological techniques to analyze different samples.	K3
3	Familiarize with the following blood bank and serology testing, hematologic tests, microscopic examination, Gram-stained techniques etc.,	K4
4	Able to identify and understand the limitations of such studies in order to select proper tests suited to a particular diagnostic problem.	K3
5	Gain knowledge to Practice the technical and mechanical aspects of laboratory pathology and effectively manage a laboratory.	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	FUNCTION TESTS	8 Hours

Renal function tests, Liver function tests, Arterial blood gas analysis.

Unit:2	BODY FLUIDS	9 Hours

Urine: Collection and preservation - Composition – volume – appearance and odors - Specific gravity - Microscopic examination. Measurement of glucose and protein. Faecal examination: Microscopic – Occult blood – Helminthes Parasites. Semen analysis: count andmotility.

Unit:3	MICROBIOLOGY AND CYTOLOGY	9 Hours

Wet Preparations of microbes - Staining preparations: Simple – Differential - Special staining methods Bacterial Identification and Antibiotic susceptibility testing. FNAC – smear and fixation – PAP Staining – Biopsy for cancer.

Unit:4	HISTOPATHOLOGY	8 Hours
Microtome: Fixating – dehydration – clearing – infiltration - embedding – Block preparation – Sectioning – Mounting – Staining. Principle of double (H and E stain) – PASM Staining.		
Unit:5	**BLOODTRANSFUSION**	**9 Hours**
Screening of donor compatibility testing, safety, procurement of supplies. Screening donor's blood for infectious agents -HIV, HCV, HBV, *Trepanoma palladium*, *Plasmodium*, HTLV-Bacterially contaminated Blood. ABO – Rh blood groups - other red cell antigens and antibodies. Coombstest.		
Unit:6	**CONTEMPORARY ISSUES**	**2 Hours**
Expert lectures, Online Seminars - Webinars and Field Visits.		
	Total Lecture hours	**45 Hours**

Text Book(s)	
1	Mukherjee KL. (2010).*Medical Laboratory Technology*. Volume 1, 2 and 3. Tata McGraw-Hill Education, India.
2	Sachdev KN. (1999). *Clinical Pathology and Clinical Bacteriology*. Jaypee Brothers Publishers,New Delhi.
3	Talib VH, Khurana SR. (2009).*Handbook of Medical Laboratory Technology*. CBS Publishers,Delhi.
4	Varley H. (2008). *Practical Clinical Biochemistry*. CBS Publishers, Delhi.
Reference Books	
1	Pagana KD, Pagana TJ. *Mosby'sManualofDiagnosticandLaboratory* Tests-E-Book. Elsevier HealthSciences.
2	Vandana Puri, Praeen Kr Gupta. (2020). *Complex Review of Pathology and Hematology for NBE*. 6th edition, CBS Publishers, Delhi.
3	Ajmani PS. (2017). *HandbookofClinicalLaboratoryTechniques*, AITBS Publisher, India.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://www.emagister.in/distance_learning_pathology_courses-tdist-236.htm

Course Designed By: Dr.A.RAJA RAJESWARI, Asst.Prof, Sri Vasavi College, Erode.

Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	M	M	M	M	S	M	S	M	S	S
CO2	M	L	L	M	S	M	S	M	S	S
CO3	L	S	S	L	M	L	S	L	S	S

CO4	L	S	S	L	M	M	S	L	S	S
CO5	L	M	S	L	M	M	L	L	S	S

*S-Strong; M-Medium; L-Low

Course code	**63R**	**PATHOLOGY AND CLINICAL LABORATORY TECHNOLOGY PRACTICAL**	**L**	**T**	**P**	**C**
Core/Elective/ SBS		**ELECTIVE III-A**	**0**	**0**	**2**	**2**
Pre-requisite		Practical Knowledge to Analysis, Interpret and Evaluate Laboratory test results	**Syllabus Version**		**2020 – 2021**	

Course Objectives:

1. Competent use of laboratory tests and to Interpret laboratory test results.

2. Discuss the differential diagnosis and laboratory evaluation for a patient.

3. Demonstrate Microbiological staining techniques for rapid diagnosis of causative agents and to understand the clinical indications.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Able to select, interpret tests and explain their clinical uses and limitations.	K2
2	Explain and choose appropriate tests for monitoring various disorders.	K3
3	Recognize and assess laboratory tests results of one of their patients.	K4
4	Summarize and interpret the results of Differential count ofBlood, WBC and Haemoglobin.	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

MAJOR PRACTICAL

1. Total count ofRBC.

2. Total count ofWBC.
3. Differential count ofBlood
4. Microscopic identification of pus or cast cells and qualitatively check for the presence of blood in urine.
5.SmearthegivenbacteriawithGram'sstainingandinterprettheresult.

MINOR PRACTICAL

1. Estimation of Haemoglobin by SahlisMethod.

2.Estimation of Bleeding and Clottingtime

3. Estimation of specific gravity and Albumin in Urine.

4. Semi-quantitative estimation of glucose inurine.

5. Qualitatively detect the presence of bile salts and Urobilinogen inurine.

SPOTTERS

Malariaparasite,Filarialparasite,TapeWorm,ESR,Autoclave,Microtome,Coomb'stest, Spermatozoa, Incubator, Water bath, Centrifuge.

VISIT AND SUBMISSION OF REPORT

Visit to training lab / training to a clinical lab of nearby locality. Report should be submitted in the practical.

QUESTION PATTERN: TOTAL MARKS: 30 MARKS.

Major: 10, Minor: 08, Record: 04, Spotter: 06 (2 spotters each carry 3 marks) Report: 2 marks.

Total Practical hours **30(Each Semester) x 2 = 60 Hours Per Year**

Text Book(s)

1	Mondal SK. (2020).*PathologyPracticals*, 1st edition, CBS publisher, Delhi.
2	Yadav. (2015). *Essentials of Practical Pathology for Undergraduates,* Ahuja Publishing House, Delhi.

Course Designed By: Dr. A. RAJA RAJESWARI, Asst. Prof, Sri Vasavi College, Erode.

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	L	L	S	M	L	L	S	S	S	S
CO2	L	L	S	L	L	M	S	S	S	S
CO3	L	L	S	M	L	M	S	S	S	S
CO4	L	L	S	S	L	M	S	S	S	S

*S-Strong; M-Medium; L-Low



Course code	5EE	POULTRY SCIENCE AND MANAGEMENT – I	L	T	P	C
Core/Elective/ SBS		ELECTIVE II-B	3	0	0	3
Pre-requisite		Basic Knowledge to Identify Breeds, Poultry Housing, Brooding and Rearing Techniques	Syllabus Version		2020 – 2021	

Course Objectives:

1. To provide with sufficient information and knowledge to allow them to farm poultry commercial and semi-commercial way.

2. To learn specific areas of poultry production including breeding, nutrition, health and product quality and development of entrepreneurial skills in poultry farming

3. To provide an understanding of poultry production in a broad context from farm to fork.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Introduces current standards for the establishment and management of poultry house.	K2
2	Understand the scientific methods of breeding, hatching and various techniques in the poultry field.	K2
3	Skilfully apply the tools, equipment, and protective mechanism for Poultry farming.	K4
4	Apply the formulation to provide of good nutrition, management of form birds and egg production.	K5
5	Learn about the various skills that are necessary for self employment.	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	HISTORY AND IMPORTANCE OF POULTRY FARMING	9 Hours

History and importance of poultry farming - role of poultry farming in rural development and employment potential - Economic contributions to national productivity - egg production, Table breed production and poultry manure. Anatomy and physiology of poultry birds: Digestive and reproductive system.

Unit:2	BREEDING, HATCHING, INCUBATION AND CULLING	9 Hours

Breeds of poultry birds - scientific methods of breeding - hybrid selection and selecting parents for production - factors for selection - hatching - selecting eggs for hatching. Incubation: natural and artificial incubation - Types of incubators - maintenance of temperature and humidity - sterilization of room during hatching - separation and culling.

Unit:3	POULTRY HOUSING AND EQUIPMENTS	8 Hours

Space requirements - Types of housing - equipment'soffeedingandwatering - protection from enemies and adverse conditions.

Unit:4	NUTRITION OF POULTRY BIRDS	8 Hours

Feed requirement according to age - feed formulation - classification of feed-stuffs - milling by-products and distillery by-products. Availability of raw materials and their cost - food graders -

usage of antibiotics.		
Unit:5	**BROODING AND REARING**	**9 Hours**
Brooding- types of brooding – natural and artificial brooding – temperature requirement - Rearing of chick, Sexing, characters of good layers and broilers - culling - Debeaking - Caponetts and capons.		
Unit:6	**CONTEMPORARY ISSUES**	**2 Hours**
Expert lectures, Online Seminars - Webinars and Field Visits.		
	Total Lecture hours	**45 Hours**

Text Book(s)

1	Banarjee GC (2008). *Poultry*. Oxford and IBH Co pvt Ltd.
2	Gnanamani MR (2010).*Modern Aspects of Poultry Keeping.* Deepam publications, Madurai.
3	Jadhav NV andSiddiqui MF. (2010).*Handbook of Poultry Production and Management.* Jaypee Brothers Medical Publishers (P) Ltd, New Delhi.
4	Vegad JL (2015). *Poultry Diseases- A Guide for Farmers and Poultry Professionals.* Second Edition.CBS Publishers and Distributors, Delhi.

Reference Books

1	Chauhan HVS. (2018).*Poultry Diseases, Diagnosis and Treatmen,*New Age International Publisher, New Delhi.
2	Eiri Board. (2014).*Hand Book of Poultry Farming and Feed Formulations.* Published by Engineers India Research Institute, Delhi.
3	Jagdish Prasad. (2015). *Poultry: Production And Management,* Fifth Edition, Kalyani publisher, Delhi.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://www.classcentral.com/course/swayam-introduction-to-poultry-farming-14160
2	https://swayam.gov.in/nd2_nou19_ag09/preview

Course Designed By: Dr.A.RAJA RAJESWARI, Asst.Prof, Sri Vasavi College, Erode.

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M	S	M	M	S	M	S	M	S	S
CO2	M	S	M	S	S	M	S	M	S	S
CO3	M	M	L	L	M	L	S	M	S	S
CO4	M	M	M	S	M	L	S	M	S	S
CO5	M	S	M	M	S	M	S	M	S	S

*S-Strong; M-Medium; L-Low



Course code	6EE	POULTRY SCIENCE AND MANAGEMENT - II	L	T	P	C
Core/Elective/ SBS		ELECTIVE II-B	3	0	0	3
Pre-requisite		Basic Knowledge in Management of Broilers, Layers and Marketing of Breeds	Syllabus Version		2020 – 2021	

Course Objectives:

1. To provide with sufficient information and knowledge to allow them to farm poultry commercial and semi-commercial way.

2. To learn specific areas of poultry production including breeding, nutrition, health and product quality and development of entrepreneurial skills in poultry farming

3. To provide an understanding of poultry production in a broad context from farm to fork.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Learn about the various skills that are necessary to manage poultry farms.	K2
2	Skilfully apply the tools, equipment, and protective mechanism for management of layers and broilers in Poultry farming.	K4
3	Apply the methods and techniques in the egg production, preservation and marketing.	K3
4	Able to identify and follow regulation practices for the disease and pest control for birds.	K4
5	Introduces current standards for the establishment and management of poultry house.	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	MANAGEMENT OF LAYERS	9 Hours

Characteristics of layer chicks - housing, space and lighting requirements - Summer and Winter management - Changes in feeding programme - Care of egg - Hen sampling - Cannibalism.

Unit:2	MANAGEMENT OF BROILERS	9 Hours

Characteristics of the Broiler chicks - Housing of broiler chicks - Optimum Conditions - Feeding and Feed formulations - Sampling.

Unit:3	DISEASE AND HEALTH MANAGEMENT	9 Hours

Diseasescausedbyviruses:Marek'sDisease,RanikhetDisease,Fowlpox,Gumborodisease,Egg drop syndrome.
Diseases caused by Bactria: Salmonellosis, fowl cholera, Tick fever.
Diseases caused by Fungi: Aspergillosis, Aflotoxicosis.
Diseases caused by Worms and other Parasites.
Antibiotics, Vaccination, Deworming and Insecticide Treatment. Health cover.

Unit:4	MARKETING	8 Hours

Marketing, Grading and Preservation of egg - Packing and Transportation of eggs - Difference between dark and pale yellow yolk and its taste.

Unit:5	IMPORTANCE OF EGG	8 Hours

Different uses of eggs in preparation of bakery products and other edible items - Nutritive values

of egg - Relationship between customers, Maintenance of prices.		
Unit:6	**CONTEMPORARY ISSUES**	**2 Hours**
Expert lectures, Online Seminars - Webinars and Field Visits.		
	Total Lecture hours	**45 Hours**

Text Book(s)	
1	Banarjee GC (2008). *Poultry*. Oxford and IBH Co pvt Ltd.
2	Gnanamani MR (2010).*Modern Aspects of Poultry Keeping.* Deepam publications, Madurai.
3	Jadhav NV andSiddiqui MF. (2010).*Handbook of Poultry Production and Management.* Jaypee Brothers Medical Publishers (P) Ltd, New Delhi.
4	Vegad JL (2015). *Poultry Diseases- A Guide for Farmers and Poultry Professionals.* Second Edition.CBS Publishers and Distributors, Delhi.
Reference Books	
1	Chauhan HVS. (2018).*Poultry Diseases, Diagnosis and Treatmen,*New Age International Publisher, New Delhi.
2	Eiri Board. (2014).*Hand Book of Poultry Farming and Feed Formulations.* Published by Engineers India Research Institute, Delhi.
3	Jadhav NV andSiddiqui MF. (2010).*Handbook of Poultry Production and Management.* Jaypee Brothers Medical Publishers, New Delhi.
4	Jagdish Prasad. (2015). *Poultry: Production And Management*, 5th edition, Kalyani publisher, Delhi.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://www.classcentral.com/course/swayam-introduction-to-poultry-farming-14160
2	https://swayam.gov.in/nd2_nou19_ag09/preview
Course Designed By: Dr. A. RAJA RAJESWARI, Asst. Prof, Sri Vasavi College, Erode.	

Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	M	S	M	M	S	M	S	M	S	S
CO2	M	S	M	S	S	M	S	M	S	S
CO3	M	M	L	L	M	L	S	M	S	S
CO4	M	M	M	S	M	L	S	M	S	S
CO5	M	S	M	M	S	M	S	M	S	S

*S-Strong; M-Medium; L-Low

Course code	63R	POULTRY SCIENCE AND MANAGEMENT - PRACTICAL	L	T	P	C
Core/Elective/ SBS		ELECTIVE COURSE III - B	0	0	2	2
Pre-requisite		Practical Knowledge to Rear and Manage Poultry Breeds	Syllabus Version		2020 – 2021	

Course Objectives:

1. To provide an opportunity to become familiar and acquire a degree of skill in poultry field.

2. To enlighten the evaluation of, the productive performance of livestock.

3. To reveal the real nature of animal production and their role in rural development.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Evaluate the importance and value of agricultural products as a feed source in poultry and differentiate the poultry breeds and their characteristics features.	K5
2	Gain practical knowledge in analyzing the abnormalities and grading techniques of eggs.	K2
3	Understand about various techniques debeaking and candling also be familiar with incubators in breeding that are necessary for manage the poultry farm.	K2
4	Able to follow proper vaccination practice for the diseases and pest control.	K4
5	Field visits make the students to catch up the mills processing, animal feedstuffs and Hatcheries.	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

MAJOR PRACTICAL

Nutritive Value of poultry feed sources:

a. Carbohydrate sources - Maize, Rice Polish, Rice Bran, Wheat Bran
b. Vegetable Protein sources - Groundnut Cake, Sesame Cake, Coconut Meal, Cotton Seed, Soybean Meal, Munflower meal
c. Animal protein sources - Fish Meal, Meat Meal, Silkworm Pupae Meal
d. Mineral sources - Mone meal, Oyster Shell Meal, Lime Stone

Different type of breeds and their characteristics

e. American class: Rhode Island Red
f. Mediterranean class: leghorn, Minorca
g. Asiatic class: Desi birds/Aseel, Kadacknath

Gradingofeggs

h. Grade AA
i. Grade A
j. Grade B

Eggabnormalities

k. Tiny eggs

l. Leathery /soft shell eggs
m. Double yoked eggs
n. Blood smeared eggs
o. Dirty eggs

MINOR PRACTICAL

1. Vaccination schedules for broilers and layers
2. Debeaking
3. Types of housing
4. Egg candling
5. Cannibalism

SPOTTERS

1. **Comment on the poultry equipments**: Feeding and Watering equipments.
2. **Draw labelled sketch**: Digestive system, Reproductive system (male and female).
3. **Brief description on the medicinal values**: Antibiotics and Vaccines.
4. **Poultry diseases**: Symptoms and preventive methods.
5. **Short notes with diagram**: Brooder and Incubator.

VISIT AND SUBMISSION OF REPORT

Visit to poultry markets/farm /study of specific marketing problems/ in house training in college. Report should be submitted in the practical.

QUESTION PATTERN: TOTAL MARKS: 30 MARKS.

Major: 10, Minor: 08, Record: 04, Spotter: 06 (2 spotters each carry 3 marks) Report: 2 marks.

Total Practical hours **30(Each Semester) x 2 = 60 Hours Per Year**

Text Book(s)

1	Banarjee GC (2008). *Poultry*. Oxford and IBH Co pvt Ltd.
2	Gnanamani MR (2010).*Modern Aspects of Poultry Keeping.* Deepam publications, Madurai.
3	Rice EJ and Botosford HE. (1949).*Practical poultry management*, John Wiley, Hansen Inc. New York.
4	Siddiqui SM, Reddy CV and Mathur CR. (1975).*A Practical Manual of Poultry Production*, 1st edition, Kothari Book Depot, India.

Course Designed By: Dr.A.RAJA RAJESWARI, Asst.Prof, Sri Vasavi College, Erode.

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	S	S	M	L	S	L	S	S
CO2	M	S	S	M	L	L	S	L	S	S
CO3	M	S	S	M	M	L	S	M	S	S
CO4	M	S	S	M	L	L	S	M	S	S
CO5	M	S	M	S	M	M	S	M	S	S

*S-Strong; M-Medium; L-Low

Course code	5EE	APICULTURE -I	L	T	P	C
Core/Elective/ SBS		Elective II-C	3	0	0	3
Pre-requisite		Basic Introduction about Bees, Beekeeping and Beekeeping Appliances	Syllabus Version		2020 – 2021	

Course Objectives:

1To increase the knowledge of bees and bee culture;

2. To maintain small apiaries for demonstration, pollination, extraction and popularisation of honey and other by-product of beekeeping.

3. To build and manage a network of garden and independent beekeeping sites, make aware of various methods of beekeeping and the uses of itsappliances.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Introduces current standards for the establishment and management of bees.	K1
2	Familiarize with morphology, food and development of bees.	K2
3	Skillfully apply the tools, equipment and protective gear for beekeeping.	K3
4	Apply the knowledge of good quality of nectar and pollen to planning landscapes and gardens and Gain knowledge about various techniques followed in marketing of honey	K3, K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	INTRODUCTION TO BEES	8 Hours

Scope and Advantages. Kinds of Honey bee –*Apis dorsata* – *Apis florea* – *Apis cerana indica* – *Trigonairidipennis*. Honey Bee colony: Worker - Queen – Drones. External Morphology of Worker Bee.

Unit:2	LIFE CYCLE AND ANATOMY	9 Hours

Life cycle and Development of Honey Bee. Food of Honey Bee –Nectar – Pollen – Royal Jelly –

Honey. Pollen, Nectar and Water foraging – Swarming.		
Unit:3	**PRIMITIVE BEEKEEPING**	**9 Hours**
Primitive Beekeeping and structure of Hives - Modern Beekeeping and structure of Hives Advantages and disadvantages of these methods.		
Unit:4	**APIARY APPLIANCES**	**9 Hours**
Appliances used in Apiary: Comb frame – foundation sheet – Dummy division board – Drone and Queen excluder – Swarm trap – Smoker – Uncapping knife –Bee veils – Honey extractor – Bee brush –feeders.		
Unit:5	**EXTRACTION AND PRESERVATION**	**8 Hours**
Honey extractor – Methods of extraction, Processing, Packing and Storage. Marketing of Honey.		
Unit:6	**CONTEMPORARY ISSUES**	**2 Hours**
Expert lectures, Online Seminars - Webinars and Field Visits.		
	Total Lecture hours	**45 Hours**

Text Book(s)

1	Atuar Rahman. (2017). *Apiculture In India*, Indian Council of Agricultural Research,India.
2	Jayashree KV, Tharadevi CS and ArumugamN. (2015).*Apiculture*, Saras PublicationNagercoil, Tamilnadu.
3	Sammataro D, Avitabile A. (2011). *The beekeeper's Handbook*. Cornell UniversityPress.
4	Sathe TV. (2014). *Fundamental of Beekeeping*. Daya PublishingHouse, New Delhi.

Reference Books

1	Graham J M. (1992). *The Hive At The Honey Bee.* Dadant and Sons, Hamilton, IIIinois.
2	Hem Raj. (2020). *Text Book of Apiculture.* S.Vinesh and Co, publishers, Karnataka, India.
3	Mishra RC. (1995). *Honey Bees and Their Management in India.* ICAR Publication, New Delhi.
4	Sanford MT, Bonney RE. (2010). *Storey's Guide to Keeping Honey Bees: Honey Production, Pollination, Bee Health.* StoreyPublishing, US.
5	Singh S. (1971). *Beekeeping in India*. ICAR publication.
6	Winston M. (1991). *The biology of the honeybee.* Harvard University Press, Massachusetts, USA.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://www.beesource.com/forums/showthread.php?320175-Free-online-Beekeeping-course
2	https://www.hortcourses.com/courses/bees-beekeeping-and-honey-790.aspx

Course Designed By: Dr.A.RAJA RAJESWARI, Asst.Prof, Sri Vasavi College, Erode.

Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	M	S	S	M	M	S	S	L	S	S
CO3	M	M	M	S	S	M	S	L	S	S
CO3	M	M	S	M	M	S	S	L	S	S
CO4	M	S	M	S	M	S	S	L	S	S

*S-Strong; M-Medium; L-Low

Course code	**6EE**	**APICULTURE -II**	**L**	**T**	**P**	**C**
Core/Elective/ SBS		**Elective II-C**	**3**	**0**	**0**	**3**
Pre-requisite		Basic Knowledge in handling tools for Management of Bees	**Syllabus Version**		**2020 – 2021**	

Course Objectives:

1.To increase the knowledge of bees and bee culture.

2. To maintain small apiaries for demonstration, pollination, extraction and popularisation of honey and other by-product of beekeeping.

3. To build and manage a network of garden and independent beekeeping sites, make aware of various methods of beekeeping and the uses of itsappliances.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Gain knowledge about the importance of honey and also able to classify the honey.	K1
2	Able to identify and follow regulation practices for the control diseases and control of parasitesandenemies'.	K3
3	Skillfully apply the tools, equipment, and techniques for management of bee.	K3
4	Be relevant and follow the procedure required for rearing, caring and grafting techniques an	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	**HONEY**	**9 Hours**

Types of Honey – Properties of Honey – Nutritional and Medicinal value of Honey. Bee Wax – Properties and uses. Methods to identify original honey.		
Unit:2	**ENEMIES**	**8 Hours**
Damages and preventive measures for Wasps - Greater and Lesser wax moths - Wax Beetles - Black Ants Birds and Mammals.		
Unit:3	**STOCKS AND ECONOMICS**	**9 Hours**
Uniting of Stocks - Uses and Principles - Methods of uniting. Artificial feeding methods. Economics of Beekeeping: Preparation of project – Infrastructure cost –recurring – expected income and gain – Methods to obtain loan		
Unit:4	**QUEEN REARING**	**9 Hours**
Need principles and procedure: Hopkins – Miller – Alley – Doolittle Methods. Rearing calendar – Requirements for Queen rearing – Queen introduction and caring – Grafting.		
Unit:5	**DISEASES**	**8 Hours**
Description of Parasite, Symptoms, Transmission, Diagnosis and Control of Brood Disease and adult diseases.		
Unit:6	**CONTEMPORARY ISSUES**	**2 Hours**
Expert lectures, Online Seminars - Webinars and Field Visits.		
	Total Lecture hours	**45 Hours**

Text Book(s)

1	Atuar Rahman. (2017). *Apiculture In India*, Indian Council of Agricultural Research,India.
2	Jayashree KV, Tharadevi CS and ArumugamN. (2015).*Apiculture*, Saras PublicationNagercoil,Tamilnadu.
3	Sammataro D, Avitabile A. (2011). *The Beekeeper's Handbook*. Cornell UniversityPress.
4	Sathe TV. (2014). *Fundamental of Beekeeping*. Daya PublishingHouse, New Delhi.

Reference Books

1	Graham J M. (1992). *The hive and the honey bee.* Dadant and Sons, Hamilton, IIIinois.
2	Hem Raj. (2020). *Text Book of Apiculture.* S.Vinesh and Co, publishers, Karnataka, India.
3	Mishra RC. (1995). *Honey bees and their management in India.* ICAR Publication, New Delhi
4	Sanford MT, Bonney RE. (2010). *Storey's Guide to Keeping Honey Bees: Honey Production, Pollination, Bee Health.* StoreyPublishing, US.
5	Singh S. (1971). *Beekeeping in India*. ICAR publication.
6	Winston M. (1991). *The biology of the honeybee.* Harvard University Press, Massachusetts, USA.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://www.beesource.com/forums/showthread.php?320175-Free-online-Beekeeping-course
2	https://www.hortcourses.com/courses/bees-beekeeping-and-honey-790.aspx
Course Designed By: Dr.A.RAJA RAJESWARI, Asst.Prof, Sri Vasavi College, Erode.	

Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	M	S	S	M	M	S	S	L	S	S
CO3	M	M	M	S	S	M	S	L	S	S
CO3	M	M	S	M	M	S	S	L	S	S
CO4	M	S	M	S	M	S	S	L	S	S

*S-Strong; M-Medium; L-Low

Course code	**63R**	**APICULTURE PRACTICAL**	**L**	**T**	**P**	**C**
Core/Elective/ SBS		**ELECTIVE COURSE III-C**	**0**	**0**	**2**	**2**
Pre-requisite		Practical Knowledge about Management of Bees, Extraction and Identifying the Quality of Honey	**Syllabus Version**		**2020 – 2021**	

Course Objectives:

1.To increase the knowledge of bees and bee culture;

2. To maintain small apiaries for demonstration, pollination, extraction and popularisation of honey and other by-product of beekeeping.

3. To build and manage a network of garden and independent beekeeping sites, make aware of various methods of beekeeping and the uses of itsappliances.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Introduces current standards for the establishment and management of bees.	K1
2	Familiarized with various techniques like mounting and extraction of honey.	K3
3	Identify and describe about different hives, appliances and parasites of bees.	K3
4	Gain practical knowledge in identifying the quality of honey.	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

MAJOR PRACTICAL

1. Extraction ofHoney.
2. Setting up of a Newton Hive (Cardboards and others can beused).
3. Estimation of Glucose inHoney.
4. Mounting of Pro, Meso and Meta thorasic legs of Honeybee.
5. Dissection of Wax glands (Optional).

MINOR PRACTICAL

1. Mounting of Mouthparts.
2. Identifying the quality ofHoney.
3. Qualitative identification of Glucose, Fructose and Sucrose inHoney.

SPOTTERS

1. Identification and Description of Whole mount of types of Honeybees.
2. Identification and Description of types of Primitive and ModernHives.
3. Identification and Description of Appliances Used inApiary.
4. Identification and Description of Parasites of Honeybee.
5. Identification and Description of Worker, Drone and Queen.

VISIT AND SUBMISSION OF REPORT

Visit to apiculture unit of nearby locality or training or in house apiculture in college. Report should be submitted in the practical.

QUESTION PATTERN: TOTAL MARKS: 30 MARKS.

Major: 10, Minor: 08, Record: 04, Spotter: 06 (2 spotters each carry 3 marks) Report: 2 marks.

Total Practical hours **30(Each Semester) x 2 = 60 Hours Per Year**

Text Book(s)

1	David Cramp A. (2008). *A Practical Manual Of Beekeeping: How to Keep Bees and Develop Your Full Potential as an Apiarist,* Kindle Edition, Spring Hill Publisher, UK.
2	David Cramp A. (2012). *The Complete Step-by-step Book of Beekeeping: A Practical Guide to Beekeeping, from Setting Up a Colony to Hive Management and Harvesting the Honey.* Lorenz Books. London.
3	Haike Rieks. (2006).*Practical Guide for Organic Bee keepers,* EPOPA publication, Netherlands.

Course Designed By: Dr.A.RAJA RAJESWARI, Asst.Prof, Sri Vasavi College, Erode.

Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	M	S	M	S	S	L	S	S
CO3	L	M	L	L	M	M	S	L	S	S
CO3	M	S	L	S	M	S	S	L	S	S
CO4	L	L	L	M	L	M	S	L	S	S

*S-Strong; M-Medium; L-Low

Value Added Course

Course code		MEDICAL EMERGENCY MANAGEMENT	L	T	P	C
Core/Elective/Supportive		Value Added Courses-I				
Pre-requisite		Knowledge to Understand the First Aid Treatment and Management	Syllabus Version		2020-2021	

Course Objectives:

1. To understand the scope and role of First Aid treatments.
2. To manage the various incidents using First Aid Treatment measures.
3. To describe the various medical emergency situations.
4. To learn handling techniques of First Aid Treatment.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	To understand the significance of First Aid treatments and utilize the possible measures for life saving in an unconscious casualty.	K2
2	To explain the First Aid management for respiratory, wounds and circulation problems.	K3
3	To list the techniques and equipments for First Aid.	K4
4	To plan the First Aids for emergency in community and natural disorders.	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

THEORY **10 x 2 =20 Hours**

Module 1. First Aid and Aider. Precaution and Preparation.

Module 2. Action of Emergency: Protection from infection, dealing casualty and use of medications.

Module 3.Incidents**:** Pandemic diseases (virus and Bacteria).

Module 4. Accidents: Traffic accidents, Fire accidents, Electrical incidents and Water incidents.

Module 5. Medical Situations: Heart attack, Stroke, Hyper and Hypoglycemia, Seizures.

Module 6.Common Diseases: Fever, Allergy, Anaphylactic shock, Headache, Migraine, Sore throat, Earache and toothache, Abdominal pain, Vomiting and Diarrhea.

Module 7. First Aid materials, Dressings, Cold compresses, Removing clothing and headgear.

Module 8. Casualty handling, Principles of bandaging and types (Roller and Tubular), square knots, hand and foot cover.

Module 9. Emergency Action: Cardio Pulmonary Resuscitation for an adult and infant and chest

. compression.

Module 10. Community Emergency: Fire explosions, Earth quakes, Flood and Famine.

PRACTICALS **5 x 2 = 10 Hours**

1.Blood Pressure checking Sitting, Standing and Lying Position

2. Cardio Pulmonary Resuscitation (CPR)-handling Test

3. RBC and WBC Count

4.Estimation of Bleeding and Clotting time

5. Checking Heart Beat and Pulse Rate.

Reference Books

1	American college of emergency physicians.(2014). *First Aid Manual*, 5th edition, Dorl Kindersley,Publication, London.
2	Clement.(2012). *Text book on First Aid and Emergency Nursing*, 1st edition, JP brothers, New Delhi.
3	Philip Jevon.(2006). *Emergency care and First Aid for Nurses, A practical Guide*,Churchill Living Stone, London.
4	St. John Ambulance, St. Andrew's Ambulance association and the British red cross society. (2006). *First Aid Manual, 9th* edition, Publication Dorling Kindersley, London.

Course Designed By: Dr. UTHAYAKUMAR, Asst.Prof, Sri Vasavi Collge, Erode.

Mapping with Programme Outcomes

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	L	M	M	M	L	S	M	M	S	S
CO2	L	M	M	M	L	S	L	M	S	S
CO3	L	M	M	M	L	M	S	S	S	S
CO4	L	M	M	M	L	M	S	S	S	S

*S-Strong; M-Medium; L-Low



Course code		VERMITECHNOLOGY	L	T	P	C
Core/Elective/Supportive		Value Added Courses-II				
Pre-requisite		Basic Knowledge about Rearing Earthworm	Syllabus Version		2020-2021	

Course Objectives:

1. To understand the importance of Earthworms.
2. To impart the basic knowledge on Vermicomposting methods.
3. To familiarize the values of Vermitechnology and its applied aspects of organic farming.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Student gain basic knowledge of Earthworms.	K2
2	Understand the importance of waste degradation by Eco-friendly method.	K3
3	Understand the significance of Vermicomposting methods.	K4
4	Apply knowledge on commercialization of Vermiproducts.	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

MODULE **15 x 2 = 30 Hours**

Module 1. Definition, Concept and Need for Vermiculture.

Module 2. Classification of Earthworm Epigeic, Anecic and Endogeic forms.

Module 3. Earthworm: General body structure, colour, Anatomy and Body Setae.

Module 4. Food habits – Digestive system – Excretion.

Module 5. Reproduction and Life cycle of Earthworm.

Module 6. Vermiculture unit setup. Small scale and Large scale vermin composing..

Module 7. Vermiculture environmental-Air, Moisture. Temperature.

Module 8. Vermicomposting materials –Types of vermicomposting and Requirements.

Module 9. Advantages and Maintenance of Vermicomposting.

Module 10. Chemical composition of Vermicompost, Vermi wash, Value addition of Vermicompost.

Module 11. Uses of earthworms in animal feed industry.

Module 12. Bioremediation through Vermitechnology.

Module 13. Role of earthworms in sustainable agriculture - organic farming.

Module 14. Earthworm activities – soil fertility and texture - soil aeration.

Module 15. Recycling of different wastes by vermicomposting.

Text Books

1	Bhatnagar RK and Palta RK. (1996). *VermicultureandVermicomposting*, Kalyani Publishers, New Delhi.
2	Gupta PK. (2005). *Vermicomposting for Sustainable Agriculture*. Agro-Bios publication, Jodhpur, ,
3	Ismail SA. (1997).*Vermicology-The biology of Earthworm.* Orient Longman, India.
4	Ranganathan LS.(2006).*Vermicomposting Technology – From Soil Health to Human Health,*Agro-Bios Publications, India
5	Sathe TV. (2004).*Vermiculture and Organic Farming.* Daya Publishing House, India.
6	Seethalakshmy. (2014). *A Text book of Vermitechnology,* 3rd edition, Saras Publications, Nagerkovil, Tamilnadu.

Reference Books

1	Arun K.Sharma. (2002). *A Hand book of organic forming*, Agrobios, Jothpur, India.
2	EdwardsCAandLoftyJR.(1977)“ *BiologyofEarthworms*”,ChapmanandHallLtd,London.
3	LeeKE.(1985)“ *Earthworms*: *TheirecologyandRelationshipwithSoilsandLand Use*”, Academic Press, Sydney.
4	SatchelJE.(1983).“ *EarthwormEcology*”,ChapmanHall,London.
5	Tripathi G. (2003). *VermisourceTechnology*, Discovery Publishing House, India.

Course Designed By:
S. SUDHA,Asst.Prof, LRGGovt.ArtsCollegefor Women, Tirupur

Mapping with Programme Outcomes

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	S	S	S	S	S	L	S	S
CO2	M	M	M	M	S	S	S	L	S	S
CO3	M	S	S	M	M	S	S	L	S	S
CO4	M	M	S	M	M	S	S	L	S	S

*S-Strong; M-Medium; L-Low

Course code		ECONOMICS OF CONSERVATION	L	T	P	C
Core/Elective/Supportive		Value Added Course-III				
Pre-requisite		Basic Knowledge in Life Sciences	Syllabus Version		2020-2021	

Course Objectives:

1. To create basic awareness about conservation
2. To create awareness to students explore biodiversity for new product development.
3. To create awareness to understand the economics aspects of Biodiversity

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Explore nature in search of new biodiversity products in field of medicine and agriculture.	K3
2	Able to understand the significance and need of conserving resources	K3
3	Gain knowledge about importance of Ecosystem services and marine resources.	K2
4	Familiar and able to isolate, identify the biodiversity products.	K3
5	Aware and create career opportunity in ecotourism.	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

MODULE **15 x 2 = 30 Hours**

Module 1. Concept of Biodiversity
Module 2. Ecosystems and Community structure
Module 3. Spatial and temporal aspects of biodiversity
Module 4. Causes of the global loss of biodiversity
Module 5. Invasive species and their impact on ecosystems and biodiversity
Module 6. Conservation biology: policy and management
Module 7. Ecosystem services and their importance for human societies
Module 8. Biodiversity products
Module 9. Economics of marine resources
Module 10. Biodiversity products from Animals.
Module 11. Biodiversity products from plants.
Module 12.Biotechnology in Biodiversity
Module 13.Isolation, identification and patenting Biodiversity Products
Module 14.Biodiversity as Career
Module 15. Eco-tourism and possibilities.

Reference Books

1	Anderson J and Slater D L.(1981).*Catalogue of Mammals,* Vol. I and II. Cosmo Publications, New Delhi.
2	Hosetti BB, Ramkrishna S. (2016).*Biodiversity* : *ConceptsandConservation*, 1st edition, Aavishkar Publishers, Distributors, Jaipur

3	Prater S H. (1988). *The Book of Indian Animals*, Bombay Natural History Society, Bombay
4	Young J Z. (1950). *The Life of Vertebrates*, Clarendon Press, Oxford.
Course Designed By: Dr. R. SANIL, Associate Professor, GAC, Ooty	

Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	M	M	M	S	S	S	S	S	M
CO2	M	S	S	S	S	M	M	M	M	M
CO3	M	M	L	L	L	S	L	M	S	S
CO4	M	M	L	M	L	S	L	M	S	S
CO5	M	M	L	L	L	S	L	M	S	S

*S-Strong; M-Medium; L-Low

Course code		INTELLECTUAL PROPERTY RIGHT	L	T	P	C
Core/Elective/Supportive		Value Added Course-IV				
Pre-requisite		Basic Knowledge to Aware About IPR	Syllabus Version		2020 – 2021	

Course Objectives:

1. To introduce fundamental aspects of Intellectual property Rights to students who are going to play a major role in development and management of innovative projects in industries.
2.To disseminate knowledge on patents, patent regime in India and abroad and registration aspects
3.To disseminate knowledge on copyrights and its related rights and registration aspects
4.To disseminate knowledge on Design, Geographical Indication (GI), Plant Variety and Layout Design Protection and their registration aspects
5.To aware about current trends in IPR and Govt. steps in fostering IPR

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	The students once they complete their academic projects, shall get an adequate knowledge on patent and copyright for their innovative research works	K2
2	During their research career, information in patent documents provides useful insight on novelty of their idea from state-of-the art search. This provide further way for developing their idea or innovations	K3
3	Pave the way for the students to catch up Intellectual Property(IP) as an career : a. R&D IP Counsel, Patent Examiner, Patent and Trademark agent, Entrepreneur	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

MODULE **15 x 2 = 30 Hours**

Module 1. Introduction and the need for intellectual property right (IPR)

Module2. Kinds of Intellectual Property Rights: Patent, Copyright, Trade Mark, Design, Geographical Indication, Plant Varieties.

Module 3. Layout Design and Genetic Resources.

Module 4. Traditional Knowledge and Trade Secret.

Module 5. IPR in India.

Module 6. Patents - Elements of Patentability: Novelty, Non Obviousness.

Module 7. Patent office and Appellate Board, Registration Procedure, Remedies and Penalties.

Module 8. Nature of Copyright, Registration Procedure, Ownership and licence of copyright.

Module 9. Related Rights - Distinction between related rights and copyrights

Module10.Concept and Kinds of Trademarks (brand names, logos, signatures, symbols).

Module 11. Registration of Trademarks - Rights of holder.

Module 12. Design: Meaning and concept of Novel and Original.

Module 13.Geographical indication: Meaning, Difference between GI and trademarks.

Module 14. Plantvarietyprotection:MeaningBenefitsharingandfarmers'rights. Module 15. Layout Design protection: Meaning, Procedure and Effect of registration.	
Text Book(s)	
1	. Nithyananda, K V. (2019). *Intellectual Property Rights: Protection and Management*. India, IN: Cengage Learning India Private Limited.
2	2. Neeraj, P., & Khusdeep, D. (2014). *Intellectual Property Rights*. India, IN: PHI learning Private Limited.
Reference Books	
1	Ahuja V K. (2017). *Law relating to Intellectual Property Rights*. India, IN: Lexis Nexis.
	E-resources:
2	Subramanian, N., & Sundararaman, M. (2018). *Intellectual Property Rights – An Overview*. Retrieved from http://www.bdu.ac.in/cells/ipr/docs/ipr-eng-ebook.pdf
3	World Intellectual Property Organisation. (2004). *WIPO Intellectual property Handbook*. Retrieved from https://www.wipo.int/edocs/pubdocs/en/intproperty/489/wipo_pub_489.pdf
3	Journal of Intellectual Property Rights (JIPR): NISCAIR
	Related Online Contents
1	Cell for IPR Promotion and Management (http://cipam.gov.in/)
2	World Intellectual Property Organisation (https://www.wipo.int/about-ip/en/)
3	Office of the Controller General of Patents, Designs & Trademarks (http://www.ipindia.nic.in/)
Course Designed By: Dr. A. RENI PRABHA, Assoc. Prof, Chikkaiah Naicker College, Erode	

Mapping with Programme Outcomes										
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	M	L	L	M	M	M	S	M	S	S
CO2	L	M	L	M	M	M	M	S	S	S
CO3	M	L	L	M	L	M	M	M	S	S

*S-Strong; M-Medium; L-Low

Annexure

B.Sc. ZOOLOGY

SYLLABUS

(With effect from 2020 - 2021 onwards)

Program Code:

DEPARTMENT OF ZOOLOGY
Bharathiar University
(A State University, Accredited with "A "Grade" by NAAC and
13th Rank among Indian Universities by MHRD-NIRF)
Coimbatore 641 046, INDIA



GUIDELINES FOR CONDUCTING VALUE ADDED COURSES

Course Structure

1. Therequestforapprovalofsyllabus by the concerned authorities is mandatory atleast15 daysbeforethedateofcommencementofthecourse.TheSyllabus(15/30 hours),ScheduleandtheDetailsofFacultyhandlingthecourseapprovedby theDepartmentalCommitteeandforwardedbyHead of the Department should be enclosed.

    a. Thecourseofferedshouldnotbethesameasanycourselistedinthe curriculumoftherespectiveprogramme/oranyotherprogrammeofferedin University /Colleges.
    b. Thevalueaddedcoursesmaybealsoconductedduringweekends/ vacation period.
    c. Thecoursecanbeofferedany semester in the PG Programmes.
    d. Industryexperts/eminentacademiciansfromotherInstitutesare also eligible to offer the value addedcourse.
    e. The course can be offered only if there are atleast10 students opting for it.
    f. The students may be allowed to take value addedcourses offered by otherdepartmentsafterobtainingpermissionfromHeadoftheDepartment offering the course.

Duration

2. Thedurationofvalueaddedcoursesis15(30)periodsoftheoryoramaximum oftheoryandLaboratorycoursesandthecoursecanhaveamaximumofthree hours per day. Fortheone(two)creditcourseseither15(30)periodsoftheoryora combination of theory and Laboratory may be offered.
   Where,**2 periods**oflaboratory =**1 period**of theory

Evaluation

3. Thevalueaddedcoursesshallcarry100marksandshallbeevaluatedthrough **internal assessments only**.

    a. Two Assessments shall be conducted preferably one in the middle and theother at the end of the course by the Department concerned.
    b. The duration of assessment is one hour each.
    c. Thetotalmarksobtainedinthetestsshallbereducedto100marksand rounded to the nearest integer.
    d. The Head ofthe Department may identify a faculty memberas coordinatorforthecourse.AcommitteeconsistingoftheHeadoftheDepartment, staffhandlingthecourse(ifavailable),coordinatorandaseniorFaculty membernominatedbytheHeadofthe Departmentshallmonitorthe evaluationprocess.Thegradesshallbeassignedtothestudentsbythe above committee based on their relative performance.

e. Thecoordinatorforthecourseisresponsibleformaintainingand processing the records with regard to assessment marks andresults.

Passing Requirement and Grading

4. Thepassingrequirementforvalueaddedcoursesshallbe50%ofthemarks prescribed for the course**(Internal assessment only)**

a. ThegradesO,A+,A,B+,Bobtainedfortheone/twocreditshallfigureintheMarksheet underthetitle**'ValueAddedCourses'**.TheothergradesRA, SA**will not figure in the mark sheet.**
b. Thecreditsearnedthroughvalueaddedcoursesshallnotbeconsidered for calculating GPA and CGPA.
c. Thecreditsearnedthroughvalueaddedcoursesshallnotbeconsidered forclassification of degree.
d. Ifthecourseisofferedduringanysemester,itwillappearinthat semester'smarksheet.Howeverifthecourseisofferedinsummer/ wintervacations,thecoursewillbeincludedinthegradesheetofthe subsequent semester.

Maximum Number of Courses

5. Astudentcan earna maximumof 3credits during theentireprogrammeof studybyattendingvalueaddedcourseswhichwouldbeoverandabovetherequiredmaximu m number of credits for the award of the degrees.

Financial Commitment

6. Theexpenditure tobeincurred fortheconduct ofvalue addedcoursesshould bemetfromnominalfeescollectedfromthestudentsataratefixedbythe University.Howeveranyadditionalexpendituremaybesupportedbythefunds of the Department.

APPLICATION FOR CONDUCTING VALUE ADDED COURSES

1. Name of the Department:
2. PG programme:
3. **Details of the Value Added Courses:**
   a. Name of the Value Added Courses
   b. Type of Value Added Courses (Theory/ Lab/ Lab integrated Theory/others)
   c. Short Description Enclosure1 enclosed -YES / NO
   d. Syllabus including Reference Enclosure 2 enclosed - YES / NO
4. **Target audience:**
   Semester (indicate if more than one)
   others
5. **Details of Faculty handling the course:**
   a. Name of the Faculty handling the Value Added course
   b. Details including designation and expertise Enclosure3enclosed-YES / NO
   c. Contact details
      Email ID :
      Phone No :
6. **Tentative Time Table** including dates of internal assessments : Enclosure 4 enclosed - YES / NO
7. Number of students opting for the course:
8. Department Consultative Committee - Minutes : Enclosure 5 enclosed - YES / NO
9. Name and Designation of the Coordinator :

Head of the Department
(with date & seal)

Note:

* **Fees if any**

DETAILS OF COMPLETION OF VALUE ADDED COURSE

Name of the Department :

Name of the Value Added course offered

Name of the Faculty offeredthe course
: Academic / Industry

Name of the coordinator :
E- Mail :
Contact :

Details of students attended the course:

S.No	Name of the student	Reg.No.	Programme	Semester	Marks	Grade

(Faculty handling the Course (if available)

(Senior Facultynominated byHOD)

(Coordinator)

(Head of the Department)

(With date &seal)

DISTRIBUTION OF EXTERNAL AND INTERNAL MARKS FOR THEORY PAPERS

Table – 1(A): Distribution of marks for **External** and **Internal** for University (external) examination and **ContinuousInternalAssessment** and passing minimum marks for **Theory Papers.**

TOTALMARKS	**EXTERNAL**		**INTERNAL** Max.marks	Overall Passing Minimum for total marks **(Internal + External)**
	Max. marks	Passing Minimum for externalalone		
100	75	30	25	**40**
75	55	22	20	**30**

Table– 1(B): Distribution of marks for the **ContinuousInternalAssessment** in the **TheoryPapers** of **UGprogrammes**.

	FOR THEORY UG-COURSES	**Distribution of Marks**	
1	Tests (one best test out of 2 testsof 2 hours each)	10	8
2	End semester model test (3hours)	10	8
3	Assignments – 2Nos.	5	4
	TOTAL MARKS	**25**	**20**

DISTRIBUTION OF EXTERNAL AND INTERNAL MARKS FOR PRACTICALPAPERS

Table – 2(A): Distribution of marks for **External** and **Internal** University (external) examinations and **ContinuousInternalAssessments** and passing minimum marks for the **Practical Courses.**

TOTALMARKS	**EXTERNAL**		**INTERNAL** Max.marks	Overall Passing Minimum for total marks **(Internal + External)**
	Max. marks	Passing Minimum for externalalone		
100	60	24	40	40
75	45	18	30	30
50	30	12	20	20

Table – 2(B): Distribution of marks for the **ContinuousInternalAssessment** in **UGPracticalCourses**.

	FOR PRACTICALUG-COURSES	**DISTRIBUTION OF MARKS**		
1	Minimum10 experiments to be conducted practical paper/semester.	20	15	8
2	Tests: Two tests out of which one shall be during the mid semester and the other to be conducted as model test at the end of the semester.	15	10	7
3	Record.	5	5	5
	TOTAL MARKS	**40**	**30**	**20**

QUESTION PAPERPATTERN

The following question paper patterns shall be followed for **OBE** pattern syllabi for the candidates admitted from the academic year 2020-21 wherever applicable otherwise provided in syllabi itself.

MAXIMUM 75 MARKS – WHEREVER APPLICABLE			
Section A	Multiple choice questions with four options	10*1=10	10 questions – 2 from each unit
Section B	Short answer questions of either / or type like 1.a (or) b	5*5=25	5 questions – 1 from each unit
Section C	Essay-type questions of either / or type like 1.a (or) b	5*8=40	5 questions – 1 from each unit

MAXIMUM 55 MARKS – WHEREVER APPLICABLE			
Section A	Multiple choice questions with four options	10*1=10	10 questions – 2 from each unit
Section B	Short answer questions of either / or type like 1.a (or) b	5*3=15	5 questions – 1 from each unit
Section C	Essay-type questions of either / or type like 1.a (or) b	5*6=30	5 questions – 1 from each unit

The **GeneralAwareness** paper to have multiple choice questions (with four option) to be evaluated by using **OMR**.

For other courses in Part IV of UG programmes namely, **Environmental Studies, Value Education – Human Rights, Yoga for Human Excellence, Women's Rights and Constitution of India** the question paper pattern should be **5 out of 10.**

BHARATHIAR UNIVERSITY: COIMBATORE 641 046

B. Sc., ZOOLOGY CURRICULUM

(For the students admitted during the academic year 2020 – 21 onwards)

Part	Course Code	TITLE OF THE COURSE	Credits	HOURS		MAXIMUM MARKS		
				Theory	Practical	CIA	ESE	Total
	FIRST SEMESTER							
I	11T	Language I	4	6	-	25	75	100
II	12E	English I	4	6	-	25	75	100
III	13A	Core Course I: Animal Diversity –Non Chordata	4	6	-	25	75	100
III		Core Practical I	-	-	4	-	-	-
III	1AH	Allied A Course I **Chemistry/Botany/ BioChemistry**	3	4		20	55	75
III		Allied Practical	-	-	2	-	-	-
IV	1FA	Environmental Studies	2	2	-	-	50	50
		Total	**17**	-	-	-	-	**425**
	SECOND SEMESTER							
I	2IT	Language II	4	6	-	25	75	100
II	22E	English II	4	6	-	25	75	100
III	23A	Core Course II: Animal Diversity – Chordate	4	6	-	25	75	100
III	23P	Core Practical I	4	-	4	40	60	100
III	2AH	Allied A Course II **Chemistry /Botany/Biochemistry**	3	4	-	20	55	75
III	2PH	Allied Practical	2	-	2	20	30	50
IV	2FB	Value Education – Human Rights	2	2	-	-	50	50
		Total	**23**	-	-	-	-	**575**
	THIRD SEMESTER							
I	3IT	Part I-Language III	4	6	-	25	75	100
II	32E	Part II-English III	4	6	-	25	75	100
III	33A	Core Course III: Comparative Anatomy of Vertebrates.	4	5	-	25	75	100
III		Core Practical II	-	-	2	-	-	-
III	3AJ	Allied B Course I **Botany/Chemistry/ Biochemistry**	3	4	-	20	55	75
III		Allied Practical	-	-	2	-	-	-
IV	3ZA	Skill Based I: Sericulture	3	3	-	20	55	75
IV	3FC	Non Major Elective I * Yoga.	2	2	-	-	50	50
		Total	**20**	-	-	-	-	**500**
	FOURTH SEMESTER							
I	41T	Part I-Language IV	4	6	-	25	75	100

II	42E	Part II-English IV	4	6	-	25	75	100
III	43A	Core Course IV: Ecology, Evolution and Zoogeography	4	5	-	25	75	100
III	43P	Core Practical II	4	-	2	40	60	100
III	4AJ	Allied B Course II **Botany/Chemistry/ Biochemistry**	3	4	-	20	55	75
III	4PJ	Allied Practical	2	-	2	20	30	50
IV	4ZB	Skill Based II: Biostatistics and Computer Applications	3	3	-	20	55	75
IV	4FE	Non Major Elective II * General Awareness.	2	2	-	-	50	50
		Total	**26**	-	-	-	-	**650**
	FIFTH SEMESTER							
III	53A	Core Course V: Cell Biology and Biochemistry.	4	5	-	25	75	100
III	53B	Core Course VI: Microbiology	4	5	-	25	75	100
III	53C	Core Course VII: Genetics and Immunology	4	5	-	25	75	100
III		Core Practical III	-	-	2	-	-	-
III		Core Practical IV	-	-	2	-	-	-
III	5EB	Elective Course I: A/B/C#	3	3	-	20	55	75
III	5EE	Elective Course II: A/B/C#	3	3	-	20	55	75
III		Elective Course III: Practical#	-	-	2	-	-	-
IV	5ZC	Skill Based Course III: Biophysics and Instrumentation.	3	3	-	20	55	75
		TOTAL	**21**	-	-	-	-	**525**
	SIXTH SEMESTER							
III	63A	Core Course VIII: Animal Physiology.	4	5	-	25	75	100
III	63B	Core Course IX: Developmental Biology.	4	5	-	25	75	100
III	63C	Core Course X: Biotechnology.	4	5	-	25	75	100
III	63P	Core Practical III	4	-	2	40	60	100
III	63Q	Core Practical IV	4	-	2	40	60	100
III	6EB	Elective Course I: A/B/C#	3	3	-	20	55	75
III	6EE	Elective Course II: A/B/C#	3	3	-	20	55	75
III	63R	Elective Course III: Practical#	2	-	2	20	30	50
IV	6ZP	Skill Based Course IV: Practical	3	-	2	30	45	75
V	67A	Extension activities**	2	1	-	-	-	50

		TOTAL	**33**	**-**	**-**	**-**	**-**	**825**
		GRAND TOTAL	**140**					**3500**
		ONLINE COURSES						
		1.	**SWAYAM**					
		2.	**MOOC'S**					

***** Non Major Elective I: Basic Tamil I / Advanced Tamil I / Yoga / Women studies and Non major Elective II: Basic Tamil II / Advanced Tamil II / General Awareness.

***** It is compulsory that those who opt for any languages other than Tamil, they should choose Basic Tamil (Who don't studied Tamil) or Advanced Tamil (For those who studied Tamil up to HSC).

** Only internal marks.

Elective Courses

List of Elective courses(Colleges can choose one course from Elective I & II, Elective III will be the practical of Elective II)		
Elective Course I	A	Human Genetic and Counseling – Course I & II,
	B	Pest and their control – Course I & II.
	C	Wild life management and Conservation – Course I & II.
Elective Course II	A	Pathology and clinical laboratory technology – Course I & II.
	B	Poultry science & Management – Course I & II.
	C	Apiculture – Course I & II.
Elective Course III	A	Pathology and clinical laboratory technique – Practical.
	B	Poultry science and Management – Practical.
	C	Apiculture – Practical.

#VALUE ADDED COURSE (OPTIONAL)

S.No	**PAPAERS**	**TOTAL MARKS**
1.	Medical Emergence Management.	100
2.	Vermitechnology.	100
3.	Economics Of Conservation.	100
4.	Intellectual Property Rights.	100

B. Sc. Mathematics

Syllabus

AFFILIATED COLLEGES

Program Code: 22A

2020 – 2021 onwards

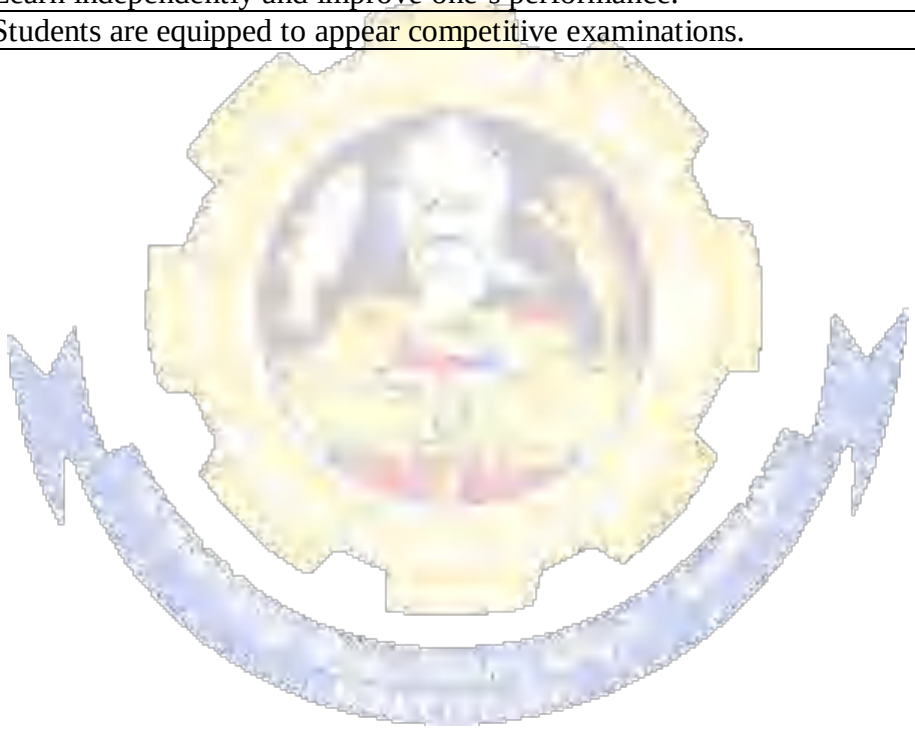
BHARATHIAR UNIVERSITY

(A State University, Accredited with "A" Grade by NAAC,
Ranked 13th among Indian Universities by MHRD-NIRF,
World Ranking : Times - 801-1000, Shanghai - 901-1000, URAP - 982)

Coimbatore - 641 046, Tamil Nadu, India

Program Educational Objectives (PEOs)	
The **B. Sc. Mathematics** program describe accomplishments that graduates are expected to attain within five to seven years after graduation	
PEO1	Acquire knowledge in functional areas of Mathematics and apply in all the fields of learning.
PEO2	Recognise the need for lifelong learning and demonstrate the ability to explore some mathematical content independently.
PEO3	Employ mathematical ideas encompassing logical reasoning, analytical, numerical ability, theoretical skills to model real-world problems and solve them.
PEO4	Develop critical thinking, creative thinking, self confidence for eventual success in career.
PEO5	Analyze , interpret solutions and to enhance their Entrepreneurial skills, Managerial skill and leadership
PEO6	To prepare the students to communicate mathematical ideas effectively and develop their ability to collaborate both intellectually and creatively in diverse contexts.
PEO7	Rewarding careers in Education, Industry, Banks, MNCs and pursue higher studies

Program Specific Outcomes (PSOs)	
After the successful completion of **B. Sc. Mathematics** program, the students are expected to	
PSO1	Maintain a core of mathematical and technical knowledge that is adaptable to changing technologies and provides a solid foundation for extended learning.
PSO2	Identify the applications of Mathematics in other disciplines and society.
PSO3	Develop anin-depth knowledge inMathematics appreciating the connections between theory and its applications.
PSO4	Demonstrate their mathematical modeling ability, problem solving skills, creative talent and power of communication necessary for various kinds of employment.
PSO5	Develop mathematical aptitude and the ability to think abstractly.
PSO6	Learn independently and improve one's performance.
PSO7	Students are equipped to appear competitive examinations.



Program Outcomes (POs)	
On successful completion of the **B. Sc. Mathematics** program	
PO1	Students are empowered with analytical and logical skills-to formulate results and construct mathematical argument.
PO2	Ability to organize, analyze and interpret data accurately in both academic and non -academic context.
PO3	Demonstrate effective communication of mathematical ideas and creative thinking skills to facilitate solving real world problems as a team and independently.
PO4	Appreciate and identify the connections between Mathematics and other disciplines.
PO5	Competency to obtain employment in education, public and private sectors..
PO6	Identify the area of interest for extended learning from the understanding gained from the domain and allied areas of Mathematics.
PO7	Develop mathematical aptitude and make critical observations.
PO8	Garner innovative ideas to face global challenges.
PO9	Instill a sense of responsibility in tackling professional and social issues ethically.
PO10	Trigger their passion for research in unexplored areas of Mathematics.

BHARATHIAR UNIVERSITY : : COIMBATORE 641 046

B. Sc. Mathematics Curriculum (Affiliated Colleges)

(For the students admitted during the academic year 2020 – 21 onwards)

Course Code	Title of the Course	Credits	Hours		Maximum Marks		
			Theory	Practical	CIA	ESE	Total
FIRST SEMESTER							
	Language – I	4	6		25	75	100
	English – I	4	6		25	75	100
	Core Paper I - Classical Algebra	4	4		25	75	100
	Core Paper II-Calculus	4	5		25	75	100
	Allied A : Paper I Chosen by the college	4	7		25	75	100
	Environmental Studies #	2	2		-	50	50
	Total	22	30		125	425	550
SECOND SEMESTER							
	Language – II	4	6		25	75	100
	English – II	4	6		25	75	100
	Core Paper III - Analytical Geometry	4	4		25	75	100
	Core Paper IV-Trigonometry, Vector Calculus and Fourier Series	4	5		25	75	100
	Allied A: Paper II Chosen by the college	4	7		25	75	100
	Value Education – Human Rights #	2	2		-	50	50
	Total	22	30		125	425	550
THIRD SEMESTER							
	Language – III	4	6		25	75	100
	English – III	4	6		25	75	100
	Core Paper V- Differential Equations and Laplace Transforms.	4	3		25	75	100
	Core Paper VI- Statics	4	3		25	75	100
	Allied B : Paper I – Chosen by the college	3	7		20	55	75
	Skill based Subject - Operations Research -I	3	3		20	55	75
	Tamil @ / Advanced Tamil# (OR) Non-major elective - I (Yoga for Human Excellence)# / Women's Rights	2	2			50	50
	Total	24	30		140	460	600

FOURTH SEMESTER							
	Language – IV	4	6		25	75	100
	English – IV	4	6		25	75	100
	Core Paper VII-Dynamics	4	3		25	75	100
	Core Paper VIII- Programming in C	3	2		20	55	75
	Programming in C Practical	1		1	10	15	25
	Allied B - Paper II Chosen by the college	3	5		20	55	75
	Allied B - Paper II Chosen by the college (For Practical Paper)	2		2	20	30	50
	Skill based Subject - Operations Research – Paper II	3	3		20	55	75
	Tamil @ /Advanced Tamil # (OR) Non-major elective -II (General Awareness #)	2	2			50	50
Total		26	27	3	165	485	650
FIFTH SEMESTER							
	Core Paper IX-Real Analysis-I	4	5		25	75	100
	Core Paper X- Complex Analysis-I	4	6		25	75	100
	Core Paper XI- Modern Algebra-I	4	6		25	75	100
	Core Paper XII- Discrete Mathematics	4	5		25	75	100
	Elective I	3	5		20	55	75
	Skill based Subject - Operations Research Paper III	3	3		20	55	75
Total		22	30		140	410	550
SIXTH SEMESTER							
	Core Paper XIII Real Analysis-II	4	5		25	75	100
	Core Paper XIV Complex Analysis-II	4	6		25	75	100
	Core Paper XV Modern Algebra-II	4	6		25	75	100
	Elective II	3	5		20	55	75
	Elective III	4	5		25	75	100
	Skill Based Subject - Operations Research Paper IV	3	3		20	55	75
	Extension Activities @ / Swachh Bharath***	2	-		50	-	50
Total		24	30		190	410	600
Grand Total		140	177	3	885	2615	3500
****All computer papers have theory and practical exams**							
Theory					20	55	100
Practical's					10	15	

@ No University Examinations. Only Continuous Internal Assessment (CIA)
No Continuous Internal Assessment (CIA). Only University Examinations. *** Swachh Bharath Internship Scheme (SBIS) is to be added for 2 credits in the extension activities.

Allied Subjects (Colleges can choose any two subjects)

1.Physics 2.Chemistry 3.Accountancy 4.Statistics.

List of Elective papers

(Colleges can choose any one of the paper as electives)

Elective – I	**A**	Astronomy- I
	B	Numerical -Methods-I
Elective – II	**A**	Astronomy—II
	B	Numerical Methods-II
Elective – III	**A**	Graph Theory
	B	Automata Theory & Formal Languages
	C	Programming in C++**
	D	Number Theory
	E	Introduction to Industry 4.0 *

*Syllabus added from 2020-2021


First Semester

Course code		CLASSICAL ALGEBRA	L	T	P	C
Core/Elective/Supportive		Core Paper – I	4	-	-	4
Pre-requisite		Knowledge of Limits	Syllabus Version		2020 - 2021	

Course Objectives:

1. To enable the students to learn Binomial, Exponential, Logarithmic series and their application to summation of series.
2. To study intensively the convergence and divergence of different types of series.
3. To demonstrate the standard methods to solve both polynomial and transcendental type equations.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

CO1	Know the concept of Binomial, Exponential, Logarithmic series and their application to summation of series.	K1
CO2	Acquire a clear knowledge regarding methods to find an approximate roots of the equations .	K2
CO3	Apply the appropriate tests to find the convergence or divergence of an infinite series.	K3
CO4	ApplyDescartes's rule of signs to find the number of positive and negative roots if any in a polynomial equation .	K3
CO5	Analyze the relation between roots and coefficients of the polynomial equations.	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Summation Of Series Using Binomial And Exponential Theorem	12hours

Binomial, exponential theorems-their statements only- their immediate application to summation and approximation only.

Unit:2	Logarithmic Series, Convergence And Divergence Of Series	12 hours

Logarithmic series theorem-statement and proof-Immediate application to summation and approximation only. Convergency and divergency of series – definitions, elementary results-comparison tests-De -Alembert's and Cauchy's tests.

Unit:3	Absolute Convergence Of Series	12 hours

Absolute convergence-series of positive terms-Cauchy's condensation test-Raabe's test.

Unit:4	Theory Of Equations	12 hours

Roots of an equation- Relations connecting the roots and coefficients- transformations of equations-character and position of roots- Descarte's rule of signs-symmetric function of roots-Reciprocal equations.

Unit:5	Multiple Roots	12 hours

Multiple roots-Rolle's theorem - position of real roots of f(x) =0 – Newton's method of approximation to a root – Horner's method.

	Total Lecture hours	**60 hours**

Text Book(s)

1	Algebra- T.K .Manicavachasam Pillai, T.Natarajan& K.S Ganapathy , (S.Viswanatham Printers & Publishers Private Ltd-2006)

Reference Books

1	Mathematics for B.Sc. Branch I -Vol. I- P. Kandasamy and K.Thilagavathy (For B.Sc-I semester) (S. Chand and Company Ltd, New Delhi, 2004.)
2	Algebra - N.P.Bali (Publisher: Laxmi Publications-New Delhi Edition 2010) .

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://www.brainkart.com/article/Introduction-to-Binomial,-Exponential-and-Logarithmic-series_35107/
2	http://www.jjernigan.com/172/ConvergenceDivergenceNotes.pdf
3	http://home.iitk.ac.in/~psraj/mth101/lecture_notes/Lecture11-13.pdf https://maths4uem.files.wordpress.com/2015/09/1028-infinite-series.pdf https://ocw.mit.edu/high-school/mathematics/exam-prep/concept-of-series/series-convergence-divergence/

Course Designed By: 1. Dr. C. Janaki
2. Mrs. B. Thenmozhi

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	M	M	S	S	S	S	M	S	S
CO2	S	M	M	M	S	S	S	M	M	S
CO3	S	M	S	S	S	S	S	S	S	S
CO4	S	M	S	S	S	S	S	S	S	S
CO5	S	S	S	S	S	S	S	S	S	S

*S-Strong; M-Medium; L-Low

Course code		CALCULUS	L	T	P	C
Core/Elective/Supportive		Core Paper – II	5	-	-	4
Pre-requisite		Higher Secondary Level Mathematics.	Syllabus Version		2020 - 2021	

Course Objectives:

To orient the students to get an idea of curvatures, Integration of different types of functions, its geometrical applications, double, triple and improper integrals.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

CO1	Identify areas in Mathematics and other fields where Calculus is useful.	K1
CO2	Understand the concepts of Evolutes and Envelopes, methods to find curvature and evolutes.	K2
CO3	Apply the concept of change of variables in double and triple integrals.	K3
CO4	Apply double, triple integral to find the area and volume respectively.	K3
CO5	Apply the Beta and gamma function to solve the multiple integrals.	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	**Curvature**	**15hours**

Curvature-radius of curvature in Cartesian and polar forms-evolutes and envelopes- Pedal equations- total differentiation- Euler's theorem on homogeneous functions.

.

Unit:2	**Integration**	**15 hours**

Integration of $f'(x)/f(x)$, $f'(x)\sqrt{f(x)}$,$[(px+q)/\sqrt{(ax^2+bx+c)}]$, $[\sqrt{(x-a)/(b-x)}]$, $[\sqrt{(x-a)(b-x)}]$,$1/[\sqrt{(x-a)(b-x)}$,$1/(a\cos x+b\sin x+c)$, $1/(a\cos^2 x+b\sin^2 x+c)$,Integration by parts-Bernoulli's Formula.

Unit:3	**Evaluation Of Double And Triple Integrals**	**15 hours**

Reduction formulae- problems- evaluation of double and triple integrals- applications to calculations of areas and volumes-areas in polar coordinates.

Unit:4	**Change Of Variables In Double And Triple Integrals**	**15 hours**

Change of order of integration in double integral- Jacobians- Change of variables in double and triple integrals.

Unit:5	**Beta And Gamma Functions**	**15 hours**

Beta and Gamma integrals-their properties, relation between them- evaluation of multiple integrals using Beta and Gamma functions - Improper Integrals.

	Total Lecture hours	**75 hours**

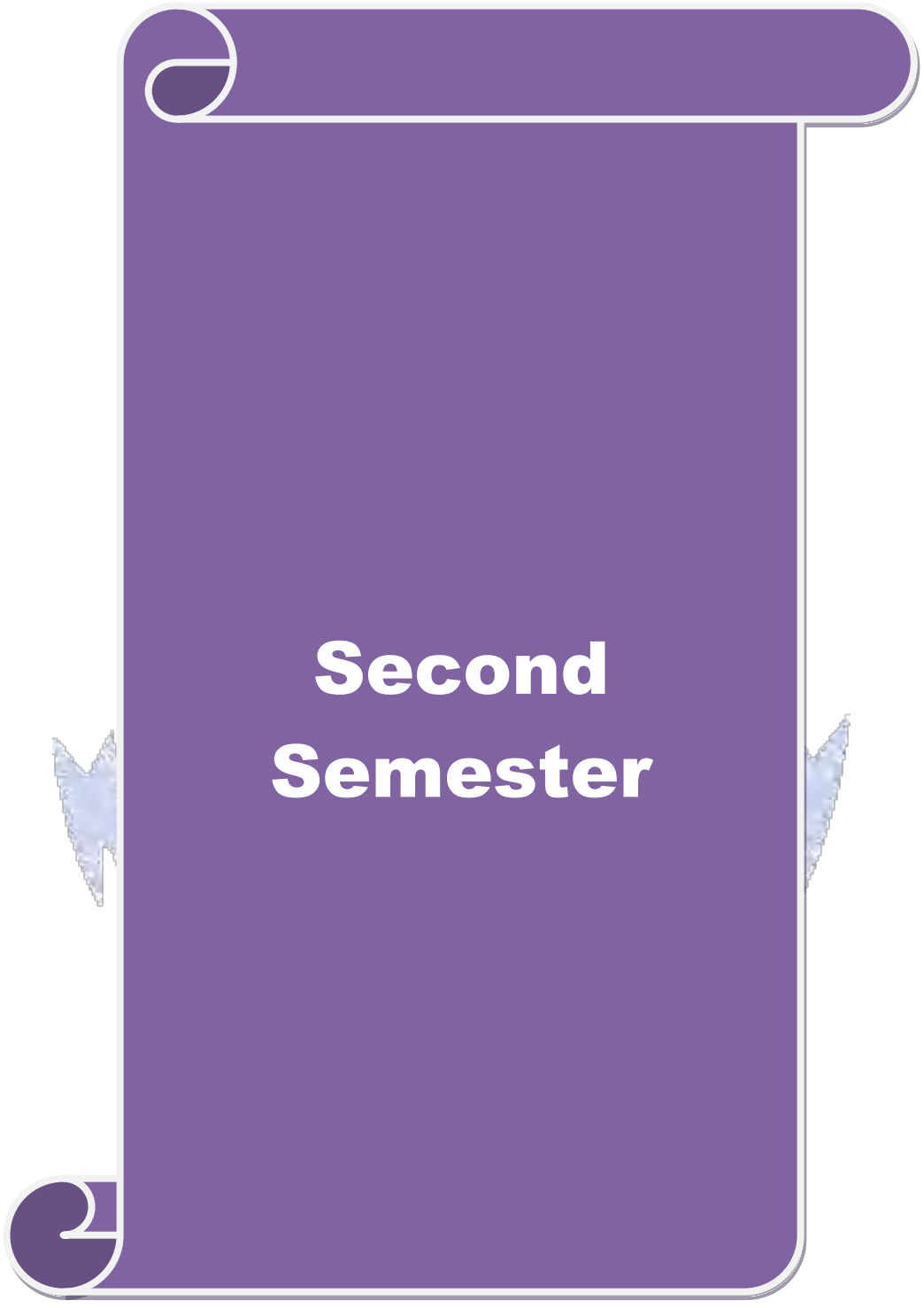
Text Book(s)

1	Calculus Vol 1 - S. Narayanan and T.K.M. Pillai. (Viswanathan Publishers 2008)
2	Calculus Vol 2- S. Narayanan and T.K.M. Pillai.(Viswanathan Publishers 2008)

Reference Books	
1	Mathematics for BSc – Vol I and. II - P. Kandasamy & K.Thilagarathy (S.Chand and Co-2004)
2	A Text book of calculus- Shanthi Narayanan & J.N. Kapoor (S. Chand& Co.2014)
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://ocw.mit.edu/resources/res-18-006-calculus-revisited-single-variable-calculus-fall-2010/study-materials/ https://www.whitman.edu/mathematics/calculus_online/chapter15.html
2	https://www.khanacademy.org/math/calculus-home
3	https://www.sac.edu/FacultyStaff/HomePages/MajidKashi/PDF/MATH_150/Bus_Calculus.pdf
4	http://nptel.ac.in/courses/111104085/29
5	http://www.math.odu.edu/~jhh/Volume-1.PDF http://www.math.odu.edu/~jhh/Volume-2.PDF https://www.math.cmu.edu/~wn0g/2ch6a.pdf
6	https://nptel.ac.in/courses/111/105/111105122/http://www.staff.ttu.ee/~lpallas/multipleintegrals.pdf
Course Designed By: 1. Dr. C. Janaki 2.Mr. R.Subramanian	

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	M	S	S	S	S	S	S	S	S
CO2	S	M	S	S	S	S	S	M	S	S
CO3	S	S	S	S	S	S	S	S	S	S
CO4	S	M	S	S	S	S	S	S	S	S
CO5	S	S	S	S	S	S	S	S	S	S

*S-Strong; M-Medium; L-Low


Second
Semester

Course code		ANALYTICAL GEOMETRY	L	T	P	C
Core/Elective/Supportive		Core Paper – III	4	-	-	4
Pre-requisite		Basic Knowledge In Trigonometry & Vector Algebra.	Syllabus Version		2020 - 2021	

Course Objectives:

Emphasis to enhance student knowledge in three dimensional analytical geometry and the geometrical aspects of three dimensional figs, viz, sphere, cone and cylinder.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

CO1	Gain knowledge about the regular geometrical figures and their properties.	K1
CO2	Describe the geometric concepts.	K2
CO3	Find equation to tangent, normal at a point on a conic	K3
CO4	Analyze condition of tangency and find the tangent plane to the central conicoid	K4
CO5	Analyze conics to explain natural phenomenon	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Straight Lines	12 hours

Analytical Geometry 3D-Straight lines-coplanarity of straight line-shortest distance (S.D) and equation of S.D between two lines-simple problems.

Unit:2	Sphere	12 hours

Sphere: standard equation of sphere-results based on the properties of a sphere-tangent plane to a sphere- equation of a circle.

Unit:3	System Of Spheres	12 hours

Tangency of spheres- coaxial system of spheres- radical planes- Orthogonal spheres.

Unit:4	Cone And Cylinder	12 hours

Cone whose vertex is at the origin- envelope cone of a sphere-right circular cone-equation of a cylinder-right circular cylinder.

Unit:5	Conicoid	12 hours

Nature of a conicoid- standard equation of central conicoid –enveloping cone- tangent plane-condition for tangency –director Sphere- director plane .

	Total Lecture hours	60 hours

Text Book(s)

1	Analytical Geometry - P. Durai Pandian & others (Emerald Publishers 1998).
2	Solid Geometry- N.P. Bali (Laxmi Publications (P) Ltd, 2015)

Reference Books

1	Solid Geometry- M.L. Khanna (Jainath & Co Publishers, Meerut)

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	http://www.brainkart.com/article/Three-Dimensional-Analytical-Geometry_6453/
2	http://egyankosh.ac.in/bitstream/123456789/11990/1/Unit-2.pdf

Course Designed By: 1. Dr. C. Janaki
2. Mrs .B. Thenmozhi

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M	M	S	S	M	S	S	S	S	S
CO2	S	M	S	S	S	S	S	M	S	S
CO3	S	M	S	M	M	M	S	S	S	S
CO4	S	M	S	S	M	S	M	S	S	S
CO5	S	S	S	S	M	S	S	S	S	S

*S-Strong; M-Medium; L-Low

Course code		TRIGONOMETRY, VECTOR CALCULUS AND FOURIER SERIES	L	T	P	C
Core/Elective/Supportive		Core Paper – IV	5	-	-	4
Pre-requisite		Knowledge In Vector Algebra, Differentiation, Integration	Syllabus Version		2020 - 2021	

Course Objectives:

To enable the students to learn about the expansion of trigonometric, hyperbolic functions, vector calculus and the expansions of Fourier series .

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

CO1	Know the expansion of trigonometric functions and hyperbolic functions.	K1
CO2	Acquire the basic knowledge of vector differentiation and vector integration.	K2
CO3	Determine and apply the important quantities associated with vector fields such as the divergence, curl and scalar potential.	K3
CO4	Understand and find Fourier series of a given periodic function.	K3
CO5	Examine line integral, surface integral, volume integral and inter-relations among them .	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Expansion In Series	15 hours

Expansion in Series – Expansion of **cos ^{n}θ, sin ^{n}θ**in a series of cosines and sines of multiples of θ – Expansions of **cosnθ ,sinnθ and tannθ** in powers of sines , cosines and tangents – Expansion of sin θ, cos θ and tan θ in powers of θ – hyperbolic functions and inverse hyperbolic functions.

Unit:2	Logarithm Of Complex Quantities And Summation Of Series	15 hours

Logarithm of complex quantities - summation of series – when angles are in arithmetic progression – C + iS, method of summation – method of differences.

Unit:3	Vector Differentiation	15 hours

Scalar and vector fields – Differentiation of vectors – Gradient, Divergence and Curl-Solenoidal and irrotational vectors-Laplacian Operator.

Unit:4	Vector Integration	15 hours

Integration of vectors – line integral – surface integral – Green's theorem in the plane – Gauss divergence theorem – Stoke's theorem – (Statements only) - verification of the above said theorems.

Unit:5	Fourier Series	15 hours

Periodic functions – Fourier series of periodicity 2π – half range series.

	Total Lecture hours	75 hours

Text Book

1	Mathematics for B.Sc. Branch I, Volume I, II and IV - P. Kandasamy & K. Thilagavathi (S.Chand and Company Ltd, New Delhi, 2004.)

Reference Books

1	Vector Analysis -P. Duraipandian, Laxmiduraipandian (Revised Edition-Reprint 2005 Emerald Publishers)
2	Trigonometry -T.K. Manichavasagam Pillai and S.Narayanan (Viswanathan Publishers and Printers Pvt. Ltd 2009.)

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	http://www.math.odu.edu/~jhh/Volume-2.PDF http://www-math.mit.edu/~djk/18_01/chapter20/section03.html https://www.whitman.edu/mathematics/calculus_online/chapter16.html http://www.mecmath.net/calc3book.pdf
2	http://www.nptelvideos.in/2012/11/mathematics-iii.html
3	https://nptel.ac.in/courses/111107108/1

Course Designed By: 1. Dr. C. Janaki
2.Mr. R. Subramanian

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M	M	M	M	S	S	M	M	S	S
CO2	S	M	S	S	M	M	M	S	M	S
CO3	S	M	S	S	M	M	M	S	S	S
CO4	S	S	S	S	S	S	S	S	S	M
CO5	S	S	S	S	M	S	S	S	S	S

*S-Strong; M-Medium; L-Low


Third Semester

Course code		DIFFERENTIAL EQUATIONS AND LAPLACE TRANSFORMS	L	T	P	C
Core/Elective/Supportive		Core Paper – V	3	-	-	4
Pre-requisite		Knowledge Of Ordinary And Partial Derivatives	Syllabus Version		2020 - 2021	

Course Objectives:

To impart knowledge on the method of solving ordinary differential Equations of First Order and Second Order, Partial Differential equations, Laplace Transforms, its inverse and application of Laplace Transform to solve the first and second Order Differential Equations with constant coefficients.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

CO1	Acquire knowledge to solve Differential and Partial Differential Equations.	K1
CO2	Solve higher order linear differential equations.	K2
CO3	Expose differential equation as a powerful tool in solving problems in Physical and Social sciences.	K3
CO4	Demonstrate competency to solve linear PDE by Lagrange's method	K3
CO5	Analyze the concepts of Laplace transforms and inverse Laplace transforms to solve ODE with constant coefficients.	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Differential Equation Of First Order And Higher Degree.	9hours

Ordinary Differential Equations: Equations of First Order and of Degree Higher than one – Solvable for p, x, y– Clairaut's Equation – Simultaneous Differential Equations with constant coefficients of the form

i) $f_1(D)x + g_1(D)y = \varphi_1(t)$

ii) $f_2(D)x + g_2(D)y \ \varphi_2(t)$ where f_1 , g_1 , f_2 and g_2 are rational functions $D=d/dt$ with constant coefficients and φ_1 , φ_2 explicit functions of tand explicit functions of t.

Unit:2	Higher Order Linear Differential Equation	9hours

Finding the solution of Second and Higher Order with constant coefficients with Right Hand Side is of the form Ve^{ax} where V is a function of x – Euler's Homogeneous Linear Differential Equations.

Unit:3	Partial Differential Equations	9 hours

Partial Differential Equations: Formation of equations by eliminating arbitrary constants and arbitrary functions – Solutions of P.D Equations – Solutions of Partial Differential Equations by direct integration – Methods to solve the first order P.D. Equations in the standard forms – Lagrange's Linear Equations.

Unit:4	Laplace Transforms	9 hours

Laplace Transforms: Definition – Laplace Transforms of standard functions – Linearity property – First Shifting Theorem – Transform of tf(t), , f (t)/t, $f'(t)$, $f''(t)$.

Unit:5	**Inverse Laplace Transforms**	**9 hours**
Inverse Laplace Transforms – Applications to solutions of First Order and Second Order Differential Equations with constant coefficients.		
	Total Lecture hours	**45 hours**

Text Book

1	Mathematics for B.Sc – Branch – I Volume III- P. Kandasamy & K. Thilagavathi (S. Chand and Company Ltd, New Delhi, 2004.)

Reference Books

1	Calculus Vol III -S. Narayanan and T.K. Manickavasagam Pillai, (S. Viswanathan Printers and Publishers Pvt. Ltd, Chennai 1991)
2	Differential Equations -N.P. Bali(Laxmi Publication Ltd, New Delhi, 2004)
3	Laplace and Fourier Transforms-Dr. J. K. Goyal and K.P. Gupta (PragatiPrakashan Publishers, Meerut, 2000)

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://**nptel**.ac.in/courses/111105035/
2	http://www.nptelvideos.in/2012/11/mathematics-iii.html https://www.digimat.in/nptel/courses/video/111108081/L02.html
3	https://www.math.ust.hk/~machas/differential_equations.pdf. https://www.ijsr.net/archive/v2i1/ijsron2013331.pdf https://www.whitman.edu/mathematics/calculus_online/chapter17.html

Course Designed By: 1. Dr. C. Janaki
2.Mr. R. Subramanian

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M	M	S	S	M	S	M	M	S	S
CO2	S	M	S	S	S	S	M	M	S	S
CO3	S	S	S	S	S	S	S	S	S	S
CO4	S	M	S	S	S	S	M	S	S	S
CO5	S	S	S	S	S	S	S	S	S	M

*S-Strong; M-Medium; L-Low

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Course code		STATICS	L	T	P	C
Core/Elective/Supportive		Core Paper – VI	3	-		4
Pre-requisite		Basic Knowledge In Vector Algebra & Trigonometric Functions	Syllabus Version	2020 - 2021		

Course Objectives:

1.To enable the students to realize the nature of forces and resultant forces when more than one force acts on a particle.
2.To know about the conditions of equilibrium of couples and coplanar forces.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

CO1	Remember the various laws.	K1
CO2	Understand the concepts of forces and moments.	K2
CO3	Understand the concepts of equilibrium.	K2
CO 4	Apply the concepts of forces and moments.	K3
CO 5	Analyze the basics of coplanar forces, equilibrium of forces acting on a rigid body and solve the problems.	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Law Of Forces	9 hours

Forces acting at a point – Parallelogram law-triangle law –Converse of Triangle law-Polygon Law of Forces- Lami's Theorem. .

Unit:2	Resolution And Components Of Forces	9 hours

(λ- μ) theorem –Resolution of forces- Components of a force- Resultant of any number of Coplanar forces acting at a point- Conditions of equilibrium.

Unit:3	Parallel Forces, Moment And Couple	9 hours

Parallel Forces and Moments –Resultant of two parallel forces (Like and unlike)-Conditions of equilibrium of three coplanar forces- Moment of a force- Geometrical representation-Sign of the moment- Unit of moment – Varignon's Theorem on couples-Equilibrium of two couples- Equivalence of two couples.

Unit:4	Forces Acting On A Rigid Body	9 hours

Moment of a force about a point- Varignon's Theorem - Coplanar forces acting on arigid body – Theorem on three coplanar forces in equilibrium.

Unit:5	General Conditions Of Equilibrium Of A System Of Co-planar Forces	9 hours

Reduction of a system of coplanar forces to a single force and a couple - necessary & sufficient conditions of equilibrium only – Equation to the line of action of the resultant.

	Total Lecture hours	45 hours

Text Book

1	Statics -M.K.Venkataraman (Agasthiar Publications, Trichy, 1999.)
Reference Books	
1	Statics -A.V.Dharmapadam.(S.Viswanathan Printers and Publishing Pvt., Ltd, 1993.)
2	Mechanics -P.Duraipandian and Laxmi Duraipandian.(S.Chand and Company Ltd, Ram Nagar, New Delhi -55, 1985.)
3	Statics -Dr.P.P.Gupta(Kedal Nath Ram Nath, Meerut, 1983-84)
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://nptel.ac.in/courses/112/105/112105164/
2	https://nptel.ac.in/courses/122/102/122102004/
3	https://www.khanacademy.org/science/ap-physics-1
Course Designed By: 1. Dr. C. Janaki 2.Dr. Renu Thomas	

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M	M	M	M	S	S	M	M	S	S
CO2	S	M	S	S	M	M	M	M	M	S
CO3	S	M	S	S	M	M	M	S	S	S
CO4	S	S	S	S	S	S	S	M	S	S
CO5	S	S	S	S	M	S	S	S	S	S

*S-Strong; M-Medium; L-Low

Course code		Operations Research – Paper I	L	T	P	C
Core/Elective/Supportive		Skill Based Subject	3	-	-	3
Pre-requisite		Knowledge In Basic Mathematical Concepts	Syllabus Version	2020 - 2021		

Course Objectives:

To familiarize students with the basic concepts, models and techniques for effective decision making , model formulation and applications.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

CO 1	Understand the basic concepts and application of operations research in various fields.	K1
CO 2	Know principles of construction of mathematical models of conflicting situations.	K2
CO 3	Analyze the relationship between a linear program and its dual.	K3
CO 4	Apply techniques constructively to make effective decisions in business and solve problems in industry.	K3
CO 5	Build and solve transportation problems.	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Basics Of Operations Research & Formulation Of L.P.P	9 hours

Basics of O.R – Definition of O.R – Characteristics of O.R - Scientific methods in O.R – Necessary of O.R in Industry – O.R and Decision Making – Scope of O.R in Modern Management–Uses and limitations of O.R.Linear Programming Problem – Formulation of L.P.P.

Unit:2	Linear Programming Problem -Simplex method	9 hours

Graphical solutions of L.P.P – Problems. Simplex Method – Problems.

Unit:3	Big-M & Two Phase Method	9 hours

Charne's Penality Method (or) Big – M Method - Two Phase Simplex method – Problems.

Unit:4	Duality In L.P.P	9 hours

Duality in L.P.P – Concept of duality – Duality and Simplex Method – Problems .

Unit:5	Transportation Model	9 hours

The transportation Problems – Basic feasible solution by L.C.M – NWC- VAM- optimum solutions – unbalanced Transportation problems.

	Total Lecture hours	45 hours

Text Book

1	Operations Research – Kantiswarup, P. K. Gupta, Man Mohan(S. Chand & Sons Education Publications, New Delhi, 12th Revised edition-2003)

Reference Books

1	Operations Research – Prem Kumar Gupta D. S. Hira(S. Chand & Company Ltd, Ram Nagar, New Delhi ,2014)

2	Operations Research Principles and Problems- S. Dharani Venkata Krishnan(Keerthi publishing house PVT Ltd.1994)
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://nptel.ac.in/courses/111/102/111102012/
2	https://nptel.ac.in/courses/111/104/111104027/
Course Designed By: 1. Dr. C. Janaki 2.Dr. M.S. Annie Christi	

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M	M	M	S	S	M	M	M	S	S
CO2	S	M	S	S	S	S	S	M	M	S
CO3	S	S	S	S	M	M	S	S	S	S
CO4	S	S	S	S	S	S	S	S	M	S
CO5	S	S	S	S	S	S	S	M	S	S

*S-Strong; M-Medium; L-Low


Fourth
Semester

Course code		DYNAMICS	L	T	P	C
Core/Elective/Supportive		Core Paper-VII	3	-	-	4
Pre-requisite		Knowledge In Forces And Vector Algebra	Syllabus Version	2020 - 2021		

Course Objectives:

To impart knowledge about the projectile, Simple Harmonic Motion and understanding the notions of impact between two smooth spheres.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

CO 1	Remember the basic kinematics and dynamic concepts.	K1
CO 2	Describe the differential equation of Central Orbits .	K2
CO 3	Apply the concepts of projectiles to solve problems relating to the motion of a projectile.	K3
CO 4	To understand &apply the concepts of composition of simple harmonic motion in two directions.	K3
CO 5	Understand impulsive forces and analyze loss of K.E due to direct and oblique impact.	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Projectiles	9hours

Path of a projectile-Greatest height-time of flight – Range -range on an inclined plane through the point of projection-Maximum range.

Unit:2	Central Orbits	9 hours

Radial and transverse components of velocity and acceleration – areal velocity of central orbits - Differential equation of central orbit in polar coordinates only.

Unit:3	Simple Harmonic Motion	9 hours

Amplitude, periodic time, phase-composition of two simple harmonic motions of the same period in a straight line and in two perpendicular lines.

Unit:4	Collision Of Elastic Bodies-Direct Impact Of Spheres	9hours

Impulsive force – Newton's experimental law- Principle of conservation of momentum- Direct Impact on a smooth fixed plane -Direct impact of two smooth spheres- loss of kinetic energy during direct impact.

Unit:5	Oblique Impact Of Spheres	9 hours

Oblique impact of a smooth sphere on fixed smooth plane – oblique impact of two smooth spheres - Loss of Kinetic energy during oblique impact.

	Total Lecture hours	45 hours

Text Book

1. Dynamics - M.K. Venkataraman (11th Ed. Agasthiar Publications, Trichy, 1994.)

Reference Books

1	Dynamics -A.V.Dharamapadam(S.Viswanathan Printers and Publishers Pvt., Ltd, Chennai, 1998)
2	Dynamics -K.Viswanatha Naik and M.S.Kasi(Emerald Publishers, 1992)
3	Dynamics -Naryanamurthi(National Publishers, New Delhi, 1991)

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://nptel.ac.in/courses/115/106/115106119/
2	https://www.askiitians.com/iit-jee-physics/mechanics/motion-of-projectile.aspx

Course Designed By: 1. Dr. C. Janaki
2. Dr. Renu Thomas

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M	M	M	M	M	S	S	S	S	S
CO2	M	M	M	M	M	S	M	S	S	S
CO3	S	S	S	S	S	S	S	S	S	S
CO4	M	M	M	M	S	S	S	S	S	S
CO5	S	S	S	S	S	S	S	S	S	M

*S-Strong; M-Medium; L-Low

Course code		PROGRAMMING IN C	L	T	P	C
Core/Elective/Supportive		Core Paper-VIII	2	-	-	3
Pre-requisite		Higher Secondary level Mathematics	Syllabus Version		2020 - 2021	

Course Objectives:

To impart the importance of C language, its structure, Data types, Operators of C, Various control statements, Arrays, different types of functions and practical problems.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

CO 1	Remember the importance of C language and datatypes.	K1
CO 2	Understand the basic structure, operators and statements of C language.	K2
CO 3	Understand decision control statements, loop control statements.	K2
CO 4	Apply the concepts of data types, operators, expressions, control statements, arrays, character arrays and strings to write the C code for a given algorithm.	K3
CO 5	Read, understand and trace the execution of programs written in C language.	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Constants, Variables &Data Types	6 hours

Introduction – Importance of C- Basic structure of C programme - Character set -Constants – Keywords and identifiers – Variables Data types – Declaration of variables – Assigning values to variables –Defining symbolic constants.

Unit:2	Operators &Expressions	6 hours

Arithmetic operators - Relational operators - logical operators – assignment operators – increment and decrement operators –Conditional operators – Special operators – Arithmetic expressions –Evaluation of expressions –Precedence of arithmetic operators – Some computational problems –Type conversion in expressions – operator precedence and associating mathematical functions.

Unit:3	Managing Input -Output Operations , Decision Making And Branching	6 hours

Reading and Writing character – formatted input and output. Decision making with IF statement – Simple IF statement – The if ELSE statement - Nesting of IF ELSE statement – The ELSE IF ladder. The Switch statement –The ? Operator –The GOTO statement.

Unit:4	Decision Making And Looping	6 hours

The WHILE statement - the DO statement the FOR statement –Jumps in loops.

Unit:5	Arrays And Strings	6 hours

One, Two dimensional arrays – initializing two dimensional arrays – Multidimensional arrays – Declaring and initializing string variables –reading strings from terminal – Writing strings on the screen – Arithmetic operations on characters.

	Total Lecture hours	**30 hours**
Text Book		
1	Programming in ANSI C -E.Balagurusamy(Tata McGraw –Hill Publishing Company limited, New Delhi,Fifth Edition,2008)	
Reference Books		
1	Programming with C (Schaum's outline series)- Byron Gottfried (TataMcGrawHill publishing company -1998.)	
2	Programming with Ansi and Turbo C -Ashok N.Kamthane (Pearson Education publishers, 2002)	
3	The spirit of C -HentryMullish and Herbert L cooper (Jaico publisher , 1996.)	
4	The Ansi C- Brian W. Kernighan, Dennis M.Ritchie (Published by Prentice- Hall of India Private Limited, M-97,New Delhi- 110001 ,Second edition ,October 1992)	
5	Ansi C: With Microsoft C 5.1 and Quick C 2.0 - C. Balasubramanian.(Tata McGraw-Hill Publishing company limited, New Delhi.)	
6	Programming In C - Kris A.Jamsa (Galgotia Publications Pvt.ltd. 1992)	
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]		
1	https://nptel.ac.in/courses/106/104/106104128/	
2	https://nptel.ac.in/courses/106/105/106105171/	
Course Designed By: 1. Dr. C. Janaki 2.Dr. K. Malar		

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M	M	M	S	S	M	M	M	S	S
CO2	S	S	M	M	S	M	M	S	M	S
CO3	S	M	M	M	S	S	M	S	S	S
CO4	S	S	S	S	S	M	S	S	S	M
CO5	S	S	S	S	S	M	S	S	S	S

*S-Strong; M-Medium; L-Low

Course code		PROGRAMMING IN C-(PRACTICAL)	L	T	P	C
Core/Elective/Supportive		Core Paper VIII (Practical)	-	-	1	1
Pre-requisite		Knowledge in C	Syllabus Version		2020-2021	

PRACTICAL LIST

1. Write a C program to generate 'N' Fibonacci number.
2. Write a C program to print all possible roots for a given quadratic equation.
3. Write a C program to calculate the statistical values of mean, median.
4. Write a C program to calculate the statistical values of Standard Deviation and variance of the given data .
5. Write a C program to sort a set of numbers.
6. Write a C program to sort the given set of names.
7. Write a C program to find factorial value of a given number 'N'using recursive function call.
8. Write a C program to find the product of two given matrix

Course code		OPERATIONS RESEARCH – PAPER II	L	T	P	C
Core/Elective/Supportive		SKILL BASED SUBJECT	3	-	-	3
Pre-requisite		Knowledge In Basic Mathematical Concepts	Syllabus Version		2020 - 2021	

Course Objectives:

To impart knowledge in Assignment Problems, Game theory, performance measures of queues and optimal use of Inventory.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

CO 1	Identify the importance of stocks, the reasons for holding stock in an organization, determine the optimal order quantity for models .	K1
CO 2	Explain the various costs related to inventory system.	K2
CO 3	Apply game theory concepts to articulate real-world situations by identifying, analyzing and practicing strategic decisions .	K3
CO 4	Apply and extend queueing models to analyze real world systems.	K4
CO 5	Build and solve assignment model.	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Assignment Model	9 hours

The Assignment Problems – Assignment algorithm – optimum solutions – Unbalanced Assignment Problems.

Unit:2	Game Theory	9 hours

Game Theory – Two person zero sum game – The Maximin – Minimax principle – problems - Solution of 2 x 2 rectangular Games – Domination Property – (2 x n) and (m x 2) graphical method – Problems.

Unit:3	Queueing Model	9 hours

Queueing Theory – Introduction – Queueing system – Characteristics of Queueing system – Symbols and Notations – Classifications of queues – Problems in (M/M/1) : (∞/FIFO)

Unit:4	Multi Channel Queueing Models	9 hours

Problems in (M/M/1):(N/FIFO); (M/M/C) : (∞/FIFO); (M/M/C) : (N/FIFO) Models.

Unit:5	Inventory Models	-9 hours

Inventory control – Types of inventories – Inventory costs – EOQ Problem with no shortages – Production problem with no shortages – EOQ with shortages – Production problem with shortages – EOQ with price breaks.

	Total Lecture hours	45 hours

Text Book

1. Operations Research – Kantiswarup, P. K. Gupta, Man Mohan(S. Chand & Sons Education Publications, New Delhi, 12th Revised edition,2003)

Reference Books	
1	Operations Research – Prem Kumar Gupta D. S. Hira(S. Chand & Company Ltd, Ram Nagar, New Delhi, 2014)
2	Operations Research Principles and Problems- S. Dharani Venkata Krishnan (Keerthi publishing house PVT Ltd.1994)
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://nptel.ac.in/courses/111/102/111102012/
2	https://youtu.be/zADj0k0waFY https://youtu.be/xvDdrswAj8M https://www.youtube.com/watch?v=xVPoWkkQTrQ https://www.youtube.com/watch?v=7kDtTAnvuww https://www.youtube.com/watch?v=IfLsPHKk51w
3	https://nptel.ac.in/courses/109/103/109103021/
4	https://nptel.ac.in/courses/110/105/110105082/ https://nptel.ac.in/courses/110/106/110106045/
Course Designed By: 1. Dr. C. Janaki 2. .Dr. M.S. Annie Christi	

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M	S	S	M	S	M	M	M	S	S
CO2	M	M	M	M	S	S	M	M	M	S
CO3	S	S	S	S	S	S	S	S	S	S
CO4	S	S	S	S	S	S	S	S	S	S
CO5	S	S	S	M	S	M	S	M	S	M

*S-Strong; M-Medium; L-Low


Fifth Semester

Course code		REAL ANALYSIS - I	L	T	P	C
Core/Elective/Supportive		Core Paper – IX	5	-	-	4
Pre-requisite		Knowledge in the basic properties of real numbers	Syllabus Version	2020 - 2021		

Course Objectives:

Aimed at exposing there a number systems that underpin the development of real analysis and in understanding various physical phenomena.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

CO 1	Remember the basic topological properties of subsets of the real numbers.	K1
CO 2	Understand the fundamental properties of the real numbers and analyze the real number system.	K2
CO 3	Learn the concept of limits, sequence, continuity, convergent sequence in metric spaces appreciating the abstract ideas and their applicability .	K2
CO 4	Have the proficiency in the formulation and construction of proofs of basic results in real analysis.	K3
CO 5	Demonstrate skills in communicating Mathematics and learn basic techniques and examples in analysis to be well prepared for extended learning .	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	The Real And Complex Number Systems	15 hours

Introduction -the field axioms, the order axioms –integers –the unique Factorization theorem for integers –Rational numbers –Irrational numbers –Upper bounds, maximum Elements, least upper bound –the completeness axiom –some properties of the supremum –properties of the integers deduced from the completeness axiom- The Archimedian property of the real number system –Rational numbers with finite decimal representation of real numbers –absolute values and the triangle inequality –the Cauchy-Schwarzin equality –plus and minus infinity and the extended real number system.

Unit:2	Basic Notions Of A Set Theory.	15 hours

Notations –ordered pairs –Cartesian product of two sets – Relations and functions – further terminology concerning functions –one–one functions and inverse –composite functions –sequences –similar sets-finite and infinite sets –countable and uncountable sets – uncountability of the real number system –set algebra –countable collection of countable sets.

Unit:3	Elements Of Point Set Topology	15 hours

Elements of point set topology: Euclidean space R^n –open balls and open sets in R^n. The structure of open sets in R^n –closed sets and adherent points –The Bolzano –Weierstrass theorem –the Cantor intersection Theorem

Unit:4	Covering &Compactness	15 hours

Covering –Lindel of covering theorem –the Heine Borel covering theorem –Compactness in $\mathbf{R^n}$

–Metric Spaces –point set topology in metric spaces –compact subsets of a metric space – Boundary of a set.		
Unit:5	**Limits And Continuity In Metric Spaces**	**15 hours**
Convergent sequences in a metric space –Cauchy sequences –Completeness sequences – complete metric Spaces. Limit of a function –Continuous functions –continuity of composite functions. Continuous complex valued and vector valued functions.		
	Total Lecture hours	**75 hours**

Text Book(s)

1. Mathematical Analysis-T.M.Apostol(2nd ed., Narosa Publishing Company, Chennai, 1990.)
   - Unit I Chapter 1 Sections 1.2, 1.3, 1.6 to 1.16, 1.18 to 1.20
   - Unit II Chapter 2 Sections 2.2 to 2.15
   - Unit III Chapter 3 Sections 3.2 to 3.9
   - Unit IV Chapter 3 Sections 3.10 to 3.16
   - Unit V Chapter 4 Sections 4.2 to 4.5, 4.8 to 4.10

Reference Books

1. Methods of Real Analysis -R.R. Goldberg.(NY, John Wiley, New York 1976.)
2. Introduction to Topology and Modern Analysis- G.F.Simmons. (McGraw – Hill, New York, 1963.)
3. A survey of Modern Algebra(3rd Edition)-G.Birkhoff and MacLane. (Macmillian, New York, 1965.)
4. Real Analysis - J.N.Sharma and A.R.Vasistha.(Krishna Prakashan Media (P) Ltd, 1997)

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1. https://nptel.ac.in/courses/111/105/111105069/#
2. https://nptel.ac.in/courses/111/101/111101134/
3. https://www.digimat.in/nptel/courses/video/111105098/
4. https://nptel.ac.in/courses/111/106/111106053/

Course Designed By: 1. Dr. C. Janaki
2. .Dr. M.S. Annie Christi

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M	M	M	M	M	M	M	M	S	S
CO2	S	S	M	M	M	S	S	M	S	S
CO3	S	S	S	S	S	S	S	S	S	S
CO4	S	S	S	S	S	S	S	S	S	S
CO5	S	S	S	S	S	S	S	S	S	M

*S-Strong; M-Medium; L-Low

Course code		COMPLEX ANALYSIS - I	L	T	P	C
Core/Elective/Supportive		Core Paper – X	6	-	-	4
Pre-requisite		Knowledge in Calculus	Syllabus Version		2020 -2021	

Course Objectives:

To equip the students with the understanding of the fundamental concepts of complex functions, analyticity, power series and complex integration.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

CO1	Learn techniques of complex analysis effectively to establish mathematical results.	K1
CO 2	Recognize the simple and multiple connected domains.	K2
CO 3	Investigate a function for its analyticity and find it series development.	K3
CO 4	Examine the relationship between conformal mapping and analytic functions	K4
CO 5	Compute contour integrals directly and by the fundamental theorem.	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Complex Plane	18 hours

Complex number –Field of Complex numbers – Conjugation – Absolute value -Argument – Elementary Transformations i) $w=z+\alpha$ ii) $w = az$ iii) $w =1/z$ .Fixed points -cross-ratio-invariance of cross-ratio under bilinear transformation –Definition of extended complex plane – Stereographic projection.

Unit:2	Analytic Functions	18 hours

Complex Functions- Limit of a function –continuity –differentiability – Analytical function defined in a region –necessary conditions for differentiability –sufficient conditions for differentiability –Cauchy-Riemann equation in polar coordinates –Definition of entire function.

Unit:3	Power Series And Elementary Functions	18 hours

Absolute convergence –circle of convergence –Analyticity of the sum of power series in the Circle of convergence (term by term differentiation of a series) Elementary functions : Exponential, Logarithmic, Trigonometric and Hyperbolic functions.

Unit:4	Harmonic Functions And Conformal Mapping	18 hours

Definition and determination. Conformal Mapping: Isogonal mapping –Conformal mapping-Mapping z-->>f(z), where f is analytic, particularly the mappings.
$w= e^{z}$; $w= z^{2}$; w=sin z ; w =cosz ; w=z+ 1/z .

Unit:5	Complex Integration	18 hours
Simply and multiply connected regions in the complex plane. Integration of f(z) from definition along a curve joining z_1 and z_2. Proof of Cauchy's Theorem (using Goursat's lemma for a simply connected region). Statement of Cauchy's integral formula for higher derivatives -Morera's theorem.		
	Total Lecture hours	90 hours

Text Book(s)

1. Complex Analysis -P. Duraipandian and Laxmi Duraipandian. (Emerald Publishers, Chennai –2, 1986.)
   - Unit I — Chapter 1 Sections 1.1 to 1.3, 1.6 to 1.9; Chapter 2 Sections 2.1 to 2.2, 2.6 to 2.9; Chapter 7 Section 7.1
   - Unit II — Chapter 4 Sections 4.1 to 4.10
   - Unit III — Chapter 6 Sections 6.1 to 6.11
   - Unit IV — Chapter 6 Sections 6.12 to 6.13; Chapter 7 Sections7.4,7.6 to 7.9
   - Unit V — Chapter 8 Sections 8.1 to 8.9

Reference Books

1. Complex Variable and Applications -Churchill and Others.(Tata McGraw Hill Publishing Company Ltd, 1974.)
2. Theory of functions of Complex Variable –Santhinarayan (S. Chand and Company, Meerut, 1995.)
3. Functions of Complex Variable -Tyagi B.S(17th Edition, Pragati Prakasham Publishing Company Ltd, Meerut, 1992-93)

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1. https://nptel.ac.in/courses/111/103/111103070/
2. https://nptel.ac.in/courses/111/107/111107056/
3. https://nptel.ac.in/courses/122/103/122103012/

Course Designed By 1.Dr. C. Janaki
2.Mr. R. Subramanian

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	M	M	S	S	M	M	M	S	S
CO2	S	M	M	M	M	S	M	S	S	S
CO3	S	S	M	S	S	S	S	S	S	S
CO4	S	S	M	S	M	S	S	S	S	S
CO5	S	S	S	S	M	S	S	S	S	M

*S-Strong; M-Medium; L-Low

Course code		MODERN ALGEBRA - I	L	T	P	C
Core/Elective/Supportive		Core Paper – XI	6	-	-	4
Pre-requisite		Higher Secondary level Mathematics	Syllabus Version	2020 - 2021		

Course Objectives:

Focuses on the concepts of algebraic structures which is one of a pillar of modern Mathematics and emphasis on their properties and applications.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

CO 1	Recall the properties and extend group structure to finite permutation groups.	K1
CO 2	Explain the concepts of homomorphism, isomorphism and automorphism.	K2
CO 3	Demonstrate abstract thinking capacity and ability to prove theorems.	K3
CO 4	Compare features of different algebraic structures.	K4
CO 5	Examine the properties of algebraic structures and their role in applied contexts.	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	**Groups & its Basic Properties**	**18 hours**

Sets – mappings – Relations and binary operations – Groups: Abelian group, Symmetric group Definitions and Examples – Basic properties.

Unit:2	**Subgroups& Normal Subgroups**	**18 hours**

Subgroups – Cyclic subgroup - Index of a group – Order of an element – Fermat theorem - A Counting Principle - Normal Subgroups and Quotient Groups.

Unit:3	**Automorphisms**	**18 hours**

Homomorphisms (Applications 1 and 2 are omitted) -Automorphisms – Inner automorphism – Cayley's theorem, permutation groups.

Unit:4	**Rings**	**18 hours**

Definition and Examples –Some Special Classes of Rings – Commutative ring – Field – Integral domain - Homomorphisms of Rings.

Unit:5	**Ideals & Quotient Rings**	**18 hours**

Ideals and Quotient Rings – More Ideals and Quotient Rings – Maximal ideal - The field of Quotients of an Integral Domain .

	Total Lecture hours	**90hours**

Text Book

1 Topics in Algebra -I.N. Herstein (John Wiley & Sons, New York, 2003.)

Unit I Chapter 1 Sections 1.1 to 1.3,
Chapter 2 Sections 2.1 to 2.3
Unit II Chapter 2 Sections 2.4 to 2.6
Unit III Chapter 2 Sections 2.7 to 2.10
Unit IV Chapter 3 Sections 3.1 to 3.3

	Unit V Chapter 3 Sections 3.4 to 3.6.
Reference Books	
1	Modern Algebra -Surjeet Singh and Qazi Zameeruddin.(Vikas Publishing house, 1992.)
2	Modern Algebra- A.R.Vasishtha (Krishna Prakashan Mandir, Meerut, 1994 - 95.)
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://nptel.ac.in/courses/106/104/106104149/
2	https://nptel.ac.in/courses/111/106/111106113/
3	https://www.classcentral.com/course/swayam-modern-algebra-14201
Course Designed By: 1. Dr. C. Janaki 2. Dr. G.V. Chandrasekar	

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	M	M	S	M	S	S	M	S	S
CO2	M	M	S	S	M	S	S	S	S	S
CO3	S	M	M	S	S	S	S	S	S	S
CO4	S	M	M	S	S	S	S	S	S	S
CO5	S	S	S	S	S	S	S	S	S	S

*S-Strong; M-Medium; L-Low

Course code		DISCRETE MATHEMATICS	L	T	P	C
Core/Elective/Supportive		CORE PAPER XII	5	-	-	4
Pre-requisite		Higher Secondary level Mathematics	Syllabus Version	2020 - 2021		

Course Objectives:

Prepare students to develop mathematical foundations to understand , create mathematical arguments and focuses on the Formal languages , Automata, Lattices, Boolean Algebra and Graph Theory.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

CO 1	Assimilate various graph theoretic concepts and familiarize with their applications.	K1
CO 2	Know and understand about partially ordered sets, Boolean algebra, lattices and their types.	K2
CO 3	Apply Karnaugh map for simplifying the Boolean expression.	K3
CO 4	Demonstrate the skill to construct simple mathematical proofs and to validate.	K4
CO 5	To achieve greater accuracy, clarity of thought and language.	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Mathematical logic	15 hours

Connectives ,well formed formulas, Tautology, Equivalence of formulas, Tautological implications, Duality law, Normal forms, Predicates, Variables, Quantifiers, Free and bound Variables. Theory of inference for predicate calculus.

Unit:2	Relations And Functions	15 hours

Composition of relations, Composition of functions, Inverse functions, one-to- one, onto, one-to-one& onto functions, Hashing functions, Permutation function, Growth of functions. Algebra structures: Semi groups, Free semi groups, Monoids.

Unit:3	Formal Languages And Automata	15 hours

Regular expressions, Types of grammar, Regular grammar and finite state automata, Context free and sensitive grammars.

Unit:4	Lattices And Boolean Algebra	15 hours

Partial ordering, Poset, Lattices, Boolean algebra, Boolean functions, Theorems, Minimization of Boolean functions (Karnaugh Method only).

Unit:5	Graph Theory	15 hours

Directed and undirected graphs, Paths, Reachability, Connectedness, Matrix representation, Euler paths, Hamiltonian paths, Trees, Binary trees - theorems, and applications.

	Total Lecture hours	75 hours

Text Book	
1	Discrete Mathematical Structures with applications to computer science-J.P Tremblay and R.P Manohar (Mc.Graw Hill, 1975.) Unit 1: Chapter 1. Sections - 1-2, 1-2.7. 1-2.9, 1-2.10, 1-2.11, 1-3, 1-5.1, 1-5.2, 1-5.4, 1-6.4 Unit 2: Chapter 2- Sections - 2-3.5, 2-3.7, 2-4.2, 2-4.3, 2-4.6, Chapter 3- Sections-3-2, 3-5, 3-5.3, Unit 3: Chapter 3- Sections 3-3.1, 3-3.2 Chapter 4- Section 4-6.2 Unit4: Chapter 4- Section 4-1.1, 4-2, 4-3, 4-4.2 Unit 5: Chapter 5- Section 5-1.1, 5-1.2, 5-1.3, 5-1.4
Reference Book	
1	Discrete Mathematics-Oscar Levin(3rd Edition,2016)
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://nptel.ac.in/courses/106/106/106106094/
2	https://nptel.ac.in/courses/111/107/111107058/
Course Designed By: 1.Dr.C.Janaki 2.Mr.R.Subramanian	

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M	S	S	S	M	S	M	M	S	S
CO2	S	M	S	S	M	S	S	S	S	S
CO3	S	M	S	S	M	S	M	S	S	S
CO4	S	M	S	S	S	S	S	S	S	S
CO5	S	S	S	S	S	S	S	S	S	S

*S-Strong; M-Medium; L-Low

Course code		OPERATIONS RESEARCH – PAPER III	L	T	P	C
Core/Elective/Supportive		Skill Based Subject	3	-	-	3
Pre-requisite		Knowledge In Basics of O.R	Syllabus Version	2020 - 2021		

Course Objectives:

Presents applications and method to solve Integer Programming Problems, Non-linear Programming Problems and Dynamic Programming problems.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

CO 1	Know the concept of simulation and simulate a queueing system	K1
CO 2	Understand the overall approach of dynamic programming.	K2
CO 3	Solve nonlinear programming problems using Lagrange multiplier and using Kuhn-Tucker conditions.	K2
CO 4	Apply concepts in optimal scheduling	K3
CO 5	To formulate a model for solving the intractable problems.	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Simulation	9 hours

Introduction-simulation models-Event-Types of simulation- Generation of random numbers-Monte-Carlo simulation- simulation of queueing system.

Unit:2	Network Scheduling By PERT/CPM	9 hours

Introduction - Network and basic components- Rules of Network construction- Time calculation in Networks-CPM. Pert Calculations- Cost Analysis- crashing the network-Problems.

Unit:3	Integer Programming Problem	9 hours

Integer Programming Problem – Gomory's fractional cut Method – Branch and Bound Method.

Unit:4	Non-linear Programming Problems	9 hours

General NLPP – Lagrange multiplier – Hessian bordered Matrix – Kuhn Tucker Condition – Problems.

Unit:5	Dynamic Programming Problem	9 hours

Dynamic Programming Problem – Recursive equation approach – D.P.P Algorithm – Solution of L.P.P by D.P.P.

	Total Lecture hours	45 hours

Text Book

1. Operations Research – Kantiswarup, P. K. Gupta, Man Mohan(S. Chand & Sons Education Publications, New Delhi, 12th Revised edition,2003)

Reference Books	
1	Operations Research – Prem Kumar Gupta& D. S. Hira(S. Chand & Company Ltd, Ram Nagar, New Delhi ,2014)
2	Operations Research Principles and Problems- S. Dharani Venkatakrishnan (Keerthi publishing house PVT Ltd ,1994)
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://nptel.ac.in/courses/111/107/111107104/
2	https://nptel.ac.in/courses/111/102/111102012/
3	https://nptel.ac.in/courses/111/104/111104027/
4	https://nptel.ac.in/courses/111/105/111105039/
Course Designed By: 1.Dr. C. Janaki 2.Dr.M.S. Annie Christi	

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M	M	S	S	S	S	S	S	S	S
CO2	S	M	M	M	M	S	S	M	S	S
CO3	S	M	M	S	M	S	S	S	S	S
CO4	S	S	S	S	S	S	S	S	S	S
CO5	S	S	S	M	S	S	S	S	S	S

*S-Strong; M-Medium; L-Low


Sixth Semester

Course code		REAL ANALYSIS - II	L	T	P	C
Core/Elective/Supportive		Core Paper – XIII	5	-	-	4
Pre-requisite		Knowledge in Mappings & Properties of Real Numbers	Syllabus Version		2020 - 2021	

Course Objectives:

To present a deeper and rigorous understanding of fundamental concepts like continuity, connectivity, derivative, monotonic functions with properties and Riemann - Stieltjes integral.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

CO 1	Demonstrate the understanding of continuity, uniform continuity ,compactness ,connectedness.	K1
CO 2	Understand partitions and their refinement.	K2
CO 3	Determine the Riemann integrability and the Riemann-Stieltjes integrability of a bounded function.	K2
CO 4	Examine the derivatives of function.	K3
CO 5	Acquire skills in writing and analyze the proofs that arise in the context of real analysis.	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Topological Mappings	15hours

Examples of continuous functions –continuity and inverse images of open or closed sets – functions continuous on compact sets –Topological mappings –Bolzano's theorem. .

Unit:2	Monotonic Functions	15 hours

Connectedness –components of a metric space – Uniform continuity - Uniform continuity and compact sets –fixed point theorem for contractions –monotonic functions.

Unit:3	Derivatives	15 hours

Definition of derivative –Derivative and continuity –Algebra of derivatives – the chain rule –one sided derivatives and infinite derivatives –functions with non-zero derivatives –zero derivatives and local extrema –Rolle's theorem –The mean value theorem for derivatives – Taylor's formula with remainder.

Unit:4	Functions Of Bounded Variation	15 hours

Properties of monotonic functions –functions of bounded variation –total Variation –additive properties of total variation on (a, x) as a function of x – functions of bounded variation expressed as the difference of increasing functions –continuous functions of bounded variation.

Unit:5	The Riemann- Stieltjes Integral	15 hours

Introduction –Notation –The definition of Riemann –Stieltjes integral –linear properties – Integration by parts –change of variable in a Riemann –Stieltjes integral –Reduction to a Riemann integral.

	Total Lecture hours	**75 hours**

Text Book

1	Mathematical Analysis(2nd ed)-Tom. M. APOSTOL(Addison-Wisely. Narosa Publishing Company, Chennai, 1990.) Unit I :Chapter 4 Sections 4.11 to 4.15 Unit II :Chapter 4 Sections 4.16, 4.17, 4.19, 4.20, 4.21, 4.23 Unit III: Chapter 5 Sections 5.2 to 5.10 and 5.12 Unit IV :Chapter 6 Sections 6.2 to 6.8 Unit V :Chapter 7 Sections 7.1 to 7.7

Reference Books

1	Methods of Real Analysis -R.R.Goldberg(NY, John Wiley, New York 1976.)
2	Introduction to Topology and Modern Analysis -G.F.Simmons (McGraw – Hill, New York, 1963.)
3	A survey of Modern Algebra -G.Birkhoff and MacLane (3rd Edition, Macmillian, NewYork, 1965.)
4	Real Analysis - J.N.Sharma and A.R.Vasistha. (Krishna Prakashan Media (P) Ltd, 1997.)

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://nptel.ac.in/courses/111/106/111106053/
2	https://www.math.ucdavis.edu/~emsilvia/math127/chapter7.pdf https://www.whitman.edu/Documents/Academics/Mathematics/grady.pdf
3	https://nptel.ac.in/courses/122/101/122101003/

Course Designed By: 1. Dr. C. Janaki
2.Dr. M.S. Annie Christi

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M	M	M	M	S	S	S	M	S	S
CO2	M	M	M	M	M	S	S	M	S	S
CO3	S	M	M	S	S	S	M	S	S	S
CO4	S	M	M	S	S	S	M	S	S	S
CO5	M	M	S	M	M	S	S	S	S	M

*S-Strong; M-Medium; L-Low

Course code		COMPLEX ANALYSIS - II	L	T	P	C
Core/Elective/Supportive		Core Paper – XIV	6	-	-	4
Pre-requisite		Knowledge In Analytic Functions, Complex Integration .	Syllabus Version		2020-2021	

Course Objectives:

To familarise the students with some fundamental theorems, singularity, residues in complex functions, integrations of complex functions, meromorphic functions and their applications.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

CO 1	To recognize and apply the Liouville's theorem, the mean-value property of a function and the maximum modulus principle.	K1
CO 2	Demonstrate understanding and appreciation of deeper aspects of complex analysis.	K2
CO 3	Apply residue theorem to compute integrals.	K3
CO 4	Ability to think critically by proving mathematical conjectures and establishing theorems from complex analysis.	K4
CO 5	Classify the nature of singularity, poles and residues .	K2

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Integral Theorems	18 hours

Results based on Cauchy's theorem (I)-Zeros-Cauchy's Inequality – Liouville's theorem – Fundamental theorem of algebra –Maximum modulus theorem –Gauss mean value theorem – Gauss mean value theorem for a harmonic function on a circle.

Unit:2	Taylor's Series &Laurent's Series	18 hours

Results based on Cauchy's theorem (II)-Taylor's series –Laurent's series.

Unit:3	Singularities And Residues	18 hours

Isolated singularities (Removable Singularity, pole and essential singularity) –Residues –Residue theorem.

Unit:4	Real Definite Integrals	18 hours

Evaluation using the calculus of residues – Integration on the unit circle –Integral with $-\infty$ and $+\infty$ as lower and upper limits with the following integrals:

i) P(x) /Q(x) where the degree of Q(x) exceeds that of P(x) at least 2.

ii) (sin ax).f(x), (cos ax).f(x), where a>0 and f(z) $\rightarrow$0 as z$\rightarrow\infty$ and f(z) does not have a pole on the real axis.

iii) f(x) where f(z) has a finite number of poles on the real axis.

∞

Integral of the type $\int_0 x^{a-1}/(1+x)\,dx$; 0< a <1.

Unit:5	Meromorphic Functions	18 hours

Theorem on number of zeros minus number of poles –Principle of argument-Rouche's theorem – Theorem that a function which is meromorphic in the extended plane is a rational function.

	Total Lecture hours	**90 hours**

Text Book

1	Complex analysis -P. Duraipandian and Laxmi Duraipandian (Emerald Publishers, Chennai – 2, 1997.) Unit I : Chapter 8 Sections 8.10, 8.11 Unit II : Chapter 9 Sections 9.1 to 9.3, 9.13. Unit III: Chapter 9 Sections 9.5 to 9.12, 9.13. Chapter 10 Sections 10.1, 10.2 and 10.4. Unit IV: Chapter 10 Sections 10.3 and 10.4. Unit V: Chapter 11 Sections 11.1 to 11.3 **(Except theorems 11.5 and 11.6)**

Reference Books

1	Complex Variable and Applications -Churchill and Others(Tata Mc-graw Hill Publishing Company Ltd, 1974.)
2	Theory of functions of Complex Variable –Santhinarayan (S.Chand and Company ,Meerut, 1995)
3	Functions of Complex Variable (17thEdition)- Tyagi B.S (PragatiPrakasham Publishing Company Ltd, Meerut, 1992-93.)

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://nptel.ac.in/courses/111/103/111103070/
2	https://nptel.ac.in/courses/111/106/111106094/
4	https://nptel.ac.in/courses/122/103/122103012/

Course Designed By: 1.Dr. C. Janaki
2.Mr. R. Subramanian

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M	M	M	S	M	S	S	M	S	S
CO2	S	S	M	S	M	S	M	M	M	S
CO3	S	S	S	S	S	S	S	S	S	S
CO4	S	M	S	S	M	S	S	S	S	S
CO5	S	M	M	S	M	S	S	S	S	S

*S-Strong; M-Medium; L-Low

Course code		MODERN ALGEBRA - II	L	T	P	C
Core/Elective/Supportive		Core Paper – XV	6	-	-	4
Pre-requisite		Knowledge in Groups, Rings and Fields	Syllabus Version	2020 - 2021		

Course Objectives:

To develop understanding in the domain of matrix theory ,vector spaces, linear transformations as well as the principles underlying the subject.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

CO 1	Communicate and understand mathematicalide as and results with the correct use of mathematical definitions, terminology and symbols.	K1
CO 2	Explain the concepts of base and dimension of Vector space.	K2
CO 3	To apply the Gram-Schmidt process to construct an orthonormal set of vectors in an inner product space.	K3
CO 4	Demonstrate competence with the basic ideas of Matrix theory ,Vector spaces, Dual spaces, Linear transformation.	K3
CO 5	Have an insight to analyze a real life problem and solve it.	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Matrices	16 hours

Introduction – Addition and Scalar Multiplication of Matrices – Product of Matrices –Transpose of a Matrix – Matrix Inverse – Symmetric and Skew - Symmetric Matrices.

Unit:2	Special Matrices	16 hours

Hermitian and Skew-Hermitian Matrices – Orthogonal and Unitary Matrices – Rank of a Matrix –Characteristic Roots and Characteristic Vectors of a Square Matrix.

Unit:3	Vector Spaces	20hours

Elementary Basic Concepts – Subspace of a Vector space - Homomorphism – Isomorphism - Internal and External direct sums - Linear span - Linear Independence and Bases.

Unit:4	Dual Spaces	20 hours

Dual Spaces – Annihilator of a subspace - Inner Product Spaces – Norm of a Vector – Orthogonal Vectors - Orthogonal Complement of a subspace – Orthonormal set.

Unit:5	Linear Transformations	18 hours

Algebra of Linear Transformations – Regular, Singular Transformations – Range of T – Rank of T - Characteristic Roots – Characteristic Vectors – Matrices.

	Total Lecture hours	90 hours

Text Book(s)	
1	Modern Algebra -R.Balakrishnan and M. Ramabadran. (Vikas Publishing House Pvt. Ltd, New Delhi, Second Revised Edition 1994) (For Units I & II) . Unit I :Chapter 1 Sections 1.1 to 1.3, 1.5 to 1.7 Unit II :Chapter 1 Sections 1.8 and 1.9 Chapter 2 Section 2.9 Chapter 3 Section 3.9
2	Topics in Algebra -I.N. Herstein.(John Wiley & Sons, New York, 2003.) (For Units III, IV & V) Unit III: Chapter 4 Sections 4.1 and 4.2 Unit IV :Chapter 4 Sections 4.3 and 4.4 Unit V :Chapter 6 Sections 6.1 , 6.2 and 6.3
Reference Books	
1	Modern Algebra -Surjeet Singh and Qazi Zameeruddin (Vikas Publishing house, 1992.)
2	Modern Algebra -A.R.Vasishtha (Krishna Prakashan Mandir, Meerut, 1994 – 95.)
3	Linear Algebra -Seymour Lipschutz and Marc Lipson (3rd Edition, McGraw Hill, 2001.)
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://nptel.ac.in/courses/111/106/111106135/
2	https://nptel.ac.in/courses/115/105/115105097/
3	https://nptel.ac.in/courses/111/101/111101115/
4	https://nptel.ac.in/courses/111/108/111108066/
Course Designed By: 1.Dr. C. Janaki 2.Dr. G.V. Chandrasekar	

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M	M	M	M	M	S	S	M	S	S
CO2	M	M	S	S	M	S	M	M	S	S
CO3	S	M	S	S	M	S	M	S	S	S
CO4	S	S	S	S	S	S	S	S	S	S
CO5	S	S	S	S	S	S	S	S	S	M

*S-Strong; M-Medium; L-Low

Course code		OPERATIONS RESEARCH - PAPER -IV	L	T	P	C
Core/Elective/Supportive		Skill Based Subject	3		-	3
Pre-requisite		Knowledge in Basics of O.R	Syllabus Version		2020 - 2021	

Course Objectives:

To enhance the students knowledge in decision analysis, sequencing of the jobs to be carried out based on cost optimization, replacement policies and analyze the cases according to their categories.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

CO 1	Know the principles and applications of information theory.	K1
CO 2	To understand sequencing, replacement problems.	K2
CO 3	Demonstrate skills to achieve their objective using sequencing models.	K3
CO 4	Apply decision making under different business environments.	K4
CO 5	Determine a solution to a rectangular game using simplex method.	K3

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	**Decision Analysis**	**9 hours**

Decision Making environment – Decisions under uncertainty – Decision under risk – Decision – Tree Analysis.

Unit:2	**Sequencing Problems**	**9 hours**

Introduction-problem of sequencing - basic terms used in sequencing- processing n-jobs through 2 machines - processing n –jobs through k machines - processing 2 jobs through k machines (Problems only).

Unit:3	**Replacement Problems**	**9 hours**

Introduction - Replacement of equipment / assets that deteriorates gradually - replacement of equipment that fails suddenly and problems.

Unit:4	**Information Theory**	**9 hours**

Introduction- A measure of Information-Axiomatic Approach to Information- Entropy-The expected information- Some properties of entropy function-Joint and conditional entropies

Unit:5	**Applications**	**9 hours**

General solution of (mxn) rectangular games using simplex method - Reliability and system failure rates using replacement problems.

	Total Lecture hours	**45 hours**

Text Book

1. Operations Research -Kantiswarup, P. K. Gupta , Man Mohan (S.Chand&sons education publications ; New Delhi,2003)

Reference Books	
1	Operations Research - P K Gupta & D S Hira (S. Chand and company ltd. Ram Nagar; New Delhi,2014.)
2	Operations Research principles problems - S Dharani Venkatakrishnan(keerthi publishing house Pvt. Ltd.1994)
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://nptel.ac.in/courses/117/104/117104129/
2	https://nptel.ac.in/courses/110/105/110105082/
3	https://nptel.ac.in/courses/110/106/110106045/
Course Designed By: 1. Dr. C. Janaki 2. Dr. M.S. Annie Christi	

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M	M	M	S	S	S	S	M	S	S
CO2	S	S	S	S	S	S	S	M	S	S
CO3	S	S	S	S	S	S	S	S	S	S
CO4	S	S	S	S	S	S	S	S	S	M
CO5	S	M	M	S	S	S	S	S	M	S

*S-Strong; M-Medium; L-Low


Elective
Course

Course code		ASTRONOMY – I	L	T	P	C
Core/Elective/Supportive		ELECTIVE I – A	5	-	-	3
Pre-requisite		Knowledge In Physics and Mathematics	Syllabus Version	2020-2021		

Course Objectives:

To enable the students to understand the Astronomical aspects and about the laws governing the planet movements.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

CO 1	Define properties of physical systems that comprise the known universe	K1
CO 2	Understand the Solar system, Celestial sphere, Dip-Twilight & Keplar's laws.	K2
CO 3	Apply their physics and mathematical skills to problems in the areas of planetary science.	K3
CO 4	Demonstrate the skill to infer valid scientific conclusions and communicate those conclusions in a clear and articulate manner.	K4
CO 5	Analyze the astronomical concepts.	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Solar system	15 hours

General description of the Solar system. Comets and meteorites – Spherical trigonometry..

Unit:2	Celestial sphere	15 hours

Celestial sphere – Celestial co – ordinates – Diurnal motion – Variation in length of the day.

Unit:3	Geocentric parallex	15 hours

Dip – Twilight – Geocentric parallex.

Unit:4	Refraction	15hours

Refraction – Tangent formula – Cassinis formula.

Unit:5	Kepler's law	15 hours

Kepler's laws – Relation between true eccentric and mean anamolies.

	Total Lecture Hours	75 hours

Text Book

1. Astronomy- S. Kumaravelu and SusheelaKumaravelu (TextPublisher: Sivakasi: Janki7th Edition 1986)

Course Designed By: 1. Dr. C. Janaki
2.Dr. A. Pushpalatha

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M	M	M	S	S	S	S	M	S	S
CO2	M	M	M	S	S	S	S	M	S	M
CO3	M	M	M	M	M	S	M	S	S	S
CO4	S	S	M	S	S	S	S	S	S	S
CO5	S	M	M	S	S	S	M	S	M	S

*S-Strong; M-Medium; L-Low

Course code		NUMERICAL METHODS - I	L	T	P	C
Core/Elective/Supportive		ELECTIVE I – B	5	-	-	3
Pre-requisite		Knowledge In Higher Secondary Level Mathematics	Syllabus Version		2020-2021	

Course Objectives:

It exposes the students to study numerical techniques to find solutions of numerical, algebraic transcendental equations, solution of simultaneous linear algebraic equations and interpolation.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

CO 1	Remember the concepts of errors and its effect on computation.	K1
CO 2	Obtain numerical solutions of algebraic and transcendental equations.	K2
CO 3	Apply the finite difference and interpolation concepts.	K3
CO 4	Develop skills in designing mathematical models for constructing polynomials to the given data and drawing inferences.	K4
CO 5	Analyze the efficiency of iteration methods.	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	**The Solution Of Numerical Algebraic And Transcendental Equations**	**15 hours**

Bisection method – Iteration Method – Convergence condition – Regula Falsi Method – Newton – Raphson method - Convergence Criteria – Order of Convergence.

Unit:2	**Solution Of Simultaneous Linear Algebraic Equations**	**15 hours**

Gauss elimination method – Gauss Jordan method – Method of Triangularization – Gauss Jacobi method – Gauss Seidel method.

Unit:3	**Finite Differences**	**15 hours**

Differences – operators – forward and backward difference tables – Differences of a polynomial – Factorial polynomial – Error propagation in difference table.

Unit:4	**Interpolation (for equal intervals)**	**15 hours**

Newton's forward and backward formulae – equidistant terms with one or more missing values – Central differences and central difference table – Gauss forward and backward formulae – Stirling's formula.

Unit:5	**Interpolation (for unequal intervals)**	**15 hours**

Divided differences – Properties – Relations between divided differences and forward differences – Newton's divided differences formula – Lagrange's formula and inverse interpolation.

	Total Lecture hours	**75 hours**

Text Book

1	Numerical methods -Kandasamy. P, Thilagavathi. K and Gunavathi. K (S. Chand and Company Ltd, New Delhi – Revised Edition 2007.)(Chapters: 3,4,5,6,7 and 8)
2	Introductory Methods of Numerical Analysis-S.S. Sastry(Prentice Hall of India Pvt. Ltd.New Delhi-110001Fourth Edition,2006)

Reference Books	
1	Numerical Methods in Science and Engineering -Venkataraman M. K.(National Publishing company V Edition 1999.)
2	Numerical Methods for Scientists and Engineers -Sankara Rao K. (2nd Edition Prentice Hall India 2004.)
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	http://www.simumath.com/library/book.html?code=Alg_Equations_Examples
2	http://jupiter.math.nctu.edu.tw/~smchang/9602/NA_lecture_note.pdf http://www.iosrjournals.org/iosr-jm/papers/Vol6-issue6/J0665862.pdf
3	https://nptel.ac.in/courses/122/102/122102009/ https://nptel.ac.in/courses/111/107/111107105/
Course Designed By: 1. Dr. C. Janaki 2. Mr. R.Subramanian	

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M	M	S	S	M	M	S	M	S	S
CO2	S	S	S	M	S	S	M	M	M	S
CO3	S	S	S	S	S	S	S	S	S	S
CO4	S	S	S	S	S	S	S	S	M	S
CO5	S	M	S	S	M	S	M	S	S	S

*S-Strong; M-Medium; L-Low

Course code		ASTRONOMY II	L	T	P	C
Core/Elective/Supportive		ELECTIVE II – A	5	-		3
Pre-requisite		Knowledge In Physics& Mathematics	Syllabus Version		2020-2021	

Course Objectives:

To enable the students to learn about the interesting facts of Moon, Sun Planetary Motion.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

CO 1	Understand the concepts of precession and nutation.	K1
CO 2	Describe the eclipse of the moon.	K2
CO 3	Find equation of time.	K3
CO 4	Demonstrate the ability to analyze the concepts.	K4
CO 5	Describe the properties of stellar system.	K2

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	**Time**	**15 hours**

Equation of time – Convertion of time – Seasons – Calendar.

Unit:2	**Abberation**	**15 hours**

Annual Parallax – Abberation.

Unit:3	**Precession**	**15 hours**

Precession – Nutation.

Unit:4	**Eclipses**	**15 hours**

The Moon – Eclipses.

Unit:5	**The Stellar System**	**15 hours**

Planetary Phenomenon – The Stellar system.

	Total Lecture hours	**75 hours**

Text Book(s)

1 **Astronomy-Mr.S.Kumaravelu and SusheelaKumaravelu. (**Textpublisher: Sivakasi: Janki,7th edition,1986)

Course Designed By: 1.Dr.C.Janaki
2A.Pushpalatha

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M	M	M	M	M	M	M	M	S	S
CO2	M	M	S	M	M	S	M	M	M	S
CO3	M	M	S	S	S	S	M	S	S	S
CO4	S	M	S	S	S	S	M	S	S	S
CO5	S	M	S	S	M	S	M	S	S	S

*S-Strong; M-Medium; L-Low

Course code		Numerical Methods II	L	T	P	C
Core/Elective/Supportive		ELECTIVE II-B	5	-	-	3
Pre-requisite		Knowledge In Higher Secondary Level Mathematics	Syllabus Version		2020 - 2021	

Course Objectives:

1. To equip the learners with the powerful tool for numerical differentiation, numerical integration ,difference equation, numerical solution to O.D.E.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

CO 1	Familiarize with numerical integration and differentiation, numerical solution of ordinary differential equations.	K1
CO 2	Distinguish methods of Taylor series, Euler's, Modified Euler's and Runge Kutta methods to find solutions of differential equations.	K2
CO 3	Apply the techniques for enormous application in the field of Science and some fields of Engineering.	K3
CO 4	Compute the integrals and derivatives by using the appropriate technique.	K4
CO 5	Find the numerical solution of second order O.D.E by finite difference method.	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Numerical Differentiation	15 hours

Newton's forward and backward formulae to compute the derivatives – Derivative using Stirling's formulae – to find maxima and minima of the function given the tabular values.

Unit:2	Numerical Integration	15 hours

Newton – Cote's formula – Trapezoidal rule – Simpson's 1/3 rd and 3/8 th rules.

Unit:3	Difference Equation	15 hours

Order and degree of a difference equation – solving homogeneous and non – homogeneous linear difference equations.

Unit:4	Numerical Solution Of O.D.E	15hours

Taylor series method – Euler's method – improved and modified Euler method – Runge Kuttamethod (Second &fourth order Runge Kutta method only)

Unit:5	Multi Step Methods	15 hours

Milne's predictor corrector formulae – Adam-Bash forth predictor corrector formulae – solution of ordinary differential equations by finite difference method (for second order O.D.E).

	Total Lecture hours	75 hours

Text Book

1. Numerical methods -Kandasamy. P, Thilagavathi. K and Gunavathi. K (S. Chand and Company Ltd, New Delhi – Revised Edition 2007.)(Chapters: 9,10,11,Appendix and Appendix E)
2. Introductory Methods of Numerical Analysis-S.S. Sastry(Prentice Hall of India Pvt. Ltd.NewDelhi-110001Fourth Edition,2006)

Reference Books	
1	Numerical Methods in Science and Engineering -Venkataraman M. K.(National Publishing company V Edition 1999.)
2	Numerical Methods for Scientists and Engineers -Sankara Rao K. (Prentice Hall India , 2nd Edition2004)
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	http://nptel.ac.in/courses/104101002/downloads/lecturenotes/module1/chapter6.pdf https://www.britannica.com/science/difference-equation
2	https://nptel.ac.in/courses/122/102/122102009/
3	https://nptel.ac.in/courses/111/107/111107063/
Course Designed By: 1. Dr. C. Janaki 2. Mr. R.Subramanian	

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M	M	S	S	S	S	S	M	S	S
CO2	M	M	S	S	M	S	M	M	M	S
CO3	S	S	S	S	S	S	S	S	S	S
CO4	S	M	S	M	M	S	M	S	S	S
CO5	S	M	S	M	M	S	S	S	S	S

*S-Strong; M-Medium; L-Low

Course code		GRAPH THEORY	L	T	P	C
Core/Elective/Supportive		ELECTIVE III - A	5	-	-	4
Pre-requisite		Knowledge In Basic Mathematics	Syllabus Version	2020-2021		

Course Objectives:

Enables the students to learn the basic concepts of Graphs, sub-graphs, Enteoriomgraphs, Digraphs, tournaments ,connectivity, graphs, matrix representation of graphs, trees, planar graphs.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

CO 1	Identify the properties of different types of graph and their application.	K1
CO 2	Demonstrate knowledge of basic concepts in graph theory .	K2
CO 3	Understand cut graphs ,cycle spaces	K2
CO 4	Apply principles and concepts of graph theory in practical situations.	K3
CO 5	Analyze the concepts of Planar graphs.	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	**Graphs**	**15 hours**

Graphs –Sub graphs – Degree of a vertex walks, paths and cycles in a Graphs – connectedness cut vertex and cut edge.

Unit:2	**Euler and Hamiltonion Graphs**	**15 hours**

Euler and Hamiltonion Graphs – Algorithm for Euler circuits – Bipartite Graphs –Trees.

Unit:3	**Cut set graphs**	**15 hours**

Matrix representation of a graph – vector spaces, associated with a graph – cycle spaces and cut set graphs.

Unit:4	**Planar graphs**	**15hours**

Planar graphs – Euler's theorem on planar graphs – characterization of planar graphs (no proofs) of the difficult part of the characterization.

Unit:5	**Directed graphs**	**15 hours**

Directed graphs – Connectivity – Euler Digraphs – Tournaments.

	Total Lecture hours	**75 hours**

Text Book

1	A First Course in Graph Theory -A. Choudum (Macmillan,2001) Chapters 1 to 7.

Reference Books

1	Graph theory with applications to Engineering and computer science-Narasingh Deo (Prentice Hall of India1979).
2	Graph Theory -Frank Harary (Narosa Publishing HQCK 2001 **).**
3	Introduction to Graph Theory- Dr. M. Murugan.(Muthali Publishing House,2005)

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://nptel.ac.in/courses/111/106/111106102/
2	https://www.digimat.in/nptel/courses/video/106104170/L19.html
Course Designed By: 1. Dr. C. Janaki 2. Mr. R.Subramanian	

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M	M	M	S	S	S	S	M	S	S
CO2	M	M	M	S	S	S	M	M	M	S
CO3	M	M	M	S	M	S	M	S	S	S
CO4	S	S	S	S	S	S	S	S	S	S
CO5	S	M	M	S	M	S	M	S	S	S

*S-Strong; M-Medium; L-Low

Course code		AUTOMATA THEORY AND FORMAL LANGUAGES	L	T	P	C
Core/Elective/Supportive		ELECTIVE III - B	5	-	-	4
Pre-requisite		Knowledge in Mathematics	Syllabus Version	2020-2021		

Course Objectives:

To impart knowledge in Finite automata, regular languages, regular grammars, context free grammars, languages, and pushdown automata which play a crucial role to Identify different formal language classes and their relationship.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

CO 1	Acquire a fundamental understanding of the core concepts in automata theory and formal languages.	K1
CO 2	Design grammars and automata for different language classes.	K2
CO 3	Describe the types of grammar and derivation tree.	K2
CO 4	To apply context-free languages, push-down automata.	K3
CO 5	Design automata, regular expressions and context-free grammars accepting or generating a certain language.	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	**Phrase Structure Languages.** .	**15 hours**

Introduction – phrase structure languages.

Unit:2	**Closure Operations**	**15 hours**

Closure operations.

Unit:3	**Context Free Languages.**	**15 hours**

Context free languages.

Unit:4	**Finite State Automata**	**15 hours**

Finite state automata.

Unit:5	**Push Down Automata.**	**15 hours**

Push down automata.

	Total Lecture hours	**75 hours**

Text Book

1	Formal Languages and Automata- Rani Siromoney. (Revised edition 1984)(Published by the Christian Literary Society, Madras-3)Chapters 1 to 6.

Reference Books

1	Formal languages and their relation automata-J.E. Hopcroft and D.Ullman(AddisionWesley1969)
2	Automata theory:Machines and Languages-Richard .Y.Kain(McGraw Hill1972)

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://nptel.ac.in/courses/106/103/106103070/
2	https://www.digimat.in/nptel/courses/video/111103016/L02.html
Course Designed By: 1. Dr.C.Janaki 2.Dr.A.Pushpalatha	

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M	M	M	M	M	M	M	M	S	S
CO2	S	M	S	S	S	S	M	M	M	S
CO3	M	M	S	S	S	S	M	S	S	S
CO4	S	S	S	S	S	S	S	S	S	S
CO5	S	S	S	S	S	S	S	S	S	S

*S-Strong; M-Medium; L-Low

Course code		PROGRAMMING IN C++	L	T	P	C
Core/Elective/Supportive		ELECTIVE III - C	4	-		3
Pre-requisite		Knowledge in C Programming	Syllabus Version	2020 - 2021		

Course Objectives:

To enable the students to learn about the class structure, operators, inheritance, polymorphism, file handling.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

CO 1	Know about class structure, member functions & data members, inheritance types and example problems .	K1
CO 2	Understand how **C++** improves C with object-oriented features.	K2
CO 3	Develop programming skills.	K2
CO 4	To make use of objects and classes for developing programs.	K3
CO 5	Build C++ classes.	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Tokens, Expressions And Control Structures	12 hours

Evolution of C++ - applications of C++ - structure of C++ program. Tokens – keywords – identifiers and constants – basic data types – user-defined data types – constant pointers and pointers to constants – symbolic constants –type compatibility – declaration of variables – dynamic initialization of variables – reference variables – operators in C++ - scope resolution operator – memory management operators – manipulators – type cast operator – expressions and their types – special assignment expressions – implicit conversions – operator precedence.

Unit:2	Functions In C++	12 hours

The main function – function prototyping – call by reference – return by reference – inline functions – default arguments – const arguments – function overloading. Managing Console I/O Operations: C++ streams – C++ stream classes – unformatted console I/O operations – formatted console I/O operations –managing output with manipulators.

Unit:3	Classes And Objects	12 hours

Specifying a class – defining member functions – making an outside function inline – nesting of member functions – private member functions – arrays within a class – memory allocation for objects –arrays of objects – objects as function arguments – friend functions – returning objects – const member functions. Constructors and Destructors: Introduction – constructors – parameterized constructors – multiple constructors in a class – constructors with default arguments – copy constructor.

Unit:4	Operator Overloading	12 hours

Introduction – defining operator overloading – overloading unary operators – overloading binary operators - overloading binary operators using friends – rules for overloading operators.

Unit:5	Inheritance	12 hours

Introduction – defining derived classes – single inheritance – making a private member inheritable – multilevel inheritance – multiple inheritance – hierarchical inheritance – hybrid inheritance.

	Total Lecture hours	**60 hours**

Text Book(s)

1	Object Oriented programming with C++- E.Balagurusamy (McGraw Hill 3rd Edition 2006.)
2	Object oriented programming in Turbo C++-Robert Lafore (Galgotia publications Pvt.Ltd, New Delhi- 110002,2002)
3	The C++ programming language- Bjarne Stroutstrup (II Edition, Addision Wesley, 1991.)

Reference Books

1	Programming with C++ - D.Ravi Chandran (Tata McGraw-Hill publishing company limited, New Delhi 1996)
2	Object Oriented Programming with ANSI and Turbo C++-AshokN.Kamthane(Pearson Education publishers 2003)
3	Programming with C++ -John R.Hubbard(2nd Edition, TMH publishers2002).

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://nptel.ac.in/courses/106/105/106105151/
2	https://nptel.ac.in/courses/106/101/106101208/
3	https://www.classcentral.com/course/swayam-programming-in-c-6704

Course Designed By: 1. Dr. C. Janaki
2.Dr. K. Malar

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M	M	M	S	S	M	S	M	S	S
CO2	M	M	M	M	S	S	S	M	S	S
CO3	S	S	S	S	S	S	M	S	S	S
CO4	S	S	S	M	S	S	S	S	S	S
CO5	S	S	S	M	S	M	S	S	S	M

*S-Strong; M-Medium; L-Low

Course code		PROGRAMMING IN C++ (PRACTICAL)	L	T	P	C
Core/Elective/Supportive		ELECTIVE III - C(Practical)	-	-	1	1
Pre-requisite		Knowledge in C++	Syllabus Version		2020-2021	

PRACTICAL LIST

1. Write a function ‘power( )’to raise a number ‘m’ to a power ‘n’. The function takes a ‘double’ value for ‘m’and ‘int’ value for ’n’, and returns the result correctly. Use a default vale of 2 for ‘n’ to make the function to calculate squares when this argument is omitted. Write a main( ) that gets the values of ‘m’ and ‘n’ from the user to test the function.

2. Write a program to compute compound interest of a given amount AMT for ‘n’ years. Use function overloading so that the program gets input of interest rate RATE in any of the data type ‘float’ or ‘int’

3. Create a class which consist of employee detail ENO, ENAME, DEPT, BASIC SALARY. Write a member function to get and display them. Derive a class PAY from the above class and write a member function to calculate DA, HRA and PF depending on the grade and display the payslip in a neat format using console I/O

4. Define two classes POLAR and RECTANGLE to represent points in the polar and rectangle system. Write a program to convert from one system to another.

5. Create a class FLOAT that contains one float data member. Overload all the four arithmetic operators so that they operate on the objects of FLOAT.

Course code		NUMBER THEORY	L	T	P	C
Core/Elective/Supportive		ELECTIVE III – D	5	-	-	4
Pre-requisite		Knowledge in Algebra	Syllabus Version		2020 - 2021	

Course Objectives:

To impart knowledge in the basic concepts of number theory , fundamental definitions , theorems

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

CO 1	Understand the concepts of divisibility and primes	K1
CO 2	Solve congruence.	K2
CO 3	Describe the fundamental theorem of Arithmetic.	K3
CO 4	Understand the concepts and apply the theorems in areas of Mathematics.	K3
CO 5	Compute powers of integers modulo prime numbers.	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	**Early Number Theory**	**15 hours**

Peano's Axiom - Mathematical Induction - The Binomial Theorem - Early Number Theory.

Unit:2	**Divisibility Theory in Integers**	**15hours**

Divisibility Theory in Integers - The Division Algorithm - The g.c.d. - Euclidean Algorithm - The Diophontine Equation ax + by = c

Unit:3	**Primes and their Distributions**	**15 hours**

Primes and their Distributions - The fundamental Theorem of Arithmetic - The seive of Eratosthenes - The Gull Conjecture.

Unit:4	**The Theory of Congruence**	**15 hours**

The Theory of Congruence - Basic Properties of Congruence - Special Divisibility test - Linear Congruence-Prime modulus- Power residues.

Unit:5	**Fermat's Theorem**	**15 hours**

Fermat's Theorem - Fermat's factorization method - The Little theorem - Wilson's theorem.

	Total Lecture hours	**75 hours**

Text Book

1. Elementary Number theory -David M. Burton (W.M.C. Brown Publishers, Dubuque, Lawa, 1989.)

Reference Books	
1	An Introduction to theory of Numbers -Ivan Nivan and H. Zuckerman (5th edition,Wiley 1991)
2	Elements of Number Theory - Prof. S.Kumaravelu and SusheelaKumaravelu(Raja Sankar offset Printers ,Sivakasi, 2002)
3	Beginning Number Theory -Neville Robinns(2nd Ed., Narosa Publishing House Pvt.Ltd.,Delhi, 2007)
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://nptel.ac.in/courses/111/103/111103020/ https://nptel.ac.in/courses/111/101/111101137/
Course Designed By: 1. Dr. C. Janaki 2. Mr. R.Subramanian	

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M	M	M	M	M	M	M	M	S	S
CO2	S	S	S	M	S	S	S	M	M	S
CO3	M	M	M	M	M	S	S	S	S	S
CO4	S	S	S	S	S	S	S	S	S	S
CO5	S	M	S	S	S	S	M	S	S	S

*S-Strong; M-Medium; L-Low

Course code		INTRODUCTION TO INDUSTRY 4.0	L	T	P	C
Core/Elective/Supportive		ELECTIVE III – E	5	-	-	4
Pre-requisite		Basic Knowledge Of Computer And Internet	Syllabus Version		2020-2021	

Course Objectives:

To impart knowledge on Industry 4.0, need for digital transformation and the following Industry 4.0 tools:

1. Artificial Intelligence
2. Big Data and Data Analytics
3. Internet of Things

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

CO 1	Know the reason for adopting Industry 4.0 and Artificial Intelligence.	K1
CO 2	Understand the need for digital transformation.	K2
CO 3	Apply the industry 4.0 tools.	K3
CO 4	Analyze the applications of Big Data .	K4
CO 5	Examine the applications and security of IoT Applications.	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Industry 4.0	15 hours

Need – Reason for Adopting Industry 4.0 - Definition – Goals and Design Principles - Technologies of Industry 4.0 – Big Data – Artificial Intelligence (AI) – Industrial Internet of Things - Cyber Security – Cloud – Augmented Reality. .

Unit:2	Artificial Intelligence	15 hours

Artificial Intelligence : Artificial Intelligence (AI) – What & Why? - History of AI - Foundations of AI -The AI -environment - Societal Influences of AI - Application Domains and Tools - Associated Technologies of AI - Future Prospects of AI - Challenges of AI .

Unit:3	Big Data And IoT	15 hours

Big Data : Evolution - Data Evolution - Data : Terminologies - Big Data Definitions - Essential of Big Data in Industry 4.0 - Big Data Merits and Advantages - Big Data Components : Big Data Characteristics - Big Data Processing Frameworks - Big Data Applications - Big Data Tools - Big Data Domain Stack : Big Data in Data Science - Big Data in IoT - Big Data in Machine Learning - Big Data in Databases - Big Data Use cases Big Data in Social Causes - Big Data for Industry - Big Data Roles and Skills -Big Data Roles - Learning Platforms; Internet of Things (IoT) : Introduction to IoT - Architecture of IoT - Technologies for IoT - Developing IoT Applications - Applications of IoT - Security in IoT .

Unit:4	**Applications And Tools Of Industry 4.0**	**15 hours**
Applications of IoT – Manufacturing – Healthcare – Education – Aerospace and Defense – Agriculture – Transportation and Logistics – Impact of Industry 4.0 on Society: Impact on Business, Government, People. Tools for Artificial Intelligence, Big Data and Data Analytics, Virtual Reality, Augmented Reality, IoT, Robotics.		
Unit:5	**Jobs 2030**	**15 hours**
Industry 4.0 – Education 4.0 – Curriculum 4.0 – Faculty 4.0 – Skills required for Future - Tools for Education – Artificial Intelligence Jobs in 2030 – Jobs 2030 - Framework for aligning Education with Industry 4.0 .		
	Total Lecture hours	**75 hours**

Text Book

1	Higher Education for Industry 4.0 and Transformation to Education 5.0(2020)- P.Kaliraj& T. Devi

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

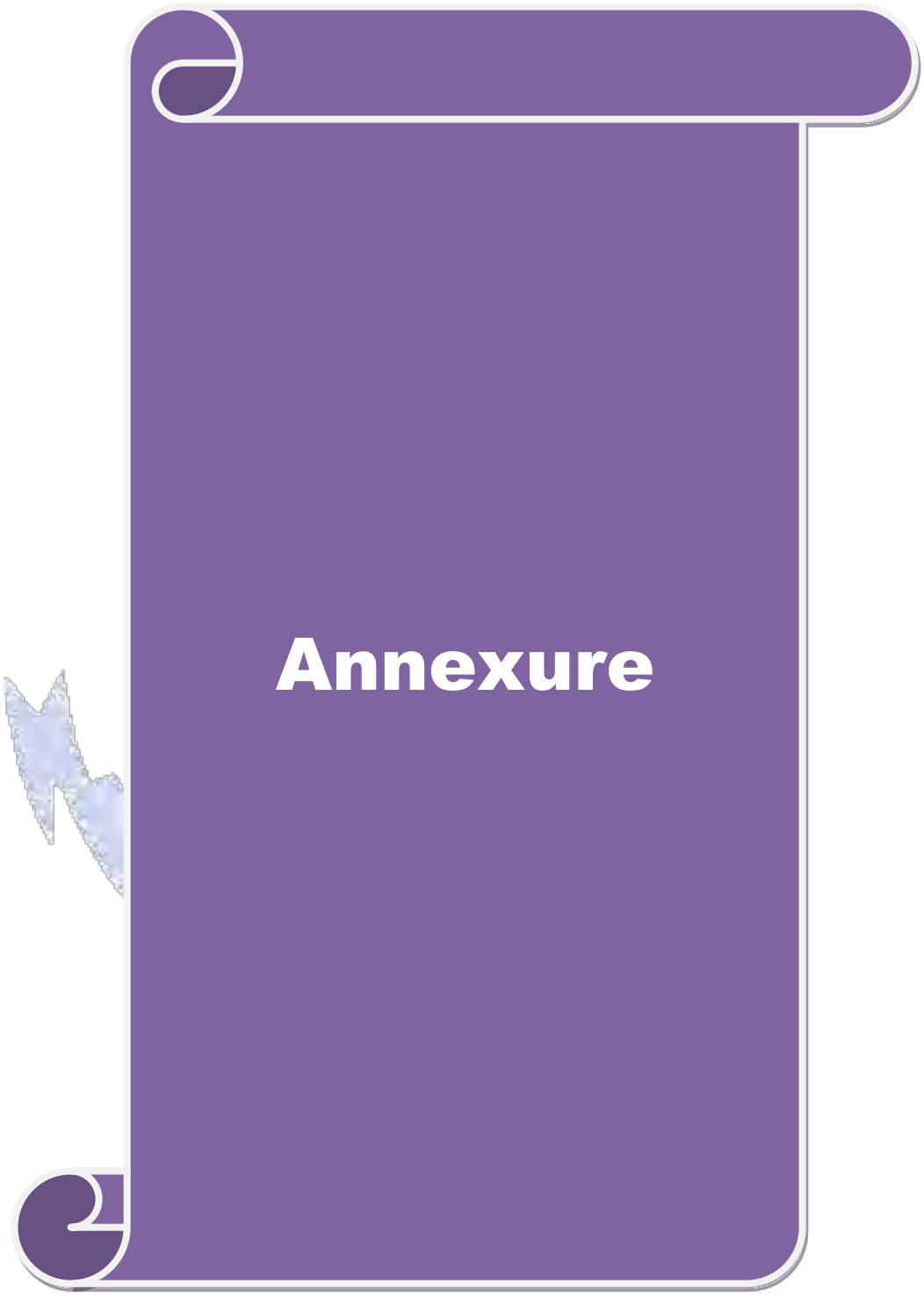
1	https://nptel.ac.in/courses/106/105/106105195/

Course Designed By:1. Dr. C. Janaki
2. Mr. R. Subramanian

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M	M	M	S	S	S	S	M	S	S
CO2	M	M	M	S	S	S	S	M	M	S
CO3	S	S	S	S	S	S	S	S	S	M
CO4	S	S	S	S	S	S	S	S	S	S
CO5	S	M	S	M	S	S	S	S	S	S

*S-Strong; M-Medium; L-Low




Annexure

B. Sc. MATHEMATICS

Syllabus
(2020-2021)

Program Code :

DEPARTMENT OF MATHEMATICS
(Affiliated Colleges)

Bharathiar University
(A State University, Accredited with "A" Grade by NAAC and 13th Rank among Indian Universities by MHRD-NIRF)

Coimbatore 641 046, INDIA

BHARATHIAR UNIVERSITY : : COIMBATORE 641046

DEPARTMENT OF MATHEMATICS

(Affiliated Colleges)

MISSION

To empower the learners with Mathematical aptitude, employability skills and augment their mathematical expertise for societal needs with academic integrity and values.

B. Sc. COMPUTER SCIENCE

Syllabus

AFFILIATED COLLEGES

Program Code: 22K

2020 – 2021 onwards

BHARATHIAR UNIVERSITY

(A State University, Accredited with "A" Grade by NAAC,
Ranked 13th among Indian Universities by MHRD-NIRF,
World Ranking : Times - 801-1000, Shanghai - 901-1000, URAP - 982)

Coimbatore - 641 046, Tamil Nadu, India

Program Educational Objectives (PEOs)	
The **B. Sc. Computer Science** program describe accomplishments that graduates are expected to attain within five to seven years after graduation	
PEO1	To enrich knowledge in core areas related to the field of computer science and mathematics.
PEO2	To provide opportunities for acquiring in-depth knowledge in Industry 4.0/5.0 tools and techniques and there by design and implement software projects to meet customer's business objectives.
PEO3	To enable graduates to pursue higher education leading to Master and Research Degrees or have a successful career in industries associated with Computer Science or as entrepreneurs
PEO4	To enhance communicative skills and inculcate team spirit through professional activities, skills in handling complex problems in data analysis and research project to make them a better team player.
PEO5	To embed human values and professional ethics in the young minds and contribute towards nation building.
PEO9	To develop project

Program Specific Outcomes (PSOs)	
After the successful completion of **B.Sc. Computer Science** program, the students are expected to	
PSO1	Impart the fundamental principles and methods of Computer Science to a wide range of applications.
PSO2	Develop and deploy applications of varying complexity using the acquired knowledge in various programming languages, data structures and algorithms, database and networking skills.
PSO3	To investigate, analyze complex problems by the application of suitable mathematical and research tools, to design Information Technology products and solutions
PSO4	To identify and utilize the state-of-the-art tools and techniques in the design and development of software products and solutions.
PSO5	Ability to identify, interpret, analyze and design solutions using appropriate algorithms of varying complexities in the field of information and communication technology.

Program Outcomes (POs)	
On successful completion of the B.Sc. **Computer Science** program	
PO1	**Disciplinary knowledge:** Capable to apply the knowledge of mathematics, algorithmic principles and computing fundamentals in the modeling and design of computer based systems of varying complexity.
PO2	**Scientific reasoning**/ **Problem analysis**: Ability to critically analyze, categorizes, formulate and solve the problems that emerges in the field of computer science.
PO3	**Problem solving:** Able to provide software solutions for complex scientific and business related problems or processes that meet the specified needs with appropriate consideration for the public health and safety and the cultural, societal and environmental considerations.
PO4	**Environment and sustainability:** Understand the impact of software solutions in environmental and societal context and strive for sustainable development.
PO5	**Modern tool usage:** Use contemporary techniques, skills and tools necessary for integrated solutions.
PO6	**Ethics:** Function effectively with social, cultural and ethical responsibility as an individual or as a team member with positive attitude.
PO7	**Cooperation / Team Work:** Function effectively as member or leader on multidisciplinary teams to accomplish a common objective.
PO8	**Communication Skills:** An ability to communicate effectively with diverse types of audience and also able to prepare and present technical documents to different groups.
PO9	**Self-directed and Life-long Learning:** Graduates will recognize the need for self-motivation to engage in lifelong learning to be in par with changing technology.
PO10	Enhance the research culture and uphold the scientific integrity and objectivity

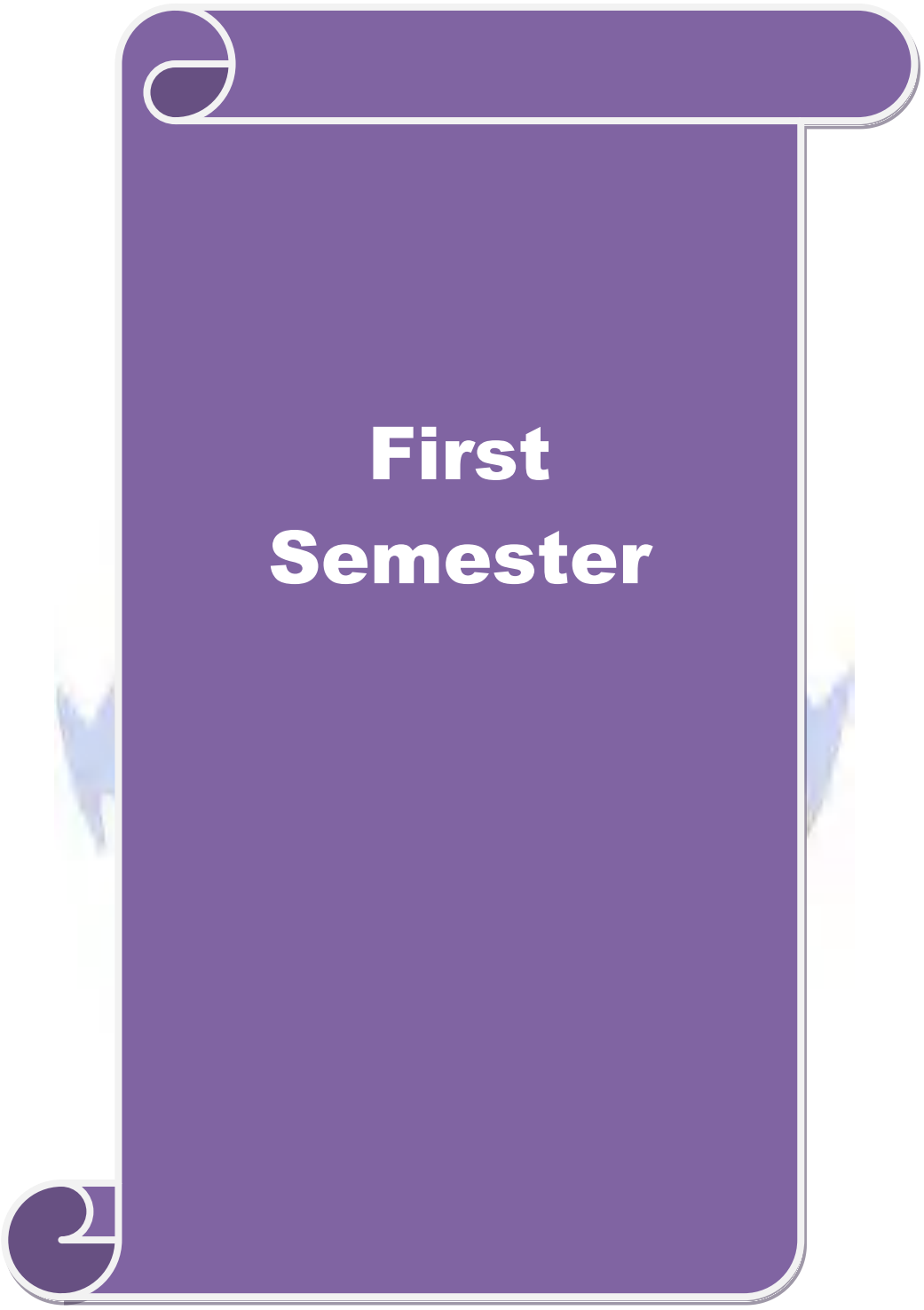
BHARATHIAR UNIVERSITY: : COIMBATORE 641 046

B. Sc. Computer Science Curriculum

(For the students admitted during the academic year 2020 – 21 onwards)

Course Code	Title of the Course	Credits	Hours		Maximum Marks		
			Theory	Practical	CIA	ESE	Total
FIRST SEMESTER							
	Language – I	4	6		25	75	100
	English – I	4	6		25	75	100
	Core 1: Computing Fundamentals and C Programming	4	4		25	75	100
	Core 2: Digital Fundamentals and Computer Architecture	4	4		25	75	100
	Core Lab 1: Programming Lab – C	4		3	40	60	100
	Allied 1: Mathematical Structures for Computer Science	4	5		25	75	100
	Environmental Studies #	2	2		-	50	50
	Total	**26**	**27**	**3**	**165**	**485**	**650**
SECOND SEMESTER							
	Language – II	4	6		25	75	100
	English – II	4	6		25	75	100
	Core 3: C++ Programming	4	5		25	75	100
	Core Lab 2: Programming Lab – C++	4		4	40	60	100
	Core Lab 3: Internet Basics	2		2	20	30	50
	Allied 2: Discrete Mathematics	4	5		25	75	100
	Value Education – Human Rights #	2	2		-	50	50
	Total	**24**	**24**	**6**	**160**	**440**	**600**
THIRD SEMESTER							
	Core 4: Data Structures	4	6		25	75	100
	Core 5: Java Programming	4	6		25	75	100
	Core Lab 4: Programming Lab – Java	4		5	25	75	100
	Allied 3: Computer Based Optimization Techniques	4	6		25	75	100
	Skill based Subject 1 : Software Engineering and Software Project Management	3	5		20	55	75
	Tamil @/ Advanced Tamil (OR) Non-major elective-1 (Yoga for Human Excellence)# / Women's Rights#	2	2		-	50	50
	Total	**21**	**25**	**5**	**120**	**405**	**525**

FOURTH SEMESTER							
	Core 6: System Software and Operating System	4	6		25	75	100
	Core 7: Linux and Shell Programming	4	6		25	75	100
	Core Lab 5: Linux and Shell Programming Lab	4		6	40	60	100
	Allied 4: Business Accounting	4	6		25	75	100
	Skill based subject 2 (lab) : Software Project Management-Lab	3	4		30	45	75
	Tamil @/ Advanced Tamil (OR) Non-major elective-II (General Awareness) #	2	2		-	50	50
	Total	**21**	**24**	**6**	**145**	**380**	**525**
FIFTH SEMESTER							
	Core 8: RDBMS & Oracle	4	6		25	75	100
	Core 9: Visual Basic	4	6		25	75	100
	Core Lab 6: Programming Lab – VB & Oracle	4		6	40	60	100
	Elective-I PYTHON Programming/ Computer Networks / Organizational Behavior	4	6		25	75	100
	Skill based Subject 3: Software Testing	3	6		20	55	75
	Total	**19**	**24**	**6**	**135**	**340**	**475**
SIXTH SEMESTER							
	Core 10: Graphics & Multimedia	4	5		25	75	100
	Core 11: Project Work Lab %%	8	5		-	200	200
	Core Lab 7: Programming Lab – Graphics & Multimedia	4		6	40	60	100
	Elective-II : Network Security and Cryptography / Artificial Intelligence and Expert Systems / Web Technology	4	5		25	75	100
	Elective-III : Data Mining / Open Source Software / Internet of Things (IoT)	4	5		25	75	100
	Skill based Subject 4 (lab) : Software Testing Lab	3		4	30	45	75
	Extension Activities	2			50	-	50
	Total	**29**	**20**	**10**	**195**	**530**	**725**
	Grand Total	**140**	**144**	**36**	**920**	**2580**	**3500**
ONLINE COURSES							


First
Semester

Course code		Computing Fundamentals and C Programming	L	T	P	C
Core/Elective/Supportive		Core Paper: 1	4	0	0	4
Pre-requisite		Students should have basic Computer Knowledge	Syllabus Version		2020-21 Onwards	

Course Objectives:

The main objectives of this course are to:

1. To impart knowledge about Computer fundamentals
2. To understand the concepts and techniques in C Programming
3. To equip and indulge themselves in problem solving using C

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Learn about the Computer fundamentals and the Problem solving	**K2**
2	Understand the basic concepts of C programming	**K2**
3	Describe the reason why different decision making and loop constructs are available for iteration in C	**K3**
4	Demonstrate the concept of User defined functions , Recursions , Scope and Lifetime of Variables, Structures and Unions	**K4**
5	Develop C programs using pointers Arrays and file management	**K3**

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Fundamentals of Computers & Problem Solving in C	12 hours

Fundamentals of Computers : Introduction – History of Computers-Generations of Computers-Classification of Computers-Basic Anatomy of a Computer System-Input Devices-Processor-Output Devices-Memory Management – Types of Software- Overview of Operating System-Programming Languages-Translator Programs-Problem Solving Techniques - Overview of C.

Unit:2	Overview of C	15 hours

Overview of C - Introduction - Character set - C tokens - keyword & Identifiers - Constants - Variables - Data types - Declaration of variables - Assigning values to variables - Defining Symbolic Constants - Arithmetic, Relational, Logical, Assignment, Conditional, Bitwise, Special, Increment and Decrement operators - Arithmetic Expressions - Evaluation of expression - precedence of arithmetic operators - Type conversion in expression – operator precedence & associativity - Mathematical functions - Reading & Writing a character - Formatted input and output.

Unit:3	Decision Making , Looping and Arrays	15 hours

Decision Making and Branching: Introduction – if, if….else, nesting of if …else statements- else if ladder – The switch statement, The ?: Operator – The goto Statement. Decision Making and Looping: Introduction- The while statement- the do statement – the for statement-jumps in loops. Arrays – Character Arrays and Strings

Unit:4	User-Defined Functions, Structures and Unions	15 hours

User-Defined Functions: Introduction – Need and Elements of User-Defined Functions-Definition-Return Values and their types - Function Calls – Declarations – Category of

Functions- Nesting of Functions - Recursion – Passing Arrays and Strings to Functions - The Scope, Visibility and Lifetime of Variables- Multi file Programs. Structures and Unions		
Unit:5	**Pointers & File Management**	**15 hours**
Pointers: Introduction-Understanding pointers -Accessing the address of a variable Declaration and Initialization of pointer Variable – Accessing a variable through its pointer Chain of pointers- Pointer Expressions – Pointer Increments and Scale factor- Pointers and Arrays- Pointers and Strings – Array of pointers – Pointers as Function Arguments Functions returning pointers – Pointers to Functions – Pointers and Structures. File Management in C.		
Unit:6	**Contemporary Issues**	**3 hours**
Problem Solving through C Programming - Edureka		
	Total Lecture hours	**75 hours**

Text Book(s)	
1	E Balagurusamy: Computing Fundamentals & C Programming – Tata McGraw-Hill, Second Reprint 2008
Reference Books	
1	Ashok N Kamthane: Programming with ANSI and Turbo C, Pearson, 2002.
2	Henry Mullish & Hubert L.Cooper: The Sprit of C, Jaico, 1996.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	Introduction to Programming in C - NPTEL
2	Problem solving through Programming in C - SWAYAM
3	C for Everyone : Programming Fundamentals - Coursera
Course Designed By:	

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	S	M	M	M	S	M	S	L
CO3	S	M	S	M	M	L	S	L	S	L
CO3	S	S	S	M	M	M	S	M	S	M
CO4	S	S	S	M	S	M	S	M	S	M
CO5	S	S	S	M	M	M	S	M	S	M

*S-Strong; M-Medium; L-Low

Course code		Digital Fundamentals and Computer Architecture	L	T	P	C
Core/Elective/Supportive		Core Paper : 2	4	0	-	4
Pre-requisite		Student should have basic computer knowledge	Syllabus Version	2020-21 Onwards		

Course Objectives:

On successful completion of this subject the students should have Knowledge on

1. To familiarize with different number systems and digital arithmetic & logic circuits
2. To understand the concepts of Combinational Logic and Sequential Circuits
3. To impart the knowledge of buses, I/O devices, flip flops, Memory and bus structure.
4. To understand the concepts of memory hierarchy and memory organization
5. To understand the various types of microprocessor architecture

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Learn the basic structure of number system methods like binary, octal and hexadecimal and understand the arithmetic and logical operations are performed by computers.	K3
2	Define the functions to simplify the Boolean equations using logic gates.	K1
3	Understand various data transfer techniques in digital computer and control unit operations.	K2
4	Compare the functions of the memory organization	K4
5	Analyze architectures and computational designs concepts related to architecture organization and addressing modes	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Number System and Arithmetic circuits	12 hours

Number System and Binary Codes: Decimal, Binary, Octal, Hexadecimal – Binary addition, Multiplication, Division – Floating point representation, Complements, BCD, Excess3, Gray Code. Arithmetic Circuits: Half adder, Full adder, Parallel binary adder, BCD adder, Half subtractor, Full subtractor, Parallel binary subtractor - Digital Logic: The Basic Gates – NOR, NAND, XOR Gates.

Unit:2	Combinational Logic and Sequential Circuits	14 hours

Combinational Logic Circuits: Boolean algebra – Karnaugh map – Canonical form Construction and properties – Implementations – Don't care combinations - Product of sum, Sum of products, Simplifications. Sequential circuits: Flip-Flops: RS, D, JK, and T - Multiplexers – Demultiplexers – Decoder Encoder – Shift Registers-Counters.

Unit:3	Input – Output Organization and Data Transfer	12 hours

Input – Output Organization: Input – output interface – I/O Bus and Interface – I/O Bus Versus Memory Bus – Isolated Versus Memory – Mapped I/O – Example of I/O Interface. Asynchronous data transfer: Strobe Control and Handshaking – Priority Interrupt: Daisy- Chaining Priority, Parallel Priority Interrupt. Direct Memory Access: DMA Controller, DMA Transfer. Input – Output Processor: CPU-IOP Communication.

Unit:4	Memory Organization	10 hours
Memory Organization: Memory Hierarchy – Main Memory- Associative memory: Hardware Organization, Match Logic, Read Operation, Write Operation. Cache Memory: Associative, Direct, Set-associative Mapping – Writing into Cache Initialization. Virtual Memory: Address Space and Memory Space, Address Mapping Using Pages, Associative Memory, Page Table, Page Replacement.		
Unit:5	**Case Studies**	**6 hours**
CASE STUDY: Pin out diagram, Architecture, Organization and addressing modes of 80286-80386-80486-Introduction to microcontrollers.		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars - webinars		
	Total Lecture hours	**56 hours**

Text Book(s)	
1	Digital principles and applications, Albert Paul Malvino, Donald P Leach, TMH, 1996.
2	Computer System Architecture -M. Morris Mano , PHI.
3	Microprocessors and its Applications-Ramesh S. Goankar
Reference Books	
1	Digital Electronics Circuits and Systems, V.K. Puri, TMH.
2	Computer Architecture, M. Carter, Schaum‘s outline series, TMH.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://nptel.ac.in/courses/106/103/106103068/
2	http://www.nptelvideos.in/2012/12/digital-computer-organization.html
3	http://brittunculi.com/foca/materials/FOCA-Chapters-01-07-review-handout.pdf
Course Designed By:	

Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	S	M	S	M	S	M	M	L
CO3	S	M	S	M	M	S	M	M	M	L
CO3	S	S	S	M	S	S	S	M	M	M
CO4	S	S	S	S	S	S	S	M	S	S
CO5	S	S	S	S	S	S	S	M	S	S

*S-Strong; M-Medium; L-Low

Course code		Programming Lab – C	L	T	P	C
Core/Elective/Supportive		Core Lab: 1	0	0	3	4
Pre-requisite		Students should have basic knowledge in C programming and algorithms	Syllabus Version		2020-21 Onwards	

Course Objectives:

The main objectives of this course are to:

1. To practice the Basic concepts, Branching and Looping Statements and Strings in C programming
2. To implement and gain knowledge in Arrays, functions, Structures, Pointers and File handling

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Remember and Understand the logic for a given problem and to generate Prime numbers & Fibonacci Series **(Program-1,2,3)**	**K1, K2**
2	Apply the concepts to print the Magic square, Sorting the data , Strings, Recursive functions and Pointers **(Program-4,5,6,8,10)**	**K2, K3**
3	Remember the logic used in counting the vowels in a sentence **(Program-7)**	**K1**
4	Apply and Analyze the concepts of Structures and File management **(Program-9,11,12)**	**K3&K4**

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Programs	**36 hours**
1. Write a C program to find the sum, average, standard deviation for a given set of numbers.	
2. Write a C program to generate n prime numbers.	
3. Write a C program to generate Fibonacci series.	
4. Write a C program to print magic square of order n where n > 3 and n is odd.	
5. Write a C program to sort the given set of numbers in ascending order.	
6. Write a C program to check whether the given string is a palindrome or not using pointers.	
7. Write a C program to count the number of Vowels in the given sentence.	
8. Write a C program to find the factorial of a given number using recursive function.	
9. Write a C program to print the students Mark sheet assuming roll no, name, and marks in 5 subjects in a structure. Create an array of structures and print the mark sheet in the university pattern.	
10. Write a function using pointers to add two matrices and to return the resultant matrix to the calling function.	
11. Write a C program which receives two filenames as arguments and check whether the file contents are same or not. If same delete the second file	
12. Write a program which takes a file as command line argument and copy it to another file. At the end of the second file write the total i) no of chars ii) no. of words and iii) no. of lines.	
	Total Lecture hours **36 hours**

Text Book(s)

1	E Balagurusamy: Computing Fundamentals & C Programming – Tata McGraw-Hill, Second Reprint 2008

Reference Books	
1	Ashok N Kamthane: Programming with ANSI and Turbo C, Pearson, 2002.
2	Henry Mullish & Hubert L.Cooper: The Sprit of C, Jaico, 1996.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	Introduction to Programming in C – NPTEL
2	Problem solving through Programming in C - SWAYAM
3	C for Everyone : Programming Fundamentals – Course
Course Designed By:	

Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	S	M	L	M	S	S	S	L
CO3	S	S	S	M	L	M	S	S	S	M
CO3	S	S	S	L	L	M	S	S	S	L
CO4	S	S	S	M	L	M	S	S	S	M

*S-Strong; M-Medium; L-Low

Second Semester

Course code		C++ PROGRAMMING	L	T	P	C
Core/Elective/Supportive		Core: 3	5	0	0	4
Pre-requisite		Before starting this course one should have a basic understanding of computer programs and computer programming language. If you know the concepts of C programming it will be much easier to understand this course	Syllabus Version		2020-21 Onwards	

Course Objectives:

The main objectives of this course are to:

1. Impart knowledge of object oriented programming concepts and implement them in C++
2. Enable to differentiate procedure oriented and object-oriented concepts.
3. Equip with the knowledge of concept of Inheritance so that learner understands the need of inheritance.
4. Explain the importance of data hiding in object oriented programming

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Define the different programming paradigm such as procedure oriented and object oriented programming methodology and conceptualize elements of OO methodology	K1
2	Illustrate and model real world objects and map it into programming objects for a legacy system.	K2
3	Identify the concepts of inheritance and its types and develop applications using overloading features.	K3
4	Discover the usage of pointers with classes	K4
5	Explain the usage of Files, templates and understand the importance of exception Handling	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	INTRODUCTION TO C++	10 hours

Key concepts of Object-Oriented Programming –Advantages – Object Oriented Languages – I/O in C++ - C++ Declarations. Control Structures: - Decision Making and Statements: If.. Else, jump, goto, break, continue, Switch case statements - Loops in C++: for, while, do - functions in C++ - inline functions – Function Overloading..

Unit:2	CLASSES AND OBJECTS	10 hours

Declaring Objects – Defining Member Functions – Static Member variables and functions – array of objects –friend functions – Overloading member functions – Bit fields and classes – Constructor and destructor with static members.

Unit:3	OPERATOR OVERLOADING	12 hours

Overloading unary, binary operators – Overloading Friend functions – type conversion – Inheritance: Types of Inheritance – Single, Multilevel, Multiple, Hierarchal, Hybrid, Multi path

inheritance – Virtual base Classes – Abstract Classes.		
Unit:4	**POINTERS**	**13 hours**
Declaration – Pointer to Class , Object – this pointer – Pointers to derived classes and Base classes – Arrays – Characteristics – array of classes – Memory models – new and delete operators – dynamic object – Binding, Polymorphism and Virtual Functions.		
Unit:5	**FILES**	**13 hours**
File stream classes – file modes – Sequential Read / Write operations – Binary and ASCII Files – Random Access Operation – Templates – Exception Handling - String – Declaring and Initializing string objects – String Attributes – Miscellaneous functions .		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars - webinars		
	Total Lecture hours	**60 hours**

Text Book(s)	
1	Ashok N Kamthane, Object-Oriented Programming with Ansi And Turbo C++, Pearson Education, 2003.
Reference Books	
1	E. Balagurusamy, Object-Oriented Programming with C++, TMH, 1998.
2	Maria Litvin & Gray Litvin, C++ for you, Vikas publication, 2002.
3	John R Hubbard, Programming with C, 2nd Edition, TMH publication, 2002.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://www.spoken-tutorial.org
2	https://www.tutorialspoint.com/cplusplus/index.htm
3	https://www.w3schools.com/cpp/
Course Designed By:	

Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	S	M	M	M	M	M	M	L
CO2	S	S	S	S	S	S	S	M	M	M
CO3	S	S	S	S	S	S	S	M	M	M
CO4	S	S	S	S	S	S	S	M	M	S
CO5	S	S	S	S	S	S	S	M	M	S

*S-Strong; M-Medium; L-Low

Course code		PROGRAMMING LAB - C++	L	T	P	C
Core/Elective/ Supportive		Core Lab : 2	0	0	4	4
Pre-requisite		Basic understanding of computer programs and computer programming language like C.	Syllabus Version		2020-21 Onwards	

Course Objectives:

The main objectives of this course are to:

1. Impart knowledge of object oriented programming concepts and implement them in C++
2. Enable to differentiate procedure oriented and object-oriented concepts.
3. Equip with the knowledge of concept of Inheritance so that learner understands the need of inheritance.
4. Explain the importance of data hiding in object oriented programming

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Define the different programming paradigm such as procedure oriented and object oriented programming methodology and conceptualize elements of OO methodology	K1
2	Illustrate and model real world objects and map it into programming objects for a legacy system.	K2
3	Identify the concepts of inheritance and its types and develop applications using overloading features.	K3
4	Discover the usage of pointers with classes	K4
5	Explain the usage of Files, templates and understand the importance of exception Handling	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Programs **36 hours**

1. Write a C++ Program to create a class to implement the data structure STACK. Write a constructor to initialize the TOP of the STACK. Write a member function PUSH() to insert an element and member function POP() to delete an element check for overflow and underflow conditions..
2. Write a C++ Program to create a class ARITHMETIC which consists of a FLOAT and an INTEGER variable. Write member functions ADD (), SUB(), MUL(), DIV() to perform addition, subtraction, multiplication, division respectively. Write a member function to get and display values.
3. Write a C++ Program to read an integer number and find the sum of all the digits until it reduces to a single digit using constructors, destructors and inline member functions.
4. Write a C++ Program to create a class FLOAT that contains one float data member. Overload all the four Arithmetic operators so that they operate on the object FLOAT
5. Write a C++ Program to create a class STRING. Write a Member Function to initialize, get and display stings. Overload the operators ++ and == to concatenate two Strings and to compare two strings respectively.
6. Write a C++ Program to create class, which consists of EMPLOYEE Detail like E_Number, E_Name, Department, Basic, Salary, Grade. Write a member function to get and display them. Derive a class PAY from the above class and write a member function to calculate DA, HRA and

	PF depending on the grade.
7.	Write a C++ Program to create a class SHAPE which consists of two VIRTUAL FUNCTIONS Calculate_Area() and Calculate_Perimeter() to calculate area and perimeter of various figures. Derive three classes SQUARE, RECTANGLE, TRIANGE from class Shape and Calculate Area and Perimeter of each class separately and display the result.
8.	Write a C++ Program to create two classes each class consists of two private variables, a integer and a float variable. Write member functions to get and display them. Write a FRIEND Function common to both classes, which takes the object of above two classes as arguments and the integer and float values of both objects separately and display the result.
9.	Write a C++ Program using Function Overloading to read two Matrices of different Data Types such as integers and floating point numbers. Find out the sum of the above two matrices separately and display the sum of these arrays individually.
10.	Write a C++ Program to check whether the given string is a palindrome or not using Pointers
11.	Write a C++ Program to create a File and to display the contents of that file with line numbers.
12.	Write a C++ Program to merge two files into a single file.
Text Book(s)	
1	Ashok N Kamthane, Object-Oriented Programming with Ansi And Turbo C++, Pearson Education, 2003.
Reference Books	
1	E. Balagurusamy, Object-Oriented Programming with C++, TMH, 1998.
2	Maria Litvin & Gray Litvin, C++ for you, Vikas publication, 2002.
3	John R Hubbard, Programming with C, 2nd Edition, TMH publication, 2002.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	
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Course Designed By:	

Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	S	M	M	M	M	M	M	L
CO2	S	S	S	S	S	S	S	M	M	M
CO3	S	S	S	S	S	S	S	M	M	M
CO4	S	S	S	S	S	S	S	M	M	S
CO5	S	S	S	S	S	S	S	M	M	S

*S-Strong; M-Medium; L-Low

Course code		Internet Basics	L	T	P	C
Core/Elective/ Supportive		Core Lab : 3	0	0	2	2
Pre-requisite		Knowledge of WINDOWS Operating Systems	Syllabus Version		2020-21 Onwards	

Course Objectives:

The main objectives of this course are to:

1. Introduce the fundamentals of Internet and the Web functions.
2. Impart knowledge and essential skills necessary to use the internet and its various components.
3. Find, evaluate, and use online information resources.
4. Use Google Apps for education effectively.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the fundamentals of Internet and the Web concepts	K2
2	Explain the usage of internet concepts and analyze its components.	K2
3	Identify and apply the online information resources	K3
4	Inspect and utilize the appropriate Google Apps for education effectively	K3, K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Programs	**36 hours**

1. Create an email account in Gmail. Using the account created compose a mail to invite other college students for your college fest, enclose the invitation as attachment and send the mail to at least 50 recipients. Use CC and BCC options accordingly
2. Open your inbox in the Gmail account created, check the mail received from your peer from other college inviting you for his college fest, and download the invitation. Reply to the mail with a thank you note for the invite and forward the mail to other friends.
3. Assume that you are studying in final year of your graduation and are eagerly looking for a job. Visit any job portal and upload your resume.
4. Create a meeting using Google calendar and share meeting id to the attendees. Transfer the ownership to the Manager once the meeting id is generated.
5. Create a label and upload bulk contacts using import option in Google Contacts
6. Create your own Google classroom and invite all your friends through email id. Post study material in Google classroom using Google drive. Create a separate folder for every subject and upload all unit wise E-Content Materials.
7. Create and share a folder in Google Drive using ‘share a link’ option and set the permission to access that folder by your friends only.
8. Create one-page story in your mother tongue by using voice recognition facility of Google Docs.
9. Create a registration form for your Department Seminar or Conference using Google Forms.
10. Create a question paper with multiple choice types of questions for a subject of your choice, using Google Forms.
11. Create a Google form with minimum 25 questions to conduct a quiz and generate a

certificate after submission.	
12. Create a meet using Google Calendar and record the meet using Google Meet.	
13. Create a Google slides for a topic and share the same with your friends.	
14. Create template for a seminar certificate using Google Slides.	
15. Create a sheet to illustrate simple mathematical calculations using Google Sheets.	
16. Create student's internal mark statement and share the Google sheets via link.	
17. Create different types of charts for a range in CIA mark statement using Google Sheets.	
18. Create a mark statement in Google Sheets and download it as PDF, .xls and .csv files	
Text Book(s)	
1	Ian Lamont, Google Drive & Docs in 30 Minutes, 2nd Edition.
2	
Reference Books	
1	Sherry Kinkoph Gunter, My Google Apps, 2014.
2	
3	
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://www.youtube.com/watch?v=NzPNk44tdlQ
2	https://www.youtube.com/watch?v=PKuBtQuFa-8
4	https://www.youtube.com/watch?v=hGER1hP58ZE
Course Designed By:	

Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	M	S	S	S	S	M	M	S	L
CO2	S	M	S	S	S	S	S	S	S	M
CO3	S	S	S	S	S	S	S	S	S	S
CO4	S	S	S	S	S	S	S	S	S	S

*S-Strong; M-Medium; L-Low

Third Semester

Course code		Data Structures	L	T	P	C
Core/Elective/ Supportive		Core: 4	6	0	0	4
Pre-requisite		Basic understanding of Data storage, retrieval and algorithms.	Syllabus Version		2020-21 Onwards	

Course Objectives:

The main objectives of this course are to:

1. To introduce the fundamental concept of data structures
2. To emphasize the importance of data structures in developing and implementing efficient algorithms.
3. Understand the need for Data Structures when building application
4. Ability to calculate and measure efficiency of code
5. Improve programming logic skills.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the basic concepts of data structures and algorithms	K1-K2
2	Construct and analyze of stack and queue operations with illustrations	K2-K4
3	Enhance the knowledge of Linked List and dynamic storage management.	K2-K3
4	Demonstrate the concept of trees and its applications	K2-K3
5	Design and implement various sorting and searching algorithms for applications and understand the concept of file organizations	K1-K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	INTRODUCTION	15 hours

Introduction of Algorithms, Analysing Algorithms. Arrays: Sparse Matrices - Representation of Arrays. Stacks and Queues. Fundamentals - Evaluation of Expression Infix to Postfix Conversion - Multiple Stacks and Queues

Unit:2	LINKED LIST	12 hours

Linked List: Singly Linked List - Linked Stacks and Queues - Polynomial Addition- More on Linked Lists - Sparse Matrices - Doubly Linked List and Dynamic – Storage Management - Garbage Collection and Compaction.

Unit:3	TREES	15 hours

Basic Terminology - Binary Trees - Binary Tree Representations – Binary Trees-Traversal-More On Binary Trees – Threaded Binary Trees - Binary Tree. Representation of Trees - Counting Binary Trees. Graphs: Terminology and Representations-Traversals, Connected Components and Spanning Trees, Shortest Paths and Transitive Closure

Unit:4	EXTERNAL SORTING	15 hours

Storage Devices -Sorting with Disks: K-Way Merging – Sorting with Tapes Symbol Tables: Static Tree Tables - Dynamic Tree Tables - Hash Tables: Hashing Functions - Overflow Handling.

Unit:5	INTERNAL SORTING	15 hours
Insertion Sort - Quick Sort - 2 Way Merge Sort - Heap Sort – Shell Sort - Sorting on Several Keys. Files: Files, Queries and Sequential organizations – Index Techniques -File Organizations.		
Unit:6	**Contemporary Issues**	**3 hours**
Expert lectures, online seminars - webinars		
	Total Lecture hours	**75 hours**

Text Book(s)	
1	Ellis Horowitz, Sartaj Shani, Data Structures, Galgotia Publication.
2	Ellis Horowitz, Sartaj Shani, Sanguthevar Rajasekaran, Computer Algorithms, Galgotia Publication.
3	S.Lovelyn Rose, R.Venkatesan, Data Structures, Wiley India Private Limited,2015, 1st Edition

Reference Books	
1	Jean-Paul,Tremblay & Paul G.Sorenson , An Introduction to Data structures with Applications Tata McGraw Hill Company 2008, 2ndEdition.
2	Samanta.D , Classic Data Structure Prentice Hall of India Pvt Ltd 2007, 9th Edition
3	Seymour Lipschutz, Data Structures McGraw Hill Publications, 2014, 1st Edition

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
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Course Designed By:

Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	S	M	M	M	S	M	M	M
CO2	S	S	S	M	M	M	M	M	M	M
CO3	S	S	S	M	S	M	M	M	S	S
CO4	S	S	S	M	S	S	S	S	M	M
CO5	S	S	S	M	M	S	S	M	M	S

*S-Strong; M-Medium; L-Low

Course code		Java Programming	L	T	P	C
Core/Elective/Supportive		Core: 5	6	0	0	4
Pre-requisite		The objective of the course is to train the students to acquire problem-solving skills through object oriented programming	Syllabus Version		2020-21 Onwards	

Course Objectives:

The main objectives of this course are to:

1. To expose the students with the introduction to OOPs and advantages of object oriented programming.
2. The concepts of OOPs make it easy to represent real world entities.
3. The course introduces the concepts of converting the real time problems into objects and methods and their interaction with one another to attain a solution.
4. Simultaneously it provides the syntax of programming language Java for solving the real world problems.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	The competence and the development of small to medium sized application programs that demonstrate professionally acceptable coding	K1-K2
2	Demonstrate the concept of object oriented programming through Java	K2-K4
3	Apply the concept of Inheritance, Modularity, Concurrency, Exceptions handling and data persistence to develop java program	K3
4	Develop java programs for applets and graphics programming	K3
5	Understand the fundamental concepts of AWT controls, layouts and events	K1-K2

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	FUNDAMENTALS OF OBJECT-ORIENTED PROGRAMMING	15 hours

Object-Oriented Paradigm – Basic Concepts of Object-Oriented Programming – Benefits of Object-Oriented Programming –Application of Object-Oriented Programming. Java Evolution: History – Features – How Java differs from C and C++ – Java and Internet – Java and www –Web Browsers. Overview of Java: simple Java program – Structure – Java Tokens – Statements – Java Virtual Machine.

Unit:2	BRANCHING AND LOOPING	12 hours

Constants, Variables, Data Types - Operators and Expressions – Decision Making and Branching: if, if...else, nested if, switch, ? : Operator - Decision Making and Looping: while, do, for – Jumps in Loops - Labeled Loops – Classes, Objects and Methods.

Unit:3	ARRAYS AND INTERFACES	15 hours

Arrays, Strings and Vectors – Interfaces: Multiple Inheritance – Packages: Putting Classes together – Multithreaded Programming.

Unit:4	**ERROR HANDLING**	**15 hours**
Managing Errors and Exceptions – Applet Programming – Graphics Programming.		
Unit:5	**MANAGING INPUT / OUTPUT FILES IN JAVA**	**15 hours**
Concepts of Streams- Stream Classes – Byte Stream classes – Character stream classes – Using streams – I/O Classes – File Class – I/O exceptions – Creation of files – Reading / Writing characters, Byte-Handling Primitive data Types – Random Access Files.		
Unit:6	**Contemporary Issues**	**3 hours**
Expert lectures, online seminars - webinars		
	Total Lecture hours	**75 hours**

Text Book(s)	
1	Programming with Java – A Primer - E. Balagurusamy, 5th Edition, TMH.
2	Herbert Schildt , Java: The Complete Reference, McGraw Hill Education, Oracle Press 10th Edition, 2018
3	Programming with Java – A Primer - E. Balagurusamy, 3rd Edition, TMH.
Reference Books	
1	The Complete Reference Java 2 - Patrick Naughton & Hebert Schildt, 3rd Edition, TMH
2	Programming with Java – John R. Hubbard, 2nd Edition, TMH.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	www.spoken-tutorial.org
2	www.nptel.ac.in
3	https://www.w3schools.in/java-tutorial/
Course Designed By:	

Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	S	M	S	L	S	M	M	M
CO2	S	S	S	M	S	L	S	M	M	M
CO3	S	S	S	M	S	M	S	S	M	M
CO4	S	S	S	M	S	M	M	S	M	M
CO5	S	S	S	M	S	M	S	S	M	M

*S-Strong; M-Medium; L-Low

Course code		Programming Lab – JAVA	L	T	P	C
Core/Elective/Supportive		Core Lab: 4	0	0	5	4
Pre-requisite		Students should know about the OOPs concept and basic knowledge in java theory.	Syllabus Version		2020-21 Onwards	

Course Objectives:

The main objectives of this course are to:

3. The main objective of JAVA Programming Lab is to provide the students a strong foundation on programming concepts and its applications through hands-on training.
4. To practice the Basic concepts, Branching and Looping Statements and Strings in C programming
5. To implement and gain knowledge in Arrays, functions, Structures, Pointers and File handling

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the basic concepts of Java Programming with emphasis on ethics and principles of professional coding	**K1, K2**
2	Demonstrate the creation of objects, classes and methods and the concepts of constructor, methods overloading, Arrays, branching and looping	**K2**
3	Create data files and Design a page using AWT controls and Mouse Events in Java programming Implement the concepts of code reusability and debugging.	**K2, K3**
4	Develop applications using Strings, Interfaces and Packages and applets	**K3**
5	Construct Java programs using Multithreaded Programming and Exception Handling	**K3**

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Programs	**36 hours**

1. Write a Java Applications to extract a portion of a character string and print the extracted string.
2. Write a Java Program to implement the concept of multiple inheritance using Interfaces.
3. Write a Java Program to create an Exception called payout-of-bounds and throw the exception.
4. Write a Java Program to implement the concept of multithreading with the use of any three multiplication tables and assign three different priorities to them.
5. Write a Java Program to draw several shapes in the created windows.
6. Write a Java Program to create a frame with four text fields name, street, city and pin code with suitable tables. Also add a button called my details. When the button is clicked its corresponding values are to be appeared in the text fields.
7. Write a Java Program to demonstrate the Multiple Selection List-box.
8. Write a Java Program to create a frame with three text fields for name, age and qualification and a text field for multiple line for address
9. Write a Java Program to create Menu Bars and pull down menus.
10. Write a Java Program to create frames which respond to the mouse clicks. For each events with mouse such as mouse up, mouse down, etc., the corresponding message to be

displayed.		
11. Write a Java Program to draw circle, square, ellipse and rectangle at the mouse click positions.		
12. Write a Java Program which open an existing file and append text to that file.		
	Total Lecture hours	**36 hours**

Text Book(s)	
1	Programming with Java – A Primer – E. Balagurusamy, 5th Edition, TMH.
2	Herbert Schildt , Java: The Complete Reference, McGraw Hill Education, Oracle Press 10th Edition, 2018
3	Programming with Java – A Primer – E. Balagurusamy, 3rd Edition, TMH.
Reference Books	
1	The Complete Reference Java 2 – Patrick Naughton & Hebert Schildt, 3rd Edition, TMH
2	Programming with Java – John R. Hubbard, 2nd Edition, TMH.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://www.w3resource.com/java-exercises/
2	https://www.udemy.com/introduction-to-java-programming/
3	
Course Designed By:	

Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	S	L	S	S	S	M	M	L
CO3	S	S	S	L	S	M	S	M	M	L
CO3	S	S	S	M	S	M	S	M	M	L
CO4	S	S	S	M	S	M	S	S	M	S
CO5	S	S	S	M	S	S	S	S	M	S

*S-Strong; M-Medium; L-Low

Course code		Software Engineering and Software Project Management	L	T	P	C
Core/Elective/ Supportive		Skill based Subject - 1	5	0	0	3
Pre-requisite		Basic knowledge on the Software Development Life Cycle.	Syllabus Version		2020-21 Onwards	

Course Objectives:

The main objectives of this course are to:

1. To enhance the basic software engineering methods and practices.
2. To learn the techniques for developing software systems.
3. To understand the object oriented design.
4. To understand software testing approaches

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the basic concepts of software engineering	K1
2	Apply the software engineering models in developing software applications	K2-K3
3	Implement the object oriented design in various projects	K4
4	Knowledge on how to do a software project with in-depth analysis.	K3
5	To inculcate knowledge on Software engineering concepts in turn gives a roadmap to design a new software project.	K1-K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	SOFTWARE ENGINEERING	15 hours

Software Engineering: A Layered Technology – Software Process – Software Process Models – The Prototyping. Requirement Engineering– Software prototyping - Elements of analysis model – Data modeling – Functional modeling and information flow.

Unit:2	SOFTWARE DESIGN	12 hours

Software design and Software engineering – The Design process – Design principles – Design concepts – Effective modular design –Software Architecture

Unit:3	SOFTWARE TESTING	15 hours

Software testing fundamentals – Test Case Design - White box testing – Basis path testing – Control structure testing – Black box testing. Unit testing – Validation testing – System testing.

Unit:4	SOFTWARE CONFIGURATION MANAGEMENT	15 hours

Software Configuration Management: Definitions and terminology – processes and activities. Software Quality assurance: Definitions – Quality control and Quality assurance – Organization of Structures. Risk Management: Risk Identification – quantification - Monitoring - Mitigation. Software requirements gathering: Steps to be followed – Outputs and Quality Records - Skill sets required – Challenges.

Unit:5	ESTIMATION	15 hours

Estimation: What is Estimation? – When and Why? – Three phases of Estimation – Estimation methodology – Formal models of Size Estimation. Design and Development phases: Reusability - Technology choices – Standards – Portability -User interface issues – Testability - The Effect of Internet on Project Management.

Unit:6	**Contemporary Issues**	**3 hours**
Expert lectures, online seminars - webinars		
	Total Lecture hours	**75 hours**

Text Book(s)

1	Roger S. Pressman: Software Engineering, Tata McGraw Hill, V Edition.
2	Gopalaswamy Ramesh, Managing Global Software Projects, Tata McGraw Hill, New Delhi, 2002.
3	Programming with Java – A Primer - E. Balagurusamy, 3rd Edition, TMH.

Reference Books

1	The Complete Reference Java 2 – Patrick Naughton & Hebert Schildt, 3rd Edition, TMH
2	Programming with Java – John R. Hubbard, 2nd Edition, TMH.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

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Course Designed By:

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	M	M	S	M	S	S	S	S	M
CO2	S	S	S	S	S	S	S	S	S	S
CO3	S	S	S	S	S	M	S	S	S	S
CO4	S	S	S	S	S	S	S	S	S	S
CO5	S	S	S	S	S	S	S	S	S	S

*S-Strong; M-Medium; L-Low

Fourth Semester

Course code		System Software and Operating Systems	L	T	P	C
Core/Elective/ Supportive		Core : 6	6	0	0	4
Pre-requisite		Students Should have the basic knowledge in computer.	Syllabus Version		2020-21 Onwards	

Course Objectives:

The main objectives of this course are to:

1. To understand the processing of programs on a computer system to design and implementation of language processor.
2. To enhance the ability of program generation through expansion and gain knowledge about Code optimization using software tools.
3. Students will gain knowledge of basic operating system concepts.
4. To have an in-depth understanding of process concepts, deadlock and memory management.
5. To provide an exposure to scheduling algorithms, devices and information management.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Know the program generation and program execution activities in detail	K1
2	Understand the concepts of Macro Expansions and Gain the knowledge of Editing processes	K2-K3
3	Remember the basic concepts of operating system	K1
4	Understand the concepts like interrupts, deadlock , memory management and file management	K2
5	Analyze the need for scheduling algorithms and implement different algorithms used for representation, scheduling, and allocation in DOS and UNIX operating system.	K1-K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	INTRODUCTION TO SYSTEM SOFTWARE	12 hours

Introduction–System Software and machine architecture. Loader and Linkers: Basic Loader Functions - Machine dependent loader features –Machine independent loader features - Loader design options

Unit:2	MACHINE AND COMPILER	15 hours

Machine dependent compiler features - Intermediate form of the program - Machine dependent code optimization - Machine independent compiler features - Compiler design options - Division into passes – Interpreters – p-code compilers - Compiler-compilers.

Unit:3	OPERATING SYSTEM	15 hours

What is an Operating System? – Process Concepts: Definition of Process - Process States - Process States Transition – Interrupt Processing – Interrupt Classes - Storage Management: Real Storage: Real Storage Management Strategies – Contiguous versus Non-contiguous storage allocation – Single User Contiguous Storage allocation- Fixed partition multiprogramming – Variable partition multiprogramming.

Unit:4	VIRTUAL STORAGE	15 hours
Virtual Storage: Virtual Storage Management Strategies – Page Replacement Strategies – Working Sets – Demand Paging – Page Size. Processor Management: Job and Processor Scheduling: Preemptive Vs Non-preemptive scheduling – Priorities – Deadline scheduling.		
Unit:5	**DEVICE AND INFORMATION MANAGEMENT**	**15 hours**
Device and Information Management Disk Performance Optimization: Operation of moving head disk storage – Need for disk scheduling – Seek Optimization – File and Database Systems: File System – Functions – Organization – Allocating and freeing space – File descriptor – Access control matrix.		
Unit:6	**Contemporary Issues**	**3 hours**
Expert lectures, online seminars - webinars		
	Total Lecture hours	**75 hours**

Text Book(s)

1	Leland L.Beck, System Software: An Introduction to Systems Programming, Pearson, Third Edition.
2	H.M. Deitel, Operating Systems, 2nd Edition, Perason, 2003.

Reference Books

1	Achy8ut S. Godbole, Operating Systems, TMH, 2002.
2	John J. Donovan, Systems Programming, TMH, 1991.
3	D.M. Dhamdhere, Systems Programming and Operating Systems, 2nd Revised Edition, TMH.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

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Course Designed By:

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	M	M	M	S	M	M	M	M	L
CO2	S	S	S	S	S	M	M	M	S	L
CO3	S	M	M	M	S	M	S	S	S	L
CO4	S	S	S	M	S	S	S	M	M	M
CO5	S	S	S	M	S	S	S	M	M	M

*S-Strong; M-Medium; L-Low

Course code		Linux and Shell Programming	L	T	P	C
Core/Elective/ Supportive		Core : 7	6	0	0	4
Pre-requisite		Before starting the course students should have the basic knowledge about operating system and C programming.	Syllabus Version		2020-21 Onwards	

Course Objectives:

The main objectives of this course are to:

1. Linux is a multi-user and multi-tasking operating system and after learning the concepts of an operating system
2. Student will be able to write simple shell programming using Linux utilities, pipes and filters.
3. The file system, process management and memory management are discussed.
4. Various commands used by Linux shell is also discussed which makes the users to interact with each other.
5. Bourne shell programming is dealt in depth which can be used to develop applications.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Describe the architecture and features of Linux Operating System and distinguish it from other Operating System.	K1
2	Develop Linux utilities to perform File processing, Directory handling, User Management and display system configuration	K2-K3
3	Develop shell scripts using pipes, redirection, filters and Pipes	K2
4	Apply and change the ownership and file permissions using advance Unix commands.	K3
5	Build Regular expression to perform pattern matching using utilities and implement shell scripts for real time applications.	K3-K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	INTRODUCTION	12 hours

Introduction to LINUX Operating System: Introduction - The LINUX Operating System.

Unit:2	MANAGING FILES AND DIRECTORIES	15 hours

Managing Files and Directories: Introduction – Directory Commands in LINUX – File Commands in LINUX.

Unit:3	VI EDITOR	15 hours

Creating files using the vi editor: Text editors – The vi editor. Managing Documents: Locating files in LINUX – Standard files – Redirection – Filters – Pipes.

Unit:4	SECURING FILES	15 hours

Securing files in LINUX: File access permissions – viewing File access permissions – Changing File access permissions. Automating Tasks using Shell Scripts: Introduction – Variables- Local and Global Shell variables – Command Substitution.

Unit:5	CONDITIONAL EXECUTION IN SHELL SCRIPTS	15 hours
Using Conditional Execution in Shell Scripts: Conditional Execution – The case…esac Construct. Managing repetitive tasks using Shell Scripts: Using Iteration in Shell Scripts – The while construct – until construct – for construct – break and continue commands – Simple Programs using Shell Scripts.		
Unit:6	**Contemporary Issues**	**3 hours**
Expert lectures, online seminars - webinars		
	Total Lecture hours	**75 hours**

Text Book(s)

1	Operating System LINUX, NIIT, PHI, 2006, Eastern Economy Edition.
2	N.B. Venkateswarlu , Introduction to Linux: Installation and Programming, BS Publications, 2008, 1st Edition

Reference Books

1	Richard Petersen, Linux: The Complete Reference, Sixth Edition, Tata McGraw-Hill Publishing Company Limited, New Delhi, Edition 2008.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	http://spoken-tutorial.org/
2	https://www.tutorialspoint.com/linux/index.htm
3	

Course Designed By:

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	M	M	M	S	M	M	M	M	L
CO2	S	S	S	M	S	M	M	M	M	L
CO3	S	S	S	M	S	M	S	S	S	M
CO4	S	S	S	M	S	M	S	S	S	M
CO5	S	S	S	S	S	S	S	S	S	S

*S-Strong; M-Medium; L-Low

Course code		Programming Lab – LINUX and SHELL PROGRAMMING	L	T	P	C
Core/Elective/Supportive		Core Lab: 5	0	0	6	4
Pre-requisite		Students should have the prior basic knowledge in operating system.	Syllabus Version		2020-21 Onwards	

Course Objectives:

The main objectives of this course are to:

1. Describe the architecture and features of Linux Operating System
2. To create programs in the Linux environment using Linux utilities and commands.
3. Student is given an introduction of Linux shell commands and they will be able to write own shell scripts.
4. Shell programming is dealt in depth which can be used to develop applications.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Develop Linux utilities to perform File processing, Directory handling and User Management	**K1, K2**
2	Understand and develop shell scripts using pipes, redirection, filters, Pipes and display system configuration	**K2-K3**
3	Develop simple shell scripts applicable to file access permission network administration	**K3**
4	Apply and change the ownership and file permissions using advance Unix commands.	**K4-K5**
5	Create shell scripts for real time applications.	**K6**

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Programs	**36 hours**

1. Write a shell script to stimulate the file commands: rm, cp, cat, mv, cmp, wc, split, diff.
2. Write a shell script to show the following system configuration :
   a. currently logged user and his log name
   b. current shell , home directory , Operating System type , current Path setting , current working directory
   c. show currently logged number of users, show all available shells
   d. show CPU information like processor type , speed
   e. show memory information
3. Write a Shell Script to implement the following: pipes, Redirection and tee commands.
4. Write a shell script for displaying current date, user name, file listing and directories by getting user choice.
5. Write a shell script to implement the filter commands.
6. Write a shell script to remove the files which has file size as zero bytes.
7. Write a shell script to find the sum of the individual digits of a given number.
8. Write a shell script to find the greatest among the given set of numbers using command line arguments.
9. Write a shell script for palindrome checking.
10. Write a shell script to print the multiplication table of the given argument using for loop.

	Total Lecture hours	**36 hours**
Text Book(s)		
1	Operating System LINUX, NIIT, PHI, 2006, Eastern Economy Edition.	
2	N.B. Venkateswarlu , Introduction to Linux: Installation and Programming, BS Publications, 2008, 1st Edition	
Reference Books		
1	Richard Petersen, Linux: The Complete Reference, Sixth Edition, Tata McGraw-Hill Publishing Company Limited, New Delhi, Edition 2008.	
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]		
1	https://www.w3resource.com/linux-exercises/	
2	http://spoken-tutorial.org/	
3		
Course Designed By:		

Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	S	M	S	M	S	M	M	M
CO3	S	S	S	M	S	M	S	S	M	M
CO3	S	S	S	S	S	S	S	S	S	S
CO4	S	S	S	S	S	S	S	S	S	S
CO5	S	S	S	S	S	S	S	S	S	S

*S-Strong; M-Medium; L-Low

Course code		Lab – Software Project Management	L	T	P	C
Core/Elective/Supportive		Skill Based Subject 2 (Lab) :1	0	0	4	3
Pre-requisite		Basic knowledge in SDLC and managing of software projects	Syllabus Version		2020-21 Onwards	

Course Objectives:

The main objectives of this course are to:

1. To gain knowledge about how to develop project plan
2. To create requirement analysis and specification for software applications.
3. Student is given an introduction of various phases of software development life cycle models.
4. To analyze the steps are to be implemented using SDLC to develop applications.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Prepare a Project Plan with requirement analysis and specification.	**K1, K2**
2	Understand and develop cost estimation model for real time applications.	**K2-K3**
3	Implement the concepts of checkpoints in design phase	**K3**
4	Analyze the Development phase of the database and text area of the applications.	**K4-K5**
5	Create SDLC for real time applications.	**K6**

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Programs	**36 hours**
1. Preparation of Project Management Plan.	
2. Using any of the CASE tools, Practice requirement analysis and specification for different firms.	
3. Case study of cost estimation models.	
4. Practice object oriented design principles for implementation.	
5. Practice function oriented design.	
6. Practice creating software documentation for the Analysis phase of software development life cycle for a real time application.	
7. Practice creating software documentation for the Development phase of software development life cycle for a real time application.	
8. Practice creating software documentation for the Implementation phase of software development life cycle for a real time application.	
9. Practice creating software documentation for the Testing phase of software development life cycle for a real time application.	
10. Simulate a tool for path testing principles.	
11. Simulate a tool for testing based on control structures.	
12. Simulate a tool that reflects black box testing concepts	
Total Lecture hours	**36 hours**

Text Book(s)

1	

Reference Books

1	

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	
2	
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Course Designed By:	

Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	S	S	S	M	S	S	S	M
CO3	S	S	S	S	S	M	S	S	S	M
CO3	S	S	S	M	S	M	S	S	S	M
CO4	S	S	S	M	S	S	S	S	S	S
CO5	S	S	S	S	S	S	S	S	S	S

*S-Strong; M-Medium; L-Low

Fifth Semester

Course code		RDBMS & Oracle	L	T	P	C
Core/Elective/ Supportive		Core : 8	6	0	0	4
Pre-requisite		Basic knowledge about the data, table and database in computers	Syllabus Version		2020-21 Onwards	

Course Objectives:

The main objectives of this course are to:

1. The course describes the data, organizing the data in database, database administration.
2. To grasp the different issues involved in the design of a database system.
3. To study the physical and logical database designs and database modeling like relational, Hierarchical, network models, database security, integrity and normalization.
4. It also gives introduction to SQL language to retrieve the data from the database with suitable application development.
5. Provide strong foundation of database concepts and to introduce students to application development in DBMS.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the basic concepts of Relational Data Model, Entity-Relationship Model and process of Normalization	**K1-K2**
2	Understand and construct database using Structured Query Language (SQL) in Oracle9i environment.	**K1-K3**
3	Learn basics of PL/SQL and develop programs using Cursors, Exceptions, Procedures and Functions.	**K1-K4**
4	Understand and use built-in functions and enhance the knowledge of handling multiple tables	**K1-K3**
5	Attain a good practical skill of managing and retrieving of data using Data Manipulation Language (DML)	**K2-K4**

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	DATABASE CONCEPTS	15 hours

Database Concepts: A Relational approach: Database – Relationships – DBMS – Relational Data Model – Integrity Rules – Theoretical Relational Languages. Database Design: Data Modeling and Normalization: Data Modeling – Dependency – Database Design – Normal forms – Dependency Diagrams – De -normalization – Another Example of Normalization.

Unit:2	ORACLE9i	15 hours

Oracle9*i*: Overview: Personal Databases – Client/Server Databases – Oracle9i an introduction – SQL *Plus Environment – SQL – Logging into SQL *Plus - SQL *Plus Commands – Errors & Help – Alternate Text Editors - SQL *Plus Worksheet - *i*SQL *Plus. Oracle Tables: DDL: Naming Rules and conventions – Data Types – Constraints – Creating Oracle Table – Displaying Table Information – Altering an Existing Table – Dropping, Renaming, Truncating Table – Table Types – Spooling – Error codes.

Unit:3	WORKING WITH TABLE	15 hours

Working with Table: Data Management and Retrieval: DML – adding a new Row/Record – Customized Prompts – Updating and Deleting an Existing Rows/Records – retrieving Data from

Table – Arithmetic Operations – restricting Data with WHERE clause – Sorting – Revisiting Substitution Variables – DEFINE command – CASE structure. Functions and Grouping: Built-in functions –Grouping Data. Multiple Tables: Joins and Set operations: Join – Set operations.		
Unit:4	**PL/SQL**	**15 hours**
PL/SQL: A Programming Language: History – Fundamentals – Block Structure – Comments – Data Types – Other Data Types – Declaration – Assignment operation – Bind variables – Substitution Variables – Printing – Arithmetic Operators. Control Structures and Embedded SQL: Control Structures – Nested Blocks – SQ L in PL/SQL – Data Manipulation – Transaction Control statements. PL/SQL Cursors and Exceptions: Cursors – Implicit & Explicit Cursors and Attributes – Cursor FOR loops – SELECT…FOR UPDATE – WHERE CURRENT OF clause – Cursor with Parameters – Cursor Variables – Exceptions – Types of Exceptions.		
Unit:5	**PL/SQL COMPOSITE DATA TYPES**	**12 hours**
PL/SQL Composite Data Types: Records – Tables – arrays. Named Blocks: Procedures – Functions – Packages –Triggers –Data Dictionary Views.		
Unit:6	**Contemporary Issues**	**3 hours**
Expert lectures, online seminars - webinars		
	Total Lecture hours	**75 hours**

Text Book(s)	
1	Database Systems using Oracle, Nilesh Shah, 2nd edition, PHI.
2	E-Book : Diana Lorentz, “Oracle® Database SQL Reference”, ORACLE, Dec, 2005.
3	E-Book : Bill Pribyl, Steven Feuerstein, “Oracle PL/SQL Programming”, O'Reilly Media, Inc., 6th Edition, February 2014.
Reference Books	
1	Database Management Systems, Majumdar & Bhattacharya, 2007, TMH.
2	Database Management Systems, Gerald V. Post, 3rd edition, TMH.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	http://www.digimat.in/nptel/courses/video/106105175/L01.html
2	https://www.tutorialspoint.com/oracle_sql/index.htm
Course Designed By:	

Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	S	M	S	M	M	M	M	L
CO2	S	S	S	M	S	M	M	M	M	L
CO3	S	S	S	S	S	S	S	S	M	M
CO4	S	S	S	S	S	M	S	S	M	L
CO5	S	S	S	S	S	M	S	S	M	L

*S-Strong; M-Medium; L-Low

Course code		Visual Basic	L	T	P	C
Core/Elective/ Supportive		Core : 9	6	0	0	4
Pre-requisite		Knowledge in programming language and oops concept.	Syllabus Version		2020-21 Onwards	

Course Objectives:

The main objectives of this course are to:

1. The main aim of the course is to cover visual basic programming skills required for modern software development.
2. To study the advantages of Controls available with visual basic.
3. To gain a basic understanding of database access and management using data controls.
4. To facilitate the learner to carry out project works using the tools available in VB and MS Access.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Demonstrate fundamental skills in utilizing the tools of a visual environment such as command, menus and toolbars.	**K1**
2	Implement SDI and MDI applications using forms, dialogs and other types of GUI components.	**K2**
3	Understand the connectivity between VB with MS-ACCESS database.	**K3**
4	Implement the methods and techniques to develop projects.	**K4**
5	Attain a good practical skill of managing ODBC and Data Access Objects	**K2-K4**

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	INTRODUCTION TO VB	15 hours

Getting Started with VB6, Programming Environment, working with Forms, Developing an application, Variables, Data types and Modules, procedures and control structures, arrays. Working with Controls: Creating and using controls, working with control arrays.

Unit:2	MENUS IN VB	15 hours

Menus, Mouse events and Dialog boxes: Mouse events, Dialog boxes, MDI and Flex grid: MDI, Using the Flex grid control.

Unit:3	ODBC AND DATA ACCESS OBJECTS	15 hours

ODBC and Data Access Objects: Data Access Options, ODBC, Remote data objects, ActiveX EXE and ActiveX DLL: Introduction, Creating an ActiveX EXE Component, Creating ActiveX DLL Component.

Unit:4	OBJECT LINKING AND EMBEDDING	15 hours

Object Linking and Embedding: OLE fundamentals, Using OLE Container Control, Using OLE Automation objects, OLE Drag and Drop, File and File System Control: File System Controls, Accessing Files.

Unit:5	CONTROLS IN VB	12 hours

Additional controls in VB: sstab control, setting properties at runtime, adding controls to tab, list control, tabstrip control, MS Flexgrid control, Why ADO, Establishing a reference, Crystal and

Data reports.		
Unit:6	**Contemporary Issues**	**3 hours**
Expert lectures, online seminars - webinars		
	Total Lecture hours	**75 hours**

Text Book(s)	
1	Visual Basic 6.0 Programming, Content Development Group, TMH, 8th reprint, 2007. **(Unit I to Unit IV)**
2	Programming with Visual Basic 6.0, Mohammed Azam, Vikas Publishing House, Fourth Reprint, 2006. **(Unit V)**

Reference Books	
1	Gray Cornell (2003), "Visual Basic 6 from ground up" TMH, New Delhi, 1st Edition,
2	Deitel and Deitel, T.R.Nieto (1998), "Visual Basic 6 - How to Program", Pearson Education. First Edition.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	
2	
3	

Course Designed By:

Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	S	L	M	M	M	M	M	L
CO2	S	S	S	M	M	M	S	S	M	L
CO3	S	S	S	S	S	M	S	S	S	M
CO4	S	S	S	S	S	S	S	S	S	S
CO5	S	S	S	S	S	S	S	S	S	S

*S-Strong; M-Medium; L-Low

Course code		Programming Lab – VB & Oracle	L	T	P	C
Core/Elective/Supportive		Core Lab : 6	0	0	6	4
Pre-requisite		Students should have the theoretical knowledge in visual basic and oops concept.	Syllabus Version		2020-21 Onwards	

Course Objectives:

The main objectives of this course are to:

1. To develop applications using Graphical User Interface tools.
2. To understand the design concepts.
3. To design and build database systems and demonstrate their competence.
4. To create requirement analysis and specification for software applications.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the concepts of Visual Basic.	**K1**
2	Learn the advantages of Controls in VB	**K2**
3	Design and develop the event- driven applications using Visual Basic framework.	**K3**
4	Apply the knowledge of database methods.	**K4**
5	Learn basics of PL/SQL and develop programs using Cursors, Exceptions, Procedures and Functions	**K6**

K1 – Remember; **K2** – Understand; **K3** – Apply; **K4** – Analyze; **K5** – Evaluate; **K6** – Create

Programs	**36 hours**

1. Construction of an Arithmetic Calculator (Simple).
2. Writing simple programs using loops and decision-making statements.
   a. Generate Fibonacci series.
   b. Find the sum of N numbers.
3. Write a program to create a menu and MDI Forms.
4. Write a program to display files in a directory using DriveListBox, DirListBox and FileListBox control and open, edit and save text file using Rich text box control.
5. Write a program to illustrate Common Dialog Control and to open, edit and save text file.
6. Write a program to implement animation using timers.
7. Write a simple VB program to accept a number as input and convert it into
   a. Binary b. Octal c. Hexa-decimal
8. Create a table for Employee details with Employee Number as primary key and following fields:
   Name, Designation, Gender, Age, Date of Joining and Salary. Insert at least ten rows and perform various queries using any one Comparison, Logical, Set, Sorting and Grouping operators.
9. Write a PL/SQL to update the rate field by 20% more than the current rate in inventory table which has the following fields: Prono, ProName and Rate. After updating the table a new field (Alter) called for Number of item and place for values for the new field without using PL/SQL block.
10. Write a PL/SQL program to implement the concept of Triggers

11. Write a PL/SQL program to implement the concept “Procedures”.	
12. Write a VB program to manipulate the student mark list with oracle database connectivity program.	
Total Lecture hours	**36 hours**

Text Book(s)	
1	Visual Basic 6.0 Programming, Content Development Group, TMH, 8th reprint, 2007. **(Unit I to Unit IV)**
2	Programming with Visual Basic 6.0, Mohammed Azam, Vikas Publishing House, Fourth Reprint, 2006. **(Unit V)**
3	E-Book : Bill Pribyl, Steven Feuerstein, “Oracle PL/SQL Programming”, O’Reilly Media, Inc., 6th Edition, February 2014.
Reference Books	
1	Gray Cornell (2003), ”Visual Basic 6 from ground up” TMH, New Delhi, 1st Edition,
2	Deitel and Deitel, T.R.Nieto (1998), “Visual Basic 6 – How to Program”, Pearson Education. First Edition.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	
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Course Designed By:	

Mapping with Programme Outcomes										
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	S	L	M	L	S	M	M	L
CO3	S	S	S	L	M	M	S	M	S	L
CO3	S	S	S	M	S	M	S	S	S	M
CO4	S	S	S	M	S	M	S	S	M	M
CO5	S	S	S	S	S	S	S	S	S	M

*S-Strong; M-Medium; L-Low

Course code		PYTHON Programming	L	T	P	C
Core/Elective/ Supportive		Elective : I	6	0	0	4
Pre-requisite		Knowledge on logic of the programs and oops concept.	Syllabus Version		2020-21 Onwards	

Course Objectives:

The main objectives of this course are to:

1. To introduce the fundamentals of Python Programming.
2. To teach about the concept of Functions in Python.
3. To impart the knowledge of Lists, Tuples, Files and Directories.
4. To learn about dictionaries in python.
5. To explores the object-oriented programming, Graphical programming aspects of python with help of built in modules..

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Remembering the concept of operators, data types, looping statements in Python programming.	**K1**
2	Understanding the concepts of Input / Output operations in file..	**K2**
3	Applying the concept of functions and exception handling	**K3**
4	Analyzing the structures of list, tuples and maintaining dictionaries	**K4**
5	Demonstrate significant experience with python program development environment	**K4-K6**

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	BASICS OF PYTHON	10 hours

BASICS : Python - Variables - Executing Python from the Command Line - Editing Python Files - Python Reserved Words - Basic Syntax-Comments - Standard Data Types – Relational Operators - Logical Operators - Bit Wise Operators - Simple Input and Output.

Unit:2	CONTROL STATEMENTS	10 hours

CONTROL STATEMENTS: Control Flow and Syntax - Indenting - if Statement - statements and expressions- string operations- Boolean Expressions -while Loop - break and continue - for Loop. LISTS: List-list slices - list methods - list loop – mutability – aliasing - cloning lists - list parameters. TUPLES: Tuple assignment, tuple as return value -Sets – Dictionaries

Unit:3	FUNCTIONS	10 hours

FUNCTIONS: Definition - Passing parameters to a Function - Built-in functions- Variable Number of Arguments - Scope – Type conversion-Type coercion-Passing Functions to a Function - Mapping Functions in a Dictionary – Lambda - Modules - Standard Modules – sys – math – time - dir - help Function.

Unit:4	ERROR HANDLING	12 hours

ERROR HANDLING: Run Time Errors - Exception Model - Exception Hierarchy - Handling Multiple Exceptions - Data Streams - Access Modes Writing - Data to a File Reading - Data From a File - Additional File Methods - Using Pipes as Data Streams - Handling IO Exceptions - Working with Directories.

Unit:5	**OBJECT ORIENTED FEATURES**	**12 hours**
OBJECT ORIENTED FEATURES: Classes Principles of Object Orientation - Creating Classes - Instance Methods - File Organization - Special Methods - Class Variables – Inheritance – Polymorphism - Type Identification - Simple Character Matches - Special Characters - Character Classes – Quantifiers - Dot Character - Greedy Matches – Grouping - Matching at Beginning or End - Match Objects – Substituting - Splitting a String - Compiling Regular Expressions.		
Unit:6	**Contemporary Issues**	**3 hours**
Expert lectures, online seminars - webinars		
	Total Lecture hours	**55 hours**

Text Book(s)	
1	Mark Summerfield, Programming in Python 3: A Complete introduction to the Python Language, Addison-Wesley Professional, 2009.
2	Martin C. Brown, PYTHON: The Complete Reference, McGraw-Hill, 2001
3	E. Balagurusamy (2017), “Problem Solving and Python Programming”, McGraw-Hill, First Edition.
Reference Books	
1	Allen B. Downey, “Think Python: How to Think Like a Computer Scientist”, 2nd edition, Updated for Python 3, Shroff/O‘Reilly Publishers, 2016
2	Guido van Rossum and Fred L. Drake Jr, An Introduction to Python – Revised and updated for Python 3.2, Network Theory Ltd., 2011
3	Wesley J Chun, Core Python Applications Programming‖, Prentice Hall, 2012.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
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Course Designed By:	

Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	S	L	S	M	L	M	S	S
CO2	S	S	S	L	S	M	L	M	S	S
CO3	S	S	S	L	S	M	L	M	S	S
CO4	S	S	S	L	S	M	L	M	S	S
CO5	S	S	S	L	S	M	L	M	S	S

*S-Strong; M-Medium; L-Low

Course code		Computer Networks	L	T	P	C
Core/Elective/ Supportive		Elective : I	6	0	0	4
Pre-requisite		Students should have the knowledge on computer connectivity and connectivity peripherals.	Syllabus Version		2020-21 Onwards	

Course Objectives:

The main objectives of this course are to:

1. To identify various components in a data communication system and understand state-of-the-art in network protocols, architectures and applications.
2. To enable students through the concepts of computer networks, different models and their involvement in each stage of network communication.
3. To educate the concepts of terminology and concepts of the OSI reference model and the TCP/IP reference model and protocols such as TCP, UDP and IP.
4. To be familiar with the concepts of protocols, network interfaces, and design/performance issues in local area networks and wide area networks.
5. Introduce the student to a network routing for IP networks and how a collision occurs and how to solve it and how a frame is created and character count of each frame.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Remember the organization of computer networks, factors influencing computer network development and the reasons for having variety of different types of networks.	**K1**
2	Understand Internet structure and can see how standard problems are solved and the use of cryptography and network security.	**K2**
3	Apply knowledge of different techniques of error detection and correction to detect and solve error bit during data transmission.	**K3**
4	Analyze the requirements for a given organizational structure and select the most appropriate networking architecture and technologies	**K4**
5	Knowledge about different computer networks, reference models and the functions of each layer in the models	**K2-K4**

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	BASICS OF NETWORKS AND OSI MODEL	15 hours

Network Hardware: LAN – WAN – MAN – Wireless – Home Networks. Network Software: Protocol Hierarchies – Design Issues for the Layers – Connection-oriented and connectionless services – Service Primitives – The Relationship of services to Protocols. Reference Models: OSI Reference Model – TCP/IP reference Model – Comparison of OSI and TCP/IP -Critique of OSI and protocols – Critique of the TCP/IP Reference model.

Unit:2	PHYSICAL LAYER	15 hours

PHYSICAL LAYER - Guided Transmission Media: Magnetic Media – Twisted Pair – Coaxial Cable – Fiber Optics. Wireless Transmission: Electromagnetic Spectrum – Radio Transmission – Microwave Transmission – Infrared and Millimeter Waves – Light Waves. Communication Satellites: Geostationary, Medium-Earth Orbit, Low Earth-orbit Satellites – Satellites versus Fiber.

Unit:3	DATA-LINK LAYER	15 hours
DATA-LINK LAYER: Error Detection and correction – Elementary Data-link Protocols – Sliding Window Protocols. MEDIUM-ACCESS CONTROL SUB LAYER: Multiple Access Protocols – Ethernet – Wireless LANs - Broadband Wireless – Bluetooth.		
Unit:4	**NETWORK LAYER**	**15 hours**
NETWORK LAYER: Routing algorithms – Congestion Control Algorithms. TRANSPORT LAYER: Elements of Transport Protocols – Internet Transport Protocols: TCP.		
Unit:5	**APPLICATION LAYER**	**12 hours**
APPLICATION LAYER: DNS – E-mail. NETWORK SECURITY: Cryptography – Symmetric Key Algorithms – Public Key Algorithms – Digital Signatures.		
Unit:6	**Contemporary Issues**	**3 hours**
Expert lectures, online seminars - webinars		
	Total Lecture hours	**75 hours**

	Text Book(s)
1	Computer Networks, Andrew S. Tanenbaum, 4th edition, PHI. *(UNIT-I:1.2-1.4 UNIT-II:2.2-2.4 UNIT-III:4.2-4.6 UNIT-IV:5.2,5.3,6.2,6.5 UNIT-V:7.1,7.2,8.1-8.4)*

	Reference Books
1	Data Communication and Networks, Achyut Godbole, 2007, TMH.
2	Computer Networks: Protocols, Standards, and Interfaces, Uyless Black, 2nd ed, PHI
3	

	Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]
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Course Designed By:

Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	M	S	L	S	M	L	M	S	S
CO2	S	M	S	L	S	M	L	M	S	S
CO3	S	M	S	L	S	M	L	M	S	S
CO4	S	M	S	L	S	M	L	M	S	S
CO5	S	M	S	L	S	M	L	M	S	S

*S-Strong; M-Medium; L-Low

Course code		Organizational Behaviour	L	T	P	C
Core/Elective/ Supportive		Elective : I	6	0	0	4
Pre-requisite		Basic knowledge in human behavior skills	Syllabus Version		2020-21 Onwards	

Course Objectives:

The main objectives of this course are to:

1. To help the students to develop cognizance of the importance of human behaviour.
2. To enable students to describe how people behave under different conditions and understand why people behave as they do.
3. To provide the students to analyses specific strategic human resources demands for future action.
4. To enable students to synthesize related information and evaluate options for the most logical and optimal solution such that they would be able to predict and control human behaviour and improve results.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Demonstrate the applicability of the concept of organizational behavior to understand the behavior of people in the organization.	**K1**
2	Develop Managerial skills for Individual Behaviors.	**K2**
3	Analyze the complexities associated with management of the group behavior in the organization. Analyze how to manage the Stress during a job.	**K3**
4	Develop an Organizational Behaviour model for any type of Organization.	**K3**
5	Analyze the Common biases and eradication in Decision Making Process.	**K4**

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	INTRODUCTION	15 hours

Introduction to Organizational Behavior –Related Disciplines – Theoretical Framework – Organizational Approaches – Modern Organizational Scenario: Impact of Globalization

Unit:2	INDIVIDUAL BEHAVIOR	15 hours

Individual Behavior – Perception – Process – Changes - Personality and Attitudes – Job Satisfaction

Unit:3	MOTIVATION	15 hours

Motivation: Needs, Content and Process: Motivation: Content Theories -ghh– Process Theories – Contemporary Theories – Motivation Applied – Job Design and Goal setting. Leadership – Background – Process- Styles – Activities – Skills

Unit:4	GROUP	15 hours

Group Dynamics – The nature of Informal Organizations – Formal Groups – Interactive conflict: Interpersonal conflict – Inter-group behavior and conflict – Negotiation Skills: Going beyond conflict management – Traditional Negotiation Approaches - Contemporary negotiation skills.

Unit:5	COMMUNICATION	12 hours
Communication – Role and background – Interpersonal communication – Informal communication- The Decision Making process – Participative Decision making techniques – Organization design – culture – Organization change and development		
Unit:6	**Contemporary Issues**	**3 hours**
Expert lectures, online seminars - webinars		
	Total Lecture hours	**75 hours**

Text Book(s)

1	Fred Luthans, Organizational Behavior, 9th Edition, McGraw Hill Irwin, 2002.
2	John W. Newstorm and Keith Davis, Organizational Behavior, 10th Edition.

Reference Books

1	Robbins, S. P., & Judge, T. (2013). Organizational behavior (15th ed.). Boston: Pearson.
2	Newstrom J. W., & Davis, K. (2011). Human behavior at work (12th ed.). Tata McGraw Hill

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

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Course Designed By:

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	L	M	M	S	L	S	S	S	M	M
CO2	L	L	S	M	L	M	S	M	S	S
CO3	L	M	S	L	L	M	S	M	S	S
CO4	L	L	M	L	M	M	S	M	S	S
CO5	L	M	S	L	L	M	S	M	S	S

*S-Strong; M-Medium; L-Low

Course code		Software Testing	L	T	P	C
Core/Elective/ Supportive		Skill based Subject : 3	6	0	0	3
Pre-requisite		Basic knowledge in software project and SDLC	Syllabus Version		2020-21 Onwards	

Course Objectives:

The main objectives of this course are to:

1. To study fundamental concepts in software testing
2. To discuss various software testing issues and solutions in software unit test, integration and system testing.
3. To expose the advanced software testing topics, such as object-oriented software testing methods.
4. List a range of different software testing techniques and strategies and be able to apply specific automated unit testing method to the projects.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Explain the basic concepts and the processes that lead to software testing	**K2**
2	Design test cases from the given requirements using Black box testing techniques	**K3**
3	Identify the test cases from Source code by means of white box testing techniques	**K3**
4	Know about user acceptance testing and generate test cases for it	**K4**
5	Examine the test adequacy criteria to complete the testing process	**K4**

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	SOFTWARE DEVELOPMENT LIFE CYCLE MODELS	15 hours

Software Development Life Cycle models: Phases of Software project – Quality, Quality Assurance, Quality control – Testing, Verification and Validation – Process Model to represent Different Phases - Life Cycle models. White-Box Testing: Static Testing – Structural Testing – Challenges in White-Box Testing.

Unit:2	BLACK-BOX TESTING	15 hours

Black-Box Testing: What is Black-Box Testing? - Why Black-Box Testing? – When to do Black-Box Testing? – How to do Black-Box Testing? – Challenges in White Box Testing - Integration Testing: Integration Testing as Type of Testing – Integration Testing as a Phase f Testing – Scenario Testing – Defect Bash.

Unit:3	SYSTEM AND ACCEPTANCE TESTING	15 hours

System and Acceptance Testing: system Testing Overview – Why System testing is done? – Functional versus Non-functional Testing - Functional testing - Non-functional Testing – Acceptance Testing – Summary of Testing Phases.

Unit:4	PERFORMANCE TESTING	15 hours

Factors governing Performance Testing – Methodology of Performance Testing – tools for Performance Testing – Process for Performance Testing – Challenges. Regression Testing: What is Regression Testing? – Types of Regression Testing – When to do Regression Testing – How to do Regression Testing – Best Practices in Regression Testing.

Unit:5	TEST PLANNING, MANAGEMENT, EXECUTION AND REPORTING	12 hours
Test Planning, Management, Execution and Reporting: Test Planning – Test Management – Test Process – Test Reporting –Best Practices. Test Metrics and Measurements: Project Metrics – Progress Metrics – Productivity Metrics – Release Metrics.		
Unit:6	**Contemporary Issues**	**3 hours**
Expert lectures, online seminars - webinars		
	Total Lecture hours	**75 hours**

Text Book(s)

1	Software Testing Principles and Practices, Srinivasan Desikan & Gopalswamy Ramesh, 2006, Pearson Education. *(UNIT-I: 2.1-2.5, 3.1-3.4 UNIT-II: 4.1-4.4, 5.1-5.5 UNIT III: 6 .1-6.7 (UNIT IV: 7.1-7.6, 8.1-8.5 UNIT-V: 15.1-15.6, 17.4-17.7)*
2	Limaye M.G., "Software Testing Principles, Techniques and Tools", Second Reprint, TMH Publishers, 2010.
3	Aditya P.Mathur, "Foundations of Software Testing", 2nd Edition, Pearson Education, 2013.

Reference Books

1	Effective Methods of Software Testing, William E. Perry, 3rd ed, Wiley India.
2	Software Testing, Renu Rajani, Pradeep Oak, 2007, TMH.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

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Course Designed By:

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	S	L	S	M	L	M	S	S
CO2	S	M	S	L	S	M	L	M	S	M
CO3	S	S	S	L	S	M	L	M	S	S
CO4	S	M	S	L	S	M	L	M	S	M
CO5	S	S	S	L	S	M	L	M	S	S

*S-Strong; M-Medium; L-Low


Sixth
Semester

Course code		Graphics & Multimedia	L	T	P	C
Core/Elective/ Supportive		Core: 10	5	0	0	4
Pre-requisite		Basic knowledge in 2D, 3D and multimedia file formats	Syllabus Version		2020-21 Onwards	

Course Objectives:

The main objectives of this course are to:

1. Design and apply two dimensional graphics and transformations.
2. Design and apply three dimensional graphics and transformations.
3. Apply Illumination, color models and clipping techniques to graphics.
4. Understood Different types of Multimedia File Format.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Explain applications, principles, commonly used and techniques of computer graphics and algorithms for Line-Drawing, Circle- Generating and Ellipse-Generating.	**K2**
2	Students will get the concepts of 2D and 3D, Viewing, Curves and surfaces, Hidden Line/surface elimination techniques	**K3**
3	Studies concepts of Multimedia Systems, Text, Audio and Video tools	**K3**
4	Compressing audio and video using MPEG-1 and MPEG-2	**K4**
5	Creates Animation with special effects using algorithms	**K6**

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	OUTPUT PRIMITIVES	15 hours

Output Primitives: Points and Lines – Line-Drawing algorithms – Loading frame Buffer – Line function – Circle-Generating algorithms – Ellipse-generating algorithms. Attributes of Output Primitives: Line Attributes – Curve attributes – Color and Grayscale Levels – Area-fill attributes – Character Attributes.

Unit:2	2D GEOMETRIC TRANSFORMATIONS	15 hours

2D Geometric Transformations: Basic Transformations – Matrix Representations – Composite Transformations – Other Transformations. 2D Viewing: The Viewing Pipeline – Viewing Co-ordinate Reference Frame – Window-to-Viewport Co-ordinate Transformation - 2D Viewing Functions – Clipping Operations.

Unit:3	TEXT	15 hours

Text: Types of Text – Unicode Standard – Font – Insertion of Text – Text compression – File formats. Image: Image Types – Seeing Color – Color Models – Basic Steps for Image Processing – Scanner – Digital Camera – Interface Standards – Specification of Digital Images – CMS – Device Independent Color Models – Image Processing software – File Formats – Image Output on Monitor and Printer.

Unit:4	AUDIO	15 hours
Audio: Introduction – Acoustics – Nature of Sound Waves – Fundamental Characteristics of Sound – Microphone – Amplifier – Loudspeaker – Audio Mixer – Digital Audio – Synthesizers – MIDI – Basics of Staff Notation – Sound Card – Audio Transmission – Audio File formats and CODECs – Audio Recording Systems – Audio and Multimedia – Voice Recognition and Response - Audio Processing Software.		
Unit:5	**VIDEO AND ANIMATION**	**12 hours**
Video: Analog Video Camera – Transmission of Video Signals – Video Signal Formats – Television Broadcasting Standards – PC Video – Video File Formats and CODECs – Video Editing – Video Editing Software. Animation: Types of Animation – Computer Assisted Animation – Creating Movement – Principles of Animation – Some Techniques of Animation – Animation on the Web – Special Effects – Rendering Algorithms. Compression: MPEG-1 Audio – MPEG-1 Video - MPEG-2Audio – MPEG-2 Video.		
Unit:6	**Contemporary Issues**	**3 hours**
Expert lectures, online seminars - webinars		
	Total Lecture hours	**75 hours**

Text Book(s)	
1	Computer Graphics, Donald Hearn, M.Pauline Baker, 2nd edition, PHI. (UNIT-I: 3.1-3.6,4.1-4.5 & UNIT-II: 5.1-5.4,6.1-6.5)
2	Principles of Multimedia, Ranjan Parekh, 2007, TMH. (UNIT III: 4.1-4.7,5.1-5.16 UNIT-IV: 7.1-7.3,7.8-7.14,7.18-7.20,7.22,7.24,7.26-28 UNIT-V: 9.5-9.10,9.13,9.15,10.10-10.13)

Reference Books	
1	Computer Graphics, Amarendra N Sinha, Arun D Udai, TMH.
2	Multimedia: Making it Work, Tay Vaughan, 7th edition, TMH.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
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Course Designed By:

Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	S	M	S	M	S	S	S	M
CO2	S	S	S	M	S	M	M	M	S	M
CO3	S	M	M	M	S	M	M	M	S	M
CO4	S	S	S	M	S	M	M	M	S	M
CO5	S	S	S	M	S	M	S	S	S	M

*S-Strong; M-Medium; L-Low

Course code		Project Work Lab	L	T	P	C
Core/Elective/Supportive		Core: 11	0	0	5	8
Pre-requisite		Students should have the strong knowledge in any one of the programming languages in this course.	Syllabus Version		2020-21 Onwards	

Course Objectives:

The main objectives of this course are to:

1. To understand and select the task based on their core skills.
2. To get the knowledge about analytical skill for solving the selected task.
3. To get confidence for implementing the task and solving the real time problems.
4. Express technical and behavioral ideas and thought in oral settings.
5. Prepare and conduct oral presentations

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Formulate a real world problem and develop its requirements develop a design solution for a set of requirements.	**K3**
2	Test and validate the conformance of the developed prototype against the original requirements of the problem.	**K5**
3	Work as a responsible member and possibly a leader of a team in developing software solutions.	**K3**
4	Express technical ideas, strategies and methodologies in written form. Self-learn new tools, algorithms and techniques that contribute to the software solution of the project.	**K1-K4**
5	Generate alternative solutions, compare them and select the optimum one.	**K6**

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

AIM OF THE PROJECT WORK

1. The aim of the project work is to acquire practical knowledge on the implementation of the programming concepts studied.
2. Each student should carry out individually one project work and it may be a work using the software packages that they have learned or the implementation of concepts from the papers studied or implementation of any innovative idea focusing on application oriented concepts.
3. The project work should be compulsorily done in the college only under the supervision of the department staff concerned.

Viva Voce

1. Viva-Voce will be conducted at the end of the year by both Internal (Respective Guides) and External Examiners, after duly verifying the **Annexure Report** available in the College, for a total of 200 marks at the last day of the practical session.
2. Out of 200 marks, 160 marks for project report and 40 marks for Viva Voce.

Project Report Format

PROJECT WORK

TITLE OF THE DISSERTATION

Bonafide Work Done by

STUDENT NAME

REG. NO.

Dissertation submitted in partial fulfillment of the requirements for the award of

<Name of the Degree>

of Bharathiar University, Coimbatore-46**.**

College Logo

Signature of the Guide Signature of the HOD

Submitted for the Viva-Voce Examination held on _____

Internal Examiner External Examiner

Month – Year

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1.1 Organization Profile
1.2 System Specification
1.2.1 Hardware Configuration
1.2.2 Software Specification
2. System Study
2.1 Existing System
2.1.1 Drawbacks

2.2 Proposed System
2.2.1 Features
3. System Design and Development
3.1 File Design
3.2 Input Design
3.3 Output Design
3.4 Database Design
3.5 System Development
3.5.1 Description of Modules (Detailed explanation about the project work)
4. Testing and Implementation
5. Conclusion
Bibliography
Appendices
A. Data Flow Diagram
B. Table Structure
C. Sample Coding
D. Sample Input
E. Sample Output

Course Designed By:

Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1										
CO2										
CO3										
CO4										
CO5										

*S-Strong; M-Medium; L-Low

Course code		Programming Lab – Graphics & Multimedia	L	T	P	C
Core/Elective/Supportive		Core Lab : 7	0	0	6	4
Pre-requisite		Students should have the basic knowledge on C and C++ to do computer graphics and multimedia applications.	Syllabus Version		2020-21 Onwards	

Course Objectives:

The main objectives of this course are to:

1. To learn the basic principles of 2-dimensional computer graphics.
2. Provide an understanding of how to scan convert the basic geometrical primitives, how to transform the shapes to fit them as per the picture definition.
3. Provide an understanding of mapping from a world coordinates to device coordinates, clipping and projections.
4. To be able to discuss the application of computer graphics concepts in the development of computer games, information visualization and business applications.
5. To comprehend and analyse the fundamentals of animation, virtual reality, underlying technologies, principles and applications.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the basic concepts of computer graphics.	**K1**
2	Design scan conversion problems using C and C++ programming.	**K2**
3	Apply clipping and filling techniques for modifying an object.	**K3**
4	Understand the concepts of different type of geometric transformation of objects in 2D.	**K4**
5	Understand and develop the practical implementation of modeling, rendering, viewing of objects in 2D	**K6**

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Programs	**36 hours**
Graphics	

1. Write a program to rotate an image.
2. Write a program to drop each word of a sentence one by one from the top.
3. Write a program to drop a line using DDA Algorithm.
4. Write a program to move a car with sound effect.
5. Write a program to bounce a ball and move it with sound effect.
6. Write a program to test whether a given pixel is inside or outside or on a polygon.

Multimedia

7. Create Sun Flower using Photoshop.
8. Animate Plane flying in the Clouds using Photoshop.
9. Create Plastic Surgery for the Nose using Photoshop.
10. Create See-through text using Photoshop.
11. Create a Web Page using Photoshop.
12. Convert Black and White Photo to Color Photo using Photoshop.

	Total Lecture hours	**36 hours**

Text Book(s)	
1	Computer Graphics, Donald Hearn, M.Pauline Baker, 2nd edition, PHI.
2	Principles of Multimedia, Ranjan Parekh, 2007, TMH.
Reference Books	
1	Computer Graphics, Amarendra N Sinha, Arun D Udai, TMH.
2	Multimedia: Making it Work, Tay Vaughan, 7th edition, TMH.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
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Course Designed By:	

Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	M	M	M	S	M	L	L	M	L
CO3	S	S	S	M	M	M	M	M	M	L
CO3	S	S	S	M	S	M	M	M	M	L
CO4	S	S	S	S	S	M	M	M	M	M
CO5	S	S	S	S	S	M	S	S	S	M

*S-Strong; M-Medium; L-Low

Course code		Network Security and Cryptography	L	T	P	C
Core/Elective/ Supportive		Elective: II	5	0	0	4
Pre-requisite		Basic knowledge on security threats in networking	Syllabus Version		2020-21 Onwards	

Course Objectives:

The main objectives of this course are to:

1. To learn the need for network security and security approaches.
2. To inculcate the concept of transferring authentic data along the network with several methods and algorithms.
3. To enrich the knowledge on different types of Internet Security Protocols.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Remember the basic concept of Cryptography and various types of attacks.	**K1**
2	Understand about various types of protocols for Internet Security.	**K2**
3	Implement various algorithms for Cryptography	**K3**
4	Review Firewall and IP security	**K4**
5	To be familiar with network security threats and countermeasure	**K3-K5**

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	SERVICE MECHANISM	15 hours

Service mechanism and attacks – The OSI security architecture – A model for network security – symmetric Cipher model – Substitution techniques – transposition techniques – simplified des – block chipper principles – the strength of des – block chipper design principles and modes of operation.

Unit:2	TYPES OF DES	12 hours

Triple des-blow fish – RCS Advanced Symmetric Block Ciphers –RC4 stream Cipher confidentially using symmetric encryption – introduction to number theory – public – key cryptography and RSA.

Unit:3	KEY MANAGEMENT	15 hours

Key management – Diffle Hellman key exchange – message authentication and hash function – hash algorithm – digital signature and authentication protocols – digital signature standard.

Unit:4	AUTHENTICATION	15 hours

Authentication application – pretty good privacy – S/MIME – ip security – web security considerations –secure socket layer transport layer security –secure electronic transaction.

Unit:5	INTRUDERS	15 hours

Intruders –intrusion detection – password management –viruses and related threats – virus countermeasures – fire wall design principles – trusted systems

Unit:6	Contemporary Issues	3 hours

Expert lectures, online seminars – webinars

	Total Lecture hours	75 hours

Text Book(s)	
1	William Stallings, Cryptography and Network Security Principles and Practices, Fourth edition, PHI Education Asia
Reference Books	
1	Atul Kahate, Cryptography and Network Security, 2nd Edition, TMH.
2	Behrouz A.Forouzan, Cryptography and Network Security, TMH.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
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Course Designed By:	

Mapping with Programme Outcomes										
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	S	L	S	L	L	L	S	S
CO2	S	M	S	L	S	L	M	L	S	S
CO3	S	S	S	L	S	L	M	L	S	S
CO4	S	M	S	L	S	L	M	L	S	S
CO5	S	S	S	L	S	L	M	L	S	S

*S-Strong; M-Medium; L-Low

Course code		Artificial Intelligence and Expert Systems	L	T	P	C
Core/Elective/ Supportive		Elective: II	5	0	0	4
Pre-requisite		Basic knowledge on knowledge representation, reasoning and problem solving skills	Syllabus Version		2020-21 Onwards	

Course Objectives:

The main objectives of this course are to:

1. To understand the basic concepts of Artificial Intelligence and identify the AI problems and domains.
2. To provide search techniques to solve the problems.
3. To represent and access the domain specific knowledge.
4. Ability to apply knowledge representation, reasoning, and machine learning techniques to real-world problems

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the nature of AI problems and task domains of AI.	**K1**
2	Apply the appropriate search procedures to solve the problems by using best algorithms.	**K2**
3	Analyze and select the suitable knowledge representation method.	**K3**
4	Manipulate the acquired knowledge and infer new knowledge.	**K4**
5	Demonstrate the development of AI systems by encoding the knowledge.	**K5**

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	INTRODUCTION	15 hours

Introduction: AI Problems – AI techniques – Criteria for success. Problems, Problem Spaces, Search: State space search – Production Systems – Problem Characteristics – Issues in design of Search.

Unit:2	HEURISTIC SEARCH TECHNIQUES	12 hours

Heuristic Search techniques: Generate and Test – Hill Climbing – Best-Fist, Problem Reduction, Constraint Satisfaction, Means-end analysis.

Unit:3	KNOWLEDGE REPRESENTATION	15 hours

Knowledge representation issues: Representations and mappings – Approaches to Knowledge representations – Issues in Knowledge representations – Frame Problem.

Unit:4	PREDICATE LOGIC	15 hours

Using Predicate Logic: Representing simple facts in logic – Representing Instance and Isa relationships – Computable functions and predicates – Resolution – Natural deduction.

Unit:5	REPRESENTING KNOWLEDGE USING RULES	15 hours

Representing knowledge using rules: Procedural Vs Declarative knowledge – Logic programming – Forward Vs Backward reasoning – Matching – Control knowledge Brief explanation of Expert Systems-Definition- Characteristics-architecture- Knowledge Engineering- Expert System Life Cycle-Knowledge Acquisition Strategies- Expert System Tools.

Unit:6	Contemporary Issues	3 hours
Expert lectures, online seminars – webinars		
	Total Lecture hours	75 hours

Text Book(s)

1	Artificial Intelligence, Elaine Rich and Kelvin Knight, TMH, 2nd Edn, 1991
2	Artificial Intelligence A Modern Approach, Stuart Russell & Peter Norvig, 2nd Edition Perason.

Reference Books

1	Artificial Intelligence, George F Luger, 4th Edition, Pearson, 2002.
2	Foundations of Artificial Intelligent and Expert Systems, V S Janaki Raman, K Sarukesi, P Gopalakrishnan, MacMillan India limited.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

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Course Designed By:

Mapping with Programme Outcomes

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	S	L	S	L	L	L	S	S
CO2	S	S	S	L	S	L	L	L	S	S
CO3	S	S	S	L	S	L	L	L	S	S
CO4	S	S	S	L	S	L	L	L	S	S
CO5	S	S	S	L	S	L	L	L	S	S

*S-Strong; M-Medium; L-Low

Course code		Web Technology	L	T	P	C
Core/Elective/ Supportive		Elective: II	5	0	0	4
Pre-requisite		Basic knowledge in web server, browser and web application	Syllabus Version		2020-21 Onwards	

Course Objectives:

The main objectives of this course are to:

1. On completion of this course, a student will be familiar with client server architecture and able to develop a web application using java technologies.
1. Students will gain the skills and project-based experience needed for entry into web application and development careers
3. Understand best technologies for solving web client/server problems
4. Use Java script for dynamic effects and to validate form input entry
5. Analyze to Use appropriate client-side or Server-side applications

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand and analyse the TCP/IP basics.	**K1**
2	Understand Domain server name, FTP, TFTP, basics of WWW, web browser architecture.	**K2**
3	Knowledge of Microsoft and java technologies, dynamic web pages, DHTML, ASP and JSP.	**K2-K3**
4	Understanding active web pages, Java Applet, Java bean, CORBA, RMI and EDI architecture	**K2-K3**
5	Knowledge on XML, XML parser, WAP	**K4-K6**

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	TCP/IP	15 hours

TCP/IP: TCP/IP Basics – Why IP address – Logical Address - TCP/IP Example- The concept of IP address – Basics of TCP – Features of TCP – Relationship between TCP and IP – Ports and Sockets – Active Open and Passive Open - TCP Connections – What makes TCP reliable? – TCP Packet format - Persistent TCP connections – UDP – Differences between TCP and UDP.

Unit:2	DNS	12 hours

DNS – E-mail – FTP – TFTP – History of WWW – Basics of WWW and Browsing - Local information on the internet – HTML – Web Browser Architecture – Web Pages and Multimedia – Remote Login (TELNET).

Unit:3	INTRODUCTION TO WEB TECHNOLOGY	15 hours

Introduction to Web Technology: Web pages – Tiers – Concept of a Tier – Comparison of Microsoft and Java Technologies – Web Pages – Static Web Pages – Plug-ins – Frames – Forms. Dynamic Web Pages: Need – Magic of Dynamic Web Pages – Overview of Dynamic Web Page Technologies – Overview of DHTML – Common Gateway Interface – ASP – ASP Technology – ASP Example – Modern Trends in ASP – Java and JVM – Java Servlets – Java Server Pages.

Unit:4	ACTIVE WEB PAGES	15 hours
Active Web Pages: Active Web Pages in better solution – Java Applets – Why are Active Web Pages Powerful? – Lifecycle of Java Applets – ActiveX Controls – Java Beans. Middleware and Component-Based E-Commerce Architectures: CORBA – Java Remote Method Invocation – DCOM. EDI: Overview – Origins of EDI – Understanding of EDI – Data Exchange Standards – EDI Architecture – Significance of EDI – Financial EDI – EDI and internet.		
Unit:5	**XML**	**15 hours**
XML: SGML – Basics of XML – XML Parsers – Need for a standard. WAP: Limitations of Mobile devices – Emergence of WAP – WAP Architecture – WAP Stack – Concerns about WAP and its future – Alternatives to WAP.		
Unit:6	**Contemporary Issues**	**3 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**75 hours**

Text Book(s)

1	Web Technologies: TCP/IP to Internet Applications Architectures – Achyut S Godbole & Atul Kahate, 2007, TMH. *(UNIT-I: 3.1-3.5,4.1-4.12 UNIT-II: 5.1-5.4,6.1-6.7 UNIT III:8.1-8.1,9.1-9.13 UNIT IV: 10.1-10.7,15.1-15.3,16.1-16.8 UNIT-V: 17.1-17.4,18.1-18.6)*

Reference Books

1	Internet and Web Technologies, Rajkamal, TMH.
2	TCP/IP Protocol Suite, Behrouz A. Forouzan, 3rd edition, TMH.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

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Course Designed By:

Mapping with Programme Outcomes

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	S	L	S	L	L	L	S	S
CO2	S	S	S	M	S	M	L	L	S	S
CO3	S	S	S	L	S	M	M	M	S	S
CO4	S	S	S	M	S	L	M	L	S	S
CO5	S	S	S	L	S	L	M	L	S	S

*S-Strong; M-Medium; L-Low

Course code		Data Mining	L	T	P	C
Core/Elective/ Supportive		Elective: III	5	0	0	4
Pre-requisite		Basic knowledge on data, database, and statistical functions	Syllabus Version		2020-21 Onwards	

Course Objectives:

The main objectives of this course are to:

2. To introduce the concept of data Mining as an important tool for enterprise data management and cutting edge technology for building competitive advantage.
2. To enable students to effectively identify sources of data and process it for data mining
3. To make students well versed in all data mining algorithms, methods of evaluation.
4. To impart knowledge of tools used for data mining
5. To provide knowledge on how to gather and analyze large sets of data to gain useful business understanding.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Identify data mining tools and techniques in building intelligent machines understand	**K1-K2**
2	Analyze various data mining algorithms in applying in real time applications.	**K2-K4**
3	Demonstrate the data mining algorithms to combinatorial optimization problems	**K2-K3**
4	Illustrate the mining techniques like association, classification and clustering on transactional databases.	**K2-K3**
5	Perform exploratory analysis of the data to be used for mining.	**K3-K6**

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	BASIC DATA MINING TASKS	15 hours

Basic Data Mining Tasks – Data Mining Versus Knowledge Discovery in Data Bases – Data Mining Issues – Data Mining Matrices – Social Implications of Data Mining – Data Mining from Data Base Perspective.

Unit:2	DATA MINING TECHNIQUES	12 hours

Data Mining Techniques – a Statistical Perspective on data mining – Similarity Measures – Decision Trees – Neural Networks – Genetic Algorithms.

Unit:3	CLASSIFICATION	15 hours

Classification: Introduction – Statistical – Based Algorithms – Distance Based Algorithms – Decision Tree – Based Algorithms – Neural Network Based Algorithms – Rule Based Algorithms – Combining Techniques.

Unit:4	CLUSTERING	15 hours

Clustering: Introduction – Similarity and Distance Measures – Outliers – Hierarchical Algorithms. Partitional Algorithms.

Unit:5	ASSOCIATION RULES	15 hours

Association Rules: Introduction - Large Item Sets – Basic Algorithms – Parallel & Distributed

Algorithms – Comparing Approaches – Incremental Rules – Advanced Association Rules Techniques – Measuring the Quality of Rules.		
Unit:6	**Contemporary Issues**	**3 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**75 hours**

Text Book(s)	
1	Margaret H.Dunbam, Data Mining Introductory and Advanced Topics, Pearson Education – 2003.
2	Arun K.Pujari, "Data Mining Techniques", Universities Press, 2010.

Reference Books	
1	Jiawei Han & Micheline Kamber, Data Mining Concepts & Techniques, 2001 Academic Press.
2	K.P.Soman, Shyam Diwakar, V.Ajay, "Insight into Data Mining – Theory and Practice", Prentice Hall of India, 2009.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
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Course Designed By:

Mapping with Programme Outcomes

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M	M	S	M	S	L	L	M	S	S
CO2	M	S	S	M	S	M	M	L	S	M
CO3	M	S	S	L	M	L	M	M	S	S
CO4	M	M	M	M	M	M	L	L	S	S
CO5	M	S	S	L	S	L	M	M	S	M

*S-Strong; M-Medium; L-Low

Course code		Open Source Software	L	T	P	C
Core/Elective/ Supportive		Elective: III	5	0	0	4
Pre-requisite		Basic understanding in scripting language and SQL	Syllabus Version		2020-21 Onwards	

Course Objectives:

The main objectives of this course are to:

1. To expose students to free open source software environment and introduce them to use open source packages.
2. Demonstrate different open source technology like Linux, PHP & MySQL with different packages.
3. To understand open source software practices and tools.
4. To use the open source software in operating systems, Programming and web framework in approaching real time applications.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the significance of open source practices and guidelines.	**K2**
2	Manipulate open source databases based on user requirements	**K3**
3	Implement web programming with PHP	**K3**
4	Integrate open source web frameworks in an application	**K4**
5	Write desktop and web applications with Python	**K6**

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	INTRODUCTION TO OPEN SOURCE	15 hours

Introduction to open sources – Need of open sources – advantages of open sources –application of open sources. Open source operating systems: LINUX: Introduction – general overview –Kernel mode and user mode –process – advanced concepts –scheduling – personalities – cloning – signals – development with Linux.

Unit:2	MYSQL	12 hours

MySQL: Introduction – setting up account – starting, terminating and writing your own SQL programs-record selection Technology – working with strings – Date and Time – sorting Query results – generating summary –working with meta data –using sequences – MySQL and Web.

Unit:3	PHP	15 hours

PHP: Introduction –programming in web environment –variables- constants – data types – operators – statements – functions – arrays – OOP – string manipulations and regular expression – file handling and data storage – PHP and SQL database – PHP and LDAP – PHP connectivity – sending and receiving E-mails – debugging and error handling – security –templates.

Unit:4	PYTHON	15 hours

Syntax and style – Python objects – numbers – sequences – strings – lists and tuples – dictionaries – conditional loops –files – input and output – errors and exceptions – functions – modules – classes and OOP – execution environment.

Unit:5	PERL	15 hours
Pert backgrounder – pert overview – pearl parsing rules – variables and data – statements and control structures – subroutines -packages and modules – working with files – data manipulation.		
Unit:6	**Contemporary Issues**	**3 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**75 hours**

Text Book(s)	
1	The Linux Kernel Book, Remy Card, Eric and Frank Mevel, Wiley Publications 2003.
2	MySQL Bible, Steve Suchring, John Wiley 2002.

Reference Books	
1	Programming PHP, Rasmus Lerdorf and Levin Tatroe, O_Reilly, 2002
2	Core Python Programming, Wesley J. Chun, Prentice Hall, 200
3	Perl: The Complete Reference, 2nd Edn, Martin C. Brown, TMH , 2009
4	MySQL: The Complete Reference, 2nd Edn, Vikram Vaswani, TMH, 2009
5	PHP: The Complete Reference, 2nd Edn, Steve Holzner, TMH 2009.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	
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Course Designed By:

Mapping with Programme Outcomes										
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	S	L	S	L	L	M	S	S
CO2	S	S	S	M	S	M	L	L	S	M
CO3	S	S	S	L	M	L	L	M	S	S
CO4	S	M	S	M	M	M	L	L	S	S
CO5	S	M	S	L	S	L	L	M	S	M

*S-Strong; M-Medium; L-Low

Course code		Internet of Things (IoT)	L	T	P	C
Core/Elective/ Supportive		Elective: III	5	0	0	4
Pre-requisite		Students should have the basic understanding of logical circuits and hardware architecture.	Syllabus Version		2020-21 Onwards	

Course Objectives:

The main objectives of this course are to:

1. To learn the concepts of IoT and its protocols.
2. To learn how to analysis the data in IoT.
3. To develop IoT infrastructure for popular applications.
4. To report about the IoT privacy, security and vulnerabilities solution

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	To understand the fundamentals of Internet of Things.	**K1**
2	To know the basics of communication protocols and the designing principles of Web connectivity.	**K2**
3	To gain the knowledge of Internet connectivity principles	**K2-K3**
4	Designing and develop smart city in IoT	**K2-K3**
5	Analyzing and evaluate the data received through sensors in IOT.	**K4-K5**

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	INTRODUCTION	15 hours

Introduction - Definition & characteristics of IoT - physical design of IoT - logical design of IoT - IoT enabling Technologies - IoT levels & Deployment templates. Domain specific Iots : Home Automation - cities - Environment - Energy - retail - logistics - Agriculture - Industry i Health and life style.

Unit:2	IOT and M2M	12 hours

IoT and M2M - Deference between Iot and M2M - SDN and NFV for lot - IoT systems management - SNMP - YANG - NETOPEER

Unit:3	IOT SPECIFICATION	15 hours

IoT platforms design Methodology - purpose and specification - process specification - Domain model specification - Information model specification - Service specification - IoT level specification - functional view specification - operational view specification - Device and component Integrators - Application Development.

Unit:4	LOGICAL DESIGN USING PYTHON	15 hours

Logical design using python - Installing python - type conversions - control flow - functions - modules - File handling - classes. IoT physical devices and End points, building blocks of IoT device - Raspberry Pi - Linux on Raspberry Pi - Raspberry Pi interfaces.

Unit:5	IOT AND CLOUD COMPUTING	15 hours

IoT physical servers & cloud computing - WAMP - Xively cloud for IoT - python Web application frame work - Amazon web services for IoT.

Unit:6	Contemporary Issues	3 hours
Expert lectures, online seminars – webinars		
	Total Lecture hours	75 hours

Text Book(s)	
1	Internet of Things - A hands on Approach Authors: Arshdeep Bahga, Vijay Madisetti Publisher: Universities press.

Reference Books	
1	Internet of Things - Srinivasa K.G., Siddesh G.M. Hanumantha Raju R. Publisher: Cengage Learning India pvt. Ltd (2018)

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	
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3	

Course Designed By:

Mapping with Programme Outcomes										
Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M	M	S	M	S	L	L	M	S	S
CO2	S	S	S	M	S	M	M	L	S	M
CO3	S	S	S	L	M	L	M	M	S	S
CO4	M	M	S	M	S	M	L	L	S	S
CO5	S	S	S	L	S	L	M	M	S	M

*S-Strong; M-Medium; L-Low

Course code		Programming Lab – Software Testing	L	T	P	C
Core/Elective/Supportive		Skill based Subject Lab : 4	0	0	4	3
Pre-requisite		Basic knowledge on software project development in SDLC	Syllabus Version		2020-21 Onwards	

Course Objectives:

The main objectives of this course are to:

1. To gain knowledge about recording the test case in different modes.
2. To design and construct the test cases using Test Script Language.
3. To learn about GUI objects and bitmap objects

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the importance of software quality/software testing and apply software testing techniques for information systems development.	**K1**
2	Generate test cases from software requirements using various test processes for continuous quality improvement.	**K2**
3	Understand flow graphs and apply path testing.	**K3**
4	Apply software testing techniques in commercial environments and assess the adequacy of test suites using control flow, data flow and program mutation.	**K4**
5	Identify the inputs and deliverables of the testing process and work together as a team in preparing a report	**K6**

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Programs	**36 hours**

Write at least 10 TEST CASES for the following programs. Test cases can be for Input data, Conditional expressions, control transfer, output, etc. Run-Test-Debug- until all the test cases are in success status. Marks distribution as follows:

1. List of Test Descriptions (at least 10) for the Program. (20%)
2. Test Cases (40%)
3. Program with all test case results success (30%)
4. Record (10%)

TEST CASE EXAMPLE:

Test -Id	Test Description	Test Steps	Expected Output	Actual Output	Status
TC-01	Acceptance of 10 digit input data	Input 10 Digit Number	Accepting 10 digit number	Accepted 10 digit number	Success
TC-02	Non- acceptance of character data	Input a character data X	Character X should not be accepted	Accepting Character data	Failure

Modify PIC X(10) into PIC 9(10) and then run program for Test-id TC-02 again

Test -Id	Test Description	Test Steps	Expected Output	Actual Output	Status
TC-02	Non- acceptance of character data	Input a character data X	Character X should not be accepted	Character data not accepted	Success
TC-03	Digit sum of 10 digit is in single digit	Output data	Single digit sum	Single digit Sum	Success

1. Test the C program: Finding the sum of individual digits of a 10-digit number until a single digit is produced.
2. Test the C Program: Accept the inputs student name, marks in five subjects and declare the result as PASS if the student gets minimum 40 in each subject; otherwise declare the result as FAIL.
3. Test the C program: Program for generating n prime numbers
4. Test the C program: Sort and store the elements of two arrays of integers into the third list.
5. Test the C program: Experiment the operations of a stack using array implementation.
6. Test the C program: Menu-driven option for queue operations like add, remove and display.
7. Test the C++ program: Palindrome string checking program (using pointers)

	Total Lecture hours	**36 hours**

Text Book(s)

1	

Reference Books

1	

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	
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3	

Course Designed By:

Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	M	M	S	M	S	M	M	M	S	S
CO3	S	S	M	M	S	M	M	L	S	M
CO3	S	S	S	S	M	L	M	M	S	S
CO4	M	M	M	M	M	M	L	L	S	S
CO5	M	S	S	L	S	L	M	M	S	M

*S-Strong; M-Medium; L-Low



Annexure

B. Sc. Computer Science

Syllabus

(With effect from 2020 -2021)

Program Code : 22K

DEPARTMENT OF COMPUTER SCIENCE
Bharathiar University
(A State University, Accredited with "A" Grade by NAAC and 13th Rank among Indian Universities by MHRD-NIRF)
Coimbatore 641 046, INDIA

BHARATHIAR UNIVERSITY : : COIMBATORE 641046

DEPARTMENT OF COMPUTER SCIENCE

MISSION

- ✓ To develop IT professionals with ethical and human values.
- ✓ To organize, connect, create and communicate mathematical ideas effectively, through industry 4.0.
- ✓ To provide a learning environment to enhance innovations, problem solving abilities, leadership potentials, team-spirit and moral tasks.
- ✓ To nurture the research values in the developing areas of Computer Science and interdisciplinary fields.
- ✓ Promote inter-disciplinary research among the faculty and the students to create state of art research facilities.
- ✓ To promote quality and ethics among the students.
- ✓ Motivate the students to acquire entrepreneurial skills to become global leaders.



B. Sc. Costume Design & Fashion

Syllabus

AFFILIATED COLLEGES

Program Code: 22T

2020 – 2021 onwards

BHARATHIAR UNIVERSITY

(A State University, Accredited with "A" Grade by NAAC,
Ranked 13th among Indian Universities by MHRD-NIRF,
World Ranking : Times - 801-1000, Shanghai - 901-1000, URAP - 982)

Coimbatore - 641 046, Tamil Nadu, India

Program Educational Objectives (PEOs)	
The **B. Sc. Costume Design and Fashion** program describe accomplishments that graduates are expected to attain within five to seven years after graduation	
PEO1	Proficient Entrepreneur or Designer
PEO2	Competent in industry, academic or research in the field of garment and fashion technology
PEO3	Flair in Garment technology, Merchandising and Fashion designing & apparel manufacturing
PEO4	Develop entrepreneurial, business and Management skill and development
PEO5	Skilled in fashion portfolio presentation, dyeing industry, basic draping and garment industry , technical textile industry.
PEO6	Possess skills of Merchandiser, Fabric inspector, Quality controller
PEO7	Develop as a costume designer, CAD designer
PEO8	Demonstrate creativity and deploy creative ideas in apparel, fashion and Textile Industry.
PEO9	Possess professional, ethical and demonstrate spirit of excellence and leadership in career
PEO10	Equip Human Values, Ethics and Principles and have a concern over the society

Program Specific Outcomes (PSOs)	
After the successful completion of **B. Sc. Costume Design and Fashion** program, the students are expected to	
PSO1	Professionally trained in the areas of Apparel Designing and technology and to acquire knowledge of various garments.
PSO2	Understand the basic concepts of Fashion Design, its Psychology and Traditional costumes
PSO3	Demonstrate understanding of the principles of selected fibres, Yarns, Fabrication and their Finishing techniques and methods.
PSO4	Equip with Apparel Management and Business, Merchandising, quality control and Entrepreneurial skills.
PSO5	Understand the concepts of Environmental consciousness, communication skill, holistic and value based education, and life long learning ability.

Program Outcomes (POs)	
On successful completion of the **B.Sc. Costume Design and Fashion** program, the students are expected to	
PO1	Design, Draft and construct children, women and men' garments and develop Fashion portfolios.
PO2	Apply the terminologies and concepts of Fashion design their respective field
PO3	Develop products with quality for market by using appropriate merchandising and marketing strategies
PO4	Plan and execute order in a garment manufacturing unit covering all stages - fiber, yarn, fabric and garment manufacture
PO5	Analyse the structure of the fabric and appraise fibre, yarn and fabric with basic tests
PO6	Enhance fabric designs with dyeing, printing and surface ornamentation techniques

BHARATHIAR UNIVERSITY: : COIMBATORE 641 046

B. Sc. Costume Design and Fashion Curriculum

(For the students admitted during the academic year 2020 – 21 onwards)

Course Code	Title of the Course	Credits	Hours			Maximum Marks		
			Theory	Practical	Exam	CIA	ESE	Total
	FIRST SEMESTER							
11T/F/H/M	Language – I	4	6	-	3	25	75	100
12E	English – I	4	6	-	3	25	75	100
13A	Core Paper I– Basics of Garment Construction	4	5	-	3	25	75	100
13P	Core Practical I – Basics of Garment Construction Practical	4	-	6	4	40	60	100
1AP	Allied Practical I - Fashion Sketching	3	-	5	-	30	45	75
1FA	Environmental Studies #	2	2	-	-	-	50	50
	Total	21	30					525
	SECOND SEMESTER							
21T/F/H/M	Language – II	4	6	-	3	25	75	100
22E	English – II	4	6	-	3	25	75	100
23A	Core Paper II - Fashion Designing	3	4	-	3	25	75	100
23P	Core Practical II - Garment Construction I	4	-	5	4	40	60	100
23Q	Core Practical III - Fashion Designing Practical	3	-	3	3	40	60	100
2AA	Allied Paper II – Industrial Garment Production	3	4			20	55	75
2FB	Value Education – Human Rights #	2	2	-	3	-	50	50
	Total	23	30					625
	THIRD SEMESTER							
33A	Core Paper III - Costumes and Textiles of India	4	5	-	3	25	75	100
33B	Core Paper IV - Fiber to Fabric	4	5	-	3	25	75	100
33P	Core Practical IV - Garment Construction II	4	-	5	4	40	60	100
33Q	Core Practical V - Fiber to Fabric Practical	4	-	4	3	40	60	100
3AA	Allied Paper III – Textile Wet Processing	3	5			20	55	75

3ZP	Skill Based Subject I - Dyeing and Printing	3	-	4	3	30	45	75
3FA/B/C/D	Tamil @ / Advanced Tamil# (OR) Non-major elective – I (Yoga for Human Excellence)# / Women's Rights #	2	2	-	-	-	50	50
	Total	24	30					600
Internship Training # 15 Days before the start of Fourth Semester								
	FOURTH SEMESTER							
43A	Core Paper V- Fabric Structure and Design	4	5	-	3	25	75	100
43B	Core Paper VI - The Business of Fashion	4	5	-	3	25	75	100
43P	Core Practical VI - Garment Construction III	4	-	6	4	40	60	100
43Q	Core Practical VII - Fabric Structure and Design Practical	2	-	3	3	20	30	50
4AA	Allied Paper IV – Care and Maintenance of Textiles	3	4	-	-	20	55	75
4ZP	Skill Based Subject II - Surface Embellishments	3	-	5	3	30	45	75
47V	Internship Training # #15 Days Internship	2	-	-	-	-	-	50
4FA/B/C	Tamil @ /Advanced Tamil # (OR) Non-major elective – II (General Awareness #)	2	2	-	-	-	50	50
	Total	24	30					600
	FIFTH SEMESTER							
53A	Core Paper VII - Knitting	4	5	-	3	25	75	100
53P	Core Practical VIII - CAD Practical I	4	-	6	3	40	60	100
53Q	Core Practical IX - Knitting Practical	2	-	4	3	20	30	50
5EA/B/C	Elective Paper I	4	5	-	3	25	75	100
57V	Project – Fashion Design Portfolio**	6	-	5				150
5ZA	Skill Based Subject III - Garment Quality and Cost Control	3	5	-	3	20	55	75
	Total	23	30					575

	SIXTH SEMESTER							
63A	Core Paper VIII - Computers in the Garment Industry	4	5	-	3	25	75	100
63P	Core Practical X - CAD Practical II	4	-	6	3	40	60	100
63Q	Core Practical XI - Basic Draping Practical	4		4	3	20	30	50
6EA/B/C	Elective Paper II	4	5	-	3	25	75	100
6ED/E/F	Elective Paper III	4	4	-	3	25	75	100
6ZA	Skill Based Subject IV – Innovation with Waste Fabrics	3	-	6	3	30	45	75
67A	Extension Activities @	2	-	-	-	-	-	50
	Total	25	30					575
	Grand Total	140						3500
UGC – SWAYAM/ MOOCS/ NPTEL Additional Credit (Optional)								

Additional Credit Course

Earning Additional credit course is not mandatory for Programme Completion.
Prescribed courses under UGC – SWAYAM/ MOOCS/ NPTEL will be available for the affiliated colleges, as an optional.

List of Elective papers (Colleges can choose any one of the papers as Electives)			
Elective - I	A	5EA	Organization of Garment Unit
	B	5EB	Accounting and Business Management
	C	5EC	Entrepreneurial Development
Elective - II	A	6EA	Marketing and Merchandising
	B	6EB	Principles of Management
	C	6EC	Business Finance
Elective - III	A	6ED	Home Textiles
	B	6EF	Export Analysis and Documentation
	C	6EG	Apparel Quality Management

@ No University Examinations. Only Continuous Internal Assessment (CIA).
#No Continuous Internal Assessment (CIA). Only University Examinations.
** For Viva: 30 marks & report/Garment Collection: 120 marks.
For Elective theory courses: 25% Continuous Internal Assessment & 75% University Examinations, for Elective practical course 40% Continuous Internal Assessment & 60% University Examinations.

First Semester

Course code	13A	BASICS OF GARMENT CONSTRUCTION	L	T	P	C
Core		Paper 1	-	4	-	4
Prerequisite		Basic knowledge about garment components	Syllabus Version	2020-2021		

Course Objectives:

The main objectives of this course are to:

1. Teach the basics of the functions of the sewing and the essential tools
2. Explain the techniques of the pattern making, grading and alteration
3. Understand the types of sleeves, yokes and collars

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

CO1	Describe the functions of a sewing machine and the tools needed for sewing	K2
CO2	Compare the methods of preparing pattern	K2
CO3	Appraise the types of sleeve	K4
CO4	Analyze the types of collars and yokes	K4
CO5	Appraise the techniques in pattern layout, alteration and grading	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	Essentials of Sewing	15 hours

Parts and functions of a single needle machine, essential tools – cutting tools, measuring tools, marking tools, embroidery tools, general tools, pressing tools,
Body measurement – importance, Method of taking measurements for ladies and men. Measurements required for women's salwar and kameez. Measurements required for men's shirt and Pant.

Unit:2	Pattern Making and Fitting	15 hours

Pattern Making – Types; Drafting, Draping and Commercial Patterns; Advantages and Limitations. Methods of transferring pattern markings; Grain – Importance, its types; Fitting - Standards of a good fit,

Unit:3	Sleeve and Its Types	15 hours

Sleeves – definition, types, set-in-sleeves – plain sleeve, puff sleeve, bishop sleeve, bell, circular. Modified armhole – squared armhole. cap sleeve and Magyar sleeve. Sleeve and bodice combined – raglan, kimono and dolman

Unit:4	Types of Collars and Yokes	15 hours

Collars – definitions, types, peter pan, scalloped, puritan, sailor, square, rippled, full shirt collar, open collar, Chinese, turtle neck, shawl collar
Yokes – types, simple yoke, yoke with fullness within the yoke, yoke supporting/ releasing fullness.

Unit:5	Pattern Alteration, Layout and Grading	15 hours

Pattern alteration – importance of altering patterns, general principles for pattern alteration, common pattern alteration in a blouse.
Pattern layout - definition, purpose, rules in layout, types of layouts
Pattern grading (manual) – definition, basic front, basic back basic sleeve

	Total Lecture hours	75 hours

Text Book(s)	
1	Practical Clothing Construction – Part I, Mary Mathews, Cosmic Press, Chennai ,1986.
2	Practical Clothing Construction – Part II, Mary Mathews, Cosmic Press, Chennai ,1986.
3	Zarapker system of cutting –Zarapker. K. R., Navneet publications Ltd ,1994.
Reference Books	
1	Pattern Grading for Women's clothing, The technology of sizing, Gerry Cooklin, Blackwell Science Ltd ,1990.
2	Sewing and Knitting – A Readers Digest, Step -by -Step Guide, Readers Digest Pvt Ltd, Australia,1993.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	http://epgp.inflibnet.ac.in/Home/ViewSubject?catid=827
2	https://fashion2apparel.blogspot.com/2017/03/pattern-grading-methods-apparel.html
3	https://textilelearner.blogspot.com/2014/10/a-focus-on-garments-fitting.html
4	https://www.fibre2fashion.com/industry-article/5658/basics-of-pattern-making
Course Designed By: Dr. R. Sheela John	

COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**
CO1	S	M	M	S	L	M
CO3	S	M	M	M	L	L
CO3	S	S	S	M	L	M
CO4	S	S	S	M	L	M
CO5	S	M	M	S	L	L

*S-Strong; M-Medium; L-Low

Course code	13P	BASICS OF GARMENT CONSTRUCTION PRACTICAL	L	T	P	C
Core		Practical I	-	-	4	4
Prerequisite		Basic knowledge in garment construction	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are to:

1. Impart sewing skills in creating garment components
2. Develop miniature patterns for skirts, sleeves, collars and yoke
3. Create miniature samples for skirts, sleeves, collars and yoke

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

CO1	Develop samples for seams, seam finishes and hems	K6
CO2	Create samples for fullness and neckline finishes	K6
CO3	Create samples for fasteners and pockets	K6
CO4	Construct miniature samples for skirt and sleeves	K6
CO5	Construct miniature samples for collars and yoke	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

1. Preparation Samples for the Following — **45 hours**

1. Seams – Plain seam, top stitched seam, flat fell seam, piped seam, lapped seam
2. Seam Finishes – double stitch, edge stitched, overlock (optional)
3. Hems – narrow, stitched and turned, hems for circular shape
4. Darts – single and double
5. Tucks – Pin tuck, cross tuck, group tucking
6. Neckline Finishes – Bias facing, Bias binding and Shaped facing
7. Plackets – continuous placket, bound placket and faced placket, zipper placket, tailored placket
8. Fasteners – Press buttons, Hook and eye, Button and Button hole
9. Pocket – Patch pocket, side seam pocket, bound and faced pocket

2. Prepare Miniature Samples for the following — **45 hours**

1. Skirt – pleated skirt, gathered skirt, circular skirt
2. Sleeve – Plain sleeve, Magyar Sleeve, Raglon Sleeve
3. Collar - Flat collar(any type), Open collar
4. Simple Yoke

Total hours — **90 hours**

Text Book(s)

1	Practical Clothing Construction – Part I, Mary Mathews, Cosmic Press, Chennai ,1986.
2	Practical Clothing Construction – Part II, Mary Mathews, Cosmic Press, Chennai ,1986.
3	Zarapker system of cutting –Zarapker. K. R., Navneet publications Ltd ,1994.

Reference Books

1	Sewing and Knitting – A Readers Digest, Step -by -Step Guide, Readers Digest Pvt Ltd, Australia,1993.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	http://epgp.inflibnet.ac.in/Home/ViewSubject?catid=827
2	https://fashion2apparel.blogspot.com/2017/03/pattern-grading-methods-apparel.html
3	https://textilelearner.blogspot.com/2014/10/a-focus-on-garments-fitting.html
4	https://www.fibre2fashion.com/industry-article/5658/basics-of-pattern-making
Course Designed By: Dr. R. Sheela John	

Cos	PO1	PO2	PO3	PO4	PO5	PO6
CO1	S	L	M	M	M	M
CO3	S	L	M	M	M	M
CO3	S	L	M	M	M	M
CO4	S	L	M	M	M	M
CO5	S	L	M	M	M	M

*S-Strong; M-Medium; L-Low

Course code	1AP	FASHION SKETCHING	L	T	P	C
Allied		Practical I	-	-	3	3
Prerequisite		Basic drawing knowledge		Syllabus Version	2020-2021	

Course Objectives:

The main objectives of this course are to:

1. Impart skills in drawing and coloring
2. Illustrate sketches for children, women, and man
3. Create sketches the different perspectives of the parts of the body and face

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

CO1	Illustrate garment designs for children	K4
CO2	Illustrate garment designs for woman	K4
CO3	Illustrate garment designs for man	K4
CO4	Sketch the parts of the body in various perspectives	K3
CO5	Sketch the face of male and female in different views	K3

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

1. Illustrate the Following Children's Garments — **15 - hours**

Instructions – Create 3 designs each; Colour using any medium; Give details

- Bib
- Jabla with knicker
- Baba suit
- Frocks

2. Illustrate the Following Women's Garments — **15 hours**

Instructions – Create 3 designs each; Colour using any medium; Give details

- Skirts
- Ladies tops
- Salwar
- Kameez
- Maxi/ Gown
- Dungarees

3. Illustrate the Following Men's Garments — **15 hours**

Instructions – Create 3 designs each; Colour using any medium; Give details

- T-Shirts
- Shirts
- Pants
- Kurta
- Pyjama

4. Illustrate the Following in Different Perspectives — **15 hours**

Instructions – Create for male and female (3 perspectives each) each

- Eyes
- Ears
- Nose
- Lips
- Hairstyles
- Arms
- Legs

5. Illustrate the Face of a Female and Male as Given Below	**15 hours**

- Front view
- Three quarter turned view
- Profile view (side view)

	Total Lecture hours	**75 hours**

Text Book(s)

1	Fashion Design Drawing & Presentation, Ireland Patrick John, Pavilion Books, 1982.
2	Fashion Design Illustration: Children, Ireland Patrick John, B T Batsford Ltd ,1995.
3	Fashion Design Illustration : Men, Ireland Patrick John, B T Batsford Ltd ,1996.

Reference Books

1	Fashion Illustration, Kiper Anna, David & Charles, 2011. ISBN: 9780715336182, 9780715336182
2	Foundation in fashion design and illustration – Julian Seaman, Batsford Publishers, 2001.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://www.idrawfashion.com/
2	https://www.fashionistasketch.com/drawing-faces-fashion-illustration/
3	https://in.pinterest.com/pin/458804280762797371/

Course Designed By: Dr. R. Sheela John

COs	PO1	PO2	PO3	PO4	PO5	PO6
CO1	S	S	M	S	L	M
CO3	S	S	M	S	L	M
CO3	S	S	M	S	L	M
CO4	S	S	M	S	L	M
CO5	S	S	M	S	L	M

*S-Strong; M-Medium; L-Low

Second Semester

Course code	23A	FASHION DESIGNING	L	T	P	C
Core		Paper II	-	4	-	4
Prerequisite		Have basic knowledge in designing	Syllabus Version	2020-2021		

Course Objectives:

The main objectives of this course are to:

1. Impart knowledge on design concepts in the field of fashion
2. Familiarise with the fashion cycles, consumers and theories
3. Design suitable garments for unusual figure types

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

CO1	Understand the design types, elements and principles of design	K2
CO2	Appraise the colour combinations with standard colour harmonies	K5
CO3	Interpret the fashion cycles, consumer groups and fashion theories	K2
CO4	Develop dress design for unusual figure types	K6
CO5	Define and describe the fashion terminologies and fashion profiles	K1

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	Design Elements and Principles	12 hours

Design- definition and types – structural and decorative design, requirements of a good structural and decorative design in dress

Elements of design and its application in dress – line, shape or form, colour and texture. Principles of design and its application in dress – balance, rhythm, emphasis, harmony and proportion.

Unit:2	Standard Colour Harmonies	12 hours

Colour theories; Prang colour chart Dimensions of colour- hue, value, and intensity.

Standard colour harmonies – Related, Contrasting and Neutral colour harmony; Application of Colour in principles of design- application of the same in dress design.

Unit:3	Fashion Evolution and Fashion Forecasting	12 hours

Fashion evolution – Fashion cycles, Length of cycles , consumer groups in fashion cycles – fashion leaders , fashion innovators, fashion motivation , fashion victim, Fashion followers. Adoption of Fashion theories – Trickle down, trickle up and trickle across. Fashion forecasting – Need for forecasting

Unit:4	Designing Dresses for Unusual Figures	12 hours

Deigning dresses for unusual figures – becoming and unbecoming – for the following figure types. Stout figure, thin figure, slender figure, narrow shoulders, broad shoulders, round shoulders, large bust, flat chest, large hip, large abdomen, round face, large face, small face, prominent chin and jaw, prominent forehead

Unit:5	Fashion Terminologies and Fashion Profiles	12 hours

Definition and meaning of the fashion terms – fashion, style, line and collection, Mannequin and dress forms; fashion show; high fashion; Haute couture, couture and couturier; knock-off; Avant Garde; Pre – a – porter

Role/qualities of a Fashion Designer, Fashion Stylist, Fashion Journalist, Fashion Merchandiser, Fashion Director.		
	Total Lecture hours	**60 hours**
Text Book(s)		
1	Fashion Sketch Book – Bina Abling, Fair Child Publications, New York Wardrobe,1988.	
2	Art and Fashion in Clothing Selection – Mc Jimsey and Harriet, Iowa State University Press,Jowa,1973.	
Reference Books		
1	Fashion From Concept To Consumer – Frings Gini Stephens, Pearson Education, US, 1998.	
2	Inside the Fashion Business – Kitty G. Dickerson, Pearson Education,US, 2007.	
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]		
1	https://www.apparelsearch.com/terms/index.htm	
2	https://www.instyle.com/fashion	
3	https://prezi.com/1tlwgnhviqs-/fashion-elements-and-principles-of-design/	
Course Designed By: Dr. R. Sheela John		

Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**
CO1	M	S	M	L	M	S
CO3	M	S	M	L	M	S
CO3	M	S	M	L	M	S
CO4	M	S	M	L	M	S
CO5	M	S	M	L	M	S

*S-Strong; M-Medium; L-Low

Course code	23P	GARMENT CONSTRUCTION I	L	T	P	C
Core		Practical II	-		4	4
Prerequisite		Basic knowledge in garment construction	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are to:

1. Design garments for children, woman and man
2. Impart skills in pattern drafting
3. Construct garments by sewing

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

CO1	Design garments for child, woman and man	K6
CO2	Develop patterns for child, woman and man using drafting method	K6
CO3	Construct garments by sewing	K6
CO4	Discover new techniques in pattern making and garment construction	K3
CO5	Select the necessary tools needed for sewing	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

1. Design, Draft and Construct the Following Garments for a Child	**25 hours**

- Bib
- Jabla
- Knicker

2. Design, Draft and Construct the Following Garments for a Woman	**30 hours**

- Saree Petticoat
- Salwar / Churidhar
- Kameez

3. Design, Draft and Construct the Following Garments for a Man	**20 hours**

- Bermuda
- T-shirt

Total Lecture hours	**75 hours**

Text Book(s)

1	Practical Clothing Constructing-Part I and II, Mary Mathews, Cosmic Press, Chennai,1986.
2	Zarapker System of Cutting- Zarapker. K ltd. R, Navneet Publications,1994.

Reference Books

1	Cutting and tailoring Course Gayatri Verma & Kapil Dev, Computech Publications ,2009.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	http://epgp.inflibnet.ac.in/Home/ViewSubject?catid=827
2	https://www.youtube.com/watch?v=nI-ShbmnuVg
3	https://www.youtube.com/watch?v=LuazkYL0J3A

4	https://www.youtube.com/watch?v=zLkNgkzx-wI
Course Designed By: Dr. R. Sheela John	

COs	PO1	PO2	PO3	PO4	PO5	PO6
CO1	S	M	S	S	M	M
CO3	S	M	S	S	M	M
CO3	S	M	S	S	M	M
CO4	S	M	S	S	M	M
CO5	S	M	S	S	M	M

*S-Strong; M-Medium; L-Low

Course code	23Q	FASHION DESIGNING PRACTICAL	L	T	P	C
Core		Practical III	-	-	3	3
Prerequisite		Knowledge in Fashion Sketching	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are to:

1. Familiarize with the elements and principles of design
2. Play with colours following the standard colour harmonies
3. Create garment design for various seasons on fashion figures

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

CO1	Develop Prang colour chart, value and intensity chart	K6
CO2	Illustrate human figures for a child, woman and man	K4
CO3	Sketch garment designs following the various elements of design	K3
CO4	Apply the principles of design and colour harmonies in the garments	K3
CO5	Create garment designs for various seasons	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

1. Prepare the following Charts — **7 hours**

- Prang colour chart,
- Value chart
- Intensity chart

2. Illustrate Human Figure for the Following Heads — **7 hours**

- Child - 6 head
- Women – 8 head,10 head and 12 head
- Man – 10 head

3. Illustrate Garment Designs for the Elements of Design (3 each) — **7 hours**

- Line
- Texture
- Shape

4. Illustrate Garment Designs for the Principles of Design — **10 hours**

- Balance (Formal and Informal)
- Harmony
- Emphasis
- Proportion
- Rhythm (by Repetition, Gradation and Line Movement)

5. Illustrate the Colour Harmony in Dress Design — **7 hours**

- Monochromatic
- Analogous
- Complimentary

- Double complementary
- Split complementary
- Triad
- Neutral

6. Create Garments for the Following Seasons	**7 hours**

- Summer
- Winter
- Autumn
- Spring

	Total Lecture hours	**45 hours**

Text Book(s)

1	Fashion Sketch Book , Bina Abling, Fair Child Publications, New York Wardrobe,1988.
2	Illustrating Fashion, Kathryn McKelvey and Janine Munslow, Blackwell Science,1997.

Reference Books

1	Art and Fashion in Clothing Selection , Mc Jimsey and Harriet, Iowa State University Press, Jowa,1973.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://www.idrawfashion.com/
2	https://www.fashionistasketch.com/drawing-faces-fashion-illustration/
3	https://in.pinterest.com/pin/458804280762797371/

Course Designed By: Dr. R. Sheela John

COs	PO1	PO2	PO3	PO4	PO5	PO6
CO1	S	S	M	L	M	M
CO3	S	S	M	L	M	M
CO3	S	S	M	L	M	S
CO4	S	S	M	L	M	S
CO5	S	S	M	S	S	M

*S-Strong; M-Medium; L-Low

Course code	2AA	INDUSTRIAL GARMENT PRODUCTION	L	T	P	C
Allied		Paper II	-	3	-	3
Perquisite		Basic knowledge about garment manufacturing machineries	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are to:

1. Gain knowledge on the industrial practices in all the stages of garment manufacturing
2. Familiarize with the techniques and technology adopted in the garment industry
3. Gain familiarize with the federal standards of stitch and seam classification

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

CO1	Understand the stitching mechanism	K2
CO2	Relate to the cutting and spreading methods in industries	K1
CO3	Connect to the industrial marking and pressing methods	K4
CO4	Analyse the type of sewing machines and its functions	K4
CO5	Classify stitches and seams according to the federal standards	K2

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	Stitching Mechanism	12 hours

Stitching mechanism- Needles, bobbin and bobbin case, bobbin winding, loops and loop Spreader, upper and lower threading, auxiliary hooks, throat plates, take ups, tension discs- upper and lower thread tension, stitching auxiliaries, pressure foot and its types, Feed mechanisms - drop feed, differential fed, needle feed, compound feed, unison feed, puller feed..

Unit:2	Cutting and Spreading Methods	12 hours

Spreading - Types of spread and its quality, parts and functions of spreading equipment, spreading methods.

Cutting equipment – Parts and functions of Straight knife cutting machine, rotary cutting machine, band knife cutting machine, die cutters.

Unit:3	Marking and Pressing Methods	12 hours

Marking methods, positioning marking types of markers, efficiency of a marker plan, requirements of marker planning.

Pressing – purpose, pressing equipment's and methods – iron, steam press, steam air finisher, steam tunnel, special types – pleating, permanent

Unit:4	Sewing Machineries	12 hours

Sewing Machineries - Classification of sewing machines, parts and functions of Single Needle lock stitch machine, over lock machine, bar tacking machine, button hole machine, button fixing machine, blind stitching machine, fabric examining machine.

Special attachments, care and maintenance of sewing machines, Common problems and remedies

Unit:5	Packaging, Sewing Threads, Stitches and Seams	12 hours

Garment Packaging – Types of package forms

Sewing threads- types, essential qualities of a sewing thread

Federal standards for stitch and stitch classification Federal standards for seam and seam classification.	
Total Lecture hours	**60 hours**
Text Book(s)	
1	The Technology of Clothing Manufacture – Harold Carr and Barbara Latham, Blackwell Science ,1994.
2	Apparel Manufacturing Handbook: Analysis, Principles and Practice 2nd Edition – Jacob Solinger, Bobbin Blenheim Media Corp ,1988.
Reference Books	
1	Reader's digest Sewing guide, Complete Guide to Sewing 13th Edition, The Reader's Digest Association Inc, Pleasant Ville,1997.
2	A complete guide for sewing – Coles M Sew, Heinemann Professional Publishing, Singapore, 1977.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://clothingindustry.blogspot.com/2018/04/packaging-process-garment-industry.html
2	https://www.youtube.com/watch?v=palmFFnMT1E
3	https://www.youtube.com/watch?v=67K0RMJVB_U
4	https://www.youtube.com/watch?v=HIBcn9Igirc
5	https://www.youtube.com/watch?v=QOofEoJQyro
Course Designed By: Dr. R. Sheela John	

COs	PO1	PO2	PO3	PO4	PO5	PO6
CO1	M	L	M	S	S	M
CO3	M	L	M	S	S	M
CO3	M	L	M	S	S	M
CO4	M	L	M	S	S	M
CO5	S	L	M	S	S	M

*S-Strong; M-Medium; L-Low

Third Semester

Course code	33A	COSTUMES AND TEXTILES OF INDIA	L	T	P	C
Core		Paper III	-	4	-	4
Prerequisite		Basic knowledge in costumes of different states of India	Syllabus Version	2020-2021		

Course Objectives:

The main objectives of this course are to:

1. Impart knowledge and understanding of the diverse and valuable traditional Indian textiles.
2. Appreciate the various styles of traditional Indian costumes
3. Value the beauty and intricacy of the Indian Jewelleries

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

CO1	Discover the beginning and origin of costumes	K2
CO2	Recognize the dyed and printed textiles of India	K1
CO3	Compare and contrast the various costumes of India	K4
CO4	Appraise the jewellries of India	K5
CO5	Value the traditional embroideries of India	K3

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Origin and Growth of Costume	15 hours

Beginning and growth of Costume - Painting, Cutting and Tattooing. Ancient costumes – Indus valley civilization, Vedic period, Maurya period, Mughal period. Costumes of India - pre and post independence era

Unit:2	Dyed and Printed Textiles of India	15 hours

Study of dyed and printed textiles of India –Bhandhani, Patola ,ikkat, kalamkari- in all the above types and techniques used. Study of woven textiles of India – Dacca Muslin, Banarasi/ Chanderi brocades, Baluchar, Himrus and Amrus, Kashmir shawls, Pochampalli, silk sarees of Kancheepuram.

Unit:3	Traditional Costumes of India	15 hours

Traditional Costume of different States of India - Tamil Nadu, Kerala, Andhra Pradesh, Karnataka, Assam, Orissa, West Bengal, Maharashtra, Rajasthan, Uttar Pradesh, Jammu and Kashmir, Gujarat.

Unit:4	Indian Jewellery	15 hours

Indian Jewellery – Jewellries used in the period of Indus valley civilization, Mauryan period, the Pallava and Chola Period, Symbolic Jewellery of South India, Mughal period. Temple Jewellery of South India, Tribal jewellery

Unit:5	Traditional Embroideries of India	15 hours

Traditional embroideries of India – Origin ,Embroidery stitches used – embroidery of Kashmir , Phulkari of Punjab ,Gujarat – Kutch and Kathiawar, embroidery of Rajasthan , Kasuti of Karnataka ,Chickenwork of Lucknow, Kantha of Bengal.

	Total Lecture hours	75 hours

Text Book(s)		
1	The costumes and textiles of India – Jamila Brij Bhushan, D B Taraporevala Sons & Co, Bombay ,1958.	
2	Indian Costume –G.S. Ghurye, Popular Prakashan Pvt Ltd, India ,1967.	
3	Indian Jewellery – M.L Nigam, Lustre Press Pvt Ltd ,India ,1999.	
4	Traditional Embroideries of India – Shailaja D. Naik , APH Publishing , India ,1996.	
Reference Books		
1	Costumes of India –Dorris Flyn, Oxford &IBH Publishing Co, Delhi,1971.	
2	Costumes of India and Pakistan – Das S.N, DB Taraporevala Sons and co, Bombay,1956.	
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]		
1	https://www.youtube.com/watch?v=7HXVXieq7pM	
2	https://www.craftsvilla.com/blog/famous-indian-embroidery-styles	
3	https://www.culturalindia.net/jewellery/types/meenakari.html	
Course Designed By: Dr. R. Sheela John		

Cos	PO1	PO2	PO3	PO4	PO5	PO6
CO1	M	M	M	L	M	S
CO2	M	S	M	M	M	S
CO3	M	S	L	L	L	S
CO4	L	M	M	M	L	S
CO5	M	S	M	M	M	S

*S-Strong; M-Medium; L-Low

Course code	33B	FIBER TO FABRIC	L	T	P	C
Core		Paper IV	-	4	-	4
Prerequisite		Basic knowledge in textile science	Syllabus Version	2020-2021		

Course Objectives:

The main objectives of this course are to:

1. Impart knowledge on the manufacturing process of fabric from the fiber
2. Teach the methods and techniques involved in the fibre, yarn and fabric manufacturing process
3. Know the trends and technologies followed in the textile industry

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

CO1	Classify fibers and understand the properties of fibers	K2
CO2	Discover the manufacturing process of fiber	K3
CO3	Understand the yarn types and its manufacturing process	K2
CO4	Describe the weaving methods and its characteristic features	K1
CO5	Appraise the application and uses of non-woven fabrics	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	Fiber Classification and Properties	15 hours

Introduction to the field of textiles- classification of fibres –natural and chemical – primary and secondary characteristics of textile fibers.

Unit:2	Process Sequence in Manufacturing Fibers	15 hours

Manufacturing process, properties and uses of natural fibres – cotton ,linen ,Jute ,silk , wool, hair fibers, man-made fibres –Viscose rayon, nylon, polyester, acrylic.

Unit:3	Spinning Process	15 hours

Spinning –Definition and classification; Chemical and mechanical spinning; blending , opening, cleaning, doubling, carding, combing, drawing, roving, spinning.

Yarn - Definition and classification- simple and fancy yarns. Manufacturing Process of sewing threads – cotton and synthetic.

Unit:4	Weaving Mechanism	15 hours

Weaving mechanism, parts and functions of a simple loom; basic process of dobby and jacquard, Classification of looms Salient features of automatic looms; Shuttle looms, its advantages - Types of shuttle less looms – Rapier – Projectile – Air jet – Water jet.

Unit:5	Non Woven Fabrics	15 hours

Non-Wovens - felting, fusing, bonding, lamination, netting, braiding, tatting and crocheting. Application and uses of Non-wovens

	Total Lecture hours	75 hours

Text Book(s)

1	Textiles –Fibre to fabric, Corbmann B.P, International student's edition, Mc Graw Hill. Book company, Singapore,1985.

2	Textile fabrics and their Selection – Isabel Barnum Wingate ,Published by Prentice-Hall, 1964.
3	Fundamentals of Textiles and Their care, Susheela dantyagi, Orient Longman Private imited, Fifth edition,1996.
Reference Books	
1	Textile Mechanisms in Spinning and Weaving Machines, Ganapathy Nagarajan, Woodhead Publishing India in Texiles,2014.
2	Mechanisms of Flat Weaving Technology, Elena V Chepelyuk, Palitha Bandara and Valeriy V Choogin; Woodhead Publishing series in Textiles,2013.
3	Handbook of fiber science and Technology, Menachem Lewin and Stephen B Sello, Marcel Dekker, Inc, New York,1984.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	http://textilefashionstudy.com
2	https://fashion2apparel.blogspot.com/2017/07/classification-loom.html
3	https://www.inda.org/about-nonwovens/
Course Designed By: Dr. R. Sheela John	

Cos	PO1	PO2	PO3	PO4	PO5	PO6
CO1	L	M	S	S	S	L
CO2	M	M	S	S	S	L
CO3	L	M	M	S	S	M
CO4	M	S	S	S	S	M
CO5	M	M	M	S	S	M

*S-Strong; M-Medium; L-Low

Course code	33P	GARMENT CONSTRUCTION II	L	T	P	C
Core		Practical IV	-	-	4	4
Prerequisite		Basic knowledge about sewing machine and construction.	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are to:

1. Design garments for children, woman and man
2. Impart skills in pattern drafting
3. Construct garments by sewing

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

CO1	Design garments for child, woman and man	K6
CO2	Develop patterns for child, woman and man using drafting method	K1
CO3	Construct garments by sewing	K2
CO4	Discover new techniques in pattern making and garment construction	K4
CO5	Select the necessary tools needed for sewing	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

1. Design, Draft and construct the following garments for a Child — **25 hours**

- Baba suit
- A-line Frock
- Summer Frock

2. Design, Draft and construct the following garments for a Woman — **25 hours**

- Ladies Tops
- Wrap around skirt
- Nightie

3. Design, Draft and construct the following garments for a Man — **25 hours**

- Nehru Kurta
- Pyjama
- Slack Shirt

Total Lecture hours — **75 hours**

Text Book(s)

1. Practical Clothing Constructing-Part I and II, Mary Mathews, Cosmic Press, Chennai,1986.
2. Zarapker System of Cutting- Zarapker. K. R, Navneet Publications ltd, India ,2011.

Reference Books

1. Cutting and sewing theory, Gayatri Verma, Kapil Dev, Computech Publication Ltd, India,2019.
2. Pattern cutting and Making up, the professional approach, Martin M. Shoben and Janet P.Ward, Routledge Taylor and Francis Group, London and New York, Revised edition,2011.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	http://epgp.inflibnet.ac.in/Home/ViewSubject?catid=827
2	https://www.youtube.com/watch?v=FsD-Pc9WPm0
3	https://www.youtube.com/watch?v=rJf5Jlpt8j4
Course Designed By: Dr. R. Sheela John	

Cos	PO1	PO2	PO3	PO4	PO5	PO6
CO1	S	S	M	S	M	L
CO2	S	S	L	M	L	L
CO3	S	L	S	S	M	M
CO4	S	M	M	S	M	M
CO5	M	M	S	S	M	L

*S-Strong; M-Medium; L-Low

Course code	33Q	FIBER TO FABRIC PRACTICAL	L	T	P	C
Core		Practical V	-	4	-	4
Prerequisite		Basic knowledge in textile science	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are to:

1. Identify the type of fibers
2. Test the yarn count and fabric count
3. Test the fabric for the following parameters – twist, course length, weight, shrinkage, color fastness and absorbency

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

CO1	Distinguish the type of fiber by microscope, flame test and chemical tests	K1
CO2	Determine the count of the yarn and fabric	K3
CO3	Test the fabric for fabric weight and course length of the fabric	K2
CO4	Evaluate the color fastness and shrinkage of fabric	K5
CO5	Experiment the absorbency of fabric	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

1. Identification of Textile fibers — **15 hours**

- Microscopic Method
- Flame test.
- Chemical test

2. Testing of Yarn and Fibers — **10 hours**

- Yarn Count using Wrap Reel
- Yarn Count using Besley's Balance
- Twist of the Yarn

3. Testing of Fabric — **35 hours**

- Fabric Weight
- Fabric Count by Ravelling Method
- Fabric Count with Pick Glass
- Course Length and Loop length of Knitted Fabric
- Colour Fastness to Washing
- Tests of Shrinkage
- Tests of Absorbency

Total Lecture hours — **60 hours**

Text Book(s)

1	Textiles –Fibre to fabric, Corbmann B.P, International students edition, Mc Graw Hill. Book company, Singapore, 1985.
2	Textile fabrics and their Selection – Isabel Barnum Wingate ,Published by Prentice-Hall, 1964.

Reference Books	
1	Identification of Textile Fibers 1st Edition by Max M. Houck, Woodhead Publishing in Textiles, Cambridge , New delhi, 2009.
2	Textile science, Gohi, CBS Publishers and Distributors, India, 2005.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://textilelearners.com/textile-fibers-identification-process/
2	https://www.textilesphere.com/2020/04/identification-of-textile-fibers.html
Course Designed By: Dr. R. Sheela John	

Cos	PO1	PO2	PO3	PO4	PO5	PO6
CO1	L	M	M	S	S	L
CO2	M	M	M	S	S	M
CO3	M	M	M	S	S	L
CO4	M	M	S	M	S	M
CO5	L	L	S	M	S	L

*S-Strong; M-Medium; L-Low

Course code	3AA	TEXTILE WET PROCESSING	L	T	P	C
Allied		Paper III	-	3	-	3
Prerequisite		Basic knowledge in textile finishing	Syllabus Version	2020-2021		

Course Objectives:

The main objectives of this course are to:

1. Prepare the fabric for finishing
2. Dye and Print the fabrics the using suitable dyes and prints
3. Prepare on Effluent and its impact

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

CO1	Familiarize with the Process sequence in a textile industry	K2
CO2	Explain the types of finishes	K1
CO3	Discover the dyes and dyeing methods	K3
CO4	Understand the various printing methods	K2
CO5	Analyse the pollution created by the textile industry and the need for effluent treatment	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Wet Processing Process and Basic Finishes	15 hours

Process sequence of textile wet processing; Finishes types – Basic finishes, Aesthetic finishes, Functional finishes and Special purpose finishes

Basic Finishes – Singeing, desizing, scouring, bleaching and mercerizing – Process sequence and methods;

Unit:2	Aesthetic, Functional and Special Finishes	15 hours

Aesthetic finish– glazed, Moire, embossed, napped finish

Functional finish – Water repellant, flame retardant, antistatic finish

Special purpose finish – fragrance, antibacterial, stone wash and enzyme wash in denim

Recent trends – Microencapsulation and nano finishes

Unit:3	Dyes and Dyeing Machines	15 hours

Dyes – classification and suitability of dyes to the fabric, stages of dyeing – fiber, yarn, fabric and garment dyeing, Natural dyes and its significance,

Dyeing machines – loose stock fiber bale – hank package – jigger – winch – HT& HP Beam, jet – padding mangles. Garment dyeing machines

Unit:4	Direct Printing	15 hours

Printing – Difference between dyeing and Printing

Preparation of Printing Paste, Properties and types of Thickeners,

Direct Printing – Block Printing - History and techniques used. Screen Printing – Flat screen and Rotary screen, techniques used

Unit:5	Resist, Discharge Printing and Effluent Treatment	15 hours

Resist Printing – Tie and Dye and Batik; Process sequence and techniques.

Discharge Printing, other methods – Digital Printing, Heat transfer printing Effluent Treatment – Pollution created by the processing unit, Process sequence in Effluent treatment Plant		
	Total Lecture hours	**75 hours**
Text Book(s)		
1	Textile Chemistry, Paters R.H, Elsevier Publishing , 1967.	
2	Technology of Textile Processing, Shenai V.A., Sevak publications, Bombay, 1981.	
3	Textile Finishing , Shenai.V.A. Sevak Publications, Mumbai, 1999.	
Reference Books		
1	Functional Finishes, Menachem Lewin and Stephen B. Sello, Marcel Dekker, Inc., 1984.	
2	Textile Finishing, R.S.Prayag, Shree J Printers, India, 1994.	
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]		
1	https://textilecourse.blogspot.com/2018/08/working-process-printing-	
2	http://www.neoakruthi.com/blog/etp-for-textile-industry.html	
3	https://textilelearner.blogspot.com/2011/08/flow-chart-of-wet-processing-process.html	
4	https://www.textileschool.com/343/fabric-wet-processing-techniques/	
5	https://www.fibre2fashion.com/industry-article/1699/special--finishes-to-garment-an-overview	
Course Designed By: Dr R Sheela John		

COs	PO1	PO2	PO3	PO4	PO5	PO6
CO1	L	M	S	S	S	L
CO2	M	S	S	S	M	S
CO3	M	S	M	M	S	S
CO4	M	S	S	S	S	S
CO5	L	L	S	M	M	L

*S-Strong; M-Medium; L-Low

Course code	3ZP	DYEING AND PRINTING	L	T	P	C
Skill Based Subject		Skill Based Subject I	-	-	3	3
Prerequisite		Basic knowledge in textile finishing	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are to:

1. Prepare the fabric for dyeing and printing
2. Dye the fabric using suitable dyes
3. Print the fabrics with direct and resist printing methods

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

CO1	Modify the fabric properties with desizing, bleaching, scouring, and mercerizing	K2
CO2	Define and use direct, reactive, vegetable and vat dye to the cotton fabric	K1
CO3	Apply acid and basic dye to the silk fabric	K3
CO4	Analyze print designs with direct printing method – block and stencil	K4
CO5	Create print designs with resist printing – Tie and dye / batik	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

1. Preparation of Samples for Processing — **20 hours**

- Desizing
- Bleaching
- Scouring
- Mercerising

2. Dye the Given Fabric Using Suitable Dye — **20 hours**

- Direct Dye
- Basic Dye
- Acid Dyes
- Reactive Dyes
- Vegetable Dyes(any one)
- Vat Dye

3. Print the Fabric Using Suitable Dyes / Pigments — **20 hours**

- Block Printing – Wooden and Vegetable Blocks
- Stencil Printing
- Tie and Dye (use any three tying methods)
- Batik Printing

Total Lecture hours — **60 hours**

Text Book(s)

1	An Introduction to Textile Finishing, Marsh. J.T, Chapman and hall Ltd, London, 1948.
2	Shenai V.A., Technology of Textile Processing, Vol. III, V, VI, VII Sevak publications, Bombay , 1981.

Reference Books	
1	Simple textile dyeing and Printing, Nora Proud , Batsford Publisher,London, 1974.
2	Science and technology of Textile Dyeing and Colouring, S.P.Mishra, New Age International (p) Ltd Publishers, 2016.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://www.youtube.com/watch?v=whm0UxZ9gnQ
2	https://www.hamstech.com/blog/significance-of-dyeing-printing-in-fashion-designing/
Course Designed By: Dr. R. Sheela John	

Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**
CO1	M	M	S	S	S	M
CO2	M	S	M	S	S	S
CO3	L	M	S	M	M	S
CO4	M	M	S	S	M	S
CO5	L	M	S	M	L	S

*S-Strong; M-Medium; L-Low

Fourth Semester

Course code	43A	FABRIC STRUCTURE AND DESIGN	L	T	P	C
Core		Paper V	-	4	-	4
Prerequisite		Basic knowledge about weaving.	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are to:

1. To learn the elements of woven design
2. To study the different types of weave
3. To understand the draft and lifting plan

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

CO1	To classify different types of weaves	K2
CO2	To draw the design, draft and peg plan of weaves.	K6
CO3	To differentiate between different type of weaves	K4
CO4	To construct different types of weaves	K6
CO5	Apply the methods of fabric representation	K3

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Elements of Woven Design	15 hours

Elements of woven design, Methods of fabric representation, Draft and lifting plan, Construction of elementary weaves – plain, warp rib, weft rib, twill, modification of twills, satin and sateen weaves – their derivatives

Unit:2	Types of Weaves	15 hours

Ordinary and Brighten honey comb, its modification, Huck a back and its modifications, Crepe weaves, Mock leno

Unit:3	Figured Fabrics	15 hours

Extra warp and Extra weft figuring – single and two colours, planting, backed fabric, warp and weft backed fabrics

Unit:4	Pile Fabrics	15 hours

Pile fabric – Formation of pile – weft pile – plain back, twill back – length, density and fastness of pile – corduroy weft plush. Warp pile – Terry pile, with the aid of wires, face to face warp pile

Unit:5	Double Cloth	15 hours

Double cloth – Classification, Self stitched – Face to back, Back to face, Both. Centre stitched – warp and weft. Interchanging double cloth.

	Total Lecture hours	75 hours

Text Book(s)

1 Gokarneshan N, Fabric Structure and Design, New Age International Publishers Ltd, New Delhi, 2004.

2	Grosichkli Z Newness, Watson's Advanced Textile Design, Butter Worths, London, 1989.
Reference Books	
1	Corbman B P, Textiles – Fibre to Fabric, International Students Edition, Mc.Graw Hill book Co, Singapore, 1985
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://textilelearner.blogspot.com/2011/06/weaving-weaving-mechanism_643
2	https://textilelearner.blogspot.com/2012/07/basic-woven-fabric-structure-plain
3	http://textilefashionstudy.com/category/fabric-manufacturing-technology-2
4	http://www.warporweft.com/types-of-looms
Course Designed By: S. P .Mythily	

Mapping with Programme Outcomes						
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**
CO1	M	S	M	S	S	S
CO2	M	S	L	S	S	S
CO3	M	S	M	S	S	S
CO4	L	S	M	S	S	S
CO5	L	S	L	S	S	S

*S-Strong; M-Medium; L-Low

Course code	43B	THE BUSINESS OF FASHION	L	T	P	C
Core		Paper VI	-	4	-	4
Prerequisite		Knowledge about fashion	Syllabus Version	2020-2021		

Course Objectives:

The main objectives of this course are to:

1. Gain a better understanding of a fashion designer at the national and international level
2. Impart knowledge on new product development, sales promotion, retailing and pricing
3. Move towards a sustainable fashion

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

CO1	Describe the factors influencing fashion changes	K3
CO2	Weigh the contributions of the fashion designers nationally and internationally	K5
CO3	Understand the steps involved in new product development and sales promotion	K2
CO4	Analyze the scope and functions of retailing and pricing	K4
CO5	Evaluate the environmental pollution created by fashion products and move towards sustainable fashion	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	World of Fashion- An Overview	15 hours

Factors influencing fashion changes – Accelerating and Decelerating factors
Understanding Fashion designer – types – classicist, idealist, influenced, realist, thinking poet. Minimalists, Village India, Studio line.
World Fashion Centers – Milan, Paris, London and New York

Unit:2	Legendary Fashion Designers	15 hours

Study of International Fashion Designers of the World – Yves Saint Laurent, Valentino, Pierre Cardin, Ralph Lauren, Karl Lagerfield, Donna Karen, Georgio Armani, Coco Chanel, Calvin Klien, Christian Dior.
An overview of Indian Fashion Designers – Manish Malhotra, Manish Arora, Ritu Beri, Tarun Tahiliani, Rohit Bal, Wendell Rodricks, JJ Valaya.

Unit:3	Fashion Products and Promotion	15 hours

The fashion industry and new product development; product mix and range planning.
Fashion and Seasons.
Fashion Promotion – Fashion Communication; Fashion Advertising and Publicity; Personal Selling – importance and steps involved; Fashion Shows – types and steps involved in organizing a show; Sales promotion methods / strategies

Unit:4	Fashion Retailing	15 hours

Fashion Retailing - Scope and functions, Types of Stores, Challenges for fashion retail in India, E-retailing – growth and development, Major players of fashion goods online.
Pricing policies and strategies for apparel products, Functions and factors Influencing pricing, pricing strategies for new products, methods of setting prices

Unit:5	**Sustainable Fashion**	**15 hours**
Sustainable Fashion – meaning and significance; Environmental concerns related to fashion; Linear fashion and circular fashion; 4R's in sustainability – Repair, recycle, reuse and reduce. Moving towards sustainable fashion - Eco fashion, Slow fashion; Environmental impact of fast fashion		
	Total Lecture hours	**75 hours**

Text Book(s)	
1	Drake et-al, Retail Fashion: Promotion and Advertising, Macmillan Publication Company. New York, 1992.
2	Gini Stephens Frings, Fashion – From Concept to Consumer, 6th edition, Prentice Hall, 1999.
Reference Books	
1	Leslie Davis Burns et-al, The Business of Fashion: Designing, Manufacturing and Marketing, 4th Edition, Bloomsbury Academic publisher, 2011
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://247wallst.com/special-report/2018/10/01/the-30-most-influential-fashion-designers-of-all-time/8/
2	https://www.reviewsxp.com/blog/top-fashion-designers/
3	https://en.wikipedia.org/wiki/Fashion_capital
4	https://www.fibre2fashion.com/
5	http://www.technopak.com/Files/fashion-retail-scenario-in-india.pdf
6	https://en.wikipedia.org/wiki/Sustainable_fashion
7	https://fashionunited.uk/news/fashion/re-defining-sustainability-repair-recycle-reuse-and-reduce/2016052520528
8	https://get-green-now.com/environmental-impact-fast-fashion/
Course Designed By: Dr. R. Sheela John	

Mapping with Programme Outcomes						
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**
CO1	M	S	S	M	M	S
CO2	S	S	M	M	M	S
CO3	M	S	L	M	M	S
CO4	M	S	M	M	M	S
CO5	L	M	L	M	M	M

*S-Strong; M-Medium; L-Low

Course code	43P	GARMENT CONSTRUCTION III	L	T	P	C
Core		Practical VI	-	-	4	4
Prerequisite		Knowledge about garment construction	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are to:

1. Design garments for children, woman and man
2. Impart skills in pattern drafting
3. Construct garments by sewing

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

CO1	Design garments for child, woman and man	K6
CO2	Develop patterns for child, woman and man using drafting method	K6
CO3	Construct garments by sewing	K6
CO4	Discover new techniques in pattern making and garment construction	K3
CO5	Select the necessary tools needed for sewing	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

1. Design, Draft and Construct the Following Garments for a Child — **25 hours**

- Frock – Party wear
- Midi and Top

2. Design, Draft and Construct the Following Garments for a Woman — **45 hours**

- Blouse
- Lehanga
- Maxi / Gown
- Ladies Pant

3. Design, Draft and Construct the Following Garments for a Man — **20 hours**

- S B Vest
- Pant (full length)

Total Lecture hours — **90 hours**

Text Book(s)

1	Zarapker K. R, Zarapker System of Cutting, Navneet Publications (India) Ltd, Mumbai, 2012
2	Winifred Aldrich, Metric Pattern Cutting for Women's Wear, 5th Edition, Blackwell Publishing, 2015
3	Winifred Aldrich, Metric Pattern Cutting for Men's Wear, 5th Edition, Blackwell Publishing, 2011

Reference Books

1	Myoungok Kim and Injoo Kim, Pattern Making for Menswear: Classic to Contemporary, Spi Edition, Fairchild Books Publishers, 2014.

2	Helen J Armstrong, Pattern Making for Fashion Design, 5th edition, Pearson Publisher, 2014.
3	Garment Construction: A Complete Course on Making Clothing for Fit and Fashion (Illustrated Guide to Sewing) by Peg Couch, Kindle Edition, 2015
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://www.patternsonline.com/Default.aspx
2	https://sewguide.com/
Course Designed By: Dr. R. Sheela John	

Mapping with Programme Outcomes						
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**
CO1	S	S	M	M	M	M
CO2	S	M	M	M	M	L
CO3	S	M	M	M	M	L
CO4	S	S	L	M	M	S
CO5	S	S	L	M	M	S

*S-Strong; M-Medium; L-Low

Course code	43Q	FABRIC STRUCTURE AND DESIGN PRACTICAL	L	T	P	C
Core		Practical VII	-	-	2	2
Prerequisite		Basic knowledge about fabric structure	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are to:

1. To identify the different types of weaves
2. To analyse the fabric structure
3. To understand the woven fabrics design

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

CO1	Draw the design, draft and peg plan of weaves.	K3
CO2	Explain fabric structure	K4
CO3	Understand the weaving components	K2
CO4	Analyze the design aspects in the weaving pattern	K4
CO5	Evaluate the fabric according to weaving	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Analyse the Fabric Structures — **45 hours**

- Plain weave and its derivatives
  - Warp rib
  - Weft rib
- Twill Weave
  - Right hand twill
  - Left hand twill
- Satin and Sateen
- Honey Comb Weave
- Huck a Buck Weave
- Extra warp figuring
- Extra weft figuring

Total Lecture hours — **45 hours**

Text Book(s)

1. Gokarneshan N, Fabric Structure and Design, New Age International Publishers Ltd, New Delhi, 2004.
2. Grosichkli Z Newness, Watson's Advanced Textile Design, Butter Worths, London, 1989.

Reference Books

1. Corbman B P, Textiles – Fibre to Fabric, International Students Edition, Mc.Graw Hill book Co, Singapore, 1985.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1. https://textilelearner.blogspot.com/2012/07/what-is-fabric-warp-weft-fabric.html

2	http://textilefashionstudy.com/category/fabric-manufacturing-technology-2
3	https://feltmagnet.com/textiles-sewing/How-To-Analyze-A-Woven-Fabric
4	https://www.textileschool.com/242/weaving-calculations/
Course Designed By: S. P. Mythily	

Mapping with Programme Outcomes						
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**
CO1	L	S	M	S	S	S
CO2	M	S	M	S	S	S
CO3	L	S	S	S	S	S
CO4	M	S	S	S	S	S
CO5	M	S	S	S	S	S

*S-Strong; M-Medium; L-Low

Course code	4AA	CARE AND MAINTANENCE OF TEXTILES	L	T	P	C
Allied		Paper IV	-	3	-	3
Prerequisite		Basic knowledge about fabric and garment care	Syllabus Version	2020-2021		

Course Objectives:

The main objectives of this course are to:

1. Gain a better understanding method in taking proper care of the clothing
2. Impart knowledge on machines and equipment's used in the washing, storing and ironing process
3. Impart knowledge on the types of wash care labels and their meaning

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

CO1	Identify suitable methods of washing, drying, ironing and storing	K1
CO2	Understand the wash care labels and act accordingly	K2
CO3	Appraise the types of equipment used in the care of fabrics	K3
CO4	Recognize the need for dry cleaning for fabrics	K2
CO5	Evaluate the methods and equipments to be used for a better life of clothes	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Water and Laundry Soaps	12 hours

Water- hard and soft water, methods of softening water.
Laundry soaps - composition of soap types of soap, soap less detergents, detergent manufacture, advantages of detergents, Manufacturing process of soap and detergents

Unit:2	Finishes and Stain Removal	12 hours

Finishes – Stiffening Agents – Starch (cold water and hot water) , Other stiffening agents, preparation of starch Laundry blues, their application.
Stain removal – common methods of removing stains; food stains, lead pencil, lipstick, mildew, nose drops, paint, perfume, perspiration / mildew, tar, turmeric and kum- kum,

Unit:3	Washing, Drying and Ironing	12 hours

Washing – Points to be noted before washing. Machine – types semi-automatic and Fully automatic; Top loading and front loading; wash cycles in a washing machine
Drying equipment's– Indoor and outdoor drying
Iron box – Parts and functions of an electric iron box; types - automatic iron box and steam iron. Ironing board – different types

Unit:4	Laundering of Different Fabrics	12 hours

Laundering of different fabrics – cotton and linen, woolens, coloured fabrics, silks, rayon and nylon. Special types of Laundry – waterproof coats, silk ties, leather goods, furs, plastics, lace.

Unit:5	Storing, Dry Cleaning and Care Labels	12 hours

Storing – Methods of storing clothes, Best way to store clothes
Dry cleaning – Benefits, differences between dry cleaning and laundry, Steps in dry cleaning

process Care labels – Importance and Types - The International Care Labelling System, The Japanese Care Labelling System, The Canadian Care Labelling System, The European Care Labelling System, The American Care Labelling System		
	Total Lecture hours	**60 hours**
Text Book(s)		
1	Wingate I B , Textiles fabrics and their Selection, Prentice-Hall Inc Publishers, 1946	
2	Fundamentals of Textiles and their Care- Susheela Dantyagi , Orient Longmann Ltd, 1980	
Reference Books		
1	Mildred T. Tate and Glisson O, Family Clothing, John Wiley & Sons Inc, Illinois, 1961	
2	Durga Deulkar , Household Textiles and Laundry Work, Amla Ram & Sons, Delhi, 1951	
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]		
1	https://tide.com/en-us/how-to-wash-clothes/how-to-do-laundry/your-comprehensive-guide-on-how-to-do-laundry#Step1	
2	https://www.coats.com/en/Information-Hub/Care-Labels#:~:text=Labels%20should%20be%20designed%20based,5)%20Wringing%20%26%206)%20Drying	
3	https://www.customclothinglabels.com/uses/why-are-care-labels-so-important/#:~:text=Care%20labels%20are%20essential%20when,run%20could%20ruin%20the%20fabric.	
4	https://www.drycleaning.com.sg/blog/5-differences-between-dry-cleaning-and-laundry.html	
5	https://www.rinse.com/blog/care/what-is-dry-cleaning/	
6	https://fleming.ca.uky.edu/files/clothing_storage.pdf	
7	https://www.home-storage-solutions-101.com/clothes-storage.html	
Course Designed By: Dr. R. Sheela John		

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6
CO1	L	L	L	L	L	L
CO3	L	M	M	S	S	L
CO3	L	M	M	M	M	L
CO4	L	M	M	M	M	L
CO5	L	L	M	M	M	L

*S-Strong; M-Medium; L-Low

Course code	4ZP	SURFACE EMBELLISHMENTS	L	T	P	C
Skill Based Subject		Skill Based Subject II	-	-	3	3
Prerequisite		Basic knowledge on embroideries	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are to:

1. Inherit embroidery skills by hand and machine
2. Appreciate the beauty and intricacies of the traditional embroideries of India
3. Enhance creativity with the application of smocking

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

CO1	Create hand embroidery samples	K6
CO3	Create machine embroidered samples	K6
CO3	Apply the techniques used in the Indian traditional embroideries	K3
CO4	Design and develop samples for drawn thread embroidery	K6
CO5	Create added structural effects using smocking	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

1. Create Hand Embroidery Samples (20 stitches and 10 samples) — **20 hours**

- Outline stitches
- Filling stitches
- Loop stitches
- Cross stitches

2. Create Embroidery Samples Using Machine (5 stitches and 2 samples) — **15 hours**

- Running stitch
- Satin Stitch
- Granite Stitch
- Cording
- Needle cording

3. Create the Following Samples — **15 hours**

- Bead work
- Sequin work
- Ribbon embroidery
- Mirror work
- Drawn thread work

4. Create Samples with Applique, Patch work and Quilt (any 2 types) — **10 hours**

- Applique
- Simple / Geometric patch work
- Crazy patch work

• Quilting – simple and patterned	
5. Create Samples with Smocking	**10 hours**
• French Smocking (any 3 types) • Chinese Smocking	
Total Lecture hours	**75 hours**

Text Book(s)	
1	Shailaja D Naik , Traditional Embroideries of India, APH Publishing, 1996
2	Megan Eckman, Everyday Embroidery for Modern Stitchers, C&T Publishing, 2020
Reference Books	
1	Libby Moore, Thread Folk: A Modern Makers Book of Embroidery Projects and Artist Collaborations, Paige Tate & Co, 2019
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://sewguide.csom/smocking/
2	https://www.youtube.com/watch?v=Ug2d1NUuE4A
3	https://www.youtube.com/watch?v=uJ2SyeFA_B4
4	https://www.youtube.com/watch?v=nJz9c8gEvFg
Course Designed By: Dr. R. Sheela John	

Mapping with Programme Outcomes						
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**
CO1	S	L	M	M	M	M
CO2	S	L	M	M	M	M
CO3	S	L	M	M	M	M
CO4	S	L	M	M	M	M
CO5	S	L	M	M	M	M

*S-Strong; M-Medium; L-Low

Course code	47V	INTERNSHIP TRAINING	L	T	P	C
Project		Viva Voce	-	-	-	2
Prerequisite		Gain Practical insights of the industry / company	Syllabus Version	2020-2021		

Course Objectives:

The main objectives of this course are to:

1. Expose the students to the work environment
2. Familiarise and adapt to the workplace
3. Understand the methods, techniques and practices followed in the place of training

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

CO1	Understand the working structure of the industry/ company	K2
CO2	Analyse the methods adopted in the training place	K4
CO3	Correlate to the theoretical knowledge gained in the college	K4
CO4	Recognize the challenges in the training place	K1
CO5	Discover the nuances of the workplace and appreciate it	K3

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

No CIA, Report: 40 marks and Viva: 10 marks

Details of the Training

The student should undergo **15 Days Internship training** in a Textile Processing Unit/ Designer House / Buying House/ Garment Unit / Retail house after III semester theory exam / before the start of Fourth Semester (Total Marks – 50, No CIA, Report: 40 marks and Viva: 10 marks)

Purpose of the Internship Training

The training bridges the gap between the theoretical knowledge gained in the college and the practical application of the same in the industry / company / stores

The student will have a better exposure about the workplace and its nuances

Process to be Followed

Students can identify their area of interest. Industry / companies has to be identified and a profile of the company has to be analysed at least a month earlier. Contacts can be established by the guides allotted to the student. Prior permission has to be obtained from the place of training. After confirmation, the student will undergo training for a period of 15 working days.

Instructions to the Students

The students should abide by the rules and regulations of the concern and get the maximum benefit from the training. The students should maintain a daily logbook where the student should record his details of the training.

A copy of the record has to be sent to the supervisor allotted to the student. The logbook must be

signed (with seal) by the staff of the company. Based on the study done, the student will submit a report to the guide within a weeks' time along with the logbook. Incase of any problems, the student should reach out to the supervisor immediately
Instructions to the Supervisor
The supervisor should establish contacts with the place of training. A routine follow up has to be done with the student once in two or three days. Problems, if any faced by the student should be sorted out immediately.
Training Report and Presentation
Training Report (30 – 50 pages) should be prepared by the student and submitted in a month's time. At the end of the semester student should present the report with a power point presentation

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://www.wikihow.com/Write-a-Report-After-an-Internship
2	http://mfe-iseah-kef.blogspot.com/2013/11/internship-daily-journal.html
3	https://www.academia.edu/25257761/Student_Internship_Logbook
4	https://www.indeed.com/career-advice/career-development/how-to-write-an-internship-report
5	https://valenciacollege.edu/students/internship/documents/ActivityLog.pdf
6	https://www.template.net/business/log/internship-time-log/

Course Designed By: Dr. R. Sheela John

Mapping with Programme Outcomes						
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**
CO1	S	M	M	L	L	M
CO2	S	M	M	L	L	M
CO3	S	M	M	L	L	M
CO4	S	M	M	L	L	M
CO5	S	M	M	L	L	M

*S-Strong; M-Medium; L-Low

Fifth Semester

Course code	53A	KNITTING	L	T	P	C
Core		Paper VII	-	4	-	4
Prerequisites		Basic knowledge about fabric structure	Syllabus Version	2020-2021		

Course Objectives:

The main objectives of this course are to:

1. Familiarize with the basics of knitting process
2. Impart knowledge on the warp and weft knitting techniques
3. To know the recent trends and technologies adopted in the industry

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

CO1	Understand the basics knitting process and the functions of a knitting machine	K2
CO2	Discover the weft knitting process and machineries used	K3
CO3	Discover the warp knitting process and machineries used	K3
CO4	Appraise the recent technology in the knitting industry	K5
CO5	Articulate the significant role played by the knitting industry locally and nationally	K3

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Knitting Overview	15 hours

Knitting – Definition, classification and history, characteristics of knitted goods. General terms and principles of knitting technology, machine knitting, parts of machine, knitted loop structure, stitch density

Unit:2	Principles of Weft Knitting Technology	15 hours

Weft knitting – classification - circular rib knitting machine, purl, interlock, jacquard - single jersey machine - basic knitting elements - types and functions – knitting cycle, CAM – system - 3-way technique to develop design - knit, tuck, miss - effect of stitches on fabric properties.

Unit:3	Principles of Warp Knitting Technology	15 hours

Warp knitting - lapping variations-tricot, raschel, simplex and Milanese - kitten raschel - single bar, 2 bar, multi bar machines. types of threading, production of nets, curtains, heavy fabrics, elasticized fabrics.

Unit:4	Seamless Knitting & Knitting Care	15 hours

Seamless Knitting – Applications, advantages, and limitations.
Care and maintenance of knitted material - washing, drying, ironing, storing. Common defects that occur in knitted fabric production.

Unit:5	Knitting Industry and market	15 hours

Knitting Industry in India – growth and development. Significance of knitwear industry in Tirupur. Knitwear market – Present and future trends. Dyeing of Knit Fabrics

	Total Lecture hours	75 hours

Text Book(s)	
1	Knitting Manufacture Technology - Anbumani, New Age International, Chennai ,2006
2	Knitting and Apparel Technology, S.S.M.I.T Co-operative Society. 2005
3	Knitting Technology, David J. Spencer, Woodhead Publishing Ltd., Cambridge England, 2002
Reference Books	
1	Knitting Technology, D B Ajgaonker, Universal Publishing Corporation,1998
2	Warp knit fabric construction: from stitch formation to stitch construction, Wilkens, C., Heusenstamm, Germany: U. Wilkens Verlag, 1995.
3	Flat Knitting, Meisenbach Bamberg, Samuel. R, Germany, 1991
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://fashion2apparel.blogspot.com/2017/02/seamless-garments-advantages.html
2	https://www.indiaretailing.com/2018/06/12/fashion/indian-knitwear-market-present-and-the-future-trends/
3	https://www.fibre2fashion.com/industry-article/64/overview-of-tirupur-knitwear-industry
4	https://www.fibre2fashion.com/industry-article/7047/seamless-garment-technology
5	https://textilelearner.blogspot.com/2013/01/faultsdefects-in-knitted-fabrics.html
Course Designed By: : J. Sathya Narayanan	

COs	PO1	PO2	PO3	PO4	PO5	PO6
CO1	S	M	S	S	S	M
CO2	M	M	S	S	M	S
CO3	M	L	M	M	S	S
CO4	L	M	S	S	S	M
CO5	M	M	S	M	M	S

*S-Strong; M-Medium; L-Low

Course code	53P	COMPUTER AIDED DESIGN PRACTICAL I	L	T	P	C
Core		Practical VIII	-	-	4	4
Prerequisites		Basic knowledge on computers	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are to:

1. Enable the students to design garment designs using computers
2. Try various colour combinations and textural effects
3. Create and manipulate fashion figures for various garment designs

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

CO1	Understand and practice the tools and techniques of the CAD	K2
CO2	Apply the skills in area of garment designing	K3
CO3	Develop various colours and textures in computers	K6
CO4	Create garment designs for child, man and woman with CAD	K6
CO5	Create Jewellery designs using CAD	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

1. Creating Small Designs / Motifs (2 each) — **15 hours**

- Designs for Handkerchief
- Neckline Designs
- Embroidery Designs
- Chest Prints for T-shirts

2. Create the Following Designs for a Child (2 each) — **20 hours**

- Jabla and Knicker
- Baba Suit
- Frock

3. Create the Following Designs for a Woman (2 each) — **20 hours**

- Gown / Maxi
- Salwar Kameez
- Midi and Tops
- Lehangas

4. Create the Following Designs for a Man (2 each) — **20 hours**

- S B Vest
- T-Shirt with Brmuda
- Shirt and Pant
- Kurta Pyjama

5. Create the Following Ornaments and Accessories — **15 hours**

- Ornaments – Set of ear ring, bangle/bracelet, finger ring and chain
- Accessories – Set of Handbag, Hat, Hairband and footwear

	Total Lecture hours	**90 hours**
Text Book(s)		
1	Fashion Design Drawing & Prensatation, Ireland Patrick John, B T Batsford Ltd, 2006.	
2	Fashion Design Illustration: Children, Ireland Patrick John, B T Batsford Ltd, 2003.	
Reference Books		
1	Fashion Sketch Book, Bina Abling, Fair Child Publication, New York,2006.	
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]		
1	https://www.youtube.com/watch?v=iX7O4fNQijA	
2	https://www.youtube.com/watch?v=8pmgi7q3Gbo	
3	https://www.youtube.com/watch?v=x8BsIME4gi4	
Course Designed By: Dr. R. Sheela John		

Mapping with Programme Outcomes						
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**
CO1	M	S	S	M	M	M
CO2	M	S	M	S	S	S
CO3	S	M	L	M	M	M
CO4	S	S	S	L	M	L
CO5	M	M	L	M	S	S

*S-Strong; M-Medium; L-Low

Course code	53Q	KNITTING PRACTICAL	L	T	P	C
Core		Practical IX	-	-	2	2
Prerequisites		Basic knowledge about knit fabric		Syllabus Version		2020-2021

Course Objectives:

The main objectives of this course are to:

1. Identify the loop structure of the fabric
2. Identify different types of knitted fabric sample
3. Identify fabric defects, its cause and work on the remedies

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

CO1	Identify the loop structure of the fabric	K2
CO2	Find out the type of knitted fabric sample.	K2
CO3	Classify the different knit structures.	K5
CO4	Deduct knitting samples by unravel method and graphic representation	K4
CO5	Identify the defect and its remedy.	K2

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

1. Identify the Given Fabric Sample Using Unravel and Graphic Representation Method — **30 hours**

- Plain Knit
- Rib Knit
  - 1x1
  - 2x2
- Interlock
- Pique – any 2 structures
- Tricot
- Raschel

2. Analyse the Defects — **30 hours**

- Vertical and horizontal lines
- Holes and cuttings
- Distorted

Total Lecture hours — **60 hours**

Text Book(s)

1	Knitting Manufacture Technology, Anbumani,New Age International, Chennai ,2006
2	Knitting and Apparel technology, S.S.M.I.T Co-operative Society. 2005

Reference Books

1	Knitting Technology, D B Ajgaonker, Universal Publishing Corporation,1998

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://textilelearner.blogspot.com/2013/01/faultsdefects-in-knitted-fabrics.html
Course Designed By: J. Sathya Narayanan	

COs	PO1	PO2	PO3	PO4	PO5	PO6
CO1	S	M	S	S	S	M
CO2	M	M	S	S	M	S
CO3	M	L	M	M	S	S
CO4	L	M	S	S	S	M
CO5	M	M	S	M	M	S

*S-Strong; M-Medium; L-Low

Course code	57V	FASHION DESIGN PORTFOLIO	L	T	P	C
Project		Viva Voce	-	-	6	6
Prerequisites		Garment Designing Knowledge	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are to:

1. Create garment collection based on an inspiration / theme
2. Search and find out exclusive fabrics and accessories for the garment collection
3. Present the garment collection in the form of a portfolio album

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

CO1	Design garment collection based on an inspiration / theme	K6
CO2	Develop various boards like theme board, mood board, story board, colour board, fabric swatch board, patten board and flat pattern	K6
CO3	Select suitable fabrics and accessories for the garment collection	K5
CO4	Create a portfolio album	K6
CO5	Compile and present the portfolio effectively	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

ESE only, 120 marks for Garment Collection and Portfolio; 30 marks for Viva

Fashion Design Portfolio – An Introduction

A fashion design portfolio is a collection of samples put together by a fashion designer to show off his or her skills to a prospective employer or fashion school. A typical fashion design portfolio should include fashion illustrations, an inspiration or mood board with textile swatches, flat sketches manually or with computer.

Instructions to the Student

Every Student will be assigned a Guide and the student should report to the guide at least once in a week. The student should work on an inspiration and develop sketches. After the approval from the Guide, the fabrics must be purchased and converted into a garment. Minimum of 4 garments has to be created. The garment collection is then photographed on a live model. Portfolio (Manual / Digital) is created

Details of the Portfolio **(75 hours)**

The Portfolio must be created as an album / book / Magazine and should contain the following boards

- Customer Profile
- Inspiration / Theme Board
- Mood Board / Story Board
- Colour board / Swatch Board
- Accessory Board (optional)
- Pattern Board
- Flat Sketch / Fashion Illustrations
- Photograph of all the Garment

Evaluation of the Project	
The student should present the portfolio and the garments to the panel of examiners and answer the questions raised by the examiners	
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	http://epgp.inflibnet.ac.in/Home/ViewSubject?catid=827
2	https://fashionandillustration.com/en/how-to-make-a-fashion-collection/
3	https://www.apparelsearch.com/fashion/designer/name/a/anna_sui/spring_fashions_anna_sui_fashion_designer_guide.htm
Course Designed By: Dr. R. Sheela John	

COs	PO1	PO2	PO3	PO4	PO5	PO6
CO1	S	S	S	M	S	S
CO2	M	M	M	S	S	M
CO3	S	M	M	M	M	S
CO4	S	S	S	M	S	S
CO5	M	S	S	S	S	M

*S-Strong; M-Medium; L-Low

Course code	5ZA	GARMENT QUALITY AND COST CONTROL	L	T	P	C
Skill Based Subject		Skill Based Subject III	-	3	-	3
Prerequisites		Basic knowledge on garment quality	Syllabus Version	2020-2021		

Course Objectives:

The main objectives of this course are to:

1. To learn the concepts of garment quality control
2. To study the different quality management systems
3. To know about different quality process

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

CO1	Define and establish quality standards	K2
CO2	Describe functions of quality control	K1
CO3	Analyze on garment cost and cost control	K4
CO4	Appraise on different quality management systems	K4
CO5	Evaluate the quality based on the parameters	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Quality Control and its Standards	15 hours

Definition and Scope of Quality control – establishing merchandising standards- establishing raw material quality control specifications – quality control of raw material. Establishing Processing quality specification – Quality control inspection procedures for processing- Quality control of finished garments – Quality control for packaging, warehousing and shipping – Statistical quality control - Sampling plans – Industry-wide quality standards .

Unit:2	Functions Of Production Control	15 hours

Function of production control – Production analysis – Quality specifications – quantitative specifications –Basic production systems – whole garment, departmental whole garment, subassembly systems and progressive bundle systems, Principles for choosing a production system – Evaluating production systems

Unit:3	Functions of Cost Control	15 hours

Functions of cost control, types of costs and expenses – Apparel manufacturing cost categories – sales cost control, purchasing cost control, production cost control, administration cost control – cost ration policies – the manufacturing budget –cash flow controls – standard cost sheet, break-even – charts.

Unit:4	Quality Management	15 hours

Quality – Evolution of Quality management – Quality function and quality planning – Basic concepts of Total Quality Management (TQM) – Principles of TQM – Quality Trilogy – Four pillars of TQM – PDCA cycle & PDSA cycle – Kaizan concept – 5‟S Philosophy – Quality circles.

Unit:5	Environmental Management System	15 hours
Environmental Management System (EMS) – Meaning & Definition – Elements of EMS – Benefits of EMS – Environmental Policies – Implementation of ISO 14000 – study on other management system: SA8000, OHSAS 18000 and WRAP.		
	Total Lecture hours	**75 hours**

Text Book(s)	
1	Apparel Manufacturing Analysis, Solinger, Jacob, New York, Textiles books, 1961.
2	Managing Quality In The Apparel Industry, Pradip V Mehta, Sathish K Bhardwaj, New Age International, 1998
Reference Books	
1	Apparel manufacturing handbook, analysis Principles and Practice, Solinger, Jacob, Columbia media corp, 1988.
2	Quality Control Hand book, J.M.Juran,.publications McGraw-HillEducation,1988.
3	Total Quality Management, Basker S, Anuradha Publications, Kumbakonam, 2017.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://textilelearner.blogspot.com/2011/08/quality-control-system-in-garments_2589.html
2	https://www.fibre2fashion.com/industry-article/3055/quality-systems-for-garment-
3	https://onlinegarmentsacademy.blogspot.com/2019/07/quality-control-of-apparel-industry.html
4	https://www.sciencedirect.com/science/article/pii/B9781782422327000163
5	https://www.textileschool.com/488/quality-control-in-garment-manufacturing/
Course Designed By: Dr. R. Sheela John	

Mapping with Programme Outcomes						
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**
CO1	S	M	M	S	S	M
CO2	S	M	S	M	S	L
CO3	M	M	M	S	M	M
CO4	S	S	M	S	M	M
CO5	M	S	S	L	M	L

*S-Strong; M-Medium; L-Low

Elective Paper - I

Course code	5EA	ORGANISATION OF GARMENT UNIT	L	T	P	C
Elective		Paper I - A	-	4	-	4
Prerequisites		Knowledge on garment Industry	Syllabus Version	2020-2021		

Course Objectives:

The main objectives of this course are to:

1. Enable student to become a successful entrepreneur / manager in the future
2. Impart knowledge on the organisation of the various departments of a garment unit
3. Gain a better understanding of a garment unit with SWOC analysis

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

CO1	Interpret the meaning of entrepreneur and management	K2
CO2	Understand the organizational structure of a garment unit	K2
CO3	Plan factory design and layout to suit the production needs	K4
CO4	Prepare cost sheet for a finished product	K3
C05	Set up a garment unit by performing SWOC analysis	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Entrepreneur and Management	15 hours

Entrepreneur- Meaning, definition and types, need for Entrepreneurs, qualities, and role of Entrepreneur.

Management – Definition. Management as a process – Planning, organizing, Directing, Controlling and Co Ordination. Difference between Entrepreneur and Manager.

Unit:2	Organizational Structure of a Garment Unit	15 hours

Organizational structure of a garment unit, Design department, Finance department, purchasing department, Production department, organizing different sections – hierarchy Personnel involved in all the departments, nature of the job. Role of HR in apparel industry.

Unit:3	Factory Design and Layout	15 hours

Factory Design and layout – importance of factory design, factors affecting factory design, Types of buildings (single and Multi-Storey) – advantages and limitation. Factory layout – Process, Product and combined layout Design requirement – requirements relating to health, safety and welfare. Balancing – Steps to balance the line - Initial balance - Balance control - Efficiency - Cycle checks - Balancing tools.

Unit:4	Principles of Costing	15 hours

Principles of costing - requirement of good costing system. Cost estimation of yarn and fabric. Cost estimation for dyeing, printing, embroidery, cutting, stitching, checking, packing, final inspection, shipping and insurance.

Unit:5	Garment Export Unit	15 hours

Performance of Indian Garment Export and Institutions supporting Entreprenuers, SWOC Analysis Setting up of garment unit for export market, Export Document, Export finance -

Payment method, Export shipping. Institutions supporting entrepreneurs- DIC, NSIC, SISI, SIPCOT, TII, KVIC, CODISSIA, Commercial banks – SBI.		
	Total Lecture hours	**75 hours**
Text Book(s)		
1	Introduction to Clothing Production Management, AJ Chester 2nd Edition, Wrenbury Associates Ltd, 1998.	
2	The technology of clothing manufacture, Harold Carr and Barbara Latham, Blackwell Science, 1994.	
3	Apparel Costing, A functional Approach- Krishnakumar. M, Abishek Publications, Chandigarh, 2011.	
Reference Books		
1	Principles of Management, Dinakar Pagare, Sultan Chand and Sons, Delhi, 2018.	
2	Entrepreneurship Development in India, Dr. C.B Gupta, Dr N.P. Srinivasan, Sultan Chand and Sons Delhi, 1997.	
3	Industrial Engineering in Apparel Production, V. Ramesh Babu, Wood Head Publishing India in Textiles, 2012.	
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]		
1	https://lonelyentrepreneur.com/types-of-entrepreneurs/	
2	https://textilecourse.blogspot.com/2019/02/plant-layout-textile-garment-industry.html	
3	https://www.fibre2fashion.com/industry-article/7665/the-organisation-of-a-clothing-factory	
4	https://apparelcosting.blogspot.com/2017/05/apparel-costing-principles.html	
5	https://www.onlineclothingstudy.com/2019/04/how-to-start-garment-business.html	
Course Designed By: Dr. S. Jayapriya		

COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**
CO1	S	M	S	M	S	L
CO2	M	S	S	S	S	M
CO3	S	M	M	M	M	M
CO4	M	S	S	S	S	S
CO5	L	M	L	S	M	L

*S-Strong; M-Medium; L-Low

Course code	5EB	ACCOUNTING AND BUSINESS MANAGEMENT	L	T	P	C
Elective		Paper I - B	-	4	-	4
Prerequisites		Knowledge about concepts of accounting	Syllabus Version	2020-2021		

Course Objectives:

The main objectives of this course are to:

1. Teach the basics of accounting and work on journal, ledger, trial balance and subsidiary books
2. Impart knowledge on the various aspects of cost accounting
3. Enable the student to identify various forms of ownerships in the business

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

CO1	Understand the basic concepts of accounting	K2
CO2	Create journal, ledger, trial balance and subsidiary books	K6
CO3	Prepare final accounts with profit and loss	K3
CO4	Identify overheads and work on costing accordingly	K1
CO5	Recognize the legal forms of ownership in business	K1

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Accounting Concepts, Basics	15 hours

Accounting concepts and conventions –rules of accounts – importance of accounting – nature and scope of accounting – double entry system – advantage – difference between double entry and single entry

Unit:2	Journal, Ledger, and Trial Balance	15 hours

Journal, ledger, and Trial balance, subsidiary books – purchase book, sales books, purchase returns book, sales returns book and cash book with single, double and triple column cash book

Unit:3	Final Accounts	15 hours

Final accounts – trading and profit and loss A/C and balance sheet with simple adjustments

Unit:4	Cost Accounting	15 hours

Cost accounting – elements of cost, classification of cost – preparation of simple cost sheet (problem) – accounting for overheads – classification of overheads, allocation and apportionment of overheads – reapportionment of service department cost to production department, absorption of overheads

Unit:5	Legal Forms of Ownership	15 hours

Nature and objectives of business – legal forms of business of ownership – sole trader, partnership, company and co-operative societies –advantages and limitations

Note: problems – 70 marks, theory – 30 marks

	Total Lecture hours	75 hours

Text Book(s)	
1	Introduction to Accountancy, T.S. Grewal, S.C. Gupta: Books, S. Chand Publishing, 2016.
2	Principles Of Accountancy, Kl Nagarajan, Vinayakam N, Pl Mani, S Chand & Company Pvt Ltd, 2018.
3	Cost accounting, S P Jain and K L Narang, Kalyani Publishers, 2015.
Reference Books	
1	Cost and management accounting – S N Maheswari, Sultan Chand, 2002
2	Business management, Dinker Pagare, S. Chand Publishing, 2013.
3	Fundamentals of business organisation and management, Y K Bhushan, New Delhi : Sultan Chand & Sons, 1963.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	http://www.ddegjust.ac.in/studymaterial/bba/bba-104.pdf
2	https://deeppanacademy.com/pdf/cma/foundation/fundamentals-of-accounting.pdf
Course Designed By : K. Revathe	

COs	PO1	PO2	PO3	PO4	PO5	PO6
CO1	S	M	S	M	S	M
CO2	M	S	S	S	M	M
CO3	L	M	M	M	M	S
CO4	M	M	S	S	S	S
CO5	L	S	M	S	M	L

*S-Strong; M-Medium; L-Low

Course code	5EC	ENTREPRENUERIAL DEVELOPMENT	L	T	P	C
Elective		Paper I - C	-	4	-	4
Prerequisites		Basic knowledge on entrepreneur	Syllabus Version	2020-2021		

Course Objectives:

The main objectives of this course are to:

1. Impart knowledge on the significant functions of entrepreneurship
2. Inform the prospective entrepreneurs to steps in creating a project proposal
3. Give an overview of the institution that support entrepreneurship

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

CO1	Understand the types and functions of entrepreneurship	K2
CO2	Identify, select a product and prepare a project proposal	K1
CO3	Distinguish the institutions that supports entrepreneurs	K2
CO4	Discover plans available in the supporting institutions	K3
CO5	Analyse the available incentives and subsidies	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Context of Entrepreneurship	15 hours

Concept of Entrepreneurship: Definition Nature and Characteristics of Entrepreneurship - Functions and types of Entrepreneurship phases of EDP. Development of women Entrepreneur and rural Entrepreneur – including self-employment of women council scheme

Unit:2	Project	15 hours

The Start – up process, Project Identification – Selection of the product – Project formulation evaluation – Feasibility Analysis, Project Report

Unit:3		15 hours

Institutional service to Entrepreneur – DIC, SIDO, NSIC, SISI, SSIC, SIDCO, ITCOT, IIC, KUIC and commercial Bank

Unit:4		15 hours

Institutional finance to Entrepreneur – IFCI, SFC, IDBI, ICICI, TIIC, SIDCS, LIC and GIC, UTI, SIPCOT – SIDBI and commercial Bank venture capitals.

Unit:5		15 hours

Incentives and subsidies – Subsidised Services – Subsidy for market. Transport – seed capital assistance – Taxation benefit to SSI – role of Entrepreneur in export promotion and import substitution

	Total Lecture hours	75 hours

Text Book(s)

1	Entrepreneurial Development, C.B. Gupta and N.P. Srinivasan, Sultan Chand & Sons, 2020.

2	Fundamentals of Entrepreneurship and small Business, Renu Arora and S.KI.Sood, Kalyani Publishers, 2015.
3	Entrepreneurial Development, S.S.Khanka, S. Chand Publishing, 2006
Reference Books	
1	Entrepreneurial Development, P. Saravanavel & P. Sumathi , Margham Publications, 2020.
2	Entrepreneurial Development, S.G.Bhanushali, Himalaya Publishing House, 1987
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	http://www.simplynotes.in/e-notes/mbabba/entrepreneurship-development/
Course Designed By: Dr. R. Sheela John	

Mapping with Programme Outcomes						
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**
CO1	S	S	S	M	M	S
CO2	M	M	L	M	S	M
CO3	S	M	M	S	M	M
CO4	S	S	M	M	M	M
CO5	M	L	S	S	S	L

*S-Strong; M-Medium; L-Low

Sixth Semester

Course code	63A	COMPUTERS IN THE GARMENT INDUSTRY	L	T	P	C
Core		Paper VIII	-	4	-	4
Prerequisites		Knowledge on computer fundamentals	Syllabus Version	2020-2021		

Course Objectives:

The main objectives of this course are to:

1. Impart knowledge on the significant role played by the computers in the garment industry
2. Create an awareness on the latest technologies available in the various sectors of the garment industry
3. Teach the advantages of using computer technology to improve the production qualitatively and quantitatively

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

CO1	Articulate the specifications and functions of a computer and its peripherals	K3
CO2	Appraise the inevitable role played by computers in various sections of a textile / garment industry	K5
CO3	Understand the application of CAD and CAM in the areas of textile and garment designing	K2
CO4	Discover the use of computers in the field of body measurements, pattern making and grading	K3
CO5	Weigh the advantages of computer technology in the process sequences and thereby increase production	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Computers and its Peripherals	15 hours

Classification of computers, computer generations, computer specification, organization of computer sections. Types of storage devices (primary, secondary and tertiary), input devices, output devices.

Unit:2	Computers in Fashion Industry	15 hours

Role of computers in fashion industry – Information flow – CAD, CAM, CIM, CAA, PDC – Definition and functions. Computers in production planning and production scheduling computerized colour matching system.

Unit:3	Computers in Creating Fabric and Garment Designs	15 hours

CAD in creating designs – Advantages. Computerized weaving, knitting and printing, creating Computerized embroidery machines, Garment designing with CAD – 2D and 3D forms.

Unit:4	Body Measurements, Pattern Making and Grading	15 hours

3D Body scanning systems, Made to measure systems, CAD in pattern making and grading – system description – information flow – process involved in pattern making, process involved in pattern grading

Unit:5	**Computers in the Garment Manufacturing**	**15 hours**
Computer application in fabric defect checking, laying / spreading, cutting marker planning, Labelling – Parts and functions. Computerized sewing machines.		
	Total Lecture hours	**75 hours**

Text Book(s)	
1	Computers in the Garment Industry – Dr R Sheela John and Dr S Amsamani, Shanga Verlag, Coimbatore, 2013
2	Fashion: From Concept to Consumer 4th Edition – Gini Stephens Frings, Prentice Hall, Pearson, 2007

Reference Books	
1	Computer Fundamentals, P K Sinha, BPB Publications, Delhi, 1992
2	The Technology of Clothing Manufacture, Harold Carr and Barbara Latham, Blackwell Ltd, 1994
3	Computer Technology for Textiles and Apparel, Jinlian Hu, Elsevier, 2011
4	Automation in Garment Manufacturing, Rajkishore Nayak and Rajiv Padhye, Woodhead Publishing, 2017

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://inifdahmedabad.com/blog/importance-of-cad-in-fashion-industry/
2	https://clothingindustry.blogspot.com/2018/02/application-cad-weaving.html
3	http://textilescommittee.nic.in/writereaddata/files/publication/gar4.pdf
4	https://study.com/academy/lesson/how-is-cad-cam-used-in-textiles.html
5	https://clothingindustry.blogspot.com/2018/02/importance-cad-textile-designing.html
6	https://textilelearner.blogspot.com/2012/03/computer-application-areas-in-textile.html
7	https://link.springer.com/chapter/10.1007/978-3-642-58214-1_47

Course Designed By: Dr. R. Sheela John

Mapping with Programme Outcomes						
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**
CO1	L	S	S	S	M	L
CO2	L	S	S	S	M	M
CO3	S	S	S	S	S	S
CO4	S	S	S	S	M	M
CO5	S	S	S	S	M	M

*S-Strong; M-Medium; L-Low

Course code	63P	COMPUTER AIDED DESIGN PRACTICAL II	L	T	P	C
Core		Practical X	-	-	4	4
Prerequisites		CAD I	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are to:

1. Create professional designs with computers
2. Develop garment designs by using various tools and colours in the digital software
3. Apply the elements / principles of design and colour harmonies in the garment designs

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

CO1	Create garment designs with different colour harmonies in computers	K6
CO2	Develop garment designs with for the various elements of design in computers	K6
CO3	Design garment sketches with following the principles of design in computers	K6
CO4	Create garment designs for various seasons in computers	K6
CO5	Draft and grade patterns digitally	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

1. Create Garment Designs for the Following Colour Harmonies — **15 hours**

- Monochromatic colour harmony
- Analogous colour harmony
- Complementary colour harmony
- Double complementary colour harmony
- Split Complementary colour harmony
- Triad colour harmony
- Tetrad colour harmony
- Neutral colour

2. Create Garment Designs for the Following Elements of Design — **15 hours**

- Line
- Shape
- Size

3. Create Garment Designs for the Following Principles of Design — **15 hours**

- Balance
- Rhythm
- Emphasis
- Proportion
- Harmony

4. Create Garment Designs for the Following Seasons (Child-1; Woman - 1; Man-1) — **15 hours**

- Summer

• Winter • Spring • Autumn	
5. Draft and Grade Patterns for the Following Garments	**15 hours**
• Bib • Jabla • Salwar • T-Shirt	
6. Create Garment Designs for the Following Occasions (Child-1; Woman -1; Man-1)	**15 hours**
• Party wear • Casual wear • Wedding collection • Sports wear (any three sports)	
Total Lecture hours	**90 hours**

Text Book(s)	
1	Fashion Design Drawing & Presentation, Patrick John Ireland, Pavilion Books, London, United States, 1982.
2	Drawing and Designing Children's and Teenage Fashions, Patrick John Ireland, Wiley, 1979.
3	Fashion Design Illustration: Men, Patrick John Ireland, B. T. Batsford Books, London, 1996.
Reference Books	
1	Fashion Sketch Book, Bina Abling, Fairchild Books, New York, 2007
2	Foundation in fashion design and Illustration, Julian Seaman, B. T. Batsford Books, London, 2001
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://www.youtube.com/watch?v=jTWtQNTJt_A
2	https://www.youtube.com/watch?v=iX7O4fNQijA
3	https://www.youtube.com/watch?v=nWCNuSBc1Y0
4	https://www.youtube.com/watch?v=x8BsIME4gi4
5	https://www.youtube.com/watch?v=LMZPbT1msR0
Course Designed By: Dr. R. Sheela John	

COs	PO1	PO2	PO3	PO4	PO5	PO6
CO1	S	S	M	M	L	S
CO2	S	S	M	S	L	S
CO3	S	S	M	M	L	S
CO4	S	S	M	S	L	M
CO5	S	S	M	M	L	S

*S-Strong; M-Medium; L-Low

Course code	63Q	BASIC DRAPING PRACTICAL	L	T	P	C
Core		Practical XI	-	-	4	4
Prerequisites		Knowledge on Pattern making	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are to:

1. Teach the basics of prepare the body forms and fabrics for draping
2. Create patterns for basic bodice and skirts using draping method
3. Create patterns for yokes and collars using draping method

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

CO1	Discover and mark the important structural lines in a dummy form	K3
CO2	Analyse the fabric, straighten the fabric ends and remove the creases	K4
CO3	Create draped patterns for basic bodice blocks and skirt	K6
CO4	Create draped patterns for types of yokes	K6
CO5	Create draped patterns for types of collars	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

1. Preparation of Body Forms — **5 hours**

Mark the Chest Line with Style Tape
Mark the Empire / Under Chest Line with Style Tape
Mark the Waistline with Style Tape
Mark the Hip Line with Style Tape

2. Preparation of Fabric

Remove creases by ironing the fabric
Straighten the fabric

3. Drape the Following Patterns — **20 hours**

Draping of Bodice Front
Draping of Bodice Back
Draping of Skirt

4. Drape the Following Yokes — **20 hours**

Simple Yoke
Yoke with Fullness within the Yoke
Shirt Yoke
Midriff Yoke

5. Drape the Following Collars — **15 hours**

Peter Pan Collar
Mandarin Collar / Shirt Collar
Shawl Collar / Convertible Collar

Total Lecture hours — **60 hours**

Text Book(s)	
1	Draping for Apparel Design, 3rd Edition - Helen Joseph and Armstrong, Bloomsbury Academic, 2013
2	The Art of Fashion Draping, Connie Amaded and Crawford, Bloomsbury Academic, 2018
Reference Books	
1	The Art of Fashion Draping, Connie Crawford, Bloomsbury Publishing India Private Limited, 2007
2	Draping for Fashion Design, Hilde Jaffe, Prentice Hall, 2000.
3	Draping for Apparel Design, Helen Joseph and Armstrong, Bloomsbury Academic, 2008.
4	Draping for Fashion Design, Hilde Jaffe and Nurie Relis, Pearson/Prentice Hall, 2005.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://www.youtube.com/watch?v=hAvjXU9xrOM
2	https://www.youtube.com/watch?v=BhG9Sp3UutI
3	https://www.moodfabrics.com/blog/intro-to-draping-dress-form-muslin-basics/
4	https://fitnyc.libguides.com/fashiondesign/draping
5	https://www.youtube.com/watch?v=-Hriguvg4RA
Course Designed By: Dr. R. Sheela John	

Mapping with Programme Outcomes						
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**
CO1	S	S	L	S	S	M
CO2	S	S	L	S	S	M
CO3	S	S	L	S	S	M
CO4	S	S	L	S	S	M
CO5	S	S	L	S	S	M

*S-Strong; M-Medium; L-Low

Course code	6ZA	INNOVATION WITH WASTE FABRICS	L	T	P	C
Skill Based Subject		Skill Based Subject IV	-	-	3	3
Prerequisites		Skills in converting waste materials into useful articles	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are to:

1. Create an awareness of the pollution created by the fabric waste
2. Motivate the students to create students to work on bits of waste fabric
3. Reduce the fabric pollution at a micro scale

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

CO1	Appraise the enormity of waste fabric available around	K4
CO2	Develop Interest with accessories making with bits of fabrics	K6
CO3	Modify bits of fabric into a creative product	K6
CO4	Take part in 'thinking out of the box' concept	K4
CO5	Design creative and unique products that can be used in their home	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

1. Collection of Fabric Wastes — **10 hours**

Waste fabrics are collected. The waste fabrics include used clothes, torn garments, fabric waste bits from the tailoring shops or dressmaker's room. The fabrics are washed with soap and hot water and sterilized.

2. Create the Following Accessories — **15 hours**

- Hand Bags
- Cell Phone Pouches
- Belts

3. Create the Following Ornaments — **15 hours**

- Set of Earrings
- Pair of Bangles
- Hair Band

4. Create the Following Products — **15 hours**

- Puppets
- Dress for the Dolls
- Note Book Covers

5. Home Textile Products — **20 hours**

- Table Cloth
- Door Mats
- Plate Mats
- Pillow Covers
- Any other (For your creativity)

	Total Lecture hours	**90 hours**
Text Book(s)		
1	Cool Fabric Projects: Creative Ways to Upcycle Your Trash Into Treasure, Pam Scheunemann, ABDO, 2012	
2	Upcycling Crafts, Kitty Moore, Venture Ink, 2019	
3	Quilts from the House of Tula Pink, 20 Fabric Projects to Make, Use and Love, Tula Pink, Krause Publications, 2012	
Reference Books		
1	Half Yard (TM) Bags & Purses: Sew 12 beautiful bags and 12 matching purses, Debbie Shore, Search Press, Limited, 2018	
2	Crafty Little Things to Sew: 20 Clever Sewing Projects Using Scraps & Fat Quarters - Caroline Fairbanks and Critchfield, Lark Books, 2017	
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]		
1	https://www.diyncrafts.com/15703/repurpose/100-brilliant-projects-to-upcycle-leftover-fabric-scraps	
2	https://feltmagnet.com/crafts/Fabric-Scraps-Crafts-Ideas	
3	https://in.pinterest.com/fabricdotcom/scrap-fabric-projects/	
4	https://www.youtube.com/watch?v=YscLxJrZ_WI	
5	https://sewing.com/sewing-projects-fabric-scraps/	
Course Designed By: Dr. R. Sheela John		

Mapping with Programme Outcomes						
COs	PO1	PO2	PO3	PO4	PO5	PO6
CO1	L	S	S	L	M	S
CO2	S	S	S	M	L	S
CO3	S	M	S	M	M	S
CO4	S	S	S	M	M	S
CO5	S	M	S	M	M	S

*S-Strong; M-Medium; L-Low

Elective Paper - II

Course code	6EA	MARKETING AND MERCHANDISING	L	T	P	C
Elective		Paper II - A	-	4	-	4
Prerequisites		Knowledge about the need of marketing and merchandising	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are to:

1. Impart knowledge on the underlying concepts of marketing and fashion marketing
2. Familiarise with the fashion products, consumer, communications, research and forecasting
3. Describe the role of merchandisers in the garment industry and their types

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

CO1	Understand the basic concepts of marketing and fashion marketing	K2
CO2	Describe the types of fashion products and the consumer behavior	K1
CO3	Explain the process of communication, marketing research and forecasting	K1
CO4	Discover the importance of merchandisers and their types	K3
CO5	Interpret types of stores, design, layouts and merchandise presentation	K2

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	INTRODUCTION TO MARKETING	15 hours

Marketing – Meaning, Marketing management philosophies, Marketing and Fashion Marketing, The fashion market – structure and size. Marketing environment – Micro and Macro marketing. Marketing Mix – Product, price, promotion and place; Marketing Functions – Assembling, standardization and packaging; Digital Marketing – meaning, scope and advantages

Unit:2	FASHION PRODUCTS AND THE CONSUMER	15 hours

Marketing fashion products – importance and classification of products; the product mix and range planning; the fashion product life cycle;

Fashion Consumer - Role of consumer behavior in marketing, types of consumer decisions, the decision process, factors that influence decisions - consumer attitudes, consumer motivation, consumer personality, opinion leadership, family and social status

Unit:3	MARKETING – COMMUNICATION, RESEARCH AND FORECASTING	15 hours

Fashion marketing communications – traditional approach and integrated approach

Fashion marketing research – purpose and significance, stages in the research process

Fashion forecasting – meaning and importance, basics of predicting trends – colour, theme, shape, key events, target market; trend forecasting process

Unit:4	TYPES OF MERCHANDISERS AND VISUAL MERCHANDISING	15 hours

Merchandiser – essential qualities of a merchandiser; types and functions of merchandisers – fashion merchandiser, visual merchandiser, export merchandiser and retail merchandiser;

Visual Merchandising – Elements of Visual Merchandising – Needs – Psychology – Types of Display; Elements of display.		
Unit:5	**STORE MANAGEMENT IN MERCHANDISING**	**15 hours**
Store Management in Merchandising - Introduction, Objectives, Types of Stores, Location of a Store, Store Layout, Types of Store Layouts, Store Space Allocation. Store Design - Introduction, Concept of Store Design, Exterior of a store, Interior of a store, Merchandise Presentation -tools and techniques		
	Total Lecture hours	**75 hours**

Text Book(s)	
1	Fashion Marketing, Mike Easey, Wiley-Blackwell Publishing. 2009.
2	Fashion Merchandising & Merchandising, Mary G.Wolfe, The Goodheart-Willcox Co.,Inc, Illions, 2014.
3	Fashion –From concept to consumer – Gini Stephens Frings , Prentice Hall (1999).
4	Fashion Marketing Management, V. Ramesh And A. Arunraj Babu, Woodhead Publishing India, 2019
Reference Books	
1	Marketing, Philip Kotler, Gary Armstrong, Veronica Wong, John Saunders, Pearson Education, India, 2008
2	Fashion- from Concept to Consumer, 9th Edition, Gini Stephens Frings, Pearson Education Ltd, Harlow, 2014
3	Fashion Marketing, Janet Bohdanowicz and Liz Clamp, Routledge, 1994
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://www.iknockfashion.com/need-of-trend-forecasting/
2	http://www.createafashionbrand.com/the-5-basics-of-trend-prediction/
3	https://www.fibre2fashion.com/industry-article/7054/decoding-the-process-of-trend-forecasting-in-fashion
4	https://textilelearner.blogspot.com/2013/10/role-of-merchandiser-in-apparel-industry.html
5	https://clothingindustry.blogspot.com/2017/12/merchandiser-merchandising-garment.html
6	https://blog.hubspot.com/marketing/what-is-digital-marketing
Course Designed By: Dr. R. Sheela John	

COs	PO1	PO2	PO3	PO4	PO5	PO6
CO1	L	S	S	M	M	M
CO2	L	M	S	M	S	M
CO3	L	M	S	S	M	M
CO4	L	S	S	M	M	S
CO5	L	L	S	S	S	S

*S-Strong; M-Medium; L-Low

Course code	6EB	PRINCIPLES OF MANAGEMENT	L	T	P	C
Elective		Paper II - B	-	4	-	4
Prerequisites		Knowledge about business organization	Syllabus Version	2020-2021		

Course Objectives:

The main objectives of this course are to:

1. Impart knowledge on the Principles of Management
2. Teach the purpose of the steps in the management process
3. Guide the students have a better understanding on sequence of the steps involved in the managerial process

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

CO1	Discover the underlying concepts the principles of management	K3
CO2	Appraise of planning and the steps involved in planning	K5
CO3	Understand the importance of organising and the steps involved in planning	K2
CO4	Articulate directing and the steps involved in planning	K3
CO5	Recognise the importance of controlling and the steps involved in planning	K1

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Principles of Management	15 hours

Nature and scope of management – Management Science/Art – Development of management theory – Scientific management – Henry Foyals principles of management.

Unit:2	Planning, Purpose and Steps	15 hours

Planning – Meaning and purpose of planning – Steps in planning – Types of planning – Objectives and policies – Objectives, policies, procedures and methods, nature and types of policies – Decision making – Process of decision making – Types of decisions – Problems involved in decision making.

Unit:3	Organising, Purpose and Steps	15 hours

Organizing – Types of organization – Organizational structure – Span of control – Committees. Delegation and centralization line & staff relationship – staffing – Sources of recruitment – Selection process – Training methods – Performance appraisal.

Unit:4	Directing, Purpose and Steps	15 hours

Directing – Nature and purpose of directing – Motivation – Discipline – Leadership – Supervision – Communication – Requirements for effective controls – Critical control points and standards.

Unit:5	Controlling, Purpose and Steps	15 hours

Controlling – Need for co-ordinating – Meaning and importance of control – control process – types of control.

	Total Lecture hours	75 hours

Text Book(s)	
1	Industrial Engineering and Management, O.P. Khanna, Dhanapat Rai Publications, New Delhi 2006.
2	Essentials of Management, Harold Koontz and Heinz Weihrich, Tata McGraw Hill, 1998
3	The Fundamentals of Fashion Management, Susan Dillon, Bloomsbury Publishing, 2018
Reference Books	
1	Business Organisation and Management, D. P. Jain, Vrinda Publications, Delhi, 1999.
2	Management, Patrick.J. Montana and Bruce. H. Charnov, Barrows, 2000.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://ncert.nic.in/ncerts/l/lebs102.pdf
2	https://www.coursera.org/courses?query=management
3	https://www.edx.org/school/iimbx
Course Designed By: Dr. R. Sheela John	

Mapping with Programme Outcomes						
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**
CO1	L	S	S	M	M	M
CO2	L	M	S	M	S	M
CO3	L	M	S	S	M	M
CO4	L	S	S	M	M	S
CO5	L	L	S	S	S	S

*S-Strong; M-Medium; L-Low

Course code	6EC	BUSINESS FINANCE	L	T	P	C
Elective		Paper II - C	-	4	-	4
Prerequisites		Knowledge about basics of finance	Syllabus Version	2020-2021		

Course Objectives:

The main objectives of this course are to:

1. Enable student to understand the financial aspects of a Business
2. Make students prepare financial plan with a clear understanding of expenses and earnings
3. Understand the principles of equity shares, bonds, debentures and fixed deposits

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

CO1	Understand the scope and functions of Finance	K1
CO2	Work on a financial Plan	K4
CO3	Work on cost theory and earnings theory	K4
CO4	Calculate the cost of individual and composite cost of capitals	K3
CO5	Aware of the advantages and limitations of Equity shares, bonds, debentures and deposits	K2

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Business Finance	15 hours

Business Finance: Introduction – Meaning – Concepts – Scope – Functions of finance, Traditional and modern concepts – content of modern finance functions.

Unit:2	Financial Plan	15 hours

Financial Plan: Meaning – Concept – objectives – Types – Steps – Significance – Fundamentals.

Unit:3	Basics of Capitalisation	15 hours

Capitalisation – Bases of Capitalisation – Cost Theory – Earning Theory – Over Capitalisation – Under Capitalisation – Symptoms – causes – remedies – Watered Stock Vs. Over Capitalisation.

Unit:4	Capital Structure	15 hours

Capital Structure – Cardinal Principles of capital structure – Trading on equity – Cost of capital – concept – Importance – Calculation of Individual and composite cost of capital.

Unit:5	Forms of Finance	15 hours

Sources and forms of Finance: Equity Shares, Preference Share, Bonds, Debentures and fixed deposits – features – advantages and disadvantages.

	Total Lecture hours	75 hours

Text Book(s)

1	Essentials of Business Finance, R.M.Sri Vatsava, Himalaya Publishing House, 2016
2	Financial Management – Saravana Vel, Kalyani Publishers, New Delhi, 2004

Reference Books	
1	Financial Management – B.Y.Pandey, Tata McGraw Hill, New Delhi, 2000.
2	Financial Management - An Analytical and Conceptual Approach, S.C.Kuchhal, Chitanya Publishing House, 1982.
3	Financial Management – M.Y.Khan and Jain, Sultan Chand & Sons, NewDelhi, 2018
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://ncert.nic.in/textbook/pdf/kebs108.pdf
2	https://www.coursera.org/specializations/financial-management
3	https://talentedge.com/articles/role-financial-management-organization/
Course Designed By: G. Rathina Priya	

Mapping with Programme Outcomes						
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**
CO1	L	L	S	S	L	L
CO2	L	L	S	S	L	L
CO3	L	L	S	M	L	L
CO4	L	L	S	S	L	L
CO5	L	M	S	S	L	M

*S-Strong; M-Medium; L-Low

Elective Paper - III

Course code	6ED	HOME TEXTILES	L	T	P	C
Elective		Paper III - A	-	4	-	4
Prerequisites		Knowledge about choice of fabrics for Home Textiles	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are to:

1. Impart knowledge on the various home textile products
2. Gain insights on the bed linens, kitchen linens, bathroom linens
3. Acquire better understanding on the choice of fabrics for the home textile products

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

CO1	Classify the home textile products	K2
CO2	Understand the types of floor and wall coverings	K2
CO3	Distinguish curtains and draperies	K4
CO4	Describe the types of soft furnishings	K1
CO5	Discover the types and functions of kitchen linen	K3

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	**12 hours**

Introduction to home textiles, definition, types of home textiles, factors influencing selection of home textiles, recent trends in home textiles

Unit:2	**12 hours**

Floor and wall coverings – definition, types of floor covering –hard, soft and resilient floor coverings and uses and care and maintenance of floor coverings. Wall covering- definition, uses, care and maintenance of wall coverings

Unit:3	**12hours**

Door and window treatments –definition and parts of door and windows, curtains and draperies – definition and materials used for curtains and draperies. Types of Curtains –draw, tailored, pleated, cafe, three tier curtains. Types of Draperies – swags. Accessories- rods hook, rails, racks, curtain tape pins

Unit:4	**12 hours**

Soft furnishings for living and bed linen. Introduction to living and bedroom linens, types-sofa, sofa covers, wall hangings, cushion, cushion covers, upholsteries, bolster and bolster covers, bed sheets, covers, blankets, blanket covers, comfort and comfort covers, bed spreads, mattress and mattress covers, pillow and pillow covers, pads, uses and care.

Unit:5	**12 hours**

Soft furnishings for kitchen and dining, types of kitchen linens – kitchen towel, aprons, dish cloth, fridge, grinder and mixie covers, mittens, fridge holders –their uses and care. Types of dining-table mat, dish/pot holders, cutlery holder, fruit baskets, hand towels-uses and care. Bathroom linens – types, uses and care

	Total Lecture hours	**60 hours**

Text Book(s)	
1	Home Comforts-The Arts and Science of Keeping Home, Cheryl Mendelson, Scriber, New York, 2005
2	Cushions and Pillows- Professional Skills – Made Easy, Hamlyn Octopus, Octopus Publishing Group, New York, 2001
3	The Ultimate Sewing Book 200 Sewing Ideas For You and Your Home, Magi Mc McCormick Gordon, Collins and Brown, London, 2002
Reference Books	
1	Design and make curtains, Heather Luke, New Holland publishers, London,1999
2	Cornucopia of Cushions, Susie Johns, Apple Press, London, 1997
3	Art in Everyday Life, Harriet Goldstein and Vetta Goldstien, The Macmillian Company, 2004
4	Performance of Home Textiles, Subrata Das, Woodhead Publishing India Pvt. Limited, 2010
5	Home Furnishing, V. Ramesh Babu and S. Sundaresan, Woodhead Publishing India Pvt. Limited, 2018
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://www.homestratosphere.com/types-curtains/
2	https://bettersleep.org/mattress-education/mattress-accessories/pillow-types/
3	https://textilecourse.blogspot.com/2018/06/types-classification-home-textiles.html
4	https://www.fibre2fashion.com/industry-article/1769/home-textiles-a-review
5	http://www.india-crafts.com/textile/home-textile.html
Course Designed By: Dr. P. C. Jemina Rani	

COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**
CO1	S	S	S	S	M	M
CO2	S	S	S	S	M	M
CO3	S	S	S	S	M	S
CO4	S	S	S	S	M	S
CO5	S	S	S	S	M	S

S-Strong; M-Medium; L-Low

Course code	6EF	EXPORT ANAYLSIS AND DOCUMENTATION	L	T	P	C
Elective		Paper III - B	-	4	-	4
Prerequisites		Knowledge about Export Business	Syllabus Version	2020-2021		

Course Objectives:

The main objectives of this course are to:

1. To explore the knowledge about the regulation of AEPC
2. To apply the terms and methods in the documentation purpose
3. To understand about the license procedure, pre-shipment charges and transaction

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

CO1	Apply the costing techniques	K4
CO2	Infer the apparel promotion rules and functions	K4
CO3	Explain the importance of export documentation	K2
CO4	Classify the duties and responsibilities of import and export license	K2
CO5	Compile the details on exchange of bills and documentation before shipping	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Cost Estimation of Yarn	12 hours

Cost estimation of yarn, knitted fabric, dyeing, printing & finishing. Cost estimation for cutting, stitching, checking, forwarding, shipping and insurance –INCO terms & their relationship with costing. Estimation of factory cost for vest, briefs, shorts, T-Shirts, pyjamas, children's wear and women's wear. Various factors to be considered in costing for domestic products & international products

Unit:2	Role of Apparel Export Commission	12 hours

Introduction – Apparel Export promotion Council and its role – Registration formalities – Registration cum membership certificate – Import Export code – RBI code. Benefits and incentives offered by Government of India to garment export. Role of SEZ and apparel parks in export.

Unit:3	Documents Related to the Goods	12 hours

Need, rationale and types of documents relating to goods – Invoice – Packing note and list – Certificate of origin – Certificates related to shipment – Mate receipt – Shipping bill – Certificate of measurement – Bill of lading – Air way bill – Documents related to payment – Letter of credit- Bill of exchange – Letter of hypothecation – Bank certificate for payment – Document related to inspection – Certificate of inspection – GSP and other forms. Importance of insurance of goods in foreign trade – ECGC and its role

Unit:4	Import License Procedures	12 hours

Import license – Procedure for import license – Import trade control regulation procedure – Special schemes – Replenishment license – Advance license – Split up license – Spares for after sales service license – Code number – Bill of entry

Unit:5	**Pre-Shipment and Shipment**	**12 hours**
Pre shipment inspection and quality control – Foreign exchange formalities – Pre shipment documents. Shipment of goods and port procedures – Customs clearance		
	Total Lecture hours	**60 hours**

Text Book(s)	
1	Export-What, Where, How, Paras Ram and Nikhil K. Garg, Anupam Publishers, New Delhi, 2016.
2	Export Import Procedures - Documentation and Logistics, C. New Age International (P) Limited, Rama Gopal, 2006.
3	Export/Import Procedures and Documentation, Thomas E. Johnson and Donna Bade, AMACOM, 2010.
Reference Books	
1	Managing the Quality in Apparel Industries, Pradeep V Mehta, New Age International (P) Ltd, New Delhi, 1998.
2	Export Import Procedures and Documentation, Khushpat S. Jain, Himalaya Publishing House, 2010.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	http://rafael.glendale.edu/poorna/ib/seyoum%20book.pdf
2	https://www.shippingsolutions.com/export-documentation-procedure
3	https://www.civilserviceindia.com/subject/Management/notes/export-import-procedures.html
Course Designed By: V. Kavitha	

COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**
CO1	L	M	M	M	M	L
CO2	L	S	M	S	M	L
CO3	L	M	M	M	M	L
CO4	L	S	M	S	M	L
CO5	L	S	M	S	M	L

*S-Strong; M-Medium; L-Low

Course code	6EG	APPAREL QUALITY MANAGEMENT	L	T	P	C
Elective		Paper III – C	-	4	-	4
Prerequisites		Knowledge about Garment quality Parameters	Syllabus Version	2020-2021		

Course Objectives:

The main objectives of this course are to:

1. Inculcate knowledge in the field of quality parameters
2. Plan and execute the application of quality standards in garment industry.
3. Analyze the improvement methods in the TQM techniques.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

CO1	Relate quality parameters for yarn and fabric	K3
CO2	Identify the inspection methods for different stages.	K2
CO3	Analyse the principles in TQM	K4
CO4	Discover ISO standards for garment industry and implement it.	K3
CO5	Classify the ISO documentation	K2

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Quality Parameters in the Apparel Industry	12 hours

Meaning of quality, testing and standard and their importance in apparel industry – Quality terminologies- Sources of international standards. Quality Parameters of yarn :Yarn evenness & hairiness and their effect on fabric quality. Quality parameters of fabric: Brief study of fabric pilling resistance, bursting strength, colour fastness and dimensional stability. Testing of sewing threads, zippers, fusible interlinings, buttons and fasteners.

Unit:2	Fabric Inspection	12 hours

Inspection: Incoming and raw material inspection: Fabric inspection – 4-point system. In process/ on-line inspection: Advantages – On line inspection during spreading, pattern making, cutting, sewing and ironing. Final inspection: Sampling plans and AQL charts – Level of final inspection. Packing & packaging quality tests. Care labeling and international care symbols.

Unit:3	Total Quality Management	12 hours

Principles of TQM – Demings PGDCA Cycle - KAIZAN concepts – 5 „S applications in apparel industry. Application of seven QC tools in apparel industry.

Unit:4	Quality Standards	12 hours

Understanding of ISO 9001:2000 standards: QMS, management responsibility, resource management, product realization and measurement analysis & improvement – Various documents required for ISO 9001:2000 implementation and its contents – Development of quality system manual for garment industry.

Unit:5	Quality Audit	12 hours

Documented procedures required for ISO 9001:2000 implementation – Procedures for internal quality audit – Management review meeting – Certification process – Surveillance audit.

	Total Lecture hours	**60 hours**
Text Book(s)		
1	ISO 9000 Quality Management System, D.L.Shah Trust, DL Shah Trust Publication, 1999	
2	Managing the Quality in Apparel Industries, Pradeep V Mehta, New Age International (P) Ltd, New Delhi – 1998.	
3	An Introduction to Quality Control for the Apparel Industry, Pradip V. Mehta, J.S.N. International, 1985.	
4	Quality Characterisation of Apparel, Subrata Das, Woodhead Publishing, 2009	
5	The Fundamentals of Quality Assurance in the Textile Industry, Stanley Bernard Brahams, CRC Press, 2016.	
Reference Books		
1	Quality Management Handbook for the Apparel Industry, Pradip V. Mehta, New Age International Publishers, 2012.	
2	Kothari V.K. Testing and Quality Management, IAFL Publications, New Delhi, 1999.	
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]		
1	http://content.inflibnet.ac.in/data-server/eacharya-documents/56b0853a8ae36ca7bfe81449_INFIEP_79/12/ET/79-12-ET-V1-S1__unit_7.pdf	
2	https://textilelearner.blogspot.com/2011/08/quality-control-system-in-garments_2589.html	
3	https://fashion2apparel.blogspot.com/2017/02/quality-control-apparel-industry.html	
Course Designed By: Dr. S. Grace Annapoorani		

COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**
CO1	L	L	S	S	S	S
CO2	L	L	S	S	S	S
CO3	L	L	S	S	S	S
CO4	M	M	S	S	S	S
CO5	M	M	S	S	S	S

*S-Strong; M-Medium; L-Low

Annexure

B. Sc. Costume Design and Fashion

Syllabus

(With effect from 2020-21)

Program Code : 22T

Bharathiar University
(A State University, Accredited with "A" Grade by NAAC and
13th Rank among Indian Universities by MHRD-NIRF)
Coimbatore 641 046, INDIA

BACHELOR OF COMPUTER APPLICATIONS

Syllabus

AFFILIATED COLLEGES

Program Code: 22J

2020 – 2021 onwards

BHARATHIAR UNIVERSITY

(A State University, Accredited with "A" Grade by NAAC,
Ranked 13th among Indian Universities by MHRD-NIRF,
World Ranking : Times - 801-1000, Shanghai - 901-1000, URAP - 982)

Coimbatore - 641 046, Tamil Nadu, India

Program Educational Objectives (PEOs)	
The **BCA** program describe accomplishments that graduates are expected to attain within five to seven years after graduation	
PEO 1	To impart advance knowledge about various sub-domains related to the field of computer applications
PEO 2	To provide the strong character to uphold the spiritual and cultural values of our country to make students acceptable to both industries and higher education.
PEO 3	Graduates will be capable of attaining higher position in their professional carrier, capable to do quality research by strengthening their mathematical, scientific and basic engineering fundamentals.
PEO 4	Graduate will be capable of adopting the changing technologies, tools, and industrial environment.
PEO 5	Graduates will promote collaborative learning and spirit of team work through multidisciplinary projects and diverse professional activities.

Program Specific Outcomes (PSOs)	
After the successful completion of BCA program, the students are expected to	
PSO 1	Develop proficiency in problem solving and logical thinking skill.
PSO 2	To impart the knowledge of programming languages, web designing, networking and Software development cycle.
PSO 3	Enrich the communicative ability to present orally throughout all the stages of Software development process
PSO 4	Learn latest development and technologies in IT and Communications system.
PSO 5	Implementation of professional engineering solutions for the betterment of society keeping the environmental context in mind, be aware of professional ethics and be able to communicate effectively.

Program Outcomes (POs)	
On successful completion of the BCA program	
PO1	**Disciplinary knowledge:** Capable to apply the knowledge of mathematics, algorithmic principles and computing fundamentals in the modeling and design of computer based systems of varying complexity.
PO2	**Scientific reasoning**/ **Problem analysis**: Ability to critically analyze, categorizes, formulate and solve the problems that emerges in the field of computer science.
PO3	**Problem solving:** Able to provide software solutions for complex scientific and business related problems or processes that meet the specified needs with appropriate consideration for the public health and safety and the cultural, societal and environmental considerations.
PO4	**Environment and sustainability:** Understand the impact of software solutions in environmental and societal context and strive for sustainable development.
PO5	**Modern tool usage:** Use contemporary techniques, skills and tools necessary for integrated solutions.
PO6	**Ethics:** Function effectively with social, cultural and ethical responsibility as an individual or as a team member with positive attitude.
PO7	**Cooperation / Team Work:** Function effectively as member or leader on multidisciplinary teams to accomplish a common objective.
PO8	**Communication Skills:** An ability to communicate effectively with diverse types of audience and also able to prepare and present technical documents to different groups.
PO9	**Self-directed and Life-long Learning:** Graduates will recognize the need for self-motivation to engage in lifelong learning to be in par with changing technology.
PO10	Enhance the research culture and uphold the scientific integrity and objectivity

BHARATHIAR UNIVERSITY: : COIMBATORE 641 046

B.C.A Curriculum

(For the students admitted during the academic year 2020 – 21 onwards)

Course Code	Title of the Course	Credits	Hours		Maximum Marks		
			Theory	Practical	CIA	ESE	Total
FIRST SEMESTER							
	Language – I	4	6		25	75	100
	English – I	4	6		25	75	100
	Core 1: Computing Fundamentals and C Programming	4	4		25	75	100
	Core 2: Digital Fundamentals and Computer Architecture	4	4		25	75	100
	Core Lab 1: Programming Lab – C	4		3	40	60	100
	Allied 1: Mathematical Structures for Computer Science	4	5		25	75	100
	Environmental Studies #	2	2		-	50	50
	Total	**26**	**27**	**3**	**165**	**485**	**650**
SECOND SEMESTER							
	Language – II	4	6		25	75	100
	English – II	4	6		25	75	100
	Core 3: C++ Programming	4	5		25	75	100
	Core Lab 2: Programming Lab – C++	4		4	40	60	100
	Core Lab 3: Internet Basics	2		2	20	30	50
	Allied 2: Discrete Mathematics	4	5		25	75	100
	Value Education – Human Rights #	2	2		-	50	50
	Total	**24**	**24**	**6**	**160**	**440**	**600**
THIRD SEMESTER							
	Core 4: Data Structures	4	6		25	75	100
	Core 5: Java Programming	4	6		25	75	100
	Core Lab 4: Programming Lab – Java	4		5	25	75	100
	Allied 3: Computer Based Optimization Techniques	4	6		25	75	100
	Skill based Subject 1 : Web Programming	3	5		20	55	75
	Tamil @/ Advanced Tamil (OR) Non-major elective-1 (Yoga for Human Excellence)# / Women's Rights#	2	2		-	50	50
	Total	**21**	**25**	**5**	**120**	**405**	**525**

FOURTH SEMESTER							
	Core 6: System Software and Operating System	4	6		25	75	100
	Core 7: Linux and Shell Programming	4	6		25	75	100
	Core Lab 5: Linux and Shell Programming Lab	4		6	40	60	100
	Allied 4: Business Accounting	4	6		25	75	100
	Skill based subject 2 (lab) : Web Programming - Lab	3	4		30	45	75
	Tamil @/ Advanced Tamil (OR) Non-major elective-II (General Awareness) #	2	2		-	50	50
	Total	**21**	**24**	**6**	**145**	**380**	**525**
FIFTH SEMESTER							
	Core 8: RDBMS & Oracle	4	6		25	75	100
	Core 9: Visual Basic	4	6		25	75	100
	Core Lab 6: Programming Lab – VB & Oracle	4		6	40	60	100
	Elective-I Introduction to Compiler Design / PHP & Scripting Language / PYTHON Programming	4	6		25	75	100
	Skill based Subject 3: CASE Tools Concepts and Applications	3	6		20	55	75
	Total	**19**	**24**	**6**	**135**	**340**	**475**
SIXTH SEMESTER							
	Core 10: Graphics & Multimedia	4	5		25	75	100
	Core 11: Project Work Lab %%	8	5		-	200	200
	Core Lab 7: Programming Lab – Graphics & Multimedia	4		6	40	60	100
	Elective-II : Computer Networks / Dot Net programming / Distributed Computing	4	5		25	75	100
	Elective-III : Internet of Things (IoT) / Web Services / Software Testing	4	5		25	75	100
	Skill based Subject 4 (lab) : CASE Tools Lab	3		4	30	45	75
	Extension Activities	2			50	-	50
	Total	**29**	**20**	**10**	**195**	**530**	**725**
	Grand Total	**140**	**144**	**36**	**920**	**2580**	**3500**
ONLINE COURSES							

First Semester

Course code		Computing Fundamentals and C Programming	L	T	P	C
Core/Elective/Supportive		Core Paper: 1	4	0	0	4
Pre-requisite		Students should have basic Computer Knowledge	Syllabus Version		2020-21 Onwards	

Course Objectives:

The main objectives of this course are to:

1. To impart knowledge about Computer fundamentals
2. To understand the concepts and techniques in C Programming
3. To equip and indulge themselves in problem solving using C

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Learn about the Computer fundamentals and the Problem solving	**K2**
2	Understand the basic concepts of C programming	**K2**
3	Describe the reason why different decision making and loop constructs are available for iteration in C	**K3**
4	Demonstrate the concept of User defined functions , Recursions , Scope and Lifetime of Variables, Structures and Unions	**K4**
5	Develop C programs using pointers Arrays and file management	**K3**

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Fundamentals of Computers & Problem Solving in C	12 hours

Fundamentals of Computers : Introduction – History of Computers-Generations of Computers-Classification of Computers-Basic Anatomy of a Computer System-Input Devices-Processor-Output Devices-Memory Management – Types of Software- Overview of Operating System-Programming Languages-Translator Programs-Problem Solving Techniques - Overview of C.

Unit:2	Overview of C	15 hours

Overview of C - Introduction - Character set - C tokens - keyword & Identifiers - Constants - Variables - Data types - Declaration of variables - Assigning values to variables - Defining Symbolic Constants - Arithmetic, Relational, Logical, Assignment, Conditional, Bitwise, Special, Increment and Decrement operators - Arithmetic Expressions - Evaluation of expression - precedence of arithmetic operators - Type conversion in expression – operator precedence & associativity - Mathematical functions - Reading & Writing a character - Formatted input and output.

Unit:3	Decision Making , Looping and Arrays	15 hours

Decision Making and Branching: Introduction – if, if….else, nesting of if …else statements- else if ladder – The switch statement, The ?: Operator – The goto Statement. Decision Making and Looping: Introduction- The while statement- the do statement – the for statement-jumps in loops. Arrays – Character Arrays and Strings

Unit:4	User-Defined Functions, Structures and Unions	15 hours

User-Defined Functions: Introduction – Need and Elements of User-Defined Functions-Definition-Return Values and their types - Function Calls – Declarations – Category of

Functions- Nesting of Functions - Recursion – Passing Arrays and Strings to Functions - The Scope, Visibility and Lifetime of Variables- Multi file Programs. Structures and Unions		
Unit:5	**Pointers & File Management**	**15 hours**
Pointers: Introduction-Understanding pointers -Accessing the address of a variable Declaration and Initialization of pointer Variable – Accessing a variable through its pointer Chain of pointers- Pointer Expressions – Pointer Increments and Scale factor- Pointers and Arrays- Pointers and Strings – Array of pointers – Pointers as Function Arguments Functions returning pointers – Pointers to Functions – Pointers and Structures. File Management in C.		
Unit:6	**Contemporary Issues**	**3 hours**
Problem Solving through C Programming - Edureka		
	Total Lecture hours	**75 hours**

Text Book(s)	
1	E Balagurusamy: Computing Fundamentals & C Programming – Tata McGraw-Hill, Second Reprint 2008
Reference Books	
1	Ashok N Kamthane: Programming with ANSI and Turbo C, Pearson, 2002.
2	Henry Mullish & Hubert L.Cooper: The Sprit of C, Jaico, 1996.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	Introduction to Programming in C – NPTEL
2	Problem solving through Programming in C – SWAYAM
3	C for Everyone : Programming Fundamentals – Coursera
Course Designed By:	

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	S	M	M	M	S	M	S	L
CO2	S	M	S	M	M	L	S	L	S	L
CO3	S	S	S	M	M	M	S	M	S	M
CO4	S	S	S	M	S	M	S	M	S	M
CO5	S	S	S	M	M	M	S	M	S	M

*S-Strong; M-Medium; L-Low

Course code		Digital Fundamentals and Computer Architecture	L	T	P	C
Core/Elective/Supportive		Core Paper : 2	4	0	-	4
Pre-requisite		Students should have basic computer knowledge	Syllabus Version	2020-21 Onwards		

Course Objectives:

On successful completion of this subject the students should have Knowledge on

1. To familiarize with different number systems and digital arithmetic & logic circuits
2. To understand the concepts of Combinational Logic and Sequential Circuits
3. To impart the knowledge of buses, I/O devices, flip flops, Memory and bus structure.
4. To understand the concepts of memory hierarchy and memory organization
5. To understand the various types of microprocessor architecture

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Learn the basic structure of number system methods like binary, octal and hexadecimal and understand the arithmetic and logical operations are performed by computers.	K3
2	Define the functions to simplify the Boolean equations using logic gates.	K1
3	Understand various data transfer techniques in digital computer and control unit operations.	K2
4	Compare the functions of the memory organization	K4
5	Analyze architectures and computational designs concepts related to architecture organization and addressing modes	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Number System and Arithmetic circuits	12 hours

Number System and Binary Codes: Decimal, Binary, Octal, Hexadecimal – Binary addition, Multiplication, Division – Floating point representation, Complements, BCD, Excess3, Gray Code. Arithmetic Circuits: Half adder, Full adder, Parallel binary adder, BCD adder, Half subtractor, Full subtractor, Parallel binary subtractor - Digital Logic: The Basic Gates – NOR, NAND, XOR Gates.

Unit:2	Combinational Logic and Sequential Circuits	14 hours

Combinational Logic Circuits: Boolean algebra – Karnaugh map – Canonical form Construction and properties – Implementations – Don't care combinations - Product of sum, Sum of products, Simplifications. Sequential circuits: Flip-Flops: RS, D, JK, and T - Multiplexers – Demultiplexers – Decoder Encoder – Shift Registers-Counters.

Unit:3	Input – Output Organization and Data Transfer	12 hours

Input – Output Organization: Input – output interface – I/O Bus and Interface – I/O Bus Versus Memory Bus – Isolated Versus Memory – Mapped I/O – Example of I/O Interface. Asynchronous data transfer: Strobe Control and Handshaking – Priority Interrupt: Daisy- Chaining Priority, Parallel Priority Interrupt. Direct Memory Access: DMA Controller, DMA Transfer. Input – Output Processor: CPU-IOP Communication.

Unit:4	Memory Organization	10 hours

Memory Organization: Memory Hierarchy – Main Memory- Associative memory: Hardware

Organization, Match Logic, Read Operation, Write Operation. Cache Memory: Associative, Direct, Set-associative Mapping – Writing into Cache Initialization. Virtual Memory: Address Space and Memory Space, Address Mapping Using Pages, Associative Memory, Page Table, Page Replacement.		
Unit:5	**Case Studies**	**6 hours**
CASE STUDY: Pin out diagram, Architecture, Organization and addressing modes of 80286-80386-80486-Introduction to microcontrollers.		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**56 hours**

Text Book(s)	
1	Digital principles and applications, Albert Paul Malvino, Donald P Leach, TMH, 1996.
2	Computer System Architecture -M. Morris Mano , PHI.
3	Microprocessors and its Applications-Ramesh S. Goankar
Reference Books	
1	Digital Electronics Circuits and Systems, V.K. Puri, TMH.
2	Computer Architecture, M. Carter, Schaum‘s outline series, TMH.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://nptel.ac.in/courses/106/103/106103068/
2	http://www.nptelvideos.in/2012/12/digital-computer-organization.html
3	http://brittunculi.com/foca/materials/FOCA-Chapters-01-07-review-handout.pdf
Course Designed By:	

Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	S	M	S	M	S	M	M	L
CO2	S	M	S	M	M	S	M	M	M	L
CO3	S	S	S	M	S	S	S	M	M	M
CO4	S	S	S	S	S	S	S	M	S	S
CO5	S	S	S	S	S	S	S	M	S	S

*S-Strong; M-Medium; L-Low

Course code		Programming Lab – C	L	T	P	C
Core/Elective/Supportive		Core Lab: 1	0	0	3	4
Pre-requisite		Students should have basic knowledge in C programming and algorithms	Syllabus Version		2020-21 Onwards	

Course Objectives:

The main objectives of this course are to:

1. To practice the Basic concepts, Branching and Looping Statements and Strings in C programming
2. To implement and gain knowledge in Arrays, functions, Structures, Pointers and File handling

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Remember and Understand the logic for a given problem and to generate Prime numbers & Fibonacci Series **(Program-1,2,3)**	**K1, K2**
2	Apply the concepts to print the Magic square, Sorting the data , Strings, Recursive functions and Pointers **(Program-4,5,6,8,10)**	**K2, K3**
3	Remember the logic used in counting the vowels in a sentence **(Program-7)**	**K1**
4	Apply and Analyze the concepts of Structures and File management **(Program-9,11,12)**	**K3&K4**

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Programs	**36 hours**
1. Write a C program to find the sum, average, standard deviation for a given set of numbers.	
2. Write a C program to generate n prime numbers.	
3. Write a C program to generate Fibonacci series.	
4. Write a C program to print magic square of order n where n > 3 and n is odd.	
5. Write a C program to sort the given set of numbers in ascending order.	
6. Write a C program to check whether the given string is a palindrome or not using pointers.	
7. Write a C program to count the number of Vowels in the given sentence.	
8. Write a C program to find the factorial of a given number using recursive function.	
9. Write a C program to print the students Mark sheet assuming roll no, name, and marks in 5 subjects in a structure. Create an array of structures and print the mark sheet in the university pattern.	
10. Write a function using pointers to add two matrices and to return the resultant matrix to the calling function.	
11. Write a C program which receives two filenames as arguments and check whether the file contents are same or not. If same delete the second file	
12. Write a program which takes a file as command line argument and copy it to another file. At the end of the second file write the total i) no of chars ii) no. of words and iii) no. of lines.	
Total Lecture hours	**36 hours**

Text Book(s)

1	E Balagurusamy: Computing Fundamentals & C Programming – Tata McGraw-Hill, Second Reprint 2008

Reference Books

1	Ashok N Kamthane: Programming with ANSI and Turbo C, Pearson, 2002.
2	Henry Mullish & Hubert L.Cooper: The Sprit of C, Jaico, 1996.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	Introduction to Programming in C – NPTEL
2	Problem solving through Programming in C – SWAYAM
3	C for Everyone : Programming Fundamentals – Course
Course Designed By:	

Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	S	M	L	M	S	S	S	L
CO3	S	S	S	M	L	M	S	S	S	M
CO3	S	S	S	L	L	M	S	S	S	L
CO4	S	S	S	M	L	M	S	S	S	M

*S-Strong; M-Medium; L-Low

Second Semester

Course code		C++ PROGRAMMING	L	T	P	C
Core/Elective/Supportive		Core: 3	5	0	0	4
Pre-requisite		Before starting this course one should have a basic understanding of computer programs and computer programming language. If you know the concepts of C programming it will be much easier to understand this course	Syllabus Version		2020-21 Onwards	

Course Objectives:

The main objectives of this course are to:

1. Impart knowledge of object oriented programming concepts and implement them in C++
2. Enable to differentiate procedure oriented and object-oriented concepts.
3. Equip with the knowledge of concept of Inheritance so that learner understands the need of inheritance.
4. Explain the importance of data hiding in object oriented programming

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Define the different programming paradigm such as procedure oriented and object oriented programming methodology and conceptualize elements of OO methodology	K1
2	Illustrate and model real world objects and map it into programming objects for a legacy system.	K2
3	Identify the concepts of inheritance and its types and develop applications using overloading features.	K3
4	Discover the usage of pointers with classes	K4
5	Explain the usage of Files, templates and understand the importance of exception Handling	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	INTRODUCTION TO C++	10 hours

Key concepts of Object-Oriented Programming –Advantages – Object Oriented Languages – I/O in C++ - C++ Declarations. Control Structures: - Decision Making and Statements: If.. Else, jump, goto, break, continue, Switch case statements - Loops in C++: for, while, do - functions in C++ - inline functions – Function Overloading..

Unit:2	CLASSES AND OBJECTS	10 hours

Declaring Objects – Defining Member Functions – Static Member variables and functions – array of objects –friend functions – Overloading member functions – Bit fields and classes – Constructor and destructor with static members.

Unit:3	OPERATOR OVERLOADING	12 hours

Overloading unary, binary operators – Overloading Friend functions – type conversion – Inheritance: Types of Inheritance – Single, Multilevel, Multiple, Hierarchal, Hybrid, Multi path

inheritance – Virtual base Classes – Abstract Classes.		
Unit:4	**POINTERS**	**13 hours**
Declaration – Pointer to Class , Object – this pointer – Pointers to derived classes and Base classes – Arrays – Characteristics – array of classes – Memory models – new and delete operators – dynamic object – Binding, Polymorphism and Virtual Functions.		
Unit:5	**FILES**	**13 hours**
File stream classes – file modes – Sequential Read / Write operations – Binary and ASCII Files – Random Access Operation – Templates – Exception Handling - String – Declaring and Initializing string objects – String Attributes – Miscellaneous functions .		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**60 hours**

Text Book(s)

1	Ashok N Kamthane, Object-Oriented Programming with Ansi And Turbo C++, Pearson Education, 2003.

Reference Books

1	E. Balagurusamy, Object-Oriented Programming with C++, TMH, 1998.
2	Maria Litvin & Gray Litvin, C++ for you, Vikas publication, 2002.
3	John R Hubbard, Programming with C, 2nd Edition, TMH publication, 2002.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://www.spoken-tutorial.org
2	https://www.tutorialspoint.com/cplusplus/index.htm
3	https://www.w3schools.com/cpp/

Course Designed By:

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	S	M	M	M	M	M	M	L
CO2	S	S	S	S	S	S	S	M	M	M
CO3	S	S	S	S	S	S	S	M	M	M
CO4	S	S	S	S	S	S	S	M	M	S
CO5	S	S	S	S	S	S	S	M	M	S

*S-Strong; M-Medium; L-Low

Course code		PROGRAMMING LAB - C++	L	T	P	C
Core/Elective/Supportive		Core Lab : 2	0	0	4	4
Pre-requisite		Basic understanding of computer programs and computer programming language like C.	Syllabus Version		2020-21 Onwards	

Course Objectives:

The main objectives of this course are to:

1. Impart knowledge of object oriented programming concepts and implement them in C++
2. Enable to differentiate procedure oriented and object-oriented concepts.
3. Equip with the knowledge of concept of Inheritance so that learner understands the need of inheritance.
4. Explain the importance of data hiding in object oriented programming

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Define the different programming paradigm such as procedure oriented and object oriented programming methodology and conceptualize elements of OO methodology	K1
2	Illustrate and model real world objects and map it into programming objects for a legacy system.	K2
3	Identify the concepts of inheritance and its types and develop applications using overloading features.	K3
4	Discover the usage of pointers with classes	K4
5	Explain the usage of Files, templates and understand the importance of exception Handling	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Programs	**36 hours**

1. Write a C++ Program to create a class to implement the data structure STACK. Write a constructor to initialize the TOP of the STACK. Write a member function PUSH() to insert an element and member function POP() to delete an element check for overflow and underflow conditions..
2. Write a C++ Program to create a class ARITHMETIC which consists of a FLOAT and an INTEGER variable. Write member functions ADD (), SUB(), MUL(), DIV() to perform addition, subtraction, multiplication, division respectively. Write a member function to get and display values.
3. Write a C++ Program to read an integer number and find the sum of all the digits until it reduces to a single digit using constructors, destructors and inline member functions.
4. Write a C++ Program to create a class FLOAT that contains one float data member. Overload all the four Arithmetic operators so that they operate on the object FLOAT
5. Write a C++ Program to create a class STRING. Write a Member Function to initialize, get and display stings. Overload the operators ++ and == to concatenate two Strings and to compare two strings respectively.
6. Write a C++ Program to create class, which consists of EMPLOYEE Detail like E_Number, E_Name, Department, Basic, Salary, Grade. Write a member function to get and display them.

	Derive a class PAY from the above class and write a member function to calculate DA, HRA and PF depending on the grade.
7.	Write a C++ Program to create a class SHAPE which consists of two VIRTUAL FUNCTIONS Calculate_Area() and Calculate_Perimeter() to calculate area and perimeter of various figures. Derive three classes SQUARE, RECTANGLE, TRIANGE from class Shape and Calculate Area and Perimeter of each class separately and display the result.
8.	Write a C++ Program to create two classes each class consists of two private variables, a integer and a float variable. Write member functions to get and display them. Write a FRIEND Function common to both classes, which takes the object of above two classes as arguments and the integer and float values of both objects separately and display the result.
9.	Write a C++ Program using Function Overloading to read two Matrices of different Data Types such as integers and floating point numbers. Find out the sum of the above two matrices separately and display the sum of these arrays individually.
10.	Write a C++ Program to check whether the given string is a palindrome or not using Pointers
11.	Write a C++ Program to create a File and to display the contents of that file with line numbers.
12.	Write a C++ Program to merge two files into a single file.
Text Book(s)	
1	Ashok N Kamthane, Object-Oriented Programming with Ansi And Turbo C++, Pearson Education, 2003.
Reference Books	
1	E. Balagurusamy, Object-Oriented Programming with C++, TMH, 1998.
2	Maria Litvin & Gray Litvin, C++ for you, Vikas publication, 2002.
3	John R Hubbard, Programming with C, 2nd Edition, TMH publication, 2002.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	
2	
3	
Course Designed By:	

Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	S	M	M	M	M	M	M	L
CO2	S	S	S	S	S	S	S	M	M	M
CO3	S	S	S	S	S	S	S	M	M	M
CO4	S	S	S	S	S	S	S	M	M	S
CO5	S	S	S	S	S	S	S	M	M	S

Course code		Internet Basics	L	T	P	C
Core/Elective/Supportive		Core Lab : 3	0	0	2	2
Pre-requisite		Knowledge of WINDOWS Operating Systems	Syllabus Version		2020-21 Onwards	

Course Objectives:

The main objectives of this course are to:

1. Introduce the fundamentals of Internet and the Web functions.
2. Impart knowledge and essential skills necessary to use the internet and its various components.
3. Find, evaluate, and use online information resources.
4. Use Google Apps for education effectively.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the fundamentals of Internet and the Web concepts	K2
2	Explain the usage of internet concepts and analyze its components.	K2
3	Identify and apply the online information resources	K3
4	Inspect and utilize the appropriate Google Apps for education effectively	K3, K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Programs	**36 hours**
1. Create an email account in Gmail. Using the account created compose a mail to invite other college students for your college fest, enclose the invitation as attachment and send the mail to at least 50 recipients. Use CC and BCC options accordingly.	
2. Open your inbox in the Gmail account created, check the mail received from your peer from other college inviting you for his college fest, and download the invitation. Reply to the mail with a thank you note for the invite and forward the mail to other friends.	
3. Assume that you are studying in final year of your graduation and are eagerly looking for a job. Visit any job portal and upload your resume.	
4. Create a meeting using Google calendar and share meeting id to the attendees. Transfer the ownership to the Manager once the meeting id is generated.	
5. Create a label and upload bulk contacts using import option in Google Contacts.	
6. Create your own Google classroom and invite all your friends through email id. Post study material in Google classroom using Google drive. Create a separate folder for every subject and upload all unit wise E-Content Materials.	
7. Create and share a folder in Google Drive using ‘share a link’ option and set the permission to access that folder by your friends only.	
8. Create one page story in your mother tongue by using voice recognition facility of Google docs.	
9. Create a registration form for your Department Seminar or Conference using Google Forms.	
10. Create a question paper with multiple choice types of questions for a subject of your choice, using Google Forms.	
11. Create a Google form with minimum 25 questions to conduct a quiz and generate a certificate after submission.	

12. Create a meet using Google Calendar and record the meet using Google Meet.
13. Create a Google slides for a topic and share the same with your friends.
14. Create template for a seminar certificate using Google Slides.
15. Create a sheet to illustrate simple mathematical calculations using Google Sheets.
16. Create student's internal mark statement and share the Google sheets via link.
17. Create different types of charts for a range in CIA mark statement using Google Sheets.
18. Create a mark statement in Google Sheets and download it as PDF, .xls and .csv files.

Text Book(s)	
1	Ian Lamont, Google Drive & Docs in 30 Minutes, 2nd Edition.
2	

Reference Books	
1	Sherry Kinkoph Gunter, My Google Apps, 2014.
2	
3	

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://www.youtube.com/watch?v=NzPNk44tdlQ
2	https://www.youtube.com/watch?v=PKuBtQuFa-8
4	https://www.youtube.com/watch?v=hGER1hP58ZE

Course Designed By:

Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	M	S	S	S	S	M	M	S	L
CO2	S	M	S	S	S	S	S	S	S	M
CO3	S	S	S	S	S	S	S	S	S	S
CO4	S	S	S	S	S	S	S	S	S	S

*S-Strong; M-Medium; L-Low


Third
Semester

Course code		Data Structures	L	T	P	C
Core/Elective/Supportive		Core: 4	6	0	0	4
Pre-requisite		Basic understanding of Data storage, retrieval and algorithms.	Syllabus Version		2020-21 Onwards	

Course Objectives:

The main objectives of this course are to:

1. To introduce the fundamental concept of data structures
2. To emphasize the importance of data structures in developing and implementing efficient algorithms.
3. Understand the need for Data Structures when building application
4. Ability to calculate and measure efficiency of code
5. Improve programming logic skills.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the basic concepts of data structures and algorithms	K1-K2
2	Construct and analyze of stack and queue operations with illustrations	K2-K4
3	Enhance the knowledge of Linked List and dynamic storage management.	K2-K3
4	Demonstrate the concept of trees and its applications	K2-K3
5	Design and implement various sorting and searching algorithms for applications and understand the concept of file organizations	K1-K4

K1 – Remember; **K2** – Understand; **K3** – Apply; **K4** – Analyze; **K5** – Evaluate; **K6** – Create

Unit:1	INTRODUCTION	15 hours

Introduction of Algorithms, Analysing Algorithms. Arrays: Sparse Matrices – Representation of Arrays. Stacks and Queues. Fundamentals – Evaluation of Expression Infix to Postfix Conversion – Multiple Stacks and Queues

Unit:2	LINKED LIST	12 hours

Linked List: Singly Linked List – Linked Stacks and Queues – Polynomial Addition- More on Linked Lists – Sparse Matrices – Doubly Linked List and Dynamic – Storage Management – Garbage Collection and Compaction.

Unit:3	TREES	15 hours

Basic Terminology – Binary Trees – Binary Tree Representations – Binary Trees-Traversal-More On Binary Trees – Threaded Binary Trees – Binary Tree. Representation of Trees – Counting Binary Trees. Graphs: Terminology and Representations-Traversals, Connected Components and Spanning Trees, Shortest Paths and Transitive Closure

Unit:4	EXTERNAL SORTING	15 hours

Storage Devices –Sorting with Disks: K-Way Merging – Sorting with Tapes Symbol Tables: Static Tree Tables – Dynamic Tree Tables – Hash Tables: Hashing Functions – Overflow Handling.

Unit:5	INTERNAL SORTING	15 hours
Insertion Sort – Quick Sort – 2 Way Merge Sort – Heap Sort – Shell Sort – Sorting on Several Keys. Files: Files, Queries and Sequential organizations – Index Techniques –File Organizations.		
Unit:6	**Contemporary Issues**	**3 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**75 hours**

Text Book(s)	
1	Ellis Horowitz, Sartaj Shani, Data Structures, Galgotia Publication.
2	Ellis Horowitz, Sartaj Shani, Sanguthevar Rajasekaran, Computer Algorithms, Galgotia Publication.
3	S.Lovelyn Rose, R.Venkatesan, Data Structures, Wiley India Private Limited,2015, 1st Edition

Reference Books	
1	Jean-Paul,Tremblay & Paul G.Sorenson , An Introduction to Data structures with Applications Tata McGraw Hill Company 2008, 2ndEdition.
2	Samanta.D , Classic Data Structure Prentice Hall of India Pvt Ltd 2007, 9th Edition
3	Seymour Lipschutz, Data Structures McGraw Hill Publications, 2014, 1st Edition

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	
2	
3	

Course Designed By:

Mapping with Programme Outcomes										
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	S	M	M	M	S	M	M	M
CO2	S	S	S	M	M	M	M	M	M	M
CO3	S	S	S	M	S	M	M	M	S	S
CO4	S	S	S	M	S	S	S	S	M	M
CO5	S	S	S	M	M	S	S	M	M	S

*S-Strong; M-Medium; L-Low

Course code		Java Programming	L	T	P	C
Core/Elective/Supportive		Core: 5	6	0	0	4
Pre-requisite		Students Should have the basic understanding of oops concept.	Syllabus Version		2020-21 Onwards	

Course Objectives:

The main objectives of this course are to:

1. To expose the students with the introduction to OOPs and advantages of object oriented programming.
2. The concepts of OOPs make it easy to represent real world entities.
3. The course introduces the concepts of converting the real time problems into objects and methods and their interaction with one another to attain a solution.
4. Simultaneously it provides the syntax of programming language Java for solving the real world problems.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	The competence and the development of small to medium sized application programs that demonstrate professionally acceptable coding	K1-K2
2	Demonstrate the concept of object oriented programming through Java	K2-K4
3	Apply the concept of Inheritance, Modularity, Concurrency, Exceptions handling and data persistence to develop java program	K3
4	Develop java programs for applets and graphics programming	K3
5	Understand the fundamental concepts of AWT controls, layouts and events	K1-K2

K1 – Remember; **K2** – Understand; **K3** – Apply; **K4** – Analyze; **K5** – Evaluate; **K6** – Create

Unit:1	FUNDAMENTALS OF OBJECT-ORIENTED PROGRAMMING	15 hours

Object-Oriented Paradigm – Basic Concepts of Object-Oriented Programming – Benefits of Object-Oriented Programming –Application of Object-Oriented Programming. Java Evolution: History – Features – How Java differs from C and C++ – Java and Internet – Java and www –Web Browsers. Overview of Java: simple Java program – Structure – Java Tokens – Statements – Java Virtual Machine.

Unit:2	BRANCHING AND LOOPING	12 hours

Constants, Variables, Data Types – Operators and Expressions – Decision Making and Branching: if, if...else, nested if, switch, ? : Operator – Decision Making and Looping: while, do, for – Jumps in Loops – Labeled Loops – Classes, Objects and Methods.

Unit:3	ARRAYS AND INTERFACES	15 hours

Arrays, Strings and Vectors – Interfaces: Multiple Inheritance – Packages: Putting Classes together – Multithreaded Programming.

Unit:4	ERROR HANDLING	15 hours

Managing Errors and Exceptions – Applet Programming – Graphics Programming.

Unit:5	**MANAGING INPUT / OUTPUT FILES IN JAVA**	**15 hours**
Concepts of Streams- Stream Classes – Byte Stream classes – Character stream classes – Using streams – I/O Classes – File Class – I/O exceptions – Creation of files – Reading / Writing characters, Byte-Handling Primitive data Types – Random Access Files.		
Unit:6	**Contemporary Issues**	**3 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**75 hours**

Text Book(s)	
1	Programming with Java – A Primer – E. Balagurusamy, 5th Edition, TMH.
2	Herbert Schildt , Java: The Complete Reference, McGraw Hill Education, Oracle Press 10th Edition, 2018
3	Programming with Java – A Primer – E. Balagurusamy, 3rd Edition, TMH.
Reference Books	
1	The Complete Reference Java 2 – Patrick Naughton & Hebert Schildt, 3rd Edition, TMH
2	Programming with Java – John R. Hubbard, 2nd Edition, TMH.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	www.spoken-tutorial.org
2	www.nptel.ac.in
3	https://www.w3schools.in/java-tutorial/
Course Designed By:	

Mapping with Programme Outcomes

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	S	M	S	L	S	M	M	M
CO2	S	S	S	M	S	L	S	M	M	M
CO3	S	S	S	M	S	M	S	S	M	M
CO4	S	S	S	M	S	M	M	S	M	M
CO5	S	S	S	M	S	M	S	S	M	M

*S-Strong; M-Medium; L-Low

Course code		Programming Lab – JAVA	L	T	P	C
Core/Elective/Supportive		Core Lab: 4	0	0	5	4
Pre-requisite		Students should know about the OOPs concept and basic knowledge in java theory.	Syllabus Version		2020-21 Onwards	

Course Objectives:

The main objectives of this course are to:

3. The main objective of JAVA Programming Lab is to provide the students a strong foundation on programming concepts and its applications through hands-on training.
4. To practice the Basic concepts, Branching and Looping Statements and Strings in C programming
5. To implement and gain knowledge in Arrays, functions, Structures, Pointers and File handling

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the basic concepts of Java Programming with emphasis on ethics and principles of professional coding	**K1, K2**
2	Demonstrate the creation of objects, classes and methods and the concepts of constructor, methods overloading, Arrays, branching and looping	**K2**
3	Create data files and Design a page using AWT controls and Mouse Events in Java programming Implement the concepts of code reusability and debugging.	**K2, K3**
4	Develop applications using Strings, Interfaces and Packages and applets	**K3**
5	Construct Java programs using Multithreaded Programming and Exception Handling	**K3**

K1 – Remember; **K2** – Understand; **K3** – Apply; **K4** – Analyze; **K5** – Evaluate; **K6** – Create

Programs	**36 hours**

1. Write a Java Applications to extract a portion of a character string and print the extracted string.
2. Write a Java Program to implement the concept of multiple inheritance using Interfaces.
3. Write a Java Program to create an Exception called payout-of-bounds and throw the exception.
4. Write a Java Program to implement the concept of multithreading with the use of any three multiplication tables and assign three different priorities to them.
5. Write a Java Program to draw several shapes in the created windows.
6. Write a Java Program to create a frame with four text fields name, street, city and pin code with suitable tables. Also add a button called my details. When the button is clicked its corresponding values are to be appeared in the text fields.
7. Write a Java Program to demonstrate the Multiple Selection List-box.
8. Write a Java Program to create a frame with three text fields for name, age and qualification and a text field for multiple line for address
9. Write a Java Program to create Menu Bars and pull down menus.
10. Write a Java Program to create frames which respond to the mouse clicks. For each events with mouse such as mouse up, mouse down, etc., the corresponding message to be

displayed.		
11. Write a Java Program to draw circle, square, ellipse and rectangle at the mouse click positions.		
12. Write a Java Program which open an existing file and append text to that file.		
	Total Lecture hours	**36 hours**
Text Book(s)		
1	Programming with Java – A Primer – E. Balagurusamy, 5th Edition, TMH.	
2	Herbert Schildt , Java: The Complete Reference, McGraw Hill Education, Oracle Press 10th Edition, 2018	
3	Programming with Java – A Primer – E. Balagurusamy, 3rd Edition, TMH.	
Reference Books		
1	The Complete Reference Java 2 – Patrick Naughton & Hebert Schildt, 3rd Edition, TMH	
2	Programming with Java – John R. Hubbard, 2nd Edition, TMH.	
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]		
1	https://www.w3resource.com/java-exercises/	
2	https://www.udemy.com/introduction-to-java-programming/	
3		
Course Designed By:		

Mapping with Programme Outcomes										
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	S	L	S	S	S	M	M	L
CO2	S	S	S	L	S	M	S	M	M	L
CO3	S	S	S	M	S	M	S	M	M	L
CO4	S	S	S	M	S	M	S	S	M	S
CO5	S	S	S	M	S	S	S	S	M	S

*S-Strong; M-Medium; L-Low

Course code		Web Programming	L	T	P	C
Core/Elective/Supportive		Skill based Subject – 1	5	0	0	3
Pre-requisite		Students should have basic knowledge on internet and world wide web.	Syllabus Version		2020-21 Onwards	

Course Objectives:

The main objectives of this course are to:

1. To enhance the knowledge of students in web programming
2. To learn about the scripting languages HTML and its elements
3. To understand concept of DHTML to integrate dynamic web pages
4. To understand XML, CSS and XSL for formatting the web pages

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the basic concepts of Internet, WWW, browsers and Email and protocols.	K1
2	Understand and apply the HTML, HTML elements and formatting styles	K1-K3
3	Knowledge on creating tables, forms and DHTML	K3
4	Understand the structure of XML document, DTD and Schema	K1-K3
5	Knowledge on working with SML, Style sheets and XSL	K1-K4

K1 – Remember; **K2** – Understand; **K3** – Apply; **K4** – Analyze; **K5** – Evaluate; **K6** – Create

Unit:1	Introducation to Internet	15 hours

Introduction to Internet – World Wide Web – Browsers: Introduction – Popular Web Browsers – know your browsers – Electronic Mail : Introduction – E-mail networks and servers – E-mail protocols – Structure of an E-mail.

Unit:2	HTML	12 hours

HTML : Introduction – Getting started – Creating and saving an HTML document – Document Layout of HTML Page – HTML elements – Some other formatting Styles – Hypertext Links.

Unit:3	HTML & DHTML	15 hours

HTML (contd) : URLs – Images – HTML tables – Forms – Special Characters – Metatages. Interactivity Tools and Multimedia : Introduction – DHTML – Scripting Languages – Java – ASP.

Unit:4	XML basics and DTD	15 hours

XML :XML basics – Introduction – need for XML – Advantages – Working with an XML Document – Structure of an XML Document – DTD- XML Schema.

Unit:5	XML Schema and XSL	15 hours

XML (contd) : Working with XML Schema – Declaring Attributes – XML namespaces – Reusing Schema Components – Grouping elements and attributes. XML Style sheets : Introduction – CSS – eXtensible Style Sheet language – Formatting Data based on controls – Displaying data in a Tabular Format.

Unit:6	Contemporary Issues	3 hours
Expert lectures, online seminars – webinars		
	Total Lecture hours	75 hours

Text Book(s)

1	Internet and Web Design, ITL Education, Macmillan India Ltd.
2	HTML and XML an Introduction, NIIT, Prentice Hall of India Pvt. Ltd
3	

Reference Books

1	World Wide Web Design with HTML, C. Xavier, 2007, TMH.
2	

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	
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Course Designed By:

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	S	M	M	M	S	M	S	L
CO2	L	M	S	M	M	L	S	L	S	L
CO3	S	S	L	M	M	M	S	M	S	M
CO4	S	M	S	M	S	M	S	M	S	M
CO5	M	S	S	M	M	M	S	M	S	M

*S-Strong; M-Medium; L-Low

Fourth Semester

Course code		System Software and Operating Systems	L	T	P	C
Core/Elective/Supportive		Core : 6	6	0	0	4
Pre-requisite		Students Should have the basic knowledge in computer.	Syllabus Version		2020-21 Onwards	

Course Objectives:

The main objectives of this course are to:

1. To understand the processing of programs on a computer system to design and implementation of language processor.
2. To enhance the ability of program generation through expansion and gain knowledge about Code optimization using software tools.
3. Students will gain knowledge of basic operating system concepts.
4. To have an in-depth understanding of process concepts, deadlock and memory management.
5. To provide an exposure to scheduling algorithms, devices and information management.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Know the program generation and program execution activities in detail	K1
2	Understand the concepts of Macro Expansions and Gain the knowledge of Editing processes	K2-K3
3	Remember the basic concepts of operating system	K1
4	Understand the concepts like interrupts, deadlock , memory management and file management	K2
5	Analyze the need for scheduling algorithms and implement different algorithms used for representation, scheduling, and allocation in DOS and UNIX operating system.	K1-K4

K1 – Remember; **K2** – Understand; **K3** – Apply; **K4** – Analyze; **K5** – Evaluate; **K6** – Create

Unit:1	INTRODUCTION TO SYSTEM SOFTWARE	12 hours

Introduction–System Software and machine architecture. Loader and Linkers: Basic Loader Functions – Machine dependent loader features –Machine independent loader features – Loader design options

Unit:2	MACHINE AND COMPILER	15 hours

Machine dependent compiler features – Intermediate form of the program – Machine dependent code optimization – Machine independent compiler features – Compiler design options – Division into passes – Interpreters – p-code compilers – Compiler-compilers.

Unit:3	OPERATING SYSTEM	15 hours

What is an Operating System? – Process Concepts: Definition of Process – Process States – Process States Transition – Interrupt Processing – Interrupt Classes – Storage Management: Real Storage: Real Storage Management Strategies – Contiguous versus Non-contiguous storage allocation – Single User Contiguous Storage allocation- Fixed partition multiprogramming – Variable partition multiprogramming.

Unit:4	VIRTUAL STORAGE	15 hours

Virtual Storage: Virtual Storage Management Strategies – Page Replacement Strategies – Working Sets – Demand Paging – Page Size. Processor Management: Job and Processor Scheduling: Preemptive Vs Non-preemptive scheduling – Priorities – Deadline scheduling.		
Unit:5	**DEVICE AND INFORMATION MANAGEMENT**	**15 hours**
Device and Information Management Disk Performance Optimization: Operation of moving head disk storage – Need for disk scheduling – Seek Optimization – File and Database Systems: File System – Functions – Organization – Allocating and freeing space – File descriptor – Access control matrix.		
Unit:6	**Contemporary Issues**	**3 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**75 hours**

Text Book(s)

1	Leland L.Beck, System Software: An Introduction to Systems Programming, Pearson, Third Edition.
2	H.M. Deitel, Operating Systems, 2nd Edition, Perason, 2003.

Reference Books

1	Achy8ut S. Godbole, Operating Systems, TMH, 2002.
2	John J. Donovan, Systems Programming, TMH, 1991.
3	D.M. Dhamdhere, Systems Programming and Operating Systems, 2nd Revised Edition, TMH.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

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Course Designed By:

Mapping with Programme Outcomes

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	M	M	M	S	M	M	M	M	L
CO2	S	S	S	S	S	M	M	M	S	L
CO3	S	M	M	M	S	M	S	S	S	L
CO4	S	S	S	M	S	S	S	M	M	M
CO5	S	S	S	M	S	S	S	M	M	M

*S-Strong; M-Medium; L-Low

Course code		Linux and Shell Programming	L	T	P	C
Core/Elective/Supportive		Core : 7	6	0	0	4
Pre-requisite		Before starting the course students should have the basic knowledge about operating system and C programming.	Syllabus Version		2020-21 Onwards	

Course Objectives:

The main objectives of this course are to:

1. Linux is a multi-user and multi-tasking operating system and after learning the concepts of an operating system
2. Student will be able to write simple shell programming using Linux utilities, pipes and filters.
3. The file system, process management and memory management are discussed.
4. Various commands used by Linux shell is also discussed which makes the users to interact with each other.
5. Bourne shell programming is dealt in depth which can be used to develop applications.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Describe the architecture and features of Linux Operating System and distinguish it from other Operating System.	K1
2	Develop Linux utilities to perform File processing, Directory handling, User Management and display system configuration	K2-K3
3	Develop shell scripts using pipes, redirection, filters and Pipes	K2
4	Apply and change the ownership and file permissions using advance Unix commands.	K3
5	Build Regular expression to perform pattern matching using utilities and implement shell scripts for real time applications.	K3-K6

K1 – Remember; **K2** – Understand; **K3** – Apply; **K4** – Analyze; **K5** – Evaluate; **K6** – Create

Unit:1	INTRODUCTION	12 hours

Introduction to LINUX Operating System: Introduction – The LINUX Operating System.

Unit:2	MANAGING FILES AND DIRECTORIES	15 hours

Managing Files and Directories: Introduction – Directory Commands in LINUX – File Commands in LINUX.

Unit:3	VI EDITOR	15 hours

Creating files using the vi editor: Text editors – The vi editor. Managing Documents: Locating files in LINUX – Standard files – Redirection – Filters – Pipes.

Unit:4	SECURING FILES	15 hours

Securing files in LINUX: File access permissions – viewing File access permissions – Changing File access permissions. Automating Tasks using Shell Scripts: Introduction – Variables- Local and Global Shell variables – Command Substitution.

Unit:5	CONDITIONAL EXECUTION IN SHELL SCRIPTS	15 hours
Using Conditional Execution in Shell Scripts: Conditional Execution – The case…esac Construct. Managing repetitive tasks using Shell Scripts: Using Iteration in Shell Scripts – The while construct – until construct – for construct – break and continue commands – Simple Programs using Shell Scripts.		
Unit:6	**Contemporary Issues**	**3 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**75 hours**

Text Book(s)	
1	Operating System LINUX, NIIT, PHI, 2006, Eastern Economy Edition.
2	N.B. Venkateswarlu , Introduction to Linux: Installation and Programming, BS Publications, 2008, 1st Edition

Reference Books	
1	Richard Petersen, Linux: The Complete Reference, Sixth Edition, Tata McGraw-Hill Publishing Company Limited, New Delhi, Edition 2008.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	http://spoken-tutorial.org/
2	https://www.tutorialspoint.com/linux/index.htm
3	

Course Designed By:

Mapping with Programme Outcomes										
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	M	M	M	S	M	M	M	M	L
CO2	S	S	S	M	S	M	M	M	M	L
CO3	S	S	S	M	S	M	S	S	S	M
CO4	S	S	S	M	S	M	S	S	S	M
CO5	S	S	S	S	S	S	S	S	S	S

*S-Strong; M-Medium; L-Low

Course code		Programming Lab – LINUX and SHELL PROGRAMMING	L	T	P	C
Core/Elective/Supportive		Core Lab: 5	0	0	6	4
Pre-requisite		Students should have the prior basic knowledge in operating system.	Syllabus Version		2020-21 Onwards	

Course Objectives:

The main objectives of this course are to:

1. Describe the architecture and features of Linux Operating System
2. To create programs in the Linux environment using Linux utilities and commands.
3. Student is given an introduction of Linux shell commands and they will be able to write own shell scripts.
4. Shell programming is dealt in depth which can be used to develop applications.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Develop Linux utilities to perform File processing, Directory handling and User Management	**K1, K2**
2	Understand and develop shell scripts using pipes, redirection, filters, Pipes and display system configuration	**K2-K3**
3	Develop simple shell scripts applicable to file access permission network Administration	**K3**
4	Apply and change the ownership and file permissions using advance Unix commands.	**K4-K5**
5	Create shell scripts for real time applications.	**K6**

K1 – Remember; **K2** – Understand; **K3** – Apply; **K4** – Analyze; **K5** – Evaluate; **K6** – Create

Programs	**36 hours**
1. Write a shell script to stimulate the file commands: rm, cp, cat, mv, cmp, wc, split, diff.	
2. Write a shell script to show the following system configuration : a. currently logged user and his log name b. current shell , home directory , Operating System type , current Path setting , current working directory c. show currently logged number of users, show all available shells d. show CPU information like processor type , speed e. show memory information	
3. Write a Shell Script to implement the following: pipes, Redirection and tee commands.	
4. Write a shell script for displaying current date, user name, file listing and directories by getting user choice.	
5. Write a shell script to implement the filter commands.	
6. Write a shell script to remove the files which has file size as zero bytes.	
7. Write a shell script to find the sum of the individual digits of a given number.	
8. Write a shell script to find the greatest among the given set of numbers using command line arguments.	
9. Write a shell script for palindrome checking.	

10. Write a shell script to print the multiplication table of the given argument using for loop.		
	Total Lecture hours	**36 hours**
Text Book(s)		
1	Operating System LINUX, NIIT, PHI, 2006, Eastern Economy Edition.	
2	N.B. Venkateswarlu , Introduction to Linux: Installation and Programming, BS Publications, 2008, 1st Edition	
Reference Books		
1	Richard Petersen, Linux: The Complete Reference, Sixth Edition, Tata McGraw-Hill Publishing Company Limited, New Delhi, Edition 2008.	
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]		
1	https://www.w3resource.com/linux-exercises/	
2	http://spoken-tutorial.org/	
3		
Course Designed By:		

Mapping with Programme Outcomes										
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	S	M	S	M	S	M	M	M
CO3	S	S	S	M	S	M	S	S	M	M
CO3	S	S	S	S	S	S	S	S	S	S
CO4	S	S	S	S	S	S	S	S	S	S
CO5	S	S	S	S	S	S	S	S	S	S

*S-Strong; M-Medium; L-Low

Course code		Lab – Web Programming	L	T	P	C
Core/Elective/Supportive		Skill Based Subject 2 (Lab) :1	0	0	4	3
Pre-requisite		Basic knowledge in internet and basic of html.	Syllabus Version		2020-21 Onwards	

Course Objectives:

The main objectives of this course are to:

1. To gain knowledge about how to develop web applications
2. To create web applications using HTML
3. To create web applications using HTML with Style sheets
4. To design interactive web sites with all the features given in Web programming

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the problems and create applications in basics of web programming	**K2-K4, K6**
2	Understand and develop Web pages with formatting styles.	**K2-K3**
3	Apply the features in HTML to present the details given	**K3**
4	Analyze the problem, apply the concept for developing applications	**K4-K5**
5	Create web sites of real time applications	**K6**

K1 – Remember; **K2** – Understand; **K3** – Apply; **K4** – Analyze; **K5** – Evaluate; **K6** – Create

Programs	**36 hours**

1. Develop a HTML document which displays you name as <h1> heading and displays any four of your friends. Each of your friend's names must appear as hot text. When you click your friend's name, it must open another HTML document, which tells about your friend.
2. Write names of several countries in a paragraph and store it as an HTML document, world.html. Each country name must be a hot text. When you click India (for example), it must open india.html and it should provide a brief introduction about India.
3. Design a HTML document describing you. Assign a suitable background design and background color and a text color.
4. Develop a HTML document to print the following: Who can use the solar heaters? Anybody with a regular hot water demand. In houses for domestic purposes (cooking, bathing and washing). □□For engineering / chemical industries, dairies and textile/leather process plants, to –preheat boiler feed water. For hostels, hospitals, guest houses and industrial canteens. □□For food-processing plants and for process applications.
5. Write a HTML document to print the following: The family has the following facilities: 1. Own House Living area 2400 square feet, Separate bungalow, Car shed, 2 Car Maruti Esteem, Registration Number TN 38 A 9650, 1996 Model, Farm, 35 acres Coconut Groves, 10 acres Mango Groves.
6. Write a HTML document to print your class Time Table.
7. Develop a Complete Web Page using Frames and Framesets which gives the Information

about a Hospital using HTML.		
8. Write a HTML document to print your Bio-Data in the following format: NAME Religion Community Street Town District State Address PIN Code Office Phone Residence Mobile Educational Qualification Degree University/Institute Month& year Grade / Mark		
9. Develop complete set of web pages to describe you skills in various areas using HTML.		
10. Develop a web site to publish your family and the details of each member using HTML.		
11. Develop a HTML document to display a Registration Form for an inter-collegiate function.		
12. Develop a HTML document to design Alumni Registration form of your college.		
	Total Lecture hours	**36 hours**
Text Book(s)		
1	Internet and Web Design, ITL Education, Macmillan India Ltd.	
2	HTML and XML an Introduction, NIIT, Prentice Hall of India Pvt. Ltd	
Reference Books		
1	World Wide Web Design with HTML, C. Xavier, 2007, TMH.	
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]		
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Course Designed By:		

Mapping with Programme Outcomes										
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	S	M	S	M	L	M	M	M
CO3	L	S	M	M	S	M	S	S	M	M
CO3	S	M	S	S	M	S	S	M	S	S
CO4	M	S	S	S	M	S	M	S	S	L
CO5	S	M	L	S	S	M	S	S	M	S

Fifth Semester

Course code		RDBMS & Oracle	L	T	P	C
Core/Elective/ Supportive		Core : 8	6	0	0	4
Pre-requisite		Basic knowledge about the data, table and database in computers	Syllabus Version		2020-21 Onwards	

Course Objectives:

The main objectives of this course are to:

1. The course describes the data, organizing the data in database, database administration.
2. To grasp the different issues involved in the design of a database system.
3. To study the physical and logical database designs and database modeling like relational, Hierarchical, network models, database security, integrity and normalization.
4. It also gives introduction to SQL language to retrieve the data from the database with suitable application development.
5. Provide strong foundation of database concepts and to introduce students to application development in DBMS.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the basic concepts of Relational Data Model, Entity-Relationship Model and process of Normalization	**K1-K2**
2	Understand and construct database using Structured Query Language (SQL) in Oracle9i environment.	**K1-K3**
3	Learn basics of PL/SQL and develop programs using Cursors, Exceptions, Procedures and Functions.	**K1-K4**
4	Understand and use built-in functions and enhance the knowledge of handling multiple tables	**K1-K3**
5	Attain a good practical skill of managing and retrieving of data using Data Manipulation Language (DML)	**K2-K4**

K1 – Remember; **K2** – Understand; **K3** – Apply; **K4** – Analyze; **K5** – Evaluate; **K6** – Create

Unit:1	DATABASE CONCEPTS	15 hours

Database Concepts: A Relational approach: Database – Relationships – DBMS – Relational Data Model – Integrity Rules – Theoretical Relational Languages. Database Design: Data Modeling and Normalization: Data Modeling – Dependency – Database Design – Normal forms – Dependency Diagrams – De –normalization – Another Example of Normalization.

Unit:2	ORACLE9i	15 hours

Oracle9*i*: Overview: Personal Databases – Client/Server Databases – Oracle9i an introduction – SQL *Plus Environment – SQL – Logging into SQL *Plus – SQL *Plus Commands – Errors & Help – Alternate Text Editors – SQL *Plus Worksheet – *i*SQL *Plus. Oracle Tables: DDL: Naming Rules and conventions – Data Types – Constraints – Creating Oracle Table – Displaying Table Information – Altering an Existing Table – Dropping, Renaming, Truncating Table – Table Types – Spooling – Error codes.

Unit:3	WORKING WITH TABLE	15 hours

Working with Table: Data Management and Retrieval: DML – adding a new Row/Record – Customized Prompts – Updating and Deleting an Existing Rows/Records – retrieving Data from

Table – Arithmetic Operations – restricting Data with WHERE clause – Sorting – Revisiting Substitution Variables – DEFINE command – CASE structure. Functions and Grouping: Built-in functions –Grouping Data. Multiple Tables: Joins and Set operations: Join – Set operations.		
Unit:4	**PL/SQL**	**15 hours**
PL/SQL: A Programming Language: History – Fundamentals – Block Structure – Comments – Data Types – Other Data Types – Declaration – Assignment operation – Bind variables – Substitution Variables – Printing – Arithmetic Operators. Control Structures and Embedded SQL: Control Structures – Nested Blocks – SQ L in PL/SQL – Data Manipulation – Transaction Control statements. PL/SQL Cursors and Exceptions: Cursors – Implicit & Explicit Cursors and Attributes – Cursor FOR loops – SELECT…FOR UPDATE – WHERE CURRENT OF clause – Cursor with Parameters – Cursor Variables – Exceptions – Types of Exceptions.		
Unit:5	**PL/SQL COMPOSITE DATA TYPES**	**12 hours**
PL/SQL Composite Data Types: Records – Tables – arrays. Named Blocks: Procedures – Functions – Packages –Triggers –Data Dictionary Views.		
Unit:6	**Contemporary Issues**	**3 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**75 hours**

Text Book(s)	
1	Database Systems using Oracle, Nilesh Shah, 2nd edition, PHI.
2	E-Book : Diana Lorentz, “Oracle® Database SQL Reference”, ORACLE, Dec, 2005.
3	E-Book : Bill Pribyl, Steven Feuerstein, “Oracle PL/SQL Programming”, O’Reilly Media, Inc., 6th Edition, February 2014.
Reference Books	
1	Database Management Systems, Majumdar & Bhattacharya, 2007, TMH.
2	Database Management Systems, Gerald V. Post, 3rd edition, TMH.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	http://www.digimat.in/nptel/courses/video/106105175/L01.html
2	https://www.tutorialspoint.com/oracle_sql/index.htm
Course Designed By:	

Mapping with Programme Outcomes										
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	S	M	S	M	M	M	M	L
CO2	S	S	S	M	S	M	M	M	M	L
CO3	S	S	S	S	S	S	S	S	M	M
CO4	S	S	S	S	S	M	S	S	M	L
CO5	S	S	S	S	S	M	S	S	M	L

*S-Strong; M-Medium; L-Low

Course code		Visual Basic	L	T	P	C
Core/Elective/Supportive		Core : 9	6	0	0	4
Pre-requisite		Knowledge in programming language and oops concept.	Syllabus Version		2020-21 Onwards	

Course Objectives:

The main objectives of this course are to:

1. The main aim of the course is to cover visual basic programming skills required for modern software development.
2. To study the advantages of Controls available with visual basic.
3. To gain a basic understanding of database access and management using data controls.
4. To facilitate the learner to carry out project works using the tools available in VB and MS Access.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Demonstrate fundamental skills in utilizing the tools of a visual environment such as command, menus and toolbars.	**K1**
2	Implement SDI and MDI applications using forms, dialogs and other types of GUI components.	**K2**
3	Understand the connectivity between VB with MS-ACCESS database.	**K3**
4	Implement the methods and techniques to develop projects.	**K4**
5	Attain a good practical skill of managing ODBC and Data Access Objects	**K2-K4**

K1 – Remember; **K2** – Understand; **K3** – Apply; **K4** – Analyze; **K5** – Evaluate; **K6** – Create

Unit:1	INTRODUCTION TO VB	15 hours

Getting Started with VB6, Programming Environment, working with Forms, Developing an application, Variables, Data types and Modules, procedures and control structures, arrays. Working with Controls: Creating and using controls, working with control arrays.

Unit:2	MENUS IN VB	15 hours

Menus, Mouse events and Dialog boxes: Mouse events, Dialog boxes, MDI and Flex grid: MDI, Using the Flex grid control.

Unit:3	ODBC AND DATA ACCESS OBJECTS	15 hours

ODBC and Data Access Objects: Data Access Options, ODBC, Remote data objects, ActiveX EXE and ActiveX DLL: Introduction, Creating an ActiveX EXE Component, Creating ActiveX DLL Component.

Unit:4	OBJECT LINKING AND EMBEDDING	15 hours

Object Linking and Embedding: OLE fundamentals, Using OLE Container Control, Using OLE Automation objects, OLE Drag and Drop, File and File System Control: File System Controls, Accessing Files.

Unit:5	CONTROLS IN VB	12 hours

Additional controls in VB: sstab control, setting properties at runtime, adding controls to tab, list control, tabstrip control, MS Flexgrid control, Why ADO, Establishing a reference, Crystal and

Data reports.		
Unit:6	**Contemporary Issues**	**3 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**75 hours**

Text Book(s)	
1	Visual Basic 6.0 Programming, Content Development Group, TMH, 8th reprint, 2007. **(Unit I to Unit IV)**
2	Programming with Visual Basic 6.0, Mohammed Azam, Vikas Publishing House, Fourth Reprint, 2006. **(Unit V)**
Reference Books	
1	Gray Cornell (2003), "Visual Basic 6 from ground up" TMH, New Delhi, 1st Edition,
2	Deitel and Deitel, T.R.Nieto (1998), "Visual Basic 6 – How to Program", Pearson Education. First Edition.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
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Course Designed By:	

Mapping with Programme Outcomes										
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	S	L	M	M	M	M	M	L
CO2	S	S	S	M	M	M	S	S	M	L
CO3	S	S	S	S	S	M	S	S	S	M
CO4	S	S	S	S	S	S	S	S	S	S
CO5	S	S	S	S	S	S	S	S	S	S

*S-Strong; M-Medium; L-Low

Course code		Programming Lab – VB & Oracle	L	T	P	C
Core/Elective/Supportive		Core Lab : 6	0	0	6	4
Pre-requisite		Students should have the theoretical knowledge in visual basic and oops concept.	Syllabus Version		2020-21 Onwards	

Course Objectives:

The main objectives of this course are to:

1. To develop applications using Graphical User Interface tools.
2. To understand the design concepts.
3. To design and build database systems and demonstrate their competence.
4. To create requirement analysis and specification for software applications.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the concepts of Visual Basic.	**K1**
2	Learn the advantages of Controls in VB	**K2**
3	Design and develop the event- driven applications using Visual Basic framework.	**K3**
4	Apply the knowledge of database methods.	**K4**
5	Learn basics of PL/SQL and develop programs using Cursors, Exceptions, Procedures and Functions	**K6**

K1 – Remember; **K2** – Understand; **K3** – Apply; **K4** – Analyze; **K5** – Evaluate; **K6** – Create

Programs	**36 hours**

1. Construction of an Arithmetic Calculator (Simple).
2. Writing simple programs using loops and decision-making statements.
   a. Generate Fibonacci series.
   b. Find the sum of N numbers.
3. Write a program to create a menu and MDI Forms.
4. Write a program to display files in a directory using DriveListBox, DirListBox and FileListBox control and open, edit and save text file using Rich text box control.
5. Write a program to illustrate Common Dialog Control and to open, edit and save text file.
6. Write a program to implement animation using timers.
7. Write a simple VB program to accept a number as input and convert it into
   a. Binary b. Octal c. Hexa-decimal
8. Create a table for Employee details with Employee Number as primary key and following fields:
   Name, Designation, Gender, Age, Date of Joining and Salary. Insert at least ten rows and perform various queries using any one Comparison, Logical, Set, Sorting and Grouping operators.
9. Write a PL/SQL to update the rate field by 20% more than the current rate in inventory table which has the following fields: Prono, ProName and Rate. After updating the table a new field (Alter) called for Number of item and place for values for the new field without using PL/SQL block.

10. Write a PL/SQL program to implement the concept of Triggers		
11. Write a PL/SQL program to implement the concept "Procedures".		
12. Write a VB program to manipulate the student mark list with oracle database connectivity program.		
	Total Lecture hours	**36 hours**

Text Book(s)	
1	Visual Basic 6.0 Programming, Content Development Group, TMH, 8th reprint, 2007. **(Unit I to Unit IV)**
2	Programming with Visual Basic 6.0, Mohammed Azam, Vikas Publishing House, Fourth Reprint, 2006. **(Unit V)**
3	E-Book : Bill Pribyl, Steven Feuerstein, "Oracle PL/SQL Programming", O'Reilly Media, Inc., 6th Edition, February 2014.
Reference Books	
1	Gray Cornell (2003), "Visual Basic 6 from ground up" TMH, New Delhi, 1st Edition,
2	Deitel and Deitel, T.R.Nieto (1998), "Visual Basic 6 – How to Program", Pearson Education. First Edition.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
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Course Designed By:	

Mapping with Programme Outcomes										
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	S	L	M	L	S	M	M	L
CO3	S	S	S	L	M	M	S	M	S	L
CO3	S	S	S	M	S	M	S	S	S	M
CO4	S	S	S	M	S	M	S	S	M	M
CO5	S	S	S	S	S	S	S	S	S	M

*S-Strong; M-Medium; L-Low

Course code		Introduction to Compiler Design	L	T	P	C
Core/Elective/Supportive		Elective : I	6	0	0	4
Pre-requisite		Basic knowledge in translators, compilation of high level language programming	Syllabus Version		2020-21 Onwards	

Course Objectives:

The main objectives of this course are to:

1. To understand the use of translators and compiler
2. To enable students to learn the phases of a compiler
3. To familiar with context free grammars, regular expressions and parsing techniques
4. To learn about the intermediate codes in translation
5. To enable the students to learn about code generations

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the use of translators and complier, structure of a compiler	**K1**
2	Understand and apply the context free grammars and parsing techniques	**K1-K4**
3	Understand and remember the syntax directed translations, intermediate codes	**K2**
4	Understand the run time storage schems, error detection and recovery	**K3**
5	Understand and apply knowledge on code optimization and code generator	**K2-K4**

K1 – Remember; **K2** – Understand; **K3** – Apply; **K4** – Analyze; **K5** – Evaluate; **K6** – Create

Unit:1	Introduction to Compilers	15 hours

Introduction to Compliers: Compliers and Translator – Need of Translator – The structure of a Complier – Lexical analysis – Syntax analysis – Intermediate code generation – optimization – code generation – Complier – writing tools. Finite automata and lexical Analysis: The role of the lexical analysis – A simple approach to the design of lexical analyzers- Regular expressions to finite automata – Minimizing the number of states of a DFA.

Unit:2	Syntactic programming languages and Parsing Techniques	15 hours

The Syntactic specification of programming languages: context free grammars – derivations and parse trees – capabilities of context free grammars. Basic parsing techniques: Parsers – shift – reduce parsing – operator – precedence parsing – top down parsing – predictive parsers.

Unit:3	Syntax directed Translation and Symbol Table	15 hours

Syntax – directed translation: syntax – directed translation schemes – implementation of syntax – directed translators – intermediate code – postfix notation – parse trees and syntax trees – 3 address code – quadruples and triples – translation of assignment statements – Boolean expressions – statements that alter the flow of control. Symbol tables: the contents of a symbol table – data structures for symbol table – representing scope information.

Unit:4	Storage allocation and Error detection and recovery	15 hours

Run time storage administration: Implementation of a simple stack allocation scheme – implementation of block-structured languages – storage allocation in block structured languages. Error deduction and recovery: errors – lexical phase errors – syntactic phase errors – semantic

errors.		
Unit:5	**Code Optimization and Generation**	**12 hours**
Introduction of code optimization: The principle sources of optimization – loop optimization – the DAG representation of basic blocks – value numbers and algebraic laws – Global data flow analysis. Code generation: Object programs – problems in code generation – a machine model – a simple code generator – register allocation and assignment – code generation from DAGs – peepholes optimization.		
Unit:6	**Contemporary Issues**	**3 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**75 hours**

Text Book(s)	
1	Principles of Complier Design, Alfred V.Aho, Jeffrey D.Ullman, Narosa Publishing House.
Reference Books	
1	Steven S. Muchnick, "Advanced Compiler Design and Implementation", Morgan Kaufmann Publishers an imprint of Elsevier 2014.
2	
3	
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
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Course Designed By:	

Mapping with Programme Outcomes

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	M	S	L	M	M	M	M	M	L
CO2	M	S	M	M	M	M	S	S	M	L
CO3	S	M	S	S	S	M	S	L	S	M
CO4	M	S	M	S	S	S	M	S	M	S
CO5	S	L	S	M	M	S	S	S	S	M

*S-Strong; M-Medium; L-Low

Course code		PHP & Scripting Languages	L	T	P	C
Core/Elective/Supportive		Elective : I	6	0	0	4
Pre-requisite		Basic knowledge on HTML and CSS and OOPs concept.	Syllabus Version		2020-21 Onwards	

Course Objectives:

The main objectives of this course are to:

1. To understand the scripting languages used while developing web applications
2. To enable students to learn VB script and Java script for implementing event procedures.
3. To familiar SSI and Cookies and plugins
4. To learn about the server side scripting language to build web applications
5. To enable the students to learn how to build applications in PHP with database.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the basics of .VB script and Java script	**K1**
2	Understand the I/O handling, data validation, Activex control and validation	**K2**
3	Understand and remember the java script objects, form validations, cookies and plugins	**K2**
4	Understand the sever side scripting language basics	**K3**
5	Knowledge on PHP objects, cookies, connecting remote files, and database connections	**K2-K4**

K1 – Remember; **K2** – Understand; **K3** – Apply; **K4** – Analyze; **K5** – Evaluate; **K6** – Create

Unit:1	Introduction to .NET Framework	15 hours

VB Script and Java Script: Language structure – control structure – Procedures and functions – Error handling.

Unit:2	File I/O, Object Oriented Concepts and Message Queues	15 hours

VB Script: Input & Output – Data Validation –Integration with Forms – Activex Control & Scripting

Unit:3	VB.NET IDE and Controls	15 hours

Java Script: Form Validation – SSI and Cookies – Frames and Windows – MIME Types – Plugins

Unit:4	VB.NET & ASP.NET	15 hours

PHP: Server side scripting Language: Basic syntax – Types – Variables – Constants – Expressions – Operators – Control Structures.

Unit:5	Web Services	12 hours

PHP: Functions – Classes and Objects – HTML forms – HTTP authentication with PHP – Cookies – Handling file uploads – Using remote files – Connection handling – Database Connections.

Unit:6	Contemporary Issues	3 hours

Expert lectures, online seminars – webinars

	Total Lecture hours	**75 hours**
Text Book(s)		
1	Christopher J.Goddard, Mark White, Mastering VB Script, Galgotia Publications, New Delhi.	
2	Lee Purcell, Mary Jane Mara, The ABCs of Javascript.	
Reference Books		
1	Steven Holzner, PHP: The Complete Reference.	
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Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]		
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Course Designed By:		

Mapping with Programme Outcomes										
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	M	S	L	M	M	M	M	M	L
CO2	S	S	L	M	M	S	S	M	M	L
CO3	M	M	S	M	S	M	M	L	S	M
CO4	M	S	M	S	S	S	M	S	M	S
CO5	S	L	S	M	M	S	S	M	S	M

*S-Strong; M-Medium; L-Low

Course code		PYTHON Programming	L	T	P	C
Core/Elective/Supportive		Elective : I	6	0	0	4
Pre-requisite		Knowledge on logic of the programs and oops concept.	Syllabus Version		2020-21 Onwards	

Course Objectives:

The main objectives of this course are to:

1. To introduce the fundamentals of Python Programming.
2. To teach about the concept of Functions in Python.
3. To impart the knowledge of Lists, Tuples, Files and Directories.
4. To learn about dictionaries in python.
5. To explores the object-oriented programming, Graphical programming aspects of python with help of built in modules..

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Remembering the concept of operators, data types, looping statements in Python programming.	**K1**
2	Understanding the concepts of Input / Output operations in file..	**K2**
3	Applying the concept of functions and exception handling	**K3**
4	Analyzing the structures of list, tuples and maintaining dictionaries	**K4**
5	Demonstrate significant experience with python program development environment	**K4-K6**

K1 – Remember; **K2** – Understand; **K3** – Apply; **K4** – Analyze; **K5** – Evaluate; **K6** – Create

Unit:1	BASICS OF PYTHON	10 hours

BASICS : Python – Variables – Executing Python from the Command Line – Editing Python Files – Python Reserved Words – Basic Syntax-Comments – Standard Data Types – Relational Operators – Logical Operators – Bit Wise Operators – Simple Input and Output.

Unit:2	CONTROL STATEMENTS	10 hours

CONTROL STATEMENTS: Control Flow and Syntax – Indenting – if Statement – statements and expressions- string operations- Boolean Expressions –while Loop – break and continue – for Loop. LISTS: List-list slices – list methods – list loop – mutability – aliasing – cloning lists – list parameters. TUPLES: Tuple assignment, tuple as return value –Sets – Dictionaries

Unit:3	FUNCTIONS	10 hours

FUNCTIONS: Definition – Passing parameters to a Function – Built-in functions- Variable Number of Arguments – Scope – Type conversion-Type coercion-Passing Functions to a Function – Mapping Functions in a Dictionary – Lambda – Modules – Standard Modules – sys – math – time – dir – help Function.

Unit:4	ERROR HANDLING	12 hours

ERROR HANDLING: Run Time Errors – Exception Model – Exception Hierarchy – Handling Multiple Exceptions – Data Streams – Access Modes Writing – Data to a File Reading – Data From a File – Additional File Methods – Using Pipes as Data Streams – Handling IO Exceptions – Working with Directories.

Unit:5	**OBJECT ORIENTED FEATURES**	**12 hours**
OBJECT ORIENTED FEATURES: Classes Principles of Object Orientation – Creating Classes – Instance Methods – File Organization – Special Methods – Class Variables – Inheritance – Polymorphism – Type Identification – Simple Character Matches – Special Characters – Character Classes – Quantifiers – Dot Character – Greedy Matches – Grouping – Matching at Beginning or End – Match Objects – Substituting – Splitting a String – Compiling Regular Expressions.		
Unit:6	**Contemporary Issues**	**3 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**55 hours**

Text Book(s)	
1	Mark Summerfield, Programming in Python 3: A Complete introduction to the Python Language , Addison-Wesley Professional, 2009.
2	Martin C. Brown, PYTHON: The Complete Reference‖, McGraw-Hill, 2001
3	E. Balagurusamy (2017), "Problem Solving and Python Programming", McGraw-Hill, First Edition.
Reference Books	
1	Allen B. Downey, "Think Python: How to Think Like a Computer Scientist", 2nd edition, Updated for Python 3, Shroff/O'Reilly Publishers, 2016
2	Guido van Rossum and Fred L. Drake Jr, ―An Introduction to Python – Revised and updated for Python 3.2, Network Theory Ltd., 2011
3	Wesley J Chun, ―Core Python Applications Programming‖, Prentice Hall, 2012.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
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Course Designed By:	

Mapping with Programme Outcomes										
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	S	L	S	M	L	M	S	S
CO2	S	S	S	L	S	M	L	M	S	S
CO3	S	S	S	L	S	M	L	M	S	S
CO4	S	S	S	L	S	M	L	M	S	S
CO5	S	S	S	L	S	M	L	M	S	S

*S-Strong; M-Medium; L-Low

Course code		CASE Tools Concepts and Applications	L	T	P	C
Core/Elective/Supportive		Skill based Subject – 3	6	0	0	3
Pre-requisite		Basic knowledge in software project, testing in SDLC	Syllabus Version		2020-21 Onwards	

Course Objectives:

The main objectives of this course are to:

1. To enhance the basic software engineering methods and practices.
2. To learn the techniques for developing software systems.
3. To understand the object oriented design.
4. To understand software testing approaches

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the basic concepts of software engineering	K1
2	Apply the software engineering models in developing software applications	K2-K3
3	Implement the object oriented design in various projects	K4
4	Knowledge on how to do a software project with in-depth analysis.	K3
5	To inculcate knowledge on Software engineering concepts in turn gives a roadmap to design a new software project.	K1-K4

K1 – Remember; **K2** – Understand; **K3** – Apply; **K4** – Analyze; **K5** – Evaluate; **K6** – Create

Unit:1	SOFTWARE ENGINEERING	15 hours

Data Modeling: Business Growth-Organizational Model-Case Study of student MIS-What is the purpose of such Models-Understanding the business-Types of models-model development approach-the case for structural development-advantages of using a case tool. System analysis and design-what is DFD-General Rules for Drawing DFD-Difference Between Logical data flow diagram and Physical data flow diagram-Software verses Information Engineering-How case tools store information.

Unit:2	SOFTWARE DESIGN	12 hours

Approach used to solve the problem statement: How to deal with a problem statement-Data flow diagram for Payroll System-Presentation Diagram for Payroll System-sehematics of the model-Forms-Screens-Menu Screens-Data entry Screens-Report Output Format-Utilities. Installation of Ubridge and Synthesis: How to use the tools in Ubridge Synthesis for case-Installation of Ubridge Synthesis-Computer Aided Software Engineering-Getting Ubridge to work-Setup-Assign-Housekeep-The Ubridge page.

Unit:3	SOFTWARE TESTING	15 hours

Introduction to Ubridge: Introduction – Main flow of the system prototyping your Report-Introducing the Novice Model of the Operation. Introducing Synthesis – Synthesis basic – Synthesis – Menu Drawing the screen-Requirement Definition-Diagram-Data Dictionary-Document-Synthesis Main Administration – Synthesis reference – importing and exporting screen.

Unit:4	SOFTWARE CONFIGURATION MANAGEMENT	15 hours
Diagram definition tool: Introduction-Starting DDT-Drawing your own Icon – Defining the connection rules-Rebuilding your icon. Object oriented methodologies: Rambaugh et.al.‗s object modeling techniques-The Booch methodology –The Jacobson et.al. Methodologies-Pattern-Frame works-The Unified Approach.		
Unit:5	**ESTIMATION**	**15 hours**
Introduction to UML-UML Diagram-Class Diagram-Use Case Diagram-Interaction Diagram-Sequence Diagram-Collaboration Diagram-State Chart Diagram-Activity Diagram-Component Diagram-Deployment Diagram.		
Unit:6	**Contemporary Issues**	**3 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**75 hours**

Text Book(s)

1	Case Tools Concepts and Applications, Ivan N Bayross, BPB Publications
2	Object Oriented System Development using the Unified Modeling Language, McGraw Hill International edition.
3	

Reference Books

1	Software Engineering: A Practitioner‘s Approach, Roger S Pressman, McGraw Hill International Edition.
2	

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

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Course Designed By:

Mapping with Programme Outcomes

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	M	S	L	M	M	M	M	M	L
CO2	S	S	L	S	M	S	S	S	M	L
CO3	M	M	M	M	S	M	M	L	S	M
CO4	M	S	M	S	S	S	M	S	M	S
CO5	S	L	S	S	M	S	S	M	M	M

*S-Strong; M-Medium; L-Low

Sixth Semester

Course code		Graphics & Multimedia	L	T	P	C
Core/Elective/Supportive		Core: 10	5	0	0	4
Pre-requisite		Basic knowledge in 2D, 3D and multimedia file formats	Syllabus Version		2020-21 Onwards	

Course Objectives:

The main objectives of this course are to:

1. Design and apply two dimensional graphics and transformations.
2. Design and apply three dimensional graphics and transformations.
3. Apply Illumination, color models and clipping techniques to graphics.
4. Understood Different types of Multimedia File Format.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Explain applications, principles, commonly used and techniques of computer graphics and algorithms for Line-Drawing, Circle- Generating and Ellipse-Generating.	**K2**
2	Students will get the concepts of 2D and 3D, Viewing, Curves and surfaces, Hidden Line/surface elimination techniques	**K3**
3	Studies concepts of Multimedia Systems, Text, Audio and Video tools	**K3**
4	Compressing audio and video using MPEG-1 and MPEG-2	**K4**
5	Creates Animation with special effects using algorithms	**K6**

K1 – Remember; **K2** – Understand; **K3** – Apply; **K4** – Analyze; **K5** – Evaluate; **K6** – Create

Unit:1	OUTPUT PRIMITIVES	15 hours

Output Primitives: Points and Lines – Line-Drawing algorithms – Loading frame Buffer – Line function – Circle-Generating algorithms – Ellipse-generating algorithms. Attributes of Output Primitives: Line Attributes – Curve attributes – Color and Grayscale Levels – Area-fill attributes – Character Attributes.

Unit:2	2D GEOMETRIC TRANSFORMATIONS	15 hours

2D Geometric Transformations: Basic Transformations – Matrix Representations – Composite Transformations – Other Transformations. 2D Viewing: The Viewing Pipeline – Viewing Co-ordinate Reference Frame – Window-to-Viewport Co-ordinate Transformation – 2D Viewing Functions – Clipping Operations.

Unit:3	TEXT	15 hours

Text: Types of Text – Unicode Standard – Font – Insertion of Text – Text compression – File formats. Image: Image Types – Seeing Color – Color Models – Basic Steps for Image Processing – Scanner – Digital Camera – Interface Standards – Specification of Digital Images – CMS – Device Independent Color Models – Image Processing software – File Formats – Image Output on Monitor and Printer.

Unit:4	AUDIO	15 hours

Audio: Introduction – Acoustics – Nature of Sound Waves – Fundamental Characteristics of Sound

– Microphone – Amplifier – Loudspeaker – Audio Mixer – Digital Audio – Synthesizers – MIDI – Basics of Staff Notation – Sound Card – Audio Transmission – Audio File formats and CODECs – Audio Recording Systems – Audio and Multimedia – Voice Recognition and Response – Audio Processing Software.		
Unit:5	**VIDEO AND ANIMATION**	**12 hours**
Video: Analog Video Camera – Transmission of Video Signals – Video Signal Formats – Television Broadcasting Standards – PC Video – Video File Formats and CODECs – Video Editing – Video Editing Software. Animation: Types of Animation – Computer Assisted Animation – Creating Movement – Principles of Animation – Some Techniques of Animation – Animation on the Web – Special Effects – Rendering Algorithms. Compression: MPEG-1 Audio – MPEG-1 Video – MPEG-2Audio – MPEG-2 Video.		
Unit:6	**Contemporary Issues**	**3 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**75 hours**

Text Book(s)	
1	Computer Graphics, Donald Hearn, M.Pauline Baker, 2nd edition, PHI. (UNIT-I: 3.1-3.6,4.1-4.5 & UNIT-II: 5.1-5.4,6.1-6.5)
2	Principles of Multimedia, Ranjan Parekh, 2007, TMH. (UNIT III: 4.1-4.7,5.1-5.16 UNIT-IV: 7.1-7.3,7.8-7.14,7.18-7.20,7.22,7.24,7.26-28 UNIT-V: 9.5-9.10,9.13,9.15,10.10-10.13)
Reference Books	
1	Computer Graphics, Amarendra N Sinha, Arun D Udai, TMH.
2	Multimedia: Making it Work, Tay Vaughan, 7th edition, TMH.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
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Course Designed By:	

Mapping with Programme Outcomes										
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	S	M	S	M	S	S	S	M
CO2	S	S	S	M	S	M	M	M	S	M
CO3	S	M	M	M	S	M	M	M	S	M
CO4	S	S	S	M	S	M	M	M	S	M
CO5	S	S	S	M	S	M	S	S	S	M

*S-Strong; M-Medium; L-Low

Course code		Project Work Lab	L	T	P	C
Core/Elective/Supportive		Core: 11	0	0	5	8
Pre-requisite		Students should have the strong knowledge in any one of the programming languages in this course.	Syllabus Version		2020-21 Onwards	

Course Objectives:

The main objectives of this course are to:

1. To understand and select the task based on their core skills.
2. To get the knowledge about analytical skill for solving the selected task.
3. To get confidence for implementing the task and solving the real time problems.
4. Express technical and behavioral ideas and thought in oral settings.
5. Prepare and conduct oral presentations

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Formulate a real world problem and develop its requirements develop a design solution for a set of requirements.	**K3**
2	Test and validate the conformance of the developed prototype against the original requirements of the problem.	**K5**
3	Work as a responsible member and possibly a leader of a team in developing software solutions.	**K3**
4	Express technical ideas, strategies and methodologies in written form. Self-learn new tools, algorithms and techniques that contribute to the software solution of the project.	**K1-K4**
5	Generate alternative solutions, compare them and select the optimum one.	**K6**

K1 – Remember; **K2** – Understand; **K3** – Apply; **K4** – Analyze; **K5** – Evaluate; **K6** – Create

AIM OF THE PROJECT WORK

6. The aim of the project work is to acquire practical knowledge on the implementation of the programming concepts studied.
7. Each student should carry out individually one project work and it may be a work using the software packages that they have learned or the implementation of concepts from the papers studied or implementation of any innovative idea focusing on application oriented concepts.
8. The project work should be compulsorily done in the college only under the supervision of the department staff concerned.

Viva Voce

1. Viva-Voce will be conducted at the end of the year by both Internal (Respective Guides) and External Examiners, after duly verifying the **Annexure Report** available in the College, for a total of 200 marks at the last day of the practical session.
2. Out of 200 marks, 160 marks for project report and 40 marks for Viva Voce.

Project Report Format

PROJECT WORK

TITLE OF THE DISSERTATION

Bonafide Work Done by

STUDENT NAME

REG. NO.

Dissertation submitted in partial fulfillment of the requirements for the award of

<Name of the Degree>

of Bharathiar University, Coimbatore-46**.**

College Logo

Signature of the Guide Signature of the HOD

Submitted for the Viva-Voce Examination held on _____

Internal Examiner External Examiner

Month – Year

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Contents
Synopsis
1. Introduction
1.1 Organization Profile
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1.2.1 Hardware Configuration
1.2.2 Software Specification
2. System Study
2.1 Existing System
2.1.1 Drawbacks

2.2 Proposed System
2.2.1 Features
3. System Design and Development
3.1 File Design
3.2 Input Design
3.3 Output Design
3.4 Database Design
3.5 System Development
3.5.1 Description of Modules (Detailed explanation about the project work)
4. Testing and Implementation
5. Conclusion
Bibliography
Appendices
A. Data Flow Diagram
B. Table Structure
C. Sample Coding
D. Sample Input
E. Sample Output

Course Designed By:

Mapping with Programme Outcomes

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	S	S	M	M	S	S	S	S
CO2	S	S	S	S	S	M	S	S	S	S
CO3	S	S	S	M	M	S	S	S	S	S
CO4	S	S	S	M	S	S	S	S	S	S
CO5	S	S	S	M	S	S	S	S	S	S

*S-Strong; M-Medium; L-Low

Course code		Programming Lab – Graphics & Multimedia	L	T	P	C
Core/Elective/Supportive		Core Lab : 7	0	0	6	4
Pre-requisite		Students should have the basic knowledge on C and C++ to do computer graphics and multimedia applications.	Syllabus Version		2020-21 Onwards	

Course Objectives:

The main objectives of this course are to:

1. To learn the basic principles of 2-dimensional computer graphics.
2. Provide an understanding of how to scan convert the basic geometrical primitives, how to transform the shapes to fit them as per the picture definition.
3. Provide an understanding of mapping from a world coordinates to device coordinates, clipping and projections.
4. To be able to discuss the application of computer graphics concepts in the development of computer games, information visualization and business applications.
9. To comprehend and analyse the fundamentals of animation, virtual reality, underlying technologies, principles and applications.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the basic concepts of computer graphics.	**K1**
2	Design scan conversion problems using C and C++ programming.	**K2**
3	Apply clipping and filling techniques for modifying an object.	**K3**
4	Understand the concepts of different type of geometric transformation of objects in 2D.	**K4**
5	Understand and develop the practical implementation of modeling, rendering, viewing of objects in 2D	**K6**

K1 – Remember; **K2** – Understand; **K3** – Apply; **K4** – Analyze; **K5** – Evaluate; **K6** – Create

Programs	**36 hours**
Graphics	

1. Write a program to rotate an image.
2. Write a program to drop each word of a sentence one by one from the top.
3. Write a program to drop a line using DDA Algorithm.
4. Write a program to move a car with sound effect.
5. Write a program to bounce a ball and move it with sound effect.
6. Write a program to test whether a given pixel is inside or outside or on a polygon.

Multimedia

7. Create Sun Flower using Photoshop.
8. Animate Plane flying in the Clouds using Photoshop.
9. Create Plastic Surgery for the Nose using Photoshop.
10. Create See-through text using Photoshop.
11. Create a Web Page using Photoshop.
12. Convert Black and White Photo to Color Photo using Photoshop.

	Total Lecture hours	**36 hours**

Text Book(s)	
1	Computer Graphics, Donald Hearn, M.Pauline Baker, 2nd edition, PHI.
2	Principles of Multimedia, Ranjan Parekh, 2007, TMH.
Reference Books	
1	Computer Graphics, Amarendra N Sinha, Arun D Udai, TMH.
2	Multimedia: Making it Work, Tay Vaughan, 7th edition, TMH.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
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Course Designed By:	

Mapping with Programme Outcomes										
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	M	M	M	S	M	L	L	M	L
CO2	S	S	S	M	M	M	M	M	M	L
CO3	S	S	S	M	S	M	M	M	M	L
CO4	S	S	S	S	S	M	M	M	M	M
CO5	S	S	S	S	S	M	S	S	S	M

*S-Strong; M-Medium; L-Low

Course code		Computer Networks	L	T	P	C
Core/Elective/Supportive		Elective : II	5	0	0	4
Pre-requisite		Students should have the knowledge on computer connectivity and connectivity peripherals.	Syllabus Version		2020-21 Onwards	

Course Objectives:

The main objectives of this course are to:

1. To identify various components in a data communication system and understand state-of-the-art in network protocols, architectures and applications.
2. To enable students through the concepts of computer networks, different models and their involvement in each stage of network communication.
3. To educate the concepts of terminology and concepts of the OSI reference model and the TCP/IP reference model and protocols such as TCP, UDP and IP.
4. To be familiar with the concepts of protocols, network interfaces, and design/performance issues in local area networks and wide area networks.
5. Introduce the student to a network routing for IP networks and how a collision occurs and how to solve it and how a frame is created and character count of each frame.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Remember the organization of computer networks, factors influencing computer network development and the reasons for having variety of different types of networks.	**K1**
2	Understand Internet structure and can see how standard problems are solved and the use of cryptography and network security.	**K2**
3	Apply knowledge of different techniques of error detection and correction to detect and solve error bit during data transmission.	**K3**
4	Analyze the requirements for a given organizational structure and select the most appropriate networking architecture and technologies	**K4**
5	Knowledge about different computer networks, reference models and the functions of each layer in the models	**K2-K4**

K1 – Remember; **K2** – Understand; **K3** – Apply; **K4** – Analyze; **K5** – Evaluate; **K6** – Create

Unit:1	BASICS OF NETWORKS AND OSI MODEL	15 hours

Network Hardware: LAN – WAN – MAN – Wireless – Home Networks. Network Software: Protocol Hierarchies – Design Issues for the Layers – Connection-oriented and connectionless services – Service Primitives – The Relationship of services to Protocols. Reference Models: OSI Reference Model – TCP/IP reference Model – Comparison of OSI and TCP/IP –Critique of OSI and protocols – Critique of the TCP/IP Reference model.

Unit:2	PHYSICAL LAYER	15 hours

PHYSICAL LAYER – Guided Transmission Media: Magnetic Media – Twisted Pair – Coaxial Cable – Fiber Optics. Wireless Transmission: Electromagnetic Spectrum – Radio Transmission – Microwave Transmission – Infrared and Millimeter Waves – Light Waves. Communication Satellites: Geostationary, Medium-Earth Orbit, Low Earth-orbit Satellites – Satellites versus Fiber.

Unit:3	**DATA-LINK LAYER**	**15 hours**
DATA-LINK LAYER: Error Detection and correction – Elementary Data-link Protocols – Sliding Window Protocols. MEDIUM-ACCESS CONTROL SUB LAYER: Multiple Access Protocols – Ethernet – Wireless LANs – Broadband Wireless – Bluetooth.		
Unit:4	**NETWORK LAYER**	**15 hours**
NETWORK LAYER: Routing algorithms – Congestion Control Algorithms. TRANSPORT LAYER: Elements of Transport Protocols – Internet Transport Protocols: TCP.		
Unit:5	**APPLICATION LAYER**	**12 hours**
APPLICATION LAYER: DNS – E-mail. NETWORK SECURITY: Cryptography – Symmetric Key Algorithms – Public Key Algorithms – Digital Signatures.		
Unit:6	**Contemporary Issues**	**3 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**75 hours**

Text Book(s)

1	Computer Networks, Andrew S. Tanenbaum, 4th edition, PHI. *(UNIT-I:1.2-1.4 UNIT-II:2.2-2.4 UNIT-III:4.2-4.6 UNIT-IV:5.2,5.3,6.2,6.5 UNIT-V:7.1,7.2,8.1-8.4)*

Reference Books

1	Data Communication and Networks, Achyut Godbole, 2007, TMH.
2	Computer Networks: Protocols, Standards, and Interfaces, Uyless Black, 2nd ed, PHI
3	

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

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Course Designed By:

Mapping with Programme Outcomes

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M	M	S	L	M	S	M	S	M	M
CO2	S	S	L	S	M	S	M	M	S	L
CO3	M	M	S	M	S	M	M	L	S	M
CO4	M	S	M	S	S	S	M	S	M	S
CO5	S	M	S	M	M	M	S	M	S	M

*S-Strong; M-Medium; L-Low

Course code		Dot Net Programming	L	T	P	C
Core/Elective/Supportive		Elective : II	5	0	0	4
Pre-requisite		Basic knowledge in web programming and VB programming	Syllabus Version		2020-21 Onwards	

Course Objectives:

The main objectives of this course are to:

6. To understand .NET framework to develop web centric applications.
7. To enable students to learn the basics of I/O and object oriented programming.
8. To familiar with VB.NET and ASP.NET IDE
9. To learn about the ASP.NET controls and ADO.NET.
10. To enable the students to learn how to build and deployment of web services.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the basics of .NET framework and the object oriented programming.	**K1**
2	Understand the procedures, File I/O, Error handling and Message queues.	**K2**
3	Understand and remember the components in VB.NET IDE, ADO.NET and also the window forms.	**K2**
4	Understand the HTML server controls, Web controls, Validation controls and state management and tracing.	**K3**
5	Knowledge on SOAP, building web services and deploying and publishing web services, Finding and consuming web services.	**K2-K4**

K1 – Remember; **K2** – Understand; **K3** – Apply; **K4** – Analyze; **K5** – Evaluate; **K6** – Create

Unit:1	Introduction to .NET Framework	15 hours

Introduction to .Net: .NET framework- difference between VB6 and VB .Net-Object-Oriented programming and VB .Net-Data types-Variables-Operators-Arrays-Conditional logic.

Unit:2	File I/O, Object Oriented Concepts and Message Queues	15 hours

Procedures- Dialog boxes- File IO and System objects- Error handling- Namespaces-Classes and Objects- Multithreading-Message Queue- Programming MSMQ.

Unit:3	VB.NET IDE and Controls	15 hours

VB.Net IDE-Compiling and Debugging-Customizing- Data access: ADO.Net- Visual studio .Net and ADO .Net. Windows Forms: Controls-Specific controls- Irregular forms.

Unit:4	VB.NET & ASP.NET	15 hours

VB.Net and web: Introduction to ASP .Net page framework- HTML server controls- Web controls- Validation controls- Events-CSS- State management- Tracing- Security.

Unit:5	Web Services	12 hours

UNIT V: Web Services: Introduction- Infrastructure- SOAP-Building web services- Deploying and publishing web services- Finding and consuming web services

Unit:6	Contemporary Issues	3 hours
Expert lectures, online seminars – webinars		
	Total Lecture hours	75 hours

Text Book(s)

1	Bill Evjen, Jason Beres, et.al, Visual Basic .Net programming, Wiley Dreamtech India (p) Ltd. ISBN 81-265-0254-1. (Chapters: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 12, 13, 14, 15, 16, 17, 18, 19, 21, 22, 25, 26, 27, 29, 31, 32, 33, 34, 35, 36, 38, 39, 40, 42, 43, 44, 45, 46, 47, 48, 49, 50).

Reference Books

1	Fergal Grimes, Microsoft .NET for programmers, Shroff Publishers & Distributors (P) Ltd. ISBN 81-7366-540-0.
2	Thuan Thai & Hoang Q.Lam, .NET Framework Essentials, Shroff Publishers & Distributors (P) Ltd. ISBN 81-7366-654-7
3	

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

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Course Designed By:

Mapping with Programme Outcomes

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M	M	S	L	M	M	M	M	M	L
CO2	M	S	L	M	M	S	S	M	L	L
CO3	M	M	S	M	S	S	S	L	S	M
CO4	M	M	S	S	S	S	M	S	M	S
CO5	S	L	S	M	M	S	S	M	S	M

*S-Strong; M-Medium; L-Low

Course code		Distributed Computing	L	T	P	C
Core/Elective/ Supportive		Elective : II	5	0	0	4
Pre-requisite		Basic knowledge in databases, client and server	Syllabus Version		2020-21 Onwards	

Course Objectives:

The main objectives of this course are to:

1. To enable the students to learn the concepts and techniques in distributed computing and client server computing.
2. To learn the pros and cons of distributed computing, distributed databases.
3. To familiar with design considerations in distributed computing
4. To understand the client server models and R* projection techniques

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the concepts and techniques in distributed computing and client server computing.	**K1**
2	Understand the pros and cons of distributed processing, databases, challenges.	**K2**
3	Understand the design considerations in distributed computing	**K2**
4	Understand and analyse the client server network model, file server, printer server and email server.	**K3**
5	Understand and obtaining the Knowledge on distributed databases, R* project techniques.	**K2-K4**

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Introduction to Distributed Systems	15 hours

Distributed Systems: Fully Distributed Processing systems – Networks and interconnection structures – designing a distributed processing g system.

Unit:2	Challenges and Managing Distributed Resources	15 hours

Distributed systems: Pros and Cons of distributed processing – Distributed databases – the challenges of distributed data – loading, factors – managing the distributed resources division of responsibilities.

Unit:3	Design Considerations	15 hours

Design considerations: Communication Line loading – line loading calculations- partitioning and allocation - data flow systems – dimensional analysis- network database design considerations- ration analysis- database decision trees- synchronization of network databases

Unit:4	Client Server Network Model	15 hours

Client server network model: Concept – file server – printer server and e-mail server.

Unit:5	Distributed Databases	12 hours

Distributed databases: An overview, distributed databases- principles of distributed databases – levels of transparency- distributed database design- the R* project techniques problem of heterogeneous distributed databases.

Unit:6	**Contemporary Issues**	**3 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**75 hours**

Text Book(s)

1	John A. Sharp, An introduction to distributed and parallel processing, Blackwell Scientific Publication(Unit I & III)
2	Uyless D. Black, Data communication and distributed networks‖(unit II)
3	Joel M.Crichllow , Introduction to distributed & parallel computing (Unit IV)

Reference Books

1	Stefans Ceri, Ginseppe Pelagatti , Distributed database Principles and systems, McGraw Hill
2	

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

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Course Designed By:

Mapping with Programme Outcomes

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M	M	S	L	M	M	M	M	M	L
CO2	S	S	L	S	S	S	S	S	M	L
CO3	S	M	L	M	S	M	S	L	S	M
CO4	M	M	M	S	S	S	M	S	M	M
CO5	M	L	M	M	M	S	S	M	S	M

*S-Strong; M-Medium; L-Low

Course code		Internet of Things (IoT)	L	T	P	C
Core/Elective/Supportive		Elective: III	5	0	0	4
Pre-requisite		Students should have the basic understanding of logical circuits and hardware architecture.	Syllabus Version		2020-21 Onwards	

Course Objectives:

The main objectives of this course are to:

1. To learn the concepts of IoT and its protocols.
2. To learn how to analysis the data in IoT.
3. To develop IoT infrastructure for popular applications.
4. To report about the IoT privacy, security and vulnerabilities solution

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	To understand the fundamentals of Internet of Things.	**K1**
2	To know the basics of communication protocols and the designing principles of Web connectivity.	**K2**
3	To gain the knowledge of Internet connectivity principles	**K2-K3**
4	Designing and develop smart city in IoT	**K2-K3**
5	Analyzing and evaluate the data received through sensors in IOT.	**K4-K5**

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	INTRODUCTION	15 hours

Introduction - Definition & characteristics of IoT - physical design of IoT - logical design of IoT - IoT enabling Technologies - IoT levels & Deployment templates. Domain specific Iots : Home Automation - cities - Environment - Energy - retail - logistics - Agriculture - Industry i Health and life style.

Unit:2	IOT and M2M	12 hours

IoT and M2M - Deference between Iot and M2M - SDN and NFV for lot - IoT systems management - SNMP - YANG - NETOPEER

Unit:3	IOT SPECIFICATION	15 hours

IoT platforms design Methodology - purpose and specification - process specification - Domain model specification - Information model specification - Service specification - IoT level specification - functional view specification - operational view specification - Device and component Integrators - Application Development.

Unit:4	LOGICAL DESIGN USING PYTHON	15 hours

Logical design using python - Installing python - type conversions - control flow - functions - modules - File handling - classes. IoT physical devices and End points, building blocks of IoT device - Raspberry Pi - Linux on Raspberry Pi - Raspberry Pi interfaces.

Unit:5	IOT AND CLOUD COMPUTING	15 hours
IoT physical servers & cloud computing - WAMP - Xively cloud for IoT - python Web application frame work - Amazon web services for IoT.		
Unit:6	**Contemporary Issues**	**3 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**75 hours**

Text Book(s)	
1	Internet of Things - A hands on Approach Authors: Arshdeep Bahga, Vijay Madisetti Publisher: Universities press.

Reference Books	
1	Internet of Things - Srinivasa K.G., Siddesh G.M. Hanumantha Raju R. Publisher: Cengage Learning India pvt. Ltd (2018)

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
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Course Designed By:

Mapping with Programme Outcomes										
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	M	S	L	M	M	M	M	M	L
CO2	S	S	L	M	M	S	S	M	M	L
CO3	M	M	S	M	S	M	M	L	S	M
CO4	M	S	M	S	S	S	M	S	M	S
CO5	S	L	S	M	M	S	S	M	S	M

*S-Strong; M-Medium; L-Low

Course code		Web Services	L	T	P	C
Core/Elective/ Supportive		Elective : III	5	0	0	4
Pre-requisite		Fundamentals of mark-up language, basic knowledge on distributed services.	Syllabus Version		2020-21 Onwards	

Course Objectives:

The main objectives of this course are :

1. To familiar with distributed services, XML and web services, XML, SOAP, WSDL, UDDI specification.
2. To learn about orchestration and refinement, transactions, security issues, the common attacks.
3. To study the QOS metrics, mobile and wireless service, building real world web service applications.
4. To learn about the deployment of Web services and applications onto application servers.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand about the distributed computing, web services, technologies and applications, XML document (WSDL) and the concepts of XML, protocol (SOAP), locating the remote web services	**K1**
2	Understand the concepts of UDDI and its specifications, Understand the concepts of system interface and its workflow, the common attacks.	**K2**
3	Examining the concepts of architecture of system to meet the user requirements and analyse the concepts of mobile and wireless services, Design and develop the real-world enterprise applications using web services.	**K3**
4	Analysing the steps necessary to build and deploy the web services.	**K4**
5	Applying the applications created based on the web services on different web servers.	**K4-K6**

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Introduction to Web services	10 hours

UNIT I: Introduction to Web Services – Industry standards, Technologies and Concepts underlying Web Services – their support to Web Services, Applications that consume Web Services.

Unit:2	XML	10 hours

XML– its choice for web services – network protocols to back end databases technologies – SOAP, WSDL – exchange of information between applications in distributed environment – locating remote web services – its access and usage. UDDI specification – an Introduction

Unit:3	Work flow, security attacks and QoS Metrics	10 hours

A brief outline of web services – conversation – static and interactive aspects of system interface and its implementation, work flow – orchestration and refinement, transactions, security issues – the common attacks – security attacks facilitated within web services quality of services –

Architecting of systems to meet users requirement with respect to latency, performance, reliability, QOS metrics, Mobile and wireless services – energy consumption, network bandwidth utilization, portals and services management..

Unit:4	Building real world enterprise applications	12 hours

Building real world enterprise applications using web services – sample source codes to develop web services – steps necessary to build and deploy web services and client applications to meet customer s requirement – Easier development, customization, maintenance, transactional requirements, seamless porting to multiple devices and platforms.

Unit:5	Deployment of Web services	12 hours

Deployment of Web services and applications onto Tomcat application server and axis SOAP server (both are free wares) – Web services platform as a set of enabling technologies for XML based distributed computing.

Unit:6	Contemporary Issues	3 hours
	Total Lecture hours	**55 hours**

Text Book(s)

1	Sandeep Chatterjee, James Webber, Developing Enterprise Web Services: An Architects Guide, Prentice Hall, Nov 2003.
2	Keith Ballinger, NET Web services: Architecture and Implementation with .Net, Pearson Education, First Education Feb 2003.
3	Sandeep Chatterjee, James Webber, Developing Enterprise Web Services: An Architects Guide, Prentice Hall, Nov 2003.

Reference Books

1	Ramesh Nagappan, Developing Java Web Services: Architecting and developing secure Web Services Using Java, John Wiley and Sons, 2003.
2	Eric A Marks and Mark J Werrell, Executive Guide to Web Services, John Wiley and Sons, 2003
3	Anne Thomas Manes, Web Services: A Managers Guide, Addison Wesley, 2003.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	

Course Designed By:

Mapping with Programme Outcomes

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M	M	S	L	M	S	M	S	M	M
CO2	S	S	L	S	M	S	M	M	S	L
CO3	M	M	S	M	S	M	M	L	S	M
CO4	M	S	M	S	S	S	M	S	M	S
CO5	S	M	S	M	M	M	S	M	S	M

*S-Strong; M-Medium; L-Low

Course code		Software Testing	L	T	P	C
Core/Elective/Supportive		Elective - III	5	0	0	4
Pre-requisite		Students should know about the software and Software Development Life Cycle.	Syllabus Version		2020-21 Onwards	

Course Objectives:

The main objectives of this course are to:

1. To study fundamental concepts in software testing
2. To discuss various software testing issues and solutions in software unit test, integration and system testing.
3. To expose the advanced software testing topics, such as object-oriented software testing methods.
4. List a range of different software testing techniques and strategies and be able to apply specific automated unit testing method to the projects.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Explain the basic concepts and the processes that lead to software testing	**K2**
2	Design test cases from the given requirements using Black box testing techniques	**K3**
3	Identify the test cases from Source code by means of white box testing techniques	**K3**
4	Know about user acceptance testing and generate test cases for it	**K4**
5	Examine the test adequacy criteria to complete the testing process	**K4**

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	SOFTWARE DEVELOPMENT LIFE CYCLE MODELS	15 hours

Software Development Life Cycle models: Phases of Software project – Quality, Quality Assurance, Quality control – Testing, Verification and Validation – Process Model to represent Different Phases - Life Cycle models. White-Box Testing: Static Testing – Structural Testing – Challenges in White-Box Testing.

Unit:2	BLACK-BOX TESTING	15 hours

Black-Box Testing: What is Black-Box Testing? - Why Black-Box Testing? – When to do Black-Box Testing? – How to do Black-Box Testing? – Challenges in White Box Testing - Integration Testing: Integration Testing as Type of Testing – Integration Testing as a Phase f Testing – Scenario Testing – Defect Bash.

Unit:3	SYSTEM AND ACCEPTANCE TESTING	15 hours

System and Acceptance Testing: system Testing Overview – Why System testing is done? – Functional versus Non-functional Testing - Functional testing - Non-functional Testing – Acceptance Testing – Summary of Testing Phases.

Unit:4	PERFORMANCE TESTING	15 hours

Factors governing Performance Testing – Methodology of Performance Testing – tools for Performance Testing – Process for Performance Testing – Challenges. Regression Testing: What is Regression Testing? – Types of Regression Testing – When to do Regression Testing – How to do Regression Testing – Best Practices in Regression Testing.

Unit:5	**TEST PLANNING, MANAGEMENT, EXECUTION AND REPORTING**	**12 hours**
Test Planning, Management, Execution and Reporting: Test Planning – Test Management – Test Process – Test Reporting –Best Practices. Test Metrics and Measurements: Project Metrics – Progress Metrics – Productivity Metrics – Release Metrics.		
Unit:6	**Contemporary Issues**	**3 hours**
Expert lectures, online seminars - webinars		
	Total Lecture hours	**75 hours**

Text Book(s)

1	Software Testing Principles and Practices, Srinivasan Desikan & Gopalswamy Ramesh, 2006, Pearson Education. *(UNIT-I: 2.1-2.5, 3.1-3.4 UNIT-II: 4.1-4.4, 5.1-5.5 UNIT III: 6 .1-6.7 (UNIT IV: 7.1-7.6, 8.1-8.5 UNIT-V: 15.1-15.6, 17.4-17.7)*
2	Limaye M.G., "Software Testing Principles, Techniques and Tools", Second Reprint, TMH Publishers, 2010.
3	Aditya P.Mathur, "Foundations of Software Testing", 2nd Edition, Pearson Education, 2013.

Reference Books

1	Effective Methods of Software Testing, William E. Perry, 3rd ed, Wiley India.
2	Software Testing, Renu Rajani, Pradeep Oak, 2007, TMH.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

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Course Designed By:

Mapping with Programme Outcomes

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	M	M	M	S	M	L	L	M	L
CO2	S	S	S	M	M	M	M	M	M	L
CO3	S	S	S	M	S	M	M	M	M	L
CO4	S	S	S	S	S	M	M	M	M	M
CO5	S	S	S	S	S	M	S	S	S	M

*S-Strong; M-Medium; L-Low

Course code		Lab – CASE TOOLS LAB	L	T	P	C
Core/Elective/Supportive		Skill Based Subject 4 (Lab) :2	0	0	4	3
Pre-requisite		Students must have the basic understanding on verification and validations in software engineering.	Syllabus Version		2020-21 Onwards	

Course Objectives:

The main objectives of this course are to:

1. To enable the students to get better understanding and knowledge in the field of CASE tools.
2. To gain practical knowledge on developing case tools
3. To develop UML diagrams for the real time problems

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Prepare the CASE tools for the given specification.	**K1, K2**
2	Understand and develop the UML diagram for real time applications.	**K2-K3**
3	Design the real time test cases	**K3**
4	Analyze the development of CASE tools	**K4-K5**
5	Design the CASE tools and generate VB code	**K6**

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Programs	**36 hours**
1. To design an ATM transfer system using UML diagram and to generate VB code.	
2. To design a student mark analysis using UML diagram and to generate VB code.	
3. To design a platform assignment system using UML diagram and to generate VB code.	
4. To design a railway reservation system using UML diagram and to generate VB code.	
5. To design an expert system for medicine field using UML diagram and to generate VB code.	
6. To design a stock maintenance system using UML diagram and to generate VB code.	
7. To design a quizzing system using UML diagram and to generate VB code.	
8. To design a remote computer monitoring system using UML diagram and to generate VB code.	
9. To design an online ticket reservation system using UML diagram and to generate VB code.	
10. To design an E-mail client server system using UML diagram and to generate VB code.	
Total Lecture hours	**36 hours**

Text Book(s)

1	

Reference Books

1	

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

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3	
Course Designed By:	

Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	S	M	M	M	S	M	S	L
CO2	L	M	S	M	M	L	S	L	S	L
CO3	S	S	L	M	M	M	S	M	S	M
CO4	S	M	S	M	S	M	S	M	S	M
CO5	M	S	S	M	M	M	S	M	S	M

*S-Strong; M-Medium; L-Low

Annexure

BACHELOR OF COMPUTER APPLICATIONS

Syllabus

(With effect from 2020 -2021)

Program Code : 22J



DEPARTMENT OF COMPUTER APPLICATIONS
Bharathiar University
(A State University, Accredited with "A" Grade by NAAC and
13th Rank among Indian Universities by MHRD-NIRF)
Coimbatore 641 046, INDIA

BHARATHIAR UNIVERSITY : : COIMBATORE 641046

DEPARTMENT OF COMPUTER APPLICATIONS

MISSION

- ✓ To develop IT professionals with ethical and human values.
- ✓ To organize, connect, create and communicate mathematical ideas effectively, through industry 4.0.
- ✓ To provide a learning environment to enhance innovations, problem solving abilities, leadership potentials, team-spirit and moral tasks.
- ✓ To nurture the research values in the developing areas of Computer Science and interdisciplinary fields.
- ✓ Promote inter-disciplinary research among the faculty and the students to create state of art research facilities.
- ✓ To promote quality and ethics among the students.
- ✓ Motivate the students to acquire entrepreneurial skills to become global leaders.

B. Com.

Syllabus

AFFILIATED COLLEGES

Program Code: 2AA

2020 – 2021 onwards

BHARATHIAR UNIVERSITY

(A State University, Accredited with "A" Grade by NAAC,
Ranked 13th among Indian Universities by MHRD-NIRF,
World Ranking : Times - 801-1000, Shanghai - 901-1000, URAP - 982)

Coimbatore - 641 046, Tamil Nadu, India

Program Educational Objectives (PEOs)	
The **B.COM** program describe accomplishments that graduates are expected to attain within five to seven years after graduation	
PEO1	Students will able to understand the concepts of commerce.
PEO2	Programme aims to develop comprehensive professional skills which are required for commerce graduates.
PEO3	Students will develop an understanding of various commerce functions such as finance, accounting, financial analysis, project evaluation, and cost accounting
PEO4	Students will be able to prove the proficiency with the ability to engage exams like C.A, C.S and CMA
PEO5	Students can do commerce oriented research and consequence of this, they can become Professors in Colleges and Universities

Program Specific Outcomes (PSOs)	
After the successful completion of B.COM program, the students are expected to	
PSO1	To provide strong base on the course relevant to the area of commerce which helps to choose their career
PSO2	To enhance knowledge and skills among students which built confident to identify their career opportunities in multiple dimensions.
PSO3	Nurture the students in intellectual, personal, interpersonal and social skills with a focus on relevant professional career particularly, to maximize professional growth.
PSO4	Empower the students with necessary competencies and decision making skills to foster the innovative thinking to become an entrepreneur
PSO5	Strengthen the students to become expert in the field of communication with ethical consciousness.

Program Outcomes (POs)	
On successful completion of the B.COM program	
PO1	Build the wide range of knowledge in the areas of accounting concepts and techniques to meet the current and future requirement of the industry.
PO2	Develop the strong knowledge in the areas such as finance, taxation and laws relating to commerce helps to relate the conceptual and analytical skills in the field of auditing, finance etc.
PO3	Inculcate the students to nurture their skills in personal, interpersonal, intellectual and others skills to develop their professional career and growth.
PO4	Disseminate students to develop decision making and problem solving skills to undertake their own venture as a feasible career option.
PO5	Orient and motive the students to develop the needed knowledge in business and academics to develop their employability

BHARATHIAR UNIVERSITY : : COIMBATORE 641 046

Bachelor of Commerce Curriculum (Affiliated Colleges)

(For the students admitted during the academic year 2020 – 21 onwards)

Course Code	Title of the Course	Credits	Hours		Maximum Marks		
			Theory	Practical	CIA	ESE	Total
FIRST SEMESTER							
	Language-I	4	6	-	25	75	100
	English-I	4	6	-	25	75	100
	Core I – Principles of Accountancy	4	5	-	25	75	100
	Core II–Business Organization & Office Management	4	5	-	25	75	100
	Allied Paper I – Agricultural Economic of India	4	6	-	25	75	100
	Environmental Studies #	2	2	-	-	50	50
	Total	**22**	**30**		**125**	**425**	**550**
SECOND SEMESTER							
	Language-II	4	6	-	25	75	100
	English-II	4	6	-	25	75	100
	Core III – Financial Accounting	4	5	-	25	75	100
	Core IV – Principles of Marketing	4	5	-	25	75	100
	Allied Paper II – Economic Analysis	4	6	-	25	75	100
	Value Education – Human Rights #		2	-	-	50	50
	Total	**22**	**30**		**125**	**425**	**550**
THIRD SEMESTER							
	Core V – Higher Financial Accounting	4	7		25	75	100
	Core VI – Commercial Law	4	6		25	75	100
	Core VII – Principles of Management	4	6		25	75	100
	Allied : III - Mathematics for Business	4	6		25	75	100
	Skill based Subject -1 : Business Application Software-I	3	3		20	55	75
	Tamil @ / Advanced Tamil # (or)Non-Major Elective–I Yoga for Human Excellence # / Women's Rights # Constitution of India #	2	2		50		50
	Total	**21**	**30**				**525**

FOURTH SEMESTER							
	Core VIII – Corporate Accounting-I	4	5		25	75	100
	Core IX – Computer Applications in Business	4	4		25	75	100
	Core X – Company Law and Secretarial Practice	4	4		25	75	100
	Core XI – Executive Business Communication	3	3		20	55	75
	Core XII – Banking Theory	3	3		20	55	75
	Allied: IV: Statistics for Business	4	6		25	75	100
	Skill based Subject-2: Computer Applications (MS-Word and MS-Excel)-Practical –I	3	3		30	45	75
	Tamil @ / Advanced Tamil # (or) Non-major elective -II: General Awareness #	2	2		50		50
Total		**27**	**30**				**675**
FIFTH SEMESTER							
	Core XIII –Corporate Accounting-II	4	6		25	75	100
	Core XIV – Banking Law and Practices	4	5		25	75	100
	Core XV – Cost Accounting	4	5		25	75	100
	Core XVI – Income Tax Law and Practice	4	6		25	75	100
	Elective –I:	4	5		25	75	100
	Skill based Subject-3: Business Application Software II	3	3		20	55	75
Total		**23**	**30**		**145**	**430**	**575**
SIXTH SEMESTER							
	Core XVII – Management Accounting	4	6		25	75	100
	Core XVIII - Principles of Auditing	4	5		25	75	100
	Core XIX - Indirect Taxes	4	6		25	75	100
	Elective –II:	4	5		25	75	100
	Elective–III:	4	5		25	75	100
	Skill based Subject-4: Computer Applications: MS-PowerPoint, MS-Access and Tally 9.2	3	3		30	45	75
	Extension Activities @	2	-		50	-	50
TOTAL		**25**	**30**		**205**	**420**	**625**
GRAND TOTAL		**140**	**180**				**3500**

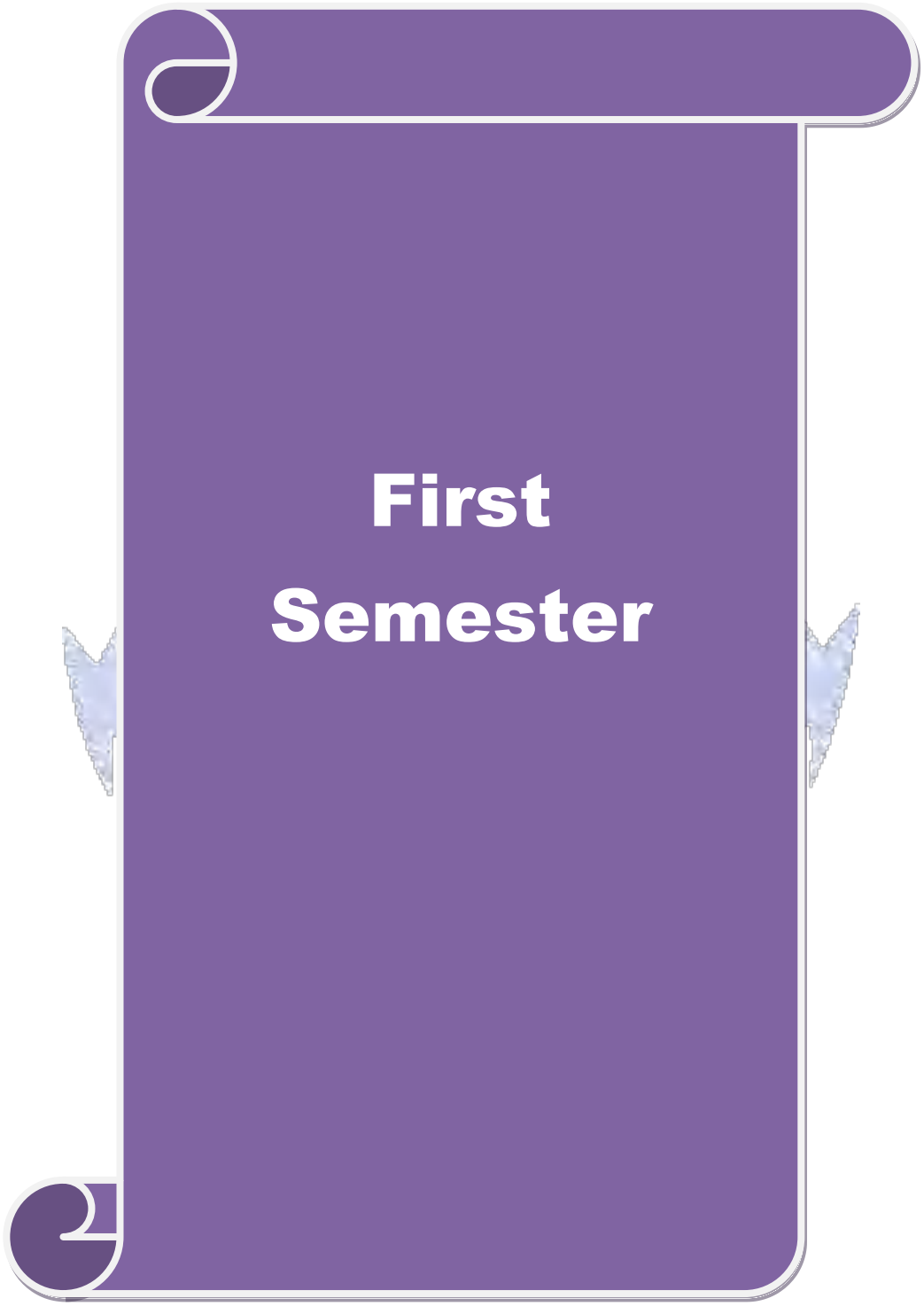
Online courses will be implemented from next academic year

$ Includes 25% / 40% continuous internal assessment marks for theory and practical papers respectively.

@ No University Examinations. Only Continuous Internal Assessment (CIA)

No Continuous Internal Assessment (CIA). Only University Examinations.

List of Elective Papers (Colleges can choose any one of the paper as electives)		
Elective – I	A	**Business Finance**
	B	Brand Management
	C	Fundamentals of Insurance
Elective – II	A	Entrepreneurial Development
	B	Supply Chain Management
	C	Principles of Web Designing
Elective - III	A	Financial Markets
	B	Insurance Legislative Framework
	C	Project Work


First
Semester

Course code		TITLE OF THE COURSE	L	T	P	C
Core -1		Principles of Accountancy	4			4
Pre-requisite		Basic knowledge in accountancy	Syllabus Version			

Course Objectives:

The main objectives of this course are to:

1. To enable the students to learn basic Principles of Accountancy.
2. To make the students skillfully to prepare and present the final accounts of sole trader.
3. To learn about various types of errors and calculation of depreciation in accounts.
4. To understand about bank reconciliation statement and accounting for professionals
5. To provide knowledge about consignment and joint ventures

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Recalling Accounting Concepts and Conventions and use Accounting rules to record business transactions in the form of Journal, Ledger, subsidiary books and preparation of Trial Balance.	K1
2	Understanding the steps involved in locating errors and prepare them to understand the to preparation of final accounts for sole traders.	K2
3	Outline the concepts of Bills of exchange, Average due date and Account Current	K2
4	Examine the concepts of consignment and joint venture.	K4
5	Analyze the bank reconciliation statement, Receipts and payments, Income and expenditure and Balance sheet and accounting for professionals to enhance the knowledge.	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Title of the Unit (Capitalize each Word)	15-- hours

Fundamentals of Book Keeping – Accounting Concepts and Conventions – Journal – Ledger – Subsidiary books – Trial balance.

Unit:2	Title of the Unit (Capitalize each Word)	10-- hours

Final accounts of a sole trader with adjustments – Errors and rectification

Unit:3	Title of the Unit (Capitalize each Word)	15-- hours

Bill of exchange- Accommodation bills – Average due date – Account current

Unit:4	Title of the Unit (Capitalize each Word)	20-- hours

Accounting for consignments and Joint ventures

Unit:5	Title of the Unit (Capitalize each Word)	13-- hours

Bank Reconciliation statement – Receipts and Payments and income and expenditure account and Balance sheet – Accounts of professionals.

Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars - webinars		
	Total Lecture hours	**75-- hours**

Text Book(s)	
1	N.Vinayakam, P.L.Mani, K.L.Nagarajan – Principles of Accountancy
2	T.S.Grewal – Introduction to Accountancy- S.Chand & Company Ltd.,
3	R.L.Gupta, V.K.Gupta, M.C.Shukla – Financial Accounting – Sultanchand & sons
Reference Books	
1	K.L.Narang, S.N.Maheswari - Advanced Accountancy-Kalyani publishers
2	A.Murthy -Financial Accounting – Margham Publishers
3	A.Mukherjee, M.Hanif – Modern Accountancy. Vol.1- Tata McGraw Hill Companie
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
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4	
Course Designed By:	

Mapping Course objectives and course outcomes					
	PO1	**PO2**	**PO3**	**PO4**	**PO5**
CO1	S	S	S	S	S
CO2	S	S	S	S	M
CO3	S	M	M	S	M
CO4	S	S	S	S	M
CO5	S	S	M	M	L

*S-Strong; M-Medium; L-Low

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Course code		TITLE OF THE COURSE	L	T	P	C
Core- 2		Business organization and office management	4			4
Pre-requisite		Basic knowledge in management	Syllabus Version			

Course Objectives:

The main objectives of this course are to:

1. To understand different forms of organization
2. To understand various factors affecting business organization and functioning of stock exchange
3. To provide insight about office functioning, data processing system and EDP

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understanding the concepts of business and its forms of organizations involved in sole trader, partnership firms, companies and co-operative societies and public enterprise.	K2
2	Analyzing the business factors which are involved in sources of finance.	K4
3	Explaining the functioning of stock exchanges SEBI, DEMAT of shares.	K2
4	Remembering office functions, layout and accommodation.	K1
5	Outlining office equipments and EDP.	K2

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Title of the Unit (Capitalize each Word)	15-- hours

Nature and scope of Business, Forms of Business Organisation – Sole Trader, Partnership firms, Companies and Co-operative Societies – Public Enterprise.

Unit:2	Title of the Unit (Capitalize each Word)	15-- hours

Location of Business – Factors influencing location, localization of industries- Size of forms, Sources of Finance – Shares, Debentures, Public Deposits, Bank Credit and Trade Credit – Relative Merits and Demerits.

Unit:3	Title of the Unit (Capitalize each Word)	15-- hours

Stock Exchange - Functions – Procedure of Trading – Functions of SEBI – DEMAT of shares- Trade Association-Chamber of Commerce.

Unit:4	Title of the Unit (Capitalize each Word)	15-- hours

Office – Its functions and significance – Office layout and office accommodation – Filing and Indexing

Unit:5	Title of the Unit (Capitalize each Word)	13-- hours

Office machines and equipments – Data Processing Systems – EDP –Uses and Limitations – Office Furniture.

Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars - webinars		
	Total Lecture hours	**75-- hours**

Text Book(s)	
1	Y.K.Bhushan – Business Organisation and Management – Sultanchand & sons
2	Shukla - Business Organisation and Management – S.Chand & Company Ltd.,
3	Saksena – Business Administration and Management – Sahitya Bhavan
Reference Books	
1	Singh.B.P & Chopra - Business Organisation and Management – Dhanpat Rai & sons
2	R.K.Chopra – Office Management – Himalaya Publishing House
3	J.C.Deneyer - Office Management
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
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Course Designed By:

Mapping Course objectives and course outcomes					
	PO1	**PO2**	**PO3**	**PO4**	**PO5**
CO1	S	S	S	M	M
CO2	S	S	S	M	S
CO3	S	S	S	M	S
CO4	S	S	S	M	M
CO5	S	S	M	M	L

*S-Strong; M-Medium; L-Low

Second Semester

Course code		TITLE OF THE COURSE	L	T	P	C
Core- 3		Financial Accounting	4			4
Pre-requisite		Basic knowledge in accounting	Syllabus Version			

Course Objectives:

The main objectives of this course are to:

1. To explore various methods of calculating and recording depreciation
2. To provide understanding about royalties and investment accounts
3. To offer an idea about single entry system of accounts
4. To promote knowledge about department and branch accounting
5. To facilitate knowledge about hire purchase and installment system of accounting

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Describing the concepts based on depreciation and its methods in books of accounts.	K1
2	Outline about the nature of Investment and Royal excluding Sublease.	K2
3	Identifying the essential characteristics of single entry system.	K3
4	Applying the basic concepts of departmental and branch accounting.	K4
5	Familiarize the procedure relating to hire purchase and installment in books of accounts	K2

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	**Title of the Unit (Capitalize each Word)**	**15-- hours**

Accounting for Depreciation –need for and significance of depreciation, methods of providing depreciation- Reserves and Provision.

Unit:2	**Title of the Unit (Capitalize each Word)**	**15-- hours**

Investment accounts – Royalty excluding Sublease

Unit:3	**Title of the Unit (Capitalize each Word)**	**15-- hours**

Single Entry system-meaning and features-Statement of affairs method and Conversion method

Unit:4	**Title of the Unit (Capitalize each Word)**	**15-- hours**

Departmental accounts – transfers at cost or selling price –Branch excluding foreign branches

Unit:5	**Title of the Unit (Capitalize each Word)**	**13-- hours**

Hire purchase and instalment systems including Hire Purchasing Trading account- Goods on sale or Return

Unit:6	**Contemporary Issues**	**2 hours**

Expert lectures, online seminars - webinars

	Total Lecture hours	**75-- hours**

Text Book(s)	
1	Advanced Accountancy - R.L.Gupta & M.Radhasamy
2	Advanced Accountancy - S.P.Jain & K.L.Narang
Reference Books	
1	Advanced Accountancy - M.C.Shukla & T.S.Grewal
2	Finanacial Accounting - T.S.Reddy & A.Murthy
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
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Course Designed By:	

Mapping Course objectives and course outcomes					
	PO1	**PO2**	**PO3**	**PO4**	**PO5**
CO1	S	S	S	S	S
CO2	S	M	S	S	M
CO3	S	M	M	S	M
CO4	S	S	S	S	M
CO5	S	M	M	M	L

*S-Strong; M-Medium; L-Low

Course code		TITLE OF THE COURSE	L	T	P	C
Core- 4		Principles of Marketing	4			4
Pre-requisite		Basic knowledge in marketing	Syllabus Version			

Course Objectives:

The main objectives of this course are to:

1. To conceptualize an idea about marketing and related terms
2. To provide insight about various forms and types of marketing
3. To analyze various components of marketing channels
4. To understand various concepts relating to consumer behavior
5. To introduce the components of marketing mix
6. To understand the importance of retailing in today's context
7. To understand emerging marketing trends and regulatory mechanisms

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Defining the various concepts and terms related to marketing	K1
2	Explaining about various marketing functions	K2
3	Understanding terms of consumer behaviour and examined about different concepts related to consumers.	K2
4	Identifying the marketing mix and its elements	K1
5	Understanding different provisions related to trends in emerging markets.	K2

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Title of the Unit (Capitalize each Word)	15-- hours

Marketing –Definition of market and marketing-Importance of marketing –Modern Marketing concept-Global Marketing –E-marketing –Tele marketing- Marketing Ethics -Career Opportunities in Marketing

Unit:2	Title of the Unit (Capitalize each Word)	15-- hours

Marketing functions-Buying –Selling –Transportation –Storage – Financing –Risk Bearing – Standardisation – Market Information

Unit:3	Title of the Unit (Capitalize each Word)	15-- hours

Consumer Behaviour –meaning –Need for studying consumer behaviour-Factors influencing consumer behaviour-Market segmentation – Customer Relations Marketing

Unit:4	Title of the Unit (Capitalize each Word)	15-- hours

Marketing Mix – Product mix –Meaning of Product –Product life cycle –Branding-labelling-Price Mix-Importance-Pricing objectives - Pricing strategies –Personal selling and Sales Promotion - Place mix-Importance of channels of distribution –Functions of middlemen – Importance of retailing in today's context

Unit:5	Title of the Unit (Capitalize each Word)	13-- hours
Marketing and Government –Bureau of Indian Standards –Agmark –Consumerism – Consumer Protecting – Rights of consumers- Green Marketing –Forward Trading in Commodities		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars - webinars		
	Total Lecture hours	**75-- hours**

Text Book(s)	
1	Marketing Management - Rajan Sexena
2	Principles of Marketing - Philip Kotler &Gary Armstrong
3	Marketing Management - V.S. Ramasamy and Namakumari

Reference Books	
1	Marketing -William G.Zikmund & Michael D'Amico
2	Marketing - R.S.N.Pillai &Bagavathi

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	
2	
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Course Designed By:

	Mapping Course objectives and course outcomes				
	PO1	**PO2**	**PO3**	**PO4**	**PO5**
CO1	S	S	M	S	S
CO2	S	S	M	S	M
CO3	S	S	S	M	M
CO4	S	S	M	M	M
CO5	S	S	S	S	M

*S-Strong; M-Medium; L-Low

Third Semester

Course code		TITLE OF THE COURSE	L	T	P	C
Core- 5		Higher financial accounting	4			4
Pre-requisite		Basic knowledge in accounting	Syllabus Version			

Course Objectives:

The main objectives of this course are to:

1. To provide insight about maintaining partnership accounts
2. To promote understanding about maintaining books of accounts at the time of retirement
3. To offer understanding about dissolution and insolvency of partnership
4. To facilitate knowledge about individual insolvency and claims
5. To promote knowledge about human resource and inflation accounting

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understanding the basic concepts of partner and procedures related to calculation of ratios.	K2
2	Acquiring the principle at the time of retirement in the books of partner	K1
3	Analyzing dissolution and insolvency of firms and individuals.	K4
4	Evaluate the insolvency or loss of individuals or firms.	K5
5	Examine the concepts based on voyage, Human resource and inflation accounting.	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Title of the Unit (Capitalize each Word)	20-- hours

Introduction- Admission of a Partner - Treatment of Goodwill - Revaluation of Assets and Liabilities - Calculation of Ratios for Distribution of Profits - Capital Adjustments.

Unit:2	Title of the Unit (Capitalize each Word)	20-- hours

Retirement of Partner - Calculation of Gaining Ratio- Revaluation of Assets and Liabilities Treatment of Goodwill – Adjustment of Goodwill through Capital A/c only - Settlement of Accounts - Retiring Partner's Loan Account with equal Installments only.

Unit:3	Title of the Unit (Capitalize each Word)	20-- hours

Dissolution - Insolvency of Partners- Garner Vs Murray- Insolvency of all Partners - Deficiency A/c - .Piecemeal Distribution - Proportionate Capital Method only.

Unit:4	Title of the Unit (Capitalize each Word)	20-- hours

Insolvency of Individuals and Firms – Fire Claims : Normal Loss – Abnormal Loss

Unit:5	Title of the Unit (Capitalize each Word)	23-- hours

Voyage Accounts - Human Resources Accounting and Inflation Accounting (Theory only).

Unit:6	Contemporary Issues	2 hours

Expert lectures, online seminars - webinars

	Total Lecture hours	**105-- hours**
Text Book(s)		
1	S.P. Jain & K.L. Narang, “Advanced Accounting”, Kalyani Publications, NewDelhi.	
2	Reddy & Murthy, “Financial Accounting”, Margham Publicatuions, Chennai, 2004.	
3	Dr. M. A. Arulanandam, Dr. K.S. Raman, “Advanced Accountancy Part-I”, Himalaya Publication, New Delhi.	
Reference Books		
1	Gupta R.L. & Radhaswamy M.,”Corporate Accounts “, Theory Method and Application - 13th Revised Edition 2006, Sultan Chand & Co., New Delhi .	
2	Shukla M.C., Grewal T.S. & Gupta S.L., “Advanced Accountancy”, S. Chand & Co., NewDelhi.	
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]		
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Course Designed By:		

Mapping Course objectives and course outcomes					
	PO1	**PO2**	**PO3**	**PO4**	**PO5**
CO1	S	S	S	S	M
CO2	S	S	M	S	L
CO3	S	S	S	S	M
CO4	S	M	M	S	M
CO5	S	S	M	S	M

*S-Strong; M-Medium; L-Low

Course code		TITLE OF THE COURSE	L	T	P	C
Core- 6		Commercial law	4			4
Pre-requisite		Basic knowledge in commerce activities	Syllabus Version			

Course Objectives:

The main objectives of this course are to:

1. To provide knowledge about basics of business contract
2. To create knowledge about the regulations of agency system
3. To understand the rules of indemnity and guarantee
4. To offer knowledge about the sale and transfer of goods and the applicable laws and regulations

Expected Course Outcomes:

1	Assessing the various elements related business law and contract	K5
2	Interpreting different type of contract and its features	K2
3	Explain about the agency system related to creation and termination of agency	K5
4	Compare between rights and duties of indemnity , guarantee	K5
5	Examine the distinct between sale and agreement to sell and its features	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Title of the Unit (Capitalize each Word)	15-- hours

Law – Meaning and objects – Mercantile law, meaning – Sources of contracts – Classification of contracts – Essentials of a valid contract – Offer, acceptance, legality of object and consideration – Void agreement.

Unit:2	Title of the Unit (Capitalize each Word)	20-- hours

Capacity to contract – Free consent – Quasi contracts – Contingent contracts – Performance of contract – Discharge of contract – Remedies for breach of contract.

Unit:3	Title of the Unit (Capitalize each Word)	20-- hours

Contract of Agency – Creation of Agency – Personal liability of an Agent – Agency by ratification– Conditions and effects – Termination of Agency.

Unit:4	Title of the Unit (Capitalize each Word)	15-- hours

Contract of indemnity and guarantee – Rights and Liabilities of surety – Discharge of surety – Bailment – Rights and Duties of bailor and bailee – Pledge by non-owners.

Unit:5	Title of the Unit (Capitalize each Word)	18-- hours

Law of sale of goods – Distinction between sale and agreement to sell – Conditions and warranties to sell – Conditions and Warranties – Transfer of Ownership – Transfer of title by Non-owners – Performance of contract of sale – Rights and Duties of buyer – Rights of unpaid seller.

Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars - webinars		
	Total Lecture hours	**90-- hours**

Text Book(s)

1	N.D.Kapoor------ Business Laws – Sulthan Chand & Sons
2	R.S.N. Pillai and Bagavathy------Business Laws- S.Chand & Co

Reference Books

1	M.C.Kuchhal---- Mercantile Law---Vikas Publications
2	K.R.Bulchandani----Business Law----Himalaya Publishing House

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

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Course Designed By:

Mapping Course objectives and course outcomes

	PO1	PO2	PO3	PO4	PO5
CO1	S	S	S	S	S
CO2	S	S	S	S	S
CO3	S	S	S	S	S
CO4	S	S	S	S	M
CO5	S	S	S	S	M

*S-Strong; M-Medium; L-Low

Course code		TITLE OF THE COURSE	L	T	P	C
Core- 7		Principles of management	4			4
Pre-requisite		Basic knowledge in management	Syllabus Version			

Course Objectives:

The main objectives of this course are to:

1. To provide understanding about basic terminologies of management
2. To explore the fundamental principles, process and steps in management including planning
3. To develop knowledge about organizing function in business
4. To explore the concept of motivation in organizational context
5. To generate ideas about effective communication in the business

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Explaining the concepts based on management and its features	K2
2	Summarizing the principles and importance of planning	K2
3	Interpreting various concepts based on organization and its element	K2
4	Examining the determinants of behaviour and motivation theories	K4
5	Understanding the need and techniques of communication in management	K2

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Title of the Unit (Capitalize each Word)	20-- hours

Definition of Management – Management and Administration – Nature and Scope of Management - Functions of Management - Contribution of F.W. Taylor – Heniry Fayol – Mary Parker Follet – Mc Gregor and Peter F. Drucker.

Unit:2	Title of the Unit (Capitalize each Word)	18-- hours

Planning – Meaning – Nature and Importance of Planning – Planning promises – Methods and Types of plans – Decision Making.

Unit:3	Title of the Unit (Capitalize each Word)	17-- hours

Organization – Meaning, Nature and Importance – Process of Organization – Principles of Sound Organization – Organization Structure – Span of Control – Organization Chart - Departmentation – Delegation and Decentralization – Authority relationship Line, Functional and Staff.

Unit:4	Title of the Unit (Capitalize each Word)	15-- hours

Motivation – Need – Determinants of behaviour – Maslow's Theory of Motivation – Motivation Theories in Management – X, Y and Z theories – Leadership styles – MBO – Management by Exception.

Unit:5	Title of the Unit (Capitalize each Word)	18-- hours

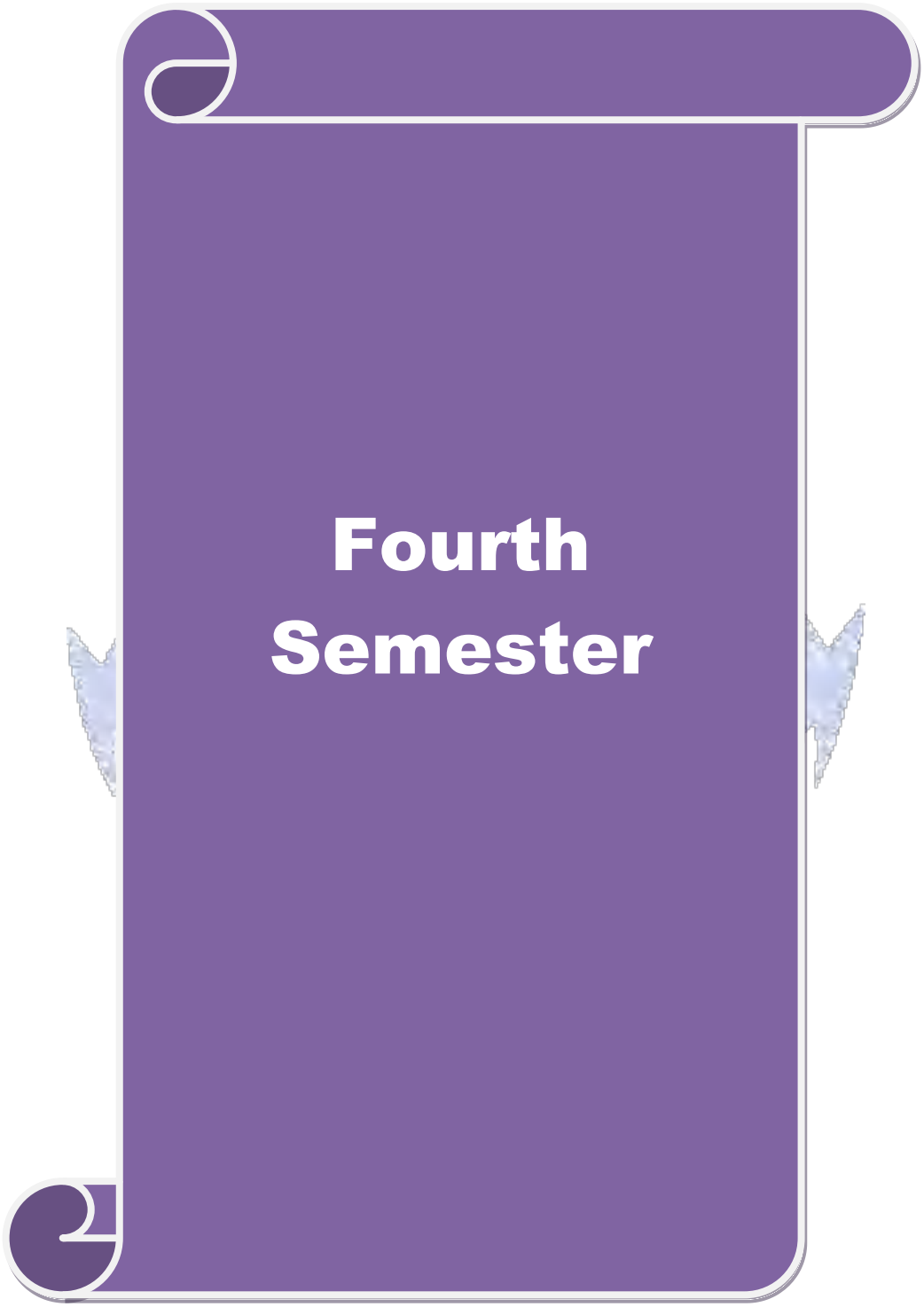
Communication in Management – Co-Ordination – Need and Techniques – Control – Nature and process of Control – Techniques of Control.

Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars - webinars		
	Total Lecture hours	**90-- hours**

Text Book(s)	
1	The Principles of Management - Rustom S. Davan
2	Business Organization and Management - Y. K. Bhushan
3	Business Management - Chatterjee
Reference Books	
1	Principles of Management - Koontz and O'Donald
2	Business Management - Dinkar - Pagare
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
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Course Designed By:	

Mapping Course objectives and course outcomes					
	PO1	**PO2**	**PO3**	**PO4**	**PO5**
CO1	S	S	S	S	S
CO2	S	S	S	S	S
CO3	S	S	S	S	S
CO4	S	S	M	S	S
CO5	S	S	S	M	M

*S-Strong; M-Medium; L-Low


Fourth
Semester

Course code		TITLE OF THE COURSE	L	T	P	C
Core- 8		Corporate Accounting-1	4			4
Pre-requisite		Basic knowledge in company accounts	Syllabus Version			

Course Objectives:

The main objectives of this course are to:

1. To provide basic understanding about the accounts relating to shares and debentures
2. To analyze the final accounts of companies
3. To explore various methods for the valuation of goodwill
4. To assist preparation of books of accounts during liquidation of companies

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Explaining about the basic provisions towards issue of shares in market	K2
2	Understanding the concepts of debenture and its accounting	K2
3	Analyze the companies final accounts and Managerial Remuneration	K4
4	Estimating methods of goodwill and shares	K5
5	Examine various procedures related to liquidation of companies	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Title of the Unit (Capitalize each Word)	15-- hours

Issue of shares : Par , Premium and Discount - Forfeiture - Reissue – Surrender of Shares – Right Issue - Underwriting

Unit:2	Title of the Unit (Capitalize each Word)	15-- hours

Redemption of Preference Shares. Debentures – Issue – Redemption : Sinking Fund Method.

Unit:3	Title of the Unit (Capitalize each Word)	15-- hours

Final Accounts of Companies - Calculation of Managerial Remuneration.

Unit:4	Title of the Unit (Capitalize each Word)	15-- hours

Valuation of Goodwill and Shares – Need – Methods of valuation of Goodwill and Shares.

Unit:5	Title of the Unit (Capitalize each Word)	13-- hours

Liquidation of Companies - Statement of Affairs -Deficiency a/c.

Unit:6	Contemporary Issues	2 hours

Expert lectures, online seminars - webinars

	Total Lecture hours	75-- hours

Text Book(s)	
1	**S.P. Jain & K.L. Narang,** "Advanced Accounting", Kalyani Publications, New Delhi.
2	**Gupta R.L. & Radhaswamy M.** ,"Corporate Accounts ", Theory Method and Application-13th Revised Edition 2006, Sultan Chand & Co., New Delhi.
3	**Dr. M.A. Arulanandam, Dr. K.S. Raman**, "Advanced Accountancy, Part-I", HimalayaPublications, New Delhi.2003.
Reference Books	
1	**Gupta R.L. & Radhaswamy M.**,"Corporate Accounts ", Theory Method and Application-13th Revised Edition 2006, Sultan Chand & Co., New Delhi.
2	**Shukla M.C., Grewal T.S. & Gupta S.L.**, "Advanced Accountancy", S. Chand & Co., NewDelhi
3	**Reddy & Murthy,** "Financial Accounting", Margham Publicatuions, Chennai, 2004
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
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Course Designed By:	

Mapping Course objectives and course outcomes					
	PO1	**PO2**	**PO3**	**PO4**	**PO5**
CO1	S	S	S	M	S
CO2	S	S	S	M	S
CO3	S	S	S	S	S
CO4	M	S	S	S	S
CO5	S	S	S	M	M

*S-Strong; M-Medium; L-Low

Course code		TITLE OF THE COURSE	L	T	P	C
Core- 9		Computer Applications in Business	4			4
Pre-requisite		Basic knowledge in computer	Syllabus Version			

Course Objectives:

The main objectives of this course are to:

1. To introduce the concept of computer and its various parts.
2. To explain the concept of data base management system and Management information system.
3. To provide insight about networking and basics of internet

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Recall the various concepts relating to computer and its various parts	K1
2	Understand the meaning of software's, operating system etc	K2
3	Understanding the meaning and utility of database management system	K2
4	Evaluate the various aspects of management information system	K5
5	Generating more ideas regarding the use of internet for business purpose	K6
1	Recall various terms of computer and its part	K1
2	Understand the meaning of software, operating system, programming language and its features	K2
3	Comparing Data Vs Information and its management system	K2
4	Understanding about various concepts of management information system	K2
5	Explain about networking and elements based on internet	K2

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Title of the Unit (Capitalize each Word)	15-- hours

Computer : Introduction – Meaning – Characteristics – Generations – Types of Digital Computer – Components of Computer – Input, Storage and Output Devices – Uses of Computers in Modern Business.

Unit:2	Title of the Unit (Capitalize each Word)	10-- hours

Software: Meaning – Types of Software – Operating Systems: Meaning - Functions – Types - Programming Language – Compilers and Interpreters.

Unit:3	Title of the Unit (Capitalize each Word)	10-- hours

Database Processing: Data Vs. Information – Database Management Systems: Meaning - Components – Uses – Limitations – Types.

Unit:4	Title of the Unit (Capitalize each Word)	15-- hours

Management Information System: Meaning – Characteristics - Functional Management Information Systems: Financial – Accounting – Marketing- Production – Human resource – Business Process Outsourcing.

Unit:5	Title of the Unit (Capitalize each Word)	8-- hours
Networking – Meaning – Types - Internet : Meaning – Internet Basis - World Wide Web – Internet Access – Internet Addressing – Search Engines – Electronic Mail.		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars - webinars		
	Total Lecture hours	**60-- hours**

Text Book(s)

1	Fundamentals of Information Technology - Alexis Leon & Mathews Leon
2	Information Technology for Management - Henry C. Lucas

Reference Books

1	Computers and Commonsense - Roger Hunt and John Shellery
2	Management Information System - Dr. S.P. Rajagopalan

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

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Course Designed By:

Mapping Course objectives and course outcomes

	PO1	PO2	PO3	PO4	PO5
CO1	S	S	L	L	L
CO2	S	S	L	M	M
CO3	S	M	M	L	L

*S-Strong; M-Medium; L-Low

Course code		TITLE OF THE COURSE	L	T	P	C
Core- 10		Company law and secretarial practice	4			4
Pre-requisite		Basic knowledge in law	Syllabus Version			

Course Objectives:

The main objectives of this course are to:

1. To develop a strong foundation regarding corporate laws and provisions
2. To provide knowledge about qualification and disqualification of directors and winding up procedures of the companies
3. To provide insights about corporate secretaryship and rules relating to company meetings.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Define the fundamentals of corporate law	K1
2	Identify the role, responsibilities, appointment and liabilities of corporate directors	K2
3	Analyzing various winding up procedures, regulations and formalities under law	K4
4	Examine the role of corporate secretaryship and specific conditions	K4
5	Outline corporate level meetings with regard to duties of company secretary, drafting correspondence, Notice, Agenda and Minutes	K2

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Title of the Unit (Capitalize each Word)	15-- hours

Formation of Companies – promotion – Meaning – Promoters – their functions – Duties of Promoters – Incorporation – Meaning – certification of Incorporation – Memorandum of Association – Meaning – Purpose – Alteration of Memorandum – Doctrine of Ultravires – Articles of Association - Meaning – Forms – Contents – Alteration of Article – Relationship between Articles and Memorandum – Doctrine of Indoor Management – Exceptions to Doctrine of Indoor Management – Prospectus – Definitions – Contents – Deemed Prospectus – Misstatement in prospectus – Kinds of Shares and Debentures.

Unit:2	Title of the Unit (Capitalize each Word)	10-- hours

Directors – Qualification and Disqualification of Directors – Appointment of Directors – Removal of Directors – Director's remuneration – Powers of Directors – Duties of Directors – Liabilities of Directors

Unit:3	Title of the Unit (Capitalize each Word)	10-- hours

Winding up – Meaning, Modes of Winding up – Compulsory Winding up by the court – voluntary Winding up – Types of Voluntary Winding up – members voluntary Winding up – Creditors voluntary Winding up – Winding up subject to supervision of the court – Consequences of Winding up(General).

Unit:4	Title of the Unit (Capitalize each Word)	15-- hours

Company Secretary – Who is a secretary – Types – Positions – Qualities – Qualifications – Appointments and Dismissals – Power – Rights – Duties – Liabilities of a Company Secretary – Role of a Company Secretary – (1) As a statutory officer, (2) As a Co-Coordinator, (3) As an Administrative Officer.

Unit:5	**Title of the Unit (Capitalize each Word)**	**8-- hours**
Kinds of Company meetings – Board of Directors Meeting – Statutory meeting – Annual General meeting – Extra ordinary General meeting - Duties of a Company Secretary to all the company meetings – Drafting of Correspondence – Relating to the meetings – Notices - Agenda Chairman's speech – Writing of Minutes.		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars - webinars		
	Total Lecture hours	**60-- hours**

Text Book(s)	
1	M.C.Shukla and S.S.Gulshan----Principles of Company Law----S.Chand & Co.,
2	M.C.Shukla and S.S.Gulshan---- S.Chand & Co.,
Reference Books	
1	N.D.Kapoor----Company Law----Sultan Chand & Sons
2	M.C.Kuchhal---- Secretarial Practice----Vikas Publications
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
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Course Designed By:

	Mapping Course objectives and course outcomes				
	PO1	**PO2**	**PO3**	**PO4**	**PO5**
CO1	S	M	S	S	M
CO2	S	S	M	M	S
CO3	S	M	M	S	S
CO4	S	S	S	S	S
CO5	S	S	S	M	M

*S-Strong; M-Medium; L-Low

Course code		TITLE OF THE COURSE	L	T	P	C
Core- 11		Executive business communication	3			3
Pre-requisite		Basic knowledge in business communication	Syllabus Version			

Course Objectives:

The main objectives of this course are to:

1. To provide information on effective business communication and techniques to respond to business queries.
2. To provide knowledge about banking correspondence and company secretarial correspondence

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Outline the importance of effective business communication	K2
2	Understand the intricacies of responding to business related queries	K2
3	Categorizing effective correspondence with banks, insurance and agencies	K3
4	Examine effective response to company secretarial correspondence	K4
5	Analyze new innovative and effective ideas for business communication	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Title of the Unit (Capitalize each Word)	8-- hours

Business Communication : Meaning – Importance of Effective Business Communication- Modern Communication Methods – Business Letters : Need – Functions - Kinds - Essentials of Effective Business Letters - Layout.

Unit:2	Title of the Unit (Capitalize each Word)	9-- hours

Trade Enquiries - Orders and their Execution - Credit and Status Enquiries – Complaints and Adjustments - Collection Letters – Sales Letters – Circular Letters.

Unit:3	Title of the Unit (Capitalize each Word)	8-- hours

Banking Correspondence - Insurance Correspondence - Agency Correspondence.

Unit:4	Title of the Unit (Capitalize each Word)	7-- hours

Company Secretarial Correspondence (Includes Agenda, Minutes and Report Writing)

Unit:5	Title of the Unit (Capitalize each Word)	11-- hours

Application Letters – Preparation of Resume - Interview: Meaning – Objectives and Techniques of various types of Interviews – Public Speech – Characteristics of a good speech – Business Report Presentations

Unit:6	Contemporary Issues	2 hours

Expert lectures, online seminars - webinars

	Total Lecture hours	45-- hours

Text Book(s)

1	**Rajendra Pal Korahill**, "Essentials of Business Communication", Sultan Chand & Sons, New Delhi, 2006.
2	**Ramesh, MS, & C. C Pattanshetti**, "Business Communication", R.Chand&Co, New Delhi, 2003.
Reference Books	
1	**Rodriquez M V**, "Effective Business Communication Concept" Vikas Publishing Company,2003.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
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Course Designed By:	

Mapping Course objectives and course outcomes					
	PO1	**PO2**	**PO3**	**PO4**	**PO5**
CO1	S	S	S	S	S
CO2	S	S	S	M	M
CO3	S	S	M	S	S
CO4	S	S	S	S	S
CO5	S	S	S	M	M

*S-Strong; M-Medium; L-Low

Course code		TITLE OF THE COURSE	L	T	P	C
Core- 12		Banking theory	3			3
Pre-requisite		Basic knowledge in banking activities	Syllabus Version			

Course Objectives:

The main objectives of this course are to:

1. To understand the recent trends and innovations in banking sector
2. To elaborate the functioning and working of central banking system and commercial banks in India
3. To provide a glimpse about the working of Indian money market

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Illustrate the classification of commercial banks, functions and credit creation	K2
2	Outline the recent trade in banking	K2
3	Analyze the functions of central banks and its credit controlling measures	K4
4	Examine the concepts of Indian Money Market	K4
5	Explain the role of SBI Commercial banks and Development banks	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Title of the Unit (Capitalize each Word)	8-- hours

Origin of banks-Definition of banking- Classification of banks- Banking System: Unit Banking – Branch Banking Universal Banking & Banking Markets – Functions of Modern commercial Banks - Balance Sheet of commercial Banks – Credit Creation by commercial Banks.

Unit:2	Title of the Unit (Capitalize each Word)	9-- hours

Recent Trades in Indian Banking – Automated teller Machines – Merchant Banking – Mutual Fund – Factoring Services – Customer Services – Credit Cards – E-banking – Privatization of commercial banks – Place of Private Sector Banks in India.

Unit:3	Title of the Unit (Capitalize each Word)	8-- hours

Central Banks – Functions – Credit Control Measures – Quantitative and Selective Credit control measures – Role of RBI in regulating and controlling banks.

Unit:4	Title of the Unit (Capitalize each Word)	7-- hours

Indian Money Market – Organized and Unorganized Part – Deficiencies of the Indian Money Market – Comparison with British and American Money Markets.

Unit:5	Title of the Unit (Capitalize each Word)	11-- hours

State Bank of India – Its special place in the banking scene – Commercial banks and rural financing – Regional Rural Banks - Place of Co-operative banks in the Indian Banking scene – Development banking – IDBI – ICICI.

Unit:6	Contemporary Issues	2 hours

Expert lectures, online seminars - webinars

	Total Lecture hours	45-- hours

Text Book(s)	
1	Sundharam and Varshney, Banking theory Law & Practice, Sultan Chand & Sons., New Delhi. 3.
2	Banking Regulation Act, 1949.
3	Basu : Theory and Practice of Development Banking
Reference Books	
1	Reserve Bank of India, Report on currency and Finance 2003-2004.
2	Reddy & Appanniah : Banking Theory and Practice
3	Natarajan & Gordon : Banking Theory and Practice
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
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Course Designed By:	

Mapping Programme outcomes					
	PO1	**PO2**	**PO3**	**PO4**	**PO5**
CO1	S	S	S	S	S
CO2	S	S	S	S	S
CO3	S	S	S	S	S
CO4	S	S	S	S	S
CO5	S	S	S	M	M

*S-Strong; M-Medium; L-Low


Fifth
Semester

Course code		TITLE OF THE COURSE	L	T	P	C
Core- 13		Corporate Accounting- II	4			4
Pre-requisite		Basic knowledge in Company Accounts	Syllabus Version			

Course Objectives:

1. To understand the concept of mergers and acquisitions
2. To familiarize with holding company accounts
3. To prepare the final accounts of banking companies
4. To prepare the accounts of insurance companies
5. To assist the preparation of electricity companies accounts

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Recall various concepts and methods of preparing accounts under mergers and acquisitions	K1
2	Understand various methods of preparing holding company accounts	K2
3	Understand various methods of preparing and assessing final accounts of banking companies	K2
4	Analyze the final accounts of insurance companies	K4
5	Analyze the accounting statements of electricity companies	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Title of the Unit (Capitalize each Word)	20-- hours

Accounting for Mergers and Amalgamation – Absorption and External Reconstruction

Unit:2	Title of the Unit (Capitalize each Word)	18-- hours

Holding Company Accounts - Consolidation of Balance Sheets with treatment of Mutual Owings, Contingent Liability, Unrealized Profit, Revaluation of Assets, Bonus issue and payment of dividend (Inter Company Holdings excluded).

Unit:3	Title of the Unit (Capitalize each Word)	17-- hours

Banking Company Accounts - Preparation of Profit and Loss Account and Balance Sheet (New format only) - Rebate on Bills Discounted - Classification of Advances - Classification of Investments.

Unit:4	Title of the Unit (Capitalize each Word)	15-- hours

Insurance Company accounts: General Insurance and Life Insurance - Under IRDA 2000

Unit:5	Title of the Unit (Capitalize each Word)	18-- hours

Statements of Accounts for Electricity Companies – Treatment of Repairs and Renewals - Accounting Standards – Financial Reporting Practice (Theoretical Aspects)

Unit:6	Contemporary Issues	2 hours

Expert lectures, online seminars - webinars

	Total Lecture hours	**90-- hours**
Text Book(s)		
1	S.P. Jain & K.L. Narang, "Advanced Accounting", Kalyani Publications, New Delhi. 5. Shukla M.C.	
2	Gupta R.L. & Radhaswamy M. ,"Corporate Accounts ", Theory Method and Application-13th Revised Edition 2006, Sultan Chand & Co., New Delhi	
3	Dr. M.A. Arulanandam, Dr. K.S. Raman, "Advanced Accountancy, Part-I", Himalaya Publications, New Delhi.2003.	
Reference Books		
1	Gupta R.L. & Radhaswamy M.,"Corporate Accounts ", Theory Method and Application-13th Revised Edition 2006, Sultan Chand & Co., New Delhi.	
2	Grewal T.S.& Gupta S.L.,"Advanced Accountancy",S. Chand & Co., New Delhi	
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]		
1		
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Course Designed By:		

Mapping Programme outcomes					
	PO1	**PO2**	**PO3**	**PO4**	**PO5**
CO1	S	M	S	M	S
CO2	S	S	S	M	S
CO3	S	S	S	S	S
CO4	S	S	S	S	S
CO5	S	S	S	M	M

*S-Strong; M-Medium; L-Low

Course code		TITLE OF THE COURSE	L	T	P	C
Core- 14		Banking Law and Practices	4			4
Pre-requisite		Basic knowledge in Banking	Syllabus Version			

Course Objectives:

The main objectives of this course are to:

1. To provide knowledge about the working of banking industry
2. To understand the basic understanding of loan disbursement policies of banks
3. To provide insights about various documents used in banking services

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Remembering the various terms and concepts used in banking industry	K1
2	Understanding the various process and activities of accounts in banks	K2
3	Outline various features of cheques for easy and simple banking	K2
4	Examine the various loans and advance related process in banks	K4
5	Classifying various kind of documents involved in banking services	K2

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Title of the Unit (Capitalize each Word)	15-- hours

Definition of banker and customer – Relationships between banker and customer – special feature of RBI, Banking regulation Act 1949. Secrecy of customer Account.

Unit:2	Title of the Unit (Capitalize each Word)	15-- hours

Opening of account – special types of customer – types of deposit – Bank Pass book – collecting banker – paying banker – banker lien.

Unit:3	Title of the Unit (Capitalize each Word)	15-- hours

Cheque – features essentials of valid cheque – crossing – making and endorsement – payment of cheques statutory protection duties to paying banker and collective banker - refusal of payment cheques Duties holder & holder id due course.

Unit:4	Title of the Unit (Capitalize each Word)	15-- hours

Loan and advances by commercial bank lending policies of commercial bank - Forms of securities – lien pledge hypothecation and advance against the documents of title to goods – mortgage.

Unit:5	Title of the Unit (Capitalize each Word)	13-- hours

Position of surety – Letter of credit – Bills and supply bill. Purchase and discounting bill Traveling cheque, credit card, Teller system.

Unit:6	Contemporary Issues	2 hours

Expert lectures, online seminars - webinars

	Total Lecture hours	75-- hours

Text Book(s)	
1	Sundharam and Varshney, Banking theory Law & Practice, Sultan Chand & Sons., New Delhi.
2	Basu : Theory and Practice of Development Banking
3	Reddy & Appanniah : Banking Theory and Practice
Reference Books	
1	Natarajan & Gordon : Banking Theory and Practice
2	Banking Regulation Act, 1949.
3	Reserve Bank of India, Report on currency and Finance 2003-2004.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
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Course Designed By:	

Mapping Programme outcomes					
	PO1	**PO2**	**PO3**	**PO4**	**PO5**
CO1	S	S	S	S	S
CO2	S	S	S	S	S
CO3	S	S	S	S	S
CO4	S	S	S	S	S
CO5	S	S	S	M	M

*S-Strong; M-Medium; L-Low

Course code		TITLE OF THE COURSE	L	T	P	C
Core- 15		Cost Accounting	4			4
Pre-requisite		Basic knowledge in Accounting	Syllabus Version			

Course Objectives:

The main objectives of this course are to:

1. To understand the concept and various components of costing
2. To assist preparation of accounts under process costing
3. To familiarize with the techniques of operating costing

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Recall various concepts of costing and costing methods	K1
2	Analyze the various elements of costing	K4
3	Explain the labour wage payment system	K2
4	Outline the cost under process costing system	K2
5	Examine about operational costing, contract costing and Reconciliation of Cost and Financial Statements.	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Title of the Unit (Capitalize each Word)	15-- hours

Cost Accounting – Definition – Meaning and Scope – Concept and Classification – Costing an aid to Management — Types and Methods of Cost – Elements of Cost Preparation of Cost Sheet and Tender.

Unit:2	Title of the Unit (Capitalize each Word)	15-- hours

Material Control: Levels of material Control – Need for Material Control – Economic Order Quantity – ABC analysis – Perpetual inventory – Purchase and stores Control: Purchasing of Materials – Procedure and documentation involved in purchasing – Requisition for stores – Stores Control – Methods of valuing material issue.

Unit:3	Title of the Unit (Capitalize each Word)	15-- hours

Labour: System of wage payment – Idle time – Control over idle time – Labour turnover. Overhead – Classification of overhead – allocation and absorption of overhead.

Unit:4	Title of the Unit (Capitalize each Word)	15-- hours

Process costing – Features of process costing – process losses, wastage, scrap, normal process loss – abnormal loss, abnormal gain. (Excluding inter process profits and equivalent production).

Unit:5	Title of the Unit (Capitalize each Word)	13-- hours

Operating Costing - Contract costing – Reconciliation of Cost and Financial accounts.

Unit:6	Contemporary Issues	2 hours

Expert lectures, online seminars - webinars

	Total Lecture hours	75-- hours

Text Book(s)	
1	S.P. Jain and KL. Narang , "Cost Accounting", Kalyani Publishers, New Delhi.Edn.2005
2	R.S.N. Pillai and V. Bagavathi , "Cost Accounting",S. Chand and Company Ltd., New Delhi.Edn.2004
3	S.P.Iyyangar, "Cost Accounting Principles and Practice", Sultan Chand, New Delhi. 2005
Reference Books	
1	V.KSaxena & C.D.Vashist, "Cost Accounting", Sultan Chand, New Delhi 2005
2	M.N.Arora, "Cost Accounting", Sultan Chand, NewDelhi 2005.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	
2	
4	
Course Designed By:	

Mapping Programme outcomes					
	PO1	**PO2**	**PO3**	**PO4**	**PO5**
CO1	S	S	S	S	S
CO2	S	S	S	S	S
CO3	S	S	S	M	M
CO4	S	S	M	M	M
CO5	S	S	S	M	M

*S-Strong; M-Medium; L-Low

Course code		TITLE OF THE COURSE	L	T	P	C
Core- 16		Income tax law and practices	4			4
Pre-requisite		Basic knowledge in law	Syllabus Version			

Course Objectives:

The main objectives of this course are to:

1. To understand the various concepts of income tax and related terminologies
2. To familiarize with calculation if income under different heads
3. To understand the process of set off and carry forward of losses while computing total income

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Outline the various terminologies related to income tax	K1
2	Understand the method of calculating and levying tax	K2
3	Apply the various tax laws and available provisions in tax computations	K3
4	Evaluate the set off and carry forward of losses while calculating personal income	K5
5	Analyze self-assessment of income and tax computation	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	**Title of the Unit (Capitalize each Word)**	**20-- hours**

Income Tax Act – Definition of Income – Assessment year – Previous Year – Assessee – Scope of Income – Charge of Tax – Residential Status – Exempted Income.

Unit:2	**Title of the Unit (Capitalize each Word)**	**18-- hours**

Heads of Income: Income from Salaries – Income from House Property.

Unit:3	**Title of the Unit (Capitalize each Word)**	**17-- hours**

Profit and Gains of Business or Profession – Income from Other Sources.

Unit:4	**Title of the Unit (Capitalize each Word)**	**15-- hours**

Capital Gains – Deductions from Gross Total Income.

Unit:5	**Title of the Unit (Capitalize each Word)**	**18-- hours**

Set off and Carry forward of losses – Aggregation of Income- Computation of Tax liability – Assessment of Individuals.

Unit:6	**Contemporary Issues**	**2 hours**

Expert lectures, online seminars - webinars

	Total Lecture hours	**90-- hours**

Text Book(s)

1. Gaur and Narang, “Income Tax Law and Practice” Kalyani publishers New Delhi

Reference Books

1. Dr. HC Mehrotra, “Income-tax Law and Accounts” Sahithya Bhavan publishers

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
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Course Designed By:	

Mapping Programme outcomes					
	PO1	**PO2**	**PO3**	**PO4**	**PO5**
CO1	S	S	L	L	L
CO2	S	S	L	M	M
CO3	S	M	M	L	L
CO4	S	S	L	M	M
CO5	S	M	M	L	L

*S-Strong; M-Medium; L-Low


Sixth
Semester

Course code		TITLE OF THE COURSE	L	T	P	C
Core- 17		Management accounting	4			4
Pre-requisite		Basic knowledge in Accounting	Syllabus Version			

Course Objectives:

The main objectives of this course are to:

1. To understand the various components of management accounting and related terms
2. To understand analysis using ratio, working capital management and marginal costing
3. To familiarize with budget preparation and budgetary control tools

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Outline the various concepts relating to management accounting	K2
2	Analyze financial statements using ratio analysis	K4
3	Evaluate the working capital management of companies	K5
4	Comparing various alternatives using marginal costing and decision making	K2
5	Analyze new budget and budgetary control for organizations	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Title of the Unit (Capitalize each Word)	20-- hours

Management Accounting – Meaning – Objectives and Scope – Relationship between Management Accounting , Cost Accounting and Financial Accounting.

Unit:2	Title of the Unit (Capitalize each Word)	18-- hours

Ratio Analysis – Analysis of liquidity – Solvency and Profitability – Construction of Balance Sheet.

Unit:3	Title of the Unit (Capitalize each Word)	17-- hours

Working Capital – Working capital requirements and its computation – Fund Flow Analysis and Cash Flow Analysis.

Unit:4	Title of the Unit (Capitalize each Word)	15-- hours

Marginal costing and Break Even Analysis – Managerial applications of marginal costing – Significance and limitations of marginal costing.

Unit:5	Title of the Unit (Capitalize each Word)	18-- hours

Budgeting and Budgetary control – Definition – Importance, Essentials – Classification of Budgets – Master Budget – Preparation of cash budget, sales budget, purchase budget, material budget, flexible budget.

Unit:6	Contemporary Issues	2 hours

Expert lectures, online seminars - webinars

	Total Lecture hours	90-- hours

Text Book(s)	
1	Dr. S.N. Maheswari. “Management Accounting”, Sultan Chand & Sons, New Delhi, 2004. 2.. 3. 4.
2	Sharma and S.K.Gupta “Management Accounting”, Kalyani Publishers, New Delhi,2006
Reference Books	
1	. S.P. Jain and KL. Narang , “Cost and Management Accounting”, Kalyani Publishers, New Delhi
2	S.K.Bhattacharya, “Accounting and Management”, Vikas Publishing House.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
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4	
Course Designed By:	

Mapping Programme outcomes					
	PO1	**PO2**	**PO3**	**PO4**	**PO5**
CO1	S	S	S	S	S
CO2	S	S	S	S	S
CO3	S	S	S	S	S
CO4	S	S	S	M	M
CO5	S	S	S	M	M

*S-Strong; M-Medium; L-Low

Course code		TITLE OF THE COURSE	L	T	P	C
Core- 18		Principles of Auditing	4			4
Pre-requisite		Basic knowledge in auditing	Syllabus Version			

Course Objectives:

The main objectives of this course are to:

1. To understand the various concepts of auditing and the procedure for the conduct of internal audit
2. To familiarize with the process of valuing assets and liabilities
3. To understand the process of auditing the joint stock companies and investigation mechanism

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Define the important concept and rules relating to auditing	K1
2	Outline the techniques and applicability of internal audit	K2
3	Analyze the valuation of assets and liabilities in business	K4
4	Analyze the accounts and auditing the joint stock companies	K4
5	Examine about investigation and auditing of computerized accounts	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Title of the Unit (Capitalize each Word)	15-- hours

Auditing– Origin – Definition – Objectives – Types – Advantages and Limitations – Qualities of an Auditor – Audit Programmes

Unit:2	Title of the Unit (Capitalize each Word)	15-- hours

Internal Control – Internal Check and Internal Audit –Audit Note Book – Working Papers. Vouching – Voucher – Vouching of Cash Book – Vouching of Trading Transactions – Vouching of Impersonal Ledger.

Unit:3	Title of the Unit (Capitalize each Word)	15-- hours

Verification and Valuation of Assets and Liabilities – Auditor's position regarding the valuation and verifications of Assets and Liabilities – Depreciation – Reserves and Provisions – Secret Reserves.

Unit:4	Title of the Unit (Capitalize each Word)	15-- hours

Audit of Joint Stock Companies – Qualification – Dis-qualifications – Various modes of Appointment of Company Auditor – Rights and Duties – Liabilities of a Company Auditor – Share Capital and Share Transfer Audit – Audit Report – Contents and Types.

Unit:5	Title of the Unit (Capitalize each Word)	13-- hours

Investigation – Objectives of Investigation – Audit of Computerised Accounts – Electronic Auditing – Investigation under the provisions of Companies Act.

Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars - webinars		
	Total Lecture hours	**75-- hours**

Text Book(s)	
1	B.N. Tandon, "Practical Auditing", S Chand Company Ltd
Reference Books	
1	.R.M De Paula, "Auditing-the English language Society and Sir Isaac Pitman and Sons Ltd,London
2	Spicer and Pegler, "Auditing: Khatalia's Auditing" 4. Kamal Gupta, "Auditing " , Tata Mcgriall Publications
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
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4	
Course Designed By:	

Mapping with programme outcomes					
	PO1	**PO2**	**PO3**	**PO4**	**PO5**
CO1	S	S	S	S	S
CO2	S	S	S	M	M
CO3	S	S	M	S	S
CO4	S	S	S	M	M
CO5	S	S	S	M	M

*S-Strong; M-Medium; L-Low

Course code		TITLE OF THE COURSE	L	T	P	C
Core- 19		Indirect taxes	4			4
Pre-requisite		Basic knowledge in tax	Syllabus Version			

Course Objectives:

The main objectives of this course are to:

1. To understand the applicability of indirect taxes in India
2. To familiarize with the calculation and execution of goods and service tax in India
3. To understand the working of custom law in India

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Recall various concepts relating to Indirect tax regime in India	K1
2	Analyze the concept and applicability of GST in businesses	K4
3	Compare the GST regime with other indirect tax laws prior to it	K2
4	Illustrate GST system in own business and other prototypes	K2
5	Examine the custom law and related duties and taxes	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Title of the Unit (Capitalize each Word)	20-- hours

Meaning of Tax and Taxation - Types of Taxes: Direct and Indirect Taxes - Features – Merits and Limitations - Comparison of Direct and Indirect taxes. Constitutional basis of Taxation in India- Methods of levying Indirect Taxes: Advoleram and Specific. Contribution of Indirect taxes to Government Revenues

Unit:2	Title of the Unit (Capitalize each Word)	18-- hours

Good and Services Tax in India - Introduction – Concept of GST - Need for GST - Advantages of GST. Structure of GST in India: Dual Concept – CGST- SGST- UTGST-IGST. Subsuming of Taxes- GST Rate Structure in India. GST Council: Structure and Functions.

Unit:3	Title of the Unit (Capitalize each Word)	17-- hours

Levy and Collection under CGST and SGST Acts: Meaning of important terms: Goods, Services, Supplier, Business, Manufacture, Casual Taxable Person, Aggregate Turnover, Input Tax and Output Tax. Taxable Event under GST: Concept of Supply - Time of supply - Value of Taxable supply. Composite and Mixed Supplies. Input Tax Credit: Meaning - Eligibility and Conditions for availing Input Tax Credit. Reverse Charge Mechanism under GST. Composition Levy: Meaning and Applicability.

Unit:4	Title of the Unit (Capitalize each Word)	15-- hours

Levy and Collection under Integrated Goods and Services Tax Act: Meaning of important terms: Integrated tax, Intermediary, Location of the Recipient and Supplier of Services, and Zero-rated Supply. Nature of Supply: Intra-State Supply and Inter-State Supply - Place of Supply of Goods or Services: Meaning and Determination. Procedures under GST: Procedure for Registration - Persons Liable for Registration - Compulsory Registration and Deemed Registration. E-Way Bill under GST: Meaning and Applicability. Filing of Returns: Types of GST Returns and their Due Dates.

Unit:5	Title of the Unit (Capitalize each Word)	18-- hours
Introduction to Customs Laws in India: The Customs Act 1962 - The Customs Tariff Act 1975 - Basic Concepts - Taxable Event - Levy and Exemptions from Customs Duty - Types - Methods of Valuation- Abatement of Duty on Damaged or Deteriorated Goods - Customs Duty Draw Back.		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars - webinars		
	Total Lecture hours	**90-- hours**

Text Book(s)	
1	Indirect Taxes Law and Practice - V.S.Datey. Taxmann Publications, New Delhi.
2	Indirect Taxes: GST and Customs Laws - R.Parameswaran and P.Viswanathan, Kavin Publications, Coimbatore.
Reference Books	
1	GST Law and Practice - S.S.Gupta, Taxmann Publications, New Delhi.
2	Indirect Taxation - V.Balachandran. Sultan Chand & Co. New Delhi
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
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Course Designed By:	

Mapping with programme outcomes					
	PO1	**PO2**	**PO3**	**PO4**	**PO5**
CO1	S	S	M	M	M
CO2	S	S	M	M	M
CO3	S	M	M	M	M
CO4	S	S	M	M	M
CO5	S	S	M	M	M

Elective Paper

Course code		TITLE OF THE COURSE	L	T	P	C
Elective 1		Business finance	4			4
Pre-requisite		Basic knowledge in finance	Syllabus Version		2020	

Course Objectives:

The main objectives of this course are to:

1. To understand the various concept relating to finance
2. To familiarize with the basics of financial planning
3. To analyze various sources and forms of finance
4. To understand the various dimensions of capital market and their components
5. To provide knowledge about capitalization and related theories

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Outline various concepts relating to finance	K2
2	List the various techniques of financial planning	K2
3	Analyze various sources and forms of finance	K4
4	Examine the various dimensions of capital market and their components	K4
5	List the capitalization concept and related theories for decision making	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Title of the Unit (Capitalize each Word)	15-- hours

Business Finance: Introduction – Meaning – Concepts - Scope – Function of Finance Traditional and Modern Concepts – Contents of Modern Finance Functions

Unit:2	Title of the Unit (Capitalize each Word)	15-- hours

Financial Plan: Meaning - Concept – Objectives – Types – Steps – Significance – Fundamentals

Unit:3	Title of the Unit (Capitalize each Word)	15-- hours

Sources and Forms of Finance: Equity Shares, Preference Shares, Bonds, Debentures and Fixed Deposits – Features – Advantages and Disadvantages- Lease Financing: Meaning – Features – Forms – Merits and Demerits.

Unit:4	Title of the Unit (Capitalize each Word)	15-- hours

Capital Structure – Cardinal Principles of Capital structure – Trading on Equity – Cost of Capital – Concept – Importance – Calculation of Individual and Composite Cost of Capital.

Unit:5	Title of the Unit (Capitalize each Word)	13-- hours

Capitalisation - Bases of Capitalisation – Cost Theory – Earning Theory – Over Capitalisation – Under Capitalisation : Symptoms – Causes – Remedies – Watered Stock – Watered Stock Vs. Over Capitalisation.

Unit:6	Contemporary Issues	2 hours

Expert lectures, online seminars - webinars

	Total Lecture hours	75-- hours

Text Book(s)	
1	Essentials of Business Finance - R.M. Sri Vatsava
2	Financial Management - Saravanavel
Reference Books	
1	Financial Management - L.Y. Pandey
2	Financial Management - M.Y. Khan and Jain
3	Financial Management - S.C. Kuchhal
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
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4	
Course Designed By:	

Mapping Course objectives and course outcomes					
	PO1	**PO2**	**PO3**	**PO4**	**PO5**
CO1	M	L	S	S	S
CO2	S	M	S	S	M
CO3	S	S	S	S	S
CO4	S	S	M	S	M
CO5	M	S	M	M	M

Course code		TITLE OF THE COURSE	L	T	P	C
Elective 2		Brand management	4			4
Pre-requisite		Basic knowledge in marketing	Syllabus Version		2020	

Course Objectives:

The main objectives of this course are to:

1. To understand the basic concepts of branding
2. To compare and analyze brand positioning and brand image building
3. To analyze the impact of brand on customer behavior
4. To familiarize with brand rejuvenation and monitoring
5. To provide insight on essential branding strategies

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Recall the basic concepts of branding and related terms	K1
2	Compare brand image building and brand positioning strategies	K2
3	Analyze the impact of brand, brand loyalty and brand audit.	K4
4	Explain the brand rejuvenation and brand monitoring process	K4
5	Apply various strategies for brand building and monitoring	K3

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Title of the Unit (Capitalize each Word)	15-- hours

Introduction- Basic understanding of brands – concepts and process – significance of a brand – brand mark and trade mark – different types of brands – family brand, individual brand, private brand – selecting a brand name – functions of a brand – branding decisions – influencing factors.

Unit:2	Title of the Unit (Capitalize each Word)	15-- hours

Brand Associations: Brand vision – brand ambassadors – brand as a personality, as trading asset, Brand extension – brand positioning – brand image building

Unit:3	Title of the Unit (Capitalize each Word)	15-- hours

Brand Impact: Branding impact on buyers – competitors, Brand loyalty – loyalty programmes – brand equity – role of brand manager – Relationship with manufacturing - marketing- finance - purchase and R & D – brand audit

Unit:4	Title of the Unit (Capitalize each Word)	15-- hours

Brand Rejuvenation: Brand rejuvenation and re-launch, brand development through acquisition takes over and merger – Monitoring brand performance over the product life cycle. Co-branding.

Unit:5	Title of the Unit (Capitalize each Word)	13-- hours

Brand Strategies: Designing and implementing branding strategies – Case studies

Unit:6	Contemporary Issues	2 hours

Expert lectures, online seminars - webinars

	Total Lecture hours	75-- hours

Text Book(s)	
1	Kevin Lane Keller, "Strategic brand Management", Person Education, New Delhi, 2003.
2	Lan Batey Asian Branding – "A great way to fly", Prentice Hall of India, Singapore 2002
3	Jagdeep Kapoor, Brandex, Biztantra, New Delhi, 2005
Reference Books	
1	Jean Noel, Kapferer, "Strategic brand Management", The Free Press, New York, 1992
2	Paul Tmeporal, Branding in Asia, John Wiley & sons (P) Ltd., New York, 2000
3	S.Ramesh Kumar, "Managing Indian Brands", Vikas publishing House (P) Ltd., New Delhi, 2002
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
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Course Designed By:	

Mapping Course objectives and course outcomes					
	PO1	**PO2**	**PO3**	**PO4**	**PO5**
CO1	S	M	S	S	S
CO2	S	S	S	M	S
CO3	S	S	M	M	M
CO4	S	S	S	S	M
CO5	S	S	M	M	M

Course code		TITLE OF THE COURSE	L	T	P	C
Elective 3		Fundamentals of Insurance	4			4
Pre-requisite		Basic knowledge about insurance	Syllabus Version		2020	

Course Objectives:

The main objectives of this course are to:

1. To understand the basic concepts of insurance
2. To familiarize with the concept of working of agency
3. To understand various forms of underwriting
4. To provide knowledge about the formation of insurance companies
5. To acquaint with the basic principles of different types of insurance

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Recall the different concepts of insurance and its working	K1
2	Explain the concept of agent and its working system	K2
3	Evaluate the functions of agents and various forms of underwriting	K5
4	Analyze the various actuarial aspects relating to insurance companies	K4
5	List the basic principles of insurance and various types of it.	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Title of the Unit (Capitalize each Word)	15-- hours

Introduction to insurance: Purpose and need of insurance: Insurance as a social security tool; insurance and economic development

Unit:2	Title of the Unit (Capitalize each Word)	15-- hours

Procedures for Becoming an Agent: Pre- requisite for obtaining a license: Duration of license; Cancellation of license; Revocation or suspension/termination of agent appointment; Code of conduct; Unfair practices.

Unit:3	Title of the Unit (Capitalize each Word)	15-- hours

Functions of the Agent: Proposal form and other forms for grant of cover; Financial and medical underwriting; Material information; Nomination and assignment; Procedure regarding settlement of policy claims.

Unit:4	Title of the Unit (Capitalize each Word)	15-- hours

Company Profile: Organizational set-up of the company; Promotion strategy; Market share; Important activities; Structure; Product; Actuarial profession; Product pricing - actuarial aspects; Distribution channels

Unit:5	Title of the Unit (Capitalize each Word)	13-- hours

Fundamental/Principles of life Insurance/Marine/Fire/Medical/General Insurance: Contract of various kinds; Insurance Interest

Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars - webinars		
	Total Lecture hours	**75-- hours**

Text Book(s)	
1	Mishra M.N: Insurance Principles and practice; S. Chand and co, New Delhi. .
2	Insurance Regulatory Development Act 1999
Reference Books	
1	Life Insurance Corporation Act 1956
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	
2	
4	
Course Designed By:	

Mapping Course objectives and course outcomes					
	PO1	**PO2**	**PO3**	**PO4**	**PO5**
CO1	S	M	S	S	S
CO2	S	S	M	S	S
CO3	S	S	M	M	M
CO4	S	M	M	S	M
CO5	S	M	M	S	S

Course code		TITLE OF THE COURSE	L	T	P	C
Elective 4		Entrepreneurial development	4			4
Pre-requisite		Basic knowledge about entrepreneurship	Syllabus Version	2020		

Course Objectives:

The main objectives of this course are to:

1. To understand the basic concepts of entrepreneurship and related initiatives
2. To provide insights about the setting up of startups
3. To familiarize with the institutional services to entrepreneur
4. To provide knowledge about various financial support available to the entrepreneurs
5. To provide knowledge about various subsidies and incentives available for entrepreneurs

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Recall the importance and role of entrepreneurship as an economic activity	K1
2	Explain the various process of setting up a startup	K2
3	Outline the various institutional services to entrepreneur	K2
4	Analyze the various financial institution available to support entrepreneurs	K4
5	List the various subsidies and incentives available for entrepreneurs	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Title of the Unit (Capitalize each Word)	15-- hours

Concept of entrepreneurship : Definition Nature and characteristics of entrepreneurship – function and type of entrepreneurship phases of EDP. Development of women entrepreneur & rural entrepreneur – including self employment of women council scheme.

Unit:2	Title of the Unit (Capitalize each Word)	15-- hours

The start-up process, Project identification – selection of the product – project formulation evaluation – feasibility analysis, Project Report.

Unit:3	Title of the Unit (Capitalize each Word)	15-- hours

Institutional service to entrepreneur – DIC, SIDO, NSIC, SISI, SSIC, SIDCO – ITCOT, IIC, KUIC and commercial bank.

Unit:4	Title of the Unit (Capitalize each Word)	15-- hours

Institutional finance to entrepreneurs : IFCI, SFC, IDBI, ICICI, TIIC, SIDCS, LIC and GIC, UTI, SIPCOT – SIDBI commercial bank venture capital.

Unit:5	Title of the Unit (Capitalize each Word)	13-- hours

Incentives and subsidies – Subsidied services – subsidy for market. Transport – seed capital assistance - Taxation benefit to SSI role of entrepreneur in export promotion and import substitution.

Unit:6	Contemporary Issues	2 hours

Expert lectures, online seminars - webinars

	Total Lecture hours	75-- hours

Text Book(s)	
1	Entrepreneurial Development – C.B.Gupta and N.P.Srinivasan
2	Fundamentals of Entrepreneurship and Small Business –Renu Arora & S.KI.Sood
Reference Books	
1	Entrepreneurial Development – S.S.Khanka 4. Entrepreneurial Development – P.Saravanavel
2	Entrepreneurial Development – S.G.Bhanushali
3	Entrepreneurial Development – Dr.N.Ramu
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	
2	
4	
Course Designed By:	

Mapping Course objectives and course outcomes					
	PO1	**PO2**	**PO3**	**PO4**	**PO5**
CO1	M	S	M	S	S
CO2	S	S	S	S	S
CO3	S	S	S	M	S
CO4	S	S	S	S	S
CO5	S	S	S	M	M

Course code		TITLE OF THE COURSE	L	T	P	C
Elective 5		Supply chain management	4			4
Pre-requisite		Basic knowledge in marketing	Syllabus Version		2020	

Course Objectives:

The main objectives of this course are to:

1. To understand the importance of supply chain management
2. To provide insight about various strategies of supply chain management
3. To understand the importance of strategic alliance in supply chain management
4. To understand the process of procurement and outsourcing
5. To acquaint knowledge about smart pricing strategies and customer value measures

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Recall the importance of supply chain management in the modern times	K1
2	Outline the various strategies in supply chain management	K2
3	Examine the concept of retailer supplier partnership	K4
4	Analyze the process of procurement, outsourcing and e-procurement	K4
5	List the ideas about smart pricing strategies and measuring customer values	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Title of the Unit (Capitalize each Word)	15-- hours

Supply Chain Management – Global Optimisation – importance – key issues – Inventory management – economic lot size model. Supply contracts – centralized vs. decentralized system

Unit:2	Title of the Unit (Capitalize each Word)	15-- hours

Supply chain Integrates- Push, Pull strategies – Demand driven strategies – Impact on grocery industry – retail industry – distribution strategies

Unit:3	Title of the Unit (Capitalize each Word)	15-- hours

Strategic Alliances: Frame work for strategic alliances – 3PL – merits and demerits – retailer – supplier partnership – advantages and disadvantages of RSP – distributor Integration

Unit:4	Title of the Unit (Capitalize each Word)	15-- hours

Procurement and Outsourcing: Outsourcing – benefits and risks – framework for make/buy decision – e-procurement – frame work of e-procurement

Unit:5	Title of the Unit (Capitalize each Word)	13-- hours

Dimension of customer Value – conformance of requirement – product selection – price and brand – value added services – strategic pricing – smart pricing – customer value measures

Unit:6	Contemporary Issues	2 hours

Expert lectures, online seminars - webinars

	Total Lecture hours	75-- hours

Text Book(s)

1	Rushton, A., Oxley, J & Croucher, P (2nd Edition, 2000). Handbook of Logistics and Distribution Management. Kogan Page.
2	Designing and Managing the Supply Chain: Concepts, Strategies and Case Studies. Irwin/McGraw Hill 32
Reference Books	
1	Simchi-Levi, David, Kamisnsky, Philip, and Simchi-Levi, Edith. (2nd Edition, 2004).
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	
2	
4	
Course Designed By:	

Mapping Course objectives and course outcomes					
	PO1	**PO2**	**PO3**	**PO4**	**PO5**
CO1	S	M	S	M	S
CO2	S	S	S	M	S
CO3	S	S	S	S	S
CO4	S	S	M	S	M
CO5	S	S	M	M	M

Course code		TITLE OF THE COURSE	L	T	P	C
Elective 6		Principles of web designing	4			4
Pre-requisite		Basic knowledge about internet	Syllabus Version	2020		

Course Objectives:

The main objectives of this course are to:

1. To provide knowledge about working in HTML
2. To understand the working of XML
3. To understand the basic and advanced process of java scripting
4. To provide insights about the CGI and server side scripting
5. To provide knowledge about the various data base tools

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Outline the basic working in HTML and graphics	K2
2	Explain the working of XML	K2
3	Apply the basic and advanced process of java scripting	K3
4	Analyze the CGI and server side scripting	K4
5	Explain the various web database tools in web designing	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Title of the Unit (Capitalize each Word)	15-- hours

HTML & Graphics: HTML 4.0 Tag Reference, Global Attributes, Event Handlers, Document Structure Tags, Formatting Tags, List Tags, Hyperlinks, Image & Image map, Table Tags, Form Tags, Frame Tags, Executable Content Tags. Image Maps, Advanced Graphics, Tables, Frames, forms & Style Sheets.

Unit:2	Title of the Unit (Capitalize each Word)	15-- hours

XML: Introduction to XML, Problems with HTML & SGML. Types of XML Markup. Document Type Definitions, Linking, Using Style Sheets with XML, XML Summary

Unit:3	Title of the Unit (Capitalize each Word)	15-- hours

Introduction to Java Scripting, Web Browser Object Model, Manipulating Windows & Frames with Java Script. Using Java Script to create smart forms. Cookies and State Maintenance: Maintaining State, Introduction to Cookies, Advantages and limitations of Cookies, Disadvantages of Cookies, How to Use Cookies, which Servers and Browsers support Cookies. Introduction to DHTML. Advanced Netscape DHTML, Advanced Microsoft DHTML & Cross browser DHTML

Unit:4	Title of the Unit (Capitalize each Word)	15-- hours

CGI & Server side scripting, CGI & the WWW, Beyond HTML with CGI, How CGI works. CGI Server requirements for WINDOWS-NT & UNIX, CGI script structure, Standard CGI Environment Variables, CGI Libraries, Java Servlets, Server-Side

Unit:5	Title of the Unit (Capitalize each Word)	13-- hours

Java Script.-Web Database Tools, ORACLE & MS-ACCESS, Database tools, PHP, Server Side includes. Visual Basic, Scripting Edition & Active Server Pages

Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars - webinars		
	Total Lecture hours	**75-- hours**
Text Book(s)		
1	Using HTML 4, XML & JAVA by Eric Ladd & Jim O'Donell (Platinum Edition) (PHI)	
Reference Books		
1	PERL & CGI by Elizabeth Castro (Pearson Education	
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]		
1		
2		
4		
Course Designed By:		

Mapping Course objectives and course outcomes					
	PO1	**PO2**	**PO3**	**PO4**	**PO5**
CO1	S	M	S	M	S
CO2	S	S	S	S	S
CO3	S	S	S	S	S
CO4	S	S	S	S	M
CO5	S	S	S	M	M

Course code		TITLE OF THE COURSE	L	T	P	C
Elective 7		Financial markets	4			4
Pre-requisite		Basic knowledge about financial market	Syllabus Version		2020	

Course Objectives:

The main objectives of this course are to:

1. To understand the basic concepts of financial market
2. To analyze the working and components of corporate securities market
3. To evaluate the functioning of stock exchanges in India
4. To evaluate the role of banks and intermediaries in financial market
5. To provide insights about the new models and innovative trends in financing

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Define the basic concepts of financial market	K1
2	Analyze the working and components of corporate securities market	K4
3	Explain the functioning of stock exchanges in India	K4
4	Explain the role of banks and intermediaries in financial market	K4
5	Apply various trends and new modes in financing	K3

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Title of the Unit (Capitalize each Word)	15-- hours

Financial Markets – Structure of Financial Markets – Financial Investment – Money Market in India – Indian Capital Markets – Difference between Money Market and Capital Market – Classification and object of Indian Money Markets and Structure of Capital Markets.

Unit:2	Title of the Unit (Capitalize each Word)	15-- hours

Markets for Corporate Securities – New Issue Markets – Functions Issue Mechanism – Merchant Banking - Role and Functions of Merchant Bankers in India – Under writing.

Unit:3	Title of the Unit (Capitalize each Word)	15-- hours

Secondary Markets – Stock Exchange – Role of Secondary Market – Trading in Stock Exchange – Various Speculative Transactions – Role of SEBI – Regulation of Stock Exchange.

Unit:4	Title of the Unit (Capitalize each Word)	15-- hours

Banks as Financial Intermediaries – Commercial Banks Role in Financing – IDBI – IFCI – LIC – GIC – UTI – Mutual Funds – Investments Companies.

Unit:5	Title of the Unit (Capitalize each Word)	13-- hours

New Modes of Financing – Leasing as Source of Finance – Forms of leasing – Venture Capital – Dimension Functions – Venture Capital in India – Factoring – Types – Modus Operandi of Factoring – Factoring as Source of Finance – Securitisation of assets – Mechanics of Securitisation Utility of Securitisation – Securitisation in India,

Unit:6	Contemporary Issues	2 hours

Expert lectures, online seminars - webinars

	Total Lecture hours	**75-- hours**
Text Book(s)		
1	Essentials of Business Finance - R.M. Sri Vatsava	
2	Financial Management - Saravanavel	
3	Financial Management - M.Y. Khan and Jain	
4	Financial Management Theory and Practice - Prasanna Chandra	
Reference Books		
1	Financial Management - L.Y. Pandey	
2	Financial Management - S.C. Kuchhal	
3	Principles of Financial Management - S.N. Maheshwari	
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]		
1		
2		
4		
Course Designed By:		

Mapping Course objectives and course outcomes					
	PO1	**PO2**	**PO3**	**PO4**	**PO5**
CO1	S	S	S	S	S
CO2	S	S	S	S	S
CO3	S	S	M	S	S
CO4	S	S	S	M	M
CO5	S	S	M	M	M

Course code		TITLE OF THE COURSE	L	T	P	C
Elective 8		Insurance legislative framework	4			4
Pre-requisite		Basic knowledge in insurance	Syllabus Version		2020	

Course Objectives:

The main objectives of this course are to:

1. To provide knowledge about the basics of Insurance act
2. To provide awareness about the provisions of LIC act
3. To offer knowledge about insurance regulatory and development authority act
4. To offer insights about consumer protection act
5. To familiarize about the concept and working of ombudsman

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Illustrate the various aspects of insurance act	K2
2	Outline the various provisions of LIC act	K2
3	Explain the various provisions relating to insurance regulatory and development authority act	K4
4	Analyze the various provisions of consumer protection act	K4
5	Explain the role of ombudsman scheme	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Title of the Unit (Capitalize each Word)	15-- hours

Insurance Act 1938

Unit:2	Title of the Unit (Capitalize each Word)	15-- hours

LIC Act 1956

Unit:3	Title of the Unit (Capitalize each Word)	15-- hours

Insurance Regulatory & Development Authority Act 1999

Unit:4	Title of the Unit (Capitalize each Word)	15-- hours

Consumer protection Act 1985 applicable to Insurance Companies

Unit:5	Title of the Unit (Capitalize each Word)	13-- hours

Ombudsman scheme

Unit:6	Contemporary Issues	2 hours

Expert lectures, online seminars - webinars

	Total Lecture hours	75-- hours

Text Book(s)

1 Mishra M. N: Insurance principles and practice; S Chand & co. New

Reference Books

1	Delhi Insurance Regulatory Development Acts 1999
2	Life Insurance Corporation Acts 1956
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	
2	
4	
Course Designed By:	

Mapping Course objectives and course outcomes					
	PO1	**PO2**	**PO3**	**PO4**	**PO5**
CO1	S	S	S	S	M
CO2	S	S	S	M	S
CO3	S	S	M	S	S
CO4	S	M	M	M	M
CO5	S	M	M	M	L

B.Com. (Computer Applications)

Syllabus

AFFILIATED COLLEGES

Program Code: 2AC

2020 – 2021 onwards

BHARATHIAR UNIVERSITY

(A State University, Accredited with "A" Grade by NAAC,
Ranked 13th among Indian Universities by MHRD-NIRF,
World Ranking : Times - 801-1000, Shanghai - 901-1000, URAP - 982)

Coimbatore - 641 046, Tamil Nadu, India

Program Educational Objectives (PEOs)	
The **B.Com (Computer Applications)**program describe accomplishments that graduates are expected to attain within five to seven years after graduation	
PEO1	To Provide students with specific knowledge and skills relevant to their disciplines and careers.
PEO2	To make the students acquainted with technical and practical concepts for understanding the real business problems using different programming languages.
PEO3	To train the students on practical business applications using high level programming languages in real world.
PEO4	To make the students aware about the useful applications of different computer languages that solve real world problems.
PEO5	To enhance the knowledge on visual based programming language and object-oriented language in different business applications using various design principles portraying the concepts of computer applications in business activities.

Program Specific Outcomes (PSO)	
After the successful completion of **B.Com (Computer Applications)** program, the students are expected to	
PSO1	Know and apply the various business management and computer applications concepts to solve the real-world problems.
PSO2	Acquire the knowledge on object-based computer applications in various business fields.
PSO3	Solve the business applications related issues of using oracle and object oriented programming languages
PSO4	Analyze the real e-business problems by using the different applications of procedure-oriented language programs
PSO5	Enrich the practical knowledge on applications of accounting and programming languages in business ventures.

Program Outcomes (POs)	
After the successful completion of **B.Com (Computer Applications)** program, the students are expected to	
PO1	Develop the accounting, finance, banking, Insurance, marketing as well as the computer application knowledge to the students.
PO2	Create awareness of the students about Business law, Tax Law and legislations related to business and computer applications
PO3	Get the training to learn how to develop successful computer programs to solve the business problems for increasing the productivity of the e-business.
PO4	Obtain the practical application exposure on ms-office and oracle software.
PO5	Apply object oriented or non-object oriented techniques to solve business computing problems which make students a good programmer.

BHARATHIAR UNIVERSITY: : COIMBATORE 641 046
B.COM CA(Computer Applications)
(For the students admitted during the academic year 2020 – 21 onwards)

Course Code	Title of the Course	Credits	Hours		Maximum Marks		
			Theory	Practical	CIA	ESE	Total
FIRST SEMESTER							
I	Language-I	4	6	-	25	75	100
II	English-I	4	6	-	25	75	100
III	Core I – Principles of Accountancy	4	4	-	25	75	100
III	Core II – Introduction to Information Technology	4	4	-	25	75	100
III	Allied Paper I : Mathematics for Business	4	4	-	25	75	100
III	Core-IV: Computer Applications: MS Office - Practical-I	-	4	-	-	-	-
IV	Environmental Studies #	2	2	-	-	50	50
	Total	22	30	0	125	425	550
SECOND SEMESTER							
I	Language-II	4	6		25	75	100
II	English-II	4	6		25	75	100
III	Core III – **Advanced Accounting**	4	7		25	75	100
III	Core IV–Computer Application: MS Office - Practical-I	4	4		40	60	100
III	Allied Paper II – Statistics for Business	4	5		25	75	100
IV	Value Education – Human Rights #	2	2		-	50	50
	Total	22	30	0	140	410	550
THIRD SEMESTER							
III	Core V – Principles of Marketing	4	5		25	75	100
III	Core VI – Database Management System	4	5		25	75	100
III	Core VII – Cost Accounting	4	6		25	75	100
III	Allied : III - Managerial Economics	4	5		25	75	100
III	Core-VIII : Computer Applications: Oracle - Practical-II	-	4		-	-	-

IV	Skill based Subject-1 : Commercial Law	3	3		20	55	75
IV	Tamil @ / Advanced Tamil #(or)Non-major Elective–I : Yoga for Human Excellence #/Women'sRights# Constitution of India #	2	2		50		50
	Total	21	30	0	120	405	525
FOURTH SEMESTER							
III	Core IX – Management Accounting	4	6		25	75	100
III	Core X – Object Oriented Programme with C++	4	5		25	75	100
III	Core XI – Executive Business Communication	3	3		20	55	75
III	Core XII – Computer Applications: Oracle & C++ Practical-II	4	4		40	60	100
III	Core XIII – Banking Theory	3	3		20	55	75
III	Allied: IV : Principles of Management	4	4		25	75	100
IV	Skill based Subject-2 :**Company Law**	3	3		20	55	75
IV	Tamil @ /Advanced Tamil # (or)Non-major elective - II : General Awareness #	2	2		50		50
	Total	27	30	0	175	500	675
FIFTH SEMESTER							
III	Core XIV – Principles of Auditing	4	4		25	75	100
III	Core XV – Corporate Accounting	4	6		25	75	100
III	Core XVI – E-Commerce Technology	4	5		25	75	100
III	Core XVII – Software Development with Visual Basic	4	4		25	75	100
III	Core XVIII - Computer Applications: Visual Basic - Practical-III	-	4		-	-	-
III	Elective-I:	4	4		25	75	100
IV	Skill based Subject-3: Banking and Insurance Law	3	3		20	55	75
	Total	23	30	0	145	430	575

SIXTH SEMESTER							
III	Core XIX – Management Information System	4	6		25	75	100
III	Core XX - Internet and Web Designing	4	5		25	75	100
III	Core XXI - Computer Applications: Visual Basic & Web Designing Practical-III	4	4		40	60	100
III	Elective –II:	4	6		25	75	100
III	Elective –III:	4	6		**25/20**	**75/80**	100
IV	Skill based Subject- 4: Cyber Law	3	3		20	55	75
V	Extension Activities @	2	-		-	-	50
	Total	25	30	0	160/155	415/420	625
	Total	140					3500
ONLINE COURSE*							
1.	**SWAYAM**						

* SWAYAM course will be implemented in the next year.

Value added courses: Minimum 2 and Maximum 5 for each Department for entire program-It is optional for affiliated colleges.

Job oriented certificate courses: Two courses(Each Department for entire program)- It is optional for affiliated colleges

$ Includes 25% / 40% continuous internal assessment marks for theory and practical papersrespectively. @ No University Examinations. Only Continuous Internal Assessment(CIA)

No Continuous Internal Assessment (CIA).Only UniversityExaminations.

Swatch Bharat Summer Internship- extra 2 credits would be given. It is mandatory.

List of Elective Papers (Colleges can choose any one of the paper as electives)		
Elective – I	A	Income Tax Law & Practice
	B	Entrepreneurial Development
	C	Micro Finance
Elective – II	A	**Business Finance**
	B	Brand Management
	C	Supply Chain Management
Elective - III	A	**Indirect Taxes**
	B	Financial Markets
	C	Project Work

NOTE: The syllabus for the papers Advanced Accounting, Company Law, Business Finance and Indirect Taxes are revised and furnished below. The existing syllabus is to be followed for the remaining papers.

First Semester

SCHEME OF EXAMINATIONS: CBCS Pattern

SEMESTER-I

Course code		TITLE OF THE COURSE	L	T	P	C
Core I		PRINCIPLES OF ACCOUNTANCY	4	-	-	4
Pre-requisite		Basics knowledge on Accountancy	Syllabus Version		2020	

Course Objectives:

The main objectives of this course are to:

1. Provide a strong foundation in principles of accountancy concepts, various elements of financial statements and relevant accounting.
2. Inculcate the knowledge of international financial reporting standards.
3. Make the students aware of Bill of Exchange.
4. Gain the knowledge about the preparation of final accounts.
5. Give an insight about the Account current statement and procedure for calculation of average due date methods.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Recall the fundamental concepts of accounting and book keeping.	K1
2	Solve the errors in book keeping and identify the effect of BRS in an enterprise	K2
3	Aware of Bills of exchange and its transaction including Accommodation bills	K2
4	To gain knowledge about the preparation of final Accounts	K3
5	Understand the Account current statement and procedure for calculation of Average due date methods	K2

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	INTRODUCTION	15 hours

Fundamentals of Book Keeping – Accounting Concepts and Conventions – Journal – Ledger – Subsidiary books – Trial balance.

Unit:2	FINAL ACCOUNTS	15 hours

Final accounts of a sole trader with adjustments – Errors and rectification

Unit:3	BILL OF EXCHANGE	15 hours

Bill of exchange- Accommodation bills – Average due date – Account current.

Unit:4	CONSIGNMENTS AND JOINT VENTURES	15 hours

Accounting for consignments and Joint ventures

Unit:5	BANK RECONCILIATION STATEMENT	13 hours

Bank Reconciliation statement – Receipts and Payments and income and expenditure account and Balance sheet – Accounts of professionals.

Unit:6	**CONTEMPORARY ISSUES**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**60 hours**

Distribution of Marks: 20% Theory, 80 % Problems

Text Book(s)

1	N.Vinayakam, P.L.Mani, K.L.Nagarajan – Principles of Accountancy – S.Chand& Company Ltd.,
2	T.S.Grewal – Introduction to Accountancy- S.Chand& Company Ltd.,
3	R.L.Gupta, V.K.Gupta, M.C.Shukla – Financial Accounting – Sultanchand& sons.
4	T.S.Grewal, S.C.Gupta, S.P.Jain – Advanced Accountancy- Sultanchand& sons.

Reference Books

1	K.L.Narang, S.N.Maheswari - Advanced Accountancy-Kalyani publishers X
2	S.K.Maheswari, T.S.Reddy - Advanced Accountancy-Vikas publishers
3	A.Murthy -Financial Accounting – Margham Publishers
4	P.C.Tulsian - Advanced Accountancy – Tata McGraw Hill Companies.
5	A.Mukherjee, M.Hanif – Modern Accountancy. Vol.1- Tata McGraw Hill Companies

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://www.youtube.com/watch?v=FuDFXg4Onzc
2	https://www.youtube.com/watch?v=Z71rEnjW-Z4
3	https://www.youtube.com/watch?v=91m0siLj3-o

Course Designed By:

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	S	S	S	M
CO2	S	S	M	S	S
CO3	M	S	S	S	S
CO4	S	S	S	M	S
CO5	S	M	S	S	S

S- Strong; M-Medium; L-Low

SEMESTER-I

Course code		TITLE OF THE COURSE	L	T	P	C
Core II		INTRODUCTION TO INFORMATION TECHNOLOGY	4	-	-	4
Pre-requisite		Basics knowledge in Information Technology	Syllabus Version		2020	

Course Objectives:

The main objectives of this course are to:

1. Know the basics of computer systems and information technology.
2. Make the students to have thorough knowledge of computer hardware, software, its components and operating system.
3. Aware of different programming languages.
4. Gain the knowledge about e-commerce, internet and extranet and uses of www applications.
5. Make the students to develop the applications of computer information system in various business fields.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the basic concepts about hardware and software components and data retrieval from various areas of business.	K1
2	Recall and remember the different types of computers available in business industries.	K1
3	Aware of different programming and machine level languages and steps to develop computer programmes.	K2
4	To gain knowledge about e-commerce, internet and extranet understand the uses of world wide web applications.	K2
5	Create the applications of computer information system in various business fields.	K2

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6**– Create

Unit:1	HARDWARE AND SOFTWARE	15 hours

Hardware and Software : computer systems, importance of computers in business, data and information, data processing, data storage and data retrieval capabilities, computer applications in various areas of business, computer related jobs in business.

Unit:2	COMPUTER SYSTEMS	15 hours

Types of computer systems- Micro, mini, mainframe and super computers.Analog,digital and Hybrid computers, business and Scientific computer systems, First, second, third and fourth generation computers, Laptop or notebook computers , data processing systems- batch, online and Real time system. Time sharing , multiprogramming and multiprocessing systems. Networkings: Local and wide area neworks.

Unit:3	COMPONENTS OF COMPUTERS AND SOFTWARE	15 hours

Components of computers input ,output and storage devices, software: system software and Application software; Programming language-machine language- assembly language, higher level languages. Flowchart and programme flow charts. Steps in developing a computer programme

Unit:4	**OPERATING SYSTEMS**	**15 hours**
Operating systems: Dos, windows, UNIX, windows NT, windows98 - E.Commerce. Internet Extranet- E.mail and its uses-world wide websites-mobile computers.		
Unit:5	**SYSTEM ANALYSIS AND DESIGN**	**13 hours**
System analysis and design, computer based information system-Transaction processing office Automation-management information system-decision support systems-expert system.		
Unit:6	**CONTEMPORARY ISSUES**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**60 hours**

Text Book(s)

1	Computer and common sense-Roger Hunt and John Shellery
2	Using Micro Computers- Brightman and Dimsdale
3	P.c.Software made simple-R.K.Taxali

Reference Books

1	Introduction to computers-Alexis Leon and Mathews Leon
2	Information technology for management-Henry C.Lucas

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://www.youtube.com/watch?v=Qy064xFEW64
2	https://www.youtube.com/watch?v=0fbNLQjNltE
3	https://www.youtube.com/watch?v=dx1-_4tlJus

Course Designed By:

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	S	S	S	M
CO2	S	S	M	S	S
CO3	M	S	S	S	S
CO4	S	S	S	M	S
CO5	S	M	S	S	S

S- Strong; M-Medium; L-Low

SEMESTER-I

Course code		TITLE OF THE COURSE	L	T	P	C
ALLIED PAPER I		MATHEMATICS FOR BUSINESS	4	-	-	4
Pre-requisite		Basics knowledge on Mathematics for Business	Syllabus Version		2020	

Course Objectives:

The main objectives of this course are to:

1. Understand and applybasics of applications of mathematics in business
2. Make the students to be ready for solving business problems using mathematical operations.
3. Provide an insight knowledge about variables, constants and functions.
4. Gain the knowledge on integral calculus and determining definite and indefinite functions.
5. Analyze the linear programming problem by using graphical solution and simple method.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the basic concepts of arithmetic and geometric series and different effective rates of interest for sinking fund, annuity and present value.	K2
2	Know the basic concepts of addition and multiplication analysis and input and output analysis.	K1
3	Aware of variables, constants and functions and evaluate the first and second order derivatives.	K2
4	To gain knowledge on integral calculus and determining definite and indefinite functions.	K2
5	Analyze the linear programming problem by using graphical solution and simple method.	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6**– Create

Unit:1	SET THEORY	15 hours

Set Theory – Arithmetic and Geometric Series – Simple and Compound Interest – Effective rate of Interest –Sinking Fund – Annuity - Present Value – Discounting of Bills – True Discount – Banker‟sGain.

Unit:2	MATRIX	15 hours

Matrix: Basic Concepts – Addition and Multiplication of Matrices – Inverse of a Matrix – Rank of Matrix - Solution of Simultaneous Linear Equations – Input-Output Analysis.

Unit:3	VARIABLES, CONSTANTS AND FUNCTIONS	15 hours

Variables, Constants and Functions – Limits of Algebraic Functions – Simple Differentiation of Algebraic Functions – Meaning of Derivations – Evaluation of First and Second Order Derivatives – Maxima and Minima – Application to Business Problems

Unit:4	**ELEMENTARY INTEGRAL CALCULUS**	**15 hours**
Elementary Integral Calculus – Determining Indefinite and Definite Integrals of simple Functions – Integration by Parts.		
Unit:5	**LINEAR PROGRAMMING PROBLEM**	**13 hours**
Linear Programming Problem – Formation – Solution by Graphical Method Solution by Simple Method.		
Unit:6	**CONTEMPORARY ISSUES**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**60 hours**

Text Book(s)

1	Navanitham, P.A,"BusinessMathem atics&Statistics"JaiPublishers,Trichy -21
2	SundaresanandJayaseelan,"IntroductiontoBusinessMathematics",Sultanchand Co&Ltd,Newdelhi
3	Sanchetti,D.CandKapoor,V.K,"BusinessMathematics",SultanchandCo&Ltd,Newdelh i

Reference Books

1	G.K.Ranganath, C.S.Sampamgiram&Y.Rajan-A Text book Business Mathematics - Himalaya Publishing House.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://www.youtube.com/watch?v=qO1SYFZVmhY
2	https://www.youtube.com/watch?v=LadYhkiVC7Q&list=PLRYPMG3pkUJuucxOLmnRC-Lj3PmzVmKCD
3	https://www.youtube.com/watch?v=qO1SYFZVmhY&list=PLX2gX-ftPVXUYjs2g3YiaY0sEfwW-jg5L

Course Designed By:

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	S	S	S	M
CO2	S	S	M	S	S
CO3	M	S	S	S	S
CO4	S	S	S	M	M
CO5	M	M	S	S	S

S- Strong; M-Medium; L-Low

SEMESTER-I

Course code		TITLE OF THE COURSE	L	T	P	C
Core IV		COMPUTER APPLICATIONS: MS OFFICE - PRACTICAL-I	-	-	-	4
Pre-requisite		Basics knowledge in MS-Office	Syllabus Version	2020		

Course Objectives:

The main objectives of this course are to:

1. Acquire and apply the computer applications in different aspects of business
2. Get an insight knowledge on ms-office, ms-excel, and power point.
3. Know the database maintenance in every type of applications.
4. Get the knowledge application on effective power point presentation.
5. Develop the programs in ms-word and ms-excel.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the basic concepts computer applications using MS-Office applications for the business transactions.	K2
2	Create customers list using mail merge for sending letters to the respondents at a time.	K3
3	Aware and apply various statistical tools available in Ms-excel for the business enterprise transactions.	K3
4	To gain knowledge making effective presentation for the business meeting using power point presentation.	K2
5	Understand and evaluate the database using MS-Word and excel.	K3

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

	I - MS WORD	20 hours

1. Type Chairman‟s speech/ Auditor‟s report / Minutes/ Agenda and perform the following operations: Bold, Underline, Font Size, style, Background color, Text color, Line spacing, Spell Check, Alignment, Header & Footer, Inserting pages and page numbers, Find and Replace.
2. Prepare an invitation for the college function using Text boxes and clip parts.
3. Design an invoice and Account sales by using Drawing tool bar, Clip Art, Word Art, Symbols, Borders and Shading.
4. Prepare a Class Time Table and perform the following operations: Inserting the table, Data Entry, Alignment of Rows and Columns, Inserting and Deleting the Rows and Columns and Change of Table Format.
5. Prepare a Shareholders meeting letter for 10 members using mail merge operation.
6. Prepare Bio-Data by using Wizard/ Templates.

	II - MS EXCEL	20 hours
1. Prepare a mark list of your class (minimum of 5 subjects) and perform the following operations: Data Entry, Total, Average, Result and Ranking by using arithmetic and logical functions and sorting. 2. Prepare Final Accounts (Trading, Profit & Loss Account and Business Sheet) by using formula. 3. Draw the different type of charts (Line, Pie, Bar) to illustrate year-wise performance of sales, purchase, profit of a company by using chart wizard. 4. Prepare a statement of Bank customer‟s account showing simple and compound interest calculations for 10 different customers using mathematical and logical functions. 5. Prepare a Product Life Cycle which should contain the following stages: Introduction, Growth, Maturity, Saturation, Decline.		
	III - MS POWERPOINT	**20 hours**
1. Design presentation slides for a product of your choice. The slides must include name, brand name, type of product, characteristics, special features, price, special offer etc. Add voice if possible to explain the features of the product. The presentation should work in manual mode. 2. Design presentation slides for orgranization details for 5 levels of hierarchy of a company by using organization chart. 3. Design slides for the headlines News of a popular TV Channel. The Presentation Should contain the following transactions: Top down, Bottom up, Zoom in and Zoom out. - The presentation should work in custom mode. 4. Design presentation slides about an organization and perform frame movement by interesting clip arts to illustrate running of an image automatically. 5. Design presentation slides for the Seminar/Lecture Presentation using animation effects and perform the following operations: Creation of different slides, changing background color, font color using wordart.		
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]		
1	https://www.youtube.com/watch?v=YHSLkNzLuqc	
2	https://www.youtube.com/watch?v=RdTozKPY_OQ	
3	https://www.youtube.com/watch?v=x5wYAJ3qzC0	
Course Designed By:		

Mapping with Programme Outcomes					
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**
CO1	S	S	S	S	M
CO2	S	S	M	S	S
CO3	M	S	S	S	S
CO4	S	S	S	M	M
CO5	M	M	S	S	S

S- Strong; M-Medium; L-Low

ELECTIVE PAPER

Course code		TITLE OF THE COURSE	L	T	P	C
Elective – I A		INCOME TAX LAW & PRACTICE	4	-	-	4
Pre-requisite		Basic knowledge in Income Tax Law & Practice	Syllabus Version		2020	

Course Objectives:

The main objectives of this course are :

1. To acquire the basic accounting knowledge on principles and concept of taxation
2. To familiarize the students with recent amendments of Income Tax
3. To effectively gain in depth knowledge on income tax law and amendments
4. To gain information on taxation of various incomes
5. To make the students aware on the concepts of aggregation of Income

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Recall the fundamental concepts of income tax	K1
2	Analyze the income sources on salaries and house property	K3
3	Aware on income from other sources	K4
4	To gain knowledge about capital gains	K2
5	Understand on assessment of individuals and tax liability	K2

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	**INCOME TAX ACT**	**15- hours**

Income Tax Act – Definition of Income – Assessment year – Previous Year – Assessee – Scope of Income – Charge of Tax – Residential Status – Exempted Income.

Unit:2	**HEADS OF INCOME**	**10-- hours**

Heads of Income: Income from Salaries – Income from House Property.

Unit:3	**PROFESSION AND OTHER SOURCES**	**10-- hours**

Profit and Gains of Business or Profession – Income from Other Sources.

Unit:4	**CAPITAL GAINS**	**15-- hours**

Capital Gains – Deductions from Gross Total Income.

Unit:5	**SET OFF AND CARRY FORWARD OF LOSSES**	**8-- hours**

Set off and Carry forward of losses – Aggregation of Income- Computation of Tax liability – Assessment of Individuals.

Unit:6	**CONTEMPORARY ISSUES**	**2 hours**

Expert lectures, online seminars – webinars

	Total Lecture hours	**60-- hours**

Distribution of Marks Theory 40% and Problem 60%	
Text Book(s)	
1	Gaur and Narang, "IncomeTaxLawandPractice"KalyanipublishersNewDelhi
Reference Books	
1	Dr.HCMehrotra,"Income -tax Law and Accounts"SahithyaBhavanpublishers
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://www.youtube.com/watch?v=GNDQ4O5mfxY
2	https://www.youtube.com/watch?v=SwkvGkza2Gs
3	https://www.youtube.com/watch?v=remdQL7qKwk&list=PLo0hg4WoLam-FNGzZ4Ad_ckHrNbYNzbmg
Course Designed By:	

Mapping with Programme Outcomes					
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**
CO1	S	S	S	S	S
CO2	M	S	S	S	S
CO3	S	S	S	S	S
CO4	S	M	M	S	S
CO5	S	S	S	S	S

S- Strong; M-Medium; L-Low

ELECTIVE PAPER

Course code		TITLE OF THE COURSE	L	T	P	C
Elective – I B		ENTREPRENEURIAL DEVELOPMENT	4	-	-	4
Pre-requisite		Basic knowledge in Entrepreneurial Development	Syllabus Version		2020	

Course Objectives:

The main objectives of this course are to:

1. To student should be well versed in concept relating to Entrepreneurship.
2. To gain knowledge on Financial Institutions which provides finance and services to the entrepreneurs.
3. To know about the incentives and subsidies.
4. To aware of the Start up Process.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Conceptualize the Entrepreneurship.	K1
2	Make the students to aware the start up process.	K2
3	Know the institutional service to entrepreneur.	K2
4	Gain the knowledge on institutional finance to the entrepreneur.	K2
5	Know about the incentives and subsidies.	K2

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	CONCEPT OF ENTREPRENEURSHIP	15 hours

Concept of entrepreneurship : Definition Nature and characteristics of entrepreneurship – function and type of entrepreneurship phases of EDP. Development of women entrepreneur & rural entrepreneur – including self employment of women council scheme.

Unit:2	THE START-UP PROCESS	10 hours

The start-up process, Project identification – selection of the product – project formulation evaluation – feasibility analysis, Project Report.

Unit:3	INSTITUTIONAL SERVICE TO ENTREPRENEUR	10 hours

Institutional service to entrepreneur – DIC, SIDO, NSIC, SISI, SSIC, SIDCO – ITCOT, IIC, KUIC and commercial bank.

Unit:4	INSTITUTIONAL FINANCE TO ENTREPRENEURS	15 hours

Institutional finance to entrepreneurs : IFCI, SFC, IDBI, ICICI, TIIC, SIDCS, LIC and GIC, UTI, SIPCOT – SIDBI commercial bank venture capital.

Unit:5	INCENTIVES AND SUBSIDIES	8 hours

Incentives and subsidies – Subsidied services – subsidy for market. Transport – seed capital assistance - Taxation benefit to SSI role of entrepreneur in export promotion and import substitution.

Unit:6	CONTEMPORARY ISSUES	2 hours
Expert lectures, online seminars – webinars		
	Total Lecture hours	**60 hours**

Text Book(s)

1	Entrepreneurial Development – C.B.Gupta and N.P.Srinivasan
2	Fundamentals of Entrepreneurship and Small Business –Renu Arora &S.KI.Sood
3	Entrepreneurial Development – S.S.Khanka

Reference Books

1	Entrepreneurial Development – P.Saravanavel
2	Entrepreneurial Development – S.G.Bhanushali
3	Entrepreneurial Development – Dr.N.Ramu

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://www.youtube.com/watch?v=hBDQGEwAvJ4
2	https://www.youtube.com/watch?v=vXKoRWAhJVg
3	https://www.youtube.com/watch?v=Z2LGHqBmsU0&list=PL9w1NV68V201XJvF5O7rT1DhBVK0RCAIN

Course Designed By:

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	S	S	S	S
CO2	M	M	S	S	S
CO3	S	S	S	S	S
CO4	S	S	M	S	S
CO5	S	M	S	S	S

ELECTIVE PAPER

Course code		TITLE OF THE COURSE	L	T	P	C
Elective – I C		MICRO FINANCE	4	-	-	4
Pre-requisite		Basic knowledge in Micro finance	Syllabus Version		2020	

Course Objectives:

The main objectives of this course are to:

1. Conceptualize the microfinance terms.
2. Know about the development of the microfinance.
3. Understand the credit delivery of the micro finance amount.
4. Make the students to understand the pricing of the micro finance products.
5. Understand about the commercial micro finance.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Enable the students to conceptualize the microfinance terms.	K1
2	Make the students to know about the development of the microfinance.	K2
3	Understand the credit delivery of the micro finance amount.	K2
4	Make the students to understand the pricing of the micro finance products.	K2
5	Understand about the commercial micro finance	K3

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	OVERVIEW OF MICROFINANCE	15 hours

Overview of Microfinance: Indian Rural financial system, introduction to Microfinance, Microfinance concepts, products, (savings, credit, insurance, pension, equity, leasing, hire-purchase service, Microfinance in kind, Microremittances, Micro-Securitization, franchising etc.), Microfinance models (Generic models viz. SHG, Grameen, and Cooperative, variants SHG NABARD model, SIDBI model, SGSY model, Grameen Bangladesh model, NMDFC model, credit unions etc. unbranded primitive models) Emerging practices of Microfinance in India state wise cases, Emerging Global Microfinance practices. Need of Microfinance

Unit:2	MICROFINANCE, DEVELOPMENT, INCOME GENERATING ACTIVITIES AND MICRO ENTERPRISE	10 hours

Microfinance, Development, Income generating activities and Micro enterprise: Market (demand) analysis, financial analysis including sources.Technological analysis, Socioeconomic analysis, Environmental analysis. Logical framework, Implementation & Monitoring

Unit:3	CREDIT DELIVERY METHODOLOGY	10 hours

Credit Delivery Methodology : Credit Lending Models : Associations; Bank Guarantees Community Banking, Cooperatives, Credit Unions, Grameen Model, SHG, Individual, Intermediaries, Could be individual lenders, NGOs, micro credit programmes, and Commercial banks)

Unit:4	PRICING OF MICROFINANCE PRODUCTS	15 hours
Pricing of Microfinance products: Purpose base, Activity base, Economic class base Open biding, etc. Pricing saving products, Amount of savings base, Attendance at periodical meeting Adding to corpus.Gender issues in Microfinance and Conflict resolution in Microfinance – Client impact studies measuring impact of Microfinance and Micro enterprises		
Unit:5	**COMMERCIAL MICROFINANCE**	**8 hours**
Commercial Microfinance: MFIs: Evaluating MFIs- Social and performance metrics, fund structure, value-added services The Rise of Commercial Microfinance-: Transforming NGOs. Structure of Microfinance Industry and Constraints on MFI Growth. The partnership model – MFI as the servicer		
Unit:6	**CONTEMPORARY ISSUES**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**60 hours**

Text Book(s)

1	BeatrizArmendarizandJonathanMorduch,"TheEconomicsofMicrofinance",Prentice -Hall of India Pvt. Ltd. Delhi, 2005.
2	JoannaLedgerwood,"MicrofinanceHandbook":aninstitutionalandfinancialperspective, The World Bank, Washington, D.C.
3	Malcolm Harper,"PracticalMicrofinance"AtrainingGuideforSouthAsia,Vistaar Publication, New Delhi.2003.

Reference Books

1	C.K. Prahalad, "The Market at the Bottom of the Pyramid," 2006, The Fortune at the Bottom of the Pyramid, Wharton School Publishing
2	JorrittDeJong,etalEdited"MicrofinanceinAccesstoGovernment"Cambridge,2008

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

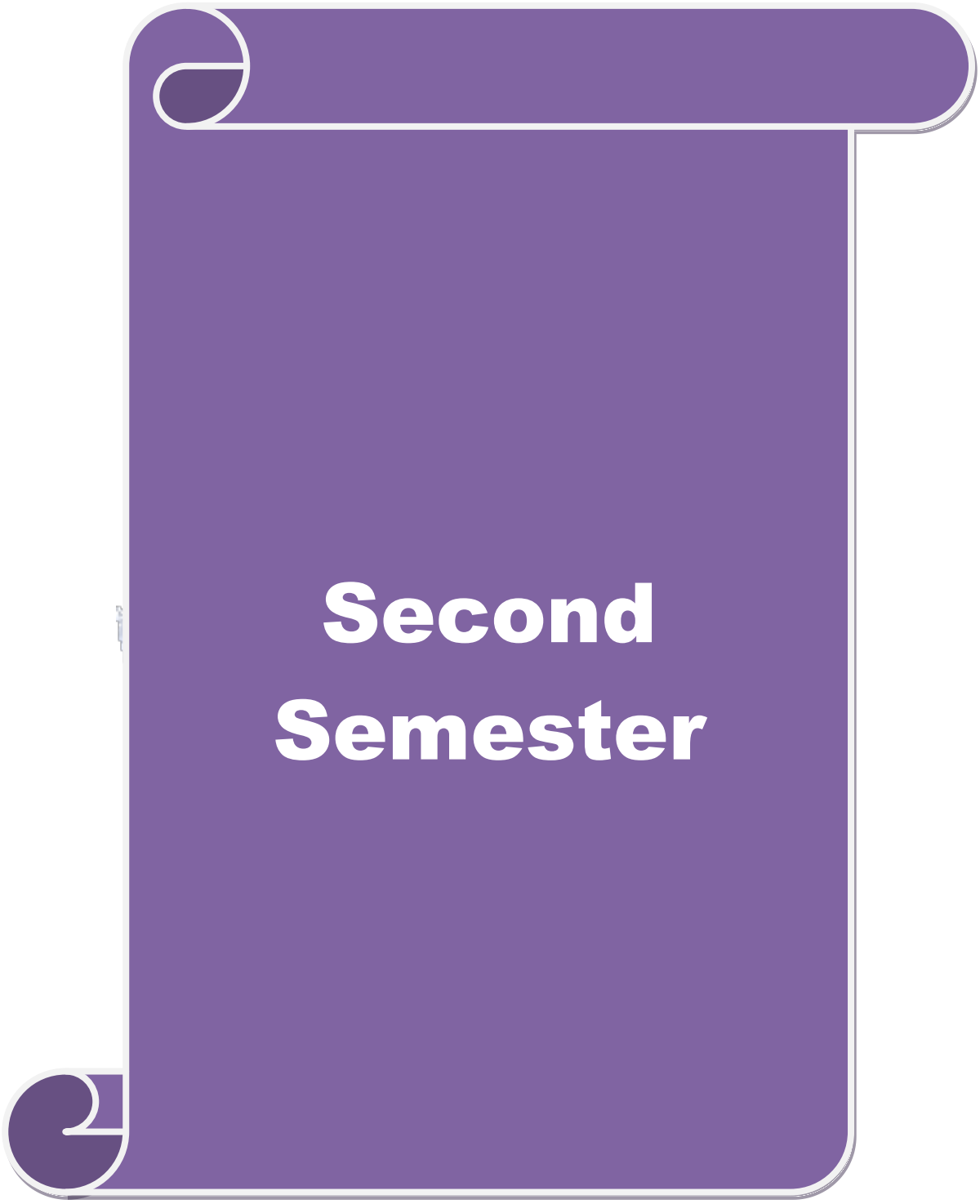
1	https://www.youtube.com/watch?v=k4vtdkKkyQE
2	https://www.youtube.com/watch?v=7JhdKKWxdEk
3	https://www.youtube.com/watch?v=6OPf1lYmJhg

Course Designed By:

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	S	S	S	S
CO2	M	M	S	S	S
CO3	S	S	S	S	M
CO4	S	S	S	S	S
CO5	S	S	S	S	S

S- Strong; M-Medium; L-Low


Second
Semester

SEMESTER-II

Course code		TITLE OF THE COURSE	L	T	P	C
Core III		ADVANCED ACCOUNTING	4	-	-	4
Pre-requisite		Basic knowledge on Advanced Accounting	Syllabus Version		2020	

Course Objectives:

The main objectives of this course are to:

1. Provide a strong foundation in the Accounting procedures of Depreciation, Branch accounts, Hire Purchase and Installment System, Single Entry and Partnership.
2. Make the students to solve the problems of branch accounts, hire purchase and installment system.
3. Give an insight knowledge on single entry system.
4. Gain knowledge on Partnership Accounts, Division of Profits, Fixed and Fluctuating Capital, Admission and Retirement of partners.
5. Make the students to understand Partnership and Insolvency of Partners.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the different methods of depreciation.	K2
2	Solve the problems of branch accounts, hire purchase and installment system.	K2
3	Know the single entry system and statement of affairs method using conversion method	K2
4	To gain knowledge on Partnership Accounts, Division of Profits, Fixed and Fluctuating Capital, Admission and Retirement of partners.	K3
5	Understand Dissolution of Partnership and Insolvency of Partners	K3

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6**– Create

Unit:1	DEPRECIATION	23 hours

Depreciation – Methods - Reserves and provisions.

Unit:2	BRANCH ACCOUNT AND HIRE PURCHASE	20 hours

Branch accounts excluding foreign branches. Hire purchase and installment system including hire purchase trading accounts.

Unit:3	SINGLE ENTRY SYSTEM	20 hours

Single Entry System - Meaning and Features - Statement of Affairs Method and Conversion Method

Unit:4	PARTNERSHIP ACOOUNTING	20 hours

Partnership Accounts - Division of Profits - Fixed and Fluctuating Capital - Admission - Retirement – Death

Unit:5	**DISSOLUTION OF PARTNERSHIP**	**20 hours**
Dissolution of Partnership - Insolvency of Partners - Rule in Garner Vs. Murray.		
Unit:6	**CONTEMPORARY ISSUES**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**105 hours**

Distribution of Marks: 20% Theory, 80 % Problems

Text Book(s)

1. Jain and Narang : Advanced Accounting
2. T.S. Grewal : Advanced Accounting
3. M.C Shukla : Advanced Accounting

Reference Books

1. T.S.Reddy&A.Murthy : Financial Accounting
2. R.L.Gupta&M.Radhasamy : Advanced Accountancy

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1. https://www.youtube.com/watch?v=rI3dTtIVm14
2. https://www.youtube.com/watch?v=OJkYqLssvVM
3. https://www.youtube.com/watch?v=1JLnf1QjVOI

Course Designed By:

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	S	S	S	M
CO2	S	M	M	S	M
CO3	S	S	S	S	S
CO4	S	S	M	M	S
CO5	S	M	S	S	S

S- Strong; M-Medium; L-Low

SEMESTER-II

Course code		TITLE OF THE COURSE	L	T	P	C
Core IV		COMPUTER APPLICATIONS: MS OFFICE - PRACTICAL-I	4	-	-	4
Pre-requisite		Basic knowledge of MS - Office	Syllabus Version	2020		

Course Objectives:

The main objectives of this course are to:

1. Acquire the knowledge on computer applications in different aspects of business.
2. Make the students to understand MS-access database creation.
3. Give a detailed knowledge on how to protect the business database using tally.
4. Understand the preparation of the accounts transactions of the business enterprises in the tally package.
5. Make the students to understand the dissemination of the accounting details through mail in tally.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the basic concepts computer applications using MS-Access for maintaining the database.	K2
2	Create different databases using access application for developing the business transactions	K4
3	Apply the accounting principles and rules in tally software packages for updating the accounting transactions.	K3
4	To gain knowledge on creating e-mail in tally package.	K3
5	Gain the knowledge on visiting a business enterprise website and collect the data.	K2

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

	I - MS ACCESS	**30 hours**

1. Prepare a payroll for employee database of an organization with the following Details: Employee id, Employee name, Date of Birth, Department and Designation, Date of appointment, Basic pay, Dearness Allowance, House Rent Allowance and other deductions if any. Perform queries for different categories.
2. Create mailing labels for student database which should include atleast three Table must have atleast two fields with the following details: Roll Number, Name, Course, Year, College Name, University, Address, Phone Number.
3. Gather price, quantity and other descriptions for five products and enter in the Access table and create an invoice in form design view.
4. Create forms for the simple table ASSETS.
5. Create report for the PRODUCT database.

	II – TALLY AND INTERNET	**30 hours**

1. Create a new company, group, voucher and ledger and record minimum 10 transactions and display the relevant results.

2. Prepare trial balance, Profit and Loss A/c and Balance Sheet (with minimum of any five adjustments).
3. Prepare inventory statement using (Calculate inventory by using all methods) a) FIFO b) LIFO c) Simple Average Method d) Weighted Average Method
4. Create an e-mail id and check the mail inbox.
5. Learn how to use search engines and visit yahoo com, rediff.com, hotmail.com and google.com
6. Visit your University and college websites and collect the relevant data.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://www.youtube.com/watch?v=BUE-XJEHp7g
2	https://www.youtube.com/watch?v=0s4mKbkYJPU&t=1s
3	https://www.youtube.com/watch?v=Dxcc6ycZ73M

Course Designed By:

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	S	S	S	M
CO2	S	S	M	S	S
CO3	M	S	S	S	S
CO4	S	S	S	M	M
CO5	M	M	S	S	S

S- Strong; M-Medium; L-Low

SEMESTER-II

Course code		TITLE OF THE COURSE	L	T	P	C
ALLIED PAPER II		STATISTICS FOR BUSINESS	4	-	-	4
Pre-requisite		Basic knowledge on statistics for business	Syllabus Version		2020	

Course Objectives:

The main objectives of the course are able to

1. Provide basic conceptual knowledge on applications of statistics in business.
2. Make the students to be ready for solving business problems using statistical operations.
3. Give a detailed instruction of measurement of dispersion.
4. Gain the knowledge on application of correlation and regression for business operations.
5. Analyze interpolation and probability theory and perform the problems.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the basic concepts of arithmetic and geometric mean and different types of data collection.	K2
2	Know measures of dispersion.	K1
3	Gain the knowledge on correlation and regression analysis.	K5
4	Understand the different types of moving averages.	K2
5	Know and analyze interpolation and probability	K2

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	INTRODUCTIONS	15 hours

Meaning and Definition of Statistics – Collection of data — Primary and Secondary - Classification and Tabulation – Diagrammatic and Graphical presentation Measures of Central tendency – Mean, Median, Mode, Geometric Mean and Harmonic Mean – simple problems

Unit:2	MEASURES OF DISPERSION	15 hours

Measures of Dispersion – Range, Quartile Deviation, Mean Deviation, Standard Deviation and Co-efficient of Variation. Skewness – Meaning – Measures of Skewness - Pearson's and Bowley'sco -efficient of Skewness.

Unit:3	CORRELATION AND REGRESSION ANALYSIS	15 hours

Correlation –Meaning and Definition –Scatter diagram, Karl Pearson's co -efficient of Correlation, Spearman's Rank Correlation, Co -efficient of Concurrent deviation. Regression Analysis – Meaning of regression and linear prediction – Regression in two variables – Uses of Regression

Unit:4	TIME SERIES	15 hours

Time Series – Meaning, Components and Models – Business forecasting – Methods of estimating trend – Graphic, Semi-average, Moving average and Method of Least squares – Seasonal Variation – Method of Simple average. Index Numbers – Meaning, Uses and Methods of construction – Un-weighted and Weighted index numbers – Tests of an Index number – Cost of living index number.

Unit:5	**INTERPOLATION**	**13 hours**
Interpolation:Binomial,Newton'sandLagrangemethods.Probab ility – Concept and Definition – Addition and Multiplication theorems of Probability (statement only) – simple problems based on Addition and Multiplication theorems only.		
Unit:6	**CONTEMPORARY ISSUES**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**75 hours**

Text Book(s)

1	Statistical Methods by S.P. Gupta
2	Business Mathematics and Statistics by P. Navaneetham
3	Statistics by R.S.N. Pillai and V. Bagavathi

Reference Books

1	Statistics-Theory, Methods & Application by D.C. Sancheti and V.K. Kapoor
2	Applied General Statistics by Frederick E.Croxton and Dudley J. Cowden

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://www.youtube.com/watch?v=BUE-XJEHp7g
2	https://www.youtube.com/watch?v=0s4mKbkYJPU&t=1s
3	https://www.youtube.com/watch?v=Dxcc6ycZ73M

Course Designed By:

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	S	S	S	M
CO2	S	S	M	S	S
CO3	M	S	S	S	S
CO4	S	S	S	M	M
CO5	M	M	S	S	S

S- Strong; M-Medium; L-Low

ELECTIVE PAPER

Course code		TITLE OF THE COURSE	L	T	P	C
Elective – II A		BUSINESS FINANCE	4	-	-	4
Pre-requisite		Basic knowledge in Business Finance	Syllabus Version		2020	

Course Objectives:

The main objectives of this course are to:

1. To know the basic concepts of business finance.
2. To gain knowledge on Financial plans and basis of Capitalization.
3. Understand Concept of Capital structure and Cost of Capital.
4. To study about the different source and forms of finance.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Introduce the concepts of business finance.	K1
2	Understand about the financial plans.	K2
3	Know about the capitalization of the financial sources.	K2
4	Understand about the capital structure.	K2
5	Know about the different sources of finance.	K2

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	BUSINESS FINANCE	20 hours

Business Finance: Introduction – Meaning – Concepts - Scope – Function of Finance Traditional and Modern Concepts – Contents of Modern Finance Functions.

Unit:2	FINANCIAL PLAN	18 hours

Financial Plan: Meaning - Concept – Objectives – Types – Steps – Significance – Fundamentals.

Unit:3	CAPITALISATION	17 hours

Capitalisation - Bases of Capitalisation – Cost Theory – Earning Theory – Over Capitalisation – Under Capitalisation : Symptoms – Causes – Remedies – Watered Stock – Watered Stock Vs. Over Capitalisation.

Unit:4	CAPITAL STRUCTURE	15 hours

Capital Structure – Cardinal Principles of Capital structure – Trading on Equity – Cost of Capital – Concept – Importance – Calculation of Individual and Composite Cost of Capital.

Unit:5	SOURCES AND FORMS OF FINANCE	18 hours

Sources and Forms of Finance: Equity Shares, Preference Shares, Bonds, Debentures and Fixed Deposits – Features – Advantages and Disadvantages- Lease Financing: Meaning – Features – Forms – Merits and Demerits.

Unit:6	CONTEMPORARY ISSUES	2 hours

Expert lectures, online seminars – webinars

	Total Lecture hours	90 hours

Text Book(s)	
1	Essentials of Business Finance - R.M. Sri Vatsava
2	Financial Management – Saravanavel
3	Financial Management - L.Y. Pandey
Reference Books	
1	Financial Management - S.C. Kuchhal
2	Financial Management - M.Y. Khan and Jain
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://www.youtube.com/watch?v=AJiwqgkKSqc
2	https://www.youtube.com/watch?v=ITTtEnuoCWw&list=PLwml6wWINYLHpci2-OgbeLOclaWzG9CHY
3	https://www.youtube.com/watch?v=vLPmjO4K3Vk
Course Designed By:	

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	S	S	M	S
CO2	M	M	S	S	S
CO3	S	S	S	S	M
CO4	S	S	S	M	S
CO5	S	M	S	S	S

S- Strong; M-Medium; L-Low

ELECTIVE PAPER

Course code		TITLE OF THE COURSE	L	T	P	C
Elective – II B		BRAND MANAGEMENT	4	-	-	4
Pre-requisite		Basic knowledge in brand management	Syllabus Version		2020	

Course Objectives:

The main objectives of this course are to:

1. Conceptualize an idea about brand and related terms.
2. Provide insight about various forms of brand associations.
3. Deliver a detailed knowledge on banding impact.
4. Develop the students to know more about branding rejeneuvation.

1. Have better understanding on branding strategies.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Recall various terms and concepts relating to branding	K1
2	Understand on brand vision and image building	K2
3	Evaluate the dimensions of branding impact	K5
4	Differentiate specific components of branding and co-branding	K4
5	Explain the emerging trends in designing branding	K2

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	BASIC UNDERSTANDING OF BRANDS	20 hours

Introduction- Basic understanding of brands – concepts and process – significance of a brand – brand mark and trade mark – different types of brands – family brand, individual brand, private brand – selecting a brand name – functions of a brand – branding decisions – influencing factors.

Unit:2	BRAND ASSOCIATIONS	18 hours

Brand Associations: Brand vision – brand ambassadors – brand as a personality, as trading asset, Brand extension – brand positioning – brand image building

Unit:3	BRAND IMPACT	17 hours

Brand Impact: Branding impact on buyers – competitors, Brand loyalty – loyalty programmes – brand equity – role of brand manager – Relationship with manufacturing - marketingfinance - purchase and R & D – brand audit

Unit:4	BRAND REJUVENATION	15 hours

Brand Rejuvenation: Brand rejuvenation and re-launch, brand development through acquisition takes over and merger – Monitoring brand performance over the product life cycle. Co-branding.

Unit:5	BRAND STRATEGIES	18 hours

Brand Strategies: Designing and implementing branding strategies – Case studies

Unit:6	**CONTEMPORARY ISSUES**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**90 hours**

Text Book(s)

1	KevinLaneKeller,"S trategic brand Management",PersonE ducation, New Delhi, 2003.
2	Lan Batey Asian Branding – "Agreatwaytofly",PrenticeHallofI ndia, Singapore 2002.
3	JeanNoel,Kapferer,"StrategicbrandManagement",TheFreePress,NewYork,1992.
4	Paul Tmeporal, Branding in Asia, John Wiley & sons (P) Ltd., New York, 2000.

Reference Books

1	S.Ramesh Kumar, "Managing Indian Brands", Vikas publishing House (P) Ltd., New Delhi, 2002.
2	Jagdeep Kapoor, Brandex, Biztantra, New Delhi, 2005.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://www.youtube.com/watch?v=3iw2609DEuY
2	https://www.youtube.com/watch?v=hIM8lbsje_8
3	https://www.youtube.com/watch?v=nwc68CNAxTM&list=PLP1K8RwG01-eTBzOSDVpQOjiCZ3Z8Hn08

Course Designed By:

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	S	S	S	S
CO2	M	M	S	S	S
CO3	S	S	S	M	S
CO4	S	M	M	S	S
CO5	S	M	S	S	S

S- Strong; M-Medium; L-Low

ELECTIVE PAPER

Course code		TITLE OF THE COURSE	L	T	P	C
Elective – II C		SUPPLY CHAIN MANAGEMENT	4	-	-	4
Pre-requisite		Basic knowledge in Supply chain management	Syllabus Version		2020	

Course Objectives:

The main objectives of this course are to:

1. Conceptualize an idea about supply chain management.
2. Provide insight about economies of scale in supply chain.
3. Deliver a detailed knowledge on networking the supply chain.
4. Develop the students to know more about network design for supply chain management
5. Have better understanding of emerging trends and regulatory mechanisms in supply chain.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Recall various terms and concepts relating to supply chain	K1
2	Understand various forms of supply and demand in supply chain	K2
3	Evaluate the applications to e-business	K5
4	Differentiate specific network design in certain and uncertain situations	K4
5	Explain the emerging trends in supply chain and the regulatory mechanisms	K2

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	SUPPLY CHAIN MANAGEMENT	20 hours

Supply Chain Management – Global Optimization – importance – key issues – Inventory management – economic lot size model. Supply contracts – centralized vs. decentralized system

Unit:2	SUPPLY CHAIN INTEGRATES	18 hours

Supply chain Integrates- Push, Pull strategies – Demand driven strategies – Impact on grocery industry – retail industry – distribution strategies

Unit:3	STRATEGIC ALLIANCES	17 hours

Strategic Alliances: Frame work for strategic alliances – 3PL – merits and demerits – retailer – supplier partnership – advantages and disadvantages of RSP – distributor Integration

Unit:4	PROCUREMENT AND OUTSOURCING	15 hours

Procurement and Outsourcing: Outsourcing – benefits and risks – framework for make/buy decision – e-procurement – frame work of e-procurement

Unit:5	DIMENSION OF CUSTOMER VALUE	18 hours

Dimension of customer Value – conformance of requirement – product selection – price and brand – value added services – strategic pricing – smart pricing – customer value measures

Unit:6	CONTEMPORARY ISSUES	2 hours

Expert lectures, online seminars – webinars

	Total Lecture hours	90 hours

Text Book(s)	
1	Rushton, A., Oxley, J & Croucher, P (2nd Edition, 2000). Handbook of Logistics and Distribution
Reference Books	
1	Simchi-Levi, David, Kamisnsky, Philip, and Simchi-Levi, Edith. (2nd Edition, 2004).
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://www.youtube.com/watch?v=lZPO5RclZEo&t=40s
2	https://www.youtube.com/watch?v=raqi4gjMLm8&t=23s
3	https://www.youtube.com/watch?v=Mi1QBxVjZAw
Course Designed By:	

Mapping with Programme Outcomes					
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**
CO1	S	S	S	S	S
CO2	S	S	S	S	S
CO3	S	M	S	S	S
CO4	M	S	S	M	S
CO5	S	M	S	S	S

S- Strong; M-Medium; L-Low

Third Semester

SEMESTER-III

Course code		TITLE OF THE COURSE	L	T	P	C
Core V		PRINCIPLES OF MARKETING	4	-	-	4
Pre-requisite		Basics of Principles of Marketing	Syllabus Version		2020	

Course Objectives:

The main objectives of the course are able to

1. Provide basic conceptual knowledge about the modern marketing and global marketing.
2. Give an insight knowledge on e-marketing and tele marketing.
3. Aware about the opportunities in marketing fields.
4. Analyze the marketing and product mix.
5. Give a detailed knowledge on green marketing concepts.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the different types of marketing and career opportunities in marketing.	K2
2	Know about the marketing function for achieving marketing goals.	K1
3	Aware of consumer behaviour and market segmentation and customer relations marketing.	K2
4	Analyze the marketing mix, product mix and know about the green marketing.	K2
5	Gain the knowledge on different bureau of Indian standards and consumer protection rights.	K2

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	MARKETING	15 hours

Marketing –Definition of market and marketing-Importance of marketing –Modern Marketing concept-Global Marketing –E-marketing –Tele marketing- Marketing Ethics -Career Opportunities in Marketing

Unit:2	MARKETING FUNCTIONS	15 hours

Marketing functions-Buying –Selling –Transportation –Storage – Financing –Risk Bearing – Standardisation – Market Information

Unit:3	CONSUMER BEHAVIOUR	15 hours

Consumer Behaviour –meaning –Need for studying consumer behaviour-Factors influencing consumer behaviour-Market segmentation – Customer Relations Marketing

Unit:4	MARKETING MIX	15 hours

Marketing Mix – Product mix –Meaning of Product –Product life cycle –Branding-labellingPrice Mix-Importance-Pricing objectives - Pricing strategies –Personal selling and Sales Promotion -Place mix-Importance of channels of distribution –Functions of middlemen – Importance of retailing in today‟scontext

Unit:5	MARKETING AND GOVERNMENT	13 hours
Marketing and Government –Bureau of Indian Standards –Agmark –Consumerism – Consumer Protectin – Rights of consumers- Green Marketing –Forward Trading in Commodities		
Unit:6	**CONTEMPORARY ISSUES**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**75 hours**

Text Book(s)

1	Marketing Management - RajanSexena
2	Principles of Marketing - Philip Kotler &Gary Armstrong
3	Marketing Management - V.S. Ramasamy and Namakumari

Reference Books

1	Marketing -William G.Zikmund& MichaelD"Amico
2	Marketing - R.S.N.Pillai&Bagavathi

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://www.youtube.com/watch?v=6jobOJy96jM
2	https://www.youtube.com/watch?v=hZLMv5aexto
3	https://www.youtube.com/watch?v=OocCPZ13i00&list=PLu6A0kluQy1c7ZUI-eMhv73kRWY0oRAGM

Course Designed By:

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	S	S	S	M
CO2	S	S	M	S	S
CO3	M	S	S	S	S
CO4	S	S	S	M	M
CO5	S	M	S	S	S

S- Strong; M-Medium; L-Low

SEMESTER-III

Course code		TITLE OF THE COURSE	L	T	P	C
Core VI		DATABASE MANAGEMENT SYSTEM	4	-	-	4
Pre-requisite		Basic knowledge on DBMS	Syllabus Version		2020	

Course Objectives:

The main objectives of this course are to:

1. Enable the students to learn about the basic data base operations and processes.
2. Understand the Architectural Concept, Structural Embedded QL, Hierarchical Approach and Network Concept.
3. Understand the relation approach and its key relation algebra.
4. Provide a detailed knowledge on hierarchical approach for knowing the detailed description of the data.
5. Make the students to understand embedded SQL

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the basic concepts of data system, operational data and storage structures of the data	K2
2	Understand the relation approach and its key relation algebra.	K1
3	Aware about embedded SQL.	K2
4	To gain knowledge on hierarchical approach for knowing the detailed description of the data.	K2
5	Aware about embedded SQL.	K3

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	DATABASE SYSTEM ARCHITECTURE	15 hours

Database System Architecture - Basic Concepts: Data System, Operational Data, Data Independence, Architecture for a Database System, Distributed Databases, Storage Structures: Representation of Data. Data Structures and Corresponding Operators: Introduction, Relation Approach, Hierarchical Approach, Network Approach.

Unit:2	RELATIONAL APPROACH	15 hours

Relational Approach : Relational Data Structure : Relation, Domain, Attributes, Key Relational Algebra - Introduction, Traditional Set Operation. Attribute, Attribute names for derived relations - Special Relational Operations.

Unit:3	EMBEDDED SQL AND NORMALIZATION	15 hours

Embedded SQL: Introduction – Operations not involving cursors, involving cursors – Dynamic statements, Query by Example – Retrieval operations, Built-in Functions, update operations - QBE Dictionary. Normalization : Functional dependency, First, Second, Third normal forms, Relations with more than one candidate key, Good and bad decomposition.

Unit:4	HIERARCHICAL APPROACH	15 hours
Hierarchical Approach : IMS data structure - Physical Database, Database Description- Hierarchical sequence - External level of IMS : Logical Databases, the program communication block IMS Data manipulation : Defining the Program communication Block : DL / 1 Examples.		
Unit:5	**NETWORK APPROACH**	**13 hours**
Network Approach : Architecture of DBTG System. DBTG Data Structure : The set construct, Singular sets, Sample Schema, the external level of DBTG – DBTG Data Manipulation.		
Unit:6	**CONTEMPORARY ISSUES**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**75 hours**

Text Book(s)

1	C.J.Date - An introduction to Database Systems, Seventh Edition
2	Abraham Silberschatz, Henry F Korth- Database Systems Concepts

Reference Books

1	Bipin C Desai - An introduction to Database Systems

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://www.youtube.com/watch?v=T7AxM7Vqvaw
2	https://www.youtube.com/watch?v=kBdlM6hNDAE&list=PLxCzCOWd7aiFAN6I8CuViBuCdJgiOkT2Y
3	https://www.youtube.com/watch?v=wjfeGxqAQOY&list=PLrjkTql3jnm-CLxHftqLgkrZbM8fUt0vn

Course Designed By:

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	S	S	S	M
CO2	S	S	M	S	S
CO3	M	S	S	S	S
CO4	S	S	S	S	S
CO5	S	M	S	S	S

S- Strong; M-Medium; L-Low

SEMESTER-III

Course code		TITLE OF THE COURSE	L	T	P	C
Core VII		COST ACCOUNTING	4	-	-	4
Pre-requisite		Basic Knowledge on Cost Accounting	Syllabus Version		2020	

Course Objectives:

The main objectives of this course are to:

1. Provide the students a strong foundation on the cost accounting procedures.
2. Make the studentsto understand the types of cost of production.
3. Give detailed knowledge on preparation of cost sheet for knowing the cost per unit of the product.
4. Get an insight knowledge on preparation of tender.
5. Acquire the knowledge on payment of wages and labour turnover.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the different concepts and classification of costs and create cost sheet for the firms.	K2
2	Gain the knowledge on different types of material controls.	K3
3	Know the system of labour wage payment, labour turnover and classification of overhead.	K2
4	Gain the knowledge on different types of process costing.	K2
5	Understand Operating Costing, Contract costing, and Reconciliation of Cost and Financial accounts	K3

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	COST ACCOUNTING	20 hours

Cost Accounting – Definition – Meaning and Scope – Concept and Classification – Costing an aid to Management — Types and Methods of Cost – Elements of Cost Preparation of Cost Sheet and Tender.

Unit:2	MATERIAL, PURCHASE AND STORES CONTROL	18 hours

Material Control: Levels of material Control – Need for Material Control – Economic Order Quantity – ABC analysis – Perpetual inventory – Purchase and stores Control: Purchasing of Materials – Procedure and documentation involved in purchasing – Requisition for stores – Stores Control – Methods of valuing material issue.

Unit:3	LABOUR	17 hours

Labour: System of wage payment – Idle time – Control over idle time – Labour turnover. Overhead – Classification of overhead – allocation and absorption of overhead.

Unit:4	PROCESS COSTING	15 hours

Process costing – Features of process costing – process losses, wastage, scrap, normal process loss – abnormal loss, abnormal gain. (Excluding inter process profits and equivalent production).

Unit:5	**OPERATING COSTING**	**18 hours**
Operating Costing - Contract costing – Reconciliation of Cost and Financial accounts		
Unit:6	**CONTEMPORARY ISSUES**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**90 hours**

Distribution of Marks: 40% Theory, 60 % Problems

Text Book(s)

1. S.P.JainandKL.Narang,"CostAccounting",KalyaniPublishers,NewDelhi.Edn.
2. R.S.N. Pillai andV.Bagavathi,"CostAccounting",S.ChandandCompanyLtd.,New Delhi.Edn.2004
3. S.P.Iyyangar,"CostAccountingPrinciplesandPractice",SultanChand,NewDelhi.2005.

Reference Books

1. V.KSaxena&C.D.Vashist,"CostAccounting",Sult an Chand, New Delhi 2005.
2. M.N.Arora,"CostAccounting",SultanChand,NewDelhi2005.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1. https://www.youtube.com/watch?v=VXTbSqrS1OQ&list=PLiaygP8qeQGUCZnFPYuxdwlDeS2NY6Goa
2. https://www.youtube.com/watch?v=Ni1S_rhanJo
3. https://www.youtube.com/watch?v=pGymzuGAkJ8

Course Designed By:

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	S	S	S	M
CO2	S	S	M	M	M
CO3	S	S	S	S	S
CO4	M	S	M	M	S
CO5	S	M	S	S	S

S- Strong; M-Medium; L-Low

SEMESTER-III

Course code		TITLE OF THE COURSE	L	T	P	C
ALLIED PAPER III		MANAGERIAL ECONOMICS	4	-	-	4
Pre-requisite		Basic knowledge on Managerial Economics	Syllabus Version	2020		

Course Objectives:

The main objectives of this course are to:

1. Impart the knowledge of students on economics and its theories.
2. Understand the different types of markets in the current scenario.
3. Make the students to understand the demand analysis for the different typesof products.
4. Analyze the markets for achieving business enterprise goal.
5. Analyze the causes and consequences of different market conditions.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Familiarize the students with the basic concept of managerial economics	K2
2	Make student understand the demand and supply analysis in business applications	K2
3	Apply marginal analysis to the firm under different market conditions.	K3
4	Analyze the causes and consequences of different market conditions.	K4
5	Familiarize the students with the basic concept of managerial economics	K2

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	MANAGERIAL ECONOMICS	15 hours

Managerial Economics – Meaning and Definition – Nature and Scope – Economic Theory – Divisions – Goals of a firm

Unit:2	DEMAND ANALYSIS	15 hours

Demand Analysis – Meaning, Determinants of Demand – Law of Demand, Elasticity of Demand – Price, Income and Cross Demand – Demand Estimation and Demand Forecasting – Demand Distinctions.

Unit:3	PRODUCTION FUNCTION	15 hours

Production Function – Meaning and Definition – Elasticity of Substitution and Production – Type of cost of Production – Long run and Short run cost.

Unit:4	MARKETS	15 hours

Markets – Forms of Market – Characteristics - Pricing Methods – Objects of pricing policies – Practices – Government intervention in Market.

Unit:5	PRICE THEROY	13 hours

Price Theory – Perfect Competition, Monopoly, Monopolistic competition, Monopsony, Duopoly, Duopsony and Oligopoly.

Unit:6	CONTEMPORARY ISSUES	2 hours
Expert lectures, online seminars – webinars		
	Total Lecture hours	**75 hours**

Text Book(s)

1	R.L.Varshney and K.L.Maheshwari----Managerial Economics----Sulthan Chand and Sons
2	Alak Gosh and Biswanath Gosh----Managerial Economics----Kalyani Publications

Reference Books

1	D.Gopalakrishna----Managerial Economics----Himalaya Publishing House
2	S.Sankaran---- Managerial Economics----Margham Publications

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://www.youtube.com/watch?v=ycyMktNFZ88&list=PLPjSqITyvDeV84Qiruw4xVWGQPTctrlhg
2	https://www.youtube.com/watch?v=Q8RaIfn4-Cw
3	https://www.youtube.com/watch?v=n47SQ64MhYw&list=PLJumA3phskPFwp2XXInxCWpv28nPMimDU

Course Designed By:

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	S	S	M	M
CO2	M	M	S	S	M
CO3	S	S	S	S	S
CO4	S	M	M	M	S
CO5	S	M	S	S	S

S- Strong; M-Medium; L-Low

SEMESTER-III

Course code		TITLE OF THE COURSE	L	T	P	C
Core VIII		Computer Applications: Oracle -Practical-II	-	-	-	4
Pre-requisite		Basic knowledge on Oracle	Syllabus Version		2020	

Course Objectives:

The main objectives of the program are to

1. Acquire the knowledge on computer applications of Oracle in different aspects of business.
2. Give an insight knowledge on storing and protecting the different types of database of the business enterprises.
3. Gain the knowledge on creating database using oracle.
4. Gain knowledge on application of oracle statements to extract the particular data base.
5. Acquire the knowledge on developing employees and salary databases using oracle.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the basic concepts computer applications using Oracle for maintaining the database.	K2
2	Create different databases using access application for developing the business transactions	K5
3	Gain the knowledge on creating database using oracle.	K2
4	Gain knowledge on application of oracle statements to extract the particular data base.	K3
5	Gain the knowledge on developing employees and salary databases using oracle.	K2

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

1. Create a table "Company" with the following fields and insert the values for 10 employees.

Field Name	Field Type	Field size
Company Name	Character	15
Proprietor	Character	15
Address	Character	25
Supplier Name	Character	15
No. of employees	Number	4
GP Percent	Number	6 with 2 decimal places

Queries:

a) Display all the records of the company which are in the ascending order of GP percent.

b) Display the name of the company whose supplier name is "Telco".

c) Display the details of the company whose GP percent is greater than 20 and order by GP Percent.

d) Display the detail of the company having the employee ranging from 300 to 1000.

e) Display the name of the company whose supplier is same as the Tata's.

2. Create a table named "Employee" with the following fields and insert the values.

Field Name	Field Type	Field Size
Employee Name	Character	15
Employee Code	Number	6
Address	Character	25
Designation	Character	15
Grade	Character	1
Date of Join	Date	-
Salary	Number	10 with 2 decimal places

Queries

a) Display the name of the employee whose salary is greater than Rs.10,000
b) Display the details of employees in ascending order according g to Employee Code.
c) Display the total salary of the employees whose grade is "A"
d) Display the details of the employee earning the highest salary.
e) Display the names of the employees who earn more than "Ravi"

3. Create a table "Product" with the following fields and insert the values:

Field Name	Field Type	Field Size
Student Name	Character	15
Gender	Character	6
Roll No	Character	10
Department Name	Character	15
Address	Character	25
Percentage	Number	4 with 2 decimal places

Queries:

a) Calculate the average percentage of students.
b) Display the names of the students whose percentage is greater than 80.
c) Display the details of the student who got the highest percentage.
d) Display the details of the students whose percentage is between 50 and 70.
e) Display the details of the students whose percentage is greater than the percentage of the roll no=12CA01.

4. Create a table "Product" with the following fields and insert the values:

Field Name	Field Type	Field Size
Product No	Number	6
Product Name	Character	15
Unit of Measure	Character	15
Quantity	Number	6 with decimal places
Total Amount	Number	8 with decimal places

Queries:

a) Using update statements calculate the total amount and then select the record.
b) Select the records whose unit of measure is "Kg".
c) Select the records whose quantity is greater than 10 and less than or equal to 20.
d) Calculate the entire total amount by using sum operation.
e) Calculate the number of records whose unit price is greater than 50 with count operation.

5. Create the table PAYROLL with the following fields and insert the values:

Field Name	Field Type	Field Size
Employee No	Number	8
Employee Name	Character	8
Department	Character	10
Basic Pay	Number	8 with 2 decimal places
HRA	Number	6 with 2 decimal places
DA	Number	6 with 2 decimal places
PF	Number	6 with 2 decimal places
Net Pay	Number	8 with 2 decimal places

Queries:

a) Update the records to calculate the net pay.
b) Arrange the records of the employees in ascending order of their net pay.
c) display the details of the employees whose department is "Sales".
d) Select the details of employees whose HRA>= 1000 and DA<=900.
e) Select the records in descending order.

6. Create a Table Publisher and Book with the following fields:

Field Name	Field Type	Field Size
Publisher Code	Var Char	5

Publisher Name	Var Char	10
Publisher city	Var Char	12
Publisher State	Var Char	10
Title of book	Var Char	15
Book Code	Var Char	5
Book Price	Var Char	5

Queries:

a) Insert the records into the table publisher and book.
b) Describe the structure of the tables.
c) Show the details of the book with the title "DBMS".
d) Show the details of the book with price>300.
e) Show the details of the book with publisher name "Kalyani".
f) Select the book code, book title, publisher city is "Delhi".
g) Select the book code, book title and sort by book price.
h) Count the number of books of publisher starts with "Sultan chand".
i) Find the name of the publisher starting with "S".

7. Create a table Deposit and loan with the following fields:

Field Name	Field Type	Field Size
Account	Var Char	6
Branch Name	Var Char	15
Customer Name	Var Char	20
Balance Amount	Var Char	10
Loan Number	Var Char	7
Loan Amount	Var Char	6

Queries:

a) Insert the records into the table.
b) Describe the structure of the table.
c) Display the records of Deposit and Loan.
d) Find the number of loans with amount between 10000 and 50000.
e) List in the alphabetical order the names of all customers who have a loan at the Coimbatore branch.
f) Find the average account balance at the Coimbatore branch.
g) Update deposits to add interest at 5% to the balance.
h) Arrange the records in descending order of the loan amount.
i) Find the total amount of deposit in 'Erode' branch.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://www.youtube.com/watch?v=RlAmTNuT4yE
2	https://www.youtube.com/watch?v=O6R2W7x3Y_Q
3	https://www.youtube.com/watch?v=6zC3TM3cn9o
Course Designed By:	

Mapping with Programme Outcomes					
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**
CO1	S	S	S	S	M
CO2	S	S	M	M	M
CO3	S	S	S	S	S
CO4	M	S	M	M	S
CO5	S	M	S	S	S

S- Strong; M-Medium; L-Low

ELECTIVE PAPER

Course code		TITLE OF THE COURSE	L	T	P	C
Elective – III A		INDIRECT TAXES	4	-	-	4
Pre-requisite		Basic knowledge in Indirect taxation	Syllabus Version		2020	

Course Objectives:

The main objectives of this course are to:

1. To acquire the basic accounting knowledge on principles and concept of accounting
2. To identify the errors in accounting and to rectify those errors.
3. To effectively prepare final accounts, bills of exchange, bank reconciliation statements and accounting on joint ventures and consignment.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Recall the fundamental concepts of indirect taxes.	K1
2	Know about the GST concepts.	K2
3	Know about the filing of returns.	K3
4	Gain knowledge about levy and collection of tax.	K2
5	Understand about customs law.	K2

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	INDIRECT TAXES	20- hours

Meaning of Tax and Taxation - Types of Taxes: Direct and Indirect Taxes - Features – Merits and Limitations - Comparison of Direct and Indirect taxes. Constitutional basis of Taxation in India- Methods of levying Indirect Taxes: Advoleram and Specific. Contribution of Indirect taxes to Government Revenues.

Unit:2	GOOD AND SERVICE TAX INTRODUCTION	18-- hours

Good and Services Tax in India - Introduction – Concept of GST - Need for GST - Advantages of GST. Structure of GST in India: Dual Concept – CGST- SGST- UTGST-IGST. Subsuming of Taxes- GST Rate Structure in India. GST Council: Structure and Functions.

Unit:3	LEVY AND COLLECTION UNDER TNGST/CGST ACTS	17-- hours

Levy and Collection under Integrated Goods and Services Tax Act: Meaning of important terms: Integrated tax, Intermediary, Location of the Recipient and Supplier of Services, and Zero-rated Supply. Nature of Supply: Intra-State Supply and Inter-State Supply - Place of Supply of Goods or Services: Meaning and Determination. Procedures under GST: Procedure for Registration - Persons Liable for Registration – Compulsory Registration and Deemed Registration. E-Way Bill under GST: Meaning and Applicability. Filing of Returns: Types of GST Returns and their Due Dates.

Unit:4	**LEVY AND COLLECTION UNDER THE INTEGRATED GOODS AND SERVICES TAX ACT 2017**	**15-- hours**

Levy and Collection under Integrated Goods and Services Tax Act: Meaning of important terms: Integrated tax, Intermediary, Location of the Recipient and Supplier of Services, and Zero-rated Supply. Nature of Supply: Intra-State Supply and Inter-State Supply - Place of Supply of Goods or Services: Meaning and Determination. Procedures under GST: Procedure for Registration - Persons Liable for Registration – Compulsory Registration and Deemed Registration. E-Way Bill under GST: Meaning and Applicability. Filing of Returns: Types of GST Returns and their Due Dates.

Unit:5	**INTRODUCTION TO CUSTOMS LAWS IN INDIA**	**18-- hours**

Introduction to Customs Laws in India: The Customs Act 1962 - The Customs Tariff Act 1975 - Basic Concepts - Taxable Event - Levy and Exemptions from Customs Duty - Types - Methods of Valuation- Abatement of Duty on Damaged or Deteriorated Goods - Customs Duty Draw Back.

Unit:6	**CONTEMPORARY ISSUES**	**2 hours**

Expert lectures, online seminars – webinars

Total Lecture hours	**90-- hours**

Text Book(s)

1	Indirect Taxes - V.S.Datey. Taxmann Publication(p) Ltd.New Delhi
2	Indirect Taxation - V.Balachandran. Sultan Chand & Co. New Delhi
3	Indirect Tax - V.K.Gupta,

Reference Books

1	Indirect Taxes:GST and Customs Laws - R.Parameswaran and P.Viswanathan
2	Relevant Bare Acts

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://www.youtube.com/watch?v=ivcbXFmmpys
2	https://www.youtube.com/watch?v=2gpMp2-ja6Y&list=PLBiVUADzZpd_xgMSMeuR56OP9QIrLUkjj
3	https://www.youtube.com/watch?v=MRoWM7e48wI

Course Designed By:

Mapping with Programme Outcomes					
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**
CO1	S	S	M	M	M
CO2	M	M	M	M	M
CO3	S	S	M	M	S
CO4	S	S	S	S	S
CO5	M	S	S	S	M

S- Strong; M-Medium; L-Low

ELECTIVE PAPER

Course code		TITLE OF THE COURSE	L	T	P	C
Elective – III B		FINANCIAL MARKETS	4	-	-	4
Pre-requisite		Basic knowledge in Financial Markets	Syllabus Version		2020	

Course Objectives:

The main objectives of this course are to:

1. To acquire the basic accounting knowledge on principles and concept of accounting
2. To identify the errors in accounting and to rectify those errors.
3. To effectively prepare final accounts, bills of exchange, bank reconciliation statements and accounting on joint ventures and consignment.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Recall the fundamental concepts of financial markets	K1
2	Know about the markets for corporate securities.	K2
3	Know about secondary markets.	K2
4	Gain knowledge about banks as financial intermediaries.	K2
5	Understand about new methods of financing.	K2

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	FINANCIAL MARKETS	20- hours

Financial Markets – Structure of Financial Markets – Financial Investment – Money Market in India – Indian Capital Markets – Difference between Money Market and Capital Market – Classification and object of Indian Money Markets and Structure of Capital Markets.

Unit:2	MARKETS FOR CORPORATE SECURITIES	18-- hours

Markets for Corporate Securities – New Issue Markets – Functions Issue Mechanism – Merchant Banking - Role and Functions of Merchant Bankers in India – Under writing.

Unit:3	SECONDARY MARKETS	17-- hours

Secondary Markets – Stock Exchange – Role of Secondary Market – Trading in Stock Exchange – Various Speculative Transactions – Role of SEBI – Regulation of Stock Exchange.

Unit:4	BANKS AS FINANCIAL INTERMEDIARIES	15-- hours

Banks as Financial Intermediaries – Commercial Banks Role in Financing – IDBI – IFCI – LIC – GIC – UTI – Mutual Funds – Investments Companies.

Unit:5	NEW MODES OF FINANCING	18-- hours

New Modes of Financing – Leasing as Source of Finance – Forms of leasing – Venture Capital – Dimension Functions – Venture Capital in India – Factoring – Types – Modus Operandi of Factoring – Factoring as Source of Finance – Securitization of assets – Mechanics of Securitisation- Utility of Securitization – Securitisation in India,

Unit:6	CONTEMPORARY ISSUES	2 hours
Expert lectures, online seminars – webinars		
	Total Lecture hours	90-- hours

Text Book(s)	
1	Essentials of Business Finance - R.M. Sri Vatsava
2	Financial Management –Saravanavel
3	Financial Management - L.Y. Pandey
4	Financial Management - S.C. Kuchhal

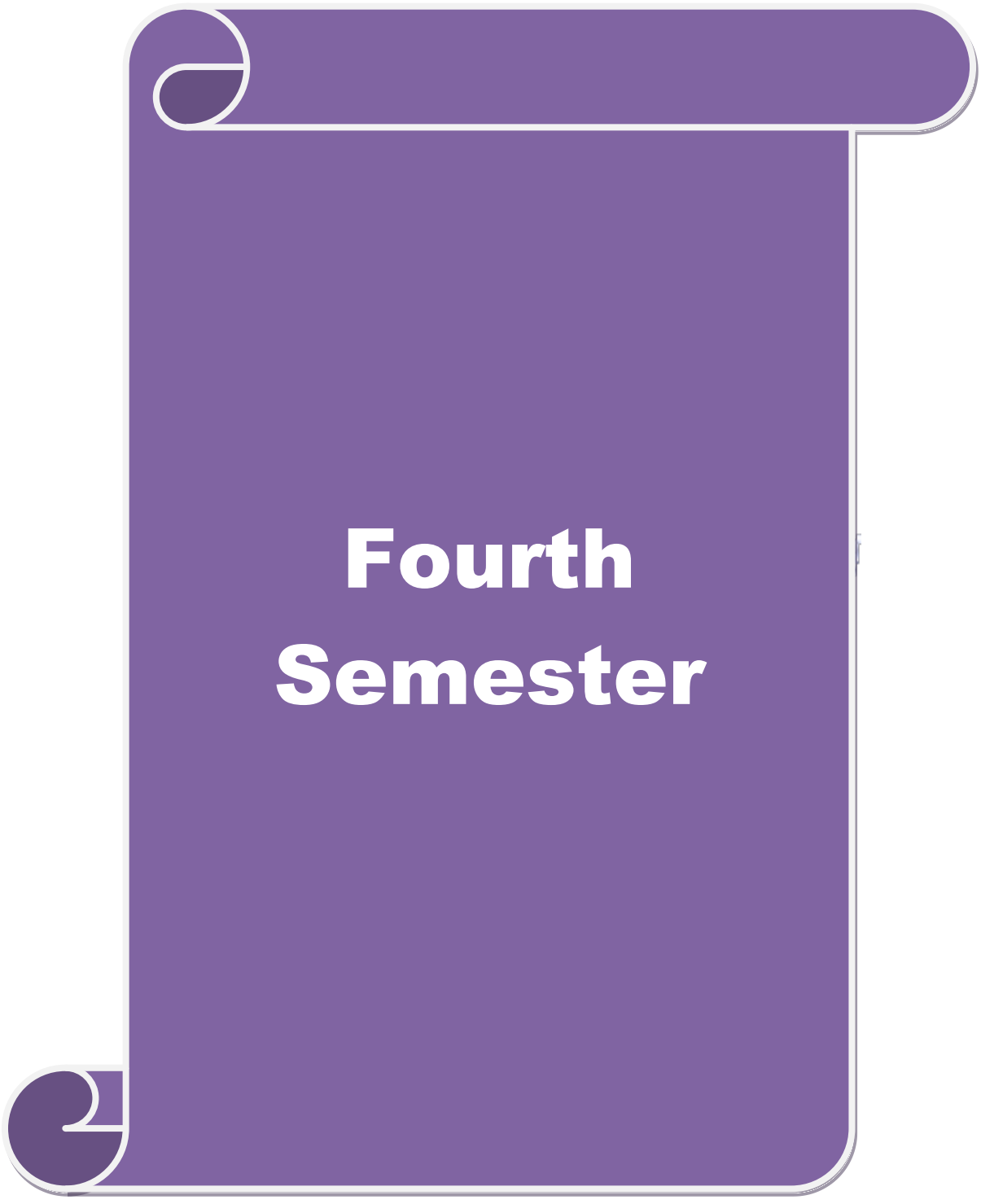
Reference Books	
1	Financial Management - M.Y. Khan and Jain
2	Principles of Financial Management - S.N. Maheshwari
3	Financial Management Theory and Practice - Prasanna Chandra

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://www.youtube.com/watch?v=28HpCMWfc7k&t=1s
2	https://www.youtube.com/watch?v=UwHk3EK7M3I
3	https://www.youtube.com/watch?v=C0Ktvoh-oFM

Course Designed By:

Mapping with Programme Outcomes					
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**
CO1	S	S	M	M	M
CO2	M	M	M	M	M
CO3	S	S	M	M	S
CO4	S	M	S	S	M
CO5	S	S	S	M	S

S- Strong; M-Medium; L-Low


Fourth
Semester

SEMESTER-IV

Course code		TITLE OF THE COURSE	L	T	P	C
Core IX		MANAGEMENT ACCOUNTING	4	-	-	4
Pre-requisite		Basic knowledge on Management Accounting	Syllabus Version		2020	

Course Objectives:

The main objectives of this course are to:

1. Acquire knowledge on basic relationship between management accounting and other types of managerial accounting.
2. Apply the different types of ratios for analyzing the performance of the companies.
3. Give an insight knowledge on Break Even Point analysis.
4. Analyze the working capital requirements of the company using the format.
5. Analyze the budgeting and budgetary control.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Recall the objectives and scope of management and know the relationship between other managerial accounting.	K1
2	Analyze the performance of the company using different ratios	K4
3	Understand the working capital requirements of the company using the format.	K3
4	To gain knowledge about marginal costing and BEP analysis.	K2
5	Understand about budgeting and budgetary control	K3

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	MANAGEMENT ACCOUNTING	20 hours

Management Accounting – Meaning – Objectives and Scope – Relationship between Management Accounting , Cost Accounting and Financial Accounting.

Unit:2	RATIO ANALYSIS	18 hours

Ratio Analysis – Analysis of liquidity – Solvency and Profitability – Construction of Balance Sheet.

Unit:3	WORKING CAPITAL	17 hours

Working Capital – Working capital requirements and its computation – Fund Flow Analysis and Cash Flow Analysis.

Unit:4	MARGINAL COSTING AND BREAK EVEN ANALYSIS	15 hours

Marginal costing and Break Even Analysis – Managerial applications of marginal costing – Significance and limitations of marginal costing.

Unit:5	BUDGETING AND BUDGETARY CONTROL	18 hours

Budgeting and Budgetary control – Definition – Importance, Essentials – Classification of

Budgets – Master Budget – Preparation of cash budget, sales budget, purchase budget, material budget, flexible budget.		
Unit:6	**CONTEMPORARY ISSUES**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**90 hours**

Distribution of Marks: 40% Theory, 60 % Problems

Text Book(s)

1	Dr.S.N.Maheswari.“ManagementAccounting”,Sultan Chand & Sons, New Delhi, 2004.
2	Sharma and S.K.Gupta “ManagementAccounting”,Ka lyani Publishers, New Delhi,2006.

Reference Books

1	S.P.JainandKL.Narang,“CostandManagementAccounting”,KalyaniPublishers,New Delhi.
2	S.K.Bhattacharya,“Ac counting and Management”,VikasPublishingHouse.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://www.youtube.com/watch?v=u6-nXMATSaI
2	https://www.youtube.com/watch?v=1e9VAAb3WTo
3	https://www.youtube.com/watch?v=bS1eE88gepk&list=PLLy_2iUCG87D6w12QCXDGfaEa-r_eVY33

Course Designed By:

Mapping with Programme Outcomes

Cos	PO1	PO2	PO3	PO4	PO5
CO1	S	S	S	M	M
CO2	S	S	S	S	M
CO3	S	S	S	S	S
CO4	S	M	M	S	S
CO5	S	M	S	S	S

S- Strong; M-Medium; L-Low

SEMESTER-IV

Course code		TITLE OF THE COURSE	L	T	P	C
Core X		OBJECT ORIENTED PROGRAMME WITH C++	4	-	-	4
Pre-requisite		Basic knowledge on C++	Syllabus Version		2020	

Course Objectives:

The main objectives of the program are to

1. Understand the difference between structured and Object-Oriented Problem-solving methods.
2. Apply concepts of computer programming languages in various business fields based on the given problem.
3. Develop the program by applying the concept of OOPs.
4. Develop the reusability of C++ program by applying the concept of Inheritance and Polymorphism.
5. Apply the data files operation technique and solve the given problems in a practical manner.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Compare the different types of languages and find the importance of object-oriented programming language	K2
2	Know and understand the C++ statements and motivate the students to make use of the statements	K3
3	Identify the class structure and develop the program.	K2
4	Develop the program by applying the concept of OOPs	K3
5	Apply the data file operation technique and evaluate the program in a practical manner	K3

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	OBJECT ORIENTED PROGRAMS	15 hours

OOPs, A New Paradigm – Evaluation of Programming Paradigm – Objects – Classes – Multiple Viewing of the Same Object – Encapsulation and Data Abstraction – Inheritance – Delegation – Object Composition – Polymorphism – Message Communication – Popular OOPs Languages – Merits and Demerits of OOPs Methodology – Application of OOPs.

Unit:2	BASICS OF C++	15 hours

Application of C++ - Structure of C++ Program – Tokens, Expression -Basic Data Types – Symbolic Constants – Declaring Data Types - Reference Variables – Operator in C++ - Scope Resolution Operator – Expressions and Implicit Conversions – Control Structures – Functions in C++ - Call by Reference – Call by Value – Inline Functions – Default Arguments – Constant Arguments – Classes and Objects – Defining Member Functions – Nesting Member Function – Private Member Function – Static Member Function.

Unit:3	OBJECTS AND OPERATOR OVERLOADING	15 hours

Array of Objects – Friend Function – Returning Objects – Constant Member Function – Pointer to Members – Constructors with Default Arguments – Copy Constructor – Dynamic Constructor – Destructor – Operator Overloading and Type Conversions – Rules for Operator

Overloading – Function Overloading – Function Overloading with Arguments – Special Features of Function Overloading.		
Unit:4	**INHERITANCE**	**15 hours**
Inheritance – Single Inheritance – Types of Base Classes – Types of Derivation – Public – Private – Protected Inheritance – Multilevel Inheritance – Multiple Inheritance – Hierarchical Inheritance – Hybrid Inheritance – Polymorphism – Virtual Functions – Pure Virtual Function – Pointer to Derived Classes.		
Unit:5	**MANAGING CONSOLE**	**13 hours**
Managing Console I/O Operations – C++ Streams – Stream Classes – istreams, ostreams, ioStream, fstream, ifstream, ofstream, filebuff, istrstream, ostrstream – Unformatted I/O Operation – Classes for File Stream Operations – Opening and Closing a file.		
Unit:6	**CONTEMPORARY ISSUES**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**75 hours**
Text Book(s)		
1	E. Balagurusamy,"Object OrientedProgrammingwithC++",TataMc Graw-Hill Publishing Company Limited, New Delhi, 2003.	
Reference Books		
1	D.Ravichandran, "Programming with C++", Tata McGraw -Hill Publishing Company Limited, New Delhi, 2002.	
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]		
1	https://www.youtube.com/watch?v=h4kUiFOb_v0	
2	https://www.youtube.com/watch?v=xnh7ip5gpzc&list=PLfVsf4Bjg79DLA5K3GLbIwf3baNVFO2Lq	
3	https://www.youtube.com/watch?v=hyJeuFWmROc&list=PLftJ4X48yC1k97-tmIpp0HpW-lh2dv9i2	
Course Designed By:		

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	S	S	S	S
CO2	S	S	M	M	S
CO3	S	M	S	S	M
CO4	S	S	S	M	S
CO5	S	S	S	S	S

S- Strong; M-Medium; L-Low

SEMESTER-IV

Course code		TITLE OF THE COURSE	L	T	P	C
Core XI		**EXECUTIVE BUSINESS COMMUNICATION**	**3**	**-**	**-**	**3**
Pre-requisite		**Basics of Executive Business Communication**	**Syllabus Version**		**2020**	

Course Objectives:

The main objectives of this course are to:

1. Acquire the basic knowledge on business communication.
2. Enable the students to create various forms of business letters.
3. Impart knowledge of the students on various secretarial correspondence letters.
4. Gain the knowledge on report writing.
5. Make the students to create their resumes.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the effectiveness of business communication	K2
2	To gain the knowledge on creating various forms of letters	K3
3	Understand the concept on banking and insurance correspondence	K2
4	To gain knowledge on report writing	K2
5	To create a resume	K3

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	**BUSINESS COMMUNICATION**	**8 hours**

Business Communication : Meaning – Importance of Effective Business Communication Modern Communication Methods – Business Letters : Need – Functions - Kinds - Essentials of Effective Business Letters - Layout.

Unit:2	**TRADE ENQUIRIES**	**9 hours**

Trade Enquiries - Orders and their Execution - Credit and Status Enquiries – Complaints and Adjustments - Collection Letters – Sales Letters – Circular Letters.

Unit:3	**BANKING CORRESPONDENCE**	**8 hours**

Banking Correspondence - Insurance Correspondence - Agency Correspondence.

Unit:4	**COMPANY SECRETARIAL**	**7 hours**

Company Secretarial Correspondence (Includes Agenda, Minutes and Report Writing)

Unit:5	**APPLICATION LETTERS**	**11 hours**

Application Letters – Preparation of Resume - Interview: Meaning – Objectives and Techniques of various types of Interviews – Public Speech – Characteristics of a good speech – Business Report Presentations.

Unit:6	**CONTEMPORARY ISSUES**	**2 hours**

Expert lectures, online seminars – webinars

	Total Lecture hours	**45 hours**

Text Book(s)	
1	RajendraPalKorahill,"EssentialsofBusinessCommunication",S ultan Chand & Sons, New Delhi, 2006.
2	Ramesh, MS, & C.CPattanshetti,"BusinessC ommunication",R.Chand&Co,NewDelhi, 2003.
3	RodriquezMV,"EffectiveBusinessCommunicationConcept"VikasPublishingCompany ,2003.
Reference Books	
1	Raghunathan V S , Santhanam V , Business Communication
2	Madhukar .R.K,"BusinessCommunication "
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://www.youtube.com/watch?v=oDTPxMBemDM
2	https://www.youtube.com/watch?v=h1fCJM1LMaY
3	https://www.youtube.com/watch?v=hbROO4SLReM
Course Designed By:	

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	S	S	S	S
CO2	M	S	S	M	S
CO3	S	M	S	S	S
CO4	S	S	S	M	S
CO5	S	S	S	S	S

S- Strong; M-Medium; L-Low

SEMESTER-IV

Course code		TITLE OF THE COURSE	L	T	P	C
Core XII		COMPUTER APPLICATIONS : ORACLE & C++ PRACTICAL-II	4	-	-	4
Pre-requisite		Basic knowledge on C++	Syllabus Version		2020	

Course Objectives:

The main objectives of the program are to

1. Acquire and apply the computer applications knowledge in different aspects of business using oracle.
2. Make the students to apply the basic conceptsof storing and protecting the different types of database of the business enterprises.
3. Develop the reusability of C++ program by applying the concept of Inheritance and Polymorphism.
4. Apply the data files operation technique.
5. Apply the concepts of oracle and C++ program to solve the given problems in a practical manner.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Create programs by applying class and member functions concept	K3
2	Develop the programs using member function definition	K3
3	Apply the concepts of oracle to solve the problems of business enterprises.	K3
4	Develop the students to use the reusability concepts.	K2
5	Acquire the knowledge on the application of c++ and to solve the problems.	K2

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

1. Program to calculate depreciation under Straight Line method and Diminishing Balance method (using class, defining member functions outside the class).

2. Program to calculate depreciation under Diminishing Balance method (Using class, defining member function inside the class)

3. Program to calculate Economic Order Quantity (using nesting of member function).

4. Program to print the Employees' payroll statement (using control structures).

5. Program to calculate simple Interest and compound Interest(using nested class).

6. Program to calculate net income of a family(using friend function in two classes).

7. Program to print the book list of library(using array of objects).

8. Program to prepare cost sheet (using inheritance).

9. Program to calculate margin of safety (using multilevel inheritance).

10. Program for bank transaction (using constructor and destructor).

11. Program to calculate increase or decrease in working capital using operator overloading.

12. Program to create the student file and prepare the marks slip by access in the file.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://www.youtube.com/watch?v=ZopRS8dsN48
2	https://www.youtube.com/watch?v=Bw6jvxnDcVk
3	https://www.youtube.com/watch?v=O6R2W7x3Y_Q&t=17s

Course Designed By:

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	S	M	S	S
CO2	M	M	S	S	S
CO3	S	M	S	S	S
CO4	S	S	S	M	M
CO5	S	M	S	S	S

S- Strong; M-Medium; L-Low

SEMESTER-IV

Course code		TITLE OF THE COURSE	L	T	P	C
Core XIII		BANKING THEORY	3	-	-	3
Pre-requisite		Basics knowledge of Banking Theory	Syllabus Version		2020	

Course Objectives:

The main objectives of this course are to:

1. Educate the basic concepts on the functions and theories of banking management.
2. Make the students to understand the recent trends in Indian banking.
3. Understand the organization structure, communication skills, and leadership qualities for achieving business goals.
4. Build competencies among the students as entrepreneurs and managers.
5. Understand the existing banking system in India.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Discuss the Basic concepts, functions and Classification of Banking System	K1
2	Describe the Recent Trends in Banking.	K2
3	Explain about the Organization structure of Banks and Credit control measures.	K2
4	Enumerate the Indian Money Market.	K2
5	Get an insight knowledge on StateBank of India and Commercial Banks.	K2

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6**– Create

Unit:1	BANKING SYSTEM	8 hours

Origin of banks-Definition of banking- Classification of banks- Banking System: Unit Banking – Branch Banking Universal Banking & Banking Markets – Functions of Modern commercial Banks - Balance Sheet of commercial Banks – Credit Creation by commercial Banks.

Unit:2	INDIAN BANKING	9 hours

Recent Trades in Indian Banking – Automated teller Machines – Merchant Banking – Mutual Fund – Factoring Services – Customer Services – Credit Cards – E-banking – Privatization of commercial banks – Place of Private Sector Banks in India.

Unit:3	CENTRAL BANKS	8 hours

Central Banks – Functions – Credit Control Measures – Quantitative and Selective Credit control measures – Role of RBI in regulating and controlling banks.

Unit:4	INDIAN MONEY MARKET	7 hours

Indian Money Market – Organized and Unorganized Part – Deficiencies of the Indian Money Market – Comparison with British and American Money Markets.

Unit:5	STATE BANK AND COMMERCIAL BANKS	11 hours
State Bank of India – Its special place in the banking scene – Commercial banks and rural financing – Regional Rural Banks - Place of Co-operative banks in the Indian Banking scene – Development banking – IDBI – ICICI.		
Unit:6	**CONTEMPORARY ISSUES**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**45 hours**

	Text Book(s)
1	Banking of India - Panandigar.S.J
2	A Text book of Banking - Radhasamy M & Vasudevan S.V
3	A Text book of Banking - Maheswari S.N.

	Reference Books
1	Indian Banking - Natarajan. S & Parameswaran R
2	Banking and Financial Systems - Santhanam .B

	Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]
1	https://www.youtube.com/watch?v=n9bCm_tNik0
2	https://www.youtube.com/watch?v=M2Xy1DSbH1Y
3	https://www.youtube.com/watch?v=FMc4ePdoUmk&list=PL1WndMtGKOULIFtsx_8TRp33DzFqBrZeA

Course Designed By:

Mapping with Programme Outcomes					
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**
CO1	S	S	S	S	M
CO2	M	S	S	S	S
CO3	S	S	S	S	S
CO4	S	S	M	M	S
CO5	S	M	S	S	S

S- Strong; M-Medium; L-Low

SEMESTER-IV

Course code		TITLE OF THE COURSE	L	T	P	C
Allied IV		PRINCIPLES OF MANAGEMENT	4	-	-	4
Pre-requisite		Basic knowledge of Principles of Management	Syllabus Version		2020	

Course Objectives:

The main objectives of this course are to:

1. Conceptualize on the functions and theories of principles of management.
2. Enable the students to study about the different types of management theories.
3. Make the students to understand the delegation of power and control.
4. Acquire the detailed knowledge on communication in management.
5. Make the students to understand the motivational theories.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Conceptualize the nature and scope of Management process	K1
2	Understand the Planning and decision-making process.	K2
3	Enlighten about the organization and organization structure.	K1
4	Enumerate Theories of motivation and incentives.	K2
5	Make the students to understand the Co-ordination and control process.	K2

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	MANAGEMENT AND ADMINISTRATION	15 hours

Definition of Management – Management and Administration – Nature and Scope of Management - Functions of Management - Contribution of F.W. Taylor – Henry Fayol – Mary Parker Follet – Mc Gregor and Peter F. Drucker.

Unit:2	PLANNING	8 hours

Planning – Meaning – Nature and Importance of Planning – Planning promises – Methods and Types of plans – Decision Making.

Unit:3	ORGANIZATION	10 hours

Organization – Meaning, Nature and Importance – Process of Organization – Principles of Sound Organization – Organization Structure – Span of Control – Organization Chart - Departmentation – Delegation and Decentralization – Authority relationship Line, Functional and Staff.

Unit:4	MOTIVATION	10 hours

Motivation – Need – Determinants of behaviour – Maslow‟sTheoryofMotivation – Motivation Theories in Management – X, Y and Z theories – Leadership styles – MBO – Management by Exception.

Unit:5	COMMUNICATION IN MANAGEMENT	15 hours

Communication in Management – Co-Ordination – Need and Techniques – Control – Nature and process of Control – Techniques of Control.

Unit:6	**CONTEMPORARY ISSUES**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**60 hours**

Text Book(s)	
1	Principles of Management - KoontzandO"Donald
2	Business Management - Dinkar – Pagare
3	The Principles of Management - Rustom S. Davan
Reference Books	
1	Business Organization and Management - Y. K. Bhushan
2	Business Management – Chatterjee
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://www.youtube.com/watch?v=_nikDhY1z8s
2	https://www.youtube.com/watch?v=nZd3tUvfjq4&t=89s
3	https://www.youtube.com/watch?v=xCEAiy51oS8&list=PLGRG6Dk7lyZ7vBWcAPIxfyFKg1O7y98mE
Course Designed By:	

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	S	S	M	M
CO2	M	S	S	S	S
CO3	S	S	S	S	S
CO4	S	M	M	S	S
CO5	S	S	S	S	S

S- Strong; M-Medium; L-Low

SEMESTER-IV

Course code		TITLE OF THE COURSE	L	T	P	C
Skill based Subject-2		COMPANY LAW	3	-	-	3
Pre-requisite		Basic knowledge on Company Law	Syllabus Version		2020	

Course Objectives:

The main objectives of this course are to:

1. Educate the students about the kinds and formation of a Company.
2. Make the students to understand the Memorandum of Association.
3. Understand about uses and formation of the prospects of a company.
4. Get an insight knowledge on appointment and salaries of company director and secretary.
5. Understand about various types of meeting.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Discuss the characteristics of Company and its Formation	K2
2	Understand about Memorandum and Articles of Association.	K2
3	Get a detailed knowledge on Prospectus and Kinds of shares and Debentures.	K2
4	Acquire the knowledge on powers and duties of Director and Secretary	K2
5	Understand about kinds of meetings .	K2

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	COMPANY	8 hours

Company – Definition – Characteristics – Kinds – Privileges of Private Company – Formation of a Company.

Unit:2	MEMORANDUM OF ASSOCIATION	9 hours

Memorandum of Association – Meaning – Purpose – Alteration of Memorandum – Doctrine of Ultravires – Articles of Association – Meaning – Forms – Contents – Alteration of Articles – Doctrine of Indoor management

Unit:3	PROSPECTUS	8 hours

Prospectus – Definition – Contents – Deemed Prospectus – Misstatement in Prospectus — Kinds of Shares and Debentures.

Unit:4	Director and Secretary	7 hours

Director and Secretary – Qualification and Disqualification – Appointment – Removal – Remuneration – Powers, Duties and Liabilities.

Unit:5	MEETINGS	11 hours

Meetings – Requisites of Valid Meeting – Types of Meeting – Winding up – Meaning - Modes of Winding Up.

Unit:6	**CONTEMPORARY ISSUES**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**45 hours**

Text Book(s)

1	N.D.Kapoor,"CompanyLaw"SultanChand&Sons,NewDelhi 2005
2	BagrialA.K,"CompanyLaw",VikasPublishingHouse,NewDelhi
3	Gower L.C.B, "PrinciplesofModernComp anyLaw",Steven&Sons,London.

Reference Books

1	RamaiyaA,"GuidetotheCompaniesAct",Wadhwa&Co.,Nagpur
2	SinghAvtar,"Company Law",EasternBookCo.,Lucknow

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

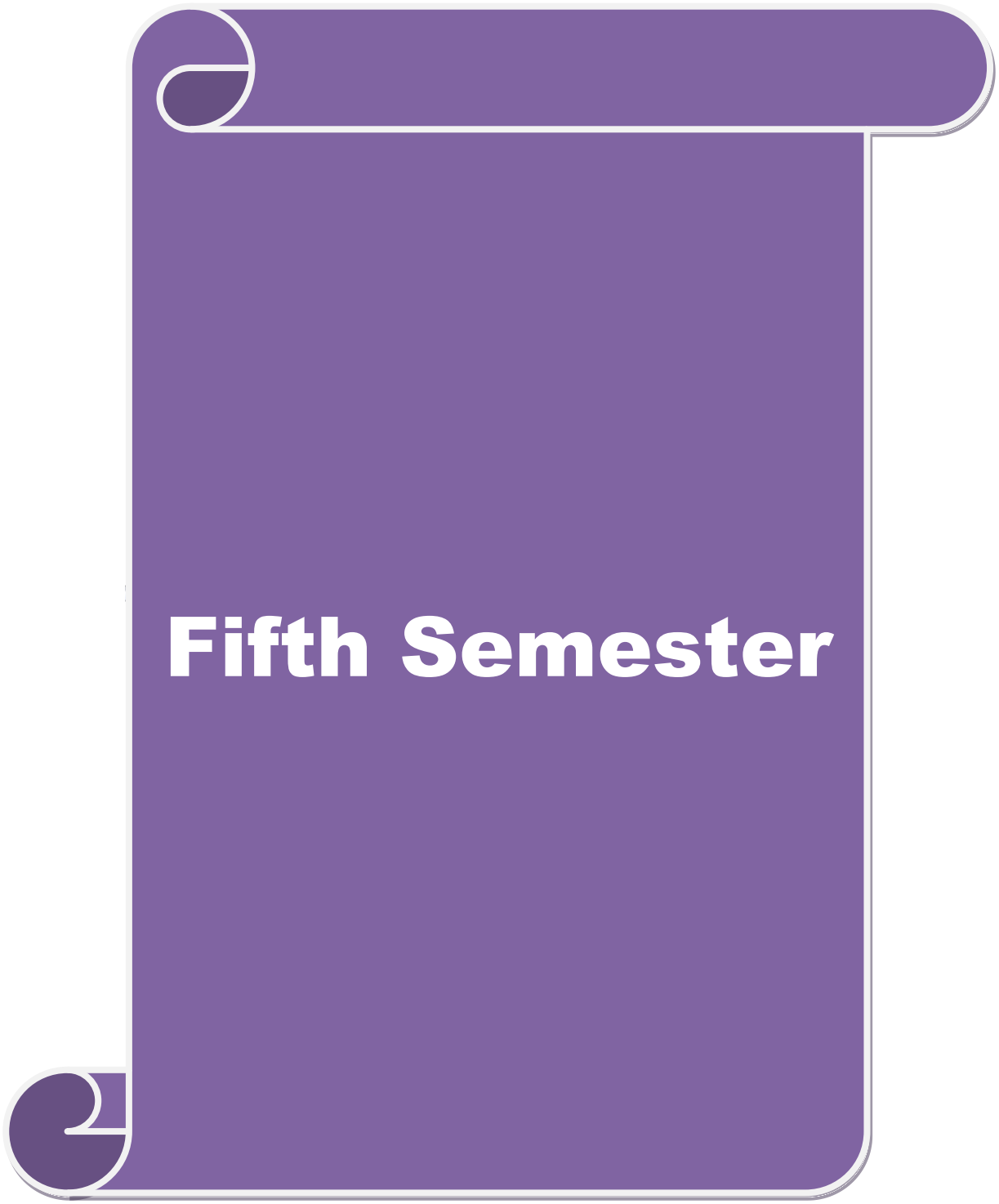
1	https://www.youtube.com/watch?v=G9MyWFgsNLU
2	https://www.youtube.com/watch?v=gEDSdXW0JPQ&list=PLWKgfZAhHUZaqiDvDUNORypEhPdmZHzg3
3	https://www.youtube.com/watch?v=AdDQ05rP7jE&list=PLgK6tNi_UIbXbK9foc3khX8ecmlaq4FTd

Course Designed By:

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	S	S	S	S
CO2	M	M	S	S	M
CO3	S	S	S	S	S
CO4	S	S	S	M	S
CO5	S	S	S	S	S

S- Strong; M-Medium; L-Low


Fifth Semester

SEMESTER-V

Course code		TITLE OF THE COURSE	L	T	P	C
Core XIV		PRINCIPLES OF AUDITING	4	-	-	4
Pre-requisite		Basic knowledge on Principles of Auditing	Syllabus Version		2020	

Course Objectives:

The main objectives of this course are to:

1. Acquire knowledge on basics of Auditing, qualities of auditor and audit programmes.
2. Get a detailed knowledge on internal control in auditing.
3. Acquire a detailed knowledge on verification of assets and liabilities.
4. Understand about joint stock companies.
5. Understand about investigation and e-auditing.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand about the fundamental concepts Auditing.	K1
2	Get a detailed knowledge on internal control in auditing.	K2
3	Acquire a detailed knowledge on verification of assets and liabilities.	K3
4	Gain knowledge about Joint stock companies.	K2
5	Understand about investigation.	K3

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	AUDITING	15 hours

Auditing– Origin – Definition – Objectives – Types – Advantages and Limitations – Qualities of an Auditor – Audit Programmes.

Unit:2	INTERNAL CONTROL	10 hours

Internal Control – Internal Check and Internal Audit –Audit Note Book – Working Papers. Vouching – Voucher – Vouching of Cash Book – Vouching of Trading Transactions – Vouching of Impersonal Ledger.

Unit:3	VERIFICATION AND VALUATION OF ASSETS AND LIABILITIES	10 hours

Verification and Valuation of Assets and Liabilities – Auditor‟spo sition regarding the valuation and verifications of Assets and Liablities – Depreciation – Reserves and Provisions – Secret Reserves.

Unit:4	JOINT STOCK COMPANIES	15 hours

Audit of Joint Stock Companies – Qualification – Dis-qualifications – Various modes of Appointment of Company Auditor – Rights and Duties – Liabilities of a Company Auditor – Share Capital and Share Transfer Audit – Audit Report – Contents and Types.

Unit:5	INVESTIGATION	8 hours

Investigation – Objectives of Investigation – Audit of Computerised Accounts – Electronic Auditing – Investigation under the provisions of Companies Act.

Unit:6	**CONTEMPORARY ISSUES**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**60 hours**

Text Book(s)

1	B.N.Tandon,"Practi calAuditing",SChandCompanyLtd
2	F.R.MDePaula,"Auditing -the English language Society and Sir Isaac Pitman and Sons Ltd,London
3	SpicerandPegler,"Auditing:Khatalia"sAuditing"

Reference Books

1	KamalGupta,"Auditing",TataMcgriallPubl ications
2	DinkarPagaren,"PrinciplesofAuditing"

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://www.youtube.com/watch?v=I7QAOuwm6Qg
2	https://www.youtube.com/watch?v=5juutwZaYIQ&list=PLEC5E8A3A30C7DDA7
3	https://www.youtube.com/watch?v=iXVIirfAJRc

Course Designed By:

Mapping with Programme Outcomes

Cos	PO1	PO2	PO3	PO4	PO5
CO1	S	S	M	M	S
CO2	M	M	S	S	M
CO3	S	S	S	S	S
CO4	S	S	M	S	S
CO5	S	M	S	S	S

S- Strong; M-Medium; L-Low

SEMESTER-V

Course code		TITLE OF THE COURSE	L	T	P	C
Core XV		CORPORATE ACCOUNTING	4	-	-	4
Pre-requisite		Basic knowledge on Corporate Accounting	Syllabus Version		2020	

Course Objectives:

The main objectives of this course are to:

1. Understand the issue of shares of the companies.
2. Make the students to understand the redemption of preference shares.
3. Get insight knowledge on preparation of final accounts and calculation of Managerial Remuneration.
4. Make the students to value goodwill and shares of the companies.
5. Gain the knowledge on liquidation of the companies.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand about the issue of shares of the companies.	K2
2	Get a detailed knowledge on redemption of preference shares.	K2
3	Acquire a detailed knowledge on preparation of final accounts.	K2
4	Apply the conceptual knowledge on valuation of goodwill and shares.	K3
5	Understand about liquidation of companies.	K2

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6**– Create

Unit:1	**ISSUE OF SHARES**	**20 hours**

Issue of shares : Par , Premium and Discount - Forfeiture - Reissue – Surrender of Shares – Right Issue – Underwriting

Unit:2	**REDEMPTION OF PREFERENCE SHARES**	**18 hours**

Redemption of Preference Shares. Debentures – Issue – Redemption: Sinking Fund Method.

Unit:3	**FINAL ACCOUNTS OF COMPANIES**	**17 hours**

Final Accounts of Companies - Calculation of Managerial Remuneration.

Unit:4	**VALUATION OF GOODWILL AND SHARES**	**15 hours**

Valuation of Goodwill and Shares – Need – Methods of valuation of Goodwill and Shares.

Unit:5	**LIQUIDATION OF COMPANIES**	**18 hours**

Liquidation of Companies - Statement of Affairs -Deficiency a/c.

Unit:6	**CONTEMPORARY ISSUES**	**2 hours**

Expert lectures, online seminars – webinars

	Total Lecture hours	**90 hours**

Distribution of Marks: 20% Theory, 80 % Problems

Text Book(s)	
1	S.P.Jain&K.L.Narang,"AdvancedAccounting",KalyaniPublications,NewDelhi.
2	Gupta R.L. &RadhaswamyM. ,"CorporateAccounts",TheoryMethodandAppl ication-13th Revised Edition 2006, Sultan Chand & Co., New Delhi.
3	Dr. M.A.Arulanandam,Dr.K.S.Raman,"AdvancedAccountancy,Part -I",Himalaya Publications, New Delhi.2003.
Reference Books	
1	Gupta R.L. &RadhaswamyM.,"Corporate Accounts ", Theory M ethod and Application-13th Revised Edition 2006, Sultan Chand & Co., New Delhi.
2	ShuklaM.C.,GrewalT.S.&GuptaS.L.,"AdvancedAccountancy",S.Chand&Co.,New Delhi.
3	Reddy&Murthy,"FinancialAc counting",MarghamPublicatuions,Chennai,2004
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://www.youtube.com/watch?v=kzlBCe5MATk
2	https://www.youtube.com/watch?v=NC7BGIWzAUk
3	https://www.youtube.com/watch?v=BIlX7JMa91E&t=27s
Course Designed By:	

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	S	S	S	M
CO2	S	M	S	S	S
CO3	S	S	M	S	S
CO4	S	S	S	M	S
CO5	S	S	S	S	S

S- Strong; M-Medium; L-Low

SEMESTER-V

Course code		TITLE OF THE COURSE	L	T	P	C
Core XVI		E-COMMERCE TECHNOLOGY	4	-	-	4
Pre-requisite		Basic Knowledge on E-Commerce Technology	Syllabus Version		2020	

Course Objectives:

The main objectives of this course are to:

1. Acquire the basic concept of E-Commerce
2. Enable the students on network security and firewall
3. Impart knowledge on electronic payment systems.
4. Understand security and the web.
5. Gain the knowledge on consumer oriented e-commerce.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the basic concept of E- Commerce and its applications	K1
2	To gain the knowledge on EDI	K2
3	Understand security and the web	K2
4	To gain knowledge on consumer aspects in E-Commerce	K2
5	To know and apply various digital payment methods	K3

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	E-COMMERCE	15 hours

E-Commerce-Framework-Classification of electronic commerce -Anatomy of E-Commerce Applications- Components of the I way-Network Access Equipment-Internet Terminology.

Unit:2	ELECTRONIC DATA INTERCHANGE	15 hours

Electronic Data Interchange - Benefits-EDI Legal, Security & privacy issues- EDI software implementation- Value added networks-Internal Information Systems-Work flow automization and Coordination-Customization and Internal Commerce.

Unit:3	NETWORK SECURITY AND FIREWALLS	15 hours

Network security and firewalls- Client Server Network Security- Emerging client server security threats- Firewalls and network security- Data and message security- Encrypted documents and electronic mail- Hypertext publishing- Technology behind the web- Security and the web.

Unit:4	CONSUMER ORIENTED ELECTRONIC COMMERCE	15 hours

Consumer Oriented Electronic Commerce: Consumer Oriented Applications-Mercantile Process Models-Mercantile Models From the Consumers Perspective- Mercantile Models from the Merchants Perspective.

Unit:5	ELECTRONIC PAYMENT SYSTEMS	13 hours

Electronic Payment Systems-Types-Digital Token Based Electronic Payment System-Smart Cards & Credit Card Electronic Payment Systems -Risk -Designing electronic payment system.

Unit:6	**CONTEMPORARY ISSUES**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**75 hours**

Text Book(s)

1	RaviKalakota&Andrewb.Whinston,"FrontiersofElectronicCommerce",Dorling Kindersley (India) Pvt.Ltd-2006
2	Bharat Bhasker , "ElectronicCommerce",TataMcGrawHillPu blishing Co Ltd,New Delhi-2006.

Reference Books

1	Daniel Minoli, Emma Minoli"WebCommerceTechnologyHandbook",TataMcGrawHill Publishing, New Delhi.
2	Dr.C.S.Rayudu,"E-Commerce &E-Business",Himalaya Publishing House, New Delhi, 2004.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://www.youtube.com/watch?v=aveTzkgSVOQ
2	https://www.youtube.com/watch?v=jkI7IOAaPEI&list=PLLBV7zC1hzIBhZNIX-Fbdy7EmHabuROsS
3	https://www.youtube.com/watch?v=bF7AqfKLIC8

Course Designed By:Sathiyavanisathiyavanis@skacas.ac.in

Mapping with Programme Outcomes

Cos	PO1	PO2	PO3	PO4	PO5
CO1	S	S	S	S	S
CO2	M	S	S	S	M
CO3	S	S	S	S	S
CO4	S	M	S	M	S
CO5	S	S	S	S	S

S- Strong; M-Medium; L-Low

SEMESTER-V

Course code		TITLE OF THE COURSE	L	T	P	C
Core XVII		SOFTWARE DEVELOPMENT WITH VISUAL BASIC	4	-	-	4
Pre-requisite		Basic knowledge in Software Development With Visual Basic	Syllabus Version		2020	

Course Objectives:

The main objectives of this course are to:

1. Develop a front end application using Visual Basic.
2. Enable the students to develop a front end tool for Customer Interaction in Business.
3. Impart knowledge on data controls.
4. Make the students to understand the intrinsic controls.
5. Understand the concept on client and server.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the concept on client and server	K1
2	To gain the knowledge on IDE	K3
3	Understand the concept on user defined data types	K3
4	To gain knowledge on working with controls in VB	K2
5	Understand on data controls	K2

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6**– Create

Unit:1	**INTRODUCTION OF BASICS**	**15 hours**

Introduction – Client/Server – Benefits of Client/Server – Downsizing – Upsizing – Right sizing – Client/Server Models – Distributed Presentation – Remote Presentation – Remote Data – Distributed Logic – Distributed Data – Client/Server Architecture – Technical Architecture – Application Architecture – Two Tier Architecture – Three Tier Architecture OLTP & n Tier Architecture.

Unit:2	**INTRODUCTION TO VISUAL BASIC**	**10 hours**

Introduction to Visual Basic – Steps in VB Application – Integrated Development Environment (IDE) – Menu Bar – Tool Bar – Project Explorer Window – Property Window – Toolbox – Properties, Methods and Events – Event Driven Programming – Working with Forms - Variables – Scope of Variables – Constants – Data Types.

Unit:3	**FUNCTIONS AND PROCEDURES**	**10 hours**

Functions – Procedures – Control Structure : If - Switch – Select – For – While – Do While - Arrays – User Defined Data Types – Data Type Conversions - Operators – String Functions – Date and Time Functions.

Unit:4	**STANDARD CONTROLS**	**15 hours**

Creating and Using Standard Controls: Form, Label, Text box, Command Button, Check Box, Option Button, List Box, Combo Box, Picture Box, Image Controls, Scroll Bars – Drive List Box – Directory List Box - Time Control, Frame, Shape and Line Controls – Control Arrays – Dialog

Boxes - Single Document Interface (SDI) – Multiple Document Interface (MDI) – Menus – Menu Editor – Menu Creation.		
Unit:5	**DATA CONTROLS**	**8 hours**
Data Controls – Data Access Objects (DAO) – Accessing and Manipulating Databases – Recordset – Types of Recordset – Creating a Recordset – Modifying, Deleting Records – Finding Records - Data Report – Data Environment – Report - Designer – Connection Object – Command Object – Section of the Data Report Designer – Data Report Controls.		
Unit:6	**CONTEMPORARY ISSUES**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**60 hours**

Text Book(s)

1	StevenHolzner,"VB6ProgrammingBlackBook",DreamTechPress , New Delhi, 2002.

Reference Books

1	N. Krishnan & N. Saravanan, "Visual Basic 6.0 in 30 days", Scitech Publications, (Indi a) Pvt Ltd., Chennai, 2001.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://www.youtube.com/watch?v=-HNNCem5MoQ
2	https://www.youtube.com/watch?v=bCMWfzPONJg
3	https://www.youtube.com/watch?v=hfqqRUAXCC0

Course Designed By:

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	S	S	S	S
CO2	M	M	S	S	S
CO3	S	S	S	S	S
CO4	S	S	M	S	S
CO5	S	M	S	S	S

S- Strong; M-Medium; L-Low

SEMESTER-V

Course code		TITLE OF THE COURSE	L	T	P	C
Core XVIII		COMPUTER APPLICATIONS : VISUAL BASIC - PRACTICAL-III	-	-	-	4
Pre-requisite		Basic Knowledge of Visual Basic	Syllabus Version		2020	

Course Objectives:

The main objectives of the program are:

1. To acquire the knowledge on application of Visual basic.
2. To apply the concepts of vb in business applications.
3. To develop programs using visual basic.
4. To design the form for performing programs in IDE environment.
5. To develop the students to perform the practical programs in VB.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the basic concepts computer applications using Oracle for maintaining the database.	K2
2	Create different databases using access application for developing the business transactions	K4
3	Gain the knowledge on creating database using oracle.	K2
4	Gain knowledge on application of oracle statements to extract the particular data base.	K4
5	Gain the knowledge on developing employees and salary databases using oracle.	K2

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

1. Design a form with text box to perform the alignment and format function.
2. Design a form to display the list of products by declaring array function.
3. Design a form to calculate capital budgeting technique by declaring finance function and variable declaration using option button (Radio/Check box).
4. Design a form to display an advertisement banner using image box control with string function.
5. Design a form to compute cost of capital using finance function in visual basic using check box.
6. Design a form to perform working capital analysis by declaring finance function using flex grid control.
7. Design a form to display Break-even analysis using line and chart controls, by declaring variables.

8. Design a form to present product details like purchases, sales, profit,etc by declaring array functions and present the details in a rich text box(RTF).

9. Design a form to display Product Life Cycle using slider control.

10. Design a Pay Slip for an organization and create a data base using using SQL and Data Control.

11. Design the form to display the highlights of the budget using option button and animation.

12. Design a supermarket bill to display the sales invoice, and create a database using Data Control, option button, , check box, date picker, etc.

13. Design the form to create a bank customer database by declaring simple array and multiple arrays using Data Control.

14. Design a form to calculate minimum, maximum, reorder, reorder quantity, EOQ and display the inventory control records using data object.

15. Design the form to display tree view and list of folders and files from a directory of an organization.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://www.youtube.com/watch?v=-HNNCem5MoQ&t=29s
2	https://www.youtube.com/watch?v=uTy_qBKr5mE
3	https://www.youtube.com/watch?v=PldGe0-FnI8

Course Designed By:

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	S	M	S	S
CO2	S	M	S	S	M
CO3	S	S	S	S	S
CO4	S	S	S	S	S
CO5	S	S	S	S	S

S- Strong; M-Medium; L-Low

SEMESTER-V

Course code		TITLE OF THE COURSE	L	T	P	C
Skill based Subject-3		BANKING AND INSURANCE LAW	3	-	-	3
Pre-requisite		Basic Knowledge of Banking Insurance Law	Syllabus Version		2020	

Course Objectives:

The main objectives of this course are to:

1. To enable the students to understand the Concepts of Banking and its Functions
2. To understand Negotiable Instrument Act.
3. To gain knowledge on the recent trends in Banking and Insurance sector and the regulating provisions.
4. To Study the Objectives and functions of IRDA

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the Concepts, functions of banking and relationship between Banker and Customer	K2
2	Gain knowledge on Negotiable Instruments Act and its kinds	K2
3	To gain knowledge on functions and principles of Insurance	K1
4	Gain knowledge on Insurance System and Acts pertaining to it.	K2
5	Understand the IRDA functioning	K2

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	BANKER AND CUSTOMER	8-- hours

Banker and Customer – Definition – Relationship - Functions of Commercial Banks – Recent Developments in Banking.

Unit:2	NEGOTIABLE INSTRUMENT ACT	9-- hours

Negotiable Instrument Act - Crossing - Endorsement - Material Alteration – Payment of cheques : Circumstances for dishonour - Precautions and Statutory Protection of Paying and Collecting Banker.

Unit:3	INSURANCE	8-- hours

Insurance : Meaning - Functions - Principles : General, Specific and Miscellaneous. Classification of Insurance: Based on Nature, Business and Risk – Impact of LPG on Indian Insurance Industry.

Unit:4	LEGAL DIMENSION OF INSURANCE	7- hours

Legal dimension of Insurance : Insurance Act, 1938 – Life Insurance Act , 1956 – General Insurance Business Act, 1932 – Consumer Protection Act,1986.

Unit:5	IRDA	11-- hours
IRDA - Mission - Composition of Authority - Duties, Powers and Functions - Powers of Authority - Duties, Powers and Functions- Powers of Central Government in IRDA Functioning		
Unit:6	**CONTEMPORARY ISSUES**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**45-- hours**

Text Book(s)	
1	Varshney,"Banki ngTheory,LawandPractice",Sultan&ChandLtd.
2	Gordon and Nataraj,"BankingTheory,LawandPractice",HimalayaPublishingHouse..
3	M.L.Tannan,"BankingLawandPractice",Thacker&Co Ltd
Reference Books	
1	B.S Bodla, M.C. Garg & K.P. Singh,"I nsurance - Fundamentals, Environment & Procedures",Deep&DeepPub lications Pvt. Ltd., New Delhi, 2004.
2	M.N.Mishra,"Insurance – PrinciplesandPractice",S.Chand&CompanyLtd.,NewDelhi, 2006
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://www.youtube.com/watch?v=vqmMxbHufQk&list=PLH-J9IY9-DpNk9bgsORjIFW46SANwtSDE
2	https://www.youtube.com/watch?v=vqmMxbHufQk
3	https://www.youtube.com/watch?v=oxzmP7sjCRQ&list=PLBbCyJkOLBm-m99E5vhk4owllgJK6aiT2
Course Designed By:Sathiyavanisathiyavanis@skacas.ac.in	

Mapping with Programme Outcomes					
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**
CO1	S	S	M	M	M
CO2	M	M	M	M	M
CO3	S	S	M	M	S
CO4	S	M	M	M	S
CO5	S	M	S	S	S

S- Strong; M-Medium; L-Low

SEMESTER-VI

Course code		TITLE OF THE COURSE	L	T	P	C
Core XIX		MANAGEMENT INFORMATION SYSTEM	4	-	-	4
Pre-requisite		Basic knowledge in Management Information System	Syllabus Version		2020	

Course Objectives:

The main objectives of this course are to:

1. To acquire knowledge on basic knowledge on MIS.
2. To know the different types of concepts.
3. To understand about Information Systems in Business.
4. To acquire the knowledge on DBMS.
5. To conceptualize the Functional Management Information System.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Acquire knowledge on basic knowledge on MIS.	K1
2	Know the different types of concepts.	K1
3	Understand about Information Systems in Business.	K2
4	Acquire the knowledge on DBMS.	K2
5	Conceptualize the Functional Management Information System.	K2

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	MANAGEMENT INFORMATION SYSTEM	20 hours

Management Information System : Meaning – Features – Requisites of an effective MIS – MIS Model – Components –Subsystems of an MIS – Role and Importance – Corporate Planning for MIS – Growth of MIS in an Organisation - Centralisation Vs. Decentralisation of MIS.support – Limitations of MIS.

Unit:2	SYSTEM CONCEPTS	18 hours

System Concepts – Elements of a System- Characteristics of a system - Types of System– Categories of Information System – System Development Life Cycle – System Enhancement.

Unit:3	BUSINESS AND MANAGEMENT	17 hours

Information Systems in Business and Management: Transaction Processing System : Information Repeating and Executive Information System.

Unit:4	DATABASE MANAGEMENT SYSTEMS	15 hours

Database Management Systems – Conceptual Presentation – Client Server Architectures Networks – Business Process Re–Engineering [BPR].

Unit:5	FUNCTIONAL MANAGEMENT INFORMATION SYSTEM	18 hours

Functional Management Information System : Financial – Accounting – Marketing Production – Human resource – Business Process Outsourcing.

Unit:6	**CONTEMPORARY ISSUES**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**90 hours**

Text Book(s)

1	Gorden B. Davis & Margrethe H.Olson,"Man agementInformationSystem",McGraw – Hill Publishing, New Delhi.
2	AmanJindal,"ManagementInformationSystem",K alyani Publishers, New Delhi, 2003.

Reference Books

1	Dr. S.P. Rajagopalan, "Management Information System", Margham Pub lications, Chennai, 2006

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://www.youtube.com/watch?v=ELTXM5V4YXY
2	https://www.youtube.com/watch?v=qiLXJ0lhN2g
3	https://www.youtube.com/watch?v=mLR0Xgxa7qc&list=PLRwVotYfwvUGoRz9xYIfmEA5FTVBtYN7q

Course Designed By:

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	S	S	S	S
CO2	M	M	S	S	S
CO3	S	S	S	M	S
CO4	S	S	M	S	S
CO5	S	M	S	S	S

S- Strong; M-Medium; L-Low

Sixth Semester

SEMESTER-VI

Course code		TITLE OF THE COURSE	L	T	P	C
Core XV		INTERNET AND WEB DESIGNING	4	-	-	4
Pre-requisite		Basic knowledge in Internet and web designing	Syllabus Version		2020	

Course Objectives:

The main objectives of this course are to:

1. Educate the students on the functions and uses of internet.
2. Give the knowledge on how to search the web.
3. Learn to know the uses and applications of HTML.
4. Make the students to know how to create link the web.
5. Get a knowledge on how to download and upload the videos.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Learn the functions and uses of internet.	K2
2	Give the knowledge on how to search the web.	K2
3	Learn to know the uses and applications of HTML.	K3
4	Make the students to know how to create link the web.	K2
5	Get a knowledge on how to download and upload the videos.	K3

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6**– Create

Unit:1	INTRODUCTION TO INTERNET	15 hours

Introduction to Internet - Internet Access / Dial-Up Connection – InternetServices"Features – TCP/IP Vs Shell Accounts – Configuring the Machine for TCP/IP Account – Configuring the Shell Account – Telnet – Changing the Password – World Wide Web (WWW) - Web Page – Hyper Text – HTML Tags – Net Surfing - Internet/Web Browsing - Browser – Internet Addressing – IP Address – Domain Name – Electronic Mail – Uniform Resource Locator (URL) – Internet Protocols –TCP/IP – FTP – HTTP – Telnet – Gopher – WAIS.

Unit:2	SEARCHING THE WEB	15 hours

Searching the Web – Web Index – Web Search Engine – Web Meta – Searcher – Search Functions – Search Engines – Meta Search Sites – Directories and Indexes – Specialized Directories – Electronic Mail (E-Mail) – E-Mail Message – Customizing E-Mail Programs – Managing Mails – Zen of„Emailing" – Address Book – Signature Feature – File Attachment Facility – Setting priority – Advantages and Disadvantages of E-Mail.

Unit:3	INTRODUCTION TO HTML	15 hours

Introduction to HTML – HTML Code for a Web Page – Web Page Basics – Set up a Web Page – Display a Web Page in a Web Browser – Start a New Paragraph – Start a New Line – Insert Blank Spaces – Heading – Pre-format Text – Comment – Special Characters – Format Text – Emphasize – Superscript and Subscript – Font Style and Size – Color – Margins – Mono Spaced Font – Block Quote – Lists – Ordered List – Unordered List – Nested List – Definition List – Images – Add an Image – Background Image – Border – Wrap Text Around an Image – Aligning the Image – Horizontal Rule – Use Images in List – Convert an Image to GIF or JPEG.

Unit:4	LINKS	15 hours
Links - Link to another Web Page – Link within a Web Page – Link to an Image – Link to a File – Email Link – Link to an FTP Site – Change Link Colors – Create Keyboard Shortcuts – Change the Tab Order – Tables – Create a Table – Add a Border – Caption – Column Groups – Row Groups – Color – Background Images – Aligning Data – Size of a Table – Size of a Cell – Span Cells – Cell Spacing and Cell Padding – Borders – Text Wrapping – Nested Tables – Wrap Text around a Table.		
Unit:5	**SOUNDS AND VIDEOS**	**13 hours**
Sounds and Videos – Link to a Sound – Sound Considerations – Embedded Sound – Extended Video – Video Considerations – Internal Video – Introduction to Forms – Set up a Form – Text Box – Large Text Area – Check Boxes – Radio Buttons – Menu – Upload Files – Submit and Reset Button – Hidden Field – Organize Form Elements – Label From Elements – Introduction to Frames – Creating Frames – Frame Considerations – Provide Alternative Information – Link to a Frame - Scroll Bars – Resizing Frames – Frame Borders – Frame Margins – Nested Framesets – Inline Frame.		
Unit:6	**CONTEMPORARY ISSUES**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**75 hours**

Text Book(s)	
1	AlexisLeon&MathewsLeon,"InternetforEveryone",LeonTechWor ld, Chennai.
2	KamaleshN.Agarwala,AmitLal&DeekshaAgarwala,"BusinessoftheNet".
Reference Books	
1	EricKramer,"HTML".
2	John Zabour, Jeff Foust&DavidKerven,"HTML4HOW - TO".
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://www.youtube.com/watch?v=M7LBvsdhCuI
2	https://www.youtube.com/watch?v=mq0LeknkJOE&list=PLz8TdOA7NTzRAOymI4mSobv6Q0cS91og-
3	https://www.youtube.com/watch?v=nXr-p3S489M
Course Designed By:	

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	S	S	S	S
CO2	M	S	S	S	S
CO3	S	S	M	S	S
CO4	S	M	S	S	S
CO5	S	S	S	S	S

S- Strong; M-Medium; L-Low

SEMESTER-VI

Course code		TITLE OF THE COURSE	L	T	P	C
Core XXI		COMPUTER APPLICATIONS : VISUAL BASIC& WEBDESIGNING PRACTICAL-III	4	-	-	4
Pre-requisite		Basic knowledge in VB and Web designing practicals	Syllabus Version		2020	

Course Objectives:

The main objectives of the program are:

1. To acquire the knowledge on application of Visual basic.
2. To apply the concepts of vb in business applications.
3. To develop programs using visual basic.
4. To gain knowledge on working with web page
5. To apply the frames in web page.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Create different databases using vb application for developing the business transactions	K3
2	Gain the knowledge on creating programs using vb.	K2
3	Gain knowledge on application of vb in business enterprises.	K3
4	To gain knowledge on working with web page	K2
5	To apply the frames in web page	K3

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

1. Create web pages for a business organization using HTML Frames.
2. Create a Program using HTML to display the ordered list and unordered list of a Departmental Store.
3. Program to display Image and text using HTML tag for an advertisement of a Company Product.
4. Create a table to display list of products using HTML Tag.
5. Create a document using Formatting and alignment to display Sales Letter.
6. Create a Resume using HTML Tag.
7. Create a website of your department with minimum five links using HTML.
8. Create a document using Form to support Local Processing of Order form.
9. Create a Form of the Customer Survey for the user to enter General name and address information.
10. Create a Frame to display a multiform document.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://www.youtube.com/watch?v=-HNNCem5MoQ&t=36s
2	https://www.youtube.com/watch?v=Q33KBiDriJY
3	https://www.youtube.com/watch?v=VqCgcpAypFQ

Course Designed By:

Mapping with Programme Outcomes					
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**
CO1	S	S	S	S	S
CO2	S	S	S	S	S
CO3	M	S	S	S	S
CO4	S	S	M	S	M
CO5	S	S	S	S	S

S- Strong; M-Medium; L-Low



SEMESTER-VI

Course code		TITLE OF THE COURSE	L	T	P	C
Skill based Subject- 4		CYBER LAW	3	-	-	3
Pre-requisite		Basic Knowledge of Cyber Law	Syllabus Version		2020	

Course Objectives:

The main objectives of this course are to:

1. To gain through knowledge on the basic concepts which lead to the formation and execution of electronic contracts
2. To Study the Technical aspects of Cyber Security and Evidence Aspects
3. To acquire knowledge on Information Technology Act and EDI

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Discuss the concepts of Cyber law and Cyber Space	K1
2	Describe Cyber Security technical aspects.	K2
3	Explain the Evidence Aspects.	K1
4	Understand the Electronic Data Interchange Scenario in India.	K2
5	To gain knowledge on Information Technology Act.	K1

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	CYBER LAW	8- hours

Cyber Law: Introduction- Concept of Cyberspace-E-Commerce in India-Privacy factors in E - Commerce-cyber law in E-Commerce-Contract Aspects.

Unit:2	SECURITY ASPECTS	9-- hours

Security Aspects: Introduction-Technical aspects of Encryption-Digital Signature-Data Security. Intellectual Property Aspects: WIPO-GII-ECMS-Indian Copy rights act on soft propriety works-Indian Patents act on soft propriety works.

Unit:3	EVIDENCE ASPECTS	8-- hours

Evidence Aspects: Evidence as part of the law of procedures –Applicability of the law of Evidence on Electronic Records-The Indian Evidence Act1872.Criminal aspect: Computer Crime-Factors influencing Computer Crime- Strategy for prevention of computer crime Amendments to Indian Penal code 1860.

Unit:4	GLOBAL TRENDS	7-- hours

Global Trends- Legal frame work for Electronic Data Interchange: EDI Mechanism-Electronic Data Interchange Scenario in India

Unit:5	THE INFORMATION TECHNOLOGY ACT 2000	11-- hours

The Information Technology Act 2000-Definitions-Authentication Of Electronic Records Electronic Governance-Digital Signature Certificates.

Unit:6	CONTEMPORARY ISSUES	2 hours
Expert lectures, online seminars – webinars		
	Total Lecture hours	**45-- hours**

Text Book(s)

1	The Indian Cyber Law : Suresh T.Viswanathan, Bharat Law House, New Delhi

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://www.youtube.com/watch?v=KtuCsBlJXk8
2	https://www.youtube.com/watch?v=6srnawS4PLQ&list=PLX0Im12KwTwlm-jOWfFqejg8go7JBj72J
3	https://www.youtube.com/watch?v=SCgc55vtd6M

Course Designed By:Mrs.S.Sathiyavani sathiyavanis@skacas.ac.in

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	S	M	M	M
CO2	M	M	M	M	M
CO3	S	S	M	M	S
CO4	S	M	M	M	S
CO5	S	M	S	S	S

S- Strong; M-Medium; L-Low

BHARATHIARUNIVERSITY: COIMBATORE-641 046
B.Com (INTERNATONAL BUSINESS)
(For the students admitted during the academic year 2012-13 and onwards)
Scheme of examinations

SCHEME OF EXAMINATION - CBCS PATTERN

Part	Study Components	Course Title	Ins. hrs / week	Examinations				Credits
				Dur.Hr	CIA	Marks	Total	
	SEMESTER -I							
I	Language-I		6	3	25	75	100	4
II	English-I		6	3	25	75	100	4
III	Core I - Principles of Accounting		5	3	25	75	100	4
III	Core II- **Business Organisation and Office Management**		5	3	25	75	100	4
III	Allied Paper I – World Economic Resources		6	3	25	75	100	4
IV	Environmental Studies #		2	3	-	50	50	2
	SEMESTER-II							
I	Language-II		6	3	25	75	100	4
II	English-II		6	3	25	75	100	4
III	Core III - Financial Accounting		5	3	25	75	100	4
III	Core IV - Principles of Marketing		5	3	25	75	100	4
III	Allied Paper II - International Trade Procedures and Documentation		6	3	25	75	100	4
IV	Value Education - Human Rights #		2	3	-	50	50	2
	SEMESTER-III							
III	Core V - Higher Financial Accounting		7	3	25	75	100	4
III	Core VI - Commercial Law		6	3	25	75	100	4
III	Core VII - Banking and Foreign Exchange		6	3	25	75	100	4
III	Allied : III - Mathematics for Business		6	3	25	75	100	4
IV	Skill based Subject -1 : Business Application Software-I		3	3	20	55	75	3
IV	Tamil @ / Advanced Tamil # (or)Non-Major Elective-I Yoga for Human Excellence # / Women's Rights # Constitution of India #		2	3	50		50	2
	SEMESTER-IV							
III	Core VIII - Corporate Accounting-I		5	3	25	75	100	4
III	Core IX - Logistics Management		4	3	25	75	100	4
III	Core X - Business Taxation		4	3	25	75	100	4
III	Core XI - Executive Business Communication		3	3	20	55	75	3
III	Core XII - International Marketing Management		3	3	20	55	75	3
III	Allied : IV : Statistics for Business		6	3	25	75	100	4
IV	Skill based Subject-2 : Computer Applications (MS-Word and MS-Excel)-Practical –I		3	3	30	45	75	3

IV	Tamil @ / Advanced Tamil # (or) Non-major elective - II: General Awareness #	2	3	50		50	2
	SEMESTER –V						
III	Core XIII - Corporate Accounting- II	6	3	25	75	100	4
III	Core XIV – Brand Management	5	3	25	75	100	4
III	Core XV - Cost Accounting	5	3	25	75	100	4
III	Core XVI - Income Tax Law and Practice	6	3	25	75	100	4
III	Elective-I :	5	3	25	75	100	4
IV	Skill based Subject-3 : Business Application Software-II	3	3	20	55	75	3
	SEMESTER –VI						
III	Core XVII - Management Accounting	6	3	25	75	100	4
III	Core XVTII - Principles of Auditing	5	3	25	75	100	4
III	Core XIX - International Business Strategy	6	3	25	75	100	4
III	Elective -II:	5	3	25	75	100	4
III	Elective-III:	5	3	25	75	100	4
IV	Skill based Subject-4 : Computer Applications : MS-PowerPoint, MS-Access and Tally 9.2 -Practical-II	3	3	30	45	75	3
V	Extension Activities @	-		50	-	50	2
	TOTAL					**3500**	**140**

$ Includes 25% / 40% continuous internal assessment marks for theory and practical papers respectively. @ No University Examinations. Only Continuous Internal Assessment (CIA) # No Continuous Internal Assessment (CIA). Only University Examinations.

List of Elective Papers (Colleges can choose any one of the paper as electives)		
Elective — I	A	Garment Merchandising
	B	Garment Costing
	C	Quality Assurance in Garment Industry
Elective - II	A	Supply Chain Management-I
	B	Supply Chain Management-ii
	C	Cargo Management
Elective - III	A	Tourism Marketing
	B	Emerging Trends in Tourism
	C	Tour Operation Management

Note: The syllabi of B.Com. degree programme from the academic year 2010-11 and subsequent changes be followed in respect the remaining papers which are not furnished below.

FIRST SEMESTER

Allied I - WORLD ECONOMIC RESOURCES

Unit- I

Resources: Concept and importance in development- Dynamic character of world resources- Natural resources and Human resources- usefulness of the study of the resources- Interlink between resources and trade.

Unit- II

Geographical Environment- Physical environment: landforms, coastline, rivers, climate, soils, and natural vegetation.

Human environment- Growth and distribution of population- races- Economic and cultural organization of societies- entrepreneurial and managerial resources.

Unit – III

Natural regions: Wet equatorial regions- Monsoon regions – Mediterranean regions- cool temperature region- Green lands- Polar regions.

Agriculture and allied resources: Factors affecting agriculture- types of farming- food crops, industrial crops- cash crops- animal resources- fishery resources- forest resources- direct and indirect benefits of forests- types and distribution of world forests- types and distribution of world forests- world trade in agricultural and allied products.

Unit- IV

Energy Resources: Types of energy- energy and economic development- coal, petroleum, natural gas, electric power and atomic energy- need for conventional energy- energy conservation and alternatives- MNC's in energy project in de3veloping countries.

Mineral Resources: Importance of minerals- classification- world distribution and trade in important minerals- Iron ore, Manganese, Copper, Aluminum, Mica.

Unit- V

Manufacturing Industries: Factors of location- Theories of industrial location- distribution of cotton textile, iron and steel, automobile , ship building, aircraft, and electronics industries, software industry- General idea of world trade in manufactrured goods.

References:

World Resources and trade : Kanna and Gupta
World Resources : Zimmermen
World Resources and Trade : Agarwal and Monga
Economic and Commercial geography : Das Guptha
Economic Geography- A Resource Approach : Gune and Chattergi.

SECOND SEMESTER
Allied II - INTERNATIONAL TRADE PROCEDURES AND DOCUMENTATION

Unit- I

International Market Research – Strategies, Product Planning, Cost estimation, sales Forecast, Different Registers, Significance of Documentation & Related procedures, Export management, Organisation Structure.

Unit II

Export and Import Policy and Procedures, Preliminary information, Export sales Quotation, Different Incoterms: FOB/C & F, CIF etc. Methods of payments, Shipping & distribution, after sales service – Customer complaint and conflict resolution.

Unit _III

Pre-requisites: PAN Number, IEC Number, Application & Related documents for IEC, Role of DGFT, Export Promotion Councils, RCMC, other related procedures of registration, Import Policy and Procedures, licensing rules, Conditions and Obligations of Importers, Different Custom Duties (Import), Customs administration and procedures – Clearance of Import cargo, Indian case, Import Finance.

Unit- IV

Exchange Control Regulations: RBI Guide Lines, Authorised Dealers, FERA/FEMA, Permitted Currencies, ACU, Export Realization, Procedure & Related documents. Trends in India's Export & Import.

Unit-V

Export Documents: Export Order, Letter of Credit, Export Declaration Forms, Bill of Lading/Airway Bill, Bill of Exchange, Shipping Bill, Certificate of Origin, Invoice, Packing list, GSP Certificate, Legalization of documents, Bank Certificate of Export & Realization.

References:

1. Ministry of Commerce and Industry, Hand Book of Procedures, Volume I and II GOI, New Delhi – 2000.
2. Mahajan, Guide to Export Policy, Procedures and Documentation 2000-2001
3. Ballu. R. H. – Business Logistics Management, PHI, Inc 1999- 2000.
4. Government of India, Customs Tariff of India 2000 – 2001, 1999/2000.
5. Jain, R.K. Customs Law Manual, Centax Publications Pvt. Ltd., 2000.

SEMESTER –III

CORE- VII- BANKING AND FOREIGN EXCHANGE

Unit 1

Definition of banker and customer- general relationship- Special relationship- Evolution of commercial banks – functions of modern commercial banks – branch banking – CRM in banking – Multinational banking – customer service.

Unit 2

Opening of an new account- General precautions- Types of accounts- Fixed deposits- savings account- Current account- Recurring deposits- special type of customers- Minor- Lunatic- drunkards- joint account- partnership account- Public limited company- Closure of accounts.

Unit 3

Negotiable instruments- meaning- characteristics- types- Bills of exchange- Essentials- Promissory note- essentials- Cheques- Essentials- Endorsement- Crossing of Cheques- Marking of Cheques.

Unit 4

Foreign exchange markets- Features- participants- Interbank transactions- Interbank quotations- Interbank rates and arbitraging- Interbank dealings- cover deals- trading- funding of vostro account- swap deals.

Unit 5

Exchange management by banks- Dealing position- exchange position- cash position- Accounting and reporting- Foreign exchange risk management- Measuring of Value At Risk (VAR).

BOOKS RECOMMENDED:

1. Principles and practice of banking - Study material for Diploma in banking & finance (Macmillan Publication) 2008.
2. International Financial Management – PG Apte, Mc Graw Hill, 2010
3. Banking theory law and practice – Gordon and Natarajan, Himalaya Publishing House, 2010.
4. Fundamentals of Modern Banking – NC Majumdar – New Central Book Agency (P) Ltd, 2010.
5. Foreign exchange and risk management– C. Jeevanandham, Sultan Chand, 2010.

SEMESTER- IV

CORE IX- LOGISTICS MANAGEMENT

UNIT I

International marketing logistics – meaning – concept – objectives – value chain – logistics system elements – information – transportation – material handling – inventory – warehousing – communication – inbound logistics and outbound logistics.

UNIT II

International transport system – all transport – ocean – multi modelization – world sea borne trade – world shipping – Indian shipping industry – port infrastructural development – issues in Indian shipping.

UNIT III

Containerization – classification of containers – role of ICD and CFS – types of ships – operating systems : liners and tramp- features- merits and demerits.

UNIT

International freight principles – factors – liner freight- advance freight- lumpsum freight- back freight- prorate freight- dead freight – tramp freight – rebate system – air tariff structure – principles – types.

UNIT V

Air shipment – consolidation – role and function of IATA – maritime frauds and unethical practices – institutional arrangements for resolving shipping problem – global logistics.

BOOKS RECOMMENDED

1. Fundamentals of Logistics Management, Douglas M. Lambert, James Stock, Lisa M. Ellram, Mc Graw Hill Irwin International Edition, 1998
2. Logistical Management- The integrated Supply Chain Process, Donald J.Bowersox, David J.Closs, Tata Mc Graw Hill Publishing Company Ltd., New Delhi, 5th Reprint, 2003
3. Logistics Management & World Seaborne Trade, Dr. Krishnaveni Muthiah, Himalaya Publishing House, New Delhi, 1999
4. Logistics Strategy Cases & Concepts, Roy D. Shapiro, James L. Heskett, West Publishing Co., 1985
5. Business Logistics Management- Theory and Practice, Vogt, WJ. Piennar, PWC. De. Wit, Oxford University Press, Southern Africa, 2002.

SEMESTER- IV

CORE –X BUSINESS TAXATION

Unit I:

Federal Finance – Principles of Federal Finance-Federal system under the Indian Constitution- Union list - State list-Concurrent list - Source of revenue for union and states - Distribution of revenue between union and states- Role of Finance Commission. Meaning of tax –characteristic of tax system – Objectives of taxation –Canons of taxation –Requisites of good tax system –Kinds of taxes.

Unit II:

Sales tax –Meaning –Need- Effects of sales tax on production And distribution – Value added taxmeaning –salient features –Tamil Nadu Value Added ax Act 2006- Definitions – Registration of dealers-Computation of value added tax liability –Input tax credit - Filing of returns- assessment procedures.

Unit III:

Central Sales Tax Act 1956 – Meaning and scope - Salient features of CST- Definitions- Sale (or)Purchase in the course of Inter state Trade, outside state and in the course of import and export- Declared goods of special importance. Inter- State Sales- Registration of dealers- Declaration/ Certificate to be issued by dealer- Determination of turnover- Levy and collection.

Unit IV:

Central Excise Duty-concept- Meaning- Sharing of central excise duty-important definitions- Valuation of excisable goods- Registration of dealers and declaration of goods-computation and payment-clearance of goods-CENVAT scheme-exemption to small scale industries- Records, Audit and submission of return.

Unit V:

Customs duty- concept-Types of costumes duty- Procedure for Import and Export of Goods - Valuation –Exemption - Clearance procedure –Export promotion scheme- Drawback of duties- Baggage Rules-Import and Export through carrier- Post parcels.

Reference Books

1. The Central Sales Tax Act, 1956.
2. Commentary on Tamil Nadu Central Sales Tax Act, 1956.
3. The Central Sales Tax Act (Act 74 of 1956) compiled by N.Srinivasan (The Little Flower Co., Chennai), 2005
4. Indirect taxes Law& Practice-V.S.Datey-Taxman Publications (Pvt.) Ltd., New Delhi, 2007.
5. Direct and Indirect Taxes, Dr. M.C. Mehrotra, Dr. S.P.Goyal, Sahitya Bhawan Publications, New Delhi, 2007.

SEMESTER- IV

CORE – XII- INTERNATIONAL MARKETING MANAGEMENT

Unit - I

Product and pricing Strategy :

Meaning and concept of products – Product classification – Product line decisions –Product mix decisions –Branding and Packaging decisions – New product development strategy – Product life cycle strategies.

Unit-II

Pricing Strategy:

Importance of pricing decisions in marketing –Factors affecting pricing decision, Price determination, pricing methods, new product pricing strategies – Product mix pricing strategies – Price changes.

Unit-III

Promotion Strategy:

Meaning of marketing communication, Importance of promotion –Promotion mix, Forms of promotion – Personal selling, Nature, Scope and importance – Advertising, Meaning, Objectives and importance – Media sales promotion – Nature, importance and techniques.

Unit -IV:

Distribution Strategy:

Meaning, Nature and importance, Alternative channels of distribution – Factors to be considered for selecting channel. Functions of distribution channels.

Unit V:

Retailing and Wholesaling :

Meaning, - Types of retailers –Retailer marketing process – Retailer marketing decisions – The future of retailing , wholesaling – Types of wholesalers –Wholesaler marketing decision, Trends in wholesaling.

Text Book:

Philip Kotler (Marketing Management-Analysis, Planning and Control- New Delhi, PHI-2000 11th edition.

Reference Books :

1. Hepner H.W.: Modern Marketing- Dynamics and Management.
2. Boyd H.V. and West Fall R.: Marketing Research.
3. James M. Carman and Kenneth P. Phillips and Duncan: Marketing Principles and Methods.

SEMESTER – V

CORE XIV - BRAND MANAGEMENT

Objective
To teach the importance of brand and its impacts among the customers

Unit I
Introduction- Basic understanding of brands – concepts and process – significance of a brand – brand mark and trade mark – different types of brands – family brand, individual brand, private brand – selecting a brand name – functions of a brand – branding decisions – influencing factors.

Unit II
Brand Associations:Brand vision – brand ambassadors – brand as a personality, as trading asset, Brand extension – brand positioning – brand image building

Unit III
Brand Impact: Branding impact on buyers – competitors, Brand loyalty – loyalty programmes – brand equity – role of brand manager – Relationship with manufacturing - marketing-finance - purchase and R & D – brand audit

Unit IV
Brand Rejuvenation: Brand rejuvenation and re-launch, brand development through acquisition takes over and merger – Monitoring brand performance over the product life cycle. Co-branding.

Unit V
Brand Strategies: Designing and implementing branding strategies – Case studies

REFERENCES:

1) Kevin Lane Keller, “Strategic brand Management”, Person Education, New Delhi, 2003.
2) Lan Batey Asian Branding – “A great way to fly”, Prentice Hall of India, Singapore 2002.
3) Jean Noel, Kapferer, “Strategic brand Management”, The Free Press, New York, 1992.
4) Paul Tmeporal, Branding in Asia, John Wiley & sons (P) Ltd., New York, 2000.
5) S.Ramesh Kumar, “Managing Indian Brands”, Vikas publishing House (P) Ltd., New Delhi, 2002.
6) Jagdeep Kapoor, “Brandex”, Biztantra, New Delhi, 2005.

SEMESTER- VI

CORE XIX- INTERNATIONAL BUSINESS STRATEGY

Unit- 1:
World of International Business- Challenges of International Business.-Multinational Enterprises- Triad and International Business.

Unit- II:
Environment of International Business- International Politics and Economic Integration- International Culture International Trade- International Trade International Finance

Unit- III:
International Business Strategy- Global Strategic Planning- Organizing Strategy Production strategy-Global sourcing –Global supply management and technology transfer
Marketing strategy- Human Resource Management Strategy- Political Risk and Negotiation Strategy- International Financial Management.

Unit- IV
International Business Strategies in Action - Corporate Strategy and National Competitiveness - Doing Business in European Community- Doing Business In Japan Doing Business in North America -Doing Business in Non-Trial Nations .

Unit- V:
International Business Horizons - International Joint Ventures - Future Challenges of International Business.

References
1. Rungman.A.M and Hodgetts. R.M., International Business; A Strategic Management Approach, McGrawhill,.Inc, New Delhi- 1999-2000.
2. Keealas.A.G., Global Business Strategy, South –Western, 1999-2000,
3. Garland.J. and Farmer. R.N., International Dimension of Business Policy and Strategy, PWS-KENT 1999-2000,
4. Nagandhi.A.R., International Management, PHI, New Delhi, 1999/2000
5. Davidson.W.H., Global Strategic Management, John Wiley and Sons, 1999/2000,
6. Faeyrweather.J., Internatoinal Business Strategy and Administration, Bllinter Publishers Mass, 1999/2000
7. Bhalla.V.K. and Shivaramu. S.,International Business: Environment and Management, Anmol Publications, New Delhi, 2000
8. Porter.M.E., the Competitive Advantage of Nations, The Free Press, New York 1999-2000
9. Porter .M. E. Competitive advantage, The FreePress, NewYork, 1998 or 1999-2000.

ELECTIVES

GARMENT MERCHANDISING

UNIT I

Fundamentals of merchandising -• Responsibilities of the merchandiser - Merchandise planning: target markets, market segmentations and marketing Research

UNIT II

Planning and Controlling and control tools: marketing calendar, merchandise Calendar, sales forecast - Execution: Line development: objectives, elements, planning, control, research, line plan, styling direction and product development and adoption -Pricing: pricing strategies, objectives, pricing formula - Costing principles and strategies

UNIT III

Introduction to Standardization and Quality control in apparel industry- Importance of consumer perception of apparel quality- Managing apparel quality through inspection and sampling procedures.

UNIT IV

Sourcing strategies: objectives, global sourcing, the role of merchandiser in Sourcing, - sourcing options, - factors in sourcing options, factors in sourcing Decision- customer/ vendor relationship - Domestic and International sourcing Process

UNIT V

Fashion Visual Merchandising- Functions of Visual Merchandising- Elements of Visual Merchandising - Store exteriors, interiors& windows – image, atmosphere 7 theatrics - Display props, fixtures, mannequins, floral, signage & graphics.

Reference

1. Rosenau, J. A., Wilson David L. David., Apparel Merchandising-The line starts here, Fairchild publications, New York.2006
2. Mehta, Pradeep., Managing Quality in the Apparel Industry, New Age International Pvt. Limited,2004

Books Recommended:

1. Stone, Elaine. & Samples, J.A., Fashion Merchandising, Mc Graw Hill Book Co

GARMENT COSTING

Unit-1

Introduction to Cost Accounting : Responsibility accounting, uses of cost accounting, elements of cost, Direct material, Direct labour, factory overhead; cost of goods manufactured statements, cost behaviour

Unit -II

Patterns in the apparel industry-fixed variable, semi variable job order for process costing; Accounting for factory overhead: Capacity level concepts, production and service departments direct and indirect costs over and under applied overhead. cost volume profit analysis;

Unit-Ill

Breakeven analysis: Contribution margin, Variable, cost ratio, marginal income.; sales mix by garment style, effect of volume change, price/column analysis

Unit -IV

Apparel Marketing cost Analysis: Marketing cost accounting, marketing cost standards, variance analysis for marketing cost, effective variance, price variance; Determining Pricing of apparel products: Price elasticity of demand and supply, sample costing-marginal revenue and marginal cost, cost plus pricing methods; Full cost pricing, conversion cost pricing differential cost pricing .variable cost pricing, direct cost pricing derivation of cost of apparel products-woven knits:

Unit-V

The budgeting process: Budgeting principles for the apparel industry, fixed vs. variable budget ,master budget, laminations of budgerts any justification effort

References

1. Richord D.Irwin Icn, "Principles of cost Accounting: Managerial Applications" Revised by Gayle Rayburn 1983
2. Sultan Chand& sons"Management Accounting"New Delhi, 2nd edition 1998

QUALITY ASSURANCE IN GARMENT INDUSTRY

Unit -1

Definition and scope of quality control – establishing merchandising standards – Establishing raw material quality, quality control specifications – quality control of raw material

Unit -II

Establishing processing quality specification – training quality control personnel – the quality standard control – quality control inspection, procedures for processing – quality control of finished garments – quality control and government contacts – quality control for packaging, warehousing and shipping – statistical quality control. Sampling plans — wide quality standards.

Unit-III

Function of production control – production analysis – quality specifications – qualitative Specifications – scope of apparel manufacturing activity –coordinating departmental activities – distribution of documents and records

Unit-IV

Type of control forms – basic production systems – principles for choosing a production a production system – evaluating production systems – flow process grids for production control – scheduling calculation, graph methods, scheduling bundles of varying amounts, mathematical formulas for scheduling – producing many styles simultaneously - producing many styles consecutively in one line.

Unit -V

Design satisfaction tests. - Fabric specification - cloth defects - four point system – shrinkage potential. Garment specification - manufacturing specification – name of operation and associated details in respect of sewing, dyeing and washing of garments. Garments testing-seam strength, seam slippage, garment checking procedure, interlining-peel bond strength. Style features – trims specification - stitch specification - size scale – garment dimensions and tolerances Quality of trims and accessories. Defects in garments and their remedies - A, B and C zones in a garment With respect to defects. Quality Analysis for Children's Wear, Casual Wear, Sports Wear, Army Wear, Uniform Wear.

Reference

1. An Introduction to Quality Control for the Apparel Industry (Quality and Reliability) Pradip V. Mehta

SUPPLY CHAIN MANAGEMENT-I

Unit -1

Understanding the Supply Chain Supply Chain Performance: Achieving Strategic Fit and Scope Supply Chain Drivers and Metrics- Demand Forecasting in a Supply Chain- Aggregate Planning in a Supply Chain

Unit – II

Planning Supply and Demand in a Supply Chain: Managing Predictable Variability - Managing Economies of Scale in a Supply Chain: Cycle Inventory- Managing Uncertainty in a Supply Chain: Safety Inventory

Unit –III

Determining the Optimal Level of Product Availability - Transportation Decisions in a Supply Chain- Designing Distribution Networks and Applications to e-Business-

Unit –IV

Network Design in the Supply Chain- Network Design in an Uncertain Environment- Sourcing Decisions in a Supply Chain

Unit –V

Pricing and Revenue Management in a Supply Chain- Information Technology in a Supply Chain- Coordination in a Supply Chain

References

1. Strategic Logistics Management by D.M. Lambert and J.R. Stock.
2. The Management of Business Logistics by J.J Coyle, E.J. Bardi and C.J. Langley.
3. Logistical Management by D.J. Bowersox, D.J. Closs, O.K. Helferich.
4. Business logistics Management by Ronald H. Ballou
5. Inventory Management and Production Planning and Scheduling by Edward A. Silver, David F. Pyke,
6. and Rein Peterson

SUPPLY CHAIN MANAGEMENT-II

Unit I

Supply Chain Management – Global Optimisation – importance – key issues – Inventory management – economic lot size model. Supply contracts – centralized vs. decentralized system

Unit II

Supply chain Integrates- Push, Pull strategies – Demand driven strategies – Impact on grocery industry – retail industry – distribution strategies

Unit III

Strategic Alliances: Frame work for strategic alliances – 3PL – merits and demerits – retailer – supplier partnership – advantages and disadvantages of RSP – distributor Integration

Unit IV

Procurement and Outsourcing: Outsourcing – benefits and risks – framework for make/buy decision – e-procurement – frame work of e-procurement

Unit V

Dimension of customer Value – conformance of requirement – product selection – price and brand – value added services – strategic pricing – smart pricing – customer value measures

Reference Books:

1. Rushton, A., Oxley, J & Croucher, P (2nd Edition, 2000). Handbook of Logistics and Distribution Management. Kogan Page.
2. Simchi-Levi, David, Kamisnsky, Philip, and Simchi-Levi, Edith. (2nd Edition, 2004). Designing and Managing the Supply Chain: Concepts, Strategies and Case Studies. Irwin/McGraw Hill 32

CARGO MANAGEMENT

Unit- I
Cargo History, Concepts and Common terms used in Cargo handling, Rules governing acceptance of Cargo.

Unit-II
Cargo Rating- Familiarization of Cargo Tariffs. Rounding off of the weights/Dimensions/ currencies. Chargeable weight rating-Specific commodity rates, class rates, general cargo rates, valuation charges

Unit- III
Documentation: Air way bill, charges correction advice, irregularity report, cargo manifesto, cargo transfer Manifesto, documents concerning postal mails and diplomatic mails. Shippers declaration for dangerous goods.

Unit- IV
Handling- Cargo capacity of Air and Ships. Cargo needing special attention, introduction to dangerous goods regulations. Some important Cargo companies.

Unit V
Documents Relating to Air Cargo

Reference
Air Cargo Tariff Manuals
IATA Live Animals Regulations Manuals
IATA Special Mail Manual.

TOURISM MARKETING

Unit – I

Marketing: Core concepts in marketing; Needs, Wants, Demands, Products markets. Marketing management philosophies-Production, Product, Selling, Marketing and societal perspectives. Economic importance of marketing.

Unit – II

Analysis and selection of market: Measuring and forecasting tourism demand; Forecasting methods, Managing capacity and demand. Market segmentation and positioning (STP)

Unit – III

Marketing Strategies: Developing marketing environment, Consumer buying behaviour, Competitive differentiation and competitive marketing strategies. New product development. product life cycle, Customer satisfaction and related strategies in internal and' external marketing; Interactive and relationship marketing.

Unit – IV

Planning marketing programmes : Product and product strategies; Product line, Product mix Branding and packaging. Pricing considerations. Approaches and strategies. Distribution channels and strategies.

Unit – V

Tourism Marketing : Service characteristics of tourism. Unique features of tourist demand and tourism product, Tourism marketing mix. Marketing of Tourism. Services : Marketing of Airlines, Hotel, Resort, Travel Agencies and other tourism related services-Challenges and strategies..

References

- Kotler, Philip : Marketing Management & Hospitality and Tourism Marketing
- Sinha, P.C : Tourism marketing
- Vearne, Morrisson Alison: Hospitality marketing
- Kotler, Philip and Armstrong Philip, Principle of Marketing, 1999, Prentice-Hall India, 1999
- Assael H., Consumer Behavior and Marketing Action (2nd edn. 1985) kent, Boston.
- Crough, Marketing Research for Managers.
- Singh Raghubir, Marketing and Consumer Behaviour.
- Patel, S.G., Modern Market Research, Himalaya Publishing.

EMERGING TRENDS IN TOURISM

Unit I

Adventure Tourism: Emerging Trends: Different new types of concepts emerging in Tourism and its Dimensions. Concept of Adventure, Types of adventure sports and tourism, Land based Adventure (Trekking, Mountaineering, Rock Climbing etc), Water based adventure (Water surfing, white water rafting, para-sailing etc) and Air based adventure (Parachute jumping, Gliding, para-gliding etc)

Unit II

Ecotourism and Sustainable Tourism: Concept of ecotourism and sustainable tourism and its Management. The impacts of ecotourism in an area (positive and negatives), some best practised ecotourism sites in world. Eco-tel and Eco resorts. Theme Parks. Rural and Urban Tourism.

Unit III

Tourism Impacts: Socio-cultural impacts of tourism, Economic impact and Environmental impact- Environment Impact Assessment, Approach to evaluating Impacts and Control Measures, Measuring Economic Costs and Benefits.

Unit IV

Legal issues and Tourism Related Laws: Principles and practices in Business ethics. Ethical and legal responsibilities of Travel Agencies. A study of laws relating to accommodation, Travel Agency, Airways, and Surface Transport. Consumer Protection Act, 1986; A study of laws related to Ancient Monuments Preservation Act, 1904; Ancient Monuments & Archaeological site and Remains Act,1972; A study of laws relating to foreigners Act, 1946; Foreign Exchange Regulation Act, 1973, Passport Act, 1967 and Wildlife Protection act, 1972.

Unit V

Outbound and Inbound Tourism Trends: Introduction to Demand for Tourism Patterns: Determinants and Motivations of Tourism Demand, Measuring the Tourism Demand. Tourism Statistics: Types of Tourist Statistics and their sources and limitations, Domestic Tourism sources, methods and dimensions. International Tourism: sources, methods, dimension. Emerging trends, cause of variation of tourism trends. Some important outbound and inbound Tourism packages & Destinations

References

- Pearce, D.G. and Butler, R.W. Contemporary issues in tourism development, Routledge
- Hall, CM and Page, SJ. The Geography of Tourism and Recreation, Routledge.
- Dixit, M. Tourism Products, Royal Publishers.

TOUR OPERATION MANAGEMENT

Unit – I

Preparing for Work in Travel Operation: Appearance of Staff, Working area, Agencies internal environment, Checklist for display areas, Health and safety at work; Stationary, Printing and office supplies, Filing system in Travel Agency: Materials for Filing Retrieving information, types of files e.g. correspondence files, Client files, Computer and Data bases, Effective communication in Travel Agency: Use of Telephone, Use of Telelx & Fax, special Handling of business correspondence, Method of Taking Care of Customers.

Unit – II

Domestic Counter: Service provided by Domestic counter: Tickets (Air & Railways), Car Hire and Surface Transport: Agencies for Domestic Car Hire/Surface Transportation: Their terms and Condition, Procedure for reservation; documents required, Billing and payment procedure, Commission Structure, Problems faced by Clients with Domestic Airlines Railways, Hotels, Car rental, Any other.

Unit – III

International Travel Counter; Services provided by International Counter; Government rules on International Travels. Reservation procedure for International and other travel related Vouchers like MCO, PTA, PSR, etc, Procedure for lost ticket, Refund and Cancellation charges.

Unit - IV

Places of Tourist interest in various destinations in India, Types of accommodation available, Modes of transportation and length of stay. Concept of Tour Itinerary and Preparation of sample itinerary with the timings and mode of Air/train or by surface and details of sightseeing, types of Accommodations and other services. Tour Costing: Methodology of Quotation Preparation and preparation of sample quotation for tour operation with various plans and services.

Unit - V

Procedure for Domestic and International Hotel Reservations. Documentation related with Hotel Reservation/Configuration/Cancellation, Preparation of Hotel and Other Service Vouchers, Procedure and documents involved in informing Sub-Agents for services; Procedure of checking and passing the bills of the transport/hotels and Guide/escorts, RBI guidelines/Rules regarding the foreign exchange transactions.

Reference

- Chand, M., Travel Agency Management: An Introductory Text
- Seth, P. N., Successful Tourism Management
- Travel operation : South Asia Integrated Tourism Human Resource
- Development Programme (SAITHRDP)
- Tour Guiding : SAITHRDP.

Bachelor of Business Administration (B.B.A.)

Syllabus

AFFILIATED COLLEGES

Program Code: ***

2020 – 2021 onwards

BHARATHIAR UNIVERSITY

**(A State University, Accredited with "A" Grade by NAAC,
Ranked 13th among Indian Universities by MHRD-NIRF,
World Ranking : Times - 801-1000, Shanghai - 901-1000, URAP - 982)**

Coimbatore - 641 046, Tamil Nadu, India

PROGRAMME EDUCATIONAL OBJECTIVES:

PEO1	Graduates will be capable of making a positive contribution to business, trade and industry in the national and global context
PEO2	Graduates will be able to apply frameworks and tools to arrive at informed Decisionsinprofessionandpractice,strikingabalancebetweenbusinessand socialdimensions.
PEO3	Graduates will have a solid foundation to pursue professional careers and takeuphigherlearningcoursessuchasMBA,MCA,MCM,MMM,M.Phil,Ph.D as well asresearch.
PEO4	Graduates with a flair of self-employment will be able to initiate and build upon entrepreneurial ventures or demonstrate intraprenuership for their employer organizations.
PEO5	Graduate will recognize the need for adapting to change and have the aptitude and ability to engage in independent and life – long learning inthe broadest context of socio-economic, technological and global change.

PROGRAMME OUTCOMES

PO1	Develop the knowledge, skill and attitude to creatively and systematically apply the principles and practices of management, accountancy, finance, business law, statistics, HR, operations and IT to management problems and work effectively in modern day business and non-business organizations.
PO2	Develop fundamental in-depth knowledge and understanding of the principles, concepts, values, substantive rules and development of the core areas of business such as finance, accounting, marketing, HR, operations along with the tools such as Tally, MS Excel, MS Office, etc.
PO3	Demonstrate the critical thinking mindset and the ability to identify and formulate research problems, research literature, design tools, analyse and interpret data, and synthesize the information to provide valid conclusions and contextual approaches across a variety of subject matter.
PO4	Exhibit self-confidence and awareness of general issues prevailing in the society and communicate effectively with the accounting, commerce, management, business, professional fraternity and with society at large through digital and non-digital mediums and using a variety of modes such as effective reports & documentation, effective presentations, and give and receive clear instructions.
PO5	Function effectively as an individual, and as a member or leader in teams, and in multidisciplinary settings by demonstrating life skills, coping skills and human values.
PO6	Analyse the sampling techniques of collecting primary and secondary data and tools and techniques of data.
PO7	Understand the methods of collecting primary and secondary data. construction of scaling techniques and Determine the steps involved in design of questionnaire. Analyse and preparation of project report for the Functional areas of research.
PO8	Determine the functional areas of management such as Production, purchasing, marketing, sales, advertising, finance, human resource system, Industry 4.0Understand the SERQUAL of the various service industries.
PO9	Analyse the various aspect of business research in the area of marketing, human resource and Finance.
PO10	Analyse the various financial and accounting concept including Balance sheet , trial balance, etc.,

PROGRAM SPECIFIC OUTCOMES

PSO 1 :	Understand of the corporate world
PSO 2 :	Analyse the theoretical knowledge with the practical aspects of Organizational setting and techniques or management.
PSO 3 :	Determine conceptual and analytical abilities required for effective decision making.
PSO 4 :	Understand the dynamic and complex working environment of Business.
PSO 5 :	Understand the problems faced by the business sector in the Current scenario.
PSO 6 :	Analyse the ups and downs of the stock market.
PSO 7 :	Understand the rapid changes of financial services include banking and insurance sectors.
PSO 8 :	Understand the micro and macro marketing environment.
PSO 9 :	Understand the international trade procedure and documentation.
PSO 10 :	Understand the Forms of business organization.
PSO 11 :	Understand the business correspondence and communication.
PSO 12 :	Determine the organizational behaviour and its conflict.

BHARATHIAR UNIVERSITY, COIMBATORE-641 046

B.B.A. (Bachelor of Business Administration) Curriculum

(For the students admitted from the academic year 2020-2021 onwards)

Part	Study Components	Course Title	Ins. Hrs / Week	Examinations				Credits
				Dur. Hrs.	CIA	Marks	Total Marks	
	SEMESTER –I							
I	Language-I		6	3	25	75	100	4
II	English-I		6	3	25	75	100	4
III	Core I – Principles of Management		5	3	25	75	100	4
III	Core II –Basics of Business and Business Environment		5	3	20	55	75	3
III	Allied Paper I – Mathematics and Statistics for Management		6	3	25	75	100	4
IV	Environmental Studies #		2	-	-	50	50	2
	SEMESTER –II							
I	Language-II		6	3	25	75	100	4
II	English-II		6	3	25	75	100	4
III	Core III – Organizational Behavior		5	3	20	55	75	3
III	Core IV – Economics for Executives		6	3	25	75	100	4
III	Allied Paper II –Quantitative Techniques for Management		5	3	25	75	100	4
IV	Value Education – Human Rights #		2	-	-	50	50	2
	Swachh Bharat – Summer internship *							
	SEMESTER –III							
III	Core V – Financial Accounting		5	3	25	75	100	4
III	Core VI – Production and Material Management		5	3	25	75	100	4
III	Core VII – Marketing Management		5	3	25	75	100	4
III	Core VIII - PC Software (MS Office) – Practical		5	3	30	45	75	3
III	Allied : III – Business Law		5	3	25	75	100	4
IV	Skill based Subject-1 :Communication Skills I ^		3	3	30	45	75	3
IV	Tamil @ /Advanced Tamil # (or) Non-major elective-I Yoga for Human Excellence # / Women's Rights# Constitution of India #		2	-	50		50	2
	SEMESTER –IV							
III	Core IX - Human Resource Management		5	3	25	75	100	4
III	Core X – Financial Management		5	3	25	75	100	4
III	Core XI – Financial Accounting Package – Tally (Practical only)		5	3	30	45	75	3
III	Core XII –Management Information System		5	3	25	75	100	4
III	Allied : IV– Taxation Law and Practice		5	3	25	75	100	4
IV	Skill based Subject-2 : Communication Skills II ^		3	3	30	45	75	3
IV	Tamil @ / Advanced Tamil #(or) Non-major elective-II : General Awareness #		2	-	50		50	2

	SEMESTER –V						
III	Core XIII – Cost & Management Accounting	6	3	25	75	100	4
III	Core XIV – Research Methods for Management	5	3	25	75	100	4
III	Core XV - Advertising and Sales Promotion	5	3	25	75	100	4
III	Core XVI – Business Correspondence	6	3	25	75	100	4
III	Skill Enhancer: Institutional Training ^	-	-	10	40	50	2
III	Elective –I:	5	3	25	75	100	4
IV	Skill based Subject –3 : Campus to Corporate ^	3	3	30	45	75	3
	SEMESTER –VI						
III	Core XVII – Entrepreneurship and Small Business Management	6	3	25	75	100	4
III	Core XVIII - Investment Management	6	3	25	75	100	4
III	Core XIX – Services Marketing	5	3	25	75	100	4
III	Elective –II :	5	3	25	75	100	4
III	Elective –III :	5	3	25	75	100	4
IV	Skill based Subject –4 : Soft Skills for Business ^	3	3	30	45	75	3
V	Extension Activities @	-	-	50	-	50	2
	TOTAL	-	-	-	-	**3500**	**140**

^ Refer the detailed note on this curricular aspect

@ No University Examinations. Only Continuous Internal Assessment (CIA) University Examination – Refer the detailed note on this curricular component. # No Continuous Internal Assessment (CIA). Only University Examinations.

*Swachh Bharat Summer Internship – 2 credits

$ Industrial Visit Mandatory

List of Elective papers **(Colleges can choose any one of the paper as electives)**		
Elective – I	**A**	Intellectual Property Rights.
	B	Modern Office Management
	C	Company Law and Secretarial Practice
	D	Customer Relationship Management
	E	Industry 4.0
Elective – II	**A**	Banking Law and Practice
	B	Industrial Relations and Labour Laws
	C	Insurance Principles and Practice
	D	Consumer Behaviour
	E	Big Data Analytics
Elective - III	**A**	E-Commerce
	B	Project Work & Viva-Voce
	C	Financial Services
	D	Global Business Management
	E	Artificial intelligence

Project Work & Viva-Voce

Project Work-50 Marks (25 Marks for Internal and 25 Marks for External) & Viva Voce- 50 marks (External) :(25 marks for Internal Assessment & 75 marks for External Assessment)

First Semester

Course code		PRINCIPLES OF MANAGEMENT For BBA/BBA(CA)/BBA(IB)/BBA(RM)	L	T	P	C
Core -I			5	-	-	4
Pre-requisite		+2 Commerce	Syllabus Version		First	

Course Objectives:

To inculcate the students with the Knowledge and Understanding of the principles of management and to enable the students to gain valuable insight into the working of business.The course will review the evolution of management thoughts, functions and practices through the focus on Indian experiences, approaches and cases.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Examine and explain the management evolution and how it will affect future managers.	K1
2	Estimate the conceptual framework of planning and decision-making in day to day life.	K2
3	Explain the various managerial functions to achieve the goals and objectives of the organization.	K1
4	Analyze the theories of motivation, leadership and communication in a variety of circumstances and management practices in organizations.	K4
5	Identify and explain the importance of the management process and identify some of the key skills required for the contemporary management practice.	K3

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	FUNCTIONS OF MANAGEMENT	12 --hours

Overview of Management: Definition –Nature and scope of management-Importance - skills of managers–Levels of Management-Functional areas of management- Evolution of Management thoughts: Contribution of F.W.Taylor, Henri Fayol, Elton Mayo, Peter F. Drucker‘s -Management: a science or an art?.

Unit:2	PLANNING	11 --hours

Planning: Definition -Nature and purpose – Planning process – Importance of planning – types of plan-Decision making - Definition –steps and process and various types of decisions.

Unit: 3	ORGANIZING	12 --hours

Organizing: Definition -Types of organization – Organizational structure –Span of control – use of staff units and committees. Delegation: Delegation and Centralization. Centralization and Decentralization – Staffing : Definition- Sources of recruitment – Selection-Definition - process
Training-Definition-Types.

Unit:4	DIRECTING	12 --hours
Directing: Definition -Nature and purpose of Directing.- Principles – Motivation - Definition - Theories of Motivation (Maslow's, McGregor, ERG Theory, Herzberg two factor theory)– Leadership: Definition-Styles – Communication: Definition - Importance of Communication – Methods of Communication – Types – Barriers.		
Unit:5	**CONTROLLING**	**11 --hours**
Controlling:Meaningandimportanceofcontrolling–controlprocess–Budgetaryandnon-Budgetary ControlTechniques–Requisitesofaneffectivecontrolsystem–Relationshipbetweenplanning and controlling – Need for co-ordination.		
Unit:6	**Contemporary Issues**	**02-hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**60 --hours**

Text Book(s)	
1	Charles W L Hill, Steven L McShane, 'Principles of Management', Mcgraw Hill Education, Special Indian Edition, 2007.
2	Stephen P. Robbins and Mary Coulter, 'Management', Prentice Hall of India, 8th edition.2005
Reference Books	
1	Harold Koontz, Heinz Weihrich and Mark V Cannice, 'Management -A global perspective, Prentice hall, 2005
2	P.C.Tripathi&P.NReddy,PrinciplesofManagements-TataMc.GrawHill-NewDelhi,2012
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	NOC:Principles of Management – IITKGP - NPTEL
Course Designed By: **Dr. P.KOMARASAMY ,pkskv@rediffmail.com**	

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	S	S	M	S	S	S	S	M
CO2	M	S	M	S	S	S	M	S	S	S
CO3	S	S	M	M	S	S	M	M	M	S
CO4	S	M	S	S	S	M	S	S	S	S
CO5	S	S	S	S	M	S	S	S	S	M

*S-Strong; M-Medium; L-Low

Course code		BASICS OF BUSINESS & BUSINESS ENVIRONMENT For BBA/BBA(CA)/BBA(IB)/BBA(RM)	L	T	P	C
Core –II			5			4
Pre-requisite		+2 Commerce	Syllabus Version	First		

Course Objectives:

The main objectives of this course are to:

1. To outline how an entity operates in a businessenvironment
2. To analyze the various economic conditions and effects of government policy onbusiness performance
3. To explain the legal framework that regulates the business andindustry

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Develop an understanding on the gamut of business activities	K2
2	Explain the intricacies in starting a business and knowing the suited business form	K2
3	Design a business model in order to analyze its sustainability	K3
4	Comprehend the environmental factors that are conducive /detrimental to the respective businesses	K4
5	Have a simple and basic comprehension of the international scenario with regard to borderless business world	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	INTRODUCTION TO BUSINESS	11--hours

BusinessBasics:NatureandPurposeofBusiness–CharacteristicsofBusiness–Comparisonamong Business, Profession and Employment – Various types of Industry – Compare Industry with commerce–FormsofbusinessOrganisation-Soletraders,partnership,JointHindufamilyfirm- Joint Stock Companies - Cooperative Organisations - Public Utilities and Public Enterprises.

Unit:2	BUSINESS AND ECONOMIC SYSTEM	11--hours

Business and Economic System – Capitalism, Socialism, Communism and mixed economy – Different sectors of the economy and Role of businesses in it – Different stakeholders of business firm–factorsofproduction–BusinessmodelMeaning&example–BusinessRisks&theircauses – Steps in Starting a Business – Qualities of Entrepreneur.

Unit:3	BUSINESS SERVICES	12--hours

Business Services – Goods & Services distinguished – Banking, Insurance & Warehousing – TraditionalBusinesstonewere-Business–Benefitsofswitchingovertoelectronicmode–Cautions to be taken.

Unit:4	BUSINESS ENVIRONMENT AND ANALYSIS	12--hours
Business Environment: Concept, characteristics of environment. Environmental Analysis – Need&diagnosis,Businessenvironment–potentialcompetitors,Rivalry– externalenvironmentEconomic, political & legal environment, technological and socio cultural environment, Internationalenvironment.		
Unit:5	**IMPACTS OF LPG**	**12--hours**
Liberalisation - Meaning - Privatization - Benefits & pitfall - Globalization – Meaning & rationale for Globalization – Role of WTO & GATT – Trading blocks in Globalization – Impact of GlobalizationonIndia.–Business&Society-SocialResponsibilitiesofbusinesstowardsdifferent groups.		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**60--hours**

Text Book(s)	
1	Nikita Sanghvi, Business Environment and Entrepreneurship, CS-FOUNDATION Taxmann; 2015ISBN-13: 978-9350716236
2	Francis Cherunilam, Business Environment-Himalaya Publishing House, New Delhi

Reference Books	
1	William A Pride, Robert J. Hughes, and Jack R. Kapoor, (ISBN-13: 9781285193946) Foundations of Business, (5th Edition) Cengage Learning Higher Education
2	Del, Global Business Foundation Skill Students Handbook Cambridge University Press ISBN-13: 978-8175967830
3	Laura Dias, Amit Shah, Introduction to Business, McGraw Hill Education (India) Private Limited 2012 ISBN-13: 978-1121085084

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://www.coursera.org/courses?query=business%20fundamentals

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	S	S	S	S	M	S	M	S
CO2	M	S	M	M	S	M	S	S	S	S
CO3	S	S	S	S	S	S	S	S	S	S
CO4	S	M	S	S	M	S	S	S	S	S
CO5	S	S	S	S	S	S	S	M	S	M

*S-Strong; M-Medium; L-Low

Course code		MATHEMATICS AND STATISTICS FOR MANAGEMENT for BBA/BBA(CA)/BBA(IB)/BBA(RM)	L	T	P	C
Allied - I			6	-	-	4
Pre-requisite		+2 Business Maths	Syllabus Version		First	

Course Objectives:

To make the students to understand the process of solving mathematics and interpret the final results and to train the students to apply the mathematical and statistical tools and techniques while solving business problems in their career. The course will also serve as a prerequisite for post graduate and specialized studies and research.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Solve systems of linear equations by use of the matrix	K3
2	Be able to find the nature (maximum and minimum) of a turning point	K5
3	Outline the meaning of marginal revenue and marginal cost and their relevance for firm's profitability.	K1
4	Understand and compute the sampling distributions, sampling distributions of means and variances (S2) and the t- and F-distributions	K1
5	Summarize a regression analysis, and compute and interpret the coefficientof correlation.	K2

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	MATRICES	14 --hours

Matrices: Fundamental ideas about matrices and their operational rules – Matrix multiplication Inversion of square matrices of not more than 3rd order- solving system of simultaneous linearequations.

Unit:2	SET THEORY AND MATRICES	14 --hours

Set theory – Introduction - Types of sets - set operation - Venn Diagrams - Mathematics of Finance - Simple and Compound Interest.(Simple problems only)

Unit:3	STATISTICAL METHODS	15 --hours

Meaning and Definitions of Statistics - Scope and Limitations. Collections of data –primary data and secondary data - Presentation of data by Diagrammatic and Graphical Method - Formation of Frequency Distribution. Measures of Central tendency - Arithmetic Mean, Median and Mode.

Unit:4	MEASURES OF VARIATION	14 --hours
Measures of Variation : Standard, Mean and Quartile deviations-Co efficient of variation. Simple Correlation - Karl Pearson's Co-efficient of correlation – Rank correlation - Regression lines.		
Unit:5	**ANALYSIS OF TIME SERIES AND INDEX NUMBER**	**13--hours**
Analysis of Time Series: Methods of Measuring Trend - Index number – Unweighted and Weighted indices–Tests of index numbers-Consumers price and cost of living indices.		
Unit:6	**CONTEMPORARY ISSUES**	**02 –hours**
Expert lectures, online seminars – webinars		
Questions in theory and problems carry 20% and 80% marks respectively Problems need to be simple keeping students' non-mathematical background		
	Total Lecture hours	**72 --hours**

Text Book(s)	
1	S.P. Gupta (S.P.): "Statistical Methods", Sultan Chand & Sons, 34th Edition,2007
2	Richard Levin & David Rubin, "Statistics for management", Prentice Hall, 2008
Reference Books	
1	Sundaresan and Jayaseelan- An Introduction to Business Mathematics and Statistical Method
2	P.R.Vittal, "Business Mathematics",Margham publications 2nd edition,2003.
3	S.P.Rajagopalan and R.Sattanathan,business statistics and Operation Research,Tata Mcgraw-Hell publishing company Ltd.,2nd edition,2009.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	http://www.dphu.org/uploads/attachements/books/books_5117_0.pdf
2	http://www.cognella.com/pdf/Step-by-Step-Business-Math-and statistics_sneak_preview.pdf
Course Designed By: **Dr. P.KOMARASAMY ,pkskv@rediffmail.com**	

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	S	M	S	S	S	S	M	S
CO2	S	S	S	S	S	S	S	S	S	S
CO3	S	M	M	S	S	S	M	M	S	S
CO4	M	S	M	S	M	M	S	M	S	M
CO5	S	S	S	S	M	S	S	S	S	M

*S-Strong; M-Medium; L-Low

Second Semester

Course code		ORGANISATIONAL BEHAVIOUR For BBA/BBA(CA)/BBA(IB)/BBA(RM)	L	T	P	C
Core II			5	-	-	3
Pre-requisite		Nil	Syllabus Version		First	

Course Objectives:

The main objectives of this course are to make the students to understand Organizational psychology & personality of people and gain knowledge on belief, values and human motivation, leadership, theories of leadership, counseling, idea generation for problem solving andinnovation. And students are prepared to deal with groups and for conflict identification and resolution.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Analyze the individual and group behavior; and understand the implications of organizational behaviour on the process of management	K4
2	Identify various theories of motivation from the past and to evaluate motivational strategies used in a variety of organizational settings	K5
3	Enhance productivity of the organization by ensuring required job satisfaction and employee attitude.	K3
4	Understand the supervisory effects on performance and to train supervisors by understanding different supervision styles.	K2
5	Evaluate the appropriateness of various leadership styles and counseling methods	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	Organisational psychology	12 --hours

Importance and scope of organisational psychology – Individual differences - Intelligence tests

Measurement of intelligence - Personality tests - nature, types and uses.

Unit:2	Perception	12 --hours

Perception - Factors affecting perception - Motivation - theories - financial and non-financial motivation - techniques of motivation - Transactional Analysis - Brain storming.

Unit:3	Job satisfaction	11 --hours

Job satisfaction - meaning – factors, Morale - importance - Employee attitude and behaviour and their significance to employee productivity - Job enrichment - job enlargement.

Unit:4	Group dynamics	12 --hours

Hawthorne Experiment - importance - Group Dynamics – Cohesiveness. Conflict - Types of Conflict – Resolution of conflict - Sociometry - Group norms – supervision - style - Trainingfor supervisors.

Unit:5	Leadership and counseling	11 --hours
Leadership-types-theories–Trait,ManagerialGrid,Fiedder'scontingency.Counseling–meaning - Importance of counselor - types of counseling - merits of counseling		
Unit:6	**CONTEMPORARY ISSUES**	**02 –hours**
Expert lectures, online seminars – webinars		
Text Book(s)		
1	L.M. Prasad – OrganisationalBehaviour. Latest edition	
Reference books		
1	Keith Davis - Human Behaviour at Work	
2	Ghos - Industrial Psychology	
3	Fred Luthans – OrganisationalBehaviour	
	Online Content	
	NOC:OrganizationalBehaviour - NPTEL	

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	S	M	S	S	S	S	M	S
CO2	S	S	S	S	S	S	S	S	S	S
CO3	S	M	M	S	S	S	M	M	S	S
CO4	M	S	M	S	M	M	S	M	S	M
CO5	S	S	S	S	M	S	S	S	S	M

*S-Strong; M-Medium; L-Low

Course code		ECONOMICS FOR EXECUTIVES For BBA/BBA(CA)/BBA(IB)/BBA(RM)	L	T	P	C
Core - IV		Core	6	-	-	4
Pre-requisite		+2 Economics	Syllabus Version		First	

Course Objectives:

The main objectives of this course are to make the students to understand the objectives of business firms, Demand analysis and Elasticity ofdemand, BEP Analysis and further to make them familiarize about types of competitions and priceadministration and enhance their knowledge about Government and Business.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Apply the objectives of business firms, demand analysis and elasticity of demand in daily life and in their career.	K6
2	Identify the effective applications of factors of production and BEP Analysis	K3
3	Understand the determination of the Price, Market structure and competition.	K2
4	Analyze various theories of wages, Interest and profit in Business field.	K4
5	Evaluate the performance of the Government sector in India.	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	DEMAND ANALYSIS	12 Hours

Objectivesofbusinessfirms–Profit Maximization-Socialresponsibilities-Demandanalysis–Law of Demand - Elasticity of demand.

Unit:2	BEP ANALYSIS	12 Hours

Production function - Factors of production - Law of diminishing returns and Law of variable proportions. Cost and Revenue Curves – Break-even-point (BEP) analysis.

Unit:3	MARKET STRUCTURE	11 Hours

Market structure and prices - Pricing under perfect Competition - Pricing under Monopoly - Price discrimination - Pricing under Monopolistic competition - Oligopoly.

Unit:4	ECONOMIC THEORIES	12 Hours

Pricing under factors of production; wages - Marginal productivity theory - Interest - Keyne'sLiquidity Preference theory – Theories of Profit - Dynamic theory of Profit - Risk Theory - Uncertainty theory.

Unit:5	GOVERNMENT AND BUSINESS	11 Hours

Government and Business - Performance of public enterprises in India - Price policy in public utilities,Publicsector–Goals–Typesandclassification–Evolutionandobjectivesofpublicsector in India.

Unit:6	CONTEMPORARY ISSUES	02-hours

Expert lectures, online seminars – webinars

	Total Lecture hours	**60 --hours**
Text Book(s)		
1	Sankaran - Business Economics	
Reference books		
1	Markar et al - Business Economics	
2	Sundaram K.P & Sundaram – Business Economics	
	Online Content	
	NOC:Managerial Economics - NPTEL	

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	S	M	S	S	S	S	M	S
CO2	S	S	S	S	S	S	S	S	S	S
CO3	S	M	M	S	S	S	M	M	S	S
CO4	M	S	M	S	M	M	S	M	S	M
CO5	S	S	S	S	M	S	S	S	S	M

*S-Strong; M-Medium; L-Low

Course code		QUANTITATIVE TECHNIQUES FOR MANAGEMENTFor BBA/BBA(CA)/BBA(IB)/BBA(RM)	L	T	P	C
Allied - II			5			4
Pre-requisite		MATHEMATICS AND STATISTICS FOR MANAGEMENT	Syllabus Version		First	

Course Objectives:

The main objective of this course is to make the students to gain knowledge about various concepts of Operations Research and to identifyanddevelop operationalresearchmodels fromtheverbaldescriptionoftherealsystem and train them to apply the operations research tools that are needed to solve optimization problems.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Define and formulate linear programming problems and evaluate their applications	K1
2	To understand concepts and terminology of Linear Programming from formulation of mathematical models to their optimization using Simplex Method	K1
3	To comprehend the concept of a Transportation Model and develop the initial solution and optimality checking of the solution	K2
4	To apply the strategies of game theory and to make better decisions while solving business problems	K3
5	Use critical path analysis and programming evaluation and review techniques for timely project scheduling and completion.	K3

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	INTRODUCTION TO OPERATION RESEARCH	11 --hours

Introduction to Operations Research – Meaning – Scope – Applications - Limitations. Linear programming-MathematicalFormulation-Applicationinmanagementdecisionmaking(Graphical method only).

Unit:2	TRANSPORTATION AND ASSIGNMENT PROBLEMS	12 --hours

Transportation problems: Introduction- Finding Initial Basic Feasible solutions- moving towards optimality (non degenerate only) – Maximization in transportation problem- Unbalanced transportation problem. Assignment problem: Introduction –Hungarian Assignment method – Maximization in Assignment problem – Unbalanced Assignment problem.

Unit:3	GAME THEORY	12 --hours

Game theory: Concept of Pure and Mixed strategies – solving 2 x 2 matrices with and without

saddle point. Graphical solution - mx2 and 2xn games. Solving games by Dominance Property.		
Unit:4	**NETWORK ANALYSIS**	**11 --hours**
CPM–Principles–Constructionofnetwork- Critical path –Forwardpass–Backwardpasscomputations–PERT – Time scale analysis - probability of completion of project – types of floats.		
Unit:5	**REPLACEMENT THEORY**	**12 --hours**
Theory of Replacement – Introduction - Replacement models –Replacement of items that deteriorates gradually (value of money does not change with time)		
Unit:6	**CONTEMPORARY ISSUES**	**02-hours**
Expert lectures, online seminars – webinars		
Note: Theory and problem shall be distributed as 20% and 80% respectively.		
	Total Lecture hours	**60 --hours**

Text Book(s)	
1	P. K. Gupta, Man Mohan, Kanti Swarup: "Operations Research", Sultan Chand, 2008.
2	J. K. Sharma: Operations Research Theory & Applications, Macmillan India Limited, fifth edition.2013
Reference Books	
1	Kanti Swarup, P.K.Gupta and Man Mohan – Operations Research
2	Sundaresan V, Ganapathy K.S, Ganesan K, Resource Management Technique- Lakshmi Publications, 2003.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://nptel.ac.in/courses/111/105/111105077/
2	https://nptel.ac.in/content/syllabus_pdf/111105077.pdf

Course Designed By: **Dr. P.KOMARASAMY ,pkskv@rediffmail.com**

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	S	M	S	S	S	S	M	S
CO2	S	S	S	S	S	S	S	S	S	S
CO3	S	M	M	S	S	S	M	M	S	S
CO4	M	S	M	S	M	M	S	M	S	M
CO5	S	S	S	S	M	S	S	S	S	M

*S-Strong; M-Medium; L-Low

Third Semester

Course code		FINANCIAL ACCOUNTING For BBA/BBA(CA)/BBA(IB)/BBA(RM)	L	T	P	C
Core V			5	-	-	4
Pre-requisite		+ 2 Accounting	Syllabus Version		First	

Course Objectives:

This course is to enable the students to acquire knowledge of accounting concepts, principles and practices which will provide insight for the students to apply in the business administration in order to manage and be effective in decision making in the functional areas like financial and accounting transactions.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Recall the accounting concepts and understand the rules of double entry system, journalizing and posting to ledger in the business transactions.	K1
2	Interpret the trial balance; identify the errors and to reconcile the bank statement by cash book.	K2
3	Summaries the manufacturing, trading, profit & loss account and balance sheet with the support of financial and accounting transactions.	K5
4	Illustrate the accounts for non-trading institutions through income & expenditure, receipts & payments along with the methods of depreciation.	K3
5	Classify the sections of accounting statements from incomplete data	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	Accounting Fundamentals	12 hours

Accounting, meaning, definition, objectives, scope, basic, terms, accounting principles, branches of accounting, uses & limitations of Accounting, Concepts & Conventions, Accounting uses, Accounting information, Accounting equations – Meaning of accounting equation, compensation of accounting, effects of transactions.

Unit:2	Preparation of Journal, Ledger and Trial Balance And & Accounting Errors	12 hours

Basic Accounting Procedure – Journal, rules of debit & credit, method of journalizing, advantage, double entry system – its advantage, ledger, meaning, utility, posting entries. Practical system of book keeping – Cashbook, types of cash book, Single column, double column, entries, Trial Balance, Objective, preparation, errors & rectification, Suspense Accounting – meaning, utility & preparation. Accounting Errors: Meaning and Types of errors, Rectification of errors

Unit:3	Bank Reconciliation statement and Methods of Depreciation	12 hours

Bank Reconciliation:- Meaning, causes of differences, need & importance, preparation & presentation of BRS, Depreciation – meaning, methods of charging depreciation, problems

Unit:4	Preparation of Final Accounts	11 hours

Final Accounts – Meaning, need & objectives, types – Trading Account – Meaning, need & preparation, Profit & loss Account – meaning, Need & preparation, Balance Sheet- Meaning, need & Preparation, Final Accounts with adjustment entry. Problems

Unit:5	**Preparation of Final accounts of Joint stock Companies (As per the Format of the Indian Companies Act)**	**11 hours**
Preparation of statement of profit and loss – balance sheet – schedules – Indian Accounting standards (up to IAS - 8)		
Unit:6	**CONTEMPORARY ISSUES**	**2 hours**
Expert lectures, online seminars – webinars		
Note: (Theory and problems may be in the ratio of 20% and 80%respectively)		
	Total Lecture hours	**60 hours**

Text Book(s)	
1	T.S.reddy&A.murthy-Financial Accounting, Margham Publications.-6th edition,2012
2	Dr.S.N.Mageswari- Financial Accounting, Vikas Publishing house.-jan2012
Reference Books	
1	Shukla & Grewal's Financial Accounting · M C Shukla , T S Grewal & S C Gupta. S. Chand Publishing.
2	Financial Accounting V-dorling Kindersley-1st edition,2010
3	Jain &Narang-kalyani Financial Accounting publishers;12th edition.2014.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	**MOOC** : https://www.mooc-list.com/course/introduction-financial-accounting-coursera
2	**Financial Accounting: Indian Institute of Technology Bombay and NPTEL via Swayam**
Course Designed By: Dr. P.KOMARASAMY , pkskv@rediffmail.com	

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	S	S	S	S	S	S	S	S
CO3	S	S	M	S	M	S	S	M	S	M
CO3	M	S	S	S	S	S	S	S	S	S
CO4	S	S	S	S	S	S	S	S	S	S
CO5	S	S	S	S	M	S	S	S	S	M

*S-Strong; M-Medium; L-Low

Course code		PRODUCTION AND MATERIALS MANAGEMENT For BBA/BBA(CA)/BBA(IB)/BBA(RM)	L	T	P	C
Core VI			5	-	-	4
Pre-requisite		Principles of Management	Syllabus Version		First	

Course Objectives:

The main objectives of this course are to:

The production and materials management provides an introduction to process of production management, production planning and control, effective material handling, materials management and maintenance management, helps to understand the import purchase procedures, storekeeping, Total Quality Management, Quality Control and procedure for getting an ISO.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Enumerate the production processes and production planning and control.	**K1**
2	Describe the importance of materials management function in an organization, and how it can help in integrating various plans and reduce the material related costs	**K1**
3	Describe the material management, domestic and import purchase procedures and vendor rating and development.	**K2**
4	Outline management issues in receiving, stores, traffic and transportation, warehousing and physical distribution	**K4,**
5	Discuss about the quality control, Total Quality Management, Bench marking and ISO	**K2**

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	PRODUCTION MANAGEMENT	12-- hours

Production Management - Functions - Scope - Plant location - Factors - Site location – Plant layout - Principles - Process - Product layout. Production Planning and control - Principles - Meaning - Routing - Scheduling - Dispatching - Control..

Unit:2	MATERIALS HANDLING & MAINTENANCE	12-- hours

Materials Handling - Importance - Principles - Criteria for selection of material handling equipments. Maintenance - Types - Breakdown - Preventive - Routine - Methods study – Time study - Motion study.

Unit:3	MATERIALS MANAGEMENT	12-- hours

Organisation of Materials Management - Fundamental Principles - Structure – Integrated materials management. Purchasing – procedure - principles - import substitution and import purchase procedure. Vendor rating - Vendor development .

Unit:4	INVENTORY CONTROL	11-- hours

Function of Inventory - Importance - Tools - ABC, VED, FSN Analysis - EOQ - Reorder point - Safety Stock - Lead time Analysis. Store keeping - Objectives - Functions - Store

keeper – Duties – Responsibilities, Location of store - Stores Ledger - Bin card.		
Unit:5	**QUALITY CONTROL AND ISO IMPLEMENTATION**	**11-- hours**
Quality control - Types of Inspection - Centralised and Decentralised. TQM: Meaning - Objectives - elements – Benefits. Bench marking: Meaning - objectives – advantages. ISO: Features - Advantages - Procedure for obtaining ISO.		
Unit:6	**Contemporary Issues**	**2 –hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**60 - hours**

Text Book(s)	
1	P Saravanavel and S Sumathi " Production and materials Management", MarghamPublications, 2013
2	Chitale, A.K. and Gupta, R.C. "Materials Management - Text and Cases" Prentice Hall of India Private Limited, New Delhi, 2006.
Reference Books	
1	DATTA. A.K . "Materials Management, Procedures, Text and Cases": Prentice Hall of India Pvt. Ltd,, New Delhi, 2nd Edition, 2006
2	*M.M. Varma,* 2012. Materials Management. Jain Book Agency Publishers, 4th Edition.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	Mooc : https://www.mooc-list.com/course/microeconomics-principles-coursera
Course Designed By: Dr. P.KOMARASAMY , pkskv@rediffmail.com	

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	S	S	S	S	S	S	S	M
CO3	M	S	S	S	M	S	S	S	S	S
CO3	S	M	M	S	S	M	S	M	S	S
CO4	S	S	S	S	S	S	S	S	S	M
CO5	S	S	S	M	S	S	M	M	M	S

*S-Strong; M-Medium; L-Low

Course code		MARKETING MANAGEMENT For BBA/BBA(CA)/BBA(IB)/BBA(RM)	L	T	P	C
Core VII			5	-	-	4
Pre-requisite		Principles of Management	Syllabus Version		First	

Course Objectives:

1. To introduce the role and importance of marketing in business world.
2. To develop marketing skills and career.
3. To understand the channel, methods of marketing and its impact in organisation
4. To apply and develop marketing research, customer relationships and value through branding, packaging, and demonstration.
5. To provide knowledge and demonstrate e-marketing forms and benefits in marketing

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Recognize the significance of marketing and its role in economic development	K1
2	Recognize how market strategy works, market segmentation and product mix have impact on buying behaviour	K2,
3	To apply marketing concepts, pricing for the development of marketing function.	K3
4	Analyze and perform the functions of marketing in organisation.	K3
5	Demonstrate the critical thinking skills and analyze e-marketing in the Indian context.	K3

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	Introduction to Marketing	12-- hours

Marketing: Introduction, objectives, Scope and Importance. Types of Market, Core Concepts of Marketing, Functions of Marketing, Marketing Orientations and Marketing Environment

Unit:2	Consumer buying behavior	12-- hours

Introduction, Characteristics, Factors affecting Consumer Behaiour, Types of Buying Decision Behaviour, Consumer Buying Decision Process, Buying Motives, Buyer Behaviour Models

Unit:3	Product concepts	12-- hours

The Product - Types -consumer goods-industrial goods, Product Life Cycle (PLC) - Product mix –product item and product line - modification & elimination - packing - Developing new Products- strategies.

Unit:4	Pricing Concepts	11-- hours

Pricing: Meaning to Buyer & Seller - pricing policies – Objective factors influencing pricing decisions - Competitors action to price changes – multi product pricing- Physical distribution - Management of physical distribution - marketing risks

Unit:5	Market segmentation	11-- hours

Segmentation, Targeting and Positioning: Introduction, Concept of Market Segmentation, Benefits of Market Segmentation, Requisites of Effective Market Segmentation, The Process of Market Segmentation, Bases for Segmenting Consumer Markets, Targeting- Meaning,

Target market strategies, Market Positioning- Meaning, Positioning Strategies, Value Proposition		
Unit:6	**Contemporary Issues**	**2 –hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**60 - hours**

Text Book(s)	
1	Marketing Management - Philip Kotler - Pearson Education/PHI, 2003.
2	Marketing Management - Rajan Saxena - Tata McGraw Hill, 2002.
Reference Books	
1	Marketing Management - Ramasamy &Namakumari - Macmilan India, 2002.
2	Case and Simulations in Marketing - Ramphal and Gupta - Golgatia, Delhi
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	Mooc : https://www.mooc-list.com/course/microeconomics-principles-coursera
Course Designed By: Dr. P.KOMARASAMY , pkskv@rediffmail.com	

Mapping with Programme Outcomes

COS/POS	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	S	S	S	**S**	**S**	S	S	S
CO2	S	S	S	S	S	**M**	**M**	S	M	S
CO3	S	S	S	S	S	**S**	**S**	S	S	S
CO4	S	S	S	S	S	**S**	**S**	M	S	S
CO5	S	S	S	S	S	**S**	**S**	S	S	S

S -Strong M-Medium; L-Low

Course code		BUSINESS LAW ForBBA/BBA(CA)/BBA(IB)/BBA(RM)	L	T	P	C
Allied - III			5			4
Pre-requisite		Nil	Syllabus Version		First	

Course Objectives:

The main objectives of this course are to:

1. To provide the brief idea about the frame work of Indian Business Laws
2. To enable the students to acquire knowledge of legal aspects of business
3. To promote the understanding of various legislations relating to business

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Develop an understanding on business law in the global context.	K1
2	Knowing the relevant legal terms in business	K2
3	Construct the relationship of ethics and law in business	K3
4	Applying basic principles of law to business and business transactions	K4
5	Implementing current law, rules, and regulations related to settling business disputes	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	LAW OF CONTRACT	12-- hours

Contracts - Essentials of Contract - Agreements - Void - voidable and illegal contracts – Expressand implied Contracts - Executed and Executory Contracts - Absolute and contingent contracts -Offer - Legal rules as to offer as to offer and lapse of offer - Acceptance - and rules as to acceptance - to create legal relation - Capacity of parties to create contract.

Unit:2	CONSIDERATION IN LAW	11-- hours

Consideration - Legal rules as to Consideration - Stranger to a Contract and exceptions - Contract without consideration - Consent - Coercion - undue influence – misrepresentation - fraud - mistake of law and mistake of fact. Legality of Object - Unlawful and illegal agreements - Effects of illegality - Wagering Agreements.

Unit:3	AGREEMENT AND SALE	11-- hours

Agreement opposed to public policy - Agreements in Restraint of trade - Exceptions – void agreements - Restitution - Quasi-contracts - Discharge of contract - Breach of contract - Remedies for breach of Contract. Formation of contract of sale - Sale and agreement to sell – Hire purchase agreement - Sale and bailment.

Unit:4	SALES CONTRACTS	12-- hours

Capacity to buy and sell - Subject matter of contract of sale - Effect of destruction of goods - Documents of title to goods - conditions and warranties - Rules of Caveat - Emptor - Exceptions- Transfer of property - Goods sent on approval - FOB, CIF, FOR and Ex-ship contracts of sale -Sale by non - owners - right of lien - termination of lien - right of resale - right of stoppage in transit - Unpaid Vendor's rights.

Unit:5	CONTRACT OF AGENCY	12-- hours
Creation of agency - Classification of agents - relations of principal and agent - delegation of authority - relation of principal with third parties - personal liability of agent - Termination of agency.		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**60-- hours**

Text Book(s)	
1	N.D. Kapoor - Elements of Mercantile Law
2	Pillai &Bhagavathi- Business Law
Reference Books	
1	M.C. Shukla - A Manual of Mercantile Law
2	Pandia R. H. - Mercantile Law
3	K.P.Kandasami - Banking Law & Practice
Online Content	
https://onlinecourses.swayam2.ac.in/cec20_hs23/preview	

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	S	S	S	S	M	S	S	M
CO3	S	M	S	M	S	S	S	S	S	S
CO3	S	S	S	S	S	M	S	S	M	S
CO4	S	S	S	S	M	S	S	M	S	S
CO5	M	S	M	S	S	S	S	S	S	S

*S-Strong; M-Medium; L-Low

Course code		PC software (MS OFFICE) – PRACTICAL	L	T	P	C
Core - VII			-	-	3	3
Pre-requisite		Basic Computer Knowledge	Syllabus Version	First		

Course Objectives:

Officetoolscoursewouldenablethestudentsincraftingprofessionalworddocuments,excelspreadsheets,PowerPointpresentationsusingtheMicrosoftsuiteofofficetools.Tofamiliarizethestudentsnpreparationofdocumentsandpresentationswithofficeautomationtools

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Use Microsoft Office programs to create personal, academic and business documents following current professional and/or industry standards.	K1
2	Create scientific and technical documents incorporating equations, images, tables, and bibliographies.	K2
3	Develop technical and scientific presentations which use charts and visual aids to share data.	K3
4	Build spreadsheets to perform calculations, display data, conduct analysis, and explore.	K4
5	Design and construct databases to store, extract, and analyze scientific and real-world data.	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	WORD	15-- hours

Introduction to Word Processing - features, creating, saving and opening documents in Word. Overview of word menu options - word basic tool bar.
Editing and Formatting: Paragraph formats, aligning text and paragraph, borders and shading - headers and footers
Insert options: - insert picture – smart art – superscript & subscript – mathematical formulas – special characters – columns
Tables - creating table - graphics – importing graphics – clipart - insert picture.
Mail Merge: mail merge concept - merging data source and main document.
Design: Cover page of a book – Business cards, Index page.

Unit:2	POWER POINT	15-- hours

Introduction to Power Point basics – terminology - getting started with power point window – menus and tool bars- creating presentations - using auto content wizard - using blank presentation option - using design template option.
Working with slides -make new slide, move, copy, delete, duplicate, lay outing of slide-applying transition and animation effects.
Editing and formatting text: alignment, editing, inserting, deleting, selecting, formatting of text, bullets, footer, paragraph formatting.

Unit:3	EXCEL	15-- hours

Worksheet basics- Features of MS Excel – spread sheet / worksheet, workbook creating worksheet, entering data into worksheet- parts of MS excel window - toolbars and menus, keyboard shortcuts - Entering and editing data in worksheet – cell range – formatting – auto fill –formulas and its advantages. Charts – graphs.		
Unit:4	**ACCESS**	**13-- hours**
Introduction to Databases- Why use a Relational Database, concept of primary key relationship- Creating and Working with a Database -Creating a New Database-Creating a Table-Modifying a Table-Creating a Query-Sorting a Query-Creating a Form with the Form Wizard-Creating a Report with the Report Wizard-Creating Mailing Labels with the Label Wizard-Converting an Access Database		
Unit:5	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**60-- hours**

Text Book(s)

1	Peter Weverka- MS office for dummies, Wiley & Sons

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://onlinecourses.swayam2.ac.in/cec20_cs05/preview

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	S	S	M	S	S	S	S	M
CO3	S	M	S	S	S	S	M	S	S	S
CO3	S	S	S	M	S	S	S	S	M	S
CO4	S	S	M	S	S	S	S	M	S	S
CO5	M	S	S	S	S	M	S	S	S	S

*S-Strong; M-Medium; L-Low

Fourth Semester

Course code		HUMAN RESOURCE MANAGEMENT For BBA/BBA(CA)/BBA(IB)/BBA(RM)	L	T	P	C
Core - IX			5	-	-	4
Pre-requisite		Principles of Management	Syllabus Version		First	

Course Objectives:

1. To provide the students with knowledge on concepts, theories, scope and development of Human Resource Management practice at both National and global level.
2. To understand human relation skills of drafting a Job Description, Job Specification, Job Design.
3. To produce information regarding the effectiveness of recruiting methods, selection procedures and make appropriate staffing decisions.
4. To develop a training program using a useful framework for evaluating training needs, designing a training program, and evaluating training results and evaluate a company's implementation of a performance-based pay system.
5. To gain knowledge HRM and its significance in business.

Expected Course Outcomes:

On the successful completion of the course, students will be able to:

1	Analyze the process of Job analysis and its importance as a foundation of human resource management practice.	K3
2	Understand the Human resource planning	K4
3	Apply the policies and practice of the primary areas of human resource management, including staffing, training and compensation.	K3
4	Understand the importance of career planning and succession planning	K4
5	Apply the policies and practice of the primary areas of human resource management, including staffing, training and compensation	K2

K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 – Create

Unit – 1	**Concept of Human Resource Management**	**12 Hours**

Human Resource Management - meaning, nature, scope and objective – Functions of HRM - The Role & status of HR manager - Organisation of HR department – Strategic HRM

Unit – 2	**Human Resource Planning**	**12 hours**

Human Resource Planning – Job Analysis – Importance & benefits - Job analysis process- – Job description – Role analysis - Job specification

Unit – 3	**Recruitment and Selection**	**12 hours**

Recruitment and Selection - Factors affecting Recruitments, Sources of Recruitment – Alternative to Recruitment – Definition and Importance of Selection, Stages involved in Selection Process – Types of Selection Tests and Types of Interviews

Unit – 4	**Training and development**	**12 hours**

Meaning and benefits of Induction, Content of an Induction Program –Training and Development.– Performance appraisal - Job evaluation and merit rating - Promotion - Transfer and demotion

Unit - 5	**Career Planning & Development**	**12 hours**
Career Planning & Development – Stages in Career Planning – Internal and External Mobility of Employees — Meaning and Sources of Employee Grievance – Grievance Handling Systems – Meaning & Process of Collective Bargaining – Indiscipline, Settlement Machinery of Industrial Conflicts.		
Unit -6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**60-- hours**

Text Book(s)	
1	Subba Rao. P, Personnel and Human Resource Management (Text and cases) Himalaya Publishing House 2010
2	C.B. Gupta Human resource Management Sultan Chand & sons 2011
Reference Books	
1	Rao, S. (2014). - Essentials of Human Resource Management & Industrial Management: Text & Cases. New Delhi: Himalaya Publication.
2	VSP. Rao - Human Resource Management
3	B.Nandhakumar - Industrial Relations Labour Welfare and Labour Laws -Vijay Nicole Imprints
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	NOC:Principles of Human Resource Management - NPTEL
Course Designed By:	

Mapping with Programme Outcomes

COS/POS	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	S	S	S	S	M	S	S	M
CO2	S	M	S	M	S	S	S	S	S	S
CO3	S	S	S	S	S	M	S	S	M	S
CO4	S	S	S	S	M	S	S	M	S	S
CO5	M	S	M	S	S	S	S	S	S	S

S – Strong; M-Medium; L-Low

Course code		FINANCIAL MANAGEMENT For BBA/BBA(CA)/BBA(IB)/BBA(RM)	L	T	P	C
Core - X			5	-	-	4
Pre-requisite		Financial Accounting	Syllabus Version		First	

Course Objectives:

The main objectives of this course are:

1. To acquire the knowledge of Financial Management.
2. To learn different concepts of Financing Decisions.
3. To enable awareness on the Capital Structure in which Financial Management operate.
4. To develop an understanding of tools on Working Capital Management.
5. To provide knowledge using concepts, methods & procedures involved in Budgeting.

Expected Course Outcomes:

On the successful completion of the course, students will be able to:

1	Use business finance terms and concepts while communicating.	K3
2	Explain the financial concepts used in making financial management decision.	K4
3	Use effective methods to promote respect and relationship for financial deals.	K3
4	Utilize information to maximize and manage finance.	K4
5	Demonstrate a basic understanding of Budgeting.	K2

K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 – Create

Unit:1 FINANCE FUNCTIONS 12 Hours

Finance Functions: Definition and Scope of Finance Functions - Objectives of Financial Management - Profit Maximization and Wealth Maximization. Sources of Finance - Short term - Bank sources – Long term - Shares – Debentures - Preferred Stock – Debt.

Unit:2 INVESTMENT AND FINANCING DECISIONS 12 Hours

Investment Decisions: Long-term and Short-term – capital budgeting and appraisal techniques – Payback -ARR – NPV – IRR –Profitability Index. Financing Decisions: Cost of Capital - Cost of Specific Sources of Capital - Equity -Preferred Stock Debt - Reserves - Weighted Average Cost of Capital, Operating Leverage and Financial Leverage.

Unit:3 CAPITAL STRUCTURE theory 11 Hours

Capital Structure Planning – EBIT-EPS analysis – MM Theory of Capital structure -

Unit:4 Dividend Decisions 11 Hours

Dividend and Dividend policy: Meaning - Sources available for Dividends - Dividend Policy - Determinants of Dividend Policy – Models: Gorden

Unit:5 WORKING CAPITAL MANAGEMENT 12 Hours

Working Capital Management: Working Capital Management - concepts - importance - Determinants of Working capital. Cash Management: Motives for holding cash - Objectives and Strategies of Cash Management. Receivables Management: Objectives - Credit policies.

(Theory carries 80% Marks, Problems carry 20% Marks)

Unit 6: **Contemporary Issues 2 Hours**

Expert lectures, online seminars – webinars

	Total Lecture hours: 60 hours
Text Book(s)	
1	I. M. Pandey - Financial Management
2	P.V. Kulkarni - Financial Management
Reference Books	
1	S.N. Maheswari - Management Accounting
2	Khan and Jain - Financial Management
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	NOC:Financial Management For Managers - NPTEL
Course Designed By:	

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	S	S	S	S	M	S	S	M
CO3	S	M	S	M	S	S	S	S	S	S
CO3	S	S	S	S	S	M	S	S	M	S
CO4	S	S	S	S	M	S	S	M	S	S
CO5	M	S	M	S	S	S	S	S	S	S

S – Strong; M-Medium; L-Low

Course code		FINANCIAL ACCOUNTING PACKAGE TALLY ERP 9 - PRACTICAL	L	T	P	C
Core/Elective/Supportive		Core XI	5	-	3	3
Pre-requisite		Financial Accounting	Syllabus Version		First	

Course Objectives:

The main objectives of this course are:

1. To acquire the knowledge of Financial Management.
2. To learn different concepts of Financing Decisions.
3. To enable awareness on the Capital Structure in which Financial Management operate.
4. To develop an understanding of tools on Working Capital Management.
5. To provide knowledge using concepts, methods & procedures involved in Budgeting.

Expected Course Outcomes:

On the successful completion of the course, students will be able to:

1	Understand basic Accounting concepts and principles	K3
2	Be able to generate Accounting and Inventory Masters, Vouchers and Basic Reports in Tally	K4
3	Understand Advanced Accounting and Inventory in Tally. ERP 9	K3
4	Have an understanding of Advanced Accounting and Inventory in Tally.ERP 9	K4
5	Understand basic concepts and practical application of VAT, CST, TDS and Service Tax	K2

K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 – Create

Unit:1	Introduction	9 Hours

Introduction to TALLY ERP 9- Salient features – Accounting Features – Enhancements – Hardware Requirement- Components of TALLY ERP 9 – Creation and Alteration of Company.

Unit:2	Stock Groups	8 Hours

Introduction to Stock Groups- Stock Categories – Stock Items- Godowns – Units of Measurement.

Unit:3	Groups	8 Hours

Introduction to Groups – Ledgers – Voucher Type – Purchase Orders- Sales Orders – Invoices.

Unit:4	Reports	9 Hours

Reports in TALLY ERP 9 –Working with Balance Sheet- Profit & Loss Account- Stock Summary Report – Ratio Analysis – Trial Balance – Day Book. Introduction to Payroll – Employee Categories – Employee Groups – Employees- Attendance Production types- Pay Heads- Payroll Vouchers Entry/ Transactions – Payroll reports.

Unit:5	**Service Tax**	**9 Hours**
Introduction to Service Tax – Tax Collected at Source- Tax Deducted at Source- Value Added Tax –Goods and Service Tax- Activating GST for your company- Deactivating VAT, Excise and Service Tax Features – Creating Tax Ledger-Expense Ledger- Party Ledger.		
Unit 6: Contemporary Issues		**2 Hours**
Expert lectures, online seminars – webinars		
		Total Lecture hours: 45 Hours
Text Book(s)		
1	Tally Education Pvt. Ltd., Official Guide to Financial Accounting Using Tally.ERP 9 with GST	
2	Soumya Ranjan Behera, Learn Tally.ERP 9 with GST, BK Publications Private Ltd, Bhubaneswar, 2017	
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]		
1	https://onlinecourses.swayam2.ac.in/cec19_cm03/preview	
Course Designed By:		

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	S	S	S	S	M	S	S	M
CO3	S	M	S	M	S	S	S	S	S	S
CO3	S	S	S	S	S	M	S	S	M	S
CO4	S	S	S	S	M	S	S	M	S	S
CO5	M	S	M	S	S	S	S	S	S	S

S – Strong; M-Medium; L-Low

Course code		MANAGEMENT INFORMATION SYSTEM For BBA/BBA(CA)/BBA(RM)	L	T	P	C
Core - XII			5	-	-	4
Pre-requisite		Basic Computer Knowledge	Syllabus Version		First	

Course Objectives:

1. Provide students with comprehensive knowledge and technical skills needed to successfully participate in and support the increasingly applied role of information technology in corporate decision making.
2. Enable students to conceptualize and manage the specification, design and implementation of applied information systems.
3. Provide the knowledge of contemporary issues related to the field of managing information systems.
4. Develop technical knowledge and skills required to work effectively in a profession.
5. Enhance self-confidence, ability to make proper decisions and effective communication.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Apply modern tools, techniques and technology in a functional and productive manner in Professional Activities.	**K3**
2	Analyze, Design, Construct, Implement and Maintain, Usable, Reliable and Cost-Effective Information Systems (IS) that support Operational, Managerial and Strategic activities of Organizations.	**K6**
3	Study and evaluate existing manual and automated business processes and identify opportunities for re-engineering and/or automation.	**K5**
4	Coordinate confidently and competently with the user community in IS requirements analysis/design activities, provide guidance and technical support to end user computing activities.	**K3**
5	Analyze the impact of computing on individuals, organizations and society, including ethical, religious, legal, security and global policy issues.	**K4**

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	INTRODUCTION TO INFORMATION SYSTEMS	12 Hours

Introduction to Information Systems - Definition - Features - Steps in Implementing MIS - Need for Information - Information System for Decision Making - MIS as Competitive Advantages – MIS structures.

Unit:2	MIS FUNCTION	12 Hours

MIS - Strategic information system - MIS support for Planning - Organizing – Controlling - MIS for specific functions - Personnel, Finance, Marketing, Inventory and Production. Data Base Management System Models - Hierarchical - Network – Relational.

Unit:3	HARDWARE AND SOFTWARE	11 Hours

Computer Hardware - Description of Electronic Computers – CPU operations - Classification of Computers - Main - Mini - Workstations - Micro Computers – Super Computers - Personal Computers. Computer Software - Types of Software – Data

Representation in Computers. Introduction to Client - Server.		
Unit:4	**INPUT AND OUTPUT DEVICES**	**11 Hours**
Input devices - mouse - touch screens - MICR - OCR - keyboard - pen based Input - digital scanners - voice input devices - sensors. Output devices - impact printers - nonimpact printers - video display terminals - plotters - voice output devices. Secondary storage devices - magnetic disk, floppy, magnetic tape, optical disk storage – CD-ROM.		
Unit:5	**TELECOMMUNICATION REVOLUTION**	**12 Hours**
Telecommunication revolution - Introduction to Email, internet, intranet and teleconferencing, www architecture, Introduction to E-Commerce - models B_B and B_C. EDI - EDI applications in business. Electronic payment of cash: smart cards - credit cards.		
Contemporary Issues		**2 Hours**
Expert lectures, online seminars – webinars		
		Total Lecture Hours: 60 Hours
Text Book(s)		
1	Robert G. Murdick and Joel E. Ross. Management Information System	
2	Management Information System - James O brien	
3	Management Information System - Gordon B Davis	
Reference Books		
1	Management Information System- A Contemporary Perspective - Kenneth C. Laudon & Jane P. Laudon, Prentice Hall.	
2	Computer Applications in Business - Subramanian K	
Online content		
https://nptel.ac.in/courses/110/105/110105148/		
Course Designed By: Dr. V. Savitha		

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	S	S	S	S	M	S	S	M
CO3	S	M	S	M	S	S	S	S	S	S
CO3	S	S	S	S	S	M	S	S	M	S
CO4	S	S	S	S	M	S	S	M	S	S
CO5	M	S	M	S	S	S	S	S	S	S

S – Strong; M-Medium; L-Low

Course code		TAXATION LAW AND PRACTICE For BBA/BBA(CA)/BBA(IB)/BBA(RM)	L	T	P	C
Allied - IV			5	-	-	4
Pre-requisite		Business Law	Syllabus Version		First	

Course Objectives:

The main objectives of this course are:

1. On successful completion of this course, the students should have understood Principles of Direct and Indirect Taxes.
2. Students will acquire knowledge on Calculation of Tax Procedures.
3. Provide students with knowledge on tax Procedures and Tax Authorities.
4. To provide knowledge on the administration of Indirect taxes and constitutional framework of GST
5. Acquire knowledge on the procedural compliance of tax.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Elucidate an understanding of theoretical and technical knowledge of taxation law principles as they apply through legislation, for both individuals and business entities.	**K2**
2	Analyze, generate and transmit solutions to complex problems in relation to taxation matters.	**K5**
3	To efficiently compute tax for Business and Profession and knowledge on tax authorities.	**K3**
4	To efficiently handle indirect taxes and GST.	**K3**
5	To be a potential person on the procedural compliance of tax.	**K3**

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	**DIRECT TAXES**	**12 Hours**

Direct Taxes at a Glance: Basic concepts of Income Tax —General Principles of Taxation, Distinction between direct and Indirect taxes — Important definitions under Income Tax Act, 1961– Residential Status & Basis of Charge – Income exempted from income tax – Heads of Income.

Unit:2	**COMPUTATION OF INCOME**	**11 Hours**

Computation of Income under Salary and House Property. (Problems to be included).

Unit:3	**INCOME TAX AUTHORITIES**	**11 Hours**

Computation of Income under Profits and Gains of Business or Profession (Problems to be included). Income tax Authorities – Duties and their Powers.

Unit:4	**INDIRECT TAXES**	**12 Hours**

Indirect taxes – Goods and Service Tax – Concept of Indirect Taxes at a glance: Background; Constitutional powers of taxation; Indirect taxes in India – An overview; Pre-GST tax structure and deficiencies; Administration of Indirect Taxation in India; Existing tax structure — Basics of Goods and Services Tax _GST': Basics concept and overview of GST; Constitutional Framework of GST; GST Model – CGST / IGST / SGST / UTGST.

Unit:5	**PROCEDURAL COMPLIANCE**	**12 Hours**
Basic concepts of Time and Value of Taxable Supply; Basics concept of Place of Taxable Supply — Input Tax Credit & Computation of GST Liability- Overview — Procedural Compliance under GST: Registration; Tax Invoice, Debit & Credit Note, Account and Record, Electronic way Bill; Return, Payment of Tax, Refund Procedures; Audit — Basic overview on Integrated Goods and Service Tax (IGST) — GST Council – Guiding principle of the GST Council – Functions of the GST Council.		
Note: Theory and problems shall be distributed at 60% & 40% respectively.		
Contemporary Issues		**2 Hours**
Expert lectures, online seminars – webinars		
		Total Lecture Hours: 60 Hours
Text Book(s)		
1	Bhagwati Prasad - Income Tax Law & Practice	
2	Dr. Girish Ahuja and Dr. Ravi Gupta – Practical Approach to Direct & Indirect Taxes	
3	DingarePagare - Business Taxation	
4	Balasubramanian - Business Taxation	
Reference Books		
1	V. S. Datey – Indirect Taxes - Law and Practice (Taxmann's)	
2	Dr. Girish Ahuja and Dr. Ravi Gupta – Systematic Approach to Taxation	
3	S.R. Myneni – Principles of Taxation & Tax Law Part 1	
Online Content		
https://onlinecourses.swayam2.ac.in/ugc19_hs27/preview		
Course Designed By: Dr. V. Savitha		

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	S	S	S	S	M	S	S	M
CO3	S	M	S	M	S	S	S	S	S	S
CO3	S	S	S	S	S	M	S	S	M	S
CO4	S	S	S	S	M	S	S	M	S	S
CO5	M	S	M	S	S	S	S	S	S	S

S – Strong; M-Medium; L-Low

Fifth Semester

Course code		COST AND MANAGEMENT ACCOUNTING For BBA/BBA(CA)/BBA(IB)/BBA(RM)	L	T	P	C
Core - XIII			6			4
Pre-requisite		Finacial Accounting	Syllabus Version		First	

Course Objectives:

The main objectives of this course are to:

This course is to enable the students to acquire knowledge of cost and management accounting which will provide understanding for the students and apply in the business organization in order to effectively demonstrate in managerial decisions in functional areas like finance and costing.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understanding the concept of cost accounting, Recognize the merits and demerits of cost and management accounting along with the elements of cost concepts.	K1
2	Describe the cost sheets for the purpose of stores control through economic order quantity, pricing and material issues.	K2
3	Measure the financial statements through comparative and common size by using various financial ratios.	K5
4	Simplify the fund flow and cash flow statements by calculating funds and cash from operations.	K4
5	Produce various budgets and apply standard costing for material variances; marginal costing for cost volume profit.	K3

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	INTRODUCTION TO COST ACCOUNTING	12-- hours

Meaning-definition-scope-objectives-function-merits and demerits of Cost and Management Accounting-distinction between cost, management and financial accounting - Elements of cost - cost concepts and costs classification. (Theory and Problems).

Unit:2	COST SHEETS & STORES CONTROL	12-- hours

Preparation of cost sheet-stores control- EOQ-maximum, minimum, reordering levels-pricing of materials issues-FIFO,LIFO,AVERAGE COST, STANDARD PRICE-methods -labour cost- remuneration and incentives. (Problems and theory questions)

Unit:3	FINANCIAL STATEMENT ANALYSIS	12-- hours

Financial statement Analysis - preparation of comparative and common size statements - analysis and interpretation. Ratio analysis - classification of ratios-liquidity, profitability, solvency – inter firm comparison. (Theory and Problems)

Unit:4	FUND FLOW & CASH FLOW STATEMENT	11-- hours

Fund flow analysis-cash flow analysis (problems only)

Unit:5	MARGINAL COSTING AND STANDARD COSTING	11-- hours

Standard costing-variance analysis-material and labour variances Marginal Costing-cost

volume profit analysis. (Theory and Problems), Budgetary Controls		
Unit:6	**CONTEMPORARY ISSUES**	**02 -hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**60-- hours**

Text Book(s)	
1	Arora. M (2012) – Cost and Management Accounting, Vikas publishing house Pvt Lts.
2	*Jain S.P and Narang*, 2016. Cost Accounting Principles and Practice. Kalyani Publishers, New Delhi, 5th Edition.
Reference Books	
1	Saxena and Vashisth : Cost and Management Accounting, Sultan Chand and Sons, New Delhi, 2008.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	Mooc: https://www.mooc-list.com/course/managerial-accounting-cost-behaviors-systems-andanalysis-coursera
2	E Books: https://www.icsi.edu/docs/webmodules/Publications/2.%20CMA-Executive.pdf
Course Designed By: Dr. P.KOMARASAMY , pkskv@rediffmail.com	

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M	M	S	S	S	M	M	S	S	S
CO3	M	S	M	S	S	M	S	M	S	S
CO3	S	S	S	S	S	S	S	S	S	S
CO4	S	S	S	M	S	S	S	S	M	S
CO5	S	S	M	S	S	S	S	M	S	S

*S-Strong; M-Medium; L-Low

Course code		RESEARCH METHODOLOGY FOR MANAGEMENT For BBA/BBA(CA)/BBA(IB)/BBA(RM)	L	T	P	C
Core - XIV			5	-	-	4
Pre-requiste		Quantitaive Techniques for Management	Syllabus Revison		First	

Course Objectives:

The main objectives of this course are to:

1. Introduce the basic concepts of research and apply the fundamentals of sampling and scaling techniques along with methods of data collection.
2. Learn the process of analyzing the collected data, interpretation, report writing and application of computers in research and documentation.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand fundamental concepts of research, types and research process.	K2
2	Summarize the sampling design and scaling techniques.	K2
3	Construct a method for data collection and able to edit, code ,classify and tabulate the collected data.	K3
4	Analyze the collected data to prove or disprove the hypothesis.	K4
5	Interpret the data and prepare a research report.	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6**– Create

Unit:1	Introduction to Research Methodology	11 hours

Research - Definition - Significance – Criteria of Good Research – Types -Research Process – Selecting the Research Problem – Techniques Involved in Defining a Problem - Research Design : Features of a Good Design - Important Concepts Relating to Research Design - Different Research Designs.

Unit:2	Sampling and Scaling	12 hours

SamplingDesign – Steps - Types - Sampling Errors and Non-Sampling Errors – Factors Influencing the Size of the Sample - Scaling – Classification of Measurement Scales - Scaling Techniques.

Unit:3	Data Collection and Preparation	12 hours

Collectionof Primary Data : Observation Method –Interview Method- QuestionnaireMethod – Schedule Method- Some other Methods of Data Collection - Collection of Secondary Data - Case Study Method – Data Preparation : Editing - Coding- Classification - Tabulation- Graphical Representation.

Unit:4	Processing and Analyzing of Data	12 hours

Hypothesis – Basic Concepts Concerning Testing of Hypothesis - Procedure for Hypothesis Testing - Z Test - T Test - Chi-Square Test - ANOVA - Application of SPSS (Simple Problems Only).

Unit:5	Interpretation and Report Writing	11 hours

Interpretation : Techniques - Precautions- Report Writing – Steps in Writing Report - Layout

of the Research Report –Typesof Reports - Mechanics of Writing a Research Report - Precautions for Writing Research Reports.		
Unit:6	**CONTEMPORARY ISSUES**	**02 -hours**
Expert lectures, online seminars – webinars		
	Total Lecture Hours	**60 Hours**

Text Book(s)	
1	*C.R.Kothari, Gaurav Garg.* 2019. **Research Methodology** (Methods & Techniques). New Age International Publishers, New Delhi. 4th Edition.
2	*S.P.Gupta.* 2017. **Statistical Methods**. Sultan Chand & Sons, New Delhi. 44th Edition.
Reference Books	
1	Boyd and Westfall : Marketing Research
2	Gown M.C. : Marketing Research
3	Green Paul and Tall : Marketing Research
	Online Content
	https://onlinecourses.swayam2.ac.in/cec20_hs17/preview

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	M	M	S	S	S	M	M	S	S
CO3	S	S	S	S	S	S	S	S	S	S
CO3	S	S	S	S	S	S	S	S	S	S
CO4	S	S	S	S	S	S	S	S	S	S
CO5	S	S	S	S	S	S	S	S	S	S

*S-Strong; M-Medium; L-Low

Course code		ADVERTISING AND SALES PROMOTION For BBA/BBA(CA)	L	T	P	C
Core - XV			5	-	-	4
Pre-requiste		Marketing Management	Syllabu Revision		First	

Course Objectives:

The main objectives of this course are to:

1. To understand the role of advertising and promotion that effects businessworld
2. To explain use of advertising and sales promotion as a marketingtool.
3. To import knowledge on appropriate selection of media
4. Synthesize information regarding testing the effectiveness of advertising and sales promotion

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Identify advertising mediums, both traditional, new and experimental	K1
2	To Understand the function of Advertising Agencies	K1
3	To Understand the principles of advertising layout and campaign	K2
4	To Apply various sales promotion strategies and techniques	K2
5	Will be able to manage Sales force	K3

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6**– Create

Unit:1	Introduction to Advertising	11 hours

Advertising: Meaning-importance-objectives-media-forms of media-press Newspaper trade journal-Magazines-outdoor advertising-poster-banners - neon signs, publicity literature booklets, folders, house organs-direct mail advertising-cinema and theatre programme-radio and television advertising-exhibition-trade fair-transportation advertising.

Unit:2	Advertising agencies	12 hours

Advertising agencies-advertising budget-advertising appeals - advertising organisation- social effects of advertising-advertising copy - objectives-essentials - types-elements of copy writing: Headlines, body copy - illustration-catch phrases and slogans-identification marks.

Unit:3	Advertising layout	12 hours

Advertising layout- functions-design of layout-typography printing process-lithography-printing plates and reproduction paper, and cloth- size of advertising-repeat advertising-advertising campaign- steps in campaign planning.

Unit:4	Sales force Management	11 hours

Sales force Management-Importance-sales force decision-sales force size-recruitment & selection-training-methods-motivating salesman Controlling - compensation & incentives-fixing sales territories-quota - Evaluation.

Unit:5	Sales promotion	12 hours

Sales promotion: Meaning-methods-promotional strategy-marketing communication and persuasion-promotional instruments: advertising -techniques of sale promotion-consumer and

dealers promotion. After sales service-packing – guarantee - Personal selling- Objectives - Salesmanship-Process of personal selling-types of salesman.		
Unit:6	**CONTEMPORARY ISSUES**	**02 -hours**
Expert lectures, online seminars – webinars		
	Total Lecture Hours	**60 Hours**
Text Book(s)		
1	1. SHHKazmi& Satish Batra - Advertising & Sales Promotion , Excel	
Reference Books		
1	BolenJ.H.- Advertising	
2	SontakkC.N. - Advertising and Sales Management	
3	DavarS.K. - Salesmanship andadvertising	
4	Baranikumar, - Advertising and SalesPromotion.	
	Online Content	
	https://onlinecourses.swayam2.ac.in/cec20_ge02/preview	

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	M	M	S	S	S	M	M	S	S
CO3	S	S	S	S	S	S	S	S	S	S
CO3	S	S	S	S	S	S	S	S	S	S
CO4	S	S	S	S	S	S	S	S	S	S
CO5	S	S	S	S	S	S	S	S	S	S

*S-Strong; M-Medium; L-Low

Course code		BUSINESS CORRESPONDENCE For BBA/BBA(CA)/BBA(IB)/BBA(RM)	L	T	P	C
Core – XVI			6	-	-	4
Pre-requisite		English	Syllabus Version		First	

Course Objectives:

The main objectives of this course are:

1. On successful completion of this course, the students should have understood the Communication Methods, Types and Barriers.
2. Students will demonstrate competency in communication and critical thinking skills.
3. Students will compose, produce, and present effective business documents.
4. Students will learn the appropriate ways to meet industry standards; apply critical evaluation techniques to business documents.
5. Acquire knowledge to demonstrate the importance of coherent, Ethical Communication Principles in Business and Industry.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Learn and apply effective written communication techniques.	**K3**
2	Review and refine communications skills.	**K4**
3	Developing and delivering effective presentations.	**K6**
4	Determine and use proper psychological approach in writing situations.	**K4**
5	Skills that maximize team effectiveness in the world of work.	**K5**

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	INDIVIDUAL COMMUNICATION	12 hours

Individual Communication: Resume Preparation – General and Job-Specific; Cover letter preparing; Soft-Copy forms with neat formatting; Scanning and placing of Photo; Modern e-forms of Communication: Fax – E-mail – Video Conferencing – Websites and their uses in business – language for email letters – Social Media Communications (blogs & twitter— posting tweets, face-book, LinkedIn Groups (platform specific best practices)

Unit:2	TRADE LETTERS	11 hours

Trade Letters: Letters of Inquiry – Placement of Orders – Delivery and its status – Letters of Complaints, Claims – Adjustments –Credit and Status Enquiry – Collection letter - Inter-office Correspondence – Memorandum – Office Orders – Circulars

Unit:3	REPORT WRITING	12 hours

Report Writing: Meaning – Need –Formatting the report elements such as title, abstract, summary, introduction, body, conclusion, recommendations, references and appendices – Report writing for Business purposes - Types of Report – Features of a well-written report. Effective Writing: Business Vocabulary - Bringing learners up to date with the language they need for Business Today, Provides Practice in using the new language, and also reflects recent Developments in Technology and Business practice. Review basic grammar, punctuation, capitalization, number usage.

Unit:4	**CORRESPONDENCE OF A COMPANY SECRETARY**	**12 hours**
Correspondence of a Company Secretary: Secretary Notice, Agenda and Minutes— types—contents—guidelines—Minutes of statutory meeting—Board meeting—Annual General Meeting —Alteration of minutes—Minutes of Joint consultative meeting – Correspondence with Directors and Shareholders.Internal Communications Strategy: Company Newsletters – Circulars – Appreciation Memos – letters of Reprimand - Strictures – Empowering employees – Employee engagement.		
Unit:5	**GENERAL CORRESPONDENCE**	**11 hours**
General Correspondence: Letters under Right to Information (RTI) Act – General complaints and petitions for public utilities – Letters to the editor of newspapers – Other general aspects related to practical letter writing.		
Unit: 6 Contemporary Issues		**2 hours**
Expert lectures, online seminars – webinars		
Note: [Teachers must provide the students with theoretical constructs wherever necessary in order to create awareness. However students should not be tested on the theory. They should, instead, be tested by giving situations in order to write the appropriate letter by comprehending the given situation]		
		Total Lecture hours: 60 hours
Text Book(s)		
1	Rajendra Pal and J. S. Korlahalli. ―Essentials of Business Communication, Sultan Chand & Sons, New Delhi, 2006.	
2	Ms. Ramesh, C. C Pattanshetti&Madhumati M. Kulkarni - Business Communication, R.Chand& Co, New Delhi, 2003.	
3	M. V. Rodriques, - Effective Business Communication, Concept Publishing company Pvt. Ltd.,	
Reference Books		
1	Ashley, A – A Handbook of Commercial Correspondence, Oxford University Press (2003).	
2	Brian M. H. Robinson, Vidya S. Netrakanti& Dr. Hari V. Shintre, Communicative Competence in Business English. Orient Longman, 2007.	
3	K. K. Ramachandran, K. K. Lakshmi, K. K. Karthick & M. Krishnakumar, Business Communication. Macmillan, 2007.	
Online Content		
https://onlinecourses.swayam2.ac.in/imb19_mg14/preview		
Course Designed By: Dr. V. Savitha		

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	S	S	S	S	M	S	S	M
CO3	S	M	S	M	S	S	S	S	S	S
CO3	S	S	S	S	S	M	S	S	M	S
CO4	S	S	S	S	M	S	S	M	S	S
CO5	M	S	M	S	S	S	S	S	S	S

*S-Strong; M-Medium; L-Low

Sixth Semester

Course code		ENTREPRENEURSHIP AND PROJECT MANAGEMENT For BBA/BBA(CA)/BBA(IB)/BBA(RM)	L	T	P	C
Core - XVII			6	-	-	4
Pre-requisite		Nil	Syllabus Version		First	

Course Objectives:

The main objectives of this course are to:

1. To energies the students to acquire the knowledge of Entrepreneurship, Entrepreneurial Development Programmes, Project management, Institutional support to entrepreneurial development.
2. To make the students aware of the importance of entrepreneurship opportunities available in the society and to acquaint them with the challenges faced by the entrepreneur

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Define who is an Entrepreneur and what his or her characteristic features are, what skills made them successful and what qualities are required to become an Entrepreneur.	K1
2	Foster the students in the areas of entrepreneurial growth and equip with different entrepreneurial development programmes.	K2
3	Project management is a powerful discipline in the core areas of project life cycle and to know about the roles and responsibilities of a project manager.	K3
4	Discriminate the benefits of delivering the project identification and selecting the successful project with the various guidelines issued by the authorities.	K5
5	Classify the various sources of business finance and identify the different institutions that supporting entrepreneurs.	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	CONCEPT OF ENTREPRENEURSHIP	12 -- hours

Meaning of Entrepreneurship – characteristics, functions and types of entrepreneurship – Entrepreneurial Motivation – Need for Achievement Theory – Risk-taking Behaviour – Innovation and Entrepreneur – Role of entrepreneurship in economic development.

Unit:2	POLICY & INSTITUTIONAL ECO SYSTEM FOR ENTREPRENEURSHIP	11 -- hours

Factors affecting entrepreneur growth - economic – non-economic. Entrepreneurship development programmes - need - objectives – course contents - phases - evaluation. Institutional support to entrepreneurs.

Unit:3	BUSINESS PLAN	12 -- hours

Introduction to Small Business: Evolution & Development– Meaning – concepts – categories – characteristics of small business – role, importance and responsibilities of small business. Business Ideas – Sources and incubating; Technical Assistance for small business – Preparation of Feasibility Reports, Legal Formalities and Documentation

Unit:4	**PROJECT IMPLEMENTATION**	**11 -- hours**
Business Plan – Outline – components – Marketing strategy for small business – Market Survey – Market Demands – Sales forecast – Competitive Analysis – The marketing plan – Marketing Assistance through governmental channels – Risk Analysis – Break even analysis		
Unit:5	**ENTREPRENEURIAL FINANCE**	**12 -- hours**
Start-up costs – The financial Plan – Source of finance for new ventures – small business – Institutional finance supporting SSIs – Bounties to SSIs – Venture Capital – basic start-up problems..		
Unit:6	**Contemporary Issues**	**2- hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**60 -- hours**

Text Book(s)	
1	Khan M.A - Entrepreneurship Development Programmes in India, Delhi, Kanishka Publishing House.
2	Gupta C.B, and Srinivasan N.P, 1992, Entrepreneurship Development, New Delhi, Sultan Chand and Sons.
Reference Books	
1	Mishra D.N., 1990, Entrepreneurship, Entrepreneur Development and Planning in India, Allahabad, Chugh Publishers.
2	Mead, D.C. &Liedholm, C. The dynamics of micro and small enterprises in developing countries. (1998).
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	http://164.100.133.129:81/econtent/Uploads/Entrepreneurship_Development.pdf
2	https://www.mooc-list.com/course/essentials-entrepreneurship-thinking-action-coursera

Course Designed By: Dr. P.KOMARASAMY , pkskv@rediffmail.com

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	M	M	S	S	S	M	M	S	S
CO3	S	S	S	S	S	S	S	S	S	S
CO3	M	S	S	M	S	M	S	S	M	S
CO4	S	S	S	S	M	S	S	S	S	M
CO5	S	M	M	S	S	S	M	M	S	S

*S-Strong; M-Medium; L-Low

Course code		INVESTMENT MANAGEMENT FOR BBA	L	T	P	C
Core - XVIII			6			4
Pre-requisite		Finanacial Management	Syllabus Version		First	

Course Objectives:

The main objectives of this course are to:

1. To enable the students to acquire knowledge of Investment management
2. Acquire broad knowledge on investment instruments
3. To enable them to analyse stock movements

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the fundamental concepts of investment.	K1
2	Design an investment model in order to analyze its sustainability.	K3
3	Utilize the management tools and techniques to take appropriate investment decisions.	K3
4	Develop skills in trading.	K4
5	Evaluating investment theories.	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	FUNDAMENTAL CONCEPTS OF INVESTMENT	12-- hours

Concept of investment - importance. Features of Investment, Speculation - Forms of investment -Bank deposits, Post office schemes, Government Securities, Mutual fund schemes, Provident funds, Company deposits - Real estate, Gold & silver.

Unit:2	INSTRUMENTS OF INVESTMENT	12-- hours

Investment Instruments-Capital market instruments, Money market instruments, Derivatives-Futures & Options. Shares –types &features. Debentures - nature & types. Primary market - Role of NIM, methods of floating new issues.

Unit:3	SECONDARY MARKET	11-- hours

Secondary market-functions, Bombay Stock Exchange, National Stock Exchange –trading practices , security market indicators. Return - Risk – kinds. Role of SEBI.

Unit:4	INVESTMENT ANALYSIS	12-- hours

Security analysis- Fundamental analysis: economic, industry and company analysis. Technical
Analysis, Dow Theory, types of Charts, important chart patterns.

Unit:5	INVESTMENT THEORIES	11-- hours

Efficient Market theory. Random Walk Theory, weak form, semi strong form & strong form. Portfolio Analysis:Markowitz theory –Portfolio management.

Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**60-- hours**

Text Book(s)	
1	PunidhavadhiPandiyan - Security Analysis & Portfolio Management
2	Bhalla G.S-. Investment Management
Reference Books	
1	Francis Cherunilam- Investment Management
2	Dr. Avadhani-Investment Management
3	Preethi Singh- Investment Management
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://onlinecourses.swayam2.ac.in/imb19_mg09/preview

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	M	S	S	S	S	M	S	S	S
CO3	S	S	S	S	M	S	S	S	S	M
CO3	S	S	S	M	S	S	S	S	M	S
CO4	S	S	M	S	S	S	S	M	S	S
CO5	M	S	S	S	S	M	S	S	S	S

*S-Strong; M-Medium; L-Low

Course code		SERVICES MARKETING FOR BBA/ BBA (CA)	L	T	P	C
Core XIX			5	-	-	4
Pre-requisite		Marketing Management	Syllabus Version		First	

Course Objectives:

The main objectives of this course are to:
1. It focusses on targeting and position of services.
2. It helps the students to know the consumer behaviour in service

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Examine the nature of services, and distinguish between products and services	K1
2	Identify the major elements needed to improve the marketing of services	K3
3	Develop an understanding of the roles of relationship marketing and customer service in adding value to the customer's perception of a service	K3
4	Appraise the nature and development of a services marketing strategy	K4
5	Recognise how services marketing principles can be used as a conceptual framework to help managers identify and solve marketing problems	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyse; **K5** - Evaluate; **K6** - Create

Unit:1 **12**

Introduction — What are services? — The Services Sector in the Indian Economy — Components of services economy — Distinctive characteristics of services — Importance ofservices — Classification of services — Players in services sector — Evolution and growth ofservice sector — Differences between goods and services

Unit:2 **12**

Service marketing system — Importance of services in marketing —– Expanded marketing mix Services marketing mix — Service product planning — Service pricing strategy— Services distributions — Employees‘ and Customers‘ Roles in Service Delivery — Servicespromotions — Physical evidence — Role of technology in services marketing.

Unit:3 **12**

Service quality — Understanding customer expectations and perceptions— Measuring service quality — Gap model of service quality — SERVQUAL — Service Quality function development — Service Quality Management — Quality Function Deployment for Services

Unit:4 **12**

Services from sectoral perspective — Hospitality – Travel & Tourism – Financial – Logistics – Educational – Entertainment – Healthcare & Medical — Telecom Services

Unit:5 **10**

Marketing the Financial Services — Devising of Strategies in financial Services marketing mix. Education as service — Marketing of educational services — Strategies for educational marketing.

Unit:6	**Contemporary Issues**	**2**
Case Study, Expert Lectures, Online Seminars - Webinars		
	Total Lecture Hours	**60**

Textbook(s)	
1	Services Marketing - Valarie Zeithaml, Mary Bitner – 6thEdition - TMH
2	Services Marketing – Rampal Gupta - Galgotia Publications.
Reference Books	
1	Services Marketing - Christopher Lovelock – Pearson Publications
2	Adrian Payne- The Essence of Service Marketing, Prentice- Hall of India,
3	Hellen Woodruffe - Service Marketing, Macmillan India Ltd. Delhi, 1997
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	Service marketing (Web) – NPTEL
Course Designed By:	

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	M	M	M	S	S	M	M	M
CO2	S	S	M	M	M	S	S	M	M	M
CO3	S	S	M	M	M	S	S	M	M	M
CO4	S	S	S	S	S	S	S	S	S	S
CO5	S	S	M	M	S	S	S	M	M	S

*S-Strong; M-Medium; L-Low

Elective Courses

Course code		INTELLECTUAL PROPERTY RIGHTS FOR BBA, BBA CA ,BBA RM AND BBA IB	L	T	P	C
Elective- I (A)			5	-	-	4
Pre-requisite		Business Law	Syllabus Version		First	

Course Objectives:

The main objectives of this course are to:

- To aspects of Intellectual property Rights to students who are going to play a major role in development and management of innovative projects in industries.
- To disseminate knowledge on patents, patent regime in India and abroad and registration aspects
- To disseminate knowledge on copyrights and its related rights and registration aspects
- To disseminate knowledge on Design, Geographical Indication (GI), Plant Variety and Layout Design Protection and their registration aspects
- To aware about current trends in IPR and Govt. steps in fostering IPR

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	The students once they complete their academic projects, shall get an adequate knowledge on patent and copyright for their innovative research works	K2
2	During their research career, information in patent documents provide useful insight on novelty of their idea from state-of-the art search. This provide further way for developing their idea or innovations	K2
3	Pave the way for the students to catch up Intellectual Property(IP) as an career option R&D IP Counsel, Government Jobs – Patent Examiner, Private Jobs, Patent agent and Trademark agent, and Entrepreneur	K3
4	Develop knowledge on trademarks and registration aspects	K4
5	Have a simple and basic comprehension of the Indian scenario with regard to IPR act	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	OVERVIEW OF INTELLECTUAL PROPERTY	11-- hours

Introduction and the need for intellectual property right – IPR in India – Genesis and Development IPR in abroad Some important examples of IPR – Different Classifications – Important Principles Of IP Management – Commercialization of Intellectual Property Rights by Licensing – Intellectual Property Rights in the Cyber World.

Unit:2	PATENTS	11-- hours

Introduction – Classification –Importance – Types Of Patent Applications In India – Patentable Invention – Inventions Not Patentable.

Unit:3	TRADE MARKS	12-- hours

Introduction – Fundamentals – Concept – Purpose – Functions – Characteristics – Guidelines

For Registration of Trade Mark – Kinds of TM – Protection – Non Registrable Trademarks Industrial Designs – Need for Protection of Industrial Designs – Procedure for obtaining Design Protection.		
Unit:4	**COPY RIGHT**	**12-- hours**
Introduction to Copyright – Conceptual Basis – Copy Right And Related Rights – Author & Ownership of Copyright - Rights Conferred By Copy Right- Registration – Transfer – Infringement – Copyright pertaining to Software/Internet and other Digital media.		
Unit:5	**Geographical Indications and Plant Varieties & Farmers Right**	**12-- hours**
GEOGRAPHICAL INDICATIONS: Concept of Appellations of Origin, Indication of Source and Geographical Indication – What is a geographical indication? How is a geographical indication protected? Why protect geographical indications? Classical examples and its case study NEW PLANT VARIETIES: Protection of Plant Varieties and Farmers' Rights, Authority and Registry – Why protect new varieties of plants? How can new plants be protected? What protection does the breeder get? How long do the breeder‘s rights last? How extensive is plant variety protection?		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**60-- hours**
Text Book(s)		
1	INTELLECTUAL PROPERTY RIGHTS Text and Cases:DR.R. Radhakrishnan, DR.S.Balasubramanian	
Reference Books		
1	INTELLECTUAL PROPERTY PATENTS, TRADE MARKS,ANDCOPY RIGHTS - RichardStim	
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]		
1	https://nptel.ac.in/courses/110/105/110105139/	

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	M	M	S	S	S	M	M	S	S
CO3	S	S	S	S	S	S	S	S	S	S
CO3	M	S	S	M	S	M	S	S	M	S
CO4	S	S	S	S	M	S	S	S	S	M
CO5	S	M	M	S	S	S	M	M	S	S

*S-Strong; M-Medium; L-Low

Course code		MODERN OFFICE MANAGEMENT FOR BBA	L	T	P	C
Elective- I (B)			5	-	-	4
Pre-requisite		Basic Computer Knowledge	Syllabus Version		First	

Course Objectives:

To enable the students learn about the Office management and its functions and make them to apply in the practical manner in the company. To understand how to organize their office and maintain it.To train students in the theoretical and practice skills of using and maintaining office equipment's. To make the students aware of the importance of organization, management, procedure¬ and practice in an office

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Outline the different categories of chart against tabulated data in an electronic spreadsheet package.	K1
2	Become efficient Computer Operators and Front Office Representatives	K2
3	Apply the need of the industrial houses and organisations in term of commercial correspondence, book keeping, preparation of reports and records by operating and handling both typewriter and computer.	K3
4	Practice modern office procedures in business administration and solve problems to make the service or products more competitive.	K4
5	Design a desk top publishing page which contains text, chart and graphics	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	OFFICE MANAGEMENT AND ORGANIZATION	12-- hours

Basic concepts of office – Importance – Functions – size of the office – office management – relations with other departments – scientific office management – office manager - principles of office organization – types / systems of organization – charts – centralization Vs. decentralization.

Unit:2	OFFICE ENVIRONMENT & COMMUNICATION	12-- hours

Office location – characteristics / Qualities of office building – Environment – Physical – hazards in office safety – security – secrecy – communication – meaning – essential features – classification – barriers to communication.

Unit:3	OFFICE CORRESPONDENCE & RECORD MANAGEMENT	11 - hours

Centralized Vs Departmental correspondence – depart mental typing and typing pools – classification of records – principles of record keeping – filling – methods.

Unit:4	OFFICE SYSTEMS & PROCEDURES	11-- hours

Systems – procedure – Advantages – Characteristics of sound office system& procedures– work simplification – principles – kinds of reports.		
Unit:5	**OFFICE PERSONNEL RELATIONS**	**12-- hours**
Personnel management – definitions – functions –office committees- employee morale – productivity – Employee welfare – grievances – work measurement – control of office work.		
Unit:6	**CONTEMPORARY ISSUES**	**02 - hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**60-- hours**

Text Book(s)	
1	S.P.Arrora -Office organization and management- Vikas publishing housenov,2009
2	Chopra-Office management-Vikas publishing house 2nd revised edition,2015
Reference Books	
1	M.E. Thukaram Rao-Office management and organization-atlantic publishers and distributers,2000
2	Ranjan Nangia -Office management- - Neha Publishers crescent publishing corporation,2012
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://onlinecourses.swayam2.ac.in/cec19_mg35/preview
Course Designed By: **Dr. P.KOMARASAMY , pkskv@rediffmail.com**	

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	M	M	S	S	S	M	M	S	S
CO3	S	S	S	S	S	S	S	S	S	S
CO3	M	S	S	M	S	M	S	S	M	S
CO4	S	S	S	S	M	S	S	S	S	M
CO5	S	M	M	S	S	S	M	M	S	S

*S-Strong; M-Medium; L-Low

Course code		COMPANY LAW AND SECRETARIAL PRACTICE FOR BBA	L	T	P	C
Elective- I (C)			5	-	-	4
Pre-requisite		Business Law	Syllabus Version		First	

Course Objectives:

The main objectives of this course are:

1. To enlighten students' knowledge on Companies Act.
2. To develop an understanding of the regulation of registered companies.
3. To provide thorough understanding of the various provisions of the Indian Company Law
4. To provide conceptual understanding of the memorandum of association and article of association, prospectus and contents of prospectus.
5. To provide the knowledge of the role of Directors and Secretary, Meetings and Proceedings and Winding Up Procedures of the Company.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	To know the concept of Company, Memorandum of Association and Article of Association, Shares and Debentures.	**K2**
2	To know the qualification of Directors, Powers and Duties.	**K3**
3	To know the Position of a Secretary of the Company.	**K3**
4	Understand the Kinds of Meeting and Drafting Correspondence	**K6**
5	Understand the Meeting and Winding Up Procedures.	**K3**

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	**FORMATION OF COMPANIES**	**12 Hours**

Formation of Companies: Promotion – Meaning – Promoters – their functions – Duties of Promoters – Incorporation – Certificate of Incorporation – Memorandum of Association – Purpose – Alteration of Memorandum – Doctrine of Ultravires – Articles of Association – Forms – Contents – Alteration of Article – Relationship between Articles and Memorandum – Doctrine of Indoor Management – Exceptions to Doctrine of Indoor Management – Prospectus – Definitions – Contents – Deemed Prospectus – Misstatement in Prospectus – Kinds of Shares and Debentures.

Unit:2	**APPOINTMENT OF DIRECTORS**	**11 Hours**

Directors – Qualification and Disqualification of Directors – Appointment of Directors – Removal of Directors – Director's remuneration – Powers of Directors – Duties of Directors – Liabilities of Directors.

Unit:3	**ROLE OF COMPANY SECRETARY**	**12 Hours**

Company Secretary – Who is a Secretary – Types – Positions – Qualities – Qualifications – Appointments and Dismissals – Power – Rights – Duties – Liabilities of a Company

Secretary – Role of a Company Secretary – (1) As a Statutory Officer, (2) As a Co-Coordinator, (3) As an Administrative Officer.		
Unit:4	**MEETINGS AND PROCEEDINGS**	**12 Hours**
Kinds of Company Meetings – Board of Directors Meeting – Statutory meeting – Annual General Meeting – Extra Ordinary General Meeting - Duties of a Company Secretary to all the Company Meetings – Drafting of Correspondence – Relating to the Meetings – Notices – Agenda – Chairman's Speech – Writing of Minutes.		
Unit:5	**WINDING UP PROCEDURES**	**11 Hours**
Winding up – Modes of Winding up – Compulsory Winding up by the Court – Voluntary Winding up – Types of Voluntary Winding Up – Members Voluntary Winding up – Creditors voluntary Winding up – Winding up subject to supervision of the court – Consequences of Winding up(General).		
Unit:4	**Contemporary Issues**	**2 Hours**
Expert lectures, online seminars – webinars		
		Total Lecture Hours: 60 Hours

Text Book(s)	
1	Kapoor N.D., Elements of Company Law, Sultan Chand Publications, 2014.
2	Ghosh P.K &Balachandran .V, Company Law and Practice, Sultan Chand and Sons, 2014.
Reference Books	
1	M. C. Shukla and S. S. Gulshan, Principles of Company Law, S.Chand& Co.,
2	SangeethKedia, Advanced Company Law and Practice, Pooja Law Publishing co, 2017.
3	M. C. Kuchhal, Secretarial Practice, Vikas Publications.
Online Content	
https://onlinecourses.swayam2.ac.in/cec20_hs23/preview	
Course Designed By: Dr. V. Savitha	

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	M	M	S	S	S	M	M	S	S
CO3	S	S	S	S	S	S	S	S	S	S
CO3	M	S	S	M	S	M	S	S	M	S
CO4	S	S	S	S	M	S	S	S	S	M
CO5	S	M	M	S	S	S	M	M	S	S

*S-Strong; M-Medium; L-Low

Course code		CUSTOMER RELATIONSHIP MANAGEMENT FOR BBA ,BBA IB AND BBA RM	L	T	P	C
Elective- I (D)			5	-	-	4
Pre-requiste		Marketing Management	Syllabus Revison		First	

Course Objectives: : To enable the students to learn the basics of Customer Relationship Management

Objectives: On successful completion of the course the students should have:

1. Understood Relationship Marketing
2. Learnt Sales Force Automation
3. Learnt Database Marketing

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the Basics of Relationship Marketing	**K2**
2	Understand CRM	**K2**
3	Understand Sales Force Automation	**K2**
4	Understand Value chain	**K2**
5	Understand Marketing Database	**K2**

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	**Basics of Relationship Marketing**	**12 Hous**

Overview of Relationship marketing – Basis of building relationship – Types of relationship marketing – customer life cycle

Unit:2	**Introduction to CRM**	**12 Hours**

CRM – Overview and evolution of the concept – CRM and Relationship marketing – CRM strategy – importance of customer divisibility in CRM

Unit:3	**Sales Force Automation**	**11 Hours**

Sales Force Automation – contact management – concept – Enterprise Marketing Management – core beliefs – CRM in India

Unit:4	**Value chain and Vendor selection**	**11 Hours**

Value Chain – concept – Integration Business Management – Benchmarks and Metrics – culture change – alignment with customer eco system – Vendor selection

Unit:5	**Marketing Database**	**12 Hours**

Database Marketing – Prospect database – Data warehouse and Data Mining – analysis of customer relationship technologies – Best practices in marketing Technology – Indian scenario.

Contemporary Issues **2 Hours**

Expert lectures, online seminars – webinars

Total Lecture Hours: 60 hours

Reference Books

1	S. Shajahan – Relationship Marketing – McGraw Hill, 1997
2.	Paul Green Berg – CRM – Tata McGraw Hill, 2002 Philip Kotler marketing management
	Online content
	https://onlinecourses.swayam2.ac.in/imb19_mg10/preview

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	M	M	S	S	S	M	M	S	S
CO3	S	S	S	S	S	S	S	S	S	S
CO3	M	S	S	M	S	M	S	S	M	S
CO4	S	S	S	S	M	S	S	S	S	M
CO5	S	M	M	S	S	S	M	M	S	S

*S-Strong; M-Medium; L-Low

Course code		INTRODUCTION TO INDUSTRY 4.0 FOR BBA, BBA CA, BBA RM AND BBA IB	L	T	P	C
Elective- I (E)			5			4
Pre-requisite		Nil	Syllabus Version		First	

Course Objectives:

At the end of completing this course, students will have knowledge on Industry 4.0, need for digital transformation and the following Industry 4.0 tools:

1. Artificial Intelligence
2. Big Data and DataAnalytics
3. Internet ofThings

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the drivers and enablers of Industry 4.0	K2
2	Appreciate the smartness in Smart Factories, Smart cities, smart products and smart services	K2
3	Able to outline the various systems used in a manufacturing plant and their role in an Industry 4.0 world	K3
4	Appreciate the power of Cloud Computing in a networked economy	K4
5	Understand the opportunities, challenges brought about by Industry 4.0 and how organisations and individuals should prepare to reap the benefits	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	Industry 4.0	11-- hours

Need – Reason for Adopting Industry 4.0 - Definition – Goals and Design Principles - Technologies of Industry 4.0 – Big Data – Artificial Intelligence (AI) – Industrial Internet of Things - Cyber Security – Cloud – Augmented Reality

Unit:2	Artificial Intelligence	11-- hours

Artificial Intelligence : Artificial Intelligence (AI) – What & Why? - History of AI - Foundations of AI -The AI - environment - Societal Influences of AI - Application Domains and Tools - Associated Technologies of AI - Future Prospects of AI - Challenges of AI

Unit:3	Big Data and IoT	12-- hours

Big Data : Evolution - Data Evolution - Data : Terminologies - Big Data Definitions - Essential of Big Data in Industry 4.0 - Big Data Merits and Advantages - Big Data Components : Big Data Characteristics - Big Data Processing Frameworks - Big Data Applications - Big Data Tools - Big Data Domain Stack : Big Data in Data Science - Big Data in IoT - Big Data in Machine Learning - Big Data in Databases - Big Data Use cases

Big Data in Social Causes - Big Data for Industry -Big Data Roles and Skills -Big Data Roles - Learning Platforms; Internet of Things (IoT) : Introduction to IoT - Architecture of IoT -

Technologies for IoT - Developing IoT Applications - Applications of IoT - Security inIoT		
Unit:4	**Applications and Tools of Industry 4.0**	**12-- hours**
Applications of IoT – Manufacturing – Healthcare – Education – Aerospace and Defense – Agriculture – Transportations and Logistics – Impact of Industry 4.0 on Society: Impact on Business, Government, People. Tools for Artificial Intelligence, Big Data and Data Analytics, Virtual Reality, Augmented Reality, IoT, Robotics		
Unit:5	**Jobs 2030**	**12-- hours**
Industry 4.0 – Education 4.0 – Curriculum 4.0 – Faculty 4.0 – Skills required for Future - Tools for Education – Artificial Intelligence Jobs in 2030 – Jobs 2030 - Framework for aligning Education with Industry 4.0		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**60-- hours**

Text Book(s)	
1	P. Kaliraj,T.Devi, Higher Education for Industry 4.0 and Transformation to Education 5.0,2020
Reference Books	
1	Alasdair Gilchrist, Industry 4.0: The Industrial Internet of Things, APRESS
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://onlinecourses.nptel.ac.in/noc20_cs69/preview

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	M	M	S	S	S	M	M	S	S
CO3	S	S	S	S	S	S	S	S	S	S
CO3	M	S	S	M	S	M	S	S	M	S
CO4	S	S	S	S	M	S	S	S	S	M
CO5	S	M	M	S	S	S	M	M	S	S

*S-Strong; M-Medium; L-Low

Course code		BANKING LAW AND PRACTICE FOR BBA	L	T	P	C
Elective- II (A)			5	-	-	4
Pre-requisite		Business Law and Taxation Law	Syllabus Version		First	

Course Objectives:

To enlighten the students knowledge on Banking Regulation Acts.
Understand the features of Indian Banking System
To Know the significant contribution of different types of banks
Appreciate how important banking services for the economy

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Demonstrate knowledge among the students with theoretical structures about banking.	K2
2	Train and equip the students with the skills of modern banking.	K1
3	Identify the students will be taken for trainings to banks and insurance companies.	K2
4	Develop and inculcate the traits of professionalism amongst the students	K3
5	Professional attire, professional communication skills and professional discipline will be inculcated	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	Banker and Customer	12-- hours

Definition of banker and customer – Relationships between banker and customer – special feature of RBI, Banking regulation Act 1949. RBI credit control Measure – Secrecy of customer Account..

Unit:2	Banker Operations	11-- hours

Opening of account – special types of customer – types of deposit – Bank Pass book – collection of banker – banker lien - KYC Norms

Unit:3	Cheque and Legal Implications	12-- hours

Cheque – features essentials of valid cheque – crossing – making and endorsement – payment of cheques statutory protection duties to paying banker and collective banker - refusal of payment cheques Duties holder & holder id due course.

Unit:4	Loans and Advances	12-- hours

Loan and advances by commercial bank lending policies of commercial bank - Forms of securities – lien pledge hypothecation and advance against the documents of title to goods – mortgage.

Unit:5	Title of the Unit (Capitalize each Word)	11 -- hours

Position of surety – Letter of credit – Bills and supply bill. Purchase and discounting bill Traveling cheque, credit card, Teller system.		
Unit:6	**Contemporary Issues**	**02 - hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**60 -- hours**

Text Book(s)	
1	A.B. Srivastava and : Seth's Banking Law, Law Publisher's India (P) Limited K. Elumalai
2	R.K. Gupta : BANKING Law and Practice in 3 Vols.Modern Law Publications
Reference Books	
1	Sundharam and Varshney, Banking theory Law & Practice, Sultan Chand & Sons., New Delhi.
2	Reddy &Appanniah : Banking Theory and Practice
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://nptel.ac.in/courses/110/106/110106040/
2	https://alison.com/course/introduction-to-banking
Course Designed By: **Dr. P.KOMARASAMY , pkskv@rediffmail.com**	

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	M	M	S	S	S	M	M	S	S
CO3	S	S	S	S	S	S	S	S	S	S
CO3	M	S	S	M	S	M	S	S	M	S
CO4	S	S	S	S	M	S	S	S	S	M
CO5	S	M	M	S	S	S	M	M	S	S

*S-Strong; M-Medium; L-Low

Course code		INDUSTRIAL RELATIONS AND LABOUR LAW FOR BBA BBA CA BBA IB &BBA RM	L	T	P	C
Elective- II (B)			5	-	-	4
Pre-requisite		Human Resource Mangement	Syllabus Version		First	

Course Objectives:

The main objectives of this course are to:

1. To impact knowledge on industrial relation, determines of industrial relation and industrial relation scenario in India
2. To enable the students to acquire knowledge of trade unions, legislation related to trade union and IR management
3. To promote the understanding of various Industrial Disputes Act, The Payment of Wages Act and Factories Act

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Develop an understanding on industrial relation determinates of IR and IR scenario in India.	K1
2	Develop skill in negotiation with unions and conflict resolution.	K2
3	Handle grievances.	K3
4	Develop skill in collective bargaining.	K4
5	Know the application of Industrial dispute Act 1947and The Employee's State Insurance Act, 1948.	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	INTRODUCTION TO INDUSTRIAL RELATIONS	12-- hours

Industrial relations - industrial disputes - causes - handling and settling disputes - employee grievances - steps in grievance handling - causes for poor industrial relations - remedies.

Unit:2	COLLECTIVE BARGAINING AND WORKER'S PARTICIPATION	12-- hours

Collective Bargaining: - Concept - Principles and forms of collective bargaining - Procedure - conditions for effective collective bargaining - worker's Participation in management.

Unit:3	FACTORIES ACT AND THE WORKMAN'S COMPENSATION ACT	11-- hours

Factories Act 1948 - The Workman's Compensation Act, 1923.

Unit:4	THE INDUSTRIAL DISPUTES ACT AND THE TRADE UNION ACT	11-- hours

The Industrial Disputes Act 1947 - The Trade Union Act, 1926.

Unit:5	**THE PAYMENT OF WAGES ACT AND THE EMPLOYEE'S STATE INSURANCE ACT**	**12-- hours**
The Payment of Wages Act,1936 - The Employee's State Insurance Act, 1948		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**60-- hours**

Text Book(s)	
1	P.C.Tripathi - Personnel Management & Industrial Relation
2	B.Nandhakumar - Industrial Relations Labour Welfare and Labour Laws –Vijay Nicole Imprints
3	N.D Kapoor – Industrial Law.
Reference Books	
1	R.Venkatapathy&AssissiMenachery - Industrial Relations &Labour Legislation - Aditya Publishers.
2	Srivastava - Industrial Relations and Labour Laws, vikas 4th Edition, 2008.
3	P.Subbarao - Essentials of Human Resource Management and Industrial Relations – Himalaya Publishers
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://onlinecourses.swayam2.ac.in/nou20_mg02/preview

Mapping with Programme Outcomes

COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	M	S	S	S	S	M	S	S	S	S
CO3	S	M	S	S	S	S	M	S	S	S
CO3	S	S	S	M	S	S	S	S	M	S
CO4	S	S	M	S	S	S	S	M	S	S
CO5	S	S	S	S	M	S	S	S	S	M

*S-Strong; M-Medium; L-Low

Course code		INSURANCE PRINCIPLES AND PRACTICE FOR BBA/BBA (CA)	L	T	P	C
Elective- II (C)			5	-	-	4
Pre-requisite		Financial Management	Syllabus Version		First	

Course Objectives:

The main objectives of this course are to:
1. This course intends to provide a basic understanding of the insurance mechanism, risk insurance, insurance market operations, and insurance contracts.
2. An overview of major life insurance and general insurance products are discussed.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Examine the risk and relevance involved in insurance industry and to suggest the importance of insurance.	K1
2	Explain the importance of life insurance, terms and conditions of insurance, contract and products.	K2
3	Insight the knowledge of general insurance practice, laws, terms and conditions, claim and procedure of insurance.	K3
4	Differentiate the fire and marine insurance, general insurance, loss and recover. To study the terms and conditions of insurance.	K4
5	To Evaluate other business insurances and practices of Health insurance in Indian climate.	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	CONCEPT OF RISK IN INSURANCE & IRDA	12-- hours

Defining Risk and Uncertainty - Classification of risk - Management of risk – loss minimization techniques. Insurance - Meaning, nature and significance of Insurance, Insurance market, principles of insurance; Evaluation insurance business in India; Insurance Regulatory Development Authority (IRDA) – Recent Developments in the Insurance sector.

Unit:2	LIFE INSURANCE	12-- hours

Life Insurance - Law relating to life Insurance; General Principles of Life Insurance Contract - different products offered by life insurers- Premiums and bonuses - Assignment, Nomination and Surrender of policy - Policy claims; ULIPs; Postal Life Insurance; LIC - Role and functions.

Unit:3	GENERAL INSURANCE	12-- hours

General Insurance - Law relating to general insurance; different types of general insurance; general insurance Vs life insurance; Proposal form- Cover notes – Endorsement. Underwriting policy; Role of Actuary; Renewal procedure; Claims – Surveyors and loss assessors. Reinsurance - Function of General Insurance Corporation of India.

Unit:4	**FIRE & MARINE INSURANCE CLAIMS**	**11-- hours**
Fire insurance - various types of fire policy ; coverage's; subrogation; double insurance; contribution; proximate cause; claims of recovery. Marine Insurance - Law relating to marine insurance; scope and nature; types of policy; insurable interest; disclosure and representation; insured perils; proximity cause; voyage; warranties; measurement; subrogation; contribution; under insurance.		
Unit:5	**MISCELLANEOUS INSURANCE**	**11-- hours**
Miscellaneous Coverages - Motor Insurance - Liability only policy - Package policy. Nature, terms and conditions of Health Insurance - Personal Accident insurance - Burglary insurance - Legal Liability insurance- Engineering insurance - Rural insurances - Micro insurance.		
Unit:6	**CONTEMPORARY ISSUES**	**2 -hours**
Expert lectures, online seminars – webinars		
Recent Trends in Insurance Industry		
	Total Lecture hours	**60 -- hours**

Text Book(s)	
1	M. N., Mishra, "Insurance Principles and Practice", S. Chand and Company Limited, New Delhi (2004).
2	Periasamy, P., "Principles and Practices of Insurance", Himalaya Publishing House, Mumbai (2005).
Reference Books	
1	Gupta, P.K., "Insurance and Risk Management", Himalaya Publishing House, Mumbai (2004).
2	Insurance Institute of India – Study Materials IC 01, 02 & 11.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	Fundamental of Insurance: CEC and Madurai Kamaraj University, Madurai, Tamil Nadu via Swayam,
Course Designed By: Dr. P.KOMARASAMY , pkskv@rediffmail.com	

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	S	S	M	S	S	S	S	M
CO3	M	S	M	S	S	M	S	M	S	S
CO3	S	S	S	S	S	S	S	S	S	S
CO4	S	M	S	M	S	S	M	S	M	S
CO5	S	S	S	S	M	S	S	S	S	M

*S-Strong; M-Medium; L-Low

Course code		CONSUMER BEHAVIOUR FOR BBA, BBA IB AND BBA RM	L	T	P	C
Elective- II (D)			5	-	-	4
Pre-requisite		Marketing Management	Syllabus Version		First	

Course Objectives:

1. . Present material relating to the topics both verbally and in written form.
2. By completing this course, students will: Appreciate the challenges facing in consumer behaviour;
3. Appreciate the various variables contributing to consumer behaviour
4. Recognise the approaches towards consumer satisfaction.
5. Define and illustrate the main components of consumer behaviour theory.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Identify the major influences in consumer behaviour	K2
2	Distinguish between different consumer behaviour influences and their relationships	K2
3	Establish the relevance of consumer behaviour theories and concepts to marketing decisions	K3
4	Implement appropriate combinations of theories and concepts	K4
5	Recognise social and ethical implications of marketing actions on consumer behaviour	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	INTRODUCTION	11-- hours

Introduction - Consumer Behaviour — definition - scope of consumer behaviour — Discipline of consumer behaviour — Customer Value Satisfaction — Retention — Marketing ethics.

Unit:2	CONSUMER RESEARCH	11-- hours

Consumer research — Paradigms — The process of consumer research - consumer motivation — dynamics — types — measurement of motives — consumer perception

Unit:3	CONSUMER LEARNING	12-- hours

Consumer Learning — Behavioural learning theories — Measures of consumer learning — Consumer attitude — formation — Strategies for attitude change

Unit:4	SOCIAL CLASS CONSUMER BEHAVIOUR	12-- hours

Social class Consumer Behaviour — Life style Profiles of consumer classes — Cross Cultural Customers Behaviour Strategies.

Unit:5	**CONSUMER DECISION MAKING**	**12-- hours**
Consumer Decision Making — Opinion Leadership — Dynamics — Types of consumer decision making — A Model of Consumer Decision Making		
Unit:6	**CONTEMPORARY ISSUES**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**60-- hours**

Text Book(s)	
1	Leon G. Schiffman and Leslie Lazar Kanuk, Consumer Behaviour, Prentice -Hall of India, Sixth Edition, 1998.

Reference Books	
1	Paul Green Berg-Customer Relationship Management -Tata McGraw Hill , 2002
2	Barry Berman and Joel R Evans — Retail Management — A Strategic Approach-Prentice Hall of India, Tenth Edition, 2006
3	Gibson G Vedamani — Retail Management — Functional Principles and Practice, Jaico Publishing House, Second Edition, 2004

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://onlinecourses.nptel.ac.in/noc20_mg14/preview

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	M	M	S	S	S	M	M	S	S
CO3	S	S	S	S	S	S	S	S	S	S
CO3	M	S	S	M	S	M	S	S	M	S
CO4	S	S	S	S	M	S	S	S	S	M
CO5	S	M	M	S	S	S	M	M	S	S

*S-Strong; M-Medium; L-Low

.

Course code		BIG DATA ANALYTICS FOR BBA ,BBA CA ,BBA IB AND BBA RM	L	T	P	C
Elective- II (E)			5	-	-	4
Pre-requisite		Quantitative techniques for Management	Syllabus Version		First	

Course Objectives:

The main goal of this course is to help students learn, understand, and practice big data analytics and machine learning approaches, which include the study of modern computing big data technologies and scaling up machine learning techniques focusing on industry applications. Mainly the course objectives are: conceptualization and summarization of bigdata and machine learning, trivial data versus big data, big data computing technologies, machine learning techniques, and scaling up machine learning approaches.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Identify and distinguish big data analytics applications	K2
2	Describe big data analytics tools	K2
3	Explain big data analytics techniques	K3
4	Present cases involving big data analytics in solving practical problems	K4
5	Conduct big data analytics using system tools and Suggest appropriate solutions to big data analytics problems	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	INTRODUCTION	11-- hours

Introduction – Data – Information – Data Terminologies – Database – Data Mining – Data Warehouse – Data Evolution Roadmap – Big Data – Definition – Type of Data - Numeric – Categorical – Graphical – High Dimensional Data — Data Classification – Hot Data – Cold Data – Warm Data – Thick Data – Thin Data - Classification of digital Data: Structured, Semi-Structured and Un-Structured- Data Sources - Time Series – Transactional Data – Biological Data – Spatial Data – Social Network Data

Unit:2	DATA SCIENCE	11-- hours

Data Science-A Discipline – Data Science vs Statistics, Data Science vs Mathematics, Data Science vs Programming Language, Data Science vs Database, Data Science vs Machine Learning. Data Analytics - – Relation: Data Science, Analytics, Big Data Analytics. Data Science Components: Data Engineering, Data Analytics-Methods and Algorithm, Data Visualization

Unit:3	BIG DATA	12-- hours

Digital Data-an Imprint: Evolution of Big Data – What is Big Data – Sources of Big Data. Characteristics of Big Data 6Vs – Big Data Myths - Data Discovery-Traditional Approach, Big Data Technology: Big Data Technology Process – Big Data Exploration - Data Augmentation – Operational Analysis – 360 View of Customers – Security and Intelligence

Unit:4	**BIG DATA TECHNOLOGY**	**12-- hours**
Big Data Technology Potentials – AI – Machine Learning – Cloud Computing – Mobile Communication – IoT – Big Data in Industry 4.0- Big Data Platforms – HADOOP – SPARK – No SQL Databases - Types - Big Data Challenges		
Unit:5	**BIG DATA USE CASES**	**12-- hours**
Big Data Roles Data Scientist , Data Architect, Data Analyst – Skills – Case Study : Big Data – Customer Insights – Behavioural Analysis – Big Data Industry Applications - Marketing – Retails – Insurance – Risk and Security – Health care		
Unit:6	**CONTEMPORARY ISSUES**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**60-- hours**

Text Book(s)	
1	Minelli, M. (2013), Big Data, Big Analytics, New Delhi: Wiley India.
Reference Books	
1	V. Bhuvaneswari, T. Devi, "Big Data Analytics: Scitech Publisher ,2018
2	Han Hu, Yonggang Wen, Tat-Seng, Chua, XuelongLi,"Toward Scalable Systemsfor Big Data Analytics: A Technology Tutorial", IEEE,2014.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://onlinecourses.nptel.ac.in/noc20_cs92/preview

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	M	M	S	S	S	M	M	S	S
CO3	S	S	S	S	S	S	S	S	S	S
CO3	M	S	S	M	S	M	S	S	M	S
CO4	S	S	S	S	M	S	S	S	S	M
CO5	S	M	M	S	S	S	M	M	S	S

*S-Strong; M-Medium; L-Low

Course code		E-COMMERCE FOR BBA, BBA CA ,BBA IB AND BBA RM	L	T	P	C
Elective- III (A)			5	-	-	4
Pre-requiste		Nil	Syllabus Revision		First	

Course Objectives:

The main objectives of this course are to:

1. To know about e-commerce models and its practical applications
2. To understand customer buying behaviour in e-commerce and ways to retain them through effective web advertising.
3. To know the role of Government in securing the rights of customers

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	To Understand e-commerce models -its benefits and limitations	K2
2	To use of market research tools in analyzing customer buying behavior	K3
3	To analyse the web advertising modes	K4
4	To understand the application of B2B e-commerce model	K2
5	To critically evaluate public policy on privacy and security	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	INTRODUCTION TO E-COMMERCE	11 Hours

Foundation of electronic Commerce :- Definition and content of the field – Driving force of EC-Impact of EC – Managerial Issues- Benefits and Limitations of EC Retailing in EC : :- Business models of E – marketing – Aiding comparison shopping - The impact of EC on Traditional Retailing System.

Unit:2	MARKET RESEARCH	12 Hours

Internet Consumers and market Research: - The consumer behavior model – Personal Characteristics and the Demographics of internet Surfers - Consumer Purchasing Decision making - One – to – One Relationship marketing - Delivering Customer Service in Cyberspace – Marketing research of EC-Intelligent Agents for Consumers – Organizational Buyer Behavior.

Unit:3	WEB ADVERTISING	12 Hours

Advertisement in EC :- Web Advertising – Advertisement Methods – Advertisement Strategies – Push Technology and Intelligent Agents – Economics and Effectiveness of Advertisement – Online Catalogs. Internet and Extranet :- Architecture of Intranet and External :- Applications of Intranet and Extranet

Unit:4	B2B EC MODEL	12 Hours

Business – to – Business Electronic Commerce : Characteristics of B2B EC- Model–

Procurement Management Using the Buyer‘s Internal Market Place – Supplier and Buyer Oriented Marketplace – Other B2B Models Auctions – and Service – Integration with back End Information System _ The Role of S/W Agents in B2B – Electronic Marketing in B2B.		
Unit:5	**PUBLIC POLICY**	**11 Hours**
Public Policy : From Legal Issues to Privacy :- Legal, Ethical and Other Public Policy Issues – Protecting Privacy – Free Speech , Internet Indecency Censorship – Taxation and Encryption Policies and Seller Protection in EC.		
Unit:6	**CONTEMPORARY ISSUES**	**2 hours**
Expert lectures, online seminars – webinars		
		Total Lecture Hours: 60 Hours
Text Books:		
1	**Kalakotta, Elements of E Commerce**	
Reference books		
1	Efraim Turbun, Jae Lee, David King, H. Michael Chung ―Electronic Commerce – A Managerial Perspective , Pearson Education Asia – 2000.	
Online Content		
https://onlinecourses.swayam2.ac.in/cec19_cm01/preview		

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	M	M	S	S	S	M	M	S	S
CO3	S	S	S	S	S	S	S	S	S	S
CO3	S	S	M	S	S	S	S	M	S	S
CO4	S	S	S	S	S	S	S	S	S	S
CO5	S	S	S	M	S	S	S	S	M	S

*S-Strong; M-Medium; L-Low

Course code		FINANCIAL SERVICES For BBA/BBA(CA)/BBA(IB)	L	T	P	C
Elective- III (C)			5	-	-	4
Pre-requisite		Financial Management	Syllabus Version		First	

Course Objectives:

On successful completion of the course the students should have:
To learn the various financial services provided by NBFCs.
To understand the modes of raising capital from domestic and foreign market.
To evaluate feasibility of projects on hire purchase and leasing.
To study and understand mutual funds, venture capital, merges and appreciation along with other financial services.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Identify and distinguish big data analytics applications	K2
2	Describe big data analytics tools	K2
3	Explain big data analytics techniques	K3
4	Present cases involving big data analytics in solving practical problems	K4
5	Conduct big data analytics using system tools and Suggest appropriate solutions to big data analytics problems	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1		**11-- hours**

Financial Services –Introduction, Fee Based and Fund Based Financial Services, NBFC's in India-types

Unit:2		**11-- hours**

Hire Purchase - Concept - evaluation of Hire Purchase Proposals. Leasing - Lease Accounting - Types of leases

Unit:3		**12-- hours**

Mutual funds - operations performances, regulation - SEBI guidelines for mutual funds.

Unit:4		**12-- hours**

Other financial services. Venture Capital - Factoring - credit rating - Depositories.

Unit:5		**12-- hours**

Merchant Banking - Functions – Pre Issues and Post Issue Management - SEBI guidelines on merchant banking in India.- FinTech and recent developments in India

Unit:6	**CONTEMPORARY ISSUES**	**2 hours**

Expert lectures, online seminars – webinars

	Total Lecture hours	**60-- hours**
Text Book(s)		
1	M.Y.Khan, Indian Financial Systems.	
2	K.Sriram, Hand Book of Leasing Hire Purchase & Factoring.	
Reference Books		
1	R.M.Srivastava, Indian Financial System.	
2	Rajas Parashine and Ashok Kumar, Introduction to Lease Financing. T.SundarRajan, Merchant Banking.	
3	R.M.Srivastava, Indian Financial System.	
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]		
1	https://onlinecourses.swayam2.ac.in/cec20_mg10/preview	

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	S	S	S	S	M	S	S	M
CO3	S	M	S	M	S	S	S	S	S	S
CO3	S	S	S	S	S	M	S	S	M	S
CO4	S	S	S	S	M	S	S	M	S	S
CO5	M	S	M	S	S	S	S	S	S	S

*S-Strong; M-Medium; L-Low

Course code		GLOBAL BUSINESS MANAGEMENT FOR BBA ,BBA IB AND BBA RM	L	T	P	C
Elective- III (C)			5	-	-	4
Pre-requisite		Basiscs of Business and Business Environment	Syllabus Version		First	

Course Objectives:

The main objectives of this course are to:

1. To understand the fundamental concepts of international trade
2. Enhance the students to know about various export documents
3. Assist the students in proper utilisation and evaluation of the export financing

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the fundamental concepts pattern of international trade.	K1
2	Developing knowledge on Indian institutional assistance for export promotion.	K2
3	Knowing export procedures and incentives.	K3
4	Develop skill in obtaining export finance.	K4
5	Evaluating international agencies.	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	INTRODUCTION TO INTERNATIONAL TRADE	12-- hours

Need and relevance-international trade – current pattern of India's foreign trade and world trade-India's trade-trends-composition-volume and direction-traditional and nontraditional products-brief background of import trade-future.

Unit:2	EXPORT PROMOTION AND POLICY	12-- hours

Indian institutional assistance for export promotion – export policy – features – policy measures – infrastructure set up and aids – expert promotion council – commodity boards – board of trade – trade development authority – FIFO, IIFT, Export inspection council, STC, Export houses.

Unit:3	EXPORT PROCEDURE AND DOCUMENTS	11-- hours

Export procedures-offer and receipt of confirmed orders – production – shipping and banking procedure – negotiation-documents for export trade –export incentives.

Unit:4	EXPORT FINANCING	12-- hours

Export financing – procedure for pre-shipment finance-post shipment finance-terms of payment in international trade-letter of credit-features and types-medium and long term loans. ECGC-functions and policies.

Unit:5	AGENCIES OF INTENATIONAL TRADE	11-- hours

International agencies and agreement – IMF-World Bank – functions and features – WTO features-import policy features.

Unit:6	Contemporary Issues	2 hours

Expert lectures, online seminars – webinars

	Total Lecture hours	60-- hours

Text Book(s)

1	TAS Balagopal - Export Management
2	P.Boominathan - Global business Management-Thakur Publishers
3	D C Kapoor- Export Management, Vikas Publishing House Pvt Ltd
Reference Books	
1	S K Varghese - Foreign Exchange and Financing of Foreign Trade
2	Y R Ullal - Export Management
3	Francis Cherunilam - International Trade and Export Management
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://onlinecourses.swayam2.ac.in/cec20_mg12/preview

Mapping with Programme Outcomes

COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**
CO1	S	M	S	S	S
CO3	M	S	S	S	S
CO3	S	S	S	M	S
CO4	S	S	M	S	S
CO5	S	S	S	S	M

*S-Strong; M-Medium; L-Low

Course code		ARTIFICIAL INTELLIGENCE FOR BBA, BBA CA, BBA RM AND BBA IB	L	T	P	C
Elective- III (E)			5	-	-	4
Pre-requisite		Basic Computer Knowledge	Syllabus Version		First	

Course Objectives:

This course will give an opportunity to gain expertise in one of the most fascinating and fastest growing areas of Computer Science through classroom program that covers fascinating and compelling topics related to human intelligence and its applications in industry, defense, healthcare, agriculture and many other areas. This course will give the students a rigorous, advanced and professional graduate-level foundation in Artificial Intelligence.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Define the concept and pros &cons of franchisee option	K1
2	Identify legal formalities & process of franchisee	K1
3	Develop relationship between Franchisor &franchisee; Resolve the conflict between franchisor & franchisee.	K2
4	Develop Franchisee marketing plan	K2
5	Analyze the way to enter into International Market entry strategies	K3

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	Introduction	11-- hours

Introduction to Artificial Intelligence, Foundations and History of Artificial Intelligence, Applications of Artificial Intelligence, Intelligent Agents, Structure of Intelligent Agents. Computer vision, Natural Language Possessing.

Unit:2	Introduction to Search	11-- hours

Searching for solutions, Uniformed search strategies, Informed search strategies, Local search algorithms and optimistic problems, Adversarial Search, Search for games, Alpha – Beta pruning.

Unit:3	Knowledge Representation & Reasoning	12-- hours

Propositional logic, Theory of first order logic, Inference in First order logic, Forward & Backward chaining, Resolution, Probabilistic reasoning, Utility theory, Hidden Markov Models (HMM), Bayesian Networks.

Unit:4	Machine Learning	12-- hours

Supervised and unsupervised learning, Decision trees, Statistical learning models, Learningwith complete data – Naive Bayes models, Learning with hidden data – EM algorithm, Reinforcement learning.

Unit:5	Pattern Recognition	12-- hours
Introduction, Design principles of pattern recognition system, Statistical Pattern recognition, Parameter estimation methods – Principle Component Analysis (PCA) and Linear Discriminate Analysis (LDA), Classification Techniques – Nearest Neighbour (NN) Rule, Bayes Classifier, Support Vector Machine (SVM), K – means clustering.		
Unit:6	**CONTEMPORARY ISSUES**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**60-- hours**

Text Book(s)	
1	Artificial Intelligence – A Modern Approach – Stuart Russell and Peter Norvig, Pearson Education.
2	Artificial Intelligence – Elaine Rich and Kevin Knight, McGraw-Hill
Reference Books	
1	Introduction to Artificial Intelligence – E Charniak and D McDermott, Pearson Education
2	Artificial Intelligence and Expert Systems – Dan W. Patterson, Prentice Hall of India
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://onlinecourses.swayam2.ac.in/cec20_cs10/preview

Mapping with Programme Outcomes

COS/POS	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	**S**	S	S	S	S	**S**	S	S	S	S
CO2	**S**	S	S	M	S	**S**	S	S	M	S
CO3	**S**	S	S	S	S	**S**	S	S	S	S
CO4	M	S	M	S	S	M	S	M	S	S
CO5	M	S	S	S	S	M	S	S	S	S

*S-Strong; M-Medium; L-Low

Skill Based Subjects

Bachelor of Business Administration (BBA) All streams
Skill Based Subjects I – IV from III to VI semester
Curriculum Framework

Need for the course

In order to effectively deploy the graduates for productive purposes of the society at large, it is imperative that the learners should equip themselves with effective communication skills. The lack of which could be a serious concern to all concerned. Developing explicitly this skill-set will definitely help in all other aspects such as learning the subjects, getting employment, excelling in higher studies. The need of the hour, therefore, is ensure adequate communicative power to empower the youth in all their spheres. The newly introduced subjects are communicative skill-set builders. Only with the whole-hearted support of the teaching fraternity, these practices-driven and exercises-oriented subjects can achieve the stated objectives.

Course framework

Sem	Subject Titles	Skill Components to be addressed
III	Communication Skills I	Listening and Speaking skill development
IV	Communication Skills II	Reading and Writing skill development
V	Campus to Corporate	Etiquettes; Attire-related niceties; quantitative aptitude building; and e-communicative skills
VI	Soft Skills for Business	Presentation, negotiation, team-working skills; Resume preparation; and facing interviews &GDs.

Course Objectives

- To give the learners extensive practices to develop the LSRW (Listening and Speaking; Reading and Writing) skill-set
- To develop soft skills among the learners enabling them to communicate as effectively and efficiently as possible while dealing with others viz. peers, subordinates, superiors, clients, customers in the organization.

Learning Outcomes

- To hone their speaking and writing skills by reinforcing their listening and reading skills and habituatingthem
- To assist in developing their personality
- To help the students in developing their communication skills through effective use of English To augment the areas such as business correspondence, presentation, group discussion, and interviews
- To focus on to a chosen career path.

Course Content: Skill based paper - I Semester III

Course code		COMMUNICATION SKILLS - I For BBA/BBA(CA)/BBA(IB)/BBA(RM)	L	T	P	C
		Skill Based Subject - 1	1	-	2	3
Pre-requisite		English	Syllabus Version		First	

Course Objectives:

The main objectives of this course are to:

1. Enable the students to clearly communicate with others.
2. Understand the nuances of communication.
3. Improve the vocabulary so as to make an effective communication.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Remember the core contents of any communication	K1
2	Understand the nuances of communication	K2
3	Able to understand and speak well in any situation	K3
4	Demonstrate a good command in responding to any queries	K4
5	Achieve the desired result of a good communication	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	**Listening**	**8 -- hours**

Communication, purpose and importance of communication, different parts of communication,
Listening, the purpose and importance of listening, attention to the speaker, making a gist of the speech - Exercises

Unit:2	**Listening to audio and video**	**9-- hours**

Listening to songs, poems, speech, lectures – Monologue and dialogue, queries and doubts, intervention techniques - Exercises

Unit:3	**Verbal and non-verbal communication**	**8-- hours**

Problems in listening, language issues, mother tongue slangs – non-verbal communication, body language - Exercises

Unit:4	**Speech**	**9-- hours**

Different types, conversation, dialogue, discussion, presentation, lecture, public addressing, voice, voice modulations, language slang, its importance - Exercises

Unit:5	**Meeting**	**9-- hours**

Business meets, speech content, conciseness, clarity and flow of communication, correctness, feedback and validation - Exercises

Unit:6	**CONTEMPORARY ISSUES**	**2- hours**

IELTS and other language tests

	Total Lecture hours	**45-- hours**

Text Book(s)	
1	Asha Kaul – Effective communication, PHI, 2nd Edition, 2015
2	Kumar Kul Bhushan, R S Salaria, Effective Communication Skills, Khanna Publishers, 2018
Reference Books	
1	Al Switzer, Joseph Grenny and ron McMillan, McGraw Hill Education, 2nd Edition, 2012
2	Allan Pease and Barbara Pease, The definitive book of Body Language, Manjul Publishing House Pvt Limited, 2005
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://learnenglish.britishcouncil.org/skills
2	
Course Designed By:	

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	S	S	M	S	S	S	S	M
CO3	S	S	M	S	S	S	S	M	S	S
CO3	S	M	S	M	S	S	M	S	M	S
CO4	S	S	S	M	S	S	S	S	M	S
CO5	S	S	S	S	S	S	S	S	S	S

*S-Strong; M-Medium; L-Low

Course Content: Skill based paper - II Semester IV

Course code		COMMUNICATION SKILLS II For BBA/BBA(CA)/BBA(IB)/BBA(RM)	L	T	P	C
		Skill Based Subject - 2	1	-	2	3
Pre-requisite		English	Syllabus Version		First	

Course Objectives:

The main objectives of this course are to:

1. Enable the students to clearly communicate with others in writing.
2. Understand the core content of communication.
3. Improve the vocabulary so as to make an effective communication.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Remember the core contents of any communication	K1
2	Understand the importance of good written communication	K2
3	Able to draft and write any type of documents	K3
4	Demonstrate a good command in responding to any queries	K4
5	Achieve the desired result of a good communication	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	**Reading**	**8 -- hours**

Reading, purpose and importance of reading, different types of print communications, Understanding the core content, making an abstract of the reading - Exercises

Unit:2	**Written documents**	**9-- hours**

Newspapers, story books, letters, instruction manuals – rule books, bye-laws, differences between different types of print communication - Exercises

Unit:3	**Writing**	**8-- hours**

Basics of functional grammar, drafting a document, different forms of documents, letter writing, report writing – Resume writing - Exercises

Unit:4	**Business Communication**	**9-- hours**

Meeting agenda, minutes, business correspondence, advertisements, investor meets, press report- Exercises

Unit:5	**Publications**	**9-- hours**

Company profile, notice, product manual, user manual, standard operating procedure, writing articles for magazines and journals, research reports, annual reports - Exercises

Unit:6	**CONTEMPORARY ISSUES**	**2- hours**

Legal documents and tax returns, preparation and validation

	Total Lecture hours	**45-- hours**

Text Book(s)

1	Jindagi Kumari, Communication Skills: Towards better writing, New Age International

	(P) Ltd. Publishers, 1st Edition 2019.
2	Gangal J K, A Practical course for developing writing skills in English, PHI Learning Pvt Ltd, 2011
Reference Books	
1	Mallika Nawal, Business Communication, Cengage Learning, 2nd Edition, 2019
2	
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://www.cambridgeenglish.org/learning-english/free-resources/write-and-improve/
2	
Course Designed By:	

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	S	S	M	S	S	S	S	M
CO3	S	S	M	S	S	S	S	M	S	S
CO3	S	M	S	M	S	S	M	S	M	S
CO4	S	S	S	M	S	S	S	S	M	S
CO5	S	S	S	S	S	S	S	S	S	S

*S-Strong; M-Medium; L-Low

Course Content: Skill based paper –III SemesterV

Course code		CAMPUS TO CORPORATE For BBA/BBA(CA)/BBA(IB)/BBA(RM)	L	T	P	C
		Skill Based Subject - 3	1	-	2	3
Pre-requisite		Communication Skill I and Communication Skill II	Syllabus Version		First	

Course Objectives:

The main objectives of this course are to:

1. Enable the students to present him as an employable candidate
2. Understand industry requirement.
3. Improve the business etiquette and attire.
4. Develop aptitude and logical abilities
5. Set up a right attitude

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Remember the industry expectations	K1
2	Understand the importance of etiquette in organizational culture	K2
3	Able to develop a confidence level and facing interviews	K3
4	Demonstrate a good command in responding to any queries	K4
5	Achieve the desired result thro proper evaluation of competencies and be creative	K5, K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	**Organisational Culture**	**8 -- hours**

Culture, Cultural traits, personality and behviour, socialization - Exercises

Unit:2	**Business etiquette and netiquette**	**9-- hours**

Etiquette, business attire, requirements, confidence building, pleasing mannerisms, greetings and salutations, netiquette – Exercises

Unit:3	**Building aptitude skills Quantitative aptitude**	**8-- hours**

Quantitative aptitude, percentage, ratio and proportion, partnership, profit and loss, simple and compound interest, average, time and distance, permutation and combination, probability - Exercises

Unit:4	**Verbal ability**	**9-- hours**

Sentence improvement, reading comprehension, sentence rearrangement, cloze test, analogy, synonyms, grammar, noun and pronoun - Exercises

Unit:5	**Logical ability**	**9-- hours**

Coding and decoding, data sequence, calendars, blood relations, statements and arguments, syllogism, alphabet test – Exercises

Unit:6	**CONTEMPORARY ISSUES**	**2- hours**

International business culture, cultural variations and cultural adaptability, multi-cultural environment.

	Total Lecture hours	**45-- hours**
Text Book(s)		
1	Ramachandran K.K., and K.K. Karthik, Pearson Education, 2016	
2	Gangadhar Joshi, Campus to Corporate – Your road map to employability, Sage publications, 2015	
Reference Books		
1	Barun K. Mitra, Personality Development and Soft Skills, Oxford Higher Education, 2012	
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]		
1	https://services.india.gov.in/service/detail/career-information--assessment-tests	
2		
Course Designed By:		

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	S	S	M	S	S	S	S	M
CO3	S	S	M	S	S	S	S	M	S	S
CO3	S	M	S	M	S	S	M	S	M	S
CO4	S	S	S	M	S	S	S	S	M	S
CO5	S	S	S	S	S	S	S	S	S	S

*S-Strong; M-Medium; L-Low

Course Content: Skill based paper-IV Semester VI

Course code		SOFT SKILLS FOR BUSINESS For BBA/BBA(CA)/BBA(IB)/BBA(RM)	L	T	P	C
		Skill Based Subject - 4	1	-	2	3
Pre-requisite		Communication Skill I and Communication Skill II	Syllabus Version		First	

Course Objectives:

The main objectives of this course are to:

1. Enable the students to understand the importance of soft-skills.
2. Acquire different soft skills to be an employable person.
3. Improving the competitive edge and increasing the chances of recruitment and selection.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Remember the various organizational entry level skill requirements	K1
2	Understand the need for different skill requirement at different occasions	K2
3	Able to appropriately respond to the situation during recruitment and selection	K3
4	Demonstrate a good command in work environment	K4
5	Achieve the desired result of a good employability	K5, K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	**Emotional Intelligence**	**8 -- hours**

Emotional intelligence, emotional quotient, ability to understand, use manage own emotions, positive ways to relieve stress, empathy and resolving conflict – Exercises

Unit:2	**Team Spirit and Growth**	**9-- hours**

Team spirit, growth mindset, high performing teams, trust and mind alignment, focus, target achievement and time compliance.

Unit:3	**Openness to Feedback**	**8-- hours**

Feedback, accepting negative feedback, improving self-awareness, criticism-types and overcoming the shortfalls

Unit:4	**Adaptability**	**9-- hours**

Adaptability, meaning and nature, change in thought process, willingness to take risk, encouraging others towards open mindedness, continuous learning

Unit:5	**Work Ethics**	**9-- hours**

Wok ethics skills, reliability, dedication, discipline, productivity, cooperation, integrity, responsibility, professionalism.

Unit:6	**CONTEMPORARY ISSUES**	**2- hours**

Interaction with executives, success stories of professional and business people.

	Total Lecture hours	**45-- hours**

Text Book(s)	
1	Meenakshi Raman, Shalini Upadyay, Soft skills: Key to success in workplace, Cengage India Pvt Ltd., 1st Edition 2017
Reference Books	
1	Barun K. Mitra, Personality Development and Soft Skills, Oxford Higher Education, 2012
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://learnenglish.britishcouncil.org/skills
Course Designed By:	

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	S	S	M	S	S	S	S	M
CO3	S	S	M	S	S	S	S	M	S	S
CO3	S	M	S	M	S	S	M	S	M	S
CO4	S	S	S	M	S	S	S	S	M	S
CO5	S	S	S	S	S	S	S	S	S	S

*S-Strong; M-Medium; L-Low

INSTITUTIONAL TRAINING *

Curricular note on Skill enhancing core paper with Internal and External evaluation for 50 marks (2 Credits) for ALL streams of BBA.

Aims: The purpose of this skill enhancing (Training) core paper is to bridge the theoretical fundamentals with that of actual practice and to inculcate a spirit of inquiry & research rigor to investigate the nuances that go into the working of industry at large. Apartfrom adapting as team-worker, students are expected to gather, filter the required information and report the dynamics of the chosen industry in a standardizedformat.

Process: Colleges may institute MoU/ collaborative initiative with firms in their localityto get the consent and to make the training more purposeful. Every student, individually or in a group not exceeding three, shall undergo a four-week [a minimum of twenty working days] training in any organization [size, type and location to be specified by the respective college] of his/her choice during the vacation between fourth and fifth semester. In case of insufficient vacation, college level adjustments can be made to facilitate the students ontraining.

Prior permission may be obtained from the organization in advance by the students concerned and information shall be passed onto the colleges thus enabling the training supervision bythe concerned faculties authorized by thecollege.

Weekly postal or electronic reporting should be obtained to ensure coherent and comprehensive training during the training period. A final report [Institutional Training Record – ITR] containing the introduction of the industry, the profile of the company and a valid conclusion indicating the benefits of the training shall be given not exceeding 30 [A4] pages [in a spiral- bound form/pre-printed record designed for this purpose].

ReportingProforma:he profile of the company may include the organization-chart, people involved in key-positions, year of establishment and growth pattern (for at least five years), the products dealt and market to which it caters to, sales turn-over, market share [forlast three years], competitors‘details, number of employees and their brief profile, share capital&

Share holding pattern, market capitalization (in case of listed public company), group companies, if any, awards & recognitions (if any received), litigations, if any involved and so on.

Outcome:Internal evaluation by the concerned training supervisor along with HOD shallbe made during the beginning of fifth semester for a max of 10 marks and report the same to the university. Metrics to be evaluated and its weightage are:

- Compliance of the procedure (permission seeking, informing in advance, weekly reporting andITRsubmission) ***5 marks***
- Structure and neatnessof ITR ***5 marks***

Evaluation Method:

There shall be a university-approved comprehensive viva-voce examination at the end of fifth semester.

Students shall maintain a [Institutional Training Record – ITR] individually for the purpose of the oral examinations.

ITR shall also be evaluated jointly internal with an external examiner during the viva- voce examination.

The total mark of 40 for the skill enhancing core subjects shall be divided between internal and external evaluations and it is 15 and 25 marks respectively.

M. A. Tamil

Syllabus

AFFILIATED COLLEGES

Program Code:31A

2020 – 2021 onwards

BHARATHIAR UNIVERSITY

(A State University, Accredited with "A" Grade by NAAC,
Ranked 13th among Indian Universities by MHRD-NIRF,
World Ranking: Times -801-1000,Shanghai -901-1000, URAP - 982)

Coimbatore - 641 046, Tamil Nadu, India

முதுகலைத்தமிழ் நோக்கங்கள் [Program Educational Objectives (PEOs)]	
PEO1	தமிழ் இலக்கியப்புலமையும் இலக்கண அறிவும் வாய்க்கப்பெற்றவர்களாகத் தமிழ் மாணவர்களைத் தயார் படுத்துதல்
PEO2	படைப்பார்வம் மிக்கவர்களாகவும் இலக்கியத் திறனாய்வாளர்களாகவும் திகழும்படி செய்தல்.
PEO3	தமிழைச் சிறந்த முறையில் கற்பிக்கும் ஆசிரியச் சமூகத்தை உருவாக்கல்.
PEO4	தமிழியல் சார்ந்த ஆய்வுகளை மேற்கொள்ளும் நிலைக்குக் கொண்டு செல்லுதல்.
PEO5	தமிழ் இலக்கியம், மொழி, பண்பாடு முதலியவற்றின் சிறப்புகளை உலகளாவிய நிலையில் கொண்டு சேர்க்கும் பணிகளை மேற்கொள்ளச் செய்தல்.
PEO6	தமிழ்மொழி மற்றும் இலக்கியத்திறனில் மேம்பாடு பெறல்
PEO7	மனித வாழ்வியல் தொடர்பான விழுமியங்கள், பண்பாடு, வரலாறு முதலானவற்றில் புரிதலை அடைதல்,
PEO8	மொழி, இலக்கியம், சமுதாயம், அரசியல், சமயம், பண்பாட்டுத் தளங்களில் புரிதலை அடைதல்.
PEO9	மாணவர்கள் தங்களின் தன்னம்பிக்கை, விடாமுயற்சி, முடிவெடுக்கும் திறன் போன்ற உளச்சார்பு நிலைகளில் திறன் மிகுந்தவர்களாகி தனது மற்றும் நாட்டின் பொருளாதார நிலைகளில் மேம்பாடு பெறல்
PEO10	சமுதாயத் தேவைகளை நிறைவு செய்யும் வகையில் வழிமுறைகளைக் காணும் திறன் அறிதல்.

முதுகலைத்தமிழ் குறிப்பிடத்தக்க கற்றல் விளைவுகள் **[Program Specific Outcomes (PSOs)]**	
PSO1	தமிழ் இலக்கியங்கள் மற்றும் இலக்கணங்களின் மரபுகள் செலுத்துநெறிகள், எடுத்துரைப்பு ஆகியன குறித்த அடிப்படை அறிவு
PSO2	தமிழ் இலக்கியம் மற்றும் இலக்கண வகைமைகள் குறித்தும் அவற்றின் தோற்றக்காரணிகள் குறித்துமான அடிப்படைப் புரிதல்
PSO3	இலக்கிய இலக்கண உரை செய்தல்
PSO4	மொழி ஆளுமையை வளர்ப்பதன் வழி ஊடகத்துறையில் பணிவாய்ப்பு, போட்டித்தேர்வுகளை எதிர்கொள்ளும் திறன்
PSO5	தமிழ்ப்பண்பாடு மற்றும் கலை வடிவங்கள் குறித்த வரலாற்றுப் புரிதல்
PSO6	வரலாறு, மெய்யியல், தொல்லியல், கல்வெட்டியல், நாட்டுப்புறவியல், ஊடகவியல் உள்ளிட்ட பிற துறைகளோடு தமிழுக்கு இருக்கும் தொடர்பினைப் பெறுதல்
PSO7	ஆராய்ச்சி நெறிமுறைகளைக் கற்றுத்தேர்தல்

முதுகலைத்தமிழ் கற்றல் விளைவுகள் Program Outcomes (POs)	
PO1	பண்பாட்டினையும் சமூக வளர்ச்சியையும் முன்னிறுத்திய கல்வியினைக் கற்றிருத்தல்.
PO2	தமிழ் இலக்கிய இலக்கணத்தின் பல்வேறு நிலையினையும் ஒட்டுமொத்தப் பரப்பினையும் அறிந்திருத்தல்
PO3	மொழிக் காழ்ப்புணர்வின்றி எல்லா மொழிகளையும் ஏற்றுக்கொள்ளும் பக்குவம் பெறல்
PO4	ஆராய்ச்சி எண்ணங்களையும் திறனாய்வு மனப்பான்மையினையும் பெற்றிருத்தல்.
PO5	ஒழுக்கம் நாகரிகம் பண்பாடு கலாச்சாரம் போன்றவற்றை அறிந்திருத்தல்.
PO6	மொழிபெயர்க்கும் திறன்பெறல்
PO7	ஆய்வாளர்களாகப் பரிணாமம் பெற்று புதிய ஆராய்ச்சிகளை மேற்கொள்தல்
PO8	பழந்தமிழ் இலக்கியங்களைப் பயின்று அவற்றின் பொருளை அறியும் திறன் பெற்றிருத்தல்
PO9	சமூகப் பண்பாட்டு இலக்கியங்கள் வாழ்வியல் ஒழுகலாறுகள் மற்றும் சிக்கல்களைப் புரிந்துகொள்ளவும் அவற்றைத் திறம்படக் கையாளும் திறன் பெறல்
PO10	வேலைவாய்ப்பினைப் பெறும் வகையிலும் உலகளாவிய போட்டிகளை எதிர்கொள்ளும் வகையிலும் கற்றல்.

பாரதியார் பல்கலைக்கழக இணைப்புக் கல்லூரிகளுக்கான
முதுகலைத்தமிழ் (M. A.) பாடத்திட்டம் - M. A. TAMIL
(2020-21 ஆம் கல்வியாண்டு முதல் சேர்வோர்க்குரியது)

குறியீட்டு எண்	தாள் பெயர்	Credit	Hours		CIA	Uni. Exam	Total
			Theory	Practical			
FIRST SEMESTER							
20TAM13A	CORE – 1 - இக்கால இலக்கியம்	4	6	-	25	75	100
20TAM13B	CORE – 2 - இலக்கணம் - எழுத்து	4	6	-	25	75	100
20TAM13C	CORE – 3 - கொங்குநாட்டியல்	4	6	-	25	75	100
20TAM13D	CORE – 4 - பக்தி இலக்கியம்	4	6	-	25	75	100
20TAM1EA	GROUP – ELEC - I நாட்டுப்புறவியல்	4	6	-	25	75	100
	Total	20					500
SECOND SEMESTER							
20TAM23A	CORE – 5 - அற இலக்கியம்	4	6	-	25	75	100
20TAM23B	CORE – 6 - இலக்கணம் - சொல்	4	6	-	25	75	100
20TAM23C	CORE – 7 - சிற்றிலக்கியம்	4	6	-	25	75	100
20TAM23D	CORE–8 - சிறப்பிலக்கியம் - சிலப்பதிகாரம்	4	6	-	25	75	100
20TAM2EB	GROUP – ELEC – II இந்திய மொழிகளின் வரலாறு	4	6	-	25	75	100
	Total	20					500
THIRD SEMESTER							
20TAM33A	CORE – 9 காப்பியங்கள்	4	6	-	25	75	100
20TAM33B	CORE–10 தொல்காப்பியம் - பொருள் 1	4	6	-	25	75	100
20TAM33C	CORE – 11 - ஆய்வியல் அறிமுகம்	4	6	-	25	75	100
	CORE – 12 விருப்பப்பாடம்	4	6	-	25	75	100
20TAM3EA / 3EB / 3EC	1 – A சைவசித்தாந்தம் 1–B ஒப்பிலக்கிய அறிமுகம் 1–C இதழியலும் மக்கள் தகவல் தொடர்பியலும்						
20TAM3ED	GROUP – ELEC – III - தமிழ் இலக்கண வரலாறு	4	6	-	25	75	100
	Total	20					500
FOURTH SEMESTER							
20TAM43A	CORE – 13 - சங்க இலக்கியம்	4	5	-	25	75	100
20TAM43B	CORE-14 - தொல்காப்பியம் - பொருள் 2	4	5	-	25	75	100
	CORE – 15 விருப்பப்பாடம்	4	5	-	25	75	100
20TAM4EA / 4EB / 4EC	II – A சைவசித்தாந்தம் II – B ஒப்பிலக்கிய அறிமுகம் II–C இதழியலும் மக்கள் தகவல் தொடர்பியலும்						
20TAM43C	CORE – 16 இலக்கியத்திறனாய்வியல்	4	5	-	25	75	100
20TAM47V	Project Work-ஆய்வேடு (Project & Viva – Voce)	10	6	-	50	200	250
20TAM4ED	GROUP – ELEC -IV - இலக்கியம் படைத்தல்	4	4	-	25	75	100
	Total	30					700
	Grand Total	**90**					**2250**

CO-SCHOLASTIC COURSES							
ONLINE COURSES							
	Swayam, MOOC Course etc.,	2					
VALUE ADDED COURSES							
	Value Added Course – I	2	30	-	50	-	50
	Value Added Course – II	2	30	-	50	-	50
CERTIFICATE COURESES							
	Certificate Courese – I	4	30-40	-	100	-	100
	Certificate Courese – II	4	30-40	-	100	-	100


First
Semester

குறியீட்டு எண்	20TAM13A	இக்கால இலக்கியம்	வி	ப	செ	மு
முதன்மைப்பாடம் 1			4	-	-	4
முன்னறிதல்		இக்கால இலக்கியப் படைப்புகளை அறிதல்	Syllabus Version		2020 – 21	

நோக்கங்கள்

1. இக்கால இலக்கியப் படைப்புகளையும் படைப்பாளர்களையும் மாணவர்களுக்கு அறிமுகப்படுத்துதல்.
2. இக்கால இலக்கியப் படைப்புகளைத் திறனாய்வு செய்யும் அணுகுமுறையை வளர்த்தல்
3. படைப்பாக்கத் திறனை வளர்த்து மேம்படுத்துதல்

எதிர்பார்க்கப்படும் கற்றல் அடைவுகள்

On the successful completion of the course, student will be able to:

1	தற்கால கவிதைப் படைப்பாளர்கள் பற்றி அறிந்து அவர்களின் கவிதைகளைப் படித்துத் தெரிந்து கொள்ளுதல்.	K2
2	சமகால நிகழ்வுகளைப் படைப்புகளாக உருவாக்கும் விதம் பற்றிப் புதுக்கவிதைகளின் வாயிலாக அறிந்து கொண்டு புதுக்கவிதைகள் படைத்தல்	K6
3	நாடகத்தின் உத்திகளைத் தெரிந்து கொண்டு இக்கால நாடகங்களை மதிப்பிடுதல்	K5
4	சமகால நிகழ்வுகளைப் படைப்புகளாக உருவாக்கும் விதம் பற்றிச் சிறுகதைகளின் வாயிலாக அறிந்து கொண்டு சிறுகதைகள் அமைத்தல்	K3
5	இக்கால இலக்கியத்தின் வழி சமுதாயப் போக்கை அறிந்து பண்பாட்டை வெளிக்கொணர்தல்	K3

K1 – நினைவுகூர்தல்; **K2** – புரிந்து கொள்ளுதல்; **K3** – பொருத்துதல்; **K4** – பகுப்பாய்வு செய்தல்; **K5** – மதிப்பிடுதல்; **K6** – உருவாக்குதல்

அலகு : 1	மரபுக்கவிதை	14 hours

1. பாரதியார் கவிதைகள்- சுயசரிதை- கனவு (49 பாடல்கள்)
2. தமிழியக்கம் - பாரதிதாசன்- வாணிகர், குடும்பத்தார், கோயிலார், விழா நடத்துவோர், மாணவர் எனும் தலைப்பில் அமைந்த பாடல்கள்

அலகு : 2	புதுக்கவிதை	12 hours

1. பித்தன் - கவிஞர் அப்துல் ரகுமான்
2. ஒரு கிராமத்து நதி - கவிஞர் சிற்பி

அலகு : 3	நாடகம்	12 hours

மனோன்மணீயம் - பெ.சுந்தரம்பிள்ளை

அலகு : 4	சிறுகதையும் புதினமும்	12 hours

1. ஒரு நாள் கழிந்தது - புதுமைப்பித்தன் - காலச்சுவடு பதிப்பகம்
2. குன்னம் - மா.நடராசன் - சப்னா பதிப்பகம், வடகோவை.

அலகு : 5	உரைநடை	14 hours

பேராசிரியப் பேரொளி - டாக்டர். மா. இராமலிங்கம் என். சி.பி.எச்.வெளியீடு.

குறிப்பு : ஒவ்வொரு நூலின் நூலாசிரியர் குறித்தும் வினாக்கள் அமையும்.

அலகு : 6	கருத்தரங்குகள், இணைய வழி அரங்குகள்	**2 hours**
	Total Lecture hours	**72 hours**

பாடநூல்கள்

1	பாரதியார் கவிதைகள்
2	தமிழியக்கம் - பாரதிதாசன்
3	பித்தன் - கவிஞர் அப்துல் ரகுமான்
4	ஒரு கிராமத்து நதி – கவிஞர் சிற்பி
5	மனோன்மணீயம் - பெ.சுந்தரம் பிள்ளை
6	ஒருநாள் கழிந்தது - புதுமைப்பித்தன்- காலச்சுவடு பதிப்பகம்
7	குன்னம் - மா.நடராசன் - சப்னா பதிப்பகம், வடகோவை.
8	பேராசிரியப் பேரொளி- டாக்டர். மா. இராமலிங்கம் என். சி.பி.எச்.வெளியீடு

பார்வை நூல்கள்

1	இரா.வல்லிக்கண்ணன் - புதுக்கவிதை தோற்றமும் வளர்ச்சியும், எழுத்து பிரசுரம், திருவல்லிக்கேணி, சென்னை – 5
2	மா.இராமலிங்கம் - இருபதாம் நூற்றாண்டுத் தமிழ் உரைநடை, தமிழ்ப் புத்தகாலயம், தி.நகர், சென்னை - 18.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	http://www.tamilvu.org/ta/courses-degree-p203-p2031-html-p2031551-29928

இப்பாடத்திட்ட வடிவமைப்பு : முனைவர் சா.சிவமணி, உதவிப்பேராசிரியர், தமிழ்த்துறை, சிக்கய்யா நாயக்கர்கல்லூரி, ஈரோடு, மின்னஞ்சல்: sivasakthi3@yahoo.com

Mapping with Programme Outcomes

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	L	L	M	L	L	M	L	L
CO2	S	S	M	M	M	L	L	M	M	M
CO3	S	S	M	S	M	L	M	L	L	L
CO4	S	S	L	L	S	L	M	M	M	M
CO5	S	S	L	M	M	M	M	M	M	M

*S-Strong; M-Medium; L-Low

குறியீட்டு எண்	12TAM13B	இலக்கணம் - எழுத்து	வி	ப	செ	ம
முதன்மைப்பாடம் 2			4	-	-	4
முன்னறிதல்		எழுத்திலக்கணம் அறிதல்	Syllabus Version	2020 – 21		

நோக்கங்கள்

1.நன்னூலோடு தொல்காப்பியத்தை ஒப்பிட்டு மொழி வளர்ச்சிப்போக்குகளையும் இலக்கண வேறுபாட்டு நிலைகளையும் விளக்குதல்.

2.தமிழ்மொழியின் எழுத்துவடிவங்கள், எழுத்துக்களின் பிறப்பு, அவற்றின் புணர்ச்சி இயல்புகள் ஆகியவற்றை விவரித்தல்

3.பழங்காலந்தொட்டு வழங்கி வரும் தனிமொழிகளையும் அவற்றின் இடையில் நிற்கும் எழுத்து மரபையும் வகைப்படுத்திக் கூறுதல்.

எதிர்பார்க்கப்படும் கற்றல் அடைவுகள்

1	தொல்காப்பியர் கால எழுத்துக்களின் தொகை வகைகளைக் கற்றல். அவற்றைப் பிற எழுத்திலக்கணங்களோடு பொருத்திப் பார்க்கும் தன்மை வளர்தல்	K2
2	தமிழின் மொழிசார்ந்த, எழுத்துக்களின் பிறப்புசார்ந்த தன்மைகளைக் கற்றல். அவற்றைச் சமகால மொழியில் பொருத்திக் காணும் போக்குகளில் மேம்பாடு உண்டாதல்.	K4
3	சொற்களின் புணர்ச்சி நிலைகளை அறிதல்	K2
4	உயிரீறு, மெய்யீறு, குற்றியலுகர ஈறுகளின் புணர்ச்சி இலக்கணங்களை அறிந்து தமிழில் பிழையின்றி எழுதுதல்	K5
5	குற்றியலுகரப் புணரியலில் தெளிவு பெறல்.	K3

K1 – நினைவுகூர்தல்; **K2** – புரிந்து கொள்ளுதல்; **K3** – பொருத்துதல்; **K4** – பகுப்பாய்வு செய்தல்; **K5** – மதிப்பிடுதல்; **K6** – உருவாக்குதல்

அலகு :1	**தனி நிற்கும், இடை நிற்கும் எழுத்துக்கள்**	**14 hours**
	நூன்மரபு, மொழி மரபு	
அலகு :2	**பிறப்பும் புணர்வும்**	**14 hours**
	பிறப்பியல், புணரியல்	
அலகு :3	**வேற்றுமை உருபுகள் புணர்தல்**	**14 hours**
	தொகை மரபு, உருபியல்	
அலகு :4	**உயிரீறு, மெய்யீறு புணர்தல்**	**14 hours**
	உயிர் மயங்கியல், புள்ளி மயங்கியல்	
அலகு :5	**குற்றியலுகர ஈறு புணர்தல்**	**14 hours**
	குற்றியலுகரப் புணரியல்	
அலகு : 6	கருத்தரங்குகள், இணைய வழி அரங்குகள்	**2 hours**
	Total Lecture hours	**72 hours**

பாடநூல்கள்

1	தொல்காப்பியம் - எழுத்ததிகாரம் - இளம்பூரணர் உரை, சாரதா பதிப்பகம், சென்னை
பார்வை நூல்கள்	
1	கு.சுந்தரமூர்த்தி (ப.ஆ.) - தொல்காப்பியம் இளம்பூரணர் உரை அண்ணாமலைப் பல்கலைக்கழக வெளியீடு, திருப்பனந்தாள் திருமடம் நித்ய வெளியீடு, பதிப்பு – 1996
2	செ.வை.சண்முகம்பிள்ளை - எழுத்திலக்கணக் கோட்பாடு, உலகத் தமிழாராய்ச்சி நிறுவனம், தரமணி, சென்னை - 600 113
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	http://ilamaranwritings.blogspot.com/2011/06/1858.html
இப்பாடத்திட்ட வடிவமைப்பு : முனைவர் கா.திருநாவுக்கரசு, இணைப்பேராசிரியர், த.சா.அ.க.அ. தமிழ்க்கல்லூரி, பேரூர்,கோவை, மின்னஞ்சல்: k.thiruna@gmail.com	

Mapping with Programme Outcomes										
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	L	S	L	L	M	M	L	L
CO2	S	S	L	M	L	L	M	L	M	M
CO3	L	S	L	M	L	L	L	M	M	L
CO4	M	S	M	M	M	L	M	M	L	M
CO5	M	S	L	L	L	L	M	M	L	L

*S-Strong; M-Medium; L-Low

குறியீட்டு எண்	12TAM13C	கொங்குநாட்டியல்	வி	ப	செ	ம
முதன்மைப்பாடம் 3			4	-	-	4
முன்னறிதல்		கொங்குநாட்டு வரலாற்றை அறிதல்	Syllabus Version		2020 - 21	

நோக்கங்கள்

1.கொங்குநாட்டின் அரசியல் பொருளாதார நிலை குறித்து அறிந்து கொள்ளுதல்
2.விடுதலைப் போரில் கொங்குநாட்டின் பங்களிப்பை எடுத்துக்கூறி, கொங்குநாட்டுப்புறக் கலை, இலக்கியப் பண்பாடுகளை விளக்குதல்.
3.தமிழ்நாட்டின் சரித்திரத்தில் கொங்குநாடு முக்கிய இடம் வகித்ததை அறியச்செய்தல்.

எதிர்பார்க்கப்படும் கற்றல் அடைவுகள்

1	தமிழக நாட்டுப்பிரிவுகளில் ஒன்றான கொங்குநாட்டின் அமைப்பு மற்றும் வரலாற்றை நினைவு கூர்தல்.	K1
2	கொங்குநாட்டின் ஆட்சி மாற்றங்களையும், பிறநாட்டினர் இடையேயான உறவையும் விளக்குதல்.	K2
3	ஆங்கிலேயர் ஆட்சிக்குப்பின் ஏற்பட்ட வளர்ச்சி நிலைகளை உணரச்செய்தல்	K2
4	கொங்குமக்களின் சமயம், பண்பாடு, கலாச்சாரம் வழி அவர்களின் வாழ்வியலை அறிதல்	K3
5	கொங்குஇலக்கியங்கள் வழி கொங்குநாட்டின் சிறப்பை எடுத்துரைத்தல்	K4

K1 – நினைவுகூர்தல்; **K2** – புரிந்து கொள்ளுதல்; **K3** – பொருத்துதல்; **K4** – பகுப்பாய்வு செய்தல்; **K5** – மதிப்பிடுதல்; **K6** – உருவாக்குதல்

அலகு :1 | **கொங்குநாட்டு எல்லை** | **12 hours**

கொங்குநாட்டு எல்லை – வரலாற்றுச் சான்றுகள், இயற்கை அமைப்பு – நாடு – உட்பிரிவுகள் - இரட்டர் – கங்கர் – பல்லவராட்சி.

அலகு : 2 | **மன்னர்கள் ஆட்சி** | **14 hours**

கொங்குச்சோழராட்சி – கொங்குப்பாண்டியராட்சி – கங்கராட்சி – விசயநகர ஆட்சி – நாயக்கர் ஆட்சி - இக்காலக்கட்டத்தில் அரசியல் தோற்றம் - பரவல் - சமூகப் பொருளாதார நிலைகள்

அலகு : 3 | **விடுதலைப் போராட்ட வரலாறு** | **14 hours**

கொங்குநாட்டில் ஆங்கிலேயர் ஆட்சி – விடுதலைப் போராட்ட வரலாறு கொங்கு நாட்டு விடுதலைப் போராட்ட வீரர்கள் - விடுதலைக்குப்பின் தொழில் வளர்ச்சி – கல்வி வளர்ச்சி.

அலகு : 4 | **சமய வரலாறு** | **14 hours**

கொங்குநாட்டுச் சமய வரலாறு – சமணம், சைவம், வைணவம், வளர்ந்த வரலாறு – கொங்குநாட்டுக் கோயில்கள் அமைப்பு - சிற்பச்சிறப்புக்கள் - ஓவியச்சிறப்புக்கள் கல், மரம், உலோகச்சிற்பங்கள் - திருவிழாக்கள்.

அலகு : 5 | **கொங்கு இலக்கியங்கள்** | **14 hours**

கொங்குநாட்டுப் புலவர்களும் இலக்கியங்களும் - அவற்றின் சிறப்புக்கள் - சங்ககாலப் புலவர்கள் - அடியார்க்கு நல்லார் – பவணந்தியார் – கொங்குவேளிர் நாமக்கல் கவிஞர் – தலபுராணங்கள் - சிற்றிலக்கியங்கள் - கொங்குநாட்டுப்புற இலக்கியங்கள் - அண்ணன்மார் சுவாமி கதை முதலியன

அலகு : 6	கருத்தரங்குகள், இணைய வழி அரங்குகள்	**2 hours**
	Total Lecture hours	**72 hours**

பாடநூல்கள்

1	கொங்குநாட்டு வரலாறு – கோவைகிழார், பேரூர்த் தமிழ்க்கல்லூரி வெளியீடு.

பார்வை நூல்கள்

1	கொங்குநாடும் சமணமும் - கோவைகிழார்
2	கொங்குநாட்டுப் புலவர்கள் - கோவைகிழார்
3	கொங்குமண்டலசதகங்கள் - பேரூர்த் தமிழ்க்கல்லூரி வெளியீடு.
4	கொங்குநாட்டு வரலாற்றுக் கருத்தரங்கக் கட்டுரைகள் - பேரூர்த் தமிழ்க்கல்லூரி வெளியீடு.
5	நேரிசையில் ஊரிசை – கவியன்பன்.பாபு, பா.மீனாட்சிசுந்தரம், குழல்யாழ் பதிப்பகம் வெளியீடு
6	கொங்குநாட்டில் இந்தியச் சுதந்திரப் போராட்டம் - தொகுப்பு
7	பேரூர் இலக்கியச் சோலை–பேரூர்த் தமிழ்க்கல்லூரி வெளியீடு.
8	கொங்குக் கட்டுரைமணிகள் - முனைவர் கா.அரங்கசாமி
9	தெரிந்த கோவை தெரியாத கதை - கவியன்பன்.பாபு
10	சிறுவாணி வரலாறு – சி.ஆர்.இளங்கோவன், ஸ்ரீகாந்த் பதிப்பகம்

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://kongunattuvaralaru.page.tl/
2	https://meenakshisundaramwriter.blogspot.com/
3	https://www.newindianexpress.com/Author/B-Meenakshi-Sundaram/archive
4	https://www.facebook.com/707891235977145/videos/2954077067975548

இப்பாடத்திட்ட வடிவமைப்பு : முனைவர் கா.திருநாவுக்கரசு, இணைப்பேராசிரியர், த.சா.அ.க.அ. தமிழ்க்கல்லூரி, பேரூர்,கோவை, மின்னஞ்சல்: k.thiruna@gmail.com

Mapping with Programme Outcomes

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	MM	S	L	L	S	L	M	M	S	L
CO3	S	S	M	M	M	L	M	S	S	M
CO3	S	S	M	M	M	L	L	M	S	L
CO4	S	S	L	M	S	M	M	L	S	L
CO5	S	S	L	L	S	L	L	S	S	L

*S-Strong; M-Medium; L-Low

குறியீட்டு எண்	20TAM13D	பக்தி இலக்கியம்	வி	ப	செ	ம
முதன்மைப்பாடம் 4			4	-	-	4
முன்னறிதல்		பக்தி இலக்கியங்களை அறிதல்	Syllabus Version		2020 - 21	

நோக்கங்கள்

1. சமய இலக்கியக் கல்வியின் வழி எதிர்காலத் தலைமுறையை நல்வழிப்படுத்துதல்.
2. சமய வழிபாடுகள் மனித வாழ்க்கையைப் பக்குவப்படுத்துவன வழிகாட்டுவன. அத்தகைய சமயநெறிகள் மிகப் பழங்காலம் தொட்டு தமிழர் வாழ்வைச் செம்மைப்படுத்தி வருகின்றன. அறுவகைச் சமயங்களாக அமைந்து வழிகாட்டின. அருளாளர்கள் தோன்றி சமயநிலையில் அருட்பாடல்களை அருளினர். "ஓது மூதுணர்வோர் முன்பழிச்சுப் பாடலை" என்று அருளாளர்களின் பக்திப் பாடல்களான இலக்கியங்களைப் பயில வழிகாட்டுவது இத்தாளின் நோக்கமாகும்.

எதிர்பார்க்கப்படும் கற்றல் அடைவுகள்

1	சைவ சமயக்குரவர்கள் தமிழ்மொழிக்கும் இலக்கியத்திற்கும் சைவ சமயத்திற்கும் ஆற்றியுள்ள பங்களிப்பினை அறிதல்.	K5
2	வைணவ இலக்கியம் தமிழ்நெறிக்கு வழங்கிய முதன்மையை அறிதல்.	K1
3	சமயம் சார்ந்த நம்பிக்கை, வழிபாடு, அன்பு, அறம், ஒழுக்கம் இவற்றை இனங்காணச் செய்தல்.	K4
4	சம காலத்தில் வாழ்ந்த அறிஞர்களின் பக்திப்பனுவல்களை அறிந்து கொள்ளுதல்	K2
5	பக்தி இலக்கிய காலத்துப் பண்பாட்டினைத் தெரிந்து கொண்டு அதை வரலாற்றுடன் ஒப்பிட்டு நோக்குதல்	K3

K1 – நினைவுகூர்தல்; **K2** – புரிந்து கொள்ளுதல்; **K3** – பொருத்துதல்; **K4** – பகுப்பாய்வு செய்தல்; **K5** – மதிப்பிடுதல்; **K6** – உருவாக்குதல்

அலகு :1	நால்வர் பாடல்கள்	14 hours

1. 'அவ்வினைக்கு இவ்வினை' எனத் தொடங்கும் திருநீலகண்டப்பதிகம் – திருக்கொடிமாடச் செங்குன்றூர் – திருஞானசம்பந்த நாயனார்
2. 'வேற்றாகி விண்ணாகி' – திருக்கயிலாயப்பதிகம் – திருநாவுக்கரச நாயனார்
3. 'தானெனை முன்படைத்தான்' – திருநொடித்தான் மலைப்பதிகம் – சுந்தரமூர்த்தி நாயனார்
4. "பூவேறு கோனும்" – திருக்கோத்தும்பி – மாணிக்கவாசகப்பெருமான்

அலகு :2	ஆழ்வார் பாடல்கள்	14 hours

1. மன்னுபெரும் புகழ் 2.வாரணமாயிரம் 3. கருப்பூரம் நாறுமோ எனும் மூன்று பதிகங்கள் - ஆண்டாள் பாடியவை.
4. திருக்குறுந்தாண்டகம் - திருமங்கையாழ்வார்

அலகு :3	நம்பியாண்டார் நம்பி, அருணகிரிநாதர் பாடல்கள்	14 hours

1. திருநாரையூர் விநாயகர் இரட்டை மணிமாலை (பதினோராந் திருமுறை) - நம்பியாண்டார் நம்பிகள்

2. திருப்புகழ் - மதுரைத்தலப் பாடல்கள் (11 பாடல்கள்) – அருணகிரிநாதர்

அலகு :4	**கண்ணிகள்**	**14 hours**

1. தாயுமானார் பாடல்கள் - பராபரக்கண்ணி முதல் 50 கண்ணிகள்
2. திருவருட்பா - பாங்கிமார் கண்ணியும் வெண்ணிலாக் கண்ணியும் (49 கண்ணிகள்) வள்ளலார்

அலகு :5	**அபிராமி அந்தாதி**	**14 hours**

1. அபிராமி அந்தாதி - முதல் 50 பாடல்கள்.

குறிப்பு : பாடல்களை அருளிய அருளாளர்கள் குறித்தும் வினாக்கள் அமையும்.

அலகு : 6	கருத்தரங்குகள், இணைய வழி அரங்குகள்	**2 hours**
	Total Lecture hours	**72 hours**

பாடநூல்கள்

1	பன்னிரு திருமுறை
2	நாலாயிர திவ்விய பிரபந்தம்
3	திருப்புகழ்
4	தாயுமானார்பாடல்கள்
5	திருவருட்பா
6	அபிராமி அந்தாதி

பார்வை நூல்கள்

1	டாக்டர் ப.அருணாசலம் - பக்தி இலக்கியம் - ஓர் அறிமுகம், தமிழ்ப்புத்தகாலயம், பைகிராப்ட்ஸ் ரோடு, சென்னை - 5, 1973
2	முனைவர் சு.அமிர்தலிங்கம், வள்ளலாரின் ஆளுமை உருவாக்கம், தி பார்க்கர், இராயப்பேட்டை, சென்னை14, 2004

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	http://thevaaram.org/
2	http://dravidaveda.org/
3	https://shaivam.org/panniru-thirumurai
4	http://www.kaumaram.com/thiru/
5	https://tamilnation.org/sathyam/east/saivaism/thayumanavar_hymns.htm
6	http://www.thiruarutpa.org/
7	http://www.tamilvu.org/library/nationalized/pdf/92-ki.va.ja/abhirami_anthathi_vilakkam.pdf

இப்பாடத்திட்ட வடிவமைப்பு : முனைவர் கா.திருநாவுக்கரசு, இணைப்பேராசிரியர், த.சா.அ.க.அ. தமிழ்க்கல்லூரி, பேரூர்,கோவை, மின்னஞ்சல்: k.thiruna@gmail.com

Mapping with Programme Outcomes

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	L	M	M	L	L	M	S	S
CO2	S	S	M	L	M	M	M	M	S	L
CO3	S	S	L	M	S	L	M	S	S	L
CO4	S	S	L	L	L	L	L	M	M	M
CO5	S	S	M	M	M	L	L	M	M	L

*S-Strong; M-Medium; L-Low

குறியீட்டு எண்	20TAM1EA	நாட்டுப்புறவியல்	வி	ப	செ	ம
Elective – I			4	-	-	4
முன்னறிதல்		நாட்டுப்புறவியலின் அடிப்படைகளை அறிதல்	**Syllabus Version**		**2020 – 21**	

நோக்கங்கள்

1. பொது மக்களின் படைப்பிலக்கியக் களமாகப் பண்பாட்டு ஆவணமாக விளங்குவதை எடுத்துரைத்தல்
2. நாட்டுப்புறவியலின் அடிப்படை இயல்புகளை விளக்கி வகைகளை அறிமுகம் செய்தல்.
3. கதைப்பாடல், புராணங்கள் எனும் இவற்றின் சிறப்பியல்புகளை விரிவாக விளக்குதல்.

எதிர்பார்க்கப்படும் கற்றல் அடைவுகள்

1	இன்றைய இலக்கியப் படைப்பாளர்களின் கருத்துக்களுக்கு பண்டைய கால வாய்மொழி இலக்கியங்களே அடிப்படையாகும் என்பதை அறிதல்	K3
2	நாட்டுப்புறப் படைப்புகளை அணுகுவதற்கான ஆய்வியல் கோட்பாடுகளை விளக்குதல்.	K2
3	நாட்டார் வழக்காற்றியல், கலைநிகழ்ச்சிகள் வழி பண்டைத்தமிழரின் பாரம்பரியம் போற்றிக் காக்கப்படுவதை ஆராய்தல்	K4
4	நாட்டுப்புற வழக்காறுகள் பண்பாட்டைப் பேணிக்காக்கும் கருவூலங்கள் என்பதை உணர்தல்	K5
5	நாட்டுப்புற மருத்துவத்தின் இன்றியமையாமையை அறிவுறுத்தல்	K5

K1 – நினைவுகூர்தல்; **K2** – புரிந்து கொள்ளுதல்; **K3** – பொருத்துதல்; **K4** – பகுப்பாய்வு செய்தல்; **K5** – மதிப்பிடுதல்; **K6** – உருவாக்குதல்

அலகு :1	**நாட்டுப்புறவியல் விளக்கம்**	**14 hours**

நாட்டுப்புறவியல் விளக்கம் - பல்வேறு அறிஞர்களின் கருத்துக்கள் - நாட்டுப்புற வழக்காறுகளை வரையறுப்பதில் சிக்கல்கள் - சூழல், பாடம், இழைவு அடிப்படையில் வழக்காறுகளை உறுதி செய்வதன் தேவை - தமிழ் நாட்டுப்புறவியல் வரலாறு - இந்தியாவில் குறிப்பாகத் தென்னிந்தியாவில் நாட்டுப்புறவியல் வளர்ச்சி.

அலகு :2	**நாட்டுப்புறவியல் ஆய்வுக் கோட்பாடுகள்**	**14 hours**

வரலாற்று நிலவியல் கோட்பாடு - வரலாற்று மீட்டுருவாக்கக் கோட்பாடு - இலட்சியக் கோட்பாடு - செயல்திறன் கோட்பாடு - உளவியல் ஆய்வுக் கோட்பாடு - அமைப்பியல் கோட்பாடு - வாய்மொழி வாய்ப்பாட்டுக் கோட்பாடு - கலப்புப் பண்பாட்டுக் கோட்பாடு - நாட்டுப்புறப் பண்பாட்டுக் கோட்பாடு - மக்கட் பண்பாட்டுக் கோட்பாடு - அரை உலகக் கோட்பாடு - சூழ்நிலைக் கோட்பாடு - நாட்டுப்புற இயலும் பிற இயலும்.

அலகு :3	**நாட்டுப்புறக் கலைகள்**	**14 hours**

தெருக்கூத்து - பொம்மலாட்டம் - வில்லுப்பாட்டு - கரகம், காவடி - பொய்க்கால் குதிரை - கும்மி - மயிலாட்டம் - சிலம்பாட்டம் - கணியான் ஆட்டம் - நாட்டுப்புறக் கைவினைக் கலைகள் - நாட்டுப்புறத் தெய்வங்கள்- வழிபாடுகள் - திருவிழாக்கள் - விளையாட்டுகள்.

அலகு :4	**நாட்டுப்புற இலக்கியங்கள்**	**14 hours**

நாட்டுப்புறக் கதைகள் - கதைப் பாடல்கள் - நாட்டுப்புறப் பாடல்கள் - பழமொழிகள் - விடுகதைகள் - புராணங்கள் - மக்கட் பெயராய்வு - ஊர்ப்பெயராய்வு.

அலகு :5	**நாட்டுப்புற மருத்துவம்**	**14 hours**

நாட்டுப்புற மருத்துவம் - விளக்கம் - வகைகள் - ஆங்கில மருத்துவமும் நாட்டுப்புற மருத்துவமும்

வேறுபாடு - தற்போதைய இயற்கை மருத்துவத்தின் முக்கியத்துவம்		
அலகு : 6	கருத்தரங்குகள், இணைய வழி அரங்குகள்	**2 hours**
	Total Lecture hours	**72 hours**

பாடநூல்

1 டாக்டர்.சு.சக்திவேல் - நாட்டுப்புறவியல் ஆய்வு

பார்வை நூல்கள்

1 சு. சண்முகசுந்தரம் - நாட்டுப்புறவியல் ஓர் அறிமுகம்
2 ஆறு. இராமநாதன் - நாட்டுப்புறவியல் கோட்பாட்டுஆய்வுகள்
3 ஏ. என்.பெருமாள் - நாட்டுப்புறக் கலைகள
4 தே. லூர்து - நாட்டார்வழக்காற்றியல் - சிலஅடிப்படைகள்.
5 ந. சந்திரன் - நாட்டுப்புற மருத்துவம், விஜயா பதிப்பகம்.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1 http://www.tamilvu.org/courses/degree/a061/a0611/html/a0611312.htm

இப்பாடத்திட்ட வடிவமைப்பு : முனைவர் இரமேஷ், உதவிப்பேராசிரியர், தமிழ்த்துறை, அரசுகலைக்கல்லூரி, கோவை, மின்னஞ்சல்: dr.rameshpalanisamy@gmail.com

Mapping with Programme Outcomes

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	M	M	S	M	L	M	M	L
CO2	S	S	L	M	M	L	L	M	M	L
CO3	S	S	L	M	M	L	S	M	M	L
CO4	S	S	L	L	S	L	L	M	M	L
CO5	S	S	L	L	M	L	L	S	M	M

*S-Strong; M-Medium; L-Low


Second
Semester

குறியீட்டு எண்	20TAM23A	அற இலக்கியம்	வி	ப	செ	ம
முதன்மைப்பாடம் 5			4	-	-	4
முன்னறிதல்		இலக்கியங்களில் உள்ள அறங்களை அறிதல்	Syllabus Version		2020 - 21	

நோக்கங்கள்

1.அற இலக்கியங்களின் தோற்றம், வளர்ச்சி குறித்து அறிதல்.

2.அற இலக்கியங்கள் தோன்றுவதற்கான காரணங்களை உணர்த்ததுதல்.

3.கால மாற்றங்களால் விளைந்த அற மாற்றங்களை விளக்குதல்.

4.மாணாக்கர்களை அறநிலையை அறிந்து பின்பற்றச் செய்தல்.

எதிர்பார்க்கப்படும் கற்றல் அடைவுகள்

1	அற இலக்கியங்கள் வெளிப்படுத்தும் அறம் கூறும் முறைமையினைப் புரிந்து கொள்ளல்	K2
2	காலந்தோறுமான அறநூல்களின் பாடற் பொருண்மையையும் வடிவத்தையும் அறிந்துகொள்தல்	K1
3	அறநூல்கள் உணர்த்தும் வாழ்வியல் சிந்தனைகளை உணர்தல்	K4
4	தமிழ்ச்சமூகத்தில் காலம்தோறும் நிலவிவந்த அறம்சார் விழுமியங்களைப் பெறல்	K3
5	முற்கால பிற்கால அற இலக்கியங்களை ஒப்பிட்டுப் பார்க்கும் திறனைப் பெறல்	K5

K1 – நினைவுகூர்தல்; **K2** – புரிந்து கொள்ளுதல் **K3** – பொருத்துதல்; **K4** – பகுப்பாய்வு செய்தல்; **K5** – மதிப்பிடுதல்; **K6** – உருவாக்குதல்

அலகு :1	திருக்குறள்	14 hours

திருக்குறள் - இறைமாட்சி, குற்றங்கடிதல், செங்கோன்மை, கொடுங்கோன்மை, வெருவந்த செய்யாமை, ஊக்கமுடைமை, இடுக்கணழியாமை, வினைத்தூய்மை, நாடு, கள்ளுண்ணாமை எனும் 10 அதிகாரங்கள்.

அலகு :2	நாலடியார்	14 hours

நாலடியார் - நல்லினம் சேர்தல், நட்பாராய்தல், கூடாநட்பு, மானம் எனும் 4 அதிகாரங்கள்.

அலகு :3	நான்மணிக்கடிகை	14 hours

நான்மணிக்கடிகை - 1.எள்ளற்க, 2.திருஒக்கும், 3.கன்றாமை வேண்டும், 4.இன்னாமை வேண்டின், 5.மனைக்குப் பாழ், 6.அஞ்சாமை அஞ்சுக, 7.நாற்றம் உறைக்கும், 8.மழை இன்றி, 9.கண்ணின் சிறந்த, 10.ஈத்து உண்பான், 11.பதி நன்று, 12.கொடுப்பின் அசனம், 13.இளமைப் பருவத்து, 14.ஏரி சிறிது ஆயின், 15.மனைக்கு விளக்கம் - **15** பாடல்கள்

ஏலாதி - 1.தவம் எளிது, 2.கற்றாரைக் கற்றது, 3.பொய்யான் புலாலொடு, 4.குடியோம்பல் வன்கண்மை, 5.இளமை கழியும், 6.நிலை அளவின், 7.துறந்தார் துறவாதார், 8.எழுத்தினால் நீங்காது, 9.இழுக்கான் இயல்நெறி 10.பெரியார் சொல் பேணி, 11.உண்நீர் வளம் 12.வணங்கி வழிஒழுகி, 13.ஊணொடு கூறை, 14.இடை வனப்பும், 15.சாக்காடு கேடு - **15** பாடல்கள்

அலகு :4	ஆசாரக்கோவை	14 hours

ஆசாரக்கோவை – முழுவதும்

அலகு :5	நன்னெறி	14 hours

நன்னெறி – முழுவதும் - கற்பனைக்களஞ்சியம் சிவப்பிரகாச சுவாமிகள்

குறிப்பு : ஒவ்வொரு நூலின் நூலாசிரியர் குறித்தும் வினாக்கள் அமையும்		
அலகு : 6	கருத்தரங்குகள், இணைய வழி அரங்குகள்	**2 hours**
	Total Lecture hours	**72 hours**

பாடநூல்கள்

1	திருக்குறள்
2	நாலடியார்
3	நன்னெறி
4	ஆசாரக்கோவை
5	நான்மணிக்கடிகை
6	ஏலாதி

பார்வை நூல்கள்

1	மு.பொன்னுசாமி - நீதி இலக்கிய வரலாறு, இந்து பதிப்பகம், கோவை
2	க.ப.அறவாணன் - அற இலக்கியக் களஞ்சியம், தமிழ்க்கோட்டம், அமைந்தகரை, சென்னை-29

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	http://www.muthukamalam.com/essay/literature/p231.html

இப்பாடத்திட்ட வடிவமைப்பு : முனைவர் ஜெகதீசன், தமிழ்த்துறைத்தலைவர், திருவள்ளுவர் பல்கலைக்கழகம், வேலூர். மின்னஞ்சல் : jagantvu@gmail.com

Mapping with Programme Outcomes

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	L	L	M	L	L	S	S	L
CO2	S	S	L	M	M	M	M	M	S	L
CO3	S	S	L	M	M	L	M	S	S	L
CO4	S	S	L	M	M	L	L	S	M	M
CO5	S	S	M	S	M	M	M	S	S	M

*S-Strong; M-Medium; L-Low

குறியீட்டு எண்	20TAM23B	இலக்கணம் - சொல்	வி	ப	செ	ம
முதன்மைப்பாடம் 6				-	-	
முன்னறிதல்		சொல்லிலக்கணத்தை அறிதல்	Syllabus Version	2020 - 21		

நோக்கங்கள்

1.தமிழ்மொழியின் சொற்கட்டமைப்பை விளக்குதல் - வழுக்களைந்து சொற்களை ஆக்கும் முறைகள்

2.பண்டைத் தமிழ்ச்சொல்லிலக்கணத்தை விவரித்தல்.

3.சொற்களைக் கொண்டு தொடராக்க முறைகள் குறித்த தெளிவை உருவாக்குதல்.

எதிர்பார்க்கப்படும் கற்றல் அடைவுகள்

1	சொற்களையும், நிலைமொழியும் வருமொழியும் இணைந்து தொடராவதையும், அத்தொடரில் ஏற்படும் மாற்றங்களையும் அறிதல்	K2
2	வேற்றுமை உருபுகளையும் அவை தொடரின் பொருள் மாற்றத்திற்கு வலுசேர்க்கும் விதத்தினையும் தெரிதல்	K4
3	பெயர்ச்சொல்லுக்கும் வினைச் சொல்லுக்குமான வேறுபாட்டை அறிந்து அவற்றினைத் தொடர்களில் கண்டறிதல்.	K2
4	இடைச் சொற்களையும் உரிச்சொற்களையும் தெரிந்து அவற்றைத் தொடர்களில் பொருளறிந்து பயன்படுத்துதல்.	K5
5	செய்யுள் படைப்பதற்கான முறைமைகளை அறிந்து செய்யுள் இயற்ற முயற்சி எடுத்தல்	K6

K1 – நினைவுகூர்தல்; **K2** – புரிந்து கொள்ளுதல் **K3** – பொருத்துதல்; **K4** – பகுப்பாய்வு செய்தல்; **K5** – மதிப்பிடுதல்; **K6** – உருவாக்குதல்

அலகு :1	**சொல் ஆக்கம்**	**14 hours**
கிளவியாக்கம்		
அலகு :2	**வேற்றுமை**	**14 hours**
வேற்றுமையியல், வேற்றுமை மயங்கியல்		
அலகு :3	**பெயர்ச்சொல்**	**14 hours**
விளிமரபு, பெயரியல்		
அலகு :4	**வினைச்சொல், இடைச்சொல்**	**14 hours**
வினையியல். இடையியல்		
அலகு :5	**உரிச்சொல்**	**14 hours**
உரியியல், எச்சவியல்		
அலகு : 6	கருத்தரங்குகள், இணைய வழி அரங்குகள்	**2 hours**
	Total Lecture hours	**72 hours**

பாட நூல்கள்

1 தொல்காப்பியம் - சொல்லதிகாரம் - இளம்பூரணர் உரை

பார்வை நூல்கள்

1 செ.வை.சண்முகம் - சொல்லிலக்கணக் கோட்பாடு, அனைந்திந்திய மொழியியற் கழகம்,

	அண்ணாமலை நகர் - 608 201.
2	டாக்டர் மு.ஹம்சா - தொல்காப்பியரின் சொல்லிலக்கணக் கோட்பாடுகள், ராபியா பதிப்பகம், சக்தி கார்டன்ஸ், சோலையூர், சென்னை - 73, 2002
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	http://siragu.com/%E0%AE%A4%E0%AF%86%E0%AE%BE%E0%AE%B2%E0%AF%8D%E0%AE%95%E0%AE%BE%E0%AE%AA%E0%AF%8D%E0%AE%AA%E0%AE%BF%E0%AE%AF%E0%AE%95%E0%AF%8D-%E0%AE%95%E0%AF%81%E0%AE%B1%E0%AE%BF%E0%AE%AA%E0%AF%8D%E0%AE%AA%E0%AF%81/
இப்பாடத்திட்ட வடிவமைப்பு : முனைவர் கா.திருநாவுக்கரசு, இணைப்பேராசிரியர், த.சா.அ.க.அ. தமிழ்க்கல்லூரி, பேரூர்,கோவை, மின்னஞ்சல்: k.thiruna@gmail.com	

Mapping with Programme Outcomes										
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	M	S	L	S	L	L	S	M	M	S
CO2	L	S	M	M	L	M	M	L	L	L
CO3	L	S	M	M	L	M	M	L	L	M
CO4	L	S	M	M	L	L	M	L	M	M
CO5	M	S	L	M	M	L	M	L	L	M

*S-Strong; M-Medium; L-Low

குறியீட்டு எண்	20TAM23C	சிற்றிலக்கியங்கள்	வி	பு	செ	ம
முதன்மைப்பாடம் 7			4	-	-	4
முன்னறிதல்		தமிழ்ச்சிற்றிலக்கிய மரபுகளை அறிதல்	Syllabus Version		2020-21	

நோக்கங்கள்

1.தமிழில் தோன்றியுள்ள சிற்றிலக்கியம் எனும் வகைமை குறித்த புரிதலை வளர்த்தல்
2.சிற்றிலக்கியங்களின் வகைப்பாடுகளை அறிதல்
3.சிற்றிலக்கியக்காலப் பாடுபொருள் அடிப்படையில் அக்காலச் சூழலை அறிதல்

எதிர்பார்க்கப்படும் கற்றல் அடைவுகள்

1	தமிழ்ச்சிற்றிலக்கிய மரபுகளைத் தெரிந்துகொள்ளல்	K1
2	சிற்றிலக்கியங்கள் பெருவாரியாகத் தோற்றம் பெற்ற காலத்தின் சமூகப் பின்னணியைத் தெரிந்துகொள்ளல்	K2
3	தமிழ்ச்சிற்றிலக்கியங்களின் பாடுபொருளைப் புரிந்துகொள்ளல்	K2
4	தமிழ்ச்சிற்றிலக்கியங்களின் எடுத்துரைப்பினை ஆராய்தல்	K4
5	தற்காலச்சிற்றிலக்கியங்களையும் முற்காலச் சிற்றிலக்கியங்களையும் பொருத்திப் பார்க்கும் திறன் பெறுதல்	K3

K1 – நினைவுகூர்தல்; **K2** – புரிந்து கொள்ளுதல் **K3** – பொருத்துதல்; **K4** – பகுப்பாய்வு செய்தல்; **K5** – மதிப்பிடுதல்; **K6** – உருவாக்குதல்

அலகு :1	**தூது**	**14 hours**

தமிழ்விடு தூது.

அலகு :2	**உலா**	**14 hours**

திருக்கயிலாய ஞான உலா - சேரமான் பெருமாள் நாயனார் (11ஆம் திருமுறை)

அலகு :3	**பிள்ளைத்தமிழ்**	**14 hours**

திருப்பேரூர் பச்சை நாயகி அம்மன் பிள்ளைத்தமிழ் - தவத்திரு கந்தசாமி சுவாமிகள் - சிரவைகௌமார மடாலய வெளியீடு (ஒவ்வொரு பருவத்திலும் முதல் 5 பாடல்கள் மட்டும்)

அலகு :4	**அந்தாதி**	**14 hours**

சாந்தலிங்கர் பதிற்றுப்பத்தந்தாதி – திருப்பெருந்திரு சாந்தலிங்க இராமசாமி அடிகளார் - பேரூராதீன வெளியீடு.

அலகு :5	**பள்ளு**	**14 hours**

முக்கூடற்பள்ளு

குறிப்பு : ஒவ்வொரு நூலின் நூலாசிரியர் குறித்தும் வினாக்கள் அமையும்.

அலகு : 6	கருத்தரங்குகள், இணைய வழி அரங்குகள்	**2 hours**
	Total Lecture hours	**72 hours**

பாட நூல்கள்

1	தமிழ்விடு தூது - மணிவாசகர் பதிப்பகம், சென்னை, 2007
2	திருக்கயிலாய ஞான உலா – சாரதா பதிப்பகம், சென்னை.
3	திருப்பேரூர் பச்சைநாயகிஅம்மன் பிள்ளைத்தமிழ் - சிரவை கௌமாரமடாலய வெளியீடு
4	சாந்தலிங்கர் பதிற்றுப்பத்தந்ததாதி - பேரூராதீனவெளியீடு.
5	முக்கூடற்பள்ளு - சாரதா பதிப்பகம், சென்னை.
பார்வை நூல்கள்	
1	ந.வீ.செயராமன் - சிற்றிலக்கியச் செல்வம், மணிவாசகர் பதிப்பகம், சென்னை.
2	டாக்டர் இரா.கண்ணன் - சிற்றிலக்கிய ஆராய்ச்சி, அப்பர் பதிப்பகம், 3/401, வள்ளலார் தெரு, அண்ணாநகர், சென்னை -55
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://amuthamthamizh.blogspot.com/2014/12/blog-post.html
2	https://lm.facebook.com/l.php?u=http%3A%2F%2Fmanivasagar.com%2F%3Ffbclid%3DIwAR2yC0zK0wYWnq7WsM2NYIrFPptSAn2OzuOEvh7tgEKcJvSZOeEy2K7RTRw&h=AT2PIPrrh_keciW5Qjo8FIszTDcwLH2mFPsB-vAUhl2GRzDBNFSTLHg9-5llwQP5dyppTIeSK0pZomlo6YN0MqbB3ePrVZwXAaiJyG_JM8Rxy-TnLvyyfattCqIod2ybruczfFps9SZ9_doNB4Wmhg
இப்பாடத்திட்ட வடிவமைப்பு : முனைவர் கா.திருநாவுக்கரசு, இணைப்பேராசிரியர், த.சா.அ.க.அ. தமிழ்க்கல்லூரி, பேரூர்,கோவை, மின்னஞ்சல்: k.thiruna@gmail.com	

Mapping with Programme Outcomes										
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	L	L	M	L	L	M	S	L
CO3	M	S	L	M	M	L	M	M	S	M
CO3	S	S	M	L	M	L	L	S	M	L
CO4	S	S	L	S	M	L	M	S	S	L
CO5	S	S	L	S	S	M	M	M	M	L

*S-Strong; M-Medium; L-Low

குறியீட்டு எண்	20TAM23D	சிறப்பிலக்கியம் - சிலப்பதிகாரம்	வி	பு	செ	ம
முதன்மைப்பாடம் 8			4	-	-	4
முன்னறிதல்		சிலப்பதிகார நிகழ்வுகளை அறிதல்	Syllabus Version		2020-21	

நோக்கங்கள்

1. காப்பியங்களில் சிலம்பின் தனித்தன்மையை அறிதல்
2. சிலம்பு உணர்த்தும் மூன்று உண்மைகளை உணர்தல்
3. சிலப்பதிகாரக் காலச்சமூகச் சூழலை ஆராய்தல்

எதிர்பார்க்கப்படும் கற்றல் அடைவுகள்

1	சிலம்பின் தனித்தன்மையை நினைவுகூர்தல்	K1
2	சிலப்பதிகாரக் கதைப் போக்கினைப் புரிந்து கொள்ளல்	K2
3	சிலம்பு உணர்த்தும் மூன்று உண்மைகளைப் பொருத்திப் பார்த்தல்	K3
4	சிலம்பின் முழுமைக்கு வஞ்சிக்காண்டம் என்பதனை ஆராய்தல்	K4
5	சிலப்பதிகாரம் உணர்த்தும் விழுமியங்களை மதிப்பிட்டு அதனடிப்படையில் புதிய காப்பியங்கள் படைத்தல்	K5,K6

K1 – நினைவுகூர்தல்; **K2** – புரிந்து கொள்ளுதல் **K3** – பொருத்துதல்; **K4** – பகுப்பாய்வு செய்தல்; **K5** – மதிப்பிடுதல்; **K6** – உருவாக்குதல்

அலகு :1	**புகார்க்காண்டம்**	**14 hours**

புகார்க்காண்டம் - முதல் 6 காதைகள் மட்டும்

அலகு :2	**புகார்க்காண்டம், மதுரைக்காண்டம்**	**14 hours**

புகார்க்காண்டம், மதுரைக்காண்டம் - (7 முதல் 12 வரை) - கானல்வரி முதல் வேட்டுவ வரி வரை

அலகு :3	**மதுரைக்காண்டம்**	**14 hours**

மதுரைக்காண்டம் - 13 முதல் 18 வரை (புறஞ்சேரி இருத்த காதை முதல் துன்பமாலை வரை)

அலகு :4	**மதுரைக்காண்டம்**	**14 hours**

மதுரைக்காண்டம் - 19 முதல் 23 வரை (ஊர்சூழ் வரி முதல் கட்டுரைக் காதை வரை

அலகு :5	**வஞ்சிக்காண்டம்**	**14 hours**

வஞ்சிக்காண்டம் முழுவதும்

அலகு : 6	கருத்தரங்குகள், இணைய வழி அரங்குகள்	**2 hours**
	Total Lecture hours	**72 hours**

பாடநூல்கள்

1. டாக்டர் மு.வ - கண்ணகி

2	டாக்டர் மு.வ - கோவலன்
3	டாக்டர்ம.ரா.போ. குருசாமி - சிலம்புவழிச் சிந்தனை
4	ம.பொ.சி - சிலம்புச் செல்வம்
5	டாக்டர்தெ.பொ.மீ - கானல்வரி
6	டாக்டர்தெ.பொ.மீ - குடிமக்கள் காப்பியம்
7	மு.வை. அரவிந்தன் - உரையாசிரியர்கள்
பார்வை நூல்கள்	
1	சிலப்பதிகார ஆய்வுரை - சிலம்புச் செல்வர் ம.பொ.சிவஞானம் - பூங்கொடி பதிப்பகம், மயிலாப்பூர், சென்னை-2001.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://www.valaitamil.com/silambu-kattum-tamilar-sirappu_13908.html

இப்பாடத்திட்ட வடிவமைப்பு : முனைவர் நிர்மலாதேவி, தமிழ்த்துறைத்தலைவர், வேளாளர் மகளிர்க் கல்லூரி, ஈரோடு, மின்னஞ்சல்: prnirmaladevi@gmail.com

Mapping with Programme Outcomes

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	S	L	M	L	M	S	M	L
CO2	S	S	M	L	M	L	L	S	M	L
CO3	S	S	L	M	M	L	M	M	M	L
CO4	S	S	S	M	M	M	M	S	M	L
CO5	S	S	M	M	M	L	S	S	M	M

*S-Strong; M-Medium; L-Low

குறியீட்டு எண்	20TAM2EA	இந்திய மொழிகளின் வரலாறு	வி	பு	செ	ம
Elective II			4	-	-	4
முன்னறிதல்		மொழிகள் வரலாற்றினை அறிதல்	Syllabus Version		2020-21	

நோக்கங்கள்

1.மொழிகளின் தோற்றத்தை அறிதல்

2.இந்திய மொழிகள் வரலாற்றினை விளக்குதல்

3.இந்திய மொழிகள் வரலாற்றில் தமிழின் நிலையை ஆராய்தல்

எதிர்பார்க்கப்படும் கற்றல் அடைவுகள்

1	உலக மொழிகளில் இந்திய மொழிகளின் சிறப்பியல்புகளை அறிதல்	K2
2	வெவ்வேறு காலகட்டங்களில் மொழிகளின் வளர்ச்சி நிலைகளை மதிப்பிடுதல்	K5
3	பல்வகை மொழிகளின் அமைப்பு நிலைகளை ஆராய்தல்	K4
4	மொழி அடிப்படையில் மக்களின் நாகரிகம், பண்பாட்டினை உணர்தல்	K2
5	ஒவ்வொரு மொழியின் பழைமையையும் ஆராய்தல்	K4

K1 – நினைவுகூர்தல்; **K2** – புரிந்து கொள்ளுதல் **K3** – பொருத்துதல்; **K4** – பகுப்பாய்வு செய்தல்; **K5** – மதிப்பிடுதல்; **K6** – உருவாக்குதல்

அலகு :1	இந்திய மொழிகள்	14 hours

இன்றைய இந்திய மொழிகள் - உலக மொழிகள் - இந்தோ ஐரோப்பிய மொழிகள் - இந்தோ இரானிய மொழிகள் - ஆரியர்களின் வருகைக்கு முன்னர் இந்தியா - இந்தோ ஆரிய மொழி ஆய்வு.

அலகு :2	இந்தோ ஆரிய மொழிகள்	14 hours

இந்தோ ஆரிய மொழிகள் - பழைய இந்தோ ஆரிய மொழிக்காலம் -வேதகால மொழி நிலையும் செவ்வியல் சமற்கிருத மொழி நிலையும் - சமற்கிருத மொழி - செவ்வியல் சமற்கிருதம் - சமற்கிருத இலக்கணங்கள்.

அலகு :3	பழைய எழுத்துமுறை	14 hours

சமற்கிருத மொழியமைப்பு - மத்திய இந்திய ஆரிய மொழிக்காலம் - காலப் பகுப்பு - பிராகிருத இலக்கணங்கள் - பிராகிருத மொழி நிலை - இந்திய பழைய எழுத்துமுறை - புதிய இந்தோ ஆரிய மொழிகள்.

அலகு :4	திராவிட மொழிகள்	14 hours

திராவிட மொழிகள் - திராவிடம் எனும் சொல் - திராவிட நாகரிகம் - திராவிட மொழிகளின் பழைமை - திராவிட இன மொழிகளும் பிற மொழிகளும் - திராவிடர்கள் யார்?

அலகு :5	திராவிடமொழி இலக்கியங்கள்	14 hours

திராவிடமொழி இலக்கியங்கள் - திராவிடமொழிக் கல்வெட்டுகள் - திராவிடமொழி இலக்கணங்கள்

அலகு : 6	கருத்தரங்குகள், இணைய வழி அரங்குகள்	2 hours

Total Lecture hours	**72 hours**

பாடநூல்கள்

1. முனைவர் ச. அகத்தியலிங்கம் - இந்தியமொழிகள் - தொகுதி 1 வாழ்வும் வரலாறும் மெய்யப்பன் தமிழாய்வகம்,சிதம்பரம்.
2. முனைவர் ச. அகத்தியலிங்கம் - திராவிடமொழிகள் - 1 (உலகமொழிகள் - 5 ஆம் பகுதி) மணிவாசகர்பதிப்பகம்,சென்னை.

பார்வை நூல்கள்

1. தெ.பொ.மீ - தமிழ்மொழி வரலாறு, பாரி நிலையம், சென்னை – 1
2. டாக்டர் ரா.சீனிவாசன், மொழியியல், சாரதா பதிப்பகம், சென்னை

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

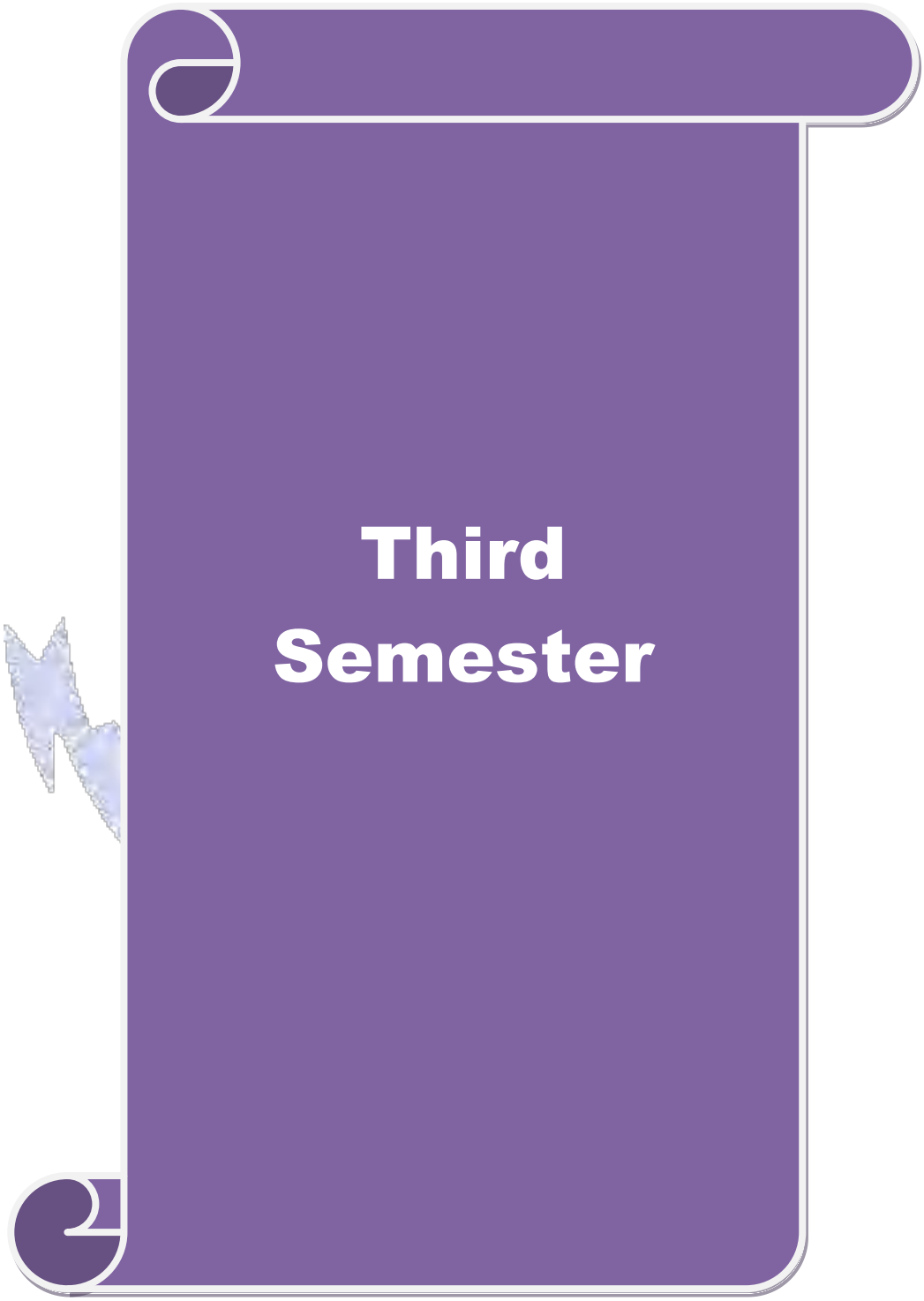
1. http://billionvoices.magnonegplus.com/tamil/%E0%AE%87%E0%AE%A8%E0%AF%8D%E0%AE%A4%E0%AE%BF%E0%AE%AF%E0%AE%AE%E0%AF%8A%E0%AE%B4%E0%AE%BF%E0%AE%95%E0%AE%B3%E0%AF%8D-%E0%AE%93%E0%AE%B0%E0%AF%8D-%E0%AE%85%E0%AE%B1%E0%AE%BF%E0%AE%AE%E0%AF%81/

இப்பாடத்திட்ட வடிவமைப்பு : முனைவர் நிர்மலாதேவி, தமிழ்த்துறைத்தலைவர், வேளாளர் மகளிர்க் கல்லூரி, ஈரோடு, மின்னஞ்சல்: prnirmaladevi@gmail.com

Mapping with Programme Outcomes

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	S	M	L	L	L	M	M	L
CO2	L	M	S	S	L	M	M	L	L	L
CO3	M	S	S	M	L	M	M	L	M	M
CO4	S	S	M	M	S	L	L	S	S	M
CO5	M	S	M	M	M	L	M	L	M	L

*S-Strong; M-Medium; L-Low


Third
Semester

குறியீட்டு எண்	20TAM33A	காப்பியங்கள்	வி	ப	செ	ம
முதன்மைப்பாடம் 9			4	-	-	4
முன்னறிதல்		தமிழ்க்காப்பிய மரபை அறிதல்	Syllabus Version		2020-21	

நோக்கங்கள்

1. தமிழிலக்கியப் பரப்பில் காப்பிய இலக்கிய வகையை அறிமுகப்படுத்துதல்.
2. காப்பிய இலக்கிய வளர்ச்சியில் சமயங்களின் பங்களிப்பை உணர்த்துதல்
3. அறம், பொருள், இன்பம், வீடு எனும் அனைத்துக் கூறுகளையும் உள்ளடக்கி மனித வாழ்வின் முழுமையைக் கட்டமைப்பினை உடைய காப்பியங்களில் காணும் விழுமியங்களை உணரச்செய்தல்.

எதிர்பார்க்கப்படும் கற்றல் அடைவுகள்

1	தமிழ்க்காப்பிய மரபு பற்றீ அறியச் செய்தல்	K1
2	காப்பியக் கட்டமைப்பையும், பாடுபொருளையும் தெளிவுபடுத்துதல்	K2
3	காப்பியங்களின் வழி பலசமயக் கோட்பாடுகளை உணருவதால் சமய நல்லிணக்க இயல்புடையோராக உருவாக்குதல்.	K3
4	காப்பிய யாப்பு, அணிநலம் இவற்றை உணருவதன்வழி படைப்புத்திறன் கைவரப்பெறல்	K6
5	இலக்கிய நுகர்வுத்திறன் கொண்டவர்களாகச் செயல்படுதல்	K2

K1 – நினைவுகூர்தல்; **K2** – புரிந்து கொள்ளுதல் **K3** – பொருத்துதல்; **K4** – பகுப்பாய்வு செய்தல்; **K5** – மதிப்பிடுதல்; **K6** – உருவாக்குதல்

அலகு :1	**மணிமேகலை**	**14 hours**

மணிமேகலை முதல் 7 காதைகள் மட்டும்.

அலகு :2	**சீவகசிந்தாமணி**	**14 hours**

சீவகசிந்தாமணி - கேமசரியார் இலம்பகம்.

அலகு :3	**பெரியபுராணம்**	**14 hours**

பெரியபுராணம் - இளையான்குடி மாற நாயனார் புராணம்

அலகு :4	**கம்பராமாயணம்**	**14 hours**

கம்பராமாயணம் - கிட்கிந்தா காண்டம் - வாலிவதைப் படலம்.

அலகு :5	**தேம்பாவணி, சீறாப்புராணம்**	**14 hours**

தேம்பாவணி - வளன் சனித்த படலம்

சீறாப்புராணம் - மானுக்குப்பிணை நின்ற படலம்.

குறிப்பு : ஒவ்வொரு நூலின் நூலாசிரியர் குறித்தும் வினாக்கள் அமையும்

அலகு : 6	கருத்தரங்குகள், இணைய வழி அரங்குகள்	**2 hours**
	Total Lecture hours	**72 hours**

பாடநூல்கள்	
1	முணிமேகலை
2	சீவகசிந்தாமணி
3	பெரியபுராணம்
4	கம்பராமாயணம்
5	தேம்பாவணி
6	சீறாப்புராணம்
பார்வை நூல்கள்	
1	தெ.பொ.மீனாட்சி சுந்தரனார் - குடிமக்கள் காப்பியம், மீனாட்சி புத்தக நிலையம், மதுரை, 1974
2	கி.வா.ஜெகந்நாதன் - தமிழ்க்காப்பியங்கள், அமுத நிலையம், இராயப்பேட்டை ஹைரோடு, சென்னை - 14, 1971
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	http://www.tamilvu.org/courses/degree/p104/p1041/html/p1041115.htm
இப்பாடத்திட்ட வடிவமைப்பு : முனைவர் சே.மணிகண்டன், உதவிப்பேராசிரியர், தமிழ்த்துறை, சி.பி.எம்கல்லூரி, கோவைப்புதூர், மின்னஞ்சல்: manikandan.tsa1992@gmail.com	

Mapping with Programme Outcomes										
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	S	L	M	M	M	S	M	L
CO2	S	S	M	M	L	L	M	L	M	L
CO3	S	S	S	M	M	M	M	L	L	M
CO4	S	S	M	M	L	L	M	L	M	L
CO5	S	S	S	M	M	L	L	M	M	L

*S-Strong; M-Medium; L-Low

குறியீட்டு எண்	20TAM33B	தொல்காப்பியம் பொருள் - 1	வி	ப	செ	ம
முதன்மைப்பாடம் 10			4	-	-	4
முன்னறிதல்		பண்டைத் தமிழரின் அறவாழ்வியல், போர் வாழ்வியலை அறிதல்	Syllabus Version		2020-21	

நோக்கங்கள்

1.தொல்காப்பியரின் பொருளதிகாரம் தமிழரின் வாழ்வியலை விளக்கும் காலக்கண்ணாடி என்பதை நிறுவுதல்.

2. நம் மரபு மூலங்களைச் செறிவுடன் அறிவிக்கும் நூல் தொல்காப்பியம் என்பதை உணர்த்தல்

3. பண்டைத் தமிழரின் அறவாழ்வியல், போர் வாழ்வியல் நிலம் சார்ந்த வாழ்வியல், மக்களின் ஒழுக்க நெறிகள் பற்றி அறிதல்

4. பழந்தமிழரின் மரபியல் கோட்பாட்டினை மரபு மாறாமல் மரபியல் கொண்டு அறிவித்தல்.

எதிர்பார்க்கப்படும் கற்றல் அடைவுகள்

1	நிலம் மற்றும் ஒழுக்கம் சார்ந்த திணை வாழ்க்கையினை எடுத்துக்காட்டுதல்.	K1
2	தொல்காப்பியர் நெறி சங்ககால மக்களின் வாழ்வியல் வெளிப்பாடுகளை அறிந்து பின்பற்றச்செய்தல்	K2, K3
3	களவு, கற்பு வாழ்க்கையின் முதன்மைத்துவத்தை அறிந்துகொள்ளல்	K2
4	காதல் வாழ்வினைக் களவு என்றும் திருமண வாழ்வினைக் கற்பு என்றும் பிரித்து வாழ்ந்த ஒழுக்க வாழ்வைக் கடைப்பிடிக்கச் செய்தல்	K5
5	விடுபட்ட பண்டைத் தமிழரின் வாழ்வியல் கூறுகள் பொருளியலில் உள்ளதை மதிப்பிடுதல்	K5

K1 – நினைவுகூர்தல்; **K2** – புரிந்து கொள்ளுதல் **K3** – பொருத்துதல்; **K4** – பகுப்பாய்வு செய்தல்; **K5** – மதிப்பிடுதல்; **K6** – உருவாக்குதல்

அலகு :1	**அகம்**	**14 hours**
அகத்திணையியல்		
அலகு :2	**புறம்**	**14 hours**
புறத்திணையியல்		
அலகு :3	**களவு**	**14 hours**
களவியல்		
அலகு :4	**கற்பு**	**14 hours**
கற்பியல்		
அலகு :5	**பொருள்**	**14 hours**
பொருளியல்		
அலகு : 6	கருத்தரங்குகள், இணைய வழி அரங்குகள்	**2 hours**
	Total Lecture hours	**72 hours**

பாடநூல்கள்

1	தொல்காப்பியம் - இளம்பூரணர் உரை
பார்வை நூல்கள்	
1	டாக்டர் கா.ப.அறவாணன் - அற்றைநாள் காதலும் வீரமும், தமிழ்க்கோட்டம், கஜபதி நாயுடு தெரு, அமைந்தகரை, சென்னை – 30
2	ஆ.சிவலிங்கனார் - தொல்காப்பிய உரைவளம், உலகத் தமிழாராய்ச்சி நிறுவனம், தரமணி, சென்னை 113.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://www.tamilauthors.com/01/460.html
இப்பாடத்திட்ட வடிவமைப்பு : முனைவர் கா.திருநாவுக்கரசு, இணைப்பேராசிரியர், த.சா.அ.க.அ. தமிழ்க்கல்லூரி, பேரூர்,கோவை, மின்னஞ்சல்: k.thiruna@gmail.com	

Mapping with Programme Outcomes										
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	L	L	S	L	L	S	M	M
CO3	S	S	M	M	M	M	S	M	M	L
CO3	S	S	L	M	M	L	L	S	M	L
CO4	S	S	M	L	S	L	L	S	S	M
CO5	S	S	L	M	M	M	M	M	M	L

*S-Strong; M-Medium; L-Low

குறியீட்டு எண்	20TAM33C	ஆய்வியல் அறிமுகம்	வி	ப	செ	ம
முதன்மைப்பாடம் 11			4	-	-	4
முன்னறிதல்		ஆராய்ச்சி நெறிமுறைகளை அறிதல்	Syllabus Version		2020-21	

நோக்கங்கள்

1. வாழ்வியல் பதிவுகளுள் முக்கியமான பங்கு வகிக்கும் இலக்கியங்களை ஆராய்தல்.
2. தன்னகத்தே ஒற்றுமைக் கூறுகளையும் வேற்றுமைக் கூறுகளையும் உடைய இலக்கியங்களை ஆய்தல்
3. இலக்கிய ஒப்பாய்வுத் திறனை வளர்த்தல்

எதிர்பார்க்கப்படும் கற்றல் அடைவுகள்

1	ஆராய்ச்சி நெறிமுறைகளை அறிந்துகொள்ளுதல்	K2
2	ஆய்வில் தகவல் திரட்டும் முறைகள் குறித்துத் தெரிந்துகொள்ளல்	K2
3	ஆய்வறிக்கை எழுதக் கற்றுக்கொள்ளல்	K6
4	தரவுகளை முறைப்படுத்துதலின் வழி ஆய்வின் தரத்தை உறுதிப்படுத்துதல்	K3
5	செம்மையான புதிய ஆய்வுகள் மேற்கொள்ள வழிவகை செய்தல்	K6

K1 – நினைவுகூர்தல்; **K2** – புரிந்து கொள்ளுதல் **K3** – பொருத்துதல்; **K4** – பகுப்பாய்வு செய்தல்; **K5** – மதிப்பிடுதல்; **K6** – உருவாக்குதல்

அலகு :1	**ஆய்வுமுறைக் கல்வி**	**14 hours**

ஆய்வுமுறைக் கல்வி -ஆய்வும் ஆய்வேடும் - ஆய்பொருள் அல்லது சிக்கல் வினா - ஆய்வைத் திட்டமிட்டுத் தொடங்குதல்..

அலகு :2	**மரபுவழி ஆய்வு**	**14 hours**

சான்றுமூலம், தரவுத் தொகுப்பு முயற்சிகள் - நூலகமும் ஆய்வேடும் - தமிழில் மரபுவழி ஆய்வு நெறிகளும், புலப்பாட்டுத் திறனும்.

அலகு :3	**ஆய்வறிக்கை**	**14 hours**

ஆய்வறிக்கை எழுதும் முறை

அலகு :4	**வடிவமைப்பு**	**14 hours**

ஆய்வேட்டின் வடிவமைப்பு - அடிக்குறிப்பிடும் முறைகளும் மேற்கோள் காட்டும் நெறிகளும்.

அலகு :5	**ஆய்வியல் முறைகள்**	**14 hours**

சான்று, தரவுத் தொகுப்பு நெறிகள் - தெளிவும் திருத்தமும் - ஆய்வேட்டின் தரம் - வாய்மொழித்தேர்வு - ஆய்வியல் முறைகள் - ஆய்வியல் ஆற்றுப்படை - தமிழில் ஆராய்ச்சி வளர்ச்சி வரலாறு.

அலகு : 6	கருத்தரங்குகள், இணைய வழி அரங்குகள்	**2 hours**
	Total Lecture hours	**72 hours**

பாடநூல்கள்

1	ஆய்வியல் அறிமுகம் - தமிழண்ணல், எம்.எஸ்.இலக்குமணன், மீனாட்சி புத்தக நிலையம், மதுரை.
பார்வை நூல்கள்	
1	ஆராய்ச்சி முறைகள் - முனைவர் எச். சித்திரபுத்திரன் முனைவர் ஆ.சண்முகம்
2	இலக்கிய ஆராய்ச்சி நெறிமுறைகள் - முனைவர் சு.வேங்கடராமன் முனைவர் முத்துச் சண்முகம்
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	http://kovaimani-tamil manuscriptology.blogspot.com/2018/05/blog-post_57.html
இப்பாடத்திட்ட வடிவமைப்பு : முனைவர் இரமேஷ், உதவிப்பேராசிரியர், தமிழ்த்துறை, அரசுகலைக்கல்லூரி, கோவை, மின்னஞ்சல்: dr.rameshpalanisamy@gmail.com	

Mapping with Programme Outcomes										
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	L	M	L	S	L	L	S	L	L	M
CO3	L	S	M	S	L	L	S	M	M	L
CO3	M	M	M	S	L	L	S	L	M	M
CO4	M	S	M	S	M	M	S	M	M	L
CO5	M	S	M	S	M	L	S	M	M	M

*S-Strong; M-Medium; L-Low

குறியீட்டு எண்	20TAM3EA	சைவசித்தாந்தம் - 1 – அ	வி	ப	செ	ம
விருப்பப்பாடம் 1			4	-	-	4
முன்னறிதல்		சைவ சித்தாந்தம் வழி வாழ்வியலை அறிதல்	Syllabus Version		2020-21	

நோக்கங்கள்

1. சைவசித்தாந்தம் எனும் மெய்யியலை அறிதல்
2. பதி, பசு, பாசம் பற்றிய உண்மைகளைப் புரிதல்
3. சைவ சித்தாந்தத்தின் வழி வாழ்வியல் உண்மைகளை உணர்தல்

எதிர்பார்க்கப்படும் கற்றல் அடைவுகள்

1	சைவசித்தாந்தம் எனும் தத்துவத்துறையின் அடிப்படைகளைப் புரிந்துகொள்ளல்	K1,K2
2	தமிழ்ச்சமய வரலாற்றில் சைவ மரபு வகித்த இடத்தைத் தெரிந்து கொள்ளல்	K1,K2
3	திருமுறைகளில் காணப்படும் சைவ சித்தாந்தக் கருத்துகளைப் புரிந்துகொள்ளல்	K1,K2
4	சைவ சமயத்திற்கும் பிற சமயத்திற்கும் இடையேயான ஒற்றுமை வேற்றுமைகளைப் புரிந்துகொள்ளல்	K2
5	சமயக் கருத்துக்களை வாழ்வின் பொருட்டுப் பயன்படுத்திக் கொள்ளும் புரிதலைப்பெறுதல்.	K3

K1 – நினைவுகூர்தல்; **K2** – புரிந்து கொள்ளுதல் **K3** – பொருத்துதல்; **K4** – பகுப்பாய்வு செய்தல்; **K5** – மதிப்பிடுதல்; **K6** – உருவாக்குதல்

அலகு :1	சிவ வழிபாட்டு நெறிகள்	14 hours

சிவவழிபாட்டின் தொன்மையும் உலகளாவிய விரிவும் - தொல்காப்பியனார் கூறும் வழிபாட்டு நெறிகளும் தத்துவக் கொள்கைகளும் - திருவள்ளுவர் கூறும் வாழ்க்கை நெறிமுறைகளும் தத்துவ உண்மைகளும்.

அலகு :2	சங்கச் செய்யுட்களில் தெய்வ வழிபாடு	14 hours

சங்கச் செய்யுட்களில் இடம்பெற்றுள்ள தெய்வ வழிபாடும் தத்துவக் கொள்கைகளும்.

அலகு :3	சிவநெறிக் கொள்கை	14 hours

சங்க இலக்கியத்தில் சிவன் வழிபாடும் சைவ சமயத் தத்துவ உண்மைகளும் - சிலப்பதிகாரத்தில் காணப்பெறும் தெய்வ வழிபாடுகளும் சிவநெறிக் கோட்பாடுகளும் - மணிமேகலையில் காணப்படும் தெய்வ வழிபாடுகளும் சிவநெறிக் கொள்கையும்.

அலகு :4	திருமந்திரம் கூறும் தத்துவ உண்மைகள்	hours

தமிழாகமம் எனப் போற்றப்பெறும் திருமூலர் திருமந்திரம் கூறும் சைவ சித்தாந்தச் செந்நெறியும் தத்துவ உண்மைகளும்.

அலகு :5	சைவசித்தாந்த உண்மைகள்	hours

திருமுறைகளில் இடம்பெற்றுள்ள சைவசித்தாந்த உண்மைகள் - திருவாதவூரடிகள் மேற்கொண்டொழுகிய சிவநெறி கொள்கை

அலகு : 6	கருத்தரங்குகள், இணைய வழி அரங்குகள்	2 hours
	Total Lecture hours	72 hours

பாடநூல்கள்

1	சைவசித்தாந்த சாத்திர வரலாறு - க.வெள்ளை வாரணனார் தமிழ்ப்பல்கலைக்கழக வெளியீடு, தஞ்சாவூர்.
பார்வை நூல்கள்	
1	சைவசமயம் - மா.இராசமாணிக்கனார்
2	பன்னிருதிருமுறை வரலாறு - இருதொகுதிகள் - க.வெள்ளைவாரணனார்.
3	சைவசமயம் (மொழிபெயர்ப்பு நூல்) - அல்லயன்சு பதிப்பக வெளியீடு.
4	மெய்கண்ட சாத்திரங்கள் - சைவ சித்தாந்தப் பெருமன்றம், சென்னை.
5	வ.ஆ.தேவசேனாதிபதி - சைவ சித்தாந்தத்தின் அடிப்படைகள், சென்னைப் பல்கலைக்கழகம், சென்னை.1981
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://youtu.be/aZkSyekjFyg
2	https://youtu.be/pFT5gdfCqYo

இப்பாடத்திட்ட வடிவமைப்பு : முனைவர் கா.திருநாவுக்கரசு, இணைப்பேராசிரியர், த.சா.அ.க.அ. தமிழ்க்கல்லூரி, பேரூர்,கோவை, மின்னஞ்சல்: k.thiruna@gmail.com

Mapping with Programme Outcomes										
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	M	M	L	L	M	L	M	L	M	L
CO2	S	S	M	L	L	L	L	L	M	L
CO3	M	M	L	M	L	L	M	M	M	L
CO4	M	S	M	M	M	M	M	S	S	M
CO5	S	S	L	M	L	L	M	S	M	L

*S-Strong; M-Medium; L-Low

குறியீட்டு எண்	20TAM3EB	ஒப்பிலக்கிய அறிமுகம் - 1ஆ	வி	ப	செ	ம
விருப்பப்பாடம் 1			4	-	-	4
முன்னறிதல்		ஒப்பிலக்கிய நிலையை அறிதல்	Syllabus Version		2020-21	

நோக்கங்கள்

1. இலக்கியங்களை ஒப்பிட்டு ஆராயும் அறிவைப் பெறல்.
2. உலக இலக்கியங்களை தமிழ் இலக்கியங்களுடன் ஒப்பிட்டுப்பார்த்தல்
3. தமிழில் ஒப்பிலக்கிய வளர்ச்சியை அறிதல்

எதிர்பார்க்கப்படும் கற்றல் அடைவுகள்

1	வாழ்வியல் பதிவுகளுள் முக்கியப்பங்கு வகிக்கும் இலக்கியங்களை அறிந்து கொள்ளுதல்.	K2
2	கால தேச நிலைகளைக் கடந்து தன்னகத்தே ஒற்றுமைக் கூறுகளையும் வேற்றுமைக் கூறுகளையும் உடைய இலக்கியங்களைக் கற்றுக் கொள்ளுதல்.	K4
3	இலக்கியச் சுவையினை அறிந்து கொள்ளுதல்.	K2
4	இலக்கிய ஒப்பாய்வுத்திறனை வளர்த்தல்	K5
5	இலக்கியங்களை மொழி பெயர்த்தல்	K3

K1 – நினைவுகூர்தல்; **K2** – புரிந்து கொள்ளுதல் **K3** – பொருத்துதல்; **K4** – பகுப்பாய்வு செய்தல்; **K5** – மதிப்பிடுதல்; **K6** – உருவாக்குதல்

அலகு : 1	ஒப்பிலக்கிய அறிமுகம்	14 hours

ஒப்பிலக்கிய அறிமுகம் - ஒப்பிலக்கியத்தின் தோற்றமும் வளர்ச்சியும் - ஒப்பிலக்கியத்தின் பண்பும் பயனும் - மனித இனப் பொதுமை - இலக்கியப் பொதுமை - தனித்திறன் - பொதுத்திறன் - முழுமை நோக்கம்.

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அலகு : 2	இலக்கிய ஒப்பீடு	14 hours

தமிழில் ஒப்பிலக்கிய வளர்ச்சியின் நிலை - ஒருமொழி இலக்கிய ஒப்பீடு - பன்மொழி இலக்கிய ஒப்பீடு.

அலகு : 3	உலக இலக்கியங்கள்	14 hours

உலக இலக்கிய அறிமுகம் : சங்க இலக்கியம் - வடமொழி இலக்கியம் - கிரேக்க இலக்கியம் - இலத்தீன் இலக்கியம்.

அலகு : 4	இலக்கிய நெறிகள்	14 hours

இலக்கியத்தைப் பகுத்துக்காட்டும் நெறிகள் மூன்று: இலக்கியக் காலப்பகுதிகள் - இலக்கிய இயக்கங்கள் - இலக்கிய வகைகள்.

அலகு : 5	இலக்கிய வகைகள்	14 hours

ஒப்பிலக்கிய ஆய்வில் இலக்கிய வகைகளின் இடம். இலக்கியத்தை இனம் பிரிக்க உதவுதல் - இலக்கியத்தை உள்ளும் புறமும் உணர வழிசெய்தல் - இலக்கிய வகைகளின் அரிமா நோக்குப் பண்பு.

அலகு : 6	கருத்தரங்குகள், இணைய வழி அரங்குகள்	2 hours

Total Lecture hours	**72 hours**

பாடநூல்கள்

1. க.கைலாசபதி - ஒப்பியல் இலக்கியம், சென்னை புக் ஹவுஸ், 6, மேட்லி சாலை, சென்னை – 17

பார்வை நூல்கள்

1. இராம. பெரியகருப்பன் (தமிழண்ணல்) - ஒப்பிலக்கிய அறிமுகம் - மீனாட்சி புத்தக நிலையம், மதுரை.
2. இராம. பெரியகருப்பன் (தமிழண்ணல்) - சங்க இலக்கிய ஒப்பீடு - இலக்கிய வகைகள், மீனாட்சி புத்தக நிலையம், மதுரை.
3. இராம. பெரியகருப்பன் (தமிழண்ணல்) - சங்க இலக்கிய ஒப்பீடு - இலக்கியக் கொள்கைகள், மீனாட்சி புத்தக நிலையம், மதுரை.
4. கி. இராசா - இலக்கிய வகைமை ஒப்பாய்வு, பார்த்திபன் பதிப்பகம், மதுரை.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1. https://www.jeyamohan.in/10608/

இப்பாடத்திட்ட வடிவமைப்பு : முனைவர் சுஜாதா, இணைப்பேராசிரியர், தமிழ்த்துறை, காஞ்சி மாமுனிவர் முதுகலை உயராய்வு மையம், புதுச்சேரி.

Mapping with Programme Outcomes

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	M	L	S	L	M	S	S	L
CO2	S	S	S	M	M	L	L	S	M	L
CO3	S	S	L	L	S	L	L	S	S	M
CO4	M	M	M	S	L	M	S	M	M	M
CO5	S	S	S	M	M	S	M	M	L	S

*S-Strong; M-Medium; L-Low

குறியீட்டு எண்	20TAM3EC	இதழியலும் மக்கள் தகவல் தொடர்பியலும் - 1இ	வி	ப	செ	ம
விருப்பப்பாடம் 1			4	-	-	4
முன்னறிதல்		தகவல் தொடர்டபியலின் வரலாற்றை அறிதல்	Syllabus Version		2020-21	

நோக்கங்கள்

1. தகவல் தொடர்பின் முக்கியத்துவத்தை அறிதல்
2. மொழியின் வழி செயல்படுத்தப்படும் தகவல் தொடர்பு முறைகள் குறித்த புரிதலை உருவாக்குதல்
3. தகவல் தொடர்பியலின் இன்றியமையாமையை உணர்தல்

எதிர்பார்க்கப்படும் கற்றல் அடைவுகள்

1	தகவல் தொடர்டபியலின் வளர்ச்சி வரலாற்றைத் தெரிந்துகொள்ளல்	K2
2	தகவல் தொடர்பு சாதனங்களின் பண்பு மற்றும் பயன்பாடுகள் குறித்துப் புரிந்து கொள்ளுதல்	K2
3	இதழ்களின் செயல்பாடுகள் மற்றும் கடமைகளைத் தெரிந்துகொள்ளல்	K4
4	ஒலி மற்றும் காட்சி ஊடகங்களின் செயல்பாடுகளைப் புரிந்துகொள்ளல்	K4
5	ஊடகத்துறையில் இருக்கும் வாய்ப்புகளைப் பயன்படுத்திக் கொள்ளும் திறன் பெறுதல்	K1

K1 – நினைவுகூர்தல்; **K2** – புரிந்து கொள்ளுதல் **K3** – பொருத்துதல்; **K4** – பகுப்பாய்வு செய்தல்; **K5** – மதிப்பிடுதல்; **K6** – உருவாக்குதல்

அலகு :1	அச்சுக்கலை	14 hours

இந்தியாவில் அச்சுக்கலை அறிமுகம். இதழியல் வரையறை - இந்தியாவில் இதழ்கள் - தமிழகத்தின் இதழ்கள் - தற்காலத்தமிழ் இதழ்கள்.

அலகு :2	இதழ்களின் பணிகள், பொறுப்புகள்	14 hours

இதழ்களின் கடமைகள், பணிகள், பொறுப்புகள் - இதழ்களின் வகைகளும் இயல்புகளும் - இதழ்களின் சுதந்திரம்.

அலகு :3	செய்தி	14 hours

செய்தி விளக்கம் - செய்தி மூலங்கள் - ஆசிரியர் - செய்தியாசிரியர் - துணை ஆசிரியர் - செய்தியின் கட்டமைப்பு.

அலகு :4	விளம்பரம்	14 hours

விளம்பரம் - சொற்பொருள் விளக்கம் - விளம்பரத்தின் வரலாறு - விளம்பர சாதனங்கள்.

அலகு :5	விளம்பரம் தயாரித்தல்	14 hours

செய்முறைப் பயிற்சி - விளம்பரம் தயாரித்தல் - பத்திரிக்கை விளம்பரம் - வானொலி விளம்பரம் - தொலைக்காட்சி விளம்பரம் - அரசு விளம்பரம்

அலகு:6	கருத்தரங்குகள், இணைய வழி அரங்குகள்	2 hours
	Total Lecture hours	**72 hours**

பாடநூல்கள்	
1	டாக்டர்.மா.பா. குருசாமி - இதழியல் கலை
2	டாக்டர்.ஆ. விநாயகமூர்த்தி - விளம்பரக்கலை, பாலமுருகன் பதிப்பகம், மதுரை.
பார்வை நூல்கள்	
1	வேலம்மாள். நா – தமிழ் இதழ்களில் கட்டமைப்புக் கூறுகள், தாமரை பப்ளிகேசன்ஸ், சென்னை.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	http://siragu.com/%E0%AE%AE%E0%AE%95%E0%AF%8D%E0%AE%95%E0%AE%B3%E0%AF%8D-%E0%AE%A4%E0%AE%95%E0%AE%B5%E0%AE%B2%E0%AF%8D-%E0%AE%A4%E0%AF%8A%E0%AE%9F%E0%AE%B0%E0%AF%8D%E0%AE%AA%E0%AE%BF%E0%AE%AF%E0%AE%B2%E0%AF%8D/
இப்பாடத்திட்ட வடிவமைப்பு : முனைவர் சுகுமாரன், முதல்வர்(மு.கூ.பொ), அரசு கலை அறிவியல் கல்லூரி, மேட்டுப்பாளையம், மின்னஞ்சல்: sukumaranthiru@gmail.com	

Mapping with Programme Outcomes										
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	L	L	M	L	L	M	L	L	M
CO2	M	L	M	L	L	L	M	L	M	M
CO3	L	L	M	L	M	M	M	M	M	M
CO4	M	L	M	L	M	M	L	L	M	M
CO5	M	M	M	L	M	M	L	L	M	S

*S-Strong; M-Medium; L-Low

குறியீட்டு எண்	20TAM3EB	தமிழ் இலக்கண வரலாறு	வி	ப	சே	ம
Elective III			4	-	-	4
முன்னறிதல்		தமிழ் இலக்கண வரலாற்றை அறிதல்	Syllabus Version		2020-21	

நோக்கங்கள்

1. இலக்கணம் காலந்தோறும் மாறும் இயல்புடையது என்பதை அறிதல்.
2. தமிழ்மொழிக்கான இலக்கணக் கூறுகளை வரலாற்று நிலையில் புரிந்துகொள்ளுதல்.
3. இலக்கணத்தின் நுண்ணிய வேறுபாடுகளை அறிதல்

எதிர்பார்க்கப்படும் கற்றல் அடைவுகள்

1	சங்கத்தமிழின் இலக்கணக் கட்டமைப்பைத் தொல்காப்பியத்தின் வழி விளக்குதல்	K2
2	தமிழ்ச் சொற்களுக்கான பாகுபாடுகளையும் இன்றைய நிலையில் அவ்விலக்கணத்தின் தேவைகளையும் உணர்ந்துகொள்ளுதல்	K2
3	மொழி மற்றும் மொழியியல் அறிவினைப் பெறுதல்.	K1,K2
4	தமிழ் இலக்கணத்தின் காலந்தோறுமான வேறுபாடுகளை அறிதல்.	K4
5	சிறந்ததோர் இலக்கணக் கட்டமைப்பினால், தமிழ்மொழியின் செம்மையை நிலைநிறுத்தச் செய்தல்	K5

K1 – நினைவுகூர்தல்; **K2** – புரிந்து கொள்ளுதல் **K3** – பொருத்துதல்; **K4** – பகுப்பாய்வு செய்தல்; **K5** – மதிப்பிடுதல்; **K6** – உருவாக்குதல்

அலகு :1	தொல்காப்பியம்	14 hours

இலக்கண வரலாறு – முந்து நூல் - அகத்தியம், தொல்காப்பியம்.

அலகு :2	தொல்காப்பிய உரைகள்	14 hours

தொல்காப்பிய உரைகள் முழுமையும்

அலகு :3	பிந்து நூல்களில் முந்து நூல்கள்	14 hours

இறையனார் அகப்பொருள் - பிந்து நூல்களில் முந்து நூல்கள் - புறப்பொருள் வெண்பாமாலை – தமிழ்நெறி விளக்கம் - யாப்பருங்கலம்.

அலகு :4	யாப்பும் அணியும்	14 hours

யாப்பருங்கலக்காரிகை – வீரசோழியம் - இந்திரகாளியம், நேமிநாதம் - வெண்பாப் பாட்டியல் - தண்டியலங்காரம் - நன்னூல் - அதன் உரைகள் - அகப்பொருள் விளக்கம் - களவியற்காரிகை – பன்னிரு பாட்டியல் - நவநீதப்பாட்டியல் - வரையறுத்த பாட்டியல் - சிதம்பரப் பாட்டியல் - மாறனலங்காரம் - மாறனகப்பொருள் - பாப்பாவினம்.

அலகு :5	உரைநடை இலக்கண நூல்கள்	14 hours

சிதம்பரச் செய்யுள் கோவை – பிரயோக விவேகம் - இலக்கண விளக்கம் - இலக்கணக் கொத்து – தொன்னூல் விளக்கம் - பிரபந்த தீபம் - பிரபந்தத் திரட்டு – முத்துவீரியம் - சுவாமிநாதம் - சந்திராலோகம் - இரு குவலயானந்த நூல்கள் - அறுவகை இலக்கணம் - விருத்தப்பாவியல் - யாப்பு நூல் - உரைநடை இலக்கண நூல்கள் - தென்னூல்

அலகு : 6	கருத்தரங்குகள், இணைய வழி அரங்குகள்	2 hours

Total Lecture hours	**72 hours**
பாடநூல்கள்	
1 இலக்கண வரலாறு - இரா.இளங்குமரன், மணிவாசகர் பதிப்பகம்	
பார்வை நூல்கள்	
1 தமிழ் இலக்கணச் செல்வம் - சோ.ந.கந்தசாமி, மெய்யப்பன் பதிப்பகம்.	
2 உரையாசிரியர்கள் - மு.வை.அரவிந்தன், மணிவாசகர் பதிப்பகம்.	
3 இலக்கணவரலாறு - பாட்டியல் நூல்கள் - மருதூர் அரங்கநாதன், மணிவாசகர் பதிப்பகம்.	
4 இலக்கண வரலாறு- சோம.இளவரசு, மெய்யப்பன் பதிப்பகம்.	
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1 http://www.keetru.com/visai/oct06/jaiganesh.php	
இப்பாடத்திட்ட வடிவமைப்பு : முனைவர் ஜெகதீசன், தமிழ்த்துறைத்தலைவர், திருவள்ளுவர் பல்கலைக்கழகம், வேலூர். மின்னஞ்சல் : jagantvu@gmail.com	

Mapping with Programme Outcomes										
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	L	S	L	M	M	L	M	M	M	L
CO2	M	S	M	M	L	L	M	L	M	L
CO3	S	S	S	L	L	L	M	M	M	L
CO4	S	S	L	M	M	L	M	L	M	L
CO5	S	S	S	S	S	M	S	S	S	S

*S-Strong; M-Medium; L-Low


Fourth
Semester

குறியீட்டு எண்	20TAM43A	சங்க இலக்கியம்	வி	பு	செ	ம
முதன்மைப்பாடம் 13			4	-	-	4
முன்னறிதல்		சங்கத்தமிழரின் வாழ்வியலை அறிதல்	Syllabus Version		2020-21	

நோக்கங்கள்

1. பாட்டும் தொகையும் என அமைந்த தமிழின் தனித்த அடையாளமான சங்க மரபினை விளக்குதல்
2. தொல்தமிழரின் இயற்கை சார்ந்த வாழ்வியல் நெறிமுறைகளை உணர்தல்
3. தொன்மையான உலக மொழி இலக்கியங்களோடு ஒப்பிட்டு ஆராயும் திறனைப் பெறுதல்

எதிர்பார்க்கப்படும் கற்றல் அடைவுகள்

1	பழந்தமிழரின் மேன்மையான நாகரிகப் பண்பாட்டு விழுமியங்களைத் தெரிதல்	K2
2	சங்கப்பாடல்களின் கவிதையியல் பண்பை அறிதல்	K2
3	சங்கத்தமிழரின் வாழ்வியல் கண்ணோட்டத்தையும் தத்துவச்சிந்தனை மரபையும் மதிப்பிடுதல்	K5
4	திணைசார் சமுதாய வாழ்வின் பல்வேறுபட்ட பரிமாணங்களைப் புலவர்கள் வாயிலாகவும் திணை இலக்கியத்தின் வாயிலாகவும் அறிதல்.	K3
5	பழந்தமிழரின் மொழியியல்சார் சிந்தனை அறிவு குறித்து புரிதல் பெறுதல்	K2

K1 – நினைவுகூர்தல்; **K2** – புரிந்து கொள்ளுதல் **K3** – பொருத்துதல்; **K4** – பகுப்பாய்வு செய்தல்; **K5** – மதிப்பிடுதல்; **K6** – உருவாக்குதல்

அலகு :1	எட்டுத்தொகை – அகநூல்கள்	14 hours

1. குறுந்தொகை - முதல் 20 பாடல்கள்
2. நற்றிணை - 201 ஆம் பாடல் முதல் 220 ஆம் பாடல் வரை
3. அகநானூறு - 50 ஆம் பாடல் முதல் 60 ஆம் பாடல் வரை.

அலகு :2	கலித்தொகை, பரிபாடல்	14 hours

1. கலித்தொகை - ஒவ்வொரு கலியிலும் முதல் இரண்டு பாடல்கள்
2. பரிபாடல் - 3,5,9 ஆம் பாடல்கள்

அலகு :3	புறநானூறு, பதிற்றுப்பத்து	14 hours

1. புறநானூறு - முதல் 20 பாடல்கள்
2. பதிற்றுப்பத்து - ஐந்தாம் பத்து

அலகு :4	ஆற்றுப்படை	14 hours

சிறுபாணாற்றுப்படை

அலகு :5	நெடுநல்வாடை	14 hours

நெடுநல்வாடை

குறிப்பு : பத்துப்பாட்டு ஆசிரியர்கள் குறித்த வினாக்கள் அமைதல் வேண்டும்

அலகு : 6	கருத்தரங்குகள், இணைய வழி அரங்குகள்	2 hours
	Total Lecture hours	**72 hours**

பாடநூல்கள்

1. ச.வே.சு ஐயர்(உ) - எட்டுத்தொகை, மணிவாசகர் பதிப்பகம், சென்னை.
2. ச.வே.சு ஐயர்(உ) - பத்துப்பாட்டு, மணிவாசகர் பதிப்பகம், சென்னை.

பார்வை நூல்கள்

1. வ.சுப.மாணிக்கம் - தமிழ்க்காதல், பாரி நிலையம், சென்னை.
2. இரா.பி.சேதுப்பிள்ளை - தமிழர் வீரம், பழனியப்பா பிரதர்ஸ், சென்னை-14.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1. http://www.keetru.com/index.php/2014-03-08-04-35-27/2014-03-08-12-18-14/2826-2010-01-29-08-13-35

இப்பாடத்திட்ட வடிவமைப்பு : முனைவர் சித்ரா, தமிழ்த்துறைத்தலைவர், பாரதியார் பல்கலைக்கழகம், கோவை, மின்னஞ்சல்: chitra.s@buc.edu.in

Mapping with Programme Outcomes

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	L	L	S	S	M	S	S	M
CO2	M	M	L	L	M	L	M	S	S	L
CO3	S	S	L	L	S	L	M	S	S	M
CO4	S	S	M	M	S	L	L	S	S	L
CO5	M	S	L	M	S	L	M	S	M	M

*S-Strong; M-Medium; L-Low

குறியீட்டு எண்	20TAM43B	தொல்காப்பியம் - பொருள் - 2	வி	ப	செ	ம
முதன்மைப்பாடம் 14			4	-	-	4
முன்னறிதல்		செய்யுள் மரபுகளை அறிதல்	Syllabus Version		2020-21	

நோக்கங்கள்

1.தொல்காப்பியரின் பொருளதிகாரம் தமிழரின் வாழ்வியலைப் வெளிப்படுத்தும் காலக்கண்ணாடி என்பதை உணர்தல்.

2.மெய்ப்பாட்டியல் உளவியலின் கூறுகளை உள்ளடக்கியது என்பதை அறிதல்.

3.வழக்குச் சொற்களையும் மரபுச் சொற்களையும் பழந்தமிழர் பேணி வந்தமையை அறிதல்

எதிர்பார்க்கப்படும் கற்றல் அடைவுகள்

1	மெய்ப்பாடு தொடர்பான தொல்காப்பியக் கோட்பாடுகளைத் தெரிந்துகொள்ளல்	K2
2	அணியிலக்கணக் கோட்பாடு பண்டைத் தமிழரிடம் இருந்தது என்பதை உவமவியல் வழி நிறுவுதல்	K6
3	தொல்காப்பியம் முன்வைக்கும் செய்யுள் உறுப்புகளையும் செய்யுளியல் கோட்பாடுகளையும் தெரிந்துகொள்ளல்	K1
4	பொருளிலக்கணக் கோட்பாடுகளைப்புரிந்துகொள்ளல்	K2
5	இலக்கியம் சார்ந்த மரபியல் செய்திகளைத் தெரிந்துகொள்ளல்	K2

K1 – நினைவுகூர்தல்; **K2** – புரிந்து கொள்ளுதல் **K3** – பொருத்துதல்; **K4** – பகுப்பாய்வு செய்தல்; **K5** – மதிப்பிடுதல்; **K6** – உருவாக்குதல்

அலகு :1	**எண்வகை மெய்ப்பாடு**	**14 hours**
மெய்ப்பாட்டியல்		
அலகு :2	**உவமை**	**14 hours**
உவமையியல்		
அலகு :3	**செய்யுள் உறுப்புகள்**	**14 hours**
செய்யுளியல் (நூற்பா 310 வரை)		
அலகு :4	**செய்யுள் வனப்புகள்**	**14 hours**
செய்யுளியல் (நூற்பா 311 முதல் இயல் முடிய)		
அலகு :5	**மரபு**	**14 hours**
மரபியல்		
அலகு : 6	கருத்தரங்குகள், இணைய வழி அரங்குகள்	**2 hours**
		Total Lecture hours **72 hours**

பாடநூல்கள்

1 தொல்காப்பியம் - பொருளதிகாரம் (இளம்பூரணர் உரை), சாரதா பதிப்பகம், சென்னை

பார்வை நூல்கள்

1 வ.சுப.மாணிக்கம் - தொல்காப்பியத்திறன், மணிவாசகர் பதிப்பகம், 31, சிங்கர் தெரு,

	பாரிமுனை, சென்னை - 108.
2	ஆ.சிவலிங்கனார் - தொல்காப்பிய உரைவளம், உலகத் தமிழாராய்ச்சி நிறுவனம், தரமணி, சென்னை 113.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://www.tamilauthors.com/01/460.html
இப்பாடத்திட்ட வடிவமைப்பு : முனைவர் கா.திருநாவுக்கரசு, இணைப்பேராசிரியர், த.சா.அ.க.அ. தமிழ்க்கல்லூரி, பேரூர்,கோவை, மின்னஞ்சல்: k.thiruna@gmail.com	

Mapping with Programme Outcomes										
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	L	M	L	L	M	L	M	L
CO2	S	S	S	S	S	M	M	M	S	M
CO3	L	S	L	M	L	L	S	L	L	M
CO4	L	S	L	M	L	L	M	M	M	L
CO5	S	S	L	M	S	L	M	S	S	L

*S-Strong; M-Medium; L-Low

குறியீட்டு எண்	20TAM4EA	சைவசித்தாந்தம் II – அ	வி	ப	சே	மு
விருப்பப்பாடம்			4	-	-	4
முன்னறிதல்		சிவஞான போதம் பற்றி அறிதல்	Syllabus Version		2020-21	

நோக்கங்கள்

1.மெய்யியலை அறிமுகப்படுத்துதல்.
2.சைவ சித்தாந்த அணுகுமுறையை உணர்த்தல்
3.மனதினை மேம்படுத்துதல்

எதிர்பார்க்கப்படும் கற்றல் அடைவுகள்

1	சிவஞான போதம் பற்றித் தெரிந்து கொள்ளுதல்.	K2
2	சைவசித்தாந்தம் உணர்த்தும் உண்மைகளை மதிப்பிடுதல்	K5
3	சைவசமயக் கொள்கைகள் சமய நம்பிக்கைகள் ஆகியவற்றைப் புரிந்து கொள்ளுதல்	K2
4	சைவ இலக்கியங்கள் வழி தத்துவக் கொள்கைகளைப் புரிந்து கொள்ளுதல்.	K2
5	சைவசித்தாந்தம் உணர்த்தும் வாழ்வியல் உண்மைகளை உலகிற்கு உணர்த்தல்	K5

K1 – நினைவுகூர்தல்; **K2** – புரிந்து கொள்ளுதல் **K3** – பொருத்துதல்; **K4** – பகுப்பாய்வு செய்தல்; **K5** – மதிப்பிடுதல்; **K6** – உருவாக்குதல்

அலகு : 1	**முதல் நூற்பா**	**14 hours**
சிறப்புப்பாயிரம், மங்கல வாழ்த்து, அவையடக்கம், முதல் நூற்பா		
அலகு : 2	**இரண்டாம் நூற்பா**	**14 hours**
இரண்டாம் நூற்பா		
அலகு : 3	3-6 **நூற்பா**	**14 hours**
மூன்று, நான்கு, ஐந்து, ஆறு நூற்பாக்கள்		
அலகு : 4	7-9 **நூற்பா**	**14 hours**
ஏழு, எட்டு, ஒன்பது நூற்பாக்கள்		
அலகு : 5	10-12 **நூற்பா**	**14 hours**
பத்து, பதினொன்று, பன்னிரண்டு நூற்பாக்கள்		
அலகு : 6	கருத்தரங்குகள், இணைய வழி அரங்குகள்	**2 hours**
	Total Lecture hours	**72 hours**

பாடநூல்கள்

1. மாதவச்சிவஞான முனிவர் – சிவஞான போதம் (சிற்றுரை)
2. மெய்கண்டார் அருளிய சிவஞானபோதம் -
   ந.இரா.சென்னியப்பனார் – மணிவாசகர் அருட்பணி மன்றம் - பேரூர்

பார்வை நூல்கள்

1. சிவஞான மாபாடியம் விளக்கம் - சி.சு.மணி, நாட்டார் வழக்காற்றியல் ஆய்வு மையம்தூய சவேரியர் கல்லூரி, பாளையங்கோட்டை, கழக வெளியீடு, சென்னை.
2. சிவஞான மாபாடியம் பொருள்நிலை விளக்கம் – மகாவித்துவான் அருணை வடிவேலு முதலியார், தமிழ்ப் பல்கலைக்கழகம், தஞ்சை.

3	சிவஞானபோதம் வாழ்வியல் ஆய்வு விளக்கம் - முனைவர். ச.சரவணன், நண்பர்கள் வெளியீடு.
4	சிவஞானபோதம் - திருநெறியுரை - அருணை வடிவேலு முதலியார், பேரூராதீன வெளியீடு
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://youtu.be/LmNvS1Ih70I
இப்பாடத்திட்ட வடிவமைப்பு : முனைவர் சுஜாதா, இணைப்பேராசிரியர், தமிழ்த்துறை, காஞ்சி மாமுனிவர் முதுகலை உயராய்வு மையம், புதுச்சேரி.	

Mapping with Programme Outcomes										
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	M	L	M	L	L	L	S	L
CO2	S	S	M	M	M	L	L	L	S	M
CO3	L	S	L	S	M	M	S	M	M	S
CO4	L	M	M	L	M	L	M	L	S	M
CO5	S	S	M	L	M	S	L	M	M	L

*S-Strong; M-Medium; L-Low

குறியீட்டு எண்	20TAM4EB	தாள் பெயர்	வி	ப	சே	ம
விருப்பப்பாடம்		ஒப்பிலக்கிய அறிமுகம் - II – ஆ	4	-	-	4
முன்னறிதல்		இலக்கியப் படைப்புகளைத் திறனாய்வு செய்யும் அணுகுமுறையை அறிதல்	Syllabus Version		2020-21	

நோக்கங்கள்

1. இலக்கியப் படைப்புகளையும் படைப்பாளர்களையும் மாணவர்களுக்கு அறிமுகப்படுத்துதல்.
2. இலக்கியப் படைப்புகளைத் திறனாய்வு செய்யும் அணுகுமுறையை வளர்த்தல்
3. படைப்பாக்கத்திறனை வளர்த்து மேம்படுத்துதல்

எதிர்பார்க்கப்படும் கற்றல் அடைவுகள்

1	இலக்கியங்களில் உளவியல் செலுத்து நெறிகளை அறிந்து கொள்ளுதல்.	K2
2	இலக்கியங்களில் கலைக்கூறுகளை மதிப்பிடுதல்	K5
3	இலக்கியங்களில் கலைக்கூறுகளை ஒப்பிட்டுப்பார்த்தல்	K3
4	இலக்கியங்கள் வழி தத்துவக் கொள்கைகளைப் புரிந்து கொள்ளுதல்.	K2
5	இலக்கியங்கள் உணர்த்தும் வாழ்வியல் உண்மைகளை உலகிற்கு உணர்த்தல்	K5

K1 – நினைவுகூர்தல்; **K2** – புரிந்து கொள்ளுதல் **K3** – பொருத்துதல்; **K4** – பகுப்பாய்வு செய்தல்; **K5** – மதிப்பிடுதல்; **K6** – உருவாக்குதல்

அலகு : 1	**இலக்கியமும் உளவியலும்**	**14 hours**
இலக்கியமும் உளவியலும்		
அலகு : 2	**இசையும் கூத்தும்**	**14 hours**
இலக்கியமும் இசையும் கூத்தும்		
அலகு : 3	**இலக்கியமும் ஓவியமும்**	**14 hours**
இலக்கியமும் ஓவியமும்		
அலகு : 4	**வரிவடிவ இலக்கியம்**	**14 hours**
வாய்மொழி இலக்கியமும் வரிவடிவ இலக்கியமும்		
அலகு : 5	**ஒப்பிலக்கியத்தின் ஆய்வுப்பரப்பு**	**14 hours**
ஒப்பிலக்கியத்தின் எல்லையற்ற ஆய்வுப்பரப்பு: யாப்பு வடிவம் - இலக்கிய வரலாறு - தாக்கக் கோட்பாடு - ஏற்றல் கொள்கை - படிமம் - சமுதாய நோக்கு போன்றன.		
அலகு : 6	கருத்தரங்குகள், இணைய வழி அரங்குகள்	**2 hours**
	Total Lecture hours	**72 hours**

பாடநூல்கள்

1. இராம. பெரியகருப்பன் (தமிழண்ணல்) ஒப்பிலக்கிய அறிமுகம், மீனாட்சி புத்தக நிலையம், மதுரை

பார்வை நூல்கள்

1. க.சிவகாமி - ஒப்பிலக்கியத்தமிழ், மாதவி பதிப்பகம், 17, ஸ்ரீபுரம் இரண்டாவது தெரு, இராயப்பேட்டை, சென்னை – 600014

2	அ.அ.மணவாளன் - ஒப்பாய்வுக் களங்கள், உலகத்தமிழராய்ச்சி நிறுவனம், தரமணி, சென்னை - 113.
3	வெ. சாரதாம்பாள், சங்கச் செவ்வியல், மீனாட்சி புத்தக நிலையம், மதுரை.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	http://www.tamilvu.org/ta/courses-degree-a061-a0611-html-a0611114-10312
இப்பாடத்திட்ட வடிவமைப்பு : முனைவர் சுஜாதா, இணைப்பேராசிரியர், தமிழ்த்துறை, காஞ்சி மாமுனிவர் முதுகலை உயராய்வு மையம், புதுச்சேரி.	

Mapping with Programme Outcomes										
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	M	L	M	L	L	L	S	L
CO2	S	S	M	M	M	L	L	L	S	M
CO3	L	S	L	S	M	M	S	M	M	S
CO4	L	M	M	L	M	L	M	L	S	M
CO5	S	S	M	L	M	S	L	M	M	L

*S-Strong; M-Medium; L-Low

குறியீட்டு எண்	20TAM4EC	இதழியலும் தகவல் தொடர்பியலும்- 11 - இ	வி	ப	சே	ம
விருப்பப்பாடம்			4	-	-	4
முன்னறிதல்		தகவல் தொடர்பியலின் முக்கியத்துவத்தை அறிதல்	Syllabus Version		2020-21	

நோக்கங்கள்

1. தகவல் தொடர்பியலின் முக்கியத்துவத்தை உணர்த்துதல்.
2. ஊடகங்களின் வளர்ச்சி மாற்றங்களை அறிதல்
3. ஊடகங்கள் வழி படைப்பாக்கத்திறனை வளர்த்து மேம்படுத்துதல்

எதிர்பார்க்கப்படும் கற்றல் அடைவுகள்

1	தொடர்பியலின் தோற்றம் வளர்ச்சி பற்றி அறிந்து கொள்ளுதல்.	K2
2	தொடர்பியலில் மக்கள் பயன்பாடுகளை மதிப்பிடுதல்	K5
3	உலக அளவில் அச்சுச் சாதனங்களின் வளர்ச்சி நிலைகளை ஒப்பிட்டுப்பார்த்தல்	K3
4	மின்வழி ஊடகங்களின் இன்றியமையாமையைப் பகுப்பாய்வு செய்தல்.	K2
5	இன்றைய சூழலில் சமூக வலைதளங்களின் முதன்மையை ஆராய்தல்	K5

K1 – நினைவுகூர்தல்; **K2** – புரிந்து கொள்ளுதல் **K3** – பொருத்துதல்; **K4** – பகுப்பாய்வு செய்தல்; **K5** – மதிப்பிடுதல்; **K6** – உருவாக்குதல்

அலகு : 1	**தொடர்பியலின் தோற்றமும் வளர்ச்சியும்**	**14 hours**

தொடர்பியலின் தோற்றமும் வளர்ச்சியும் - தொடர்புக்கருவிகள் - வரலாற்றிற்கு முற்பட்ட காலம் - குறியீடுகள் - கல்வெட்டுகள் - புதிய கண்டுபிடிப்புகள்

அலகு : 2	**தொடர்பியல் கூறுகள்**	**14 hours**

தொடர்பியல் கூறுகள் - அனுப்புநர் - செய்தி - செய்திப்பாதை செய்தித் தொடர்புத்தடைகள் - பெறுநர் - பின்னூட்டம்.

அலகு : 3	**அச்சுவழி ஊடகங்கள்**	**14 hours**

அச்சுவழி ஊடகங்கள் - அச்சு சாதனங்களின் வளர்ச்சி - உலக நாடுகளில் அச்சுச் சாதனங்களின் வளர்ச்சியும் மாற்றங்களும்

அலகு : 4	**மின்வழி ஊடகங்கள்**	**14 hours**

மின்வழி ஊடகங்கள் - வானொலி - வானொலி செய்தி தயாரித்தல் - தொலைக்காட்சி - தொலைக்காட்சி நிகழ்ச்சிகள் வடிவமைத்தல் - திரைப்படம் - திரைப்பட வசனம் எழுதுதல்.

அலகு : 5	**தற்கால ஊடகங்களின் வளர்ச்சி**	**14 hours**

தற்கால ஊடகங்களின் வளர்ச்சி - கணிப்பொறி - இணையம் - செயற்கைக்கோள் இவற்றின் செயல்முறைகள்.

அலகு : 6	கருத்தரங்குகள், இணைய வழி அரங்குகள்	**2 hours**
	Total Lecture hours	**72 hours**

பாடநூல்கள்

1. கிருட்டிணசாமி. வெ, தகவல் தொடர்பியல், மணிவாசகர் பதிப்பகம், சிதம்பரம்.

பார்வை நூல்கள்

1. குருசாமி.மா.பா - இதழியல் கலை, குரு-தேமொழி, தாயன் பதிப்பகம், திண்டுக்கல்

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]
1 http://www.tamilcanadian.com/article/tamil/1191
இப்பாடத்திட்ட வடிவமைப்பு : முனைவர் சுகுமாரன், முதல்வர்(மு.கூ.பொ), அரசு கலை அறிவியல் கல்லூரி, மேட்டுப்பாளையம், மின்னஞ்சல்: sukumaranthiru@gmail.com

Mapping with Programme Outcomes										
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	M	L	M	L	L	L	S	L
CO2	S	S	M	M	M	L	L	L	S	M
CO3	L	S	L	S	M	M	S	M	M	S
CO4	L	M	M	L	M	L	M	L	S	M
CO5	S	S	M	L	M	S	L	M	M	L

*S-Strong; M-Medium; L-Low

குறியீட்டு எண்	20TAM43C	இலக்கியத் திறனாய்வியல்	வி	ப	செ	ம
முதன்மைப்பாடம் 16			4	-	-	4
முன்னறிதல்		இலக்கியத்திறனாய்வு அணுகுமுறையை அறிதல்	Syllabus Version		2020-21	

நோக்கங்கள்

1. திறனாய்வு பற்றிய விளக்கங்களையும், மதிப்புரை, திறனாய்வு,ஆராய்ச்சி ஆகியவற்றுக்கான வேறுபாடுகளையும் உணர்தல்
2. திறனாய்வு பற்றிய விளக்கங்களையும், மதிப்புரை, திறனாய்வு,ஆராய்ச்சி ஆகியவற்றுக்கான வேறுபாடுகளையும் உணர்தல்
3. தமிழ் இலக்கண மரபு, இலக்கிய மரபு குறித்த புரிதல்.

எதிர்பார்க்கப்படும் கற்றல் அடைவுகள்

1	திறனாய்வு, திறனாய்வாளர்கள், இலக்கியக் கோட்பாடுகள் குறித்துக் கற்றல்: இலக்கியங்களில் திறனாய்வு நெறிகளைப் பொருத்திப் பார்க்கும் பாங்கினை வளர்த்தல்	K1, K2
2	இலக்கியத்திறனாய்வு அணுகுமுறை விளக்குதல்	K2
3	திறனாய்வு, திறனாய்வாளர்கள், இலக்கியக் கோட்பாடுகள் குறித்துக் கற்றல்:	K2
4	பல்வேறுபட்ட திறனாய்வு அணுகுமுறைகள் குறித்துத் தெரிந்துகொள்ளல்	K4
5	இலக்கியங்களைத் திறனாய்வு செய்யும் திறன் பெறல்	K5

K1 – நினைவுகூர்தல்; **K2** – புரிந்து கொள்ளுதல் **K3** – பொருத்துதல்; **K4** – பகுப்பாய்வு செய்தல்; **K5** – மதிப்பிடுதல்; **K6** – உருவாக்குதல்

அலகு :1	**இலக்கிய ஆய்வு**	**14 hours**

இலக்கிய ஆய்வு - திறனாய்வு - திறனாய்வின் இருவகைப்பணி - திறனாய்வின் இலக்கியம் - இலக்கிய மதிப்பீடு - இலக்கியக்கலை

அலகு :2	**கற்பனை**	**14 hours**

இலக்கிய உணர்ச்சிகள் - கற்பனை

அலகு :3	**கலை கலைக்காகவே**	**14 hours**

மானிட உண்மைகள் - வடிவம் - கலை கலைக்காகவே

அலகு :4	**நாடகம்**	**14 hours**

பாட்டு - காப்பியம் - நாடகம் இயற்றுதல்

அலகு :5	**இலக்கிய இயக்கங்கள்**	**14 hours**

புதினம் - நனவோடைப் புதினம் - சிறுகதை - கட்டுரை - இலக்கிய இயக்கங்கள்

அலகு : 6	கருத்தரங்குகள், இணைய வழி அரங்குகள்	**2 hours**
	Total Lecture hours	**72 hours**

பாடநூல்கள்

1. இலக்கியத்திறனாய்வியல் - டாக்டர் தா.ஏ.ஞானமூர்த்தி, ஐந்திணைப் பதிப்பகம், சென்னை

பார்வை நூல்கள்

1	இலக்கியத்திறன் - டாக்டர் மு.வ, பாரி நிலையம், சென்னை
2	இலக்கியமரபு - டாக்டர் மு.வ, பாரி நிலையம், சென்னை
3	திறனாய்வுக் கலை - டாக்டர்தி.சு. நடராசன், நியூ செஞ்சுரி புக் ஹவுஸ், சென்னை
4	இலக்கியமும் திறனாய்வும் - முனைவர்க.கைலாசபதி
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://tamililakkiyangal.blogspot.com/2012/10/blog-post_16.html
இப்பாடத்திட்ட வடிவமைப்பு : முனைவர் சா.சிவமணி, உதவிப்பேராசிரியர், தமிழ்த்துறை, சிக்கய்யா நாயக்கர் கல்லூரி, ஈரோடு, மின்னஞ்சல்: sivasakthi3@yahoo.com	

Mapping with Programme Outcomes										
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	M	S	L	S	S	L	S	M	M	L
CO2	L	S	L	S	L	L	S	S	M	M
CO3	S	S	L	S	S	L	S	L	S	S
CO4	L	L	L	S	L	L	S	M	M	M
CO5	M	S	M	S	M	L	S	L	M	M

*S-Strong; M-Medium; L-Low

குறியீட்டு எண்	20TAM4ED	இலக்கியம் படைத்தல்	வி	ப	செ	ம
Elective IV			4	-	-	4
முன்னறிதல்		இலக்கியம் படைக்கும் திறனை அறிதல்	Syllabus Version		2020-21	

நோக்கங்கள்

1. பல்வகை இலக்கியம் பற்றி அறிதல்.
2. இலக்கியங்களின் செய்யுள் கட்டமைப்பு பற்றித் தெரிந்துகொள்ளல்
3. இலக்கியம் படைக்கும் திறன் பெறுதல்

எதிர்பார்க்கப்படும் கற்றல் அடைவுகள்

1	இலக்கிய செலுத்துநெறிகளைத் தெரிந்துகொள்ளல்	K2
2	இலக்கிய உருவாக்கம் பற்றிய அடிப்படைகளைப் புரிந்துகொள்ளல்	K3
3	படைப்பாக்க ஆர்வம் பெறல்.	K4
4	படைப்பாக்க முயற்சிகளை மேற்கொள்ளல்.	K6
5	நூல் மதிப்பீடு செய்யும் திறன் பெறல்	K5

K1 – நினைவுகூர்தல்; **K2** – புரிந்து கொள்ளுதல் **K3** – பொருத்துதல்; **K4** – பகுப்பாய்வு செய்தல்; **K5** – மதிப்பிடுதல்; **K6** – உருவாக்குதல்

அலகு :1	**மரபுக்கவிதை, புதுக்கவிதை, ஹைக்கூக் கவிதை**	**14 hours**

மரபுக்கவிதை, புதுக்கவிதை, ஹைக்கூக் கவிதை எழுதுதல், கொடுக்கப்பட்ட அல்லது குறிப்பிட்ட பொருள் குறித்துக் கவிதை எழுதுதல்

அலகு :2	**ஒரு பக்கக் கதை**	**14 hours**

சமூகச் சிக்கல்கள், சமூக விழிப்புணர்வு முதலான குறிப்பிட்ட பொருளை மையமாகக் கொண்டு சிறுகதை எழுதுதல் - ஒரு பக்கக் கதை எழுதுதல்.

அலகு :3	**நாடகம் எழுதுதல்**	**14 hours**

ஓரங்க நாடகம் எழுதுதல், வரலாற்று நாடகம், இதிகாச நாடகம், சமூக விழிப்புணர்வு நாடகம், காப்பியக் கதைக் கூறுகளை அடிப்படையாகக் கொண்ட நாடகம் முதலியன.

அலகு :4	**கட்டுரை எழுதுதல்**	**14 hours**

கட்டுரை எழுதுதல், இலக்கியக் கட்டுரை, வரலாற்றுக் கட்டுரை, சமூக விழிப்புணர்வுக் கட்டுரை, பயணக்கட்டுரை, ஆன்மீகக் கட்டுரை முதலியன.

அலகு :5	**நூல் மதிப்பீடு செய்தல்**	**14 hours**

நூல் மதிப்பீடு செய்தல் (பின்வரும் நூல்கள் மட்டும்) - பத்துப்பாட்டு, சிலம்பு, சீவகசிந்தாமணி, திருக்குறள், திருவாசகம், பெரியபுராணம், கம்பராமாயணம், திருவிளையாடல் புராணம், மனோன்மணீயம், பாஞ்சாலி சபதம்.

அலகு : 6	கருத்தரங்குகள், இணைய வழி அரங்குகள்	**2 hours**
	Total Lecture hours	**72 hours**

பார்வை நூல்கள்

1	ஜெயமோகன் - நவீனத் தமிழிலக்கிய அறிமுகம், தமிழினி, சென்னை
2	தமிழவன் - படைப்பும் படைப்பாளியும், காவ்யா பதிப்பகம், பெங்குளர
3	மகரந்தன் - எழுதுவது எப்படி?, பழனியப்பா பிரதர்ஸ், சென்னை-14.
4	நல்லதமிழ் எழுதவேண்டுமா? - அ.கி.பரந்தாமனார், பாரிநிலையம். சென்னை
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://eegarai.darkbb.com/t63483-topic
2	https://www.vidhai2virutcham.com/2013/03/05/%E0%AE%AE%E0%AE%B0%E0%AE%AA%E0%AF%81%E0%AE%95%E0%AF%8D%E0%AE%95%E0%AE%B5%E0%AE%BF%E0%AE%A4%E0%AF%88-%E0%AE%8E%E0%AE%B4%E0%AF%81%E0%AE%A4%E0%AF%81%E0%AE%B5%E0%AE%A4%E0%AF%81-%E0%AE%8E%E0%AE%AA%E0%AF%8D/
இப்பாடத்திட்ட வடிவமைப்பு : முனைவர் சித்ரா, தமிழ்த்துறைத்தலைவர், பாரதியார் பல்கலைக்கழகம், கோவை, மின்னஞ்சல்: chitra.s@buc.edu.in	

Mapping with Programme Outcomes

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	L	M	S	L	S	M	M	L
CO2	M	M	L	M	M	M	M	M	M	L
CO3	M	S	M	L	L	L	M	M	M	L
CO4	M	M	M	M	S	L	M	M	M	M
CO5	M	M	M	M	M	L	M	M	L	S

*S-Strong; M-Medium; L-Low

Value Added Course

மதிப்புக்கூட்டுக்கல்வி (Value Added Course)

சைவ சித்தாந்தம்	
Name of the Department	**TAMIL**
Name of the Faculty Member i/c With Complete Address with Phone and e-mail	**Dr.S.Gokul Krishnan, Assistant Proffessor, Department of Tamil, Bharathiar University, Coimbatore – 046. Mobile : 98947303011 e-mail : shanmugagokul@gmail.com**
Inter / Intra Department Course	**Inter Department Course**
Duration of the Course	**40 Hours**
Eligibility	**UG Tamil or UG Degree with Part one Tamil (2 Sem or 4 Sem)**
Number of Candidates to be Admitted	**40**
Registration Procedure	
Job Opportunities:	
தமிழ்நாடு அரசு இந்து சமய அறநிலையத் துறை போன்ற சமயம் சார்ந்த அரசுதுறைகள்	
The objectives of the Course are:	
The main objectives of this course are to:	
1	இந்திய மெய்யியல் மரபில் தனித்து விளங்கும் தமிழர் மெய்யியல் மரபுகளில் ஒன்றான சைவ சித்தாந்தை அறியச் செய்தல்.
2	சமயத் தத்துவங்களை அறிந்துகொள்வதன் மூலம் பக்தி இலக்கியத்தை மிகச் சரியாகப் புரிந்துகொள்ள இயலும்.
3	சைவ சித்தாந்தத்தினை உணர்ந்துகொள்வதன் மூலம் பிற சமயத் தத்துவங்களின் அடிப்படைகளை எளிதில் புரிந்துணர்வதற்கு ஏதுவாக இருக்கும்.
Course Content	Lecture

Module 1	சமயங்கள் விளக்கம் - வேறுபாடுகள் - தத்துவ ஆராய்ச்சி - வேதமும் வேதாந்தமும் - வேதத்தின் துணை நூல்கள் - ஆகமங்கள் புராண இதிகாசங்கள்	**4 hours**
Module 2	சிவாகம விளக்கம் - சமயாசாரியர்கள் - சந்தானாசாரியர்கள் - சந்தான வரலாறு - மெய்கண்ட நூல்கள் - ஆதீனங்கள் வரலாறு - இலக்கியங்கள் - பிற சைவ சித்தாந்த நூல்கள்.	**4 hours**
Module 3	பதிபொருள் விளக்கம் - பிரமாணம் - முப்பொருள்கள் பதி உண்மை - பிற சமயங்களில் பதி - சற்காரிய வாதம் - பதிபசு பாசங்களின் தொடர்பு - அத்துவிதத் தொடர்பு - ஐந்தொழில்	**4 hours**
Module 4	பதிபொருள் பொதுவியல்பு உண்மை இயல்புகள் - பசு உண்மை - உயிர் எது என்பது - உயிர்களின் உண்மை இயல்பு - உயிர்களின் பொதுவியல்பு - அவத்தைகள்.	**4 hours**
Module 5	பாசம் மூன்று (ஆணவம், கன்மம், மாயை) - ஆணவம் - உண்மை இயல்பு - பொது இயல்பு - பிணிப்பு வேறுபாடு - கன்ம மலம் - தூல கன்ம சூக்கும கன்மங்கள் - ஆகாமிய சஞ்சித பிரார்த்தங்கள் - வினை உண்மை -	**4 hours**
Module 6	வினை இறைவன் ஆணையால் வருதல் - மாயா மலம் - மும்மாயை - (சுத்த மாயை – அசுத்த மாயை - பிரகிருதி மாயை) - சிவ தத்துவங்கள் - வித்தியா தத்துவங்கள் - ஆன்ம தத்துவங்கள் - நால்வகை வாக்கு.	**4 hours**
Module 7	வீடுபேறு விளக்கம் - சத்திநிபாதம் - பொதுப்பயன் - சமயங்கள் படிகளாதல் - தெய்வ வழிபாடு - மல பரிபாகம் - சத்திநிபாதம்	**4 hours**

Module 8	சிவ புண்ணியம் - தீக்கை வகை - சரியை - கிரியை - யோகம் - ஞானம் - குரு - திருவைந்தெழுத்து.	**4 hours**
Module 9	பசு புண்ணியப் பயன் - வகை - இருவினை ஒப்பு - உண்மைச் சிவ புண்ணியங்களின் பயன் -	**4 hours**
Module 10	பத முத்தி - அபர முத்தி - பர முத்தி - சாலோகம் - சாமீபம் - சாரூபம் - சாயுச்சம் - ஞானத்தின் பயன் - தச காரியம் - பாச நீக்கம் - சிவப்பேறு	**4 hours**

Book(s) for Study	
1	அருணை வடிவேல் முதலியார்.சி., சித்தாந்த தெளிவியல், தருமையாதீனம், ஞானசம்பந்தர் அச்சகம், தருமை. நான்காம் பதிப்பு 2017
2	மெய்கண்டார்., சிவஞானபோதம், முனைவர் ந.இரா.சென்னியப்பனார் (உரையாசிரியர்) சைவ பாட வகுப்பு வெளியீடு, கோயம்புத்தூர். முதற்பதிப்பு 2017
Book(s) for reference	
1	முனைவர் ர.வையாபுரி, கச்சியப்ப முனிவரின் சைவ சித்தாந்தம் (3 பாகங்கள்), ஈரோடு சைவ சித்தாந்த சபை வெளியீடு.
2	கி.லஷ்மணன்,இந்திய தத்துவ ஞானம், பழனியப்பா பிரதர்ஸ், சென்னை.
3	சிவஞான முனிவர், சிவஞான மாபாடியம், சைவ சித்தாந்தப் பெருமன்றம், சென்னை.
4	அருணைவடிவேல் முதலியார், சிவஞானபோதம் திருநெறிய உரை, பேரூராதீன வெளியீடு, கோயம்புத்தூர்.
5	அருணைவடிவேல் முதலியார், சைவ சித்தாந்த வினாவிடை, தருமையாதீனம், ஞானசம்பந்தர் அச்சகம், தருமை.
Related Online Contents	
1	http://www.tamilvu.org/ta/courses-degree-a041-a0414-html-a041431-8883
2	http://www.tamilvu.org/slet/lA100/lA100pd1.jsp?bookid=215&pno=525
3	http://www.tamilvu.org/courses/diploma/p202/p2021/html/p2021602.htm

தமிழ்மொழி கற்பித்தல்		
Name of the Department	**TAMIL**	
Name of the Faculty Member i/c With Complete Address with Phone and e-mail	**Dr.S.Thangamani, Assistant Proffessor, Department of Tamil, Bharathiar University, Coimbatore – 046. Mobile : 9994750177 e-mail : manirusha@gmail.com**	
Inter / Intra Department Course	**Inter Department Course**	
Duration of the Course	**40 Hours**	
Eligibility	**UG Tamil or UG Degree with Part one Tamil (2 Sem or 4 Sem)**	
Number of Candidates to be Admitted	**40**	
Registration Procedure		
Job Opportunities:		
மத்திய மாநில அரசுகளின் போட்டித் தேர்வுகள் (UPSC, TNPSC)		
பள்ளி, கல்லூரிகளில் ஆசிரியப் பணி		
The objectives of the Course are:		
The main objectives of this course are to:		
1	தமிழ் மொழி கற்பித்தலின் நோக்கங்களை அறிதல்	
2	நுண்ணிலைக் கற்பித்தல் வழி முழுமைக் கற்பித்தலைப் புரிந்து கொள்ளுதல்	
3	தமிழ் மொழிப் பாடம் பயிற்று முறைகளை அறிதல்	
4	மதிப்பீட்டு முறைகளைப் புரிந்து கொள்ளுதல	
Course Content	Lecture / Project	
Module 1	தாய்மொழிக்கல்வியின் முக்கியத்துவம் - தமிழ்மொழி கற்பித்தலின் நோக்கங்கள்	**4 hours**
Module 2	பழைய கற்பித்தல் முறைகள், புதிய கற்பித்தல் முறைகள்.	**4 hours**
Module 3	நுண்ணிலைக் கற்பித்தலின் சிறப்புகள் - பாடம் தொடங்குதல் திறன் -விளக்குதல்திறன் - வினா கேட்கும் திறன்	**4 hours**
Module 4	வலுவூட்டிகளைப் பயன்படுத்தும் திறன் எடுத்துக்காட்டுகள் தந்து விளக்கும் திறன் பாடம் முடிக்கும் திறன்	**4 hours**
Module 5	கேட்டல் திறன் - பேசுதல் திறன்	**4 hours**
Module 6	எழுதுதல் திறன் - படித்தல் திறன்	**4 hours**
Module 7	உரைநடை - பாடம் பயிற்று முறை	**4 hours**
Module 8	செய்யுள் - பாடம் பயிற்று முறை - இலக்கணப் பாடம் பயிற்றும் முறை	**4 hours**
Module 9	தகவல் தொழில்நுட்பமும் மொழி கற்பித்தலும் கணிப்பொறியின் பங்கு மொழி கற்பித்தலில் இணையம் தொலைக்காட்சி வானொலி	**4 hours**
Module 10	அளவிடல் மதிப்பிடல் வேறுபாடு நல்ல தேர்வின் நற்பண்புகள் வினாத்தாள் அமைப்பு தேர்வு சீர்திருத்தங்களை மதிப்பீட்டின் பண்புகள் தேர்வு நடத்தும் கொள்கைகள்	**4 hours**
Book(s) for Study		
1	பேரா வி கணபதி, நற்றமிழ் கற்பிக்கும் முறைகள், சாந்தா பப்ளிஷர்ஸ், சென்னை - 600012.	

2	பேரா வி கணபதி, நுண்ணிலை கற்பித்தல் ஓர் அறிமுகம், சாந்தா பப்ளிஷர்ஸ், சென்னை – 6000012
Book(s) for reference	
1	மா.சு. திருமலை, தமிழ் கற்பித்தல், மணிவாசகர் பதிப்பகம், சென்னை – 600108
2	ந. சுப்புரெட்டியார், தமிழ் பயிற்று முறை, மெய்யப்பன் பதிப்பகம், சிதம்பரம் - 608001
3	சுப. திண்ணப்பன், கணினியும், தமிழ் கற்பித்தலும், புலமை வெளியீடு, ஐந்திணைப் பதிப்பகம், சென்னை – 600005
4	து. சேகர், தமிழ் இலக்கியங்களில் கல்வியியல் சிந்தனைகள், சேமா பதிப்பகம், பெரம்பலூர் - 621212
5	கார்த்திகேசு சிவத்தம்பி, தமிழ் கற்பித்தல், குமரன் புத்தக இல்லம், சென்னை – 600026
6	த. பரசுராமன், தமிழ் கற்பித்தலில் பயிற்சிகள், அரசு பதிப்பகம், மதுரை
7	இரா. சந்திரசேகரன், தமிழ் கற்பித்தல் அணுகுமுறைகளும் செயல்நெறிகளும்.
Related Online Contents	
1	http://www.tamilvu.org/coresite/download/recommendation/E-Learning.pdf
2	http://www.tamilvu.org/library/nationalized/pdf/35-subbureddiyar/488-ariviyalpayitrrummurai.pdf
3	http://www.natkeeran.ca/ta/%E0%AE%95%E0%AE%9F%E0%AF%8D%E0%AE%9F%E0%AF%81%E0%AE%B0%E0%AF%88/%E0%AE%95%E0%AE%B2%E0%AF%8D%E0%AE%B5%E0%AE%BF-20-%E0%AE%95%E0%AE%B1%E0%AF%8D%E0%AE%B1%E0%AE%B2%E0%AF%8D-%E0%AE%95%E0%AE%B1%E0%AF%8D%E0%AE%AA%E0%AE%BF%E0%AE%A4%E0%AF%8D%E0%AE%A4%E0%AE%B2%E0%AE%BF%E0%AE%B2%E0%AF%8D-%E0%AE%87%E0%AE%A3%E0%AF%88%E0%AE%AF-%E0%AE%A8%E0%AF%81%E0%AE%9F%E0%AF%8D%E0%AE%AA%E0%AE%99%E0%AF%8D%E0%AE%95%E0%AE%B3%E0%AF%8D

மகாகவி பாரதியார்		
Name of the Department	**TAMIL**	
Name of the Faculty Member i/c With Complete Address with Phone and e-mail	**Dr.S.Chitra, Proffessor & Head, Department of Tamil, Bharathiar University, Coimbatore – 046. Mobile : 9894297695 e-mail : chitubuc@gmail.com**	
Inter / Intra Department Course	**Inter Department Course**	
Duration of the Course	**40 Hours**	
Eligibility	**UG Tamil or UG Degree with Part one Tamil (2 Sem or 4 Sem)**	
Number of Candidates to be Admitted	**40**	
Registration Procedure		
Job Opportunities:		
மத்திய மாநில அரசுகளின் போட்டித் தேர்வுகள் (UPSC, TNPSC)		
ஊடகப் பணியிட வாய்ப்பு		
நேர்முகத் தேர்வினை எதிர்கொள்ளும் திறன் வளர்தல்		
The objectives of the Course are:		
The main objectives of this course are to:		
1	உலகின் தலைசிறந்த தமிழ்க் கவிஞரைப் பற்றிய அடிப்படைகளை அறிதல்	
2	மாணாக்கரின் தனிமனித ஆளுமையை மேம்படச் செய்தல்	
3	கவிதை, கதை, கட்டுரை, இதழியல் ஆகிய பன்முகப் புலங்களில் திறன் வளர வழிவகுத்தல்	
4	தன்னம்பிக்கையை, தனிமனித ஒழுக்கத்தை மேன்மையுற வகை செய்தல்	
Course Content	Lecture / Project	
Module 1	சுப்பையா முதல் மகாகவி பாரதி வரை - பாரதியின் வாழ்க்கைச் சுருக்கம் : இளமையும் கல்வியும் -- படைப்பாற்றல்	**4 hours**
Module 2	பாரதியின் பயணங்கள் -- எழுத்தும் பேச்சும்-- மறைவு	**4 hours**
Module 3	தமிழ்மொழி (ப. 80)	**4 hours**
Module 4	சுதந்திரப் பள்ளு (பக். 97,98)	**4 hours**
Module 5	பெண்கள் விடுதலைக்கும்மி (பக். 376 -- 378)	**4 hours**
Module 6	**வசன கவிதை : இன்பம்** என்னும் (பக். 761 – 764)	**4 hours**
Module 7	**பாரதி கதைகள் :** வேப்பமரம் (பக். 517-524)	**4 hours**
Module 8	**பாரதி கதைகள் :** சும்மா (பக். 701 - 712)	**4 hours**
Module 9	**பாரதி கட்டுரைகள்** : தேசீயக் கல்வி - 1	**4 hours**
Module 10	**பாரதி கட்டுரைகள்** : தேசீயக் கல்வி – 2	**4 hours**
Book(s) for Study		
1	பாரதியார், மகாகவி பாரதியார் கவிதைகள், நர்மதா பதிப்பகம், 10, நாணா தெரு, முதல் தளம், தியாகராயநகர், சென்னை 600 017 பதிப்பாண்டு 2014	
2	பாரதியார், டாக்டர் நல்லி குப்புசாமி செட்டியார் (தொ.ஆ), பாரதியார் கதைக்களஞ்சியம், ஸ்ரீ புவனேஸ்வரி பதிப்பகம், 2,மாடல் ஹவுஸ் லேன், சி.ஐ.டி நகர், சென்னை 600 035 முதல் பதிப்பு 2012	
3	பாரதியார், பாரதியார் கட்டுரைகள், வர்த்தமானன் பதிப்பகம், 21, இராமகிருஷ்ணா தெரு, தியாகராயநகர், சென்னை -17 மூன்றாம் பதிப்பு 2019	

Book(s) for reference	
1	தொ.மு.சி.இரகுநாதன், பாரதி காலமும் கருத்தும், நியூ செஞ்சுரி புக் ஹவுஸ் (பி) லிட், சென்னை
2	ரா.அ.பத்மநாபன், சித்திர பாரதி, காலச்சுவடு பதிப்பகம், சென்னை
3	வ.ராமசாமி, மகாகவி பாரதியார், பாரதி புத்தகாலயம், சென்னை
4	மெய்யியல் நோக்கில் பாரதி, பாரதியார் பல்கலைக்கழகத் தமிழ்த்துறை வெளியீடு, கோயம்புத்தூர்
5	புதிய நோக்கில் பாரதி, பாரதி, பாரதியார் பல்கலைக்கழகத் தமிழ்த்துறை வெளியீடு, கோயம்புத்தூர்
Related Online Contents	
1	http://www.tamilvu.org/library/l9100/html/l9100ba1.htm
2	http://www.tamilvu.org/library/lA110/html/lA110cnt.htm
3	http://www.tamilvu.org/library/lA450/html/lA450cnt.htm


Job Oriented
Course

பணியிட வாய்ப்புக்கல்வி(Job Oriented Course)

ஆவணப்படம் - குறும்படம் தயாரித்தல்	
Name of the Department	**TAMIL**
Name of the Faculty Member i/c With Complete Address with Phone and e-mail	முனைவர் செ.இளையராஜா, உதவிப்பேராசிரியர், பாரதியார் பல்கலைக்கழகம், கோயம்புத்தூர் – 641 046 பேசி : 9894698596 மின்னஞ்சல் : s.elaiyarajabu@gmail.com
Inter / Intra Department Course	**Inter Department Course**
Duration of the Course	**40 Hours**
Eligibility	**UG Tamil or UG Degree with Part one Tamil (2 Sem or 4 Sem)**
Number of Candidates to be Admitted	**40**
Registration Procedure	
Job Opportunities:	
• ஊடகத் துறையில் வேலைவாய்ப்பு பெறலாம்.	
• குறும்படம், ஆவணப்படம், திரைப்படம் தயாரிப்பு, இயக்கம், பாடல், இசை அமைத்தல் உள்ளிட்ட பல நிலைகளில் பணி பெற வாய்ப்பு	
The objectives of the Course are:	
The main objectives of this course are to:	
1	ஊடகத்துறைப் பணிகளில் வாய்ப்புகள் பெறலாம்.
2	திரை நுட்பங்களைத் தெளிவாக அறியலாம்.
3	ஊடகத்துறையில் தமிழைச் சரியாகப் பயன்படுத்தலாம்.
4	கல்விப்பலத்தில் ஊடகத்துறை நுட்பங்களைப் பயன்படுத்தலாம்.
5	உலக அளவில் புகழ் பெறலாம்.
Course Content	Lecture, Practical, Project
Module 1	களம் கருத்துரு தொடர்புடைய இடங்கள் தொடர்புடைய நபர்கள் தொடர்புடைய நூல்கள் தொடர்புடைய ஆவணங்கள் காப்புரிமை கவனம் செலுத்துதல் — **4 hours**

Module 2	விவாதம் ஒற்றை வரி சுருக்கம்,வரிசை திரைக்கதை உரையாடல் கலைஞர்கள் தேர்வு உடைகள், தோற்றம், ஒப்பனை படப்பிடிப்புக்கான இடம், தளம் ஒத்திகை இறுதிப்படுத்துதல்	**4 hours**
Module 3	படப்பிடிப்புப் பணிகள் ஒளிப்பதிவுக் கருவிகள் ஒலிப்பதிவுக் கருவிகள் ஆடி வகைகள் தேர்வு பல்வகை ஒளிப்பதிவுக் கோணங்கள் ஆடி மற்றும் பிம்பங்களின் தரம் ஆடி பிழைகளும் குறைபாடுகளும் சிறப்பு ஆடிகள்	**4 hours**
Module 4	சிறப்பு ஒளி வடிகட்டிகள் ஒளியின் அளவுகள், வகைமைகள் ஒளி வெளிப்படும் அளவு முறை வண்ணங்கள் பற்றிய கருத்தாக்கம் வெளிப்புறப் படப்பிடிப்பில் ஒளி	**4 hours**
Module 5	உட்புறப் படப்பிடிப்பில் ஒளி பல்வகை ஒளி ஆதாரங்கள் ஒளி, ஒலி தொடர்பான உபகரணங்கள் ஒளி, ஒலி தொடர்பான அணுகுமுறைகள்	**4 hours**
Module 6	தொகுக்கும் பணிகள் படத்தொகுப்பின் வரலாறு படத்தொகுப்பின் அடிப்படைகள் படத்தொகுப்பின் படிநிலைகள்	**4 hours**
Module 7	படத்தொகுப்பின் கொள்கைகள், கோட்பாடுகள் படத்தொகுப்பின் வகைமைகள்	**4 hours**
Module 8	அடிப்படைக் காட்சி வகைமைகள் காட்சிப்படுத்துதலின் இலக்கணம் காட்சிகளைப் புரிந்துணர்தல்	**4 hours**
Module 9	படத்தொகுப்பின் தொழில்நுட்பங்கள் படத்தொகுப்பில் காலம் நேரம் குறித்த கருத்தாக்கங்கள் படத்தொகுப்பில் ஒலிச்சேர்க்கை	**4 hours**
Module 10	வண்ணங்களைச் சீரமைத்தல் ஒலி, ஒளி இணைப்பை உறுதிசெய்தல்	**4 hours**

Book(s) for Study

1	அம்ஷன் குமார், ஆவணப்பட இயக்கம், சொல் ஏர் பதிப்பகம், சென்னை

Book(s) for reference

1	முனைவர் வெ.மு.ஷாஜகான் கனி, திரைப்படக்கலை, உயிர்மை பதிப்பகம், சென்னை
2	எம்.சிவக்குமார், சினிமாவின் இரண்டாம் நூற்றாண்டு, புதிய கோணம், சென்னை

Related Online Contents

1	www.youtube.com
2	Wikipedia

போட்டித் தேர்வுகள்		
Name of the Department	**TAMIL**	
Name of the Faculty Member i/c With Complete Address with Phone and e-mail	**Dr. K. THIRUNAVUKKARASU. M.A.,M.Sc.(psy),M.phil.,Phd. Associate Professor Department of Tamil Thavathiru Santhalinga Adigalar Arts science,Tamil college.(Govt aided) Perur. Coimbatore - 641010. e-Mail id : k.thiruna@gmail.com**	
Inter / Intra Department Course	**Inter Department Course**	
Duration of the Course	**40 Hours**	
Eligibility	**UG Tamil or UG Degree with Part one Tamil (2 Sem or 4 Sem)**	
Number of Candidates to be Admitted	**40**	
Registration Procedure		
Job Opportunities:		
அரசுப் பணி வாய்ப்புகள்		
தமிழ்நாடு அரசுப் பணியாளர் தேர்வாணையம் நடத்தும் தேர்வுகள்		
The objectives of the Course are:		
The main objectives of this course are to:		
1	வரலாறு குறித்த செய்திகளை அறிந்துகொள்ளுதல்	
2	தேர்வு நுட்பங்களைக் கண்டு தெளிதல்	
3	நுண்ணறிவுத் திறனை மேம்படுத்துதல்	
Course Content	Lecture	
Module 1	பொருத்தமான பொருளைத் தேர்வு செய்தல்; (i) புகழ் பெற்ற நூல் நூலாசிரியர் - தொடரும் தொடர்பும் அறிதல் (ii) இத்தொடரால் குறிக்கப்பெறும் சான்றோர் (iii) அடைமொழியால் குறிக்கப்பெறும் நூல் –பிரித்தெழுதுக - எதிர்ச்சொல்லை எடுத்தெழுதுதல்- பொருந்தாச் சொல்லைக் கண்டறிதல்	**4 hours**
Module 2	பிழை திருத்தம் (i) சந்திப்பிழையை நீக்குதல் (ii) ஒருமை பன்மை / பிழைகளை நீக்குதல் மரபுப் பிழைகள், வழுவுச் சொற்களை நீக்குதல் / பிறமொழிச் சொற்களை நீக்குதல் - ஆங்கிலச் சொல்லுக்கு நேரான தமிழ்ச் சொல்லை அறிதல் - ஒலி வேறுபாடறிந்து சரியான பொருளையறிதல் - ஓரெழுத்து ஒருமொழி உரிய பொருளைக் கண்டறிதல் - வேர்ச்சொல்லைத் தேர்வு செய்தல் - வேர்ச்சொல்லைக் கொடுத்து / வினைமுற்று, வினையெச்சம், வினையாலணையும் பெயர், தொழிற் பெயரை உருவாக்கல்	**4 hours**

Module 3	அகர வரிசைப்படி சொற்களைச் சீர் செய்தல் - சொற்களை ஒழுங்குபடுத்தி சொற்றொடராக்குதல் - பெயர்ச்சொல்லின் வகையறிதல் - இலக்கணக் குறிப்பறிதல் - விடைக்கேற்ற வினாவைத் தேர்ந்தெடுத்தல் - எவ்வகை வாக்கியம் எனக் கண்டெழுதல் - தன்வினை, பிறவினை, செய்வினை, செயப்பாட்டு வினை வாக்கியங்களைக் கண்டெழுதுதல் - உவமையால் விளக்கப்பெறும் பொருத்தமான பொருளைத் தேர்ந்தெழுதுதல் - எதுகை, மோனை, இயைபு இவற்றுள் ஏதேனும் ஒன்றைத் தேர்ந்தெழுதுதல்	**4 hours**
Module 4	திருக்குறள் தொடர்பான செய்திகள், மேற்கோள்கள், தொடரை நிரப்புதல் - அறநூல்கள் நாலடியார், நான்மணிக்கடிகை, பழமொழிநானூறு, முதுமொழிக்காஞ்சி, திரிகடுகம், இன்னா நாற்பது, இனியவை நாற்பது, சிறுபஞ்சமூலம், ஏலாதி, ஔவையார் பாடல்கள் தொடர்பான செய்திகள், பதினெண்கீழ்க்கணக்கு நூல்களில் பிற செய்திகள் - கம்பராமாயணம் – தொடர்பான செய்திகள் மேற்கோள்கள், பா வகை, சிறந்த தொடர்கள் - புறநானூறு – அகநானூறு, நற்றிணை, குறுந்தொகை, ஐங்குறுநூறு, கலித்தொகை தொடர்பான செய்திகள், மேற்கோள்கள் அடிவரையறை, எட்டுத்தொகை, பத்துப்பாட்டு நூல்களில் உள்ள பிற செய்திகள்.	**4 hours**
Module 5	சிலப்பதிகாரம் – மணிமேகலை – தொடர்பான செய்திகள், மேற்கோள்கள், சிறந்த தொடர்கள் - உட்பிரிவுகள் மற்றும் ஐம்பெரும்-ஐஞ்சிறுங் காப்பியங்கள் தொடர்பான செய்திகள் - பெரியபுராணம் – நாலாயிர திவ்வியப்பிரபந்தம் – திருவிளையாடற் புராணம் – தேம்பாவணி – சீறாப்புராணம் தொடர்பான செய்திகள் - சிற்றிலக்கியங்கள் திருக்குற்றாலக்குறவஞ்சி – கலிங்கத்துப்பரணி – முத்தொள்ளாயிரம், தமிழ்விடுதூது – நந்திக்கலம்பகம், விக்கிரமசோழன் உலா, முக்கூடற்பள்ளு, காவடிச்சிந்து, திருவேங்கடத்தந்தாதி, முத்துக்குமாரசுவாமி பிள்ளைத் தமிழ், பெத்தலகேம் குறவஞ்சி, அழகர் கிள்ளைவிடுதூது, இராஜராஜன் சோழன் உலா தொடர்பான செய்திகள் - மனோன்மணியம் – பாஞ்சாலி சபதம் – குயில் பாட்டு – இரட்டுற மொழிதல் (காளமேகப்புலவர் – அழகிய சொக்கநாதர் தொடர்பான செய்திகள்)	**4 hours**
Module 6	நாட்டுப்புறப்பாட்டு – சித்தர் பாடல்கள் தொடர்பான செய்திகள் - சமய முன்னோடிகள் அப்பர், சம்பந்தர், சுந்தரர், மாணிக்கவாசகர், திருமூலர், குலசேகர ஆழ்வார், ஆண்டாள், சீத்தலைச் சாத்தனார், எச்.ஏ.கிருஷ்ண	**4 hours**

	பிள்ளை, உமறுப்புலவர் தொடர்பான செய்திகள், மேற்கோள்கள், சிறப்புப்பெயர்கள்.	
Module 7	பாரதியார், பாரதிதாசன், நாமக்கல் கவிஞர், கவிமணி தேசிக விநாயகம் பிள்ளை தொடர்பான செய்திகள், சிறந்த தொடர்கள், சிறப்புப்பெயர்கள்- மரபுக்கவிதை – முடியரசன், வாணிதாசன், சுரதா, கண்ணதாசன், உடுமலை நாராயணகவி, பட்டுக்கோட்டை கல்யாணசுந்தரம், மருகதாசி தொடர்பான செய்திகள், அடைமொழிபெயர்கள் - புதுக்கவிதை – ந.பிச்சமூர்த்தி, சி.சு.செல்லப்பா, தருமு சிவராமு, பசுவய்யா, இரா.மீனாட்சி, சி.மணி, சிற்பி, மு.மேத்தா, ஈரோடு தமிழன்பன், அப்துல்ரகுமான், கலாப்ரியா, கல்யாண்ஜி, ஞானக்கூத்தன், தேவதேவன், சாலை இளந்திரையன், சாலினி இளந்திரையன், ஆலந்தூர் மோகனரங்கன் – தொடர்பான செய்திகள், மேற்கோள்கள், சிறப்புத் தொடர்கள் மற்றும் எழுதிய நூல்கள்	**4 hours**
Module 8	உரைநடை – மறைமலையடிகள், பரிதிமாற்கலைஞர், ந.மு.வேங்கடசாமி நாட்டார், ரா.பி.சேதுப்பிள்ளை, திரு.வி.க., வையாபுரிப்பிள்ளை – மொழி நடை தொடர்பான செய்திகள் - உ.வே.சாமிநாத ஐயர், தெ.பொ.மீனாட்சி சுந்தரனார், சி.இலக்குவனார் – தமிழ்ப்பணி தொடர்பான செய்திகள் - தேவநேயப்பாவாணர் – அகரமுதலி, பாவலரேறு பெருஞ் சித்திரனார், தமிழ்த்தொண்டு தொடர்பான செய்திகள் - ஜி.யு.போப் – வீரமாமுனிவர் தமிழ்த்தொண்டு சிறப்புத் தொடர்கள்	**4 hours**
Module 9	பெரியார் – அண்ணா – முத்துராமலிங்கத் தேவர் – அம்பேத்கர் – காமராசர் – சமுதாயத்தொண்டு - தமிழகம் – ஊரும் பேரும், தோற்றம் மாற்றம் பற்றிய செய்திகள் - உலகளாவிய தமிழர்கள் சிறப்பும் – பெருமையும் – தம்பிப்பணியும் - தமிழ்மொழியில் அறிவியல் சிந்தனைகள் தொடர்பான செய்திகள்	**4 hours**
Module 10	தமிழ் மகளிரின் சிறப்பு – அன்னி பெசண்ட் அம்மையார், மூவலூர் ராமாமிர்தத்தம்மாள், டாக்டர்.முத்துலட்சுமி ரெட்டி. விடுதலைப் போராட்டத்தில் மகளிர் பங்கு (தில்லையாடி வள்ளியம்மை, ராணி மங்கம்மாள்) - தமிழர் வணிகம் – தொல்லியல் ஆய்வுகள் – கடற் பயணங்கள் – தொடர்பான செய்திகள் - உணவே மருந்து – நோய் தீர்க்கும் மூலிகைகள் தொடர்பான செய்திகள் - சமயப் பொதுமை உணர்த்திய தாயுமானவர், இராமலிங்க அடிகளார், திரு.வி.கல்யாண சுந்தரனார் தொடர்பான செய்திகள் – மேற்கோள்கள்	**4 hours**

Book(s) for Study	
1	தேவிரா - தமிழ் இலக்கணம், ஸ்ரீநந்தினி பதிப்பகம், சென்னை – 101, 2007.
2	தேவிரா - தமிழ் இலக்கியத் தகவல் களஞ்சியம், ஸ்ரீநந்தினி பதிப்பகம், சென்னை – 101, 2007.
Book(s) for reference	
1	மு.அருணாச்சலம் – தமிழ் இலக்கிய வரலாறு, தி.பார்க்கர், சென்னை, 2005
2	கே.கே.பிள்ளை – தமிழக வரலாறும் மக்களும் பண்பாடும், உலகத்தமிழாராய்ச்சி நிறுவனம், தரமணி, சென்னை-113, 2017
3	கா.கோ.வெங்கட்ராமன் – தமிழ் இலக்கிய வரலாறு, கலையக வெளியீடு 275, பி5, பாலாஜி நகர்,. பரமத்தி வேலூர், நாமக்கல் மாவட்டம்-638 192.
Related Online Contents	
1	http://www.tamilvu.org/ta/courses-degree-p102-p1022-html-p10223l3-24888
2	https://www.tamildigitallibrary.in/book-detail.php?id=jZY9lup2kZl6TuXGlZQdjZtekJp1#book1/

தமிழ்நெறி வழிபாட்டியல்		
Name of the Department	**TAMIL**	
Name of the Faculty Member i/c With Complete Address with Phone and e-mail	**முனைவர் ம.செயப்பிரகாசம்,** **தமிழ்நெறி வழிபாட்டாளர்,** **சாந்தலிங்கர் அருட்பணி மன்றம்,** **பேரூராதீனம், பேரூர், கோயம்புத்தூர் – 10.** **பேசி : 9842217796**	
Inter / Intra Department Course	**Inter Department Course**	
Duration of the Course	**40 Hours**	
Eligibility	**UG Tamil or UG Degree with Part one Tamil (2 Sem or 4 Sem)**	
Number of Candidates to be Admitted	**40**	
Registration Procedure		
Job Opportunities:		
• தமிழ்நெறி வழிபாட்டாளர்		
• தமிழ்நெறி வழிபாட்டுப் பயிற்சியாளர்		
The objectives of the Course are:		
The main objectives of this course are to:		
1	மொழிப்பற்று மேம்படும்	
2	திருமுறை, திவ்விய பிரபந்தகளில் ஆழ்ந்த புலமை	
3	சிறந்த முறையில் வழிபாடு நிகழ்த்தும் ஆற்றல்	
4	தமிழரின் மரபு வழிபாட்டை மீட்டெடுத்தல்	
Course Content	Lecture, Practical	
Module 1	திருமணம் – புதுமனைப் புகுவிழா – ஏற்பாடுகள்	**4 hours**
Module 2	வேள்வி ஆசிரியர்ப்பணி	**4 hours**
Module 3	அகவை விழாக்கள்	**4 hours**
Module 4	ஆயுள் வேள்வி வழிபாடு	**4 hours**
Module 5	முத்தி வழிபாடு, நீத்தார் வழிபாடு	**4 hours**
Module 6	நாள் வழிபாடு, பதினாறாம் நாள், ஆண்டு நினைவு நாள் வழிபாடு	**4 hours**
Module 7	அருளியல் நிகழ்வுகள் - திருக்குட நீராட்டு விழா	**4 hours**
Module 8	திருக்குடம் அமைத்தல், வேள்விச்சாலை அமைத்தல், வேள்விக் கால வழிபாடு	**4 hours**
Module 9	திருக்கோயில் அமைப்பு முறை, திருமஞ்சன வகைகள், தமிழருச்சனை முறைமைகள், தூய்மைப்பணிகள்	**4 hours**
Module	அனைத்து வகை வழிபாடுகள் செயல்முறை – பதிகங்கள் –	**4 hours**

10	காலக்கணிப்புகள்	

Book(s) for Study

1	தவத்திரு மருதாசல அடிகளார் – திருநெறிய தமிழாகமத் திருக்குட நீராட்டு, பேரூராதீன வெளியீடு, 2011

Book(s) for reference

1	திருக்கயிலாயப் பரம்பரை மெய்கண்ட சந்தானம் பேரூராதீனம் இருபத்தைந்தாம் குருமகாசந்நிதானங்கள் திருப்பெருந்திரு சாந்தலிங்க மருதாசல அடிகளார் - திருமுறை நெறியில் வாழ்வியல் வழிபாடுகள், பேரூராதீன வெளியீடு, 2018
2	திருக்கயிலாயப் பரம்பரை மெய்கண்ட சந்தானம் பேரூராதீனம் இருபத்தைந்தாம் குருமகாசந்நிதானங்கள் திருப்பெருந்திரு சாந்தலிங்க மருதாசல அடிகளார் - திருமுறை நெறியில் அருளியல் வழிபாடுகள், பேரூராதீன வெளியீடு, 2018

Related Online Contents

1	https://www.facebook.com/100000944784409/videos/3979623172079136/

உதவிப்பேராசிரியப் பணியிடப் பயிற்சிக் கல்வி (NET/ SET)	
Name of the Department	**TAMIL**
Name of the Faculty Member i/c With Complete Address with Phone and e-mail	**Dr. K. THIRUNAVUKKARASU. M.A.,M.Sc.(psy),M.phil.,Phd. Associate Professor Department of Tamil Thavathiru Santhalinga Adigalar Arts science,Tamil college.(Govt aided) Perur. Coimbatore - 641010. e-Mail id : k.thiruna@gmail.com**
Inter / Intra Department Course	**Inter Department Course**
Duration of the Course	**40 Hours**
Eligibility	**UG Tamil or UG Degree with Part one Tamil (2 Sem or 4 Sem)**
Number of Candidates to be Admitted	**40**
Registration Procedure	

Job Opportunities:

- கல்லூரி ஆசிரியப்பணி
- பேராசிரியப் பணிப் பயிற்சியாளர்

The objectives of the Course are:

The main objectives of this course are to:

1	நுண்ணறிவுத் திறனை வளர்த்தல்
2	தமிழ் இலக்கண, இலக்கியங்களில் ஆழ்ந்த புலமை அடைதல்
3	அறிவாண்மை உயர்நிலையை அடைதல்

Course Content	Lecture

Module 1	கற்பித்தல் – கற்றல் திறன் - நோக்கங்கள் – மேம்பாடு – குறைபாடுகள் - வளர்ச்சிகள்	**4 hours**
Module 2	ஆய்வு – ஆய்தல் – நுணுக்கங்கள் – சிக்கல்கள் – குறைபாடுகள் – தடைகள் – தீர்வுகள் – ஆய்வாளனுக்குரிய தகுதிகள்	**4 hours**
Module 3	ஒரு பத்தி கொடுத்து வினா கேட்டல் – அதிலுள்ள நுட்பமறிந்து விடை கூறுதல்	**4 hours**
Module 4	சங்க இலக்கியங்கள், பதினெண்கீழ்க்கணக்கு நூல்கள், ஐம்பெருங்காப்பியங்கள், ஐஞ்சிறு காப்பியங்கள், பக்தி இலக்கியங்கள்	**4 hours**
Module 5	சிற்றிலக்கியங்கள், தனிப்புலவர்கள், இலக்கண, இலக்கிய உரையாசிரியர்கள்	**4 hours**
Module 6	இக்கால இலக்கியம் : மரபுக்கவிதை, புதுக்கவிதை, சிறுகதை, புதினம், நாடகம் ஆசிரியர்கள்	**4 hours**

Module 7	ஐவகை இலக்கணங்கள், அகராதிகள், நிகண்டுகள், மொழி வரலாறு	**4 hours**
Module 8	இலக்கியத் திறனாய்வு, நாட்டுப்புறவியல், தமிழக வரலாறு	**4 hours**
Module 9	தொல்லியல், கல்வெட்டியல், சுவடியியல், இணையத்தமிழ், அறிவியல் தமிழ், ஊடகத்தமிழ்	**4 hours**
Module 10	பயிற்சித்தேர்வுகள், மதிப்பீட்டுத் தேர்வுகள்	**4 hours**

Book(s) for Study

1	தமிழண்ணல் - ஆய்வியல் அறிமுகம், ஐந்திணைப் பதிப்பகம், சென்னை, 2011
2	தேவிரா - தமிழ் இலக்கியத் தகவல் களஞ்சியம், ஸ்ரீநந்தினி பதிப்பகம், சென்னை – 101, 2007.
3	மு.அருணாச்சலம் – தமிழ் இலக்கிய வரலாறு, தி.பார்க்கர், சென்னை, 2005
4	கா.கோ.வெங்கட்ராமன் – தமிழ் இலக்கிய வரலாறு, கலையக வெளியீடு 275, பி5, பாலாஜி நகர்,. பரமத்தி வேலூர், நாமக்கல் மாவட்டம்-638 192.
5	சு.சக்திவேல் – தமிழ் மொழி வரலாறு, 31, சிங்கர் தெரு, பாரிமுனை, சென்னை – 108, 2011
6	கே.கே.பிள்ளை – தமிழக வரலாறும் மக்களும் பண்பாடும், உலகத்தமிழாராய்ச்சி நிறுவனம், தரமணி, சென்னை-113, 2017

General Instructions:

1. **Elective Courses:** Minimum Two for Each Semester.
2. **Value Added Courses:** Minimum 2 and maximum 5 for Each Department for Entire Program
3. **Job Oriented Certificate Courses:** Two Courses (Each one on First and Second Year)

Annexure

M.A (Tamil) - SYLLABUS

With effect from 2020 – 2021

Program code : TAM



பாரதியார் பல்கலைக்கழகம்
இணைப்புக் கல்லூரிகள் (Affiliated Colleges)
(A State University, Accredited with "A" Grade by NAAC and
13th Rank among Indian Universities by MHRD-NIRF)
கோவை – 641 046 இந்தியா

நோக்கம் (Vision)

- "இனிமையும் நீர்மையும் தமிழெனல் ஆகும்" என்பதற்கு இணங்க, கற்போரை இனிமை, நீர்மை, அறிவாண்மைக்கு ஆட்படுத்துதல்.
- தமிழ்மொழியின் செலுத்து நெறிகளின் வழியாக அறம் நிறைந்த, விழுமியம் மிக்க செம்பொருண்மைகளில் ஆழமுடைத்தாதல்.
- உலகின் மிக மூத்த செம்மொழியான தமிழ்மொழியின் இலக்கிய இலக்கணச் செம்பொருளை அடைவித்தல்.
- கற்கும் மாணாக்கர் அறிவாண்மை மிக்கவர்களாக, பொருளாதாரத்தில் உயர்நிலை அடையக் கூடியோராக வாழ வழிகாட்டுதல்.
- மேற்காண் பண்புகள் நிறைந்த, மொழித்திறத்தின் முட்டறுக்கும் திறனுடைய மாணாக்கரை உருவாக்கி அளிப்பதே முதுகலைத் தமிழ்ப் பட்டமேற்படிப்பின் நுணுக்கரிய நோக்கமாக அமைகிறது.

ஆக்கம் (Mission)

- ஆக்கம் என்பது வழுக்களைந்து நிறைகளை ஆக்கிக்கொள்வது. ஆக மொழிகற்பதில் உள்ள செறிவுகளைக் கற்பித்து மாணாக்கரை ஆக்கிக் கொள்ளல்.
- காலந்தோறும் தமிழ்மொழி செழுமைசேர்த்த இலக்கியங்களை அறிமுகம் செய்தல், ஆழக்கற்றல். அதன் திறன்களை, நயங்களை மாணாக்கர் உணர்ந்து கற்கச் செய்தல்.
- தமிழ்மொழியின் இலக்கணச் செறிவுகளை உரிய உரை நுணுக்கங்களுடன் உணர்ந்து கற்று உயரச் செய்தல்.
- தமிழ்மொழியினைப் பிழையின்றி அறிதலும் அறிவித்தலும். தமிழ்மொழியின் விழுமியங்களை உணர்தலும் உணர்த்துதலும். தமிழ்மொழியின் அறிவாண்மைகளை கற்றலும் கற்பித்தலும் உடைய உயரறிவு மாணாக்கரை உருவாக்கம் செய்தல்.
- வாழ்வியல் செம்மைக்கான வருவாய் வளம் பெறுவதற்கான வேலைவாய்ப்பு நோக்கில் தகுதிகாண்தேர்வுகள் (NET, SET) நடுவண், மாநில அரசுகள் நடத்தும் போட்டித் தேர்வுகள் மற்றும் பிறதுறை வேலை வாய்ப்புகளை எதிர்கொண்டு வெற்றி பெறும் நுட்பங்களை அடையச் செய்தல்.
- மேற்காண் பண்புகளை அடையச் செய்வது. அதன்வழி மாணாக்கர் வாழ்வு நெறியியலைச் செம்மையாக்கம் செய்வது முதுகலைத்தமிழ் பாடத்திட்டத்தின் குறிக்கோளாகும்.



M. A. Economics

Syllabus

AFFILIATED COLLEGES

Program Code: ***

2020 – 2021 onwards

BHARATHIAR UNIVERSITY

(A State University, Accredited with "A" Grade by NAAC,
Ranked 13th among Indian Universities by MHRD-NIRF,
World Ranking: Times -801-1000,Shanghai -901-1000, URAP - 982)

Coimbatore - 641 046, Tamil Nadu, India

Program Educational Objectives

Program Educational Objectives (PEOs)	
The **M.A Economics** program describe accomplishments that graduates are expected to attain within five to seven years after graduation	
PEO1	To teach the latest developments in the principles of economic theory.
PEO2	To equip students with tools of econometrics for applied economic research.
PEO3	To teach applications of theories in analyzing current economic problems.
PEO4	To develop skills to evaluate the opportunities available in the field of Economics.
PEO5	To continuously enhance academic rigor and research outcomes.
PEO6	To analyze global economic issues from different perspectives and apply them across globe in the field of Economics.
PEO7	To understand the importance of inclusion, development and sustainability in order to resolve related local, national and global issues
PEO8	To create continuous learning environment for engaging themselves to update with new knowledge in Economics.
PEO9	To nurture global human capital, future leaders and problem-solvers to become employable and sensitized world citizens.
PEO10	To demonstrate digital literacy by developing skills and ability to adopt online tools and other interfaces to develop resources that adapt to industry 4.0

Program Specific Outcomes (PSOs)

Program Specific Outcomes (PSOs)	
After the successful completion of **M.A Economics** program, the students are expected to	
PSO1	To apply economic theories and to expand the problem-solving acumen.
PSO2	They will be taught the applications of theories in analyzing current economic problems
PSO3	Conscious about the socio-economic environment, both domestic and international and its implications on business.
PSO4	The students of Economics can easily crack the competitive examinations and can become successful in getting employment opportunities.
PSO5	Open up research opportunities in the national level premier educational institutes.
PSO6	The character building of students and makes them responsible citizens.
PSO7	The students are exposed to national and international problems and hence they will have a thorough understanding of national and international economic events.
PSO8	To understand the importance of inclusion, development and sustainability in order to resolve related local, national and global issues.
PSO9	To foster a spirit of scientific inquiry and creativity.
PSO10	To geared up for advanced level of studies.

Programme Outcomes

Program Outcomes (POs)	
On successful completion of the **M.A Economics** program	
PO1	Identify the standard level of growth and development of the economy of the country and to determine and frame planning policies.
PO2	Identify and formulate the research design, analyze data and be able to unite the research report and provide valid inferences.
PO3	Understand the concepts of national income, macroeconomic variables such as multiplier, consumption, investment and general equilibrium.
PO4	To gain mathematical knowledge for better understanding of economic concepts and theory and ability to apply the knowledge in the formulation and validation of economic theories.
PO5	Understand and apply the knowledge of the industrial economics on location, efficiency, productivity and industrial policies
PO6	Frame monetary policies, understand and analyze the value of money, cash balance, capital markets and banking system and hence improve the ability to compare central bank function with that of the other countries.
PO7	To understand how the individuals and firms allocate their scarce resources and to provide training and employment.
PO8	Improve the ability to formulate theories and economic models to test and validate the concepts with practical knowledge.
PO9	Used to estimate the specific figures which enable them to predict future economically oriented events.
PO10	Engage effectively with computer knowledge especially Windows, LINUX and other software and to analyze and interpret the data.

BHARATHIAR UNIVERSITY: COIMBATORE 641 046

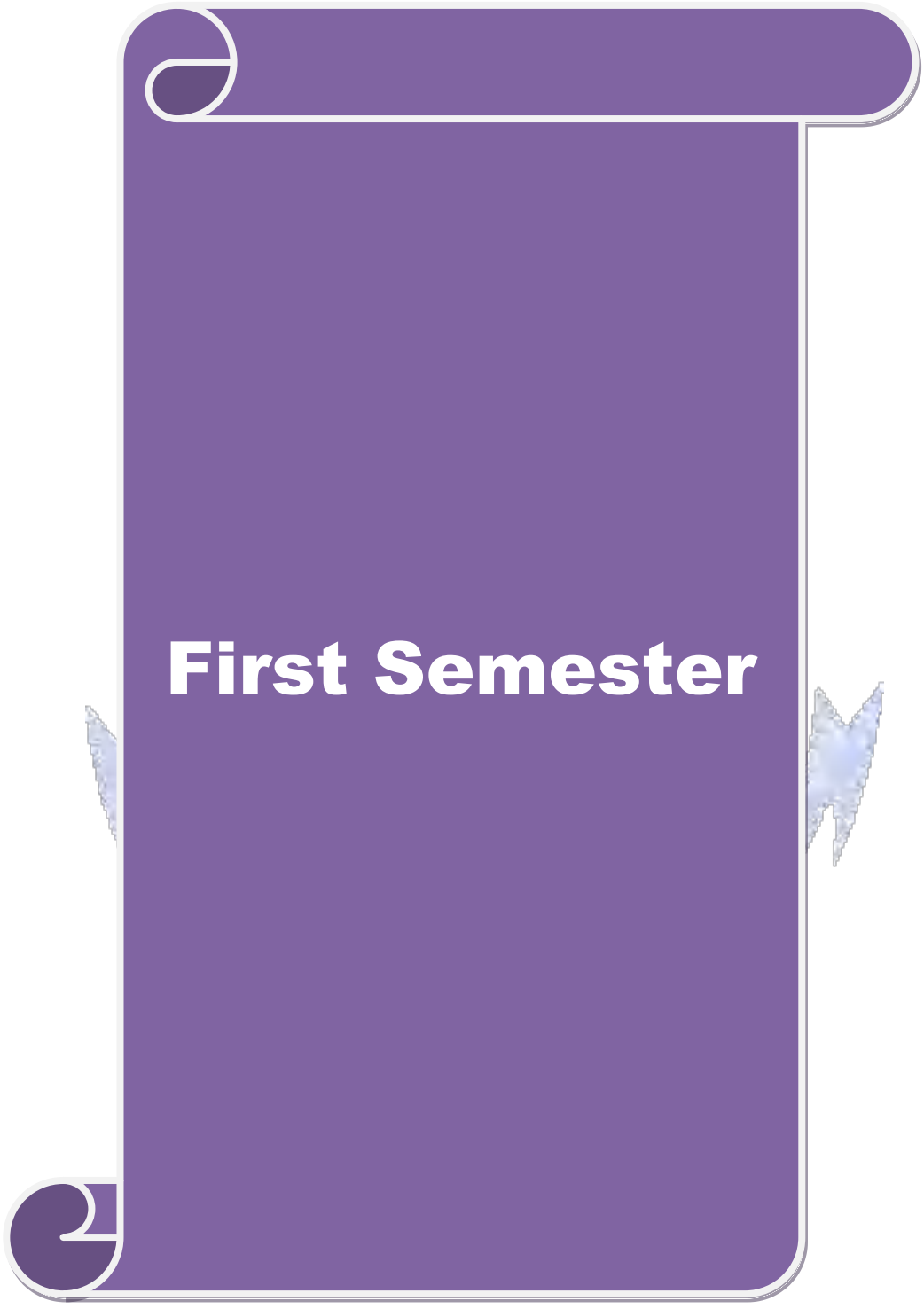
M.A Economics Curriculum (Affiliated Colleges)

(For the students admitted during the academic year 2020 – 21 onwards)

Course Code	Title of the Course	Credits	Hours		Maximum Marks		
			Theory	Practical	CIA @	ESE	Total
FIRST SEMESTER							
Paper I	Advanced Micro Economics – I	4	6	-	25	75	100
Paper II	Economic Development and Policies	4	6	-	25	75	100
Paper III	Marketing Management	4	6	-	25	75	100
Paper IV	Econometrics	4	6	-	25	75	100
Elective I / Group A	Tamil Nadu Economy /	4	6	-	25	75	100
Elective I/ Group B	Principles of Management/						
Elective I / Group C	India'sInternational .						
	Total	**20**					**500**
SECOND SEMESTER							
Paper V	Advanced Micro Economics II	4	5	-	25	75	100
Paper VI	Macro Economics	4	5	-	25	75	100
Paper VII	Agricultural Economics	4	5	-	25	75	100
Paper VIII	Quantitative Techniques for Managerial Decision	4	5	-	25	75	100
Paper IX	Industrial Economics	4	5	-	25	75	100
Elective II/ Group A	Entrepreneurial Development /	4	5	-	25	75	100
Elective II/ Group B	Investment Management/						
Elective II/ GroupC	Financial Services						
Total		**24**					**600**
THIRD SEMESTER							
Paper X	Monetary Theory and	4	5	-	25	75	100

	Policies						
Paper XI	Research Methodology	4	5	-	25	75	100
Paper XII	Computer Applications in Economics (theory)	4	5	-	25	75	100
Paper XII	Environmental Economics	4	5	-	25	75	100
Paper XIV	Labour Economics	3	5	-	20	55	75
Elective III/ Group A	Financial Markets	4	5	-	25	75	100
Elective III/ Group B	Services Marketing						
Elective III/ GroupC	Introduction to Industry 4.0						
Total		**23**					**575**
FOURTH SEMESTER							
Paper X-	Public Economics	4	6	-	25	75	100
PaperX VI	International Economics	4	6	-	25	75	100
Paper XVII –	Human Resource Management	3	6	-	20	55	75
Project Work (160 marks project & 40 marks viva-voce)		8	6	-	-	-	200
Elective IV/ Group A	Export Procedure/	4	6	-	25	75	100
Elective IV / Group B	International Business/						
Elective IV / Group C	Export Trade Procedure						
Total		**23**					**575**
Grand Total		**90**					**2250**

@Includes 25/40% continuous internal assessment marks for theory and practical papers
*The student can select any one of the **Elective Courses** from Group A, Group B or Group C in every semester.


First Semester

Course code		ADVANCED MICRO ECONOMICS-I	L	T	P	C
Core		CORE PAPER – I	4	-	-	4
Pre-requisite		Microeconomics and Basic Mathematics	Syllabus Version	2020-21		

Course Objectives:
The main objectives of this course are:

1	To impart knowledge on the behavior of the individuals and firms in making decision on the allocation of scarce resources.
2	To equip the students with the basic tools and methods of economic analysis.
3	To understand the fundamental concepts and theories of Microeconomics.

Expected Course Outcomes:

On the successful completion of the course, student will be able:

1	To understand the economic theories and concepts.	K1
2	To understand about the demand potentials.	K2
3	To analyze the production and cost.	K3
4	To gain knowledge and to evaluate the price and the output for various markets.	K4
5	To construct the knowledge of policy decision.	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Theories of Demand	18 -- hours

Theories of demand – utility; indifference curve - income and substitution effects, Slutsky theorem, compensated demand curve – Revealed preference theory; Revision of demand theory by Hicks.

Unit:2	Production Function	18-- hours

Production function – Multi Product firm; Elasticity of substitution; Euler's theorem; Technical progress and production function; Cobb-Douglas and CES. Traditional and modern theories of costs – Derivation of cost functions from production functions.

Unit:3	Marginal Analysis	18-- hours

Marginal analysis - price and output determination; perfect competition – short run and long run equilibrium of the firm and industry, price and output determination, supply curve; Monopoly – short run and long run equilibrium, price discrimination, monopoly control and regulation; Monopolistic competition – general and Chamberlin approaches to equilibrium, equilibrium of the firm and the group with product differentiation and selling costs, excess capacity under monopolistic and imperfect competition, criticism of monopolistic competition

Unit:4	Oligopoly Models	17-- hours

Oligopoly – Non-collusive models – Cournot, Bertrand, Edgeworth, Chamberlin, kinked demand curve and Stackelberg's solution) and collusive models - Cartels and mergers, price leadership – price and output determination under monopsony and bilateral monopoly;

Unit:5	Behavioral Models	17-- hours

Baumol's Sales revenue maximization model; Williamson's model of managerial discretion; Marris model of managerial enterprise; Full cost pricing rule; Behavioral model of

the firm (Cyert and March Model).		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars - webinars		
	Total Lecture hours	**90 --hours**

Book(s) for study	
1	Koutsoyiannis.A (1979) Modern Microeconomics, Macmillan Press, London.
2	HL AHUJA (2009) Advanced Economic Theory S.Chand & Co
Book (s) for Reference	
1	Baumol. W.J. (1982) Economic Theory and Operations Analysis. Prentice Hall of India
2	Hirshleifer J and A. Glazer (1997) Price Theory and Applications, Prentice Hall of India, New Delhi.
3	Henderson J.M. and R.E. Quandt (1980) Microeconomic Theory; A Mathematical Approach, McGraw Hill, New Delhi
Course Designed By: Dr. R. Rajini- email id: rajinieco@gmail.com	

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M	S	S	M	S	S	M	S	L	L
CO2	M	S	S	S	S	S	M	S	L	L
CO3	M	S	S	M	M	S	M	M	S	L
CO4	M	S	S	M	M	S	M	M	S	L
CO5	M	M	S	L	S	M	L	L	M	L

*S-Strong; M-Medium; L-Low

Course code		ECONOMIC DEVELOPMENT AND POLICIES	L	T	P	C
Core		CORE PAPER – II	4	-	-	4
Pre-requisite		Models of economic growth and development	Syllabus Version		2020-21	

Course Objectives:
The main objectives of this course are:

1	To equip with strong economic fundamental governance and the process of economic development.
2	To understand the alternative theories of growth.
3	To know the theories of underdevelopment and growth in developing countries.
4	To equip with the current development issues.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Create the knowledge about the economic theories and growth models.	K1
2	Provide an illustration of Indian economy.	K2
3	Construct the knowledge of economic planning and growth.	K3
4	To critically evaluate the current economic issues.	K4
5	To construct a critical study on the development of the economic scenario.	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Measurement of Economic Development	18 -- hours

Economic Development: Measurement of Economic Development- Schumpeter's theory of Development-Keynes-Rostow'sstagesofEconomicGrowth -Big Bush theory.

Unit:2	Doctrine of balanced growth	18-- hours

Doctrine of balanced growth-Concept of unbalanced growth-Growth Models-Harod-Domar – JoanRabinson'smodelofcapitalaccumulation -Meade'snoe -classical model-Solow Model of Long Run Growth-Kaldor'smodelofgrowth.

Unit:3	Human Resource Development	18-- hours

Size and Growth rate of population in India-Human Resource Development-Measurement of Poverty-Poverty Eradication Programmes.

Unit:4	Economic planning	17-- hours

Economic planning-Planning process in a mixed economy - Need for Foreign Capital-Forms of Foreign Capital-Multinational Corporations and foreign collaborations – India's Balance of Payments-Export Promotion Policies.

Unit:5	Current Economic Issues	17-- hours

Current Economic Issues- New Economic Policies since 1980-Privatilisation: Policies and practices-Deregulations and Delicensing – Globalisation – Public Sector Disinvestments- Liberal foreign trade regime – New EXIM Policies-Structural adjustments in the Indian Economy –

Budgetary policies and control.		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars - webinars		
	Total Lecture hours	**90 -- hours**

Book(s) for study	
1	S.M.Meier:"LeadingIssuesinEconomicDevelopment"Oxford University Press, New York.
2	Kindleberger: Economic Development Mc Graw Hill, New York.
Book(s) for Reference	
1	Indian Economic Survey for Different Years
2	Human Development Report for Different Years: Published for the United Nations Development Programme (UNDP), Oxford University Press.
3	Survey of the Environment for different years: Published by The Hindu.
4	Indian Development Report for different years: Indira Gandhi Institute of Development Research, Oxford University Press.
5	Economic Development in India-Achievements and Challenges: A World Bank Study.
Course Designed By: Dr. R. Rajini- email id: rajinieco@gmail.com	

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M	S	S	M	S	S	M	S	L	L
CO2	M	S	S	S	S	S	M	S	L	L
CO3	M	S	S	M	M	S	M	M	S	L
CO4	M	S	S	M	M	S	M	M	S	L
CO5	M	M	S	L	S	M	L	L	M	L

*S-Strong; M-Medium; L-Low

Course code		MARKETING MANAGEMENT	L	T	P	C
Core		CORE PAPER – III	4	-	-	4
Pre-requisite		Principles of marketing management	Syllabus Version		2020-21	

Course Objectives:
The main objectives of this course are:

1	To impart basic theoretical skills in several functional areas to understand market behaviour.
2	To find and generate information/data needed to inform problem solving in marketing using appropriate methodology.
3	To know contemporary marketing nature and management practice.
4	To understand complex marketing issues by using relevant theories with regard to ethical conduct.

Expected Course Outcomes:
On the successful completion of the course, student will be able:

1	To understand about market planning and market environment.	K1
2	To know about consumer behaviour in the context of market segmentation.	K2
3	To expose with product promotion branding and pricing techniques	K3
4	To express the various channels of distribution.	K4
5	To gain knowledge on marketing strategies and consumer rights.	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Marketing Management & Consumer Behaviour	18 -- hours

Marketing: Definition of marketing classifications of Markets-functions of marketing - objectives –importance of Marketing–Marketing and Economic Development- Marketing Environment- Marketing Management- Consumer Behaviour.

Unit:2	Marketing Mix	18-- hours

Marketing Mix: Concepts, components: Product mix, price mix, promotion mix and place mix. Product: Meaning, product planning, product positioning, New product development - product life cycle- Branding- Packaging- Labeling- Pricing: pricing objectives- Factors-Methods and procedures.

Unit:3	Promotion	18-- hours

Promotion: Meaning of promotion mix-Components of promotion mix- Advertising: Message, advertisement budgeting-Sales promotion, personal selling and publicity.

Unit:4	Distribution	17-- hours

Distribution: Channels of Distribution-Need, functions, types, evaluating the channel alternatives- Physical Distribution: Objectives, order processing, transport, storages and warehousing, inventory control.

Unit:5	Competitive marketing Strategies	17-- hours
Competitive marketing Strategies: Leaders – Challengers – Followers – Nichers – Marketing control: Meaning, types, steps essentials of effective marketing control – Consumer protection: Needs – Methods of consumer protection - Consumer protection in India.		

Unit:6	Contemporary Issues	2 hours
Expert lectures, online seminars - webinars		
	Total Lecture hours	**90 -- hours**

Book(s) for study	
1	Philip Kotler : Principles of Marketing-Prentice of India Private Limited. New Delhi
2	S.M.Jha & : Marketing Management in Indian.
Book(s) for Reference	
1	S.P.Singh : Perspective - Himalaya Publishing House. Delhi.
2	R.S.Davar : Modern Marketing Management –Progressive Corporation, Bombay.
Course Designed By: Dr. R. Rajini- email id: rajinieco@gmail.com	

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M	S	S	M	S	S	M	S	L	L
CO2	M	S	S	S	S	S	M	S	L	L
CO3	M	S	S	M	M	S	M	M	S	L
CO4	M	S	S	M	M	S	M	M	S	L
CO5	M	M	S	L	S	M	L	L	M	L

*S-Strong; M-Medium; L-Low

Course code		ECONOMETRICS	L	T	P	C
Core		CORE PAPER – IV	4	-	-	4
Pre-requisite		Econometric models and methodology of econometric research.	Syllabus Version		2020-21	

Course Objectives:
The main objectives of this course are:

1	To understand the methodology of econometrics with the help of statistical and mathematical techniques.
2	To test the priority relationship among economic variables.
3	To approach economic theory quantitatively.
4	To enable hypothesis testing and model selection

Expected Course Outcomes:

On the successful completion of the course, student will be able:

1	To demonstrate the econometrics models.	K1
2	Understand the nature and scope of econometrics as a social science	K2
3	Use appropriate tests to detect autocorrelation	K4
4	Evaluating the simultaneous equation model	K5
5	To develop the skills of selecting appropriate data and estimate an econometric model.	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Scope of Econometrics	18 -- hours

Definition, scope and division of econometrics- methodology of econometric research- correlation theory- simple linear regression model- justification for the inclusion of U- ordinary least Squares Method (OLS)

Unit:2	Test of Significance and the Estimates	18-- hours

Statistical test of significance of the estimates- properties of the least squares estimates- multiple regression and other extensions of the simple linear regression model- regression and analysis of variance.

Unit:3	OLS Models	18-- hours

OLS assumptions –violation of OLS assumptions - Autocorrelation, hetroskedasticity, multicollinearity- error in variables, dummy variables, lagged variables and distributed lag models.

Unit:4	Models of Simultaneous Relationships	17-- hours

Models of simultaneous relationships: simultaneous equation models-problem of identification- conditions of identification – methods of estimations –Ordinary Least Squares (OLS), Two-Stage Least Squares(2SLS), Three- Stage Least Squares(3SLS).

Unit:5	Estimation of compound rate of growth	17-- hours

Estimation of compound rate of growth - consumption function, estimation of elasticity of demand- Estimation of production function- Measurement of technical change.

Unit:6		**2 hours**
Expert lectures, online seminars - webinars		
	Total Lecture hours	**90 -- hours**

Book(s) for study

1	Koutsoyiannis.A.	: Theory of econometrics: an introductory exposition of the econometricmethods",educationallow -priced books scheme, mac millan education Ltd., (1992)
2	Gujarati.D	**:** Basic Econometrics, Printice Hall. (2004)

Note: problems may be asked only from the following areas

(a) correlation
(b) simple and multiple regression
(c) compound rate of growth

Course Designed By: Dr. C. Rajendran. Email id: rajvarshan@yahoo.co.in

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	M	S	S	L	L	M	M	L	L
CO2	S	M	S	S	L	L	M	M	S	M
CO3	S	S	S	S	L	L	M	M	M	M
CO4	S	M	S	S	L	L	M	M	S	S
CO5	S	M	S	S	L	L	M	M	S	S

*S-Strong; M-Medium; L-Low

Course code		TAMIL NADU ECONOMY	L	T	P	C
Elective		Elective I / Group A	4	-	-	4
Pre-requisite		The performance of agriculture, industrial development and Infrastructural facilities in Tamil Nadu.	Syllabus Version		2020-21	

Course Objectives:

The main objectives of this course are:

1	To understand the socio, economic and cultural conditions of Tamil Nadu.
2	To impart knowledge on sector wise performance and its allocations.
3	ToenhancetheknowledgeaboutTamilNadu'sadministrativeandpoliticalaspects.

Expected Course Outcomes:

On the successful completion of the course, student will be able:

1	To understand the process of growth of Tamil Nadu economy	K1
2	To comprehend the specific economic issues pertaining to the region.	K2
3	To get the knowledge of policy analysis regard to Tamil Nadu economy.	K3
4	To enhance the ability of critical thinking on Tamil Nadu economy and its various aspects.	K4
5	To develop the knowledge towards competitive examination skills.	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Nature and Scope of Tamil Nadu Economy.	18--hours

Growth and development- Ingredients of economic growth- Sectoral growth in perspective- Inter-state Growth profiles- Economic development and structural Transformation-SDP trends- Planning. Nature and Scope of Tamil Nadu Economy.

Unit:2	Theory of Demographic Transition	18-hours

Theory of Demographic Transition – Trends in Growth of Population- Sex ratio, Density, Literacy, Birth and Death rate- Urbanisation – Population Policy 2001.Composition of workforce – Unemployment and Poverty.

Unit:3	Agriculture Development in Tamil Nadu	18--hours

Agriculture – Cropping Pattern – Irrigation – Agricultural Development in Tamil Nadu- Green Revolution – Agricultural marketing: regulated markets and Co- operative marketing – Non-Farm activities in Tamil Nadu- Food Security and Public distribution system.

Unit:4	Industrial Development in Tamil Nadu	17-hours

Trends in Industrial Development in Tamil Nadu – Factors contributing to Industrial Development in Tamil Nadu- Small Scale Industries: Role, Problems, Promotional Measures for SSI - TIDCO, TANSI, SIPCOT, DIC – Economic Liberalisation Vis- a - Vis Industrial Growth.

Unit:5	Behavioral Models	17-hours

Transport and Economic development- Nationalisation of Roadways-performance of public sector transports- Power development in Tamil Nadu-Rural Electrification. Social inputs and its development effects: Health, Education, Nutrition, water supply and environment.

Unit:6	Contemporary Issues	2 hours
Expert lectures, online seminars - webinars		
	Total Lecture hours	90 -hours

Book(s) for study	
1	Government of Tamil Nadu,Various Issues of Tamil Nadu Economic Appraisal, Department of Statistics, Govt. of Tamil Nadu
2	Leonard A C (2006) , Tamil Nadu Economy, Macmillan India Ltd, New Delhi
3	Manickam.S(2006), Economic development of Tamil Nadu in perspective, Uyirmmai, Chennai.78
Book(s) for Reference	
1	MIDS (1988) , Tamil Nadu Economy : Performance and Issues, Oxford and IBN Publishing Co. Pvt. Ltd., New Delhi
2	Naganathan M (2002), Tamil Nadu Economy: Trends and prospects, University Of Madras.
Course Designed By: Dr. P. Gowri. Email id:gowricbe14@gmail.com	

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	M	S	S	M	M	S	M	L	L
CO2	S	S	S	M	S	S	M	M	S	M
CO3	S	S	S	M	S	S	M	M	S	M
CO4	S	M	S	S	M	M	S	M	L	L
CO5	S	M	M	M	S	S	M	S	M	L

*S-Strong; M-Medium; L-Low

Course code		PRINCIPLES OF MANAGEMENT	L	T	P	C
Elective		Elective I / Group B	4	-	-	4
Pre-requisite		Managerial analysis and decision-making.	Syllabus Version	2020-21		

Course Objectives:
The main objectives of this course are:

1	To learn the basic functions, principles and concepts of management.
2	To understand the application of the principles in an organization.
3	To enable the effective and barriers of communication in the organization.
4	To study the system and process of effective controlling in the organization.

Expected Course Outcomes:

On the successful completion of the course, student will be able:

1	To summarize the nature and scope of management.	K1
2	To understand the importance of planning and decision making.	K2
3	To review the classification of organization and understanding its structure.	K3
4	To analysis the need for delegation, centralization and staffing.	K4
5	To outline the importance of controlling in an organization.	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Nature and Scope of Management	18 --hours

Nature and Scope of Management process – Management Science, Art, Development Management - Scientific Management.

Unit:2	Planning	18-- hours

Planning: Meaning and purpose of planning - steps in planning - Types of planning. Decision making: process of Decision making - type of decisions – problems involved in decision making.

Unit:3	Organizing	18-- hours

Organizing: Types of organization - Organizational structure - span of control -use of Staff units and committees.

Unit:4	Delegation	17-- hours

Delegation: Delegation and centralization - Line and Staff relationship. Staffing: Sources of recruitment - Selection process - Training.

Unit:5	Directing	17-- hours

Directing: Nature and purpose of Directing Controlling: Need for co-ordination - meaning and importance of controls - control process.

Unit:6	Contemporary Issues	2 hours

Expert lectures, online seminars - webinars

	Total Lecture hours	90 --hours

Book(s) for study	
1	L.M. Prasad - Principles & Practices of Management, Sultan Chand & Sons, New Delhi.
2	VSP Rao, V.Hari Krishna –Management, Excel Books.
Book(s) Reference	
1	Dale, Ernest - Management theory and Practice.
Course Designed By: Dr. P. Gowri. Email id:gowricbe14@gmail.com	

Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	M	S	S	M	M	S	M	L	L
CO2	S	M	S	S	M	M	S	M	L	L
CO3	S	S	S	S	M	M	S	M	M	M
CO4	S	M	S	S	M	M	S	M	L	L
CO5	S	M	S	S	M	M	S	M	L	L

*S-Strong; M-Medium; L-Low

Course code		INDIA'S INTERNATIONAL TRADE	L	T	P	C
Elective		Elective I / Group C	4	-	-	4
Pre-requisite		Foreign trade policy and the role of globe trade in developing counties.	Syllabus Version		2020-21	

Course Objectives:

The main objectives of this course are:

1	To understand the EXIM policy.
2	Toknowabouthistoricalperspectiveof Indian'sexport.
3	To know about protection laws of Intellectual Property Rights and Patents.
4	To understand the global trade in developing countries.

Expected Course Outcomes:

On the successful completion of the course, student will be able:

1	To explain the concepts and Salient features of Foreign Trade Policy.	K1
2	To understand the major problems in India'sexportsector.	K2
3	To apply the current business phenomenon into the global business environment in terms of economic, social and legal aspects.	K3
4	To analyze theIndia'stradeperformance .	K4
5	To highlight the Salient features of Foreign Trade Policy.	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Development of Foreign Trade Policy	18 - hours

Development of Foreign Trade Policy- Indians Foreign Trade since 1951- EXIM policy 1992-1997- Objectives –Features; 1997-2002 policy- Salient features; EXIM policy 2002-2007 - Features; Foreign Trade Policy 2004-2009 - Salient features.

Unit:2	Legal frame work of India's foreign trade	18-- hours

LegalframeworkofIndia'sfore ign trade –Foreign trade (Development and regulation) Act, 1992 – Foreign Trade Regulation Rules, 1993- Foreign Trade (Exemption from application of rules in certain cases) Order 1993 – Exchange control regulation in India.

Unit:3	India's export trade	18--hours

India'sexporttrade – Historical prospective - Trends – Composition of export trade – Direction of exports of principal products – Export of services – Export promotion – Objectives - Promotion measures – EOUs, EPZs and SEZs.

Unit:4	Oligopoly Models	17--hours

Imports- Technology import contract- Technology policy and environment – selection and transfer issues – Law of Protection of Intellectual Property Rights, Patents and Trade Marks.

Unit:5	Behavioral Models	17--hours

Global trade and developing countries – Highlights of India's trade performances - Determinants of Export and Import – MajorproblemsofIndia'sexportsector – Impact of recent changes in foreign trade policy.

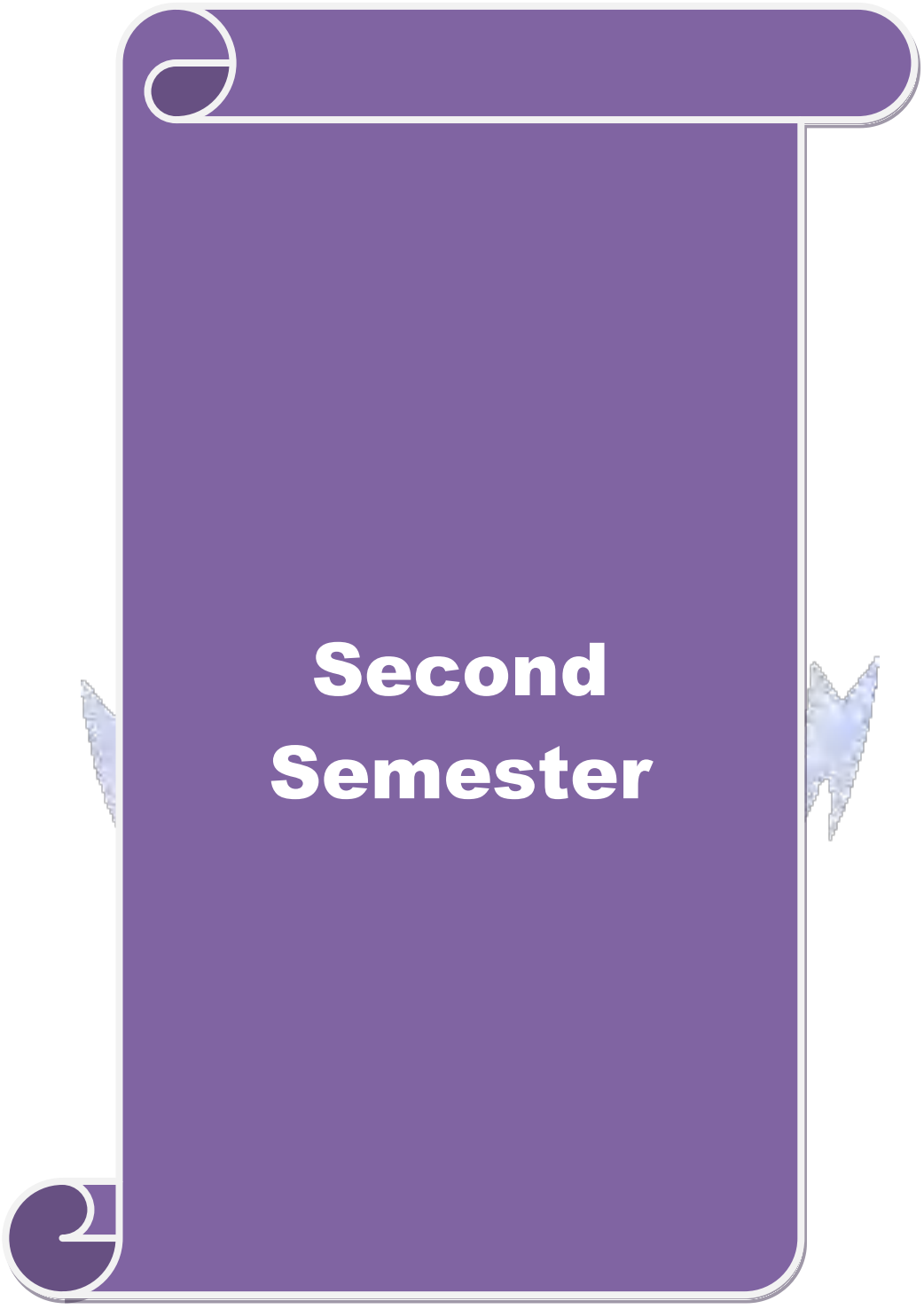
Unit:6	Contemporary Issues	2 hours

Expert lectures, online seminars - webinars

	Total Lecture hours	**90 -hours**
Note: The Question Paper shall cover 100% Theory.		
Book(s) for study		
1	Francis cherunilam - International Trade and Export Management.	
2	T.A.S Balagopal - Export Management	
Book(s) for Reference		
1	M.L. Varma -International Trade.	
Course Designed By: Dr. P. Gowri. Email id:gowricbe14@gmail.com		

Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	L	S	L	M	M	S	M	M	L
CO2	S	S	M	M	S	M	S	S	M	L
CO3	S	S	S	S	S	S	M	M	M	L
CO4	S	S	M	M	S	M	S	M	S	M
CO5	S	L	S	L	M	M	S	M	S	L

*S-Strong; M-Medium; L-Low


Second
Semester

Course code		ADVANCED MICRO ECONOMICS-II	L	T	P	C
Core		CORE PAPER – V	4	-	-	4
Pre-requisite		Application of micro economic behaviour and models.	Syllabus Version		2020-21	

Course Objectives:
The main objectives of this course are:

1	To inculcate the knowledge of theories of distribution and economic behavior under uncertainty
2	To understand the microeconomic concepts and its applications in real-life situations.
3	To know about the partial and general equilibrium conditions.

Expected Course Outcomes:

On the successful completion of the course, student will be able:

1	To understand basic concepts of micro economics and acquire analytical skills to analyse problems of economic policy.	K1
2	To understand the theoretical arguments.	K2
3	To analyse various theories of distribution.	K3
4	To gain knowledge of the optimal conditions and principles.	K4
5	To construct the economic models as an approach.	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6**– Create

Unit:1	THEORY OF DISTRIBUTION	15 -- hours

Neo- classical approach – Marginal productivity theory; Product exhaustion theorem; Elasticity of technical substitution, technical progress and factor shares; Theory of distribution in imperfect product and factor markets; Macro theories of distribution – Ricardian, Marxian, Kalecki and Kaldor's.

Unit:2	WELFARE ECONOMICS	15-- hours

Pigovian welfare economics; Pareto optimal conditions; Value judgement; Social welfare function; Compensation principle; Theory of Second Best – Arrow's impossibility theorem.

Unit:3	PARTIAL AND GENERAL EQUILIBRIUM	15-- hours

Partial and general equilibrium, Walrasian excess demand and input – output approaches to general equilibrium, monopolies; two sector models, relationship between relative commodity and factor prices.

Unit:4	INDIVIDUAL BEHAVIOUR	14-- hours

Individual behaviour towards risk, expected utility and certainty equivalence approaches, risk and risk aversion – cost and risk, risk pooling and risk spreading, mean-variance analysis and portfolio selection.

Unit:5	DECISION MAKING	14-- hours

Decision Making under uncertainty - Optimal consumption under uncertainty - competitive firms under uncertainty - factor demand under uncertainty - criteria for decision under uncertainty - stochastic models in inventory demand.

Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**75 –hours**

Book(s) for study

1	Stigler, G. (1996) Theory of Price, Prentice Hall of India, New Delhi.
2	Sen, A (1999) Microeconomics: Theory and Applications. Oxford University Press, New Delhi.

Book(s) for Reference

1	Baumol. W.J. (1982) Economic Theory and Operations Analysis. Prentice Hall of India, New Delhi.
2	Baumol. W.J. (1982) Economic Theory and Operations Analysis. Prentice Hall of India, New Delhi.

Course Designed By: Dr. C. Rajendran. Email id: rajvarshan@yahoo.co.in

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M	S	S	M	S	S	M	S	L	L
CO2	M	S	S	S	S	S	M	S	L	L
CO3	M	S	S	M	M	S	M	M	S	L
CO4	M	S	S	M	M	S	M	M	S	L
CO5	M	M	S	L	S	M	L	L	M	L

*S-Strong; M-Medium; L-Low

Course code		MACRO ECONOMICS	L	T	P	C
Core		CORE PAPER – VI	4	-	-	4
Pre-requisite		Macroeconomic models, theories and techniques.	Syllabus Version	2020-21		

Course Objectives:
The main objectives of this course are:

1	To develop knowledge on theories, models and policies this governed the functioning of the different domains of the macroeconomic system.
2	To know of the major issues in the field of macroeconomics.
3	To provide knowledge on the macroeconomic techniques.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	To understand the sectoral flow of national income in the economy.	K1
2	To evaluate a critical insight on classical and Keynesian macro economics models.	K2
3	To evaluate critically on consumption function and investment function.	K3
4	To know the contributions of Friedman, Phelps and Phelps in uncertainty.	K4
5	To construct the sound knowledge of macro economics policy.	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6**– Create

Unit:1	NATIONAL ECONOMIC CONCEPTS	15 -- hours

Flow of Funds in National Economy – National Products and Related Concepts – Sectoral Accounts – Measurements and Problems in National Income Accounting – Use of Current and Constant Price indices – Basic Concepts.

Unit:2	GENERAL EQUILIBRIUM	15-- hours

Basic Equilibrium in Classical Model – Basic Keynesian Model – Equilibrium in the Product and Money Markets – Multiplier – Full Employment Budget Surplus – The Liquidity Trap – Employment and Wage Rigidity – General Equilibrium in Goods and Bond Markets.

Unit:3	CONSUMPTION FUNCTION	15-- hours

Consumption Function – Keynes Absolute Income Hypothesis – The Relative Income Hypothesis – Permanent Income Hypothesis – The Life Cycle Hypothesis.

Unit:4	INVESTMENT FUNCTION	14-- hours

Investment Demand – Keynesian Approach – Accelerator – Multiplier – The Post-Keynesian Approach - The Neo- Keynesian Approach – Lags in Investment Demand – Stability and Slope of the IS Curve and Policy Consequences.

Unit:5	GENERAL ECONOMICS POLICY	14-- hours

Role of Expectation – Uncertainty and Economics and Policy – The Phillips Curve – Expectation in Short-run Phillips Curves – The Friedman and Phelps Argument – The shifting of Short-run Phillips Curve – The Long-run Phillips Curve.

Unit:6	Contemporary Issues	2 hours

Expert lectures, online seminars – webinars

	Total Lecture hours	**75 – hours**

Book(s) for study	
1	GuptaS.B.(19830,"MonetaryEconomics",S.ChandCo.,Delhi.
2	McConnellC.R.&GuptaH.C.(1987)"Introduction to Macro Economics",TataMcGraw Hill Delhi.
Book(s) for Reference	
1	BolandD.(1982),"ThefoundationsofEconomicMethod",GeorgeAllenandUnwin, London.
2	BransonW.H.(1972),"MacroEconomicTheory&Policy",Harper&Row,NewYork.
Course Designed By: Dr. C. Rajendran. Email id: rajvarshan@yahoo.co.in	

Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	M	S	S	M	S	S	M	S	L	L
CO2	M	S	S	S	S	S	M	S	L	L
CO3	M	S	S	M	M	S	M	M	S	L
CO4	M	S	S	M	M	S	M	M	S	L
CO5	M	M	S	L	S	M	L	L	M	L

*S-Strong; M-Medium; L-Low

Course code		AGRICULTURE ECONOMICS	L	T	P	C
Core		CORE PAPER –VII	4	-	-	4
Pre-requisite		Agricultural economics policies and issues.	Syllabus Version		2020-21	

Course Objectives:

The main objectives of this course are:

1	To provide a detailed treatment of issues in agricultural economics to those intending to specialize in this area.
2	To understand the policy issues relevant to Indian agricultural economics.
3	To know about agriculture marketing functions and costs.
4	To understand the role of capital and rural credit for agriculture.

Expected Course Outcomes:

On the successful completion of the course, student will be able:

1	To understand the nature and scope of agricultural economics.	K1
2	To understand the various land reforms and the importance of land policies.	K2
3	To familiarize with production functions in agriculture and productivity.	K3
4	To analyse agriculture marketing functions.	K4
5	To construct the role of capital and rural credit.	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6**– Create

Unit:1	NATURE OF AGRICULTURE ECONOMICS	15-- hours

Nature and scope of agricultural economics; Traditional agriculture and its modernization; Role of agriculture in economic development; Interdependence between agriculture and industry. Models of interaction between agriculture and the rest of the economy; Agricultural development, poverty and environment.

Unit:2	LAND REFORMS	15-- hours

Principles of land utilization – Land distribution – Structure and trends – Land values and rent – Land tenures and farming systems – Peasant, capitalist, collective and state farming Tenancy and crop Sharing – Forms, incidence and effects – Land reform measures and performance.

Unit:3	RESOURCE USE AND EFFICIENCY	15-- hours

Resource use and efficiency; Production function analyses in agriculture - Factor combination and resource substitution - Cost and supply curves - Size of farm and laws of returns - Farm budgeting and cost concepts – Supply response of individual crops and aggregate supply.

Unit:4	AGRICULTURAL MARKETING	14-- hours

Agricultural markets and marketing efficiency – Marketing functions and costs – Market structure and imperfections – Regulated markets – Marketed and marketable surplus – Behaviour Of agricultural prices – Cobweb model; Price and income stability; State policy with respect to agricultural marketing – Warehousing Prices – Taxation and crop insurance – Terms of trade between agricultural and non- agricultural prices – Need for state intervention – Objectives of agricultural price policy – Instruments and evaluation – Food security in India and public distribution system.

Unit:5	AGRICULTURAL CREDIT	14-- hours

Role of capital and rural credit – Organized and unorganized capital market - Rural savings and capital formation – Characteristics and sources of rural credit – Institutional and non-institutional

– Reorganization of rural credit – cooperatives, commercial banks, regional rural banks – Role of NABARD.		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**75 – hours**

Book(s) for study

1	Kaur. R. (1975) Agricultural Price Policy in Economic Development, Kalyani Publishers, Delhi.
2	Raj. K.N. et.al. (1988), Essays in the Commercialization of Indian Agriculture. Oxford University Press, New Delhi.

Book(s) for Reference

1	Bardhan.P. (1984) Land. Labour and Rural Poverty, Oxford University Press, New Delhi
2	Chadha, G.K. and A.N. Sharma (1997) Growth, Employment and Poverty : Change and Continuity in Rural India, Vikas Publishing, New Delhi.

Course Designed By: Dr. S. Manikandan. Email id: drseasc@gmail.com

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M	S	S	M	S	S	M	S	L	L
CO2	M	S	S	S	S	S	M	S	L	L
CO3	M	S	S	M	M	S	M	M	S	L
CO4	M	S	S	M	M	S	M	M	S	L
CO5	M	M	S	L	S	M	L	L	M	L

*S-Strong; M-Medium; L-Low

Course code		QUANTITATIVE TECHNIQUES FOR MANAGERIAL DECISIONS	L	T	P	C
Core		CORE PAPER – VIII	4	-	-	4
Pre-requisite		Application of quantitative techniques and their application in management decisions.	Syllabus Version		2020-21	

Course Objectives:
The main objectives of this course are:

1	To enable students to acquire knowledge on basic concepts of mathematics relevant to economic analysis.
2	To provide the students with the theoretical and practical necessary to do applied quantitative techniques.
3	To provide the students with the theoretical necessary to do applied quantitative techniques.

Expected Course Outcomes:

On the successful completion of the course, student will be able:

1	To understand the various quantitative techniques in managerial practices.	K1
2	To apply the mathematical tools to test and formulate the economic theories.	K2
3	To analyze the various techniques of derivatives and their applications.	K4
4	To analyze the quantitative tools for managerial decision.	K5
5	To understand the practical knowledge of decision making.	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6**– Create

Unit:1	SET THEORY	15 -- hours

Set Theory: Operations on sets and Law of set operations –solutions of simple equations – solutions of Quadratic equations – Solution of Linear simultaneous Equations in two and three variables.

Unit:2	RELATIONS AND FUNCTIONS	15-- hours

Relations and Functions: Functions of one variable – straight line, parabola, rectangular hyperbola Exponential and logarithmic functions. Concave and Convex functions – Applications in business Economics.

Unit:3	DERIVATIVES AND ITS APPLICATION	15-- hours

Derivatives and their interpretation and techniques of derivatives- Higher order derivatives- Relationships among Total, Average, and Marginal of Revenue and Cost and Elasticity of Function. Functions of two variables – Partial derivatives and their applications in economics.

Unit:4	OPTIMISATION	14-- hours

Optimisation problems involving one or two variables -– Applications in Economics – Homogeneous function and their properties, Euler's Theorem, Cobb -Douglas and CES Production Function and their properties.

Unit:5	Title of the Unit (MATRIX ALGEBRA)	14-- hours

Matrix Algebra – Determinants and properties, Types of Determinants – Matrix, Null Matrix, Unit Matrix, Multiplication and Scalar Matrix, Operations – Addition and Subtraction of Matrix, Multiplication – Transpose of a Matrix and Inverse of Matrix. Solutions for simultaneous equations – Crammer'sRule.

Unit:6		**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**75 -- hours**

Book(s) for study

1	MabbettA.J.,"WorkoutMathematicsforEconomists",ELBS,Macmillan.
2	MedhaandMadnani,"MathematicsforEconomics",Sultan Chand, New Delhi.

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Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	M	S	S	L	L	M	M	L	L
CO2	S	M	S	S	L	L	M	M	S	M
CO3	S	S	S	S	L	L	M	M	M	M
CO4	S	M	S	S	L	L	M	M	S	S
CO5	S	M	S	S	L	L	M	M	S	S

*S-Strong; M-Medium; L-Low.

Course code		INDUSTRIAL ECONOMICS	L	T	P	C
Core		CORE PAPER-IX	4	-	-	4
Pre-requisite		Understanding of industrial policies and development.	Syllabus Version		2020-21	

Course Objectives:
The main objectives of this course are:

1	To know about the industrial efficiency and business motives.
2	To understand the broad range of the methods and models applied by economists in the analysis of firms and industries.
3	To provide adequate knowledge on the determinants of industrial productivity and labour productivity.
4	It motivates the student to become an entrepreneur.

Expected Course Outcomes:

On the successful completion of the course, student will be able:

1	To understand the scope of industrial economics and motives of the organizational firm.	K1
2	To evaluate economic theories of location and their importance.	K2
3	To investigate the scope and significance of industrial productivity.	K3
4	To examine the concentration of economic power and the application of industrial policies.	K4
5	To evaluate the industrial backwardness and regional disparities.	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6**– Create

Unit:1	INDUSTRIAL EFFICENCY	15 --hours

The scope of Industrial economics - Industrial efficiency- the determinants of economic efficiency-measurement of efficiency levels- Types of organizational Firm and alternative motives of the Firm- Business motives- The efficiency and the size of the Firm.

Unit:2	INDUSTRIAL LOCATION	15-- hours

Industrial location- The Geographical contribution - The economic theories of Location- Weber'stheoryofl ocation- Split location- Sargent Florence theory -Losch theory- Industrial location trends in India.

Unit:3	INDUSTRIAL PRODUCTIVITY	15-- hours

Industrial productivity- Measurement of Productivity- Scope and significance-Tools of productivity- Factors influencing industrial productivity- Labour productivity-determinants of productivity.

Unit:4	INDUSTRIAL POLICIES	14-- hours

Industrial policies- 1948 to till date- Concentration of Economic Power-Measurement of concentration- LPG Policies-Industrial combination-Types-Growth-Forms-Combination in India.

Unit:5	REGIONAL DEVELOPMENT	14--hours

Balanced regional development-Indicators of regional imbalance-Distribution of Industries-Causes of economic backwardness-Criteria for industrial backwardness-Identification of Industrial

backward areas Policy measures to remove regional disparities.		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**75 --hours**

Book(s) for study

1	Cherunilam F (1994) Industrial Economics: Indian perspective Himalaya Publishing House, Mumbai.
2	Hay, D, and D.J.Morris(1979) Industrial Economics: Theory and Evidence. Oxford University Press, New Delhi.

Book(s) for Reference

1	Ahluwalia, I.J (1985), Industrial Growth in India, Oxford University press, New Delhi.
2	Barthwal.R.R (2006) Industrial Economics, New Age International Publishers, New Delhi.

Course Designed By: Dr. S. Manikandan. Email id: drseasc@gmail.com

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	M	S	S	M	M	S	M	L	L
CO2	S	M	S	S	M	M	S	M	L	L
CO3	S	S	S	S	M	M	S	M	M	M
CO4	S	M	S	S	M	M	S	M	L	L
CO5	S	M	S	S	M	M	S	M	L	L

*S-Strong; M-Medium; L-Low

Course code		ENTREPRENEURIAL DEVELOPMENT	L	T	P	C
Elective		Elective II /Group A	4	-	-	4
Pre-requisite		Entrepreneurship and women entrepreneurs in business.	Syllabus Version		2020-21	

Course Objectives:
The main objectives of this course are:

1	To understand the role and importance of entrepreneurship for economic development.
2	To develop personal creativity and entrepreneurial initiative with business ideas.
3	To know about the resources needed for the successful development of entrepreneurial ventures.

Expected Course Outcomes:

On the successful completion of the course, student will be able:

1	To understand the importance and characteristics of entrepreneurs.	K1
2	To analyse knowledge of the sources of business ideas.	K2
3	To motivate the women entrepreneurs in the present scenario of the economy.	K3
4	To be familiar with the objectives of training and finance.	K4
5	To be analysed with the objectives of training and finance.	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6**– Create

Unit:1	ENTREPRENEURSHIP	15 - hours

Entrepreneurship – Definition, importance and characteristics of Entrepreneurship - Functions, types, and motives of Entrepreneurship - Growth of Entrepreneurs in India.

Unit:2	BUSINESS AND ITS SOURCES	15-- hours

Search for a business idea – sources - processing and selection – selection of types of organization – project classification and identification – project objectives – internal and external constraints – format for a report.

Unit:3	WOMEN ENTREPRENEURSHIP	15hours

Functions and role of women Entrepreneurs and rural Entrepreneurs - their problems – selection of industry by women Entrepreneurs – types of industries / business for women Entrepreneurs and rural Entrepreneurs.

Unit:4	TRAINING AND FINANCE	14--hours

Training and Finance : objectives of training – phase of EDP – special agencies for training – institutional finance with special emphasis of commercial banks, IDBI, IFCI, ICICI, IRBI, SFC, SIDFI, SIPCOT, Khadi and Village Industries Commission – Micro Finance.

Unit:5	ROLE OF GOVERNMENT IN ENTREPRENEURSHIP	14--hours

Role of Central and State Government in promoting Entrepreneurship – Introduction of various incentives, subsidies and grants – Fiscal and Tax concessions available – Role of Entrepreneurship.

Unit:6	Contemporary Issues	2 hours
Expert lectures, online seminars – webinars		
	Total Lecture hours	**75 –hours**

Note: The Question Paper shall cover 100% Theory.

Book(s) for study

1	E.Gordon&K.Natarajan - Entrepreneurial Development, Himalaya Publishing House New delhi, 2005.
2	C.B.Gupta& NP Srinivasan - Entrepreneurial Development, Sultan Chand & Sons New Delhi, 2003.

Book(s) for Reference

1	P.Saravanavel - Entrepreneurial Development, Principles, Policies &Programmes, Eee Pee Key, Publishing House, Chennai 1997.
2	Renu Arora &S.K.Sood- Entrepreneurial Development.

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Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	L	S	L	M	M	S	M	M	L
CO2	S	S	M	M	S	M	S	S	M	L
CO3	S	S	S	S	S	S	M	M	M	L
CO4	S	S	M	M	S	M	S	M	S	M
CO5	S	L	S	L	M	M	S	M	S	L

*S-Strong; M-Medium; L-Low

Course code		INVESTMENT MANAGEMENT	L	T	P	C
Elective		Elective II /Group B	4	-	-	4
Pre-requisite		Investment concepts, techniques and financial institutions.	Syllabus Version		2020-21	

Course Objectives:

The main objectives of this course are:

1	To understand about the investment strategies designed to meet the financial goals.
2	To provide an overview of trading processes and various financial instruments.
3	To assess the current and long-term savings and investment alternatives.
4	To know about the performance of portfolio management.

Expected Course Outcomes:

On the successful completion of the course, student will be able:

1	To understand the scope and importance of investment.	K1
2	To analyse the role of capital market and classification of trading activity.	K2
3	To analyze investment management.	K3
4	To evaluate the various alternatives in investment.	K4
5	To understand the scope and elements of portfolio management.	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6**– Create

Unit:1	INVESTMENT	15 - hours

Nature, Meaning and scope of Investment – Importance of Investment – Factors influencing Investment – Investment media – Features of investment Programme – Investment Process – Development of Financial system in India.

Unit:2	CAPITAL MARKET	15-- hours

Capital Market – New issue Market and stock exchange in India – B.S.E – N.S.E – OTCEI – Kinds of Trading activity – Listing of Securities – SEBI and its Role and guidelines.

Unit:3	INVESTMENT ANALYSIS	15hours

Fundamental and Technical Analysis – Security evaluation – Economic Analysis – Industry Analysis – Company Analysis – Technical Analysis – Portfolio Analysis.

Unit:4	**INVESTMENT ALTERNATIVES**	14--hours

Investment Alternatives – Investment in Bonds, Equity Shares, Preference shares, Government Securities – Mutual Funds – Real Estate – Gold – Silver – Provident fund – Unit Trust – National Savings Scheme – LIC.

Unit:5	**PORTFOLIO MANAGEMENT**	14hours

Portfolio Management – Nature, Scope – SEBI Guidelines to Portfolio Management – Port folio Investment Process – Elements of Portfolio Management – Portfolio Revision – Needs and Problems.

Unit:6	**Contemporary Issues**	2 hours

Expert lectures, online seminars – webinars

	Total Lecture hours	75hours

Note: The Question Paper shall cover 100% Theory.

Book(s) for study	
1	Investment Management - Francis Cherunilam.
2	Investment Management - Khan and Jain.
Book(s) for Reference	
1	Investment Management - Preeti Singh.
2	Investment Management - V.K.Bhalla.
Course Designed By: Dr. Hemasrikumar. Email id:hema_srikumar@yahoo.co.in	

Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	L	S	L	M	M	S	M	M	L
CO2	S	S	M	M	S	M	S	S	M	L
CO3	S	S	S	S	S	S	M	M	M	L
CO4	S	S	M	M	S	M	S	M	S	M
CO5	S	L	S	L	M	M	S	M	S	L

*S-Strong; M-Medium; L-Low

Course code		FINANCIAL SERVICES	L	T	P	C
Elective		Elective II /Group C	4	-	-	4
Pre-requisite		Financial services and activities	Syllabus Version	2020-21		

Course Objectives:
The main objectives of this course are:

1	To introduce fee-based financial services provided by financial companies,
2	To know the salient features and importance of financial services.
3	To understand the present position in the Indian financial sector.

Expected Course Outcomes:

On the successful completion of the course, student will be able:

1	To understand with the services offered by various financial services companies.	K1
2	To analyze the profitability of stock broking and depository services.	K2
3	To analyze the profitability of stock broking and depository services.	K3
4	To understand the different ventures to invest money and the concept of mutual funds and select profitable funds.	K4
5	To examine contemporary issues including the level of personal saving	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6**– Create

Unit:1	MERCHANT BANKING	15 - hours

Merchant Banking – Meaning, nature and functions; merchant banking in India, role in issue management; classification and regulation of merchant bankers by SEBI. NBFC- Types of NBFC- NBFC in India..

Unit:2	Stock Broking & Depository Services	15-- hours

Stock Broking – meaning- types of stockbrokers-sub-brokers- stock broking in India- e-broking (meaning). Indian experience Depository Services: meaning- role of depositories and their services- Functioning of depository system- Depositories in India – NSDL & CDSL- Depository participants (DPs) and their role.

Unit:3	Credit Rating & Securitization	15hours

Credit Rating: meaning- rating methodology- importance of credit rating- credit rating agencies in India including Small & Medium Enterprises Rating Agency (SMERA). Securitization of debt – Meaning- Features-Types- Benefits of Securitization- Issues in Securitization.

Unit:4	MUTUAL FUNDS	14--hours

Meaning of Mutual Funds – Type of Mutual Funds – Advantages of mutual Funds – Mutual Funds in India- SEBI Guidelines on Mutual Funds.

Unit:5	Leasing, Hire Purchase and Venture Capital	14hours

Lease Financing: Meaning- definition and types of lease agreements- advantages and disadvantages from the point of view of lesser and lessee. Hire Purchase Finance: meaning, concepts of hire purchase finance. Venture Capital Financing: meaning, importance/need, scope of venture capital finance.

Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**75hours**

Note: The Question Paper shall cover 100% Theory.

Book(s) for study

1	Agarwal O. P. (2005): Environment and Management of Financial Services, Mumbai, Himalaya.
2	Batra G. S. (1999): Financial Services: New Innovations, New Delhi, Deep& Deep.

Book(s) for Reference

1	Bhole L. M. &Mahakud J. (2009): Financial Institutions and Markets: Structure, Growth & Innovations, New Delhi, Tata-McGraw Hill, 5e .
2	Khan M. Y. (2004): Financial Services, New Delhi, Tata McGraw-Hill.

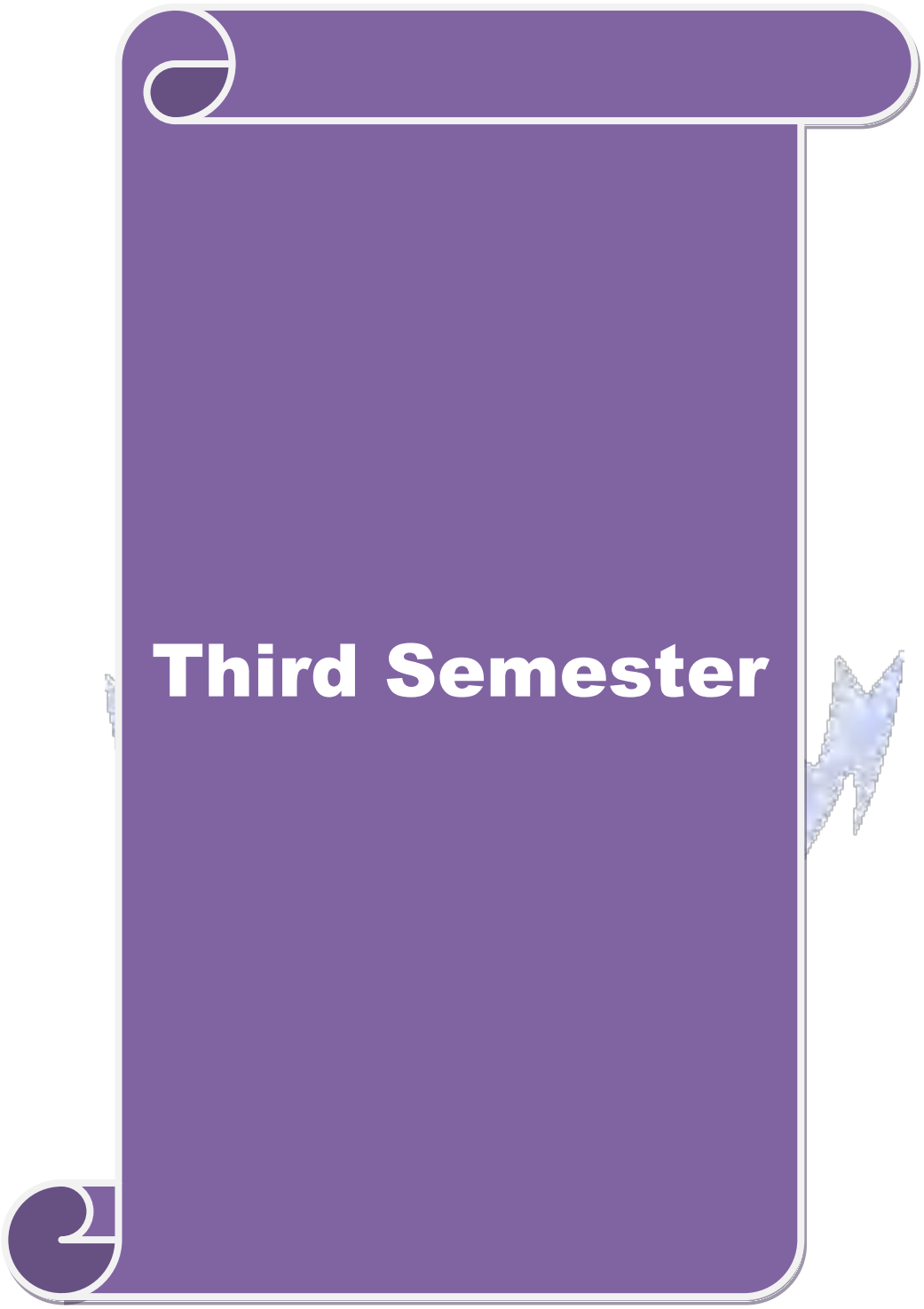
Course Designed By: Dr. A.G.V.Narayanan. email id: director@djacademy.ac.in

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	L	S	L	M	M	S	M	M	L
CO2	S	S	M	M	S	M	S	S	M	L
CO3	S	S	S	S	S	S	M	M	M	L
CO4	S	S	M	M	S	M	S	M	S	M
CO5	S	L	S	L	M	M	S	M	S	L

*S-Strong; M-Medium; L-Low




Third Semester

Course code		MONETARY THEORY AND POLICES	L	T	P	C
Core		CORE PAPER – X	4	-	-	4
Pre-requisite		Theories on monetary and policies.	Syllabus Version	2020-21		

Course Objectives:

The main objectives of this course are to:

1. To understand basic concepts and theories
2. To know about the role of central banks and monetary policies for economic development
3. To provide insight about the relationship of the risk and return of the investors

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	To gain sound knowledge in monetary theories and banking practices.	K2
2	ToevaluateIndia'smonetaryproblems	K5
3	To examine role and functions of commercial and central banks	K4
4	To gain the knowledge about the Monetary system of LDCs.	K2
5	To analyse the recent development in the monetary economics.	K1

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	**Concepts of Money**	**15 hours**

Concepts – The Role Money in a Economy – Fisher‟s Quantity Theory- Cambridge Cash Balance Approach - Keynesian Theory - ModernQuantityTheory;Friedman‟s Approach – DonPatinkin‟sTheory – Tobin‟s Portfolio Analysis - InventoryTheory of Money (Baumol)..

Unit:2	**Supply of Money**	**15 hours**

High Power Money – Money Multiplier Process – Determinants of Money Multiplier - Factors Affecting– Credit Creation by Commercial Banks – NBFI.

Unit:3	**Central Banks**	**15 hours**

Role of Central Banks - Development and Promotional – Functions –Credit control Methods – RBI: Role and Functions Central Banks in UK and USA.

Unit:4	**Money Markets**	**14 hours**

Characteristics of Developed and Underdeveloped Money market- The Indian Money market- Capital Market; Primary and Secondary Market – Stock Exchange: role and its Functions, Capital issue control and its aim -SEBI.

Unit:5	**Monetary Policy**	**14hours**

Role of Monetary Policy in Economic Development -Goals, Targets and Indicators of Monetary Policy - Lags in monetary Policy - Inflation - Phillips Curve – Narasimham Committee report.

Unit:6	**Contemporary Issues**	**2 hours**

Expert lectures, online seminars - webinars

	Total Lecture hours	**75 hours**

Book(s) for study	
1	Gurley and Shaw: Money in a Theory ofFinance
2	Suraj B Gupta, Monetary Economics.
Book(s) for Reference	
1	Chandler,L.V., Economics of Money and banking (UBS) Revised Edition.
2	Laidler,David. The Demand for Money (Allied Publisher
3	Harry G Johnson, Further Essay in Monetary Economics (Allen& Unwin).
4	Milton Friedman, Studies in the Quantity Theory of Money.
5	Milton Friedman: Inflation – Causes andConsequences
6	Gail E.Makinen: Money, Interest and the Price Level, (Prentice Hall, 1978).
Course Designed By: Dr. V. Kavitha. Email id: kavisaran274@gmail.com	

Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	M	L	M	L	S	S	M	M	L	L
CO2	M	L	S	M	S	S	S	L	M	L
CO3	L	M	L	M	S	M	L	M	M	L
CO4	M	S	L	S	M	S	S	S	M	L
CO5	M	M	M	L	S	S	M	L	M	L

*S-Strong; M-Medium; L-Low.

Course code		REASERCH METHODOLOGY	L	T	P	C
Core		CORE PAPER – XI	4	-	-	4
Pre-requisite		The fundamental methods and techniques of academic research in social sciences and business management.	Syllabus Version		2020-21	

Course Objectives:

The main objectives of this course are to:

1. To develop the understanding of the basic framework of research process.
2. To learn various research designs and techniques
3. To develop an understanding of the ethical dimensions of conducting applied research.
4. To appreciate the components of scholarly writing and evaluate its quality.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	To identify and formulate the research problem.	K1
2	To compose the objectives of research and framing hypothesis.	K2
3	To develop the skills in the collection of data and its analysis	K3
4	To acquire the knowledge on the interpretation of results.	K4
5	To compile the research report.	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Meaning of Research	15 hours

Meaning of Research – objective of Research – formulating of Research problem – formulation of hypothesis – Research Design: Pure, Applied, Action and Evaluation Research..

Unit:2	Sources of Data	15 hours

Sources of data: Primary and Secondary sources-methods of Data collection: census and sample survey – Data collection instruments: observation, Interview, schedules and Questionnaires – Sampling Design: Probability and non-probability sampling methods. Secondary data sources in India.

Unit:3	Analysis of Data	15 hours

Analysis of Data: Measures of central tendency: Mean Median and Mode – Measures of Dispersion: Range, mean deviation, standard deviation variance, coefficient of variation - Economics Applications.

Unit:4	Testing of Hypothesis	14 hours

Testing of hypothesis: Parametric and non-parametric tests –Standardtestofhypothesis:Z" test, t- test, F-test and ANOVA, Chi square test - Association of Attributes.

Unit:5	Presenting Results	14 hours

Presenting results: written and oral reports –stages in drafting – written researches report – Layout of research report – Footnotes and Bibliography.

Unit:6	Contemporary Issues	2 hours

Expert lectures, online seminars - webinars

	Total Lecture hours	75 hours

Book(s) for study	
1	C.R.Kothari- Research Methodology, Methods and Techniques – Willey EasternLtd., 1988
2	A.N.Sadhu Research Methodology and Social sciences – Himalaya Amarjit Singh PublishingHouse.1996.
Book(s) for Reference	
1	W.J.GoodeandP.K.Hatt,"MethodsinSocialResearch",McGrawHill International Edition
2	B.N.Gosh – Scientific Method and Social Research – Sterling Publishers (P) Ltd.,1992.
Course Designed By: Dr. V. Kavitha. Email id: kavisaran274@gmail.com	

Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	L	S	M	S	M	L	L	S	M	M
CO2	L	S	M	S	S	M	M	S	M	S
CO3	L	S	L	S	S	L	M	S	L	S
CO4	L	S	M	S	S	M	L	S	M	S
CO5	L	S	M	S	M	M	L	S	L	S

*S-Strong; M-Medium; L-Low

Course code		COMPUTER APPLICATIONS IN ECONOMICS (THEORY)	L	T	P	C
Core		Core Paper XII	4	-	-	4
Pre-requisite		This course provides the foundation for the computer application in Economics. Students should know the basic components of computers and its applications.	Syllabus Version		2020-21	

Course Objectives:

The main objectives of this course are to:
1. To enable the students to learn the basic features of hardware and software.
2. To understand the different components of computers and its application in economics.
3. To process the available data for making meaningful analysis

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	To become familiar with basic knowledge on computer with languages and operating packages	K1
2	To draw distributive tables, graphs, and trend lines	K2
3	To estimate the parameters of data analysis and interpret it	K3
4	To use word processing in computers.	K4
5	To gathering knowledge about MS Office	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Basic Components of Computer	15 hours

Basic components of computer CPU: input-output devices, Keyboard, Mouse, Scanner, Monitor, Printers, Hard disk, Floppy disk, CD-ROM - Types of computers and their applications:- Operating Systems: DOS, UNIX, WINDOWS and their salient features.

Unit:2	Hardware and Software	15 hours

Hardware and Software - Language and operating packages: C and C++, Visual Basic, DBASE, FOXPRO, SPSS: Major features and utilities.

Unit:3	Concepts of Data	15 hours

Concepts of data record and file - Types of data and data structures: File handling and operations like opening, closing and attribute controls - Data storage and retrieval - data operations: Algorithms like sorting merging, joining and bifurcation.

Unit:4	Data Process and Analysis	14 hours

Data objects: Series, Groups, and Tables – Data type: Cross section, time series and pool data-Data matrix: variable and observation- Data analysis: Univariate and multivariate analysis- Document attributes - Data creation: Code sheet preparation, Data entry-Data validation/cleaning

Unit:5	Computers and Word Processing	14 hours

Computers and Word processing: MS Office: Typing, Selecting, Editing and moving texts - saving documents - Printing documents - word formatting tools - Styles and templates - Headers, Footers, Page formatting, Footnotes - Tabs, Columns, Sorting - Macros - Customizing word.

Unit:6	Contemporary Issues	2 hours

Expert lectures, online seminars – webinars

	Total Lecture hours	**75 hours**

Book(s) for study

1	Rajasekaran S and A.H. Wheelar,(1996) Numerical Methods in Science and Engineering
2	Sinka P.K. (1992) Computers Fundamentals, BPB Publications, NewYork.

Book(s) for Reference

1	Ram Mansfield, (1993) The Compact to Windows, Word & Excel - BPB Publications (UnitV).
2	Levin R.I AND C.A. Kirk patrick (1975) Quantitative Approaches to Management (3rd Edition), Mc Grew Hill, NewYork.
3	Sanders D.H. (1988) Computers Today, Mc Grew Hill (3rdEdition)
4	Schildt H (1987) C Made Easy, Mc Grew Hill NewYork
5	Lip Schultz M M AND S Lipchultz (1982) Theory and problems of Data Processing schemes Out Line Series, Mc Grew Hill NewYork.

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Mapping with Programme Outcomes

COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	L	M	L	L	S	L	L	M	M	S
CO2	L	M	M	L	L	L	L	M	M	S
CO3	L	M	M	L	M	L	L	L	L	S
CO4	M	M	M	L	M	L	L	M	M	S
CO5	L	M	L	L	M	L	L	M	M	S

*S-Strong; M-Medium; L-Low

Course code		ENVIRONMENTAL ECONOMICS	L	T	P	C
Core		Core Paper XIII	4	-	-	4
Pre-requisite		The interaction between economics, ecology and environment.	Syllabus Version		2020-21	

Course Objectives:

The main objectives of this course are to:

1. To understand the fundamentals of ecology, environment and their relationship with economics.
2. To know the market inefficiencies and externalities like pollution and find the solutions to market failures.
3. To study the economics behind environmental issues and policies.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	To familiarize with the theories of environmental economics.	K1
2	To examine the practical environmental problems and offer solutions.	K4
3	To analyze the regulations and prohibition measure to protect the environment	K5
4	To assess India's environmental policies.	K4
5	To measurement the government activity against environmental problem	K2

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Basic Concepts of Environment Economics	15 hours

The basic concepts of Environment Economics - Basic theory of Environmental Economics - Efficiency in a private market economy - Imperfect market problems - Kaldor - Hicks compensation Principle - Tragedy of commons.

Unit:2	Environmental Pollution	15 hours

Environmental pollution: Air, Water, Deforestation, Noise, Industrial Pollution - Waste disposal and recycling of water .Environmental pollution in India - Policies of pollution control and conservation - Protection of environment – Legal system.

Unit:3	Cost - Benefit Analysis	15 hours

Cost - Benefit Analysis: Optimum Pollution - Efficient level of environmental quality - Evaluation of environmental benefit - Direct and indirect methods.

Unit:4	Demographic Effects of Environment	14 hours

Population, economic growth and environmental quality. Urbanization and environmental problems –Second stage of Demographic Transition-Effects of over population-Problems and its impact.

Unit:5	Environmental Actions	14 hours

The collective environmental action: Regulation and prohibition Taxes, subsidies and effluent charges, Government protection of environmental services.-Environmental education- Awareness- Movements in India.

Unit:6	Contemporary Issues	2 hours
Expert lectures, online seminars – webinars		
	Total Lecture hours	**75 hours**

Book(s) for study	
1	Karpagam,M.(2005)"EnvironmentalEconomics".SterlingPublishesPvt.Ltd
2	S.Sankaran: Environmental E economics (2005)Margham Publications, Chennai
Book(s) for Reference	
1	Baumol, Willam J. Oates, and Wallace E "Economics, Environmental Policy and the QualityofLife".1977,PrenticeHallInc
2	Eugine, T. (2006) "Environmental Economics, Virindha Publications (P) Ltd
3	Handley,Nick,J.Shogren,"EnvironmentalEconomics"andBenWhite (1999) Macmillan,
4	Abhijit Dutta, Sunita Dutta and P N Pandey, Environmental Economics A.P.H.Publishing Corporation, New Delhi.
5	Maddu Raj Environmental Economics (2001) IVY Publishing House , New Delhi
Course Designed By: Dr.S. Swarna Gandhi. Email id: gandhiswarna3gmail.com	

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M	L	M	L	S	L	S	L	S	L
CO2	M	L	M	L	S	M	S	M	M	L
CO3	M	L	M	M	S	M	S	M	M	L
CO4	S	L	M	L	S	L	S	L	S	L
CO5	S	L	M	M	S	L	S	L	S	L

*S-Strong; M-Medium; L-Low

Course code		LABOUR ECONOMICS	L	T	P	C
Core		Core Paper XIV	3	-	-	3
Pre-requisite		The labour problems and performance of trade unions.	Syllabus Version		2020-21	

Course Objectives:

The main objectives of this course are to:

1. To analyse an individual's labour supply as the result o f the optimum division of time between work and leisure.
2. To understand the investment on human capital, and its influence on the current and future labour supply.
3. To develop the ability to analyse a company's demand for work as the result of a resour ce optimisation.
4. To understand the role of the state and trade unions in the labour market.
5. To know about the labour regulations and collective bargaining and its influence on employment.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Demonstrate a sound understanding of the core concepts and tools of labour economics and Policy.	K2
2	To apply economic principles of labour market and contemporary academic literature	K1
3	To evaluate the nature jobs in social and economic environments	K4
4	Critically evaluate government policies affecting work and jobs.	K5
5	To identify and utilise the labour welfare legislation in India.	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Concept of Labour	15 hours

Concept of Labour and Labour Economics-Labour Problems- Labour Market – Demand and Supply of Labour – Characteristics of labour market in India- Recruitment Procedure and Employment Exchange.

Unit:2	Role and functions of Trade Unions	15 hours

Role and functions of Trade Union- Theories of Trade Unionism (i) Webbs (ii) KarlMarx (iii) Gandhi- Trade Union Movement in India-Recent Trends-Justifications of Strikes and Lockouts

Unit:3	Industrial Disputes	15 hours

Industrial Disputes: Causes and Consequences- Industrial Disputes in India- ILO Purposes-Constitution-Functions-ILO and India.

Unit:4	Industrial Relations	14 hours

Need for Industrial Relation Machinery-Preventive and Curative methods-Collective Bargaining, Arbitration and Adjudications- Industrial Democracy, concept of Workers participation in management- Role of State in Industrial Relations.

Unit:5	Labour Welfare Concepts	14 hours

Labour Welfare concept, significance, classification, Principles and programmes- Concept of Labour in India; Factory Act ,Labour Welfare Legislation in India.

Unit:6	Contemporary Issues	2 hours
Expert lectures, online seminars – webinars		
	Total Lecture hours	**75 hours**

Text Book(s) for study

1	Tyagi P.B.(1995),Labour Economics and SocialWelfare,(JaiprakashNath&Co.Meerut),
2	Saxena R.C. (1979), Labour Problems and SocialWelfare,(K.Nath&Co,Meerut)

Book(s) for Reference

1	Pant C.(1978**),**Indian Labour Problems,(Allahabad,Chaitanya PublishingHouse).
2	Singh S.S., and Metha S.(1989),Labour Economics,(Ajanta Prakasham NewDelhi).
3	Singh V.N.(1980), Industrial Labour in India (Asia PublishingHouse,Bombay).
4	Mehrotra S.M.(1976),Labour Problems in India (NewDelhi,S.Chand&Co,Ltd).
5	Baholiwal T.N.(1981), Economics of Labour and Industrial Relations,(SahityBhawan,Agra).
6	Giri V.V.(1985),Labour Problems in Indian Industry (Asia PublishingHouse,Bombay).
7	Loster R.K.(1989), Economics of Labour and Industrial Relations (Macmillan &Co,New York).

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Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	L	M	M	S	M	L	S	M	M	L
CO2	M	M	S	S	M	M	S	M	M	L
CO3	M	M	S	S	M	M	S	M	M	L
CO4	L	M	S	S	M	L	S	M	M	L
CO5	L	M	S	S	L	L	S	M	M	L

***S-Strong; M-Medium; L-Low**

Course code		FINANCIAL MARKETS	L	T	P	C
Elective		Elective III GROUP –A	4	-	-	4
Pre-requisite		This course deals with financial market and its performance so, students have basic knowledge of financial and capital markets.	Syllabus Version		2020-21	

Course Objectives:

The main objectives of this course are to:

1. To providing knowledge on the development and functioning of Indian financial markets and its components
2. To understand the features and benefits money market and capital market
3. To impart knowledge on the categories of derivatives markets

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	To conversant with the theory and practice of different financial institutions and markets.	K1
2	To understand and analyse the interconnection between the monetary forces and real forces.	K2
3	To familiar with the role and limitations of money market and capital market	K4
4	To understand the Indian markets	K3
5	To shape and influence the monetary and related policies both at the national and international levels	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Financial Market	15 hours

Financial market - An overview - Definition –Role-functions – constituents of financial market - Indian money and capital markets. Global financial markets

Unit:2	Money Markets	15 hours

Money Markets-Definition-General Characteristics-Objectives-Importance-General Functions-Segments and sub markets-Money Market instruments - Money market and capital market-Indian money market- Global money market

Unit:3	Features of Call Money Market	15 hours

Call money market-Features-Benefits-Indian call money market-nature of dealings participants-Modus operandi -call money rates-treasury bill market-features - CD's- Commercial Paper -Bankers Acceptances – Euro Dollar -Repos- LIBOR - MIBOR-CBLO

Unit:4	Capital Markets	14 hours

Capital market- Characteristics- functions-recent initiatives in Indian capital market-Stock exchanges-meaning –definition-functions –Stock market Indices -Calculation of Indices-Regulation of Stock Exchanges - Role of SEBI-Security Listing- Brokers- Cash market operations - margin-settlement

Unit:5	Derivative Markets	14 hours

Derivative Market-meaning -Growth -Functions - categories of derivatives market-Forward contract VS Future Market-Option based derivatives market

Unit:6	Contemporary Issues	2 hours

Expert lectures, online seminars – webinars		
	Total Lecture hours	**75 hours**
Book(s) for study		
1	Dr. S Gurusamy [2004] Financial services and markets Vijay Nicole imprints Chennai	
2	Khan .M.Y.(1996) Indian Financial System ,Tata McGraw Hill New Delhi 7	
Book(s) for Reference		
1	Bhole L.M (1999), Financial institutions and Markets, Tata McGraw Hill Company Ltd: New Delhi	
2	Edminster R.O.(1986), Financial Institutions, Markets and Management McGraw Hill, London	
3	Bhole, L.M (2000) Indian Financial System Chugh Publications Allahabad	
4	Hanson.JA.and S. Kathuria (eds.) (1999) India; Financial Sector for the Twenty –first Century Oxford University press, NewDelhi	
Course Designed By: Dr. A.G.V. Narayanan. email id: director@djacademy.ac.in		

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M	M	M	M	M	S	S	M	M	L
CO2	M	L	M	M	M	S	S	M	M	L
CO3	M	L	M	M	M	S	M	M	M	L
CO4	M	L	M	M	S	S	M	M	M	L
CO5	L	L	M	M	L	S	S	L	M	L

*S-Strong; M-Medium; L-Low

Course code		SERVICES MARKETING	L	T	P	C
Elective		Elective III GROUP –B	4	-	-	4
Pre-requisite		The basic concept of services marketing and different types of services. Service marketing approach	Syllabus Version		2020-21	

Course Objectives:

The main objectives of this course are to:

1. To know about the special characteristics of services as compared to goods.
2. To understand the marketing practices ideal for services.
3. To inculcate knowledge about portfolio and financial intermediary services.
4. To understand the nature of marketing of non-profit organizations.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	To know the basic components of marketing	K1
2	To demonstrate and explain the characteristics of services products differ from tangible goods.	K4
3	To distinguish the service types and draw implications for setting the marketing strategy.	K2
4	To apply marketing mix to develop a positioning strategy for any service organization.	K3
5	Critically analyse service marketing problems and recommend solutions	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Services Marketing	15 hours

Services Marketing: Meaning – nature of services – Types and importance –Relationship marketing – Mission, strategy, elements of designs, marketing plan market segmentation.

Unit:2	Marketing mix Decisions	15 hours

Marketing mix decisions: Unique features of developing, pricing, promoting and distributing services – Positioning and differentiations strategies, quality of service industries – Achievement and maintenance, customer support service.

Unit:3	Marketing of Hospitality	15 hours

Marketing of Hospitality: Perspective of Tourism, Hotel and Travel Services – Airlines, Railway, Passenger and Goods Transport – Leisure services.

Unit:4	Marketing of Financial Services	14 hours

Marketing of Financial Services: - Concepts – Features of Banking, Insurance, Lease, Mutual Fund, Factoring, Portfolio and financial intermediary services.

Unit:5	Marketing Organizations	14 hours

Marketing of Non-Profit Organizations: Services offered by charities – Educational service – miscellaneous services – Power and Telecommunications.

Unit:6	Contemporary Issues	2 hours

Expert lectures, online seminars – webinars

	Total Lecture hours	**90 hours**

Book(s) for study	
1	S.M. Jha – Services Marketing – Himalaya Publishing Company
2	Ravishankar –Services Marketing – Indian experiences – South Asia Publication
Book(s) for Reference	
1	Ziethaml & Bitner – Services Marketing: Integrating Customer Focus across the Firm TMH
2	P.K. Sinha & S.C. Sahoo – Services Marketing – Text & Readings – Himalaya
3	Adrian Pyne – Essence of Services Marketing – Prentice Hall of India
4	Lovelock – Services Marketing – Prentice Hall
5	Gonsalves – Services Marketing – Prentice Hall
6	Palmer – Services Marketing : Principles & Practice – Prentice Hall.
7	Woodrufee – Services Marketing - Macmillan
Course Designed By: Dr. A.G.V. Narayanan. email id: director@djacademy.ac.in	

Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	L	L	M	M	S	M	L	L	M	L
CO2	L	L	M	M	S	M	M	L	M	L
CO3	M	L	M	S	S	M	M	L	M	L
CO4	M	L	M	S	S	M	L	L	M	L
CO5	L	M	M	S	S	L	L	L	M	L

*S-Strong; M-Medium; L-Low

Course code		INTRODUCTION TO INDUSTRY 4.0	L	T	P	C
Elective		Elective III GROUP – C	4	-	-	4
Pre-requisite		Basic computer knowledge and local industrial knowledge.	Syllabus Version		2020-21	

Course Objectives:

The main objectives of this course are to:

1. To understand the various stages of industrial revolutions
2. Toknowthedrivers,enablersandcompellingforcesforIndustry4.0'sadvancement
3. To understand Internet of Tools of Industry (IoT)
4. To study the predictive analysis, big data leading to data-driven decisions and automation.
5. To find the challenges in cyber security and measures to reduce them.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	To Understand the drivers and enablers of Industry 4.0	K1
2	To knowing the artificial intelligence and its environment	K2
3	To analyse the societal influences of AI and its application domains	K4
4	To demonstrate the power of big data terminologies in the networked economy.	K3
5	To understand the opportunities, challenges brought about by Industry 4.0.	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Industry 4.0	15 hours

Need – Reason for Adopting Industry 4.0 - Definition – Goals and Design Principles - Technologies of Industry 4.0 – Big Data – Artificial Intelligence (AI) – Industrial Internet of Things - Cyber Security – Cloud – Augmented Reality

Unit:2	Artificial Intelligence	15 hours

Artificial Intelligence: Artificial Intelligence (AI) – What& Why? - History of AI -Foundations of AI -The AI - environment - Societal Influences of AI – Application Domains and Tools - Associated Technologies of AI – Future Prospects of AI – Challenges of AI.

Unit:3	Big Data and IoT	15 hours

Big Data : Evolution - Data Evolution - Data : Terminologies - Big Data Definitions - Essential of Big Data in Industry 4.0 - Big Data Merits and Advantages - Big Data Components : Big Data Characteristics - Big Data Processing Frameworks - Big Data Applications - Big Data Tools - Big Data Domain Stack : Big Data in Data Science – Big Data in IoT - Big Data in Machine Learning - Big Data in Databases - Big Data Usecases : Big Data in Social Causes - Big Data for Industry -Big Data Roles and Skills -Big Data Roles - Learning Platforms; Internet of Things (IoT) : Introduction to IoT –Architecture of IoT - Technologies for IoT - Developing IoT Applications - Applications of IoT - Security in IoT.

Unit:4	Applications and Tools of Industry 4.0	14 hours

Applications of IoT – Manufacturing – Healthcare – Education – Aerospace and Defense – Agriculture – Transportation and Logistics – Impact of Industry 4.0 on Society: Impact on Business, Government, People. Tools for Artificial Intelligence, Big Data and Data Analytics, Virtual Reality, Augmented Reality, IoT Protocols.

Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	M	M	L	L	S	M	S	S	M	L
CO2	M	M	L	L	S	M	S	S	M	L
CO3	M	M	M	M	S	L	S	S	M	S
CO4	M	M	M	M	M	L	S	S	M	M
CO5	M	M	L	L	M	L	S	L	L	M

*S-Strong; M-Medium; L-Low

Fourth Semester

Course code		PUBLIC ECONOMICS	L	T	P	C
Core		CORE PAPER – XV	4	-	-	4
Pre-requisite		Theoretical aspects of Public Economics and its Applications.	Syllabus Version		2020-21	

Course Objectives:
The main objectives of this course are:

1	To provide analytical capacity on public economic theories and practices.
2	To understand the major sources of government revenue and expenditure.
3	To use economic analysis to predict and verify the effects of government intervention on behavior of individuals, households and firms.

Expected Course Outcomes:

On the successful completion of the course, student will be able:

1	To understand the theoretical aspects of public economics and its applications.	K1
2	To analyze the efficient allocation for public goods.	K2
3	To analyze policy applications on welfare assistance.	K3
4	To critically analyze fiscal policies and its implication in Indian economy.	K4
5	To discuss the implications of policy for efficiency, equity and growth.	K5
6	To discuss the implications of policy for efficiency, equity and growth	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Scope and Significance	18 -- hours

Public Finance: Significance, scope, and Function- Public Finance Versus private finance – Theory of public good –Market failure- Externalities –Provision for public goods - General model of efficient Allocation for public good.

Unit:2	Public Taxation	18-- hours

Sources of Public Revenue: Theory of Taxation –Taxable capacity-Ability to pay and Benefit principle in taxation-Indian direct and indirect taxes-Incidence of tax-Tax reforms-MODVAT.

Unit:3	Public Expenditure	18-- hours

Public expenditure: Theories of public Expenditure-Structure and growth of Indian public Expenditure - Expenditure Revenue mobilization for the Budget- Performance Budget - Limitation of budget.

Unit:4	Public Debt	17-- hours

Public Debt: Growth and composition of public Debt-Internal and External Debt-Central and state deficit – redemption of public debt.

Unit:5	Fiscal Policy	17-- hours

Indian Fiscal policy: Principle of Federal finance-Evaluation of federal Finance - 14th and 15th Finance commission - Local Finance.

Unit:6		2 hours

Expert lectures, online seminars - webinars

	Total Lecture hours	90 --hours

Book(s) for study	
1	Rosh pendra jha : Modern Public Economics
2	Rosen Harways : Public Finance, Irwin
3	S.K.Singh :Public Finance
4	Thyagi: Public Finance
5	Mankar & Sarma: Public Finance Theory and Practices
Book(s) for Reference	
1	Musgrave, R.A and P.B.Musgrave[1976] Public finance theory and practice,Mcgraw-hill Kogakusha,Tokyo.
2	Stiglitz.J.k [1986] Economics of the public sector, Norton New York.
3	Atkinson.A.B and J.E stiglitz [1980] Lecture in Public Economics, Mcgraw Hill,New York
4	Musgrave R.A and C.Sharp [Ed] 1970 Readings in Economics of Taxation ,George Allen and unwin London.
5	Muller D.C [1979] Economics of Public choice,Cambridge University.
6	Seigman.E.R.A [1960] Eassys in Taxation, George Allen and Unwin London.
7	Brown.C.V and Jackson-Public sector Economics.
8	Hyman,David-The Economics of Government activity.
Course Designed By: Dr.S. Swarna Gandhi. Email id: gandhiswarna3gmail.com	

Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	M	M	S	M	M	S	M	S	L	S
CO2	S	S	M	S	S	M	S	S	L	L
CO3	S	M	S	M	M	M	M	M	S	M
CO4	M	S	S	S	M	M	L	M	S	S
CO5	M	L	S	L	S	M	L	L	M	L

*S-Strong; M-Medium; L-Low

Course code		INTERNATIONAL ECONOMICS	L	T	P	C
Core		CORE PAPER – XVI	4	-	-	4
Pre-requisite		Acquire advanced knowledge on theories of international trade, exchange rate regimes, terms of trade and functions of international financial institutions.	Syllabus Version		2020-21	

Course Objectives:
The main objectives of this course are:

1	To understand the theories governing international trade.
2	To aware about the policies pursued by various economic bodies in international economics.
3	To study the current and capital account convertibility of Indian rupee.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	To develop a systematic knowledge on composition, direction and consequences of international trade.	K1
2	To understand the processes of international economic relations as the part of global market economy.	K2
3	To acquire skills on the various aspects of exchange rate.	K3
4	To aware about international financial markets, balance of payments and the trade balance, and the capital flow.	K4
5	To evaluate the role of international institutions on trade practices.	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	**The Basis of Trade**	**18 -- hours**

The basis of trade – Hecksher – Ohlin theorem – Leontiff Paradox – Factor price equalization – Stopler Samuleson theorem – Rybcznski theorem.

Unit:2	**Importance and Theories of Trade**	**18-- hours**

Importance of terms of Prebish – Singer thesis international trade. Trade – concepts of terms of trade – factors affecting terms of trade – - doctrine of reciprocal demand and offer curve analysis-gains from International Trade.

Unit:3	**Exchange Rate**	**18-- hours**

Exchange rate – Determination of equilibrium exchange rate – mint par parity – PPP – BOP Theories – Fixed and Flexible exchange rate – spot and forward exchange rate - adjustable peg - crawling peg and managed Floating systems.

Unit:4	**Balance of Payments**	**17-- hours**

Balance of payments – Balance of trade and balance of payments – BOP disequilibrium – Method of correcting disequilibrium - Devaluation – Elasticity and Absorption approach – Exchange control – Current and Capital Account convertibility of Indian rupee.

Unit:5	**International Institutions**	**17-- hours**

International institutions – IMF and IBRD – WTO – Trade Blocs and Monetary units – Impact of liberalisation on the pattern of trade.

Unit:6	**Contemporary Issues**	**2 hours**

Expert lectures, online seminars - webinars

	Total Lecture hours	**90 -- hours**

Book(s) for study	
1	Heffernam and Singlair : Modern International Economics
2	Krasuse (Wlater) : International Economics
3	Sodermsten, Bo : International Economics
4	Soresten,Bo : International Trade - Essays in Theory, North – Holland Ansterdam 1986.
5	Kindeleberger, Charles : International Economics.
6	CherumilumFrancis:'InternationalBusiness',NewDelhi,WheelerPublication, 1998.
Book(s) for Reference	
1	Sodersten, Bo. and Geoffery Reed ; International Economics, Hongkong Marmilan ltd.
2	W.Charles Sawyer, Richard.D.Sprainkle : International Economics , Prentice Hall of India.
3	Salvotore, : Schaums Outline of Theory and Problems of International Economics.
Course Designed By: Dr. S. Sarojini. Email id:sarojinimani05@gmail.com	

Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	M	M	M	S	M	M	M	M	M
CO2	M	S	S	S	M	S	S	S	S	M
CO3	S	M	M	S	M	M	L	S	S	S
CO4	M	S	S	M	S	S	M	M	M	L
CO5	S	M	L	L	S	S	S	M	M	S

*S-Strong; M-Medium; L-Low

Course code		HUMAN RESOURCE MANAGEMENT	L	T	P	C
Core		CORE PAPER – XVII	3	-	-	3
Pre-requisite		Provides wide knowledge about performance appraisal, training and development, collective bargaining and employee welfare.	Syllabus Version		2020-21	

Course Objectives:
The main objectives of this course are:

1	To understand the implications of human resource management and the behavioral sciences, and government regulations.
2	To know the elements of the human resource functions, key concepts and terminology.
3	To understand the principles and techniques of human resource management.

Expected Course Outcomes:
On the successful completion of the course, student will be able:

1	To analyze human resource planning and forecasting techniques.	K4
2	To investigate and interpret the key procedures in recruitment and selection.	K2
3	To describe and analyze about the training and development.	K3
4	To illustrate the essential features of human resource information system.	K1
5	To evaluate employee's self analysis and reflect upon personal improvement.	K5
	To evaluate significant contemporary issues in human resource management.	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Basics of Human Resource Management	18 -- hours

Evolution of Human Resource Management – The Importance of the Human Factor – Objectives of Human Resource Management – Role of Human Resource Manager – Human Resource Policies – Understanding business process in the context of Human Resource Management.

Unit:2	Planning	18-- hours

Importance of Human Resource Planning – Forecasting Human Resource requirements – Internal and External sources. Selection Process – Screening – Tests – Validation –Interview – Medical Examination – Recruitment. Induction – Importance – Practices - Socialization benefits.

Unit:3	Orientation and Training	18-- hours

Orientation & Training: Orienting the employees, the training process, need analysis, training techniques special purpose training, Training via the internet. Management Development - The responsive managers - Key factor for success. Performance appraisal: Methods - Problem and solutions - MBO approach - The appraisal interviews - Performance appraisal in practice. Managing careers: Career planning and development - Managing promotions and transfers.

Unit:4	Establishing Pay Plans	17-- hours

Establishing Pay plans: Basics of compensation - factors determining pay rate – Current Trends in compensation - Computerized job evaluation. Pay for performance and Financial incentives: Money and motivation - incentives for operations employees and executives - Organization wide incentive plans - Practices in Indian Organizations. Statutory benefits - non-statutory (voluntary) benefits – Insurance Benefits - retirement benefits and other welfare measures to build employee commitment.

Unit:5	Industrial Relations and Collective Bargaining	17-- hours

Industrial relations and collective bargaining: Trade unions - Collective bargaining. Discipline administration - grievances handling - managing dismissals and Separation .Labour Welfare: Importance & Implications of labour legislations - Employee health- Auditing functions, Future of HRM function.

Unit:6	Contemporary Issues	2 hours
Expert lectures, online seminars - webinars		
	Total Lecture hours	**90 -- hours**

Book(s) for study	
1	Gary Dessler, "Human Resource Management", Seventh edition, Prentice-Hall of India P.Ltd., Pearson.
2	V.S.P Roa, Human Resource Management: Text and cases, First edition, Excel Books, New Delhi - 2000.
3	Decenzo and Robbins, Human Resource Management, Wiley, 6th Edition, 2001.
4	Dessler, Human Resource Management, Pearson Education Limited, 2002.
Book(s) for Reference	
1	H.John Bernardin & Joyee E.A.Russel, Human Resource Management - An experiential approach, 4th Edition, McGraw-Hill International Edition., 2007
2	David A. De Cenzo & Stephen P.Robbins, Personnel/Human Resource Management, Third edition, PHI/Pearson.
Course Designed By: Dr. S. Sarojini. Email id:sarojinimani05@gmail.com	

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	S	S	L	S	S	S	S	M
CO2	M	M	M	M	S	L	M	M	M	M
CO3	S	S	S	S	S	S	L	M	S	S
CO4	S	M	M	M	M	M	M	S	L	L
CO5	M	S	L	M	M	S	M	M	M	M

*S-Strong; M-Medium; L-Low

Course code		EXPORT PROCEDURE	L	T	P	C
Elective		Elective IV GROUP –A	4	-	-	4
Pre-requisite		This course analyses about the export behavior and procedures. It is mainly concerned with the aim of equipping the students with the various aspects of export registration, advance licensing, international marketing environment, maintenance of export documentation, policies and objectives of export and import.	Syllabus Version		2020-21	

Course Objectives:

1	To understand different policies, institutions and procedures involved in export.
2	To form a base of policy framework in international business with special emphasis on Indian customs.
3	To describe the documentation procedures and its sanctity in international business.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	To understand the concepts of custom clearance in international business.	K2
2	To known about the process of international customs clearance operations.	K1
3	To evaluate the global business environment in terms of economic and legal aspects.	K5
4	To analyse the principles of international business and strategies adopted by firms to for exporting products globally.	K4
5	To examine the shipment formalities and procedures.	K3

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Registration	15 hours

Registration – ICE, Central Excise, category of Exports – Physical – Direct and indirect – Deemed export – Manufacturing exporter – Merchant exporter.

Unit:2	CENVAT	15 hours

Duty Drawbacks – Advance licensing – CENVAT – Sales Tax Exemption – IPRS-Excise Clearance Benefit – Rebate – Income Tax benefit.

Unit:3	International Marketing Environment	15 hours

Introduction – Marketing Term – International Marketing environment – Entry to foreign markets – Trade Fairs – Pre -shipment finance – Post- shipment finance-EXIM bank of India – ECGC - Terms of payment in export – packing credits.

Unit:4	Export Procedures	14 hours

Export procedures – offers and processing an export order – Customs and Excise department procedures – Shipment formalities and procedures – Banking procedures – Exports documentation. - Different Types of letter of credit – Foreign exchange cover.

Unit:5	Export and Import Policies	14 hours

Export and import policy – objectives – General Provision regarding Export and Import – Export Promotion Schemes – EPCG, Duty exemption, Advance license Pass Book scheme – Export Promotion Councils - Export house – Trading house.

Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**75 hours**

Book(s) for study

1	Balagopal.T.A.S (1995) , Export Management . Himalaya Publications.
2	D.C.Kapoor"Export Management"Mahajan:Guide on Export Policy Procedure and Documentation
3	Varma .M.L (1983) : Foreign Trade Theory and Management in India, Vikas Publication, New Delhi.
4	Jitendra .M.D (1998) : Export Procedure and Documentation, Rajat Publications, New Delhi

Book(s) for Reference

1	Nabhi Publications : How to export EXIM Policy & Handbook of EXIM Procedure Vol.1 & Vol.2.
2	Francis Cherumillam : International Marketing and Export Management, Himalaya Publications.
3	Modwell.S.K. and Varmal .M.L (1986) : Export Efforts of India, Indian Institute of Foreign Trade, New Delhi.

Course Designed By: Dr. M. Kannan. Email id: mkannancbm@gmail.com

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M	S	S	M	S	S	S	S	S	M
CO2	M	S	S	S	S	M	S	S	S	L
CO3	L	S	S	S	L	S	S	M	M	S
CO4	S	M	S	L	M	S	S	S	S	S
CO5	S	M	M	M	S	L	S	L	S	S

*S-Strong; M-Medium; L-Low

Course code		INTERNATIONAL BUSINESS	L	T	P	C
Elective		Elective IV GROUP –B	4	-	-	4
Pre-requisite		This course explores global economies and markets, such as business customs, multinational businesses and foreign trade practices. It highlights the foreign business environments, cultural dynamics, economic developments and political impacts on foreign businesses.	Syllabus Version		2020-21	

Course Objectives:

1	
2	To know about the composition and directionofIndia'simportsandexports .
3	To identify the role and impact of political, economical, social and cultural variables in international business.
4	To analyze international business from a multi-centric perspective.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	To understand the most widely used international business terms and concepts.	K2
2	To critically analyze the risk and opportunities prevailing in businesses that operate in the global arena.	K4
3	To recognize the function of international organisations.	K1
4	To know about exchange rate determination, controlling and policies.	K3
5	Todemonstratethecompositionanddirectionof India'simportsandexports .	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	**International Business**	**15 hours**

International Business - Meaning, Nature and Scope – Role of Foreign Trade in the Economic Development of India – Balance of payment in the context of Economic Growth Process – Trade balance – Current Account position and Capital Account position – Trends – Principles of BOP – Correction of adverse BOP.

Unit:2	**World Band and IMF**	**15 hours**

Euro Currency Market – GATT – WTO, World Bank and IMF – Functions.

Unit:3	**Export Marketing**	**15 hours**

Export marketing – Meaning – An overview of export marketing – differences between export marketing and domestic marketing – salient features and basic functions of export marketing – export barriers – Tariff and non-tariff – Export market analysis – Feasibility of market entry – Sources of market information – Assessing sale prospects.

Unit:4	India's Import and Export	14 hours
Composition and direction of India's imports and exports – Past trends, present position and prospects – Project consultancy and Service exports – Trends, prospects and problems – Important documents used in foreign trade.		
Unit:5	**Foreign Exchange**	**14 hours**
Foreign exchange – Theories of foreign exchange – administration of foreign exchange – Rate determination – Factors influencing fluctuations in foreign exchange – Exchange control in India.		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**75 hours**

Book(s) for study

1	International Marketing Management- Varshney & Bhattachariya.
2	Export Marketing - T.A.S. Balagopal
3	Money, Banking & International Trade- M.L.Seth

Book(s) for Reference

1	International Business - Francis Cherunilam.

Course Designed By: Dr. M. Kannan. Email id: mkannancbm@gmail.com

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	L	S	M	S	S	S	S	M	L
CO2	M	S	M	M	M	S	M	M	S	S
CO3	M	S	M	S	L	S	S	M	S	S
CO4	S	S	S	S	S	L	S	L	S	M
CO5	M	M	S	L	M	M	M	M	S	S

*S-Strong; M-Medium; L-Low

Course code		EXPORT TRADE PROCEDURE	L	T	P	C
Elective		Elective IV GROUP –C	4	-	-	4
Pre-requisite		This course would upgrade the knowledge of working executives of export enterprises, service agencies and institutions and abreast with the new developments, rapid changes in international business practices, innovative marketing strategies pursued by the competitors, and export executives.	Syllabus Version		2020-21	

Course Objectives:

1	To understand the procedures and practices prevailing in foreign markets.
	To known about export documentation, shipment of export goods and important documents in export trade.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	To evaluate the advantages and disadvantages direct and indirect exporting.	K5
2	To understand the various shipping documents and commercial regulatory documents.	K2
3	To develop analytical skills for identifying export opportunities and undertaking export marketing.	K4
4	To familiarize with the significant documents in export trade.	K3
5	To create awareness processing of export orders.	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	**Export Trade**	**15 hours**

Export Trade: Direct exporting – advantages. Forms of organization in direct Exporting – agents and distributors – Factors in selecting an agent in foreign markets – advantages.

Unit:2	**Indirect Exporting**	**15 hours**

Indirect Exporting: Meaning – advantages and disadvantages – middlemen in indirect exporting – types – advantages and disadvantages – Export house - functions, growth and problems.

Unit:3	**Export Documentation**	**15 hours**

Pree – shipment Export documentation: Need for export documentation – types -shipping documents and their definitions – commercial and regulatory documents – Filling of master documents. Marine insurance - Types.

Unit:4	**Shipment of Export Goods**	**14 hours**

Shipment of Export Goods: Central excise clearance procedures – exempted and other than exempted units – customs clearance of export shipment – documents in the case of shipment by Air/Sea.

Unit:5	**Processing of Export Order**	**14 hours**

Export documentation: Significance and types – important documents in export trade – commercial invoice – letter of credit – bill of lading – processing of export order.

Unit:6	**Contemporary Issues**	**2 hours**

Expert lectures, online seminars – webinars

	Total Lecture hours	**75 hours**

Book(s) for study	
1	Varma and Agarwal - International Marketing Management.
2	P.K. Khurane - Export Management.
3	T.A.S. Balagopal - Export Marketing.
Book(s) for Reference	
1	M.I. Mahajan - A guide on export policy procedure and documentation
Course Designed By: Dr. M. Kannan. Email id: mkannancbm@gmail.com	

Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	S	M	L	S	L	S	M	S
CO2	S	M	M	S	S	M	S	M	M	M
CO3	S	S	M	S	S	M	S	M	S	L
CO4	L	S	L	S	M	S	S	S	S	S
CO5	M	M	M	S	S	M	M	S	L	M

*S-Strong; M-Medium; L-Low

Annexure

M. A. ECONOMICS

Syllabus
(With Effect from 2020)

Program Code:

Affiliated Colleges
Bharathiar University
(A State University, Accredited with "A" Grade by NAAC and 13th Rank among Indian Universities by MHRD-NIRF)
Coimbatore 641 046, INDIA

BHARATHIAR UNIVERSITY
AFFILIATED COLLEGES
ECONOMICS

MISSION

The program would train students to think analytically about economic and social issues, and it provide a solid foundation for further study and careers in economics as well as for multiple other pursuits. To provide the understanding of economic theory and with industrial requirements is used by economists working in research, government, and business.

VISION

- To provide the knowledge in various fields of Economics and an in-depth understanding of the theoretical and empirical constructs in the field of Economics
- Application of economic theories and dealing with problem-solving techniques.
- To enable the advanced studies leading to further research.
- To equip students with a set of tools of econometrics, this would help them to solve the real-world problems.
- Develop the powers of inquiry, critical analysis, logical thinking, and your ability to apply theoretical knowledge to current issues of policy and practice in economics.
- Encourage initiative, independent learning, and exposure to research.

M. A. English Literature

Syllabus

AFFILIATED COLLEGES

Program Code: 31F

2020 – 2021 onwards

BHARATHIAR UNIVERSITY

(A State University, Accredited with "A" Grade by NAAC,
Ranked 13th among Indian Universities by MHRD-NIRF,
World Ranking : Times - 801-1000, Shanghai - 901-1000, URAP - 1047)

Coimbatore - 641 046, Tamil Nadu, India

Program Educational Objectives (PEOs)	
The **M.A ENGLISH LITERATURE**program describe accomplishments that graduates are expected to attain within five to seven years after graduation. The postgraduates	
PEO1	Acquire a level of subject knowledge eligible to teach high school and higher secondary students.
PEO2	Apply their language skills to become successful trainers in communication.
PEO3	Choose teaching at the college level with a passion for the subject.
PEO4	Apply their knowledge on various areas of literature to pursue research.
PEO5	Make use of the acquired writing skills to grab a lot of opportunities as content writers and editors.
PEO6	Utilize the avenues for skilled postgraduates as columnists and creative artists.
PEO7	Choose online platforms to become bloggers and reviewers.
PEO8	Select fields like journalism to get employed as reporters, editors and news readers.
PEO9	Identify positions at the state and central level like the civil services and attempt competitive examinations
PEO10	Develop their creative skills thereby turning into poets and writers of wide acclaim.

Program Specific Outcomes (PSOs)	
After the successful completion of M.A in English Literature program, the students are expected to	
PSO1	Understand the various genres of English Literature
PSO2	Acquire a sound knowledge of the periods of English Literature and writers during the period
PSO3	Identify the features of each period in the given text
PSO4	Learn the important movements and theories practiced in the different periods
PSO5	Develop good communication skills
PSO6	Select new areas of research
PSO7	Show interest in the literatures of the world
PSO8	Demonstrate translation skills by translating simple texts
PSO9	Recall concepts and texts to clear competitive examinations
PSO10	Make use of the experience of the morals and values learnt from literature in transforming society

Program Outcomes (POs)	
On successful completion of the M.A English Literature program, students	
PO1	Maximize their knowledge level of the English Literature.
PO2	Develop social responsibility as literature reflects life.
PO3	Acquire sound knowledge of classical writers and texts.
PO4	Apply the theories taught to a given text.
PO5	Identify research prospects and areas.
PO6	Demonstrate good communicative skills
PO7	Build creative skills through the reading of different literatures
PO8	Discover the teaching skills in them through the seminars given during the program
PO9	Organize and manage events
PO10	Create a better outlook of life accepting challenges from the learning experience

BHARATHIAR UNIVERSITY: COIMBATORE 641 046

M.A. ENGLISH LITERATURE

(Colleges)

(For the students admitted during the academic year 2020 – 21 onwards)

Course Code	Title of the Course	Credits	Hours		Maximum Marks		
			Theory	Practical	CIA	ESE	Total
FIRST SEMESTER							
	Paper I - BRITISH LITERATURE – I (FROM CHAUCER TO MILTON	4	5		25	75	100
	Paper II - AMERICAN LITERATURE	4	5		25	75	100
	Paper III – SHAKESPEARE	4	5		25	75	100
	Paper IV – GRAMMAR FOR COMMUNICATION	4	5		25	75	100
	Paper V -THE ENGLISH LANGUAGE – I	4	5		25	75	100
	Elective I	4	5		25	75	100
SECOND SEMESTER							
	Paper VI - BRITISH LITERATURE – II (DRYDEN TO ROMANTIC AGE)	4	5		25	75	100
	Paper VII - INDIAN WRITING IN ENGLISH	4	5		25	75	100
	Paper VIII - ENGLISH LITERATURE FOR COMPETETIVE EXAMINATIONS – I	3	3		20	55	75
	Paper IX – NEW LITERATURES IN ENGLISH	4	5		25	75	100
	Paper X - THE ENGLISH	4	5		25	75	100

	LANGUAGE – II						
	Elective II	4	5		25	75	100
THIRD SEMESTER							
	Paper XI - BRITISH LITERATURE – III (FROM THE VICTORIAN AGE TO THE MODERN AGE)	4	5		25	75	100
	Paper XII - ENGLISH LITERATURE FOR COMPETETIVE EXAMINATIONS – II	3	5		20	55	75
	Paper XIII - METHODS OF TEACHING ENGLISH	4	5		25	75	100
	Paper XIV – **LITERARY CRITICISM AND THEORY**	4	5		25	75	100
	Paper XV - RESEARCH METHODOLOGY	4	5		25	75	100
	ELECTIVE III	4	5		25	75	100
FOURTH SEMESTER							
	Paper XVI - INTRODUCTION TO WOMEN'SSTUDIES	4	6		25	75	100
	Paper XVII - MASS COMMUNICATION AND JOURNALISM	4	6		25	75	100
	PROJECT WORK	8	12		40	160	200
	Elective IV	4	5		25	75	100
	Total	**90**					**2250**

Electives: List of Group Elective papers (Colleges can choose any one of the Group papers as electives)

The syllabus for GROUP A& GROUP C remain the same as previous year.

The syllabus for GROUP B is furnished below.

	GROUP A	GROUP B	GROUP C
Title	**MEDICAL TRANSCRIPTION**	**A SURVEY OF LITERATURES IN ENGLISH**	**TRANSLATION STUDIES**
Paper ISem I	BASICS OF MEDICAL TERMINOLOGY	A SURVEY OF LITERATURES IN ENGLISH - BRITISH LITERATURE	TRANSLATION AN OVERVIEW
Paper II Sem II	PULMONOLOGY AND CARDIOLOGY	A SURVEY OF LITERATURES IN ENGLISH – AMERICAN LITERATURE	TRANSLATION TYPES VIEWS AND TOOLS
Paper IIISem III	GASTROENTEROLOGY, GENITOURINARY SYSTEM, GYNECOLOGY AND OBSTETRICS	A SURVEY OF LITERATURES IN ENGLISH – INDIAN WRITING IN ENGLISH	LANGUAGE, CULTURE AND TRANSLATION PRACTICES
Paper IV Sem IV	ORTHOPEDICS, NEUROLOGY, ENDOCRINOLOGY, GRAMMAR AND COMMON ERRORS	A SURVEY OF LITERATURES IN ENGLISH - NEW LITERATURES IN ENGLISH	TRANSLATION PROJECT

M.A. ENGLISH LITERATURE

I SEMESTER

Course code		BRITISH LITERATURE – I FROM CHAUCER TO MILTON	**L**	**T**	**P**	**C**
Core/Elective/Supportive		CORE PAPER I				
Pre-requisite		Basic knowledge about the genres of English Literature	**Syllabus Version**		**2020**	

Course Objectives:

The main objectives of this course are to:

1. Equip the students with the knowledge of some of the classic literary texts of the period.
2. Provide the students with an in-depth knowledge of the period, its features, writings and social life.
3. Fulfill the growing demand for good English postgraduates.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the language and literature of the period	K2
2	Analyse the social life and its reflection in the literary texts of the age	K4
3	Remember the prominent works of the classical writers	K1
4	Apply the features of the different literary forms to the prescribed texts	K3
5	Evaluate the technical aspects in the given texts	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

BRITISH LITERATURE I

Unit:1	**POETRY**	**15 -- hours**

Geoffrey Chaucer: The Prologue to the Canterbury Tales

ThomasWyatt: 1. I Find no Peace
2. Farewell Love

Henry Howard Earl of Surrey: 1. Love doth not Reign and Live Within My Thought
2. The Soote Season

.

Unit:2	**POETRY**	**15 -- hours**

John Milton: Paradise Lost Book II

John Donne: 1.The Canonisation

2. Death be not Proud

Andrew Marvell: The Garden

Unit:3	**DRAMA**	**15 -- hours**

Marlowe: Edward II

John Webster: Duchess of Malfi

Unit:4	**PROSE**	**15 -- hours**

Francis Bacon: 1. Of Adversity 2.Of Love 3. Of Friendship 4. Of Ambition John Bunyan: The Pilgrims Progress		
Unit:5	**CRITICISM**	**15-- hours**
Sydney: An Apology for Poetry Ben Jonson: from Everyman out of His Humour		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**75 -- hours**

Text Book(s)	
1	Poems are selected from the Norton Anthology of English Literature – Revised Volume – 1
2	
Reference Books	
1	English Critical Tradition: An Anthology of English Literary Criticism – Vol – I by S. Ramaswami and V. Seturaman
2	Brooks, Cleanth and Warren, Robert Penn. Understanding Fiction, Printice Hall.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://online-learning.harvard.edu/subject/literature
2	http://notedesk.blogspot.com/2017/06/british-literature-i-revised-university.html
3	Any other online programme related to the content of the paper can also be used.
Course Designed By: The members of the Board	

Mapping with Programme Outcomes										
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	S	S	S	S	M	M	M	S
CO2	S	S	S	S	S	S	M	S	S	S
CO3	S	S	S	S	S	S	M	S	S	M
CO4	S	S	S	S	S	S	S	S	S	M
CO5	S	S	S	M	S	S	M	S	S	M

*S-Strong; M-Medium; L-Low

Course code		AMERICAN LITERATURE	**L**	**T**	**P**	**C**
Core/Elective/Supportive		CORE PAPER II				
Pre-requisite		An understanding of American writings prescribed in the under graduate level	**Syllabus version**			**2020**

Course Objectives:

The main objectives of this course are to:

1. Help the students understand the paper as a representation of American writings at different periods.
2. Study the culture of the land as depicted in the given works.
3. Acquire the knowledge of various movements and theories and its application to other texts.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the American outlook as seen in the prescribed texts	K2
2	Analyse works of literature, its forms and features in the American context	K4
3	Remember the writers and the period to which they belonged	K1
4	Apply critical theories to contemporary American texts	K3
5	Evaluatetheworksofwritersfromaresearcher'sperspective	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

PAPER II – AMERICAN LITERATURE

Unit:1	**POETRY**	**15-- hours**

Whitman : When Lilacs Last in the Dooryard Bloomed

Emily Dickenson : Success is counted Sweetest

Because I could not stop for Death

Robert Frost : Mending Wall

Sylvia Plath : Daddy (The New Poetry edited by Alvarez)

Wallace Stevens: The Emperor of Ice Cream.

Unit:2	**DRAMA**	**15 hours**

EugeneO'Neil:TheHairyApe

Tennessee Williams : Glass Menagerie

Unit:3	**PROSE**	**15 hours**
Emerson :Oversoul Poe : The Philosophy of Composition		
Unit:4	**FICTION**	**15 hours**
Alice Walker : The color purple **Nathaniel Hawthorne: The Scarlet Letter**		
Unit:5	**CRITICISM**	**15 hours**
Cleanth Brooks : The Language of Paradox Kenneth Burke : The Poetic Process		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**75 hours**

Text Book(s)

1	*Five Approaches to Literary Criticism* by Wilber Scott Macmillan, 1963
2	An Anthology of American Literature : 1980 Eurasia Publishing House, New Delhi

Reference Books

1	Studies in American Literature, Edited by Mohit K. Ray, Atlantic, 2011, 1st Edition.
2	American Literature: Studies on Emerson, Thoreau, Hawthrone, Melville and Whitman, SujataGurudev, Atlantic, 2011, 1st Edition

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://www.conted.ox.ac.uk/courses/the-modern-american-novel-an-introduction-online
2	https://www.jstor.org/stable/25115064
3	Any other online programme related to the content of the paper can also be used.

Course Designed By: The members of the board

Mapping with Programme Outcomes										
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	S	S	S	S	M	M	M	S
CO3	S	S	S	S	S	M	S	S	S	M
CO3	S	S	S	S	S	S	M	M	S	S
CO4	S	S	S	S	S	M	S	M	M	S
CO5	S	S	S	S	S	S	S	S	S	M

*S-Strong; M-Medium; L-Low

Course code		**SHAKESPEARE**	**L**	**T**	**P**	**C**
Core/Elective/Supportive		CORE PAPER III				
Pre-requisite		A basic understanding of Shakespearean texts	**Syllabus Version**	**2020**		

Course Objectives:

The main objectives of this course are to:

1. Understand the plays of Shakespeare in an in depth manner
2. Gain knowledge about the age, social life and settings of Shakespearean plays
3. Interpret any text of Shakespeare

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the language and techniques in the plays of Shakespeare	K1
2	Create a better society from the morals and lessons learnt through the texts	K6
3	Identify characters and lines from the texts prescribed	K2
4	Apply literary theories to any given Shakespearean text	K3
5	Compare the literature of the Elizabethan era with that of another	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

PAPER III – SHAKESPEARE		
Unit:1		**15 hours**
Hamlet .		
Unit:2		**15 hours**
Much Ado About Nothing		
Unit : 3		
Richard III		
Unit:4		**15 hours**
Tempest		
Unit:5		**15 hours**
Shakespeare‘sStage,and the following sonnets.		

Sonnet No :18 –ShallIcomparethee…

Sonnet No :33 – FullmanyagloriousmorningI_veseen…

Sonnet No :46--Mineeyeandtheheartareatmortalwar…

Sonnet No :76—whyismyversesobarrenofnewpride…

Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**75 hours**

Text Book(s)

1	Shakespeare – The Complete Work; Wilco Publishing House, Mumbai, India. 2005.
2	Knights, L.C.: Shakespeare: The Histories, London, The British Counil, 1962. (Writers and Their Work Series)
3	Charlton, H.B.: Shakespearean Comedy, London, Methuen, 1957.

Reference Books

1	Muir, Kenneth, Shakespeare's Tragic Sequence, 1972
2	Brown, John Russell: Shakespeare and His Comedies, London, Methuen, 1957.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://www.conted.ox.ac.uk/courses/shakespeare-online
2	https://www.thoughtco.com/list-of-shakespeare-plays-2985250
3	Any other online programme related to the content of the paper can also be used.

Course Designed By: the members of the board

Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO1**

										0
CO1	S	S	S	S	S	S	M	S	S	S
CO3	S	S	S	S	S	S	S	S	S	M
CO3	S	S	S	S	S	S	S	S	S	S
CO4	S	S	S	S	S	S	M	M	S	S
CO5	S	S	S	S	S	S	S	S	S	M

*S-Strong; M-Medium; L-Low

Course code		**GRAMMAR FOR COMMUNICATION**	**L**	**T**	**P**	**C**
Core/Elective/Supportive		CORE PAPER IV				
Pre-requisite		**A knowledge of basic grammar**	**Syllabus Version**			

Course Objectives:

The main objectives of this course are to:

1. Build a strong base in grammar
2. Support the students in becoming effective communicators
3. Develop confidence in students with effective methods thereby making them eligible for all kinds of job opportunities

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the need and right usage of grammar	K2
2	Remember the basic rules in grammar for effective communication	K1
3	Construct good passages without errors	K6
4	Apply their theoretical knowledge in practice	K3
5	Discover opportunities that suit their skills	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Paper IV – GRAMMAR FOR COMMUNICATION

Unit:1		**15 hours**

The Article to Adverbial use of no, not, none.

Unit:2		**15 hours**

Difficulties with Comparatives and Superlatives to Negative verbs.

Unit:3		**15 hours**

TensestoIntroductory—"There".		
Unit:4		**15 hours**
The infinitive to the indirect expression of imperatives		
Unit:5		**15 hours**
The use of correlatives to greetings and salutations		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**75 hours**

Text Book(s)

1	A Remedial English Grammar for Foreign Students Frederick T. Wood
2	J. C. Nesfield, Advanced English Grammar and Usage , Macmillan, 2002
3	English Grammar: Rules and Usage, Annie Bindra, Notion Press; 1 edition (2016)

Reference Books

1	A University Grammar of English ,Randolph Quirk and Sidney Greenbaum
2	A Practical English Grammar, Thomson,A.J and Martinet,A.V.
3	Contemporary English Grammar Structures and Composition, David Green

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://alison.com/course/diploma-in-english-language-and-literature-revised
2	https://www.udaipurblog.com/the-significance-of-grammar-in-effective-communication.html
3	Any other online programme related to the content of the paper can also be used.

Course Designed By: the members of the board

Mapping with Programme Outcomes										
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	S	S	S	M	M	S	S	S
CO3	S	S	S	S	M	M	S	S	S	M
CO3	S	S	S	M	S	S	S	S	S	S
CO4	S	S	S	S	S	S	M	M	S	S
CO5	S	S	S	S	S	S	S	S	S	M

*S-Strong; M-Medium; L-Low

Course code		**THE ENGLISH LANGUAGE – I**	**L**	**T**	**P**	**C**
Core/Elective/Supportive		CORE PAPER V				
Pre-requisite		A basic knowledge of sounds in the English language	**Syllabus Version**			

Course Objectives:

The main objectives of this course are to:

1. Identify the variations in sounds in the English language to use them appropriately
2. Apply the rules of articulating sounds for better pronunciation
3. Make use of the knowledge to seek job opportunities

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the importance of pronunciation	K2
2	Apply the rules to articulate sounds	K3
3	Distinguish sounds and use them appropriately	K4
4	Evaluate the learning of sounds through simple methods	K5
5	Create opportunities with the accomplished competency	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Paper V -THE ENGLISH LANGUAGE – I		
Unit:1		**15 hours**
Chapter I , II&III.		
Unit:2		**15 hours**
Chapter IV,V&VI		
Unit:3		**15 hours**

Chapter VII to XII		
Unit:4		**15 hours**
Chapter XIII to XVI		
Unit:5		**15 hours**
Chapter XVII to XVIII		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**75 hours**

Text Book(s)

1	A text Book of English Phonetics for Indian Students -- Dr.T. Balasubramaniam (Macmillan)
2	Ghosh,Sastri,Das : Introductions to English Language Teaching Vol: 3 CIEFL(OUP)
3	Bright, McGregor: Teaching English as a Second Language (Longman/ ELBS)

Reference Books

1	The Pronunciation of English , Daniel Jones
2	An Introduction to The Pronunciation of English ,Gimson,A.C.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://alison.com/course/diploma-in-english-language-and-literature-revised
2	http://esl.fis.edu/grammar/langdiff/english.htm
3	Any other online programme related to the content of the paper can also be used.

Course Designed By: the members of the board

Mapping with Programme Outcomes

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	S	S	S	S	S	S	S	S
CO3	S	M	S	M	S	S	M	S	M	S

CO3	S	S	S	S	S	S	S	S	S	S
CO4	S	M	M	M	S	S	S	M	S	M
CO5	S	S	S	S	S	S	M	M	S	S

*S-Strong; M-Medium; L-Low

Course code		**BRITISH LITERATURE II**	**L**	**T**	**P**	**C**
Core/Elective/Supportive		CORE PAPERVI				
Pre-requisite		A basic understanding of the genres of English literature	**Syllabus Version**		**2020**	

Course Objectives:

The main objectives of this course are to:

1. Understand the ideas of the writers and the techniques used during the Augustan and Romantic period
2. Interpret the connection of man with nature as brought out in the works of the period
3. Apply the theories of the writers to any given text with the acquired knowledge

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	List the writers and the works of the period	K1
2	Interpret any work with a clear understanding of the features of the age	K2
3	Identify new areas of study and apply the theories learnt	K3
4	Simplify the prescribed texts for better understanding	K4
5	Justify the understanding of the writers through projects and assignments	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

SEMESTER II

Paper VI - BRITISH LITERATURE – II (DRYDEN TO ROMANTIC AGE)

Unit:1	**POETRY**	**15-- hours**

Wordsworth : Tintern Abbey
Coleridge : Kubla Khan
Shelley : Ode to the West Wind
Keats : Ode on a Grecian Urn
Oliver Goldsmith : The Deserted Village (1-250lines).

Unit:2	**DRAMA**	**15 hours**

Dryden : All for Love
Sheridan : The Rivals

Unit:3	**PROSE**	**15 hours**

Charles Lamb :
The following essays from the Essays of Elia :
1. Old China
2. Dream Children : A Reverie
3. In Praise of Chimney Sweepers
4. Dissertation upon a Roast Pig and
5.JonathanSwift:Gulliver‘sTravelsI

Unit:4	**FICTION**	**15 hours**

Scott : Kenilworth
Jane Austen :Northanger Abbey

Unit:5	**CRITICISM**	**15 hours**

Wordsworth : Preface to Lyrical Ballads
Johnson : Preface to Shakespeare

Unit:6	**Contemporary Issues**	**2 hours**

Expert lectures, online seminars – webinars

	Total Lecture hours	**75hours**

Text Book(s)

1	Albert, E. History of English Literature, India, Oxford University Press, 2009.
2	Bennett, Andrew and Nicholas Royle. Introduction to Literature Criticism and Theory. Great Britain: Pearson Education Limited, 2004.
3	Prasad, B. Background of the Study of English Literature, Chennai, Macmillan, 1999.

Reference Books

1	Chakrabarti, Piyas. Anthem Dictionary of Literary Terms andTheory.Delhi: Anthem Press, 2006.
2	Ford, Boris. The Pelican Guide to English Literature, Volume I to X

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://www.udemy.com/course/critical-reading-for-college-success-elements-of-fiction/
2	http://www.luminarium.org/
3	Any other online programme related to the content of the paper can also be used.

Course Designed By: the members of the board

Mapping with Programme Outcomes

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M	S	M	S	S	S	S	S	M	S
CO2	S	S	S	S	S	S	M	S	M	S
CO3	S	S	S	M	M	S	S	S	S	S
CO4	S	M	S	M	S	M	S	S	S	S
CO5	S	S	S	S	S	S	M	S	S	M

*S-Strong; M-Medium; L-Low

Course code		INDIAN WRITING IN ENGLISH	L	T	P	C
Core/Elective/Supportive		CORE PAPER VII				
Pre-requisite		A basic understanding of the genres of English literature	Syllabus Version		2020	

Course Objectives:

The main objectives of this course are to:

1. Outline the history of Indian writing in English and introduce students to some of the prominent writers and their works.
2. Identify the writers of Indian literature through an understanding of the style and techniques used.
3. Develop interest in the variety of literature produced from diverse regions and its richness.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the writers and works of different periods from the Indian point of view	K1
2	Identify the context and get a clear picture of Indian life portrayed in the works	K3
3	Analyse any given work from a critical perspective	K4
4	Assess the quality of literature produced from the subcontinent	K5
5	Develop a research mind to explore new areas for research	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Paper VII – INDIAN WRITING IN ENGLISH

Unit:1	POETRY	15 hours

A. K. Ramanujan : Looking for a Cousin on a Swing

Nissim Ezekiel : Poet, Lover, Bird Watcher

Sri Aurobindo : I have a Hundred Lives

Gieve Patel : On killing a Tree

Meena Alexander : Natural Difficulties

VikramSeth :A Little Distance.

Unit:2	DRAMA	15 hours

Mahesh Dattani : Brief Candle

ManjulaPadmanabhan : Harvest

Unit:3	PROSE	15 hours

Letters from a Father to his Daughter – Jawaharlal Nehru - (1- 15 letters)

The Dance of Shiva – AnandaCoomaraswamy		
Unit:4	**FICTION**	**15 hours**
Amish Tripathi : The Secret of Nagas ManjuKapoor : Custody		
Unit:5	**CRITICISM**	**15 hours**
G. B. Mohan Thampi : Rasa" as Aesthetic Experience M. Hiriyanna : The Main Aspects of Indian Aesthetics		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**75 hours**

Text Book(s)	
1	Brief Candle: Three Plays : Penguin Books India, 2010
2	Letters from a Father to his Daughter – Jawaharlal Nehru - (1- 15 letters) (Viking publications :2004)
3	Essay from The Journal of Aesthetics and Art Criticism, Vol. 24, No. 1, Oriental Aesthetics. (Autumn, 1965) pp.75-80. (http://www.srinivasreddy.org/summer/Aesthetic%20Experience.pdf)
4	Essay from Indian Aesthetics: An Introduction Ed. By V.S.Sethuraman. Macmillan 1992
Reference Books	
1	Critical Essays on Indian Writing in English, edM.K.Naik, S.K.Desai, G.S.Amur 1968.
2	Sarojini Naidu Said, Anu Kumar, Hachette India Local (6 March 2014) 1 Edition
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://www.classcentral.com/course/swayam-short-fiction-in-indian-literature-14287
2	https://www.classcentral.com/course/swayam-the-popular-gothic-novel-20012
3	https://www.classcentral.com/course/swayam-history-of-english-language-and-literature-14108 Any other online programme related to the content of the paper can also be used.

Course Designed By: the members of the board

Mapping with Programme Outcomes

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	M	S	S	S	S	S	M	S
CO2	S	S	S	S	S	S	M	S	M	S
CO3	S	S	S	S	S	S	S	S	S	S
CO4	S	S	S	S	S	S	S	S	S	S
CO5	S	S	S	S	S	S	M	S	S	M

*S-Strong; M-Medium; L-Low

Course code		ENGLISH LITERATURE FOR COMPETETIVE EXAMINATIONS	L	T	P	C
Core/Elective/Supportive		CORE PAPERVIII				
Pre-requisite		A basic understanding of literary terms	Syllabus Version		2020	

Course Objectives:

The main objectives of this course are to:

1. Build the knowledge of literary terms and theory strong in students
2. Develop the competency of students to face competitive examinations
3. Improve the learning skills of students through various modes of testing

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Remember the literary terms forms and theories	K1
2	Understand he different periods of English literature	K2
3	Apply the learnt theories to any text	K3
4	Analyse any given text thematically and technically	K4
5	Interpret any literary piece of work	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Paper VIII - ENGLISH LITERATURE FOR COMPETETIVE EXAMINATIONS-I		
Unit:1		**15 hours**
Literature of the Absurd to Burlesque.		
Unit:2		**15 hours**
Unit II: Cannons of Literature to Dream Vision		
Unit:3		**15 hours**
Edition to Great Chain of Being		
Unit:4		**15 hours**
Haiku to Ivory Tower		
Unit:5		**15 hours**
Unit V: Jeremiad to Myth		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		

	Total Lecture hours	**75 hours**
Text Book(s)		
1	A Glossary of Literary Terms, Abrahams,M.H (Publishers :Harcourt Asia PTE Ltd or Thomson Asia Pte Ltd)	
2	The Post –Colonial Studies .The Key Concepts, Bill Ashcroft, Griffiths and Helen Tiffin (Routledge)	
Reference Books		
1	A Dictionary of Literary Terms ,Cuddon.A (Penguin)	
2	The Post –Colonial Studies .The Key Concepts, Bill Ashcroft, Griffiths and Helen Tiffin (Routledge)	
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]		
1	https://onlinecourses.nptel.ac.in/noc20_hs19/preview	
2	http://www.luminarium.org/	
4	Any other online programme related to the content of the paper can also be used.	
Course Designed By: the members of the board		

Mapping with Programme Outcomes

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M	S	M	M	S	S	M	M	M	S
CO2	M	M	S	S	S	S	M	S	M	M
CO3	S	S	S	M	M	S	S	M	S	S
CO4	M	M	S	M	S	M	S	S	S	S
CO5	S	S	M	S	S	S	M	S	S	M

*S-Strong; M-Medium; L-Low

Course code		NEW LITERATURES IN ENGLISH	L	T	P	C
Core/Elective/Supportive		CORE PAPER IX				
Pre-requisite		An understanding of the writings in English from other nations	Syllabus Version	2020		

Course Objectives:

The main objectives of this course are to:

1. Discover the literary texts from different parts of the world
2. Understand the culture and social life of people of other nations through their literature
3. Compare the writings from different parts of the world and its features

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Choose texts from different parts of the world and understand the background of that literature	K1
2	Translate some of the texts into regional languages	K2
3	Apply the theories of comparative literature to study the literature of two different countries	K3
4	Analyse the texts from different perspectives	K4
5	Develop an interest in world literature	K6

K1 - Remember; **K2** - Undestand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Paper IX – NEW LITERATURES IN ENGLISH

Unit:1	POETRY	15-- hours

Wilfred Campbell : The Winter Lakes (Canada)

David Rubadiri : A Negro Labourer in Liverpool (Africa)

Sri Aurobindo : The Pilgrim of the Night (India)

Shaw Neilson : The Bard and the Lizard (Australia)

Derek Walcott : Ruins of a Great House (The West Indies)

Allen Curnow : Time (New Zealand).

Unit:2	PROSE	15-- hours

Tagore : Sadhana Chapter I – III

V.S Naipaul : Area of Darkness

Unit:3	DRAMA	15-- hours

Soyinka : The Road

Girish Karnad: Hayavadana

Unit:4	**FICTION**	**15-- hours**
Chinua Achebe : Things Fall Apart **RomeshGunesekera: Reef**		
Unit:5	**CRITICISM**	**15-- hours**
1.Margaret Atwood : Ice Women v. Earth Mothers : the Stone Angel and The Absent Venus 2.Stuart Hall : Cultural Identity and Diaspora		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**-- hours**

Text Book(s)

1	Poems are from An Anthology of Common Wealth poetry by C.D. Narasimhaiah.
2	Essays form Readings in Commonwealth Literature Ed By Walsh)
3	Criticism from "Readings in Commonwealth Literature Ed. William Walsh Clarendon Press, Oxford 1973,228-240 pp.

Reference Books

1	C.D. Narasimhaiah, An Anthology of Commonwealth Poetry, Madras, Macmillan India Limited,1990.
2	Texts and Their Worlds II - K. Narayana Chandran, Foundation Books

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://onlinecourses.swayam2.ac.in/arp19_ap88/preview
2	https://www.queensu.ca/artsci_online/courses/canadian-literature
3	Any other online programme related to the content of the paper can also be used.

Course Designed By: the members of the board

Mapping with Programme Outcomes

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	S	S	S	M	S	S	S	S
CO2	S	S	S	S	S	S	M	S	M	S

CO3	S	S	S	S	S	S	S	M	S	S
CO4	S	S	S	S	S	S	S	S	S	M
CO5	S	S	S	S	S	S	S	S	S	S

*S-Strong; M-Medium; L-Low

Course code		**THE ENGLISH LANGUAGE II**	**L**	**T**	**P**	**C**
Core/Elective/Supportive		CORE PAPER X				
Pre-requisite		**Basic understanding of the English language**	**Syllabus Version**		**2020**	

Course Objectives:

The main objectives of this course are to:

1. Understand the history of the origin of the English language
2. Outline the growth of the English language
3. Explain the evolution of the English language at a deeper level

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Outline the history of the English language	K1
2	Summarize the growth of the English language	K2
3	Identify in the changes in the structure of the language down the years	K3
4	Make use of the knowledge gained to improve their communication skills	K3
5	Select unexplored areas of the English language for research	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Paper X - THE ENGLISH LANGUAGE – II

Unit:1		**15 hours**
Chapter I &. II.		
Unit:2		**15 hours**
Chapter III , IV&V		
Unit:3		**15 hours**
Chapter VI		
Unit:4		**15 hours**
Chapter VII		

Unit:5		**15 hours**
Chapter VIII ,IX, & X		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**75 hours**

Text Book(s)

1	F.T.Wood- An Outline History of English Language
2	The Radiant English Anthology, Prof. GangadharP.Kudari, Department of English, J.T.College, Gadag, Macmillan Limited, 2008
3	A Book of Modern Short Stories, G. Kumara Pillai, Macmillan Publishers, 1997

Reference Books

1	A History of the English Language, Baugh,A.C.
2	The Growth and Structure of English Language, Jespersen, Otto.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://alison.com/course/diploma-in-english-language-and-literature-revised
2	https://www.classcentral.com/course/swayam-history-of-english-language-and-literature-14108
3	Any other online programme related to the content of the paper can also be used.

Course Designed By: the members of the board

Mapping with Programme Outcomes

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	S	S	S	S	S	S	S	S
CO2	S	S	S	S	S	S	M	M	M	S
CO3	S	S	S	S	S	S	S	S	S	S
CO4	S	S	S	S	S	S	S	S	S	M
CO5	S	S	S	S	S	S	S	S	S	S

*S-Strong; M-Medium; L-Low

Course code		BRITISH LITERATURE III (FROM THE VICTORIAN AGE TO THE MODERN AGE)	L	T	P	C
Core/Elective/Supportive		CORE PAPER XI				
Pre-requisite		An understanding of the periods of English literature	Syllabus Version			

Course Objectives:

The main objectives of this course are to:

1. Discover the features of the Victorian period
2. Understand the transition from the Victorian to the modern period
3. Interpret the texts in connection with the theories and characteristics of the age

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Remember the writers and works of the periods	K1
2	Understand the shift in thought and techniques from the Victorian to the modern period	K2
3	Apply the theories of the age to the prescribed texts	K3
4	Analyse any literary work keeping in mind the age and its features	K4
5	Identify areas for research	K3

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

SEMESTER III

Paper XI - BRITISH LITERATURE – III (FROM THE VICTORIAN AGE TO THE MODERN AGE)

Unit:1	POETRY	15-- hours

Robert Browning : Rabbi Ben Ezra

W.B.Yeats : Easter 1916

T.S.Eliot : Hollow Men

Tennyson : Tithonus

F.Thompson : The Hound of Heaven

Thom Gunn : On the Move, The Wound

Larkin :The Whitsun Wedding.

Unit:2	DRAMA	15-- hours

Shaw : Caesar and Cleopatra

OscarWilde:LadyWindermere'sFan		
Unit:3	**PROSE**	**15-- h;ours**
George Orwell : 1. Reflection of Gandhi 2. New Words 3. Bookshop Memories 4. Shooting an Elephant LytonStrachey:TheEminentVictoriansFlorenceNightingale' Thomas Carlyle : Hero as Poet		
Unit:4	**FICTION**	**15-- hours**
SomersetMaugham:TheRazor'sEdge CharLottee Bronte : Jane Eyre		
Unit:5	**CRITICISM**	**15-- hours**
W.K.WimsattJr&M.C.Beardsley :The Intentional Fallacy. CleanthBrooks : Irony as a Principle of Structure.		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**-- hours**

Text Book(s)

1	Prose-N.G.Nayar, ed. Selected Essays of Orwell (Macmillan)
2	Essays are from English Critical Traditions ed. S.Ramaswamy&V.S.Sethuraman Vol. II, Macmillan).
3	Walker, Hugh. The English Essay and Essayists. New Delhi: S. Chand & Company, 1977

Reference Books

1	Butrym, Alexander J.(ed) Essays on the Essay: Redefining the Genre. Athens, Georgia: University of Georgia Press, 1993
2	Joeres, Ruth-Ellen B, Elizabeth Mittman, The Politics of the Essay: Feminist Perspectives. Indiana: Indiana Univ. Press, 1993

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://www.conted.ox.ac.uk/courses/trollope-eliot-dickens-and-hardy-reading-victorian-fiction-online
2	http://www.luminarium.org/
3	Any other online programme related to the content of the paper can also be used.

Course Designed By: the members of the board

Mapping with Programme Outcomes										
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	S	S	S	S	S	S	M	S
CO2	S	S	S	S	S	S	M	S	M	S
CO3	S	S	M	M	M	S	S	S	S	S
CO4	S	M	S	M	S	M	S	S	S	S
CO5	S	S	S	S	S	S	M	S	S	M

*S-Strong; M-Medium; L-Low

Course code		ENGLISH LITERATURE FOR COMPETETIVE EXAMINATIONS II	L	T	P	C
Core/Elective/Supportive		CORE PAPER XII				
Pre-requisite		An understanding of the literary forms and theories	Syllabus Version		2020	

Course Objectives:

The main objectives of this course are to:

4. Build the knowledge of literary terms and theory strong in students
5. Develop the competency of students to face competitive examinations
6. Improve the learning skills of students through various modes of testing

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Remember the literary terms forms and theories	K1
2	Understand he different periods of English literature	K2
3	Apply the learnt theories to any text	K3
4	Analyse any given text thematically and technically	K4
5	Interpret any literary piece of work	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Paper XII - ENGLISH LITERATURE FOR COMPETETIVEEXAMINATIONS-II		
Unit:1		**15 hours**
Grammar of Narratives to Oral Formulaic Poetry.		
Unit:2		**15 hours**
Palinode to Purple Patch		
Unit:3		**15 hours**
Queer theory to Roman `a clef		
Unit:4		**15 hours**
Satire to Synesthesia		
Unit:5		**15 hours**
Tension to Wit, Humour and the Comic		

Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**75 hours**

Text Book(s)

1	A Glossary of Literary Terms, Abrahams,M.H (Publishers : Harcourt Asia PTE Ltd or Thomson Asia Ptv. Ltd)
2	The Radiant English Anthology, Prof. GangadharP.Kudari, Department of English, J.T.College, Gadag, Macmillan Limited, 2008
3	F.T.Wood, An Outline History of English Language, Macmillan, 2000.

Reference Books

1	A Dictionary of Literary Terms, Cuddon.A (Penguin)
2	The Post –Colonial Studies .The Key Concepts, Bill Ashcroft,Griffiths and Helen Tiffin (Routledge)

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://onlinecourses.nptel.ac.in/noc20_hs19/preview
2	http://www.historyworld.net/wrldhis/plaintexthistories.asp?historyid=aa08
3	Any other online programme related to the content of the paper can also be used.

Course Designed By: the members of the board

Mapping with Programme Outcomes

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M	S	M	M	S	S	M	M	M	S
CO2	M	M	S	S	S	S	M	S	M	M
CO3	S	S	S	M	M	S	S	M	S	S
CO4	M	M	S	M	S	M	S	S	S	S
CO5	S	S	M	S	S	S	M	S	S	M

*S-Strong; M-Medium; L-Low

Course code		**TITLE OF THE COURSE**	**L**	**T**	**P**	**C**
Core/Elective/Supportive		CORE PAPER XIII METHODS OF TEACHING ENGLISH				
Pre-requisite		A basic understanding of the English language	**Syllabus Version**		**2020 onwardrds**	

Course Objectives:

The main objectives of this course are to:

1. Understand the different methods to teach the English Language
2. Develop the methods learnt into effective practice
3. Improvise the teaching techniques for better results

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Remember the various methods and its significance in effective teaching	K1
2	Understand the importance of following the different methods	K2
3	Apply the learnt methods into practice	K3
4	Analyse ways to improvise the methods for better understanding	K4
5	Create innovative methods for a complete understanding	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	**Unit**	**15 hours**

Chapter I - III

.

Unit:2	**Unit**	**15 hours**

Chapter IV - VI

Unit:3	**Unit**	**15 hours**

Chapter VII – IX

Unit:4	**Unit**	**15 hours**
Chapter X - XII		
Unit:5	**Unit**	**15 hours**
Chapter XIII - XV		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**75 hours**

Text Book(s)

1	Teaching English Approaches, Methods and Techniques – N. Krishnaswamy and LalithaKrishnaswamy (Macmilan Publishers India Ltd., 2003
2	Methods and Teachniques Of Teaching English- J.E.Vallabi

Reference Books

1	Teaching English as a Second Language-Theory and Praxis- AaratiMajumdar
2	REET English Teaching Method- Dr. Umakant Vyas , Suman Vyas

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://onlinecourses.swayam2.ac.in/cec20_ed03/preview
2	https://youtu.be/ZgugEnI7h-g
4	https://www.classcentral.com/course/swayam-b-ed-english-pedagogy-of-teaching-english-17521

Course Designed By: the members of the board

Mapping with Programme Outcomes

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	S	S	S	M	S	S	S	M
CO3	S	S	S	S	M	S	S	S	M	M
CO3	S	S	S	S	S	S	S	S	S	S
CO4	S	S	S	S	S	S	S	S	S	M
CO5	S	S	S	S	S	M	S	S	S	M

*S-Strong; M-Medium; L-Low

Course code		**LITERARY CRITICISM AND THEORY**	**L**	**T**	**P**	**C**
Core/Elective/Supportive		CORE PAPER XIV				
Pre-requisite		**A basic knowledge of English Literature**	**Syllabus Version**		**2020**	

Course Objectives:

The main objectives of this course are to:

1. Outline the major literary theories and introduce the theorists
2. Apply literary theories to a given text and further incorporate it in research
3. Understand the literary movements and theories which is important to understand literature itself

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Remember the theories and theorists of the different periods	K1
2	Understand the theories and the changes in outlook down the years	K2
3	Apply the relevant theories to any literary text	K3
4	Analyse a piece of literature from a critical perspective	K4
5	Evaluate a work of art from the theoretical point of view	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6**– Create

Paper XIV – LITERARY CRITICISM AND THEORY

Unit:1	**POSTCOLONIALISM** Decolonization-Fanon Benedict Andrews-nationalism-imagined communities Edward Said- Orientalism GayatriSpivak-Strategic essentialism-subaltern studies Homi K Bhabha-Hybridity **Essay- GayathriSpivak-** ***Can the Subaltern Speak?***	**15 hours**
Unit:2	**STRUCTURALISM**	**15 hours**

	Linguistic model-Saussure Prayer school of linguistic-Roman Jacobson My themes-Levi Strauss Parisian fashion analysis-Barthes Semiotics-Morris, Poesies C.S Structuralist Narratology -Gerard Genette **Essay-Roman Jacobson - *From Linguistics & Poetics***	
Unit:3	**FEMINISM** The First wave- Virginia Woolf, Simone de Beauvoir The Second wave-Kate millet-Elaine Showalter (Gynocritism –Alice walker) The Third wave-Rebecca walker Marxist Feminism-Juliet Mitchell French Feminism-Luce Gregory - Helene Cixous Lesbian feminism, black feminism, Dalit feminism, post feminism **Essay-Simone de Beauvoir *The Second Sex***	**15 hours**
Unit:4	**CULTURAL MATERIALISM/NEW HISTORICISM** Raymond Williams –culture and materialism Stephen Green Blatt &Louis Montrose-Textuality and Historicity Politics and power-Jonathan Dollimore-Alan Sinfield	**15 hours**

	Essay –Stuart Hall's *Cultural Studies and its Theoretical Legacies*	
Unit:5	**PSYCHOANALYSIS** Sigmund Freud - id, ego, super ego-Oedipus complex Lacan-mirror stage-imaginary, symbolic and real-ego formation and constructions of self hood Jouissance- Zizekideology Subject-subjectivization-fantasy **Essay-Sigmund Freud's *The Interpretation of Dreams***	**15 hours**
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars can cover topics related to postmodernism		
	Total Lecture hours	**75 hours**

Text Book(s)

1	Beginning Theory by Peter Barry
2	Modern criticism and theory edited by David Lodge and Nigel Wood second edition 1988
3	T. S. Eliot and the Concept of Tradition - Cambridge University Press, 2009

Reference Books

1	The Norton Anthology of Theory
2	Modernism: An Anthology edited by Lawrence Rainey, Blackwell Publishing 2005.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://www.conted.ox.ac.uk/courses/literary-theory-an-introduction-online
2	https://onlinecourses.swayam2.ac.in/arp19_ap88/preview
3	Any other online programme related to the content of the paper can also be used.

Course Designed By: Dr. Nila and Dr. N. Bhuvana

Mapping with Programme Outcomes

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M	M	M	M	S	S	M	M	M	S
CO2	M	M	S	S	S	S	M	S	M	M
CO3	S	S	S	M	M	S	S	M	S	S
CO4	M	M	S	M	S	M	S	S	M	S
CO5	S	M	M	S	M	S	M	S	S	M

*S-Strong; M-Medium; L-Low

Course code		**RESEARCH METHODOLOGY**	**L**	**T**	**P**	**C**
Core/Elective/Supportive		CORE PAPER XV				
Pre-requisite		**A basic interest in research with a knowledge of literary terms and theory**	**Syllabus Version**	**2020**		

Course Objectives:

The main objectives of this course are to:

1. Evaluate any piece of literature from a thematic, stylistic and theoretical point of view
2. Discuss the methodology of the research undertaken
3. Defend a chosen analysis with evidence

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Remember the fundamentals of writing research papers	K1
2	Understand what thesis writing is	K2
3	Apply literary theories to research	K3
4	Analyse texts from different perspectives	K4
5	Improve the quality of research through the knowledge gained	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

PAPER XV - RESEARCH METHODOLOGY

Unit:1		**15 hours**

1. Writing at the tertiary level
2. Planning the assignment

Unit:2		**15 hours**

3. Planning the thesis

4. Scholarly writing: A case study 5. Format of a Research Paper.		
Unit:3		**15 hours**
6. Page and chapter format 7. The use of quotations 8. References		
Unit:4		**15 hours**
9. Documentation 10. Works cited		
Unit:5		**15 hours**
11. Appendixes 12. Editing and evaluating the final product		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**75 hours**

Text Book(s)

1	M.L.A Hand Book – Revised Ed 8th Edition
2	Anderson, Durston& Pool: Thesis and Assignment Writing Wiley Eastern Limited)
3	Kothari, C.R. Research Methodology (Methods and Techniques), New Age Publisher.

Reference Books

1	Booth, W. C., Colomb, G. G., Williams, J. M. (2008), The craft of research. 3 edition. Chicago, Ill. : University of Chicago Press (317 p).
2	Gibaldi, J. (2009), MLA handbook for writers of research papers. 7 edition. New York : Modern Language Association of America (292 p).

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	http://ekladata.com/KzzAEwKaLogsA8h1EU4KDJVrSLo/-H._V._Deshpande-_Research_in_Literature_and_Langu-z-lib.org-.pdf

2	http://jakubbbaczek.pl/wp-content/uploads/rtMedia/tmp/writing-methodology-for-research-proposal-english-literature-pdf-3684.pdf
3	Any other online programme related to the content of the paper can also be used.

Course Designed By: the members of the board

Mapping with Programme Outcomes

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	S	S	S	S	S	S	S	S
CO2	S	S	S	M	S	S	M	S	S	S
CO3	S	S	S	S	S	S	S	S	S	S
CO4	S	S	M	S	S	S	S	S	S	M
CO5	M	S	S	S	S	S	S	S	S	S

*S-Strong; M-Medium; L-Low

Course code		**INTRODUCTION TO WOMEN'S STUDIES**	**L**	**T**	**P**	**C**
Core/Elective/Supportive		CORE PAPER XVI				
Pre-requisite		**A basic knowledge of some of the women's writings and the literature of the country to which they belong**	**Syllabus Version**	**2020**		

Course Objectives:

The main objectives of this course are to:

1. Interpret the writings of women from different parts of the globe
2. Identify different styles of writing
3. Compare the literatures and themes of different nations

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Relate the writings of women from other parts of the world to ours	K1
2	Interpret the works of prominent women writers	K2
3	Experiment with different writings for research	K3
4	Survey the literature of different countries on the style and themes	K4
5	Choose different areas for research from the knowledge gained	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

SEMESTER IV

PAPER XVI - INTRODUCTION TO WOMEN'S STUDIES

Unit:1	**POETRY**	**15-- hours**

Sylvia Plath : Lady Lazaraus

ImitiazDharker:Another Woman

Anne Sexton : The Moss of his Skin Kamala Das : An Introduction Spoiling the Name Adrienne Rich : Snapshots of a Daughter-in-law Willa Cather: London Roses Judith Wright : The Old Prison Sarojini Naidu : Coromandel Fishers		
Unit:2	**PROSE**	**15 hours**
Maya Angelou : I Know Why the Caged Bird sings VirginiaWoolf:ARoomofOne'sOwn		
Unit:3	**DRAMA**	**15 hours**
Uma Parameswaran: Sons Must Die Lorraine Hansberry : A Raisin in the Sun		
Unit:4	**FICTION**	**15 hours**
BapsiSidhwa : The Pakistani Bride Gita Haraharan: Thousand Faces of Night		
Unit:5	**CRITICISM**	**15 hours**
Elaine Showalter : Towards a Feminist Poetics		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**75 hours**

Text Book(s)

1	Cornillon, Susan Koppelman. Ed. Images of Women in Fiction: Feminist Perspectives. Bowling Green, Ohio: Bowling Green University Popular Press, 1972.
2	Coward,Rosalind.FemaleDesire:Women'sSexualityToday.London:Paladin,1984.
3	Kristeva,Julia."Women'sTime"Signs,7:1(1981),13 -35

Reference Books

1	Code, Lorranine, ed. Encyclopedia of Feminist Theories

2	Showalter, Elaine. A Literature of Their Own. London: Virago, 1978

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://onlinecourses.swayam2.ac.in/arp19_ap88/preview
2	https://www.queensu.ca/artsci_online/courses/canadian-literature
3	Any other online programme related to the content of the paper can also be used.

Course Designed By: the members of the board

Mapping with Programme Outcomes

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	S	S	S	S	S	S	S	S
CO2	S	S	S	S	S	S	M	S	M	S
CO3	S	S	M	S	M	S	S	S	S	S
CO4	S	S	S	S	S	S	S	S	S	S
CO5	S	S	S	S	S	S	M	S	S	M

*S-Strong; M-Medium; L-Low

Course code		**MASS COMMUNICATION AND JOURNALISM**	**L**	**T**	**P**	**C**
Core/Elective/Supportive		CORE PAPER XVII				
Pre-requisite		**A basic understanding of mass communication and journalism**	**Syllabus Version**	**2020**		

Course Objectives:

The main objectives of this course are to:

1. Outline the theories of journalism and mass communication

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	to understand the basic concepts in mass communication	KX
2	Basic of journalism	KX
3	Theories associated to mass communication and journalism	KX
4	Apply in practicing journalism	KX
5		KX

K1 - Remember; **K2** - Undestand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Paper XVII - MASS COMMUNICATION AND JOURNALISM		
Unit:1	**Introduction to Communications**	**15-- hours**
1. Definition – Meaning – Process of communications. 2. Functions and Theories of Mass Media 3. Role and effects of Mass Media in Social campaigns (Literacy, anti-poverty, family planning, National integration, secularism and environment issues) 4. Emerging trends and development in information and communication Technologies.		
Unit:2	**Introduction to Journalism**	**15 hours**
1. Role of Press in India – English and Vernacular Press. 2. Ethics and Principles of Journalism 3. Freedom of the Press 4. Press Council and Press Regulations in India		
Unit:3	**Print Media**	**15 hours**
1. The Making of a Newspaper 2. Principles of Reporting – Feature writing, Interviews, Reviews and cartoons. 3. the Role of Editors 4. Press and Public Opinion.		
Unit:4	**Television and Radio**	**15 hours**
1. The growth and development of Television in India 2. Television Production and Formats of TV Programmes. 3. Radio genres, Ownership, Control and Broadcasting Policy 4. Impact of TV and Radio on society.		
Unit:5	**Advertisement**	**15 hours**
1. Types of Advertising and Advertising Media 2. Techniques in effective advertisements. 3. Code of Ethics for advertising 4. Advertising and Marketing.		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		

	Total Lecture hours	**75 hours**
Text Book(s)		
1	M.V. Kamath - TheJournalist'sHandbook,VikasPublishingHousePvtLtd,2009	
2	M.V. Kamath - Professional Journalism, Vikas Publishing House Pvt Ltd, 1st	
3	Handbook of Journalism and Mass Media, B.N. Tripathi, Lotus Press, 2011, 1st Edition	
Reference Books		
1	1. Kumar, Keval J. Mass Communication India, Mumbai, Jaico Publishing House.	
2	2. Rayudu, C.S. Communication, New Delhi Himalaya Publishing House.	
3	D'souzaY.K.Communication:TodayandTomorrowNewDelhiDiscoveryPublishing House.	
4	3.D'souzaY.K.Communication:TodayandTomorrowNewDelhiDiscoveryPublishing House.	
5	Kamath M.V Professional Journalism Delhi Vikas Publishing House PVT Ltd	
6	Srivastava K.M.Radio and TV Journalism New Delhi Sterling	
7	Dr.Jan R.Hakemujlderetal. Radio T.V Journalism New Delhi Anmol Publication Pvt Ltd.	
8	Chanawalaetal. Advertising : Theory and Practice Delhi : Himalaya Publishing House	
9	The Professional Journalist, John Hohenberg, Holt Rinehart & Winston, 1983, 5 sub edition.	
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]		
1	http://www.mediacenterimac.com/blog-medium-of-mass-communication/	
2	https://educationstreet.in/mass-communication-a-fascinating-career-option/	
3	Any other online programme related to the content of the paper can also be used.	
Course Designed By: members of the board		

Mapping with Programme Outcomes										
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	S	S	M	S	S	S	S	S
CO2	S	S	S	S	S	S	S	S	S	S
CO3	S	S	S	S	S	S	S	S	S	S
CO4	S	S	S	S	M	S	M	S	S	S
CO5	S	S	S	S	S	S	S	S	S	S

*S-Strong; M-Medium; L-Low

ELECTIVE- SURVEY OF LITERATURE - BRITISH LITERATURE		
Unit I	**POETRY**	**15 hours**
1. Browning's My Last Duchess		
2. Coleridge's Kubla Khan		
3. Coventry Patmore's The Angel in the House		
4. D.G. Rossetti's The Blessed Damozel		
5. Dante's The Divine Comedy		
6. Dryden's The Hind and the Panther		
7. G.M.Hopkin's The Windhover		
8. Geoffrey Chaucer's Prologue to Canterbury Tales		
9. James Thomson's The City of Dreadful Night		
10. Keats' Endymion		
11. Matthew Arnold's Dover Beach		
12. Philip Larkin's The Whitsun Wedding		
13. Pope's The Rape of the Lock		
14. Robert Graves' In Broken Images		
15. Seamus Heaney's Death of a Naturalist		
16. Shelley's Alastor and Ode to the West Wind		
17. Sydney's Astrophil and Stella		
18. T.S. Eliot's The Four Quartets		
19. Tennyson's Lotus-Eaters		
20. Wordsworth's The Prelude		
Unit II	**DRAMA**	**15 hours**
1. Bernard Shaw's Man and Superman		
2. Congreve's The Way of the World		
3. Euripides' Medea		

4. Galsworthy's Strife		
5. Goldsmith's She Stoops to Conquer		
6. Harold Pinter's The Dumb Waiter		
7. Ibsen's A Doll's House		
8. John Ford's Tis Pity She's a Whore		
9. Kingsley Amis' Lucky Jim		
10. Kyd's The Spanish Tragedy		
11. Luigi Pirandello's Six Characters in Search of an Author		
12. Marlowe's Doctor Faustus		
13. Osborne's Look Back in Anger		
14. Robert Bolt's A Man for All Seasons		
15. Samuel Beckett's Waiting for Godot		
16. Sean O' Casey's Juno and the Paycock		
17. Sheridan's The School for Scandal		
18. Synge's The Playboy of the Western World		
19. Tom Sto13. ppard's Arcadia		
20. Webster's The Duchess of Malfi		
Unit III	**FICTION**	**15 hours**
1. Ann Radcliffe's The Mysteries of Udolpho		
2. Anthony Burgess' The Wanting Seed		
3. Conrad's Nostromo		
4. Daniel Defoe's Moll Flanders		
5. Doris Lessing's The Four-Gated City		
6. E.M. Forster's A Passage to India		
7. Franz Kafka's The Trial		
8. Golding's Lord of the Flies		

9. H.G. Wells' The War of the Worlds		
10. Hardy's Jude the Obscure		
11. Henry Fielding's Vanity Fair		
12. James Joyce's Ulysses		
13. L.P. Hartley's Facial Justice		
14. Lewis' Through the Looking Glass		
15. Margaret Drabble's The Witch of Exmoor		
16. Mary Wollstonecraft's Frankenstein		
17. Muriel Spark's The Driver's Seat		
18. R.M. Ballantyne's The Coral Island		
19. Thomas Mann's Death in Venice		
20. Walter Scott's Kenilworth		
Unit IV	**PROSE**	**15 hours**
1. Battista Vico's New Science		
2. Claude Levi-Strauss' The Savage Mind		
3. Derrida's Structure, Sign, and Play in the Discourse of the		
4. Eve Kosofsky Sedgwick's Epistemology of the Closet		
5. F.R. Leavis' Great Tradition		
6. Hazlitt's The Spirit of the Age		
7. Helene Cixous' Sorties		
8. I.A. Richards' Practial Criticism		
9. Jeremy Collier's A Short View of the Immortality and Profaneness		
10. John Lock's An Essay Concerning Human Understanding		
11. Kate Millet's Sexual Politics		
12. Lionel Trilling's On the Teaching of Modern Literature		
13. Malcolm Bradbury's The History of Man		

14. Michel Foucault's The Order of Things		
15. Northrop Frye's Anatomy of Criticism		
16. Plato's Phaedrus		
17. Shelley's The Vision of Judgement		
18. Simon-de-Bevoir's The Second Sex		
19. Thomas De Quincey's On the Knocking at the Gate in Macbeth		
20. Virginia Woolf's A Room of One's Own		
Unit V	**AUTHORS**	**15 hours**
1. Aldous Huxley		
2. Bertolt Brecht		
3. Charles Dickens		
4. D.H. Lawrence		
5. George Orwell		
6. Graham Greene		
7. Gunter Grass		
8. Jacques Lacan		
9. Jonathan Swift		
10. Joseph Addison		
11. Mikhail Bakhtin		
12. Milton		
13. Oscar Wilde		
14. Roland Barthes		
15. R. L. Stevenson		
16. Shakespeare		
17. W.B. Yeats		
18. W.H. Auden		

19. Wilfred Owen		
20. William Blake		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**75 hours**

Text Book(s)

1	The Radiant English Anthology, Prof. GangadharP.Kudari, Department of English, J.T.College, Gadag, Macmillan Limited, 2008
2	A Book of Modern ShortStories, G.KumaraPillai, Macmillan Publishers, 1997
3	A History of English Literature, Edward Albert, Oxford (1 June 1997), Fifth Edition

Reference Books

1	The Oxford Companion to English Literature edited by Margaret Drabble
2	The Cambridge Guide to Literature in English by Ian Ousby
3	Net.Set..Go: Literatures in English by D.E. Benet and S. Samuel Rufus
4	Website:(National Digital Library) https://ndl.iitkgp.ac.in
5	Website:www.poemhunter.com

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://www.thoughtco.com/what-is-literature-740531
2	https://courses.lumenlearning.com/introliterature/chapter/defining-literature/
4	https://www.questia.com/library/literature

SURVEY OF LITERATURES IN ENGLISH - AMERICAN LITERATURE

Unit:1	**POETRY**	**15 hours**
1. Allen Ginsberg's A Desolation		
2. Anne Bradstreet's Of the Four Ages of Man		
3. Archibald MacLeish's ArsPoetica		

4. Carl Sandburg's Chicago		
5. Edward Arlington Robinson's A Happy Man		
6. Emily Dickinson's Because I Could Not Stop for Death		
7. Gwendolyn Brooks' The Mother		
8. Hart Crane's The Bridge		
9. Hilda Doolittle's Helen		
10. John Ashbery's My Philosophy of Life		
11. Langston Hughes' Let America be America Again		
12. Lawrence Ferlinghetti's The World is a Beautiful Place		
13. Longfellow's A Psalm of Life		
14. Maya Angelou's Still I Rise		
15. Nikki Giovanni's Choices		
16. Phillis Wheatley's A Hymn to Humanity		
17. Rita Dove's My Father Enters the Work Force		
18. Robert Lowell's Waking in the Blue		
19. Theodore Roethke's I Knew a Woman		
20. Wallace Stevens' TheEmperor of Ice Cream		
Unit:2	**DRAMA**	**15 hours**
1. AmiriBarakka's The Slave		
2. Arthur Miller's Death of a Salesman		
3. August Wilson's Fences		
4. David Mamet's American Buffallo		
5. Edward Albee's Who is afraid of Virginia Woolf?		
6. Eugene Ionesco's		

7. Eugene O'Neil's Long Day's Journey into Night		
8. John Guare's Six Children of Separation		
9. Lillian Hellman's The Little Foxes		
10. Lorraine Hansberry's A Raisin in the Sun		
11. Neil Simon's The Old Couple		
12. Noel Coward's Present Laughter		
13. Richard Greenburg's Take me Out		
14. Richard Nelson's Two Shakespearean Actors		
15. Sam Shepherd's Buried Child		
16. Suzan-Lori Parks' Topdog/Underdog		
17. Tennessee Williams' Glass Managerie		
18. Thornton Wilder's Our Town		
19. Tony Kushner's Angels in America		
20. William Inge's Picnic		
Unit:3	**FICTION**	**15 hours**
1. Albert Dresier's Sister Carrie		
2. Alice Walker's The Color Purple		
3. Bradbury's Farenheit 451		
4. Edith Wharton's The Age of Innocence		
5. Faulkner's The Sound and The Fury		
6. Fitzgerald's The Great Gatsby		
7. Harper Lee's To Kill a Mocking Bird		
8. Hemingway's A Farewell to Arms		
9. Henry James' The Portrait of a Lady		
10. J.D. Salinger's The Catcher in the Rye		
11. Joseph Heller's Catch-22		

12. Margaret Mitchell's Gone with the Wind		
13. Mark Twain's Tom Sawyer		
14. Pearl Buck's The Good Earth		
15. Philip Roth's My Life As a Man		
16. Saul Bellow's Herzog		
17. Steinbeck's The Grapes of Wrath		
18. Stowe's Uncle Tom's Cabin		
19. Toni Morrison's Beloved		
20. Upton Sinclair's The Jungle		
Unit:4	**CRITICISM**	**15 hours**
1. Alice Walker's In Search of Our Mothers' Gardens: Womanist Prose		
2. Barbara Johnson's The Frame of Reference: Poe, Lacan,		
3. Cleanth Brooks' the Language of Paradox		
4. Edmund Fuller's The New Compassion in the American Novel		
5. Emerson's Self-reliance		
6. Geoffrey Hartmen's Crossing Over: Literary Commentary as Literature		
7. Harold Bloom's The Anxiety of Influence: A Theory of Poetry		
8. Henry James' The Art of Fiction J		
9. Irving Babbit's Genius and Taste		
10. J. C. Ransom's Criticism, Inc.		
11. Judith Butler's Undoing Gender		
12. Kenneth Burke's Poetic Process		
13. Leslie Fiedler's Love and Death in the American Novel and the 1960s		
14. Lionel Trilling's Freud: Within and Beyond Culture		
15. M.H. Abrams' The Mirror and the Lamp		
16. Margaret Fuller's Women in the Nineteenth Century		

17. R.S. Crane's The Languages of Criticism and the Structure of Poetry		
18. Stephen Greenblat's Shakespeare and the Exorcists		
19. Wayne C. Booth's The Rhetoric of Fiction		
20. Wimsatt and Beardsley's The Verbal Icon		
Unit:5	**AUTHORS**	**15 hours**
1. Adrienne Rich		
2. Allan Tate		
3. Amy Lowell		
4. e.e.cummings		
5. Edgar Allan Poe		
6. Eugene O'Neil		
7. Ezra Pound		
8. James Hooper		
9. John Updike		
10. Mark Twain		
11. Nathaniel Hawthorne		
12. O'Henry		
13. Richard Nathaniel Wright		
14. Robert Lowell		
15. Sinclair Lewis		
16. Sylvia Plath		
17. Thoreau		
18. Vladimir Nabokov		
19. Washington Irving		
20. Zora Neale Hurston		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		

	Total Lecture hours	**75 hours**

Text Book(s)

1	Norton'sAnthologyofAmericanLiterature,2016.
2	American Literature: Studies on Emerson, Thoreau, Hawthrone, Melville and Whitman, SujataGurudev, Atlantic, 2011, 1st Edition
3	Studies in American Literature, Edited by Mohit K. Ray, Atlantic, 2011, 1st Edition.

Reference Books

1	The Oxford Companion to English Literature edited by Margaret Drabble
2	The Cambridge Guide to Literature in English by Ian Ousby
3	Net.Set..Go: Literatures in English by D.E. Benet and S. Samuel Rufus
4	Website:(National Digital Library) https://ndl.iitkgp.ac.in
5	Website:www.poemhunter.com

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://www.questia.com/library/literature
2	https://ndl.iitkgp.ac.in/homestudy/literature
4	https://www.palgrave.com/br/humanities/literature

INDIAN WRITING IN ENGLISH (* INDIAN DIASPORIC WRITERS TOO ARE INCLUDED HERE.)

Unit:1	**POETRY**	**15 hours**

1. A. K. Ramanujan's Small Scale Reflections on a Great House.
2. AdilJussawalla's The Waiters
3. Agha Shahid Ali's Call me Ishmail Tonight
4. ArunKolatkar's Three Cups of Tea
5. ArvindMehrotra's Between Bricks, Madness

6. Daruwalla's Death by Burial		
7. Dom Moraes' A Letter		
8. GauuriDeshpande's The Female of the Species		
9. Gieve Patel's Forensic Medicine		
10. JayantaMahapatra's The Lost Children of America		
11. K.D. Katrak's The Kitchen Door		
12. Kamala Das's The Old Playhouse		
13. N. Daruwala's Pestilence in Nineteenth Century Calcutta		
14. Nissim Ezekiel's Enterprise		
15. P. Lal's The Poet		
16. Parthasarathy's Exile from Homecoming		
17. SaleemPeeradina's Still Life		
18. Sarojini Naidu's Coramental Fishers		
19. Shiv K. Kumar's Indian Women		
20. Toru Dutt's Our Casuarina Tree		
Unit:2	**DRAMA**	**15 hours**
1. Annie Zaidi's So Many Socks		
2. Anita Nair's Nine Faces of Being		
3. A. S. P. Ayyar'sSita's Choice		
4. AsifCurrimbhoy's The Refugee		
5. BadalSircar's That Other History		
6. Bharathi Sarabhai's Two Women		
7. Cyrus Mistry'sDoongaji House		
8. Dina Mehta's The Myth Makers		
9. GirishKarnad's The Sword of Tipu Sultan		
10. GurucharanDas'LarinsSaheb		

11. Mahasweta Devi's Mother of 1084		
12. Mahesh Dattani's Final Solutions		
13. ManjimaChatterjee's The Mountain of Bones		
14. ManjulaPadmanaban's Harvest		
15. Mohan Rakesh's The Great Swans of the Waves		
16. PolieSengupta'sMangalam		
17. RamuRamanathan's Collaborators		
18. Sri Aurobindo'sVasavadutta		
19. Uma Parameswaran's Rootless But Green are the Boulevard Trees		
20. UtpalDutt's The Great Rebellion		
Unit:3	**FICTION**	**15 hours**
1. AmitavGosh's Sea of Poppies		
2. Arundhati Roy's The God of Small Things		
3. ArvindAdiga's The White Tiger		
4. BishamSahni'sTamas		
5. ChamanNahal'sAzadi		
6. ChamanNahal'sAzadi		
7. David Davidar's The House of Blue Mangoes		
8. J. G. Farrell's The Seige of Krishnapur		
9. JhumpaLahiri's The Namesake		
10. Kamala Markandaya'sNecter in a Sieve		
11. Khushwant Singh's I Shall Not Hear the Nightingale		
12. Kiran Desai's The Inheritance of Loss		
13. Kushwanth Singh's Train to Pakistan		
14. K.S. Maniam's The Return		
15. Mulk Raj Anand's The Coolie		

16. JeetThayil'sNarcolpolis		
17. NayantaraSahgal's Mistaken Identity		
18. PerumalMurugan's Season of the Palm		
19. ShashiDeshpandi's That Long Silence		
20. ShashiTharoor's The Great Indian Novel		
21. Salman Rushdie's Midnight Children		
Unit:4	**CRITICISM**	**15 hours**
1. Aijaz Ahmad's Jameson's Rhetoric of Otherness and the 'National Allegory' 2. Arun P. Mukherjee's Ideology in the Classroom: A Case Study in the Teaching of English Literature in Canadian Univerisities		
3. A. K. Coomaraswamy's The Dance of Shiva		
4. Chandra TalpadeMohanty's Under Western Eyes: Feminist Scholarship and Colonial Discourse		
5. DipeshChakrabarty'sPostcoloniality and the Artifice of History		
6. M. K. Gandhi's The Story of My Experiments with Truth		
7. GauriViswanathan's The Beginnings of English Literary Study in British India		
8. GayatriCharkravortySpivak's Can the Subaltern Speak?		
9. Jawaharlal Nehru's The Discovery of India		
10. KumkumSangari's The Politics of the Possible		
11. G.B. Mohan's Rasa as Aesthetic Experience		
12. Omprakash'sJoothan		
13. ParthaChatterjee's The Nationalist Resolution of the Women's Question		
14. R. Radhakrishnan'sNationalims, Gender and the Narrative of Identity		
15. RadhakamalMukerjee'sRasas as Springs of Art in Indian		
16. S. Radhakrishnan's Religion, Science and Culture		
17. Raja Rao's Language and Spirit		
18. Rajeswari Sunder Rajan's Representing Sati: Continuities		

19. RanajithGuha's The Prose of Counter-Insurgency		
20. Sara Suleri's The Rhetoric of English India		
Unit:5	**AUTHORS**	**15 hours**
1. AmitChaudhuri		
2. Anita Desai		
3. Bharati Mukherjee		
4. Chitra Banerjee Devakaruni		
5. GirishKarnad		
6. Gita Hariharan		
7. K.N. Daruwalla		
8. ManoharMalgoankar		
9. Meena Alexander		
10. Michael MadhusudanDutt		
11. Nirad C. Chaudhuri		
12. Rabindranath Tagore		
13. S. Radhakrishnan		
14. RohintonMistry		
15. R. K. Narayan		
16. Shobhaa De		
17. SmitaAgarwal		
18. Vijay Tendulkar		
19. Vikram Chandra		
20. Vikram Seth		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**75 hours**
Text Book(s)		

1	Critical Essays on Indian Writing in English, edM.K.Naik, S.K.Desai, G.S.Amur 1968.
2	Selected Poems (Collins Classics), Rabindranath Tagore, William Collins (28 August 2013), 1 Edition
3	Sarojini Naidu Said, Anu Kumar, Hachette India Local (6 March 2014) 1 Edition
Reference Books	
1	The Cambridge Guide to Literature in English by Ian Ousby
2	The Post-colonial Studies Reader edited by Bill Ashcroft, Gareth Griffiths and Helen Tiffin
3	Postcolonial Discourses: An Anthology edited by Gregory Castle (Blackwell
4	*Net.Set..Go: Literatures in English* by D.E. Benet and S. Samuel Rufus
5	Website:(National Digital Library) https://ndl.iitkgp.ac.in
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://www.palgrave.com/br/humanities/literature
2	https://lithub.com/
4	https://www.gutenberg.org/files/10609/10609-h/10609-h.htm

NEW LITERATURES IN ENGLISH		
Unit:1	**POETRY**	**15 hours**
1. A.D. Hope's Australia		
2. Adrieene Rich's Cartographies ofSilence		
3. Allen Curnow's Time		
4. Bliss Carman's Wild Garden		
5. Chris Wallace Crabbe's Nature, Language, the Sea: An Essay		
6. Christopher Okigbo'sHeavensgate		
7. David Diop's Africa		
8. Duncan Campbell's The MagicHouse		

9. Edwin J. Pratt's Towards the LastSpike
10. Edwin Thumboo's Gods Can Die
11. Gabriel Okara's Once Upon aTime
12. George Frederick Cameron's The Future
13. Keri Hulme's Shards
14. KishwarNaheed's I am not that woman
15. P.K. Page's Adolescence
16. Robert William Service's Songs of a Sourdough
17. F.R. Scott's The Canadian Authors' Meet
18. Wilfred Campbell's The Winter Lakes
19. William Bliss Carman's Wild Garden
20. William Henry Drummond's The Great Fight

Unit:2	**DRAMA**	**15 hours**

1. Ama Ata Aidoo'sAnowa
2. Anne-Marie MacDonald's (Good Night) Desdemona (Good Morning Juliet)
3. Athol Fugard's The Train Driver
4. Brad Fraser's Unidentified Human Remains
5. George Ryga's The Ecstasy of Rita Joe
6. Ian Fraser's Dogs of the Blue Gods
7. Joan MacLeod's Toronto, Mississippi
8. Judith Thompson's I Am Yours
9. Ola Rotimi's The Gods Are Not to Blame
10. Ray Lawler's Summer of the Seventeenth Doll
11. Robertson Davies' At My Heart's Core
12. Roger Bennet's Up the Ladder

13. Roger Hall's Glide Time		
14. Sally Clark's Moo		
15. Sharon Pollock's Blood Relations		
16. Stella Jones' The Tree		
17. Stephen William Black's Love and the Hyphen		
18. Thiong'oNgugi's I Will Mary When I want		
19. Tomson Highway's The Rez Sisters		
20. Wole Soyinka's The Lion and the Jewel		
Unit:3	**FICTION**	**15 hours**
1. BuchiEmecheta's The Joys of Motherhood		
2. J.M. Coetzee's Foe		
3. Chinua Achebe's Things Fall Apart		
4. Douglas Coupland's Generation X		
5. Douglas Durkin's The Magpie		
6. Italo Calvino's If On a Winter's Night a Traveler		
7. Jean Rhys' Wide Sargasso Sea		
8. Katherine Mansfield's Life of Ma Parker		
9. Kazuo Ishiguro's The Remains of the Day		
10. KhaledHosseini's The Kite Runner		
11. A.M. Klein's The Second Scroll		
12. Kofi NyidevuAwoonor's Comes the Voyager at Last		
13. Kylie Tennant's The Joyful Condemned		
14. Margaret Atwood's The Edible Woman		
15. Margaret Laurence's The Stone Angel		
16. Michael Ondaatje's The English Patient		

17. Monica Ali's Brick Lane		
18. Patrick White's Voss		
19. Salman Rushdie's The Moor's Last Sigh		
20. William Gibson's Neuromancer		
Unit:4	**CRITICISM**	**15 hours**
1. Achebe's Truth of Fiction		
2. Alfred W. Crosby's Ecological Imperialism		
3. Dennis Lee's Writing in Colonial Space		
4. Edward KamauBrathwhite's Nation Language		
5. Frantz Fanon's Black Skin, White Masks		
6. Gareth Giffiths' The Myth of Authenticity		
7. Helen Tiffin's Post-colonial Literatures and Counterdiscourse		
8. HomiBhabha's Nation and Narration		
9. Hugh MacLennan's Seven Rivers of Canada		
10. Jose Rabasa's Allegories of Atlas		
11. S.I.A. Kotei's The Book Today in Africa		
12. Linda Hutcheon's Circling the Downspout of Empire		
13. Luke Strongman's Postcolonialism or post-imperialism?		
14. Northrop Frye's The Anatomy of Criticism		
15. OrhanPamuk's Other Colors		
16. Peter Hyland's Singapore: Poet, Critic, Audience		
17. Russell McDougall's The Body as Cultural Signfier		
18. Salman Rushdie's Imaginary Homelands		
19. Simon During's Postmodernism or Post-colonialism		
Unit:5	**AUTHORS**	**15 hours**
1. Alice Munro		

2. Amiri Baraka		
3. Derek Walcott		
4. Drew Hayden Taylor		
5. Hilary Mantel		
6. Janet Frame		
7. Judith Wright		
8. Linda Griffiths		
9. Maria Campbell		
10. Marshal McLuhan		
11. Morris West		
12. Nadine Gordimer		
13. V.S. Naipaul		
14. Peter Carey		
15. Robert Davies		
16. Sara Jeannette Duncan		
17. A.J.M. Smith		
18. Stephen Leacock		
19. Thomas Keneally		
20. WitiIhimaera		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**75 hours**
Text Book(s)		
1	**Collected Plays: Volume 2:** By Wole Soyinka	
2	The Cambridge Guide to Literature in English by Ian Ousby	
	Criticism from "Readings in Commonwealth Literature Ed. William	

	Walsh Clarendon Press, Oxford
Reference Books	
1	**Major Voices in New Literatures in English** by Bishun Kumar (Editor), Neha Arora (Editor)
2	English and American Studies **Theory and Practice** Martin MiddekeTimo Müller Christina Wald Hubert Zapf
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	The Cambridge Guide to Literature in English by Ian Ousby
2	The Post-colonial Studies Reader edited by Bill Ashcroft, Gareth Griffiths and Helen Tiffin
3	Postcolonial Discourses: An Anthology edited by Gregory Castle (Blackwell)
4	Net.Set..Go: Literatures in English by D.E. Benet and S. Samuel Rufus
5	Website:(National Digital Library) https://ndl.iitkgp.ac.in

General Instructions:

1. **Elective Courses:** Minimum Two for Each Semester.
2. **Supportive Courses:** Minimum One for first three Semesters.
3. **Value Added Courses:** Minimum 2 and maximum 5 for Each Department for Entire Program
4. **Job Oriented Certificate Courses:** Two Courses (Each one on First and Second Year)
5. All the Board of Studies are requested to follow the same template and use the TIMES NEW ROMAN FONT with the Size of 12.
6. The Course Designer should be mentioned in each of the courses.

Details for the Certificate Course

1	**Name of the Course**	
2	**Name of the Department**	
3	**Name of the Faculty Member**	
4	**Inter/Intra Department**	
5	**Objectives of the Course**	
6	**Topics to be Covered**	
7	**Duration of the Course**	
8	**Eligibility**	
9	**Registration**	
10	**Description of the Course**	
11	**Job Opportunities**	
12	**Number of Candidates**	
13	**Course Fee**	

M.Com.

Syllabus

AFFILIATED COLLEGES

Program Code: 3AA

2020 – 2021 onwards

BHARATHIAR UNIVERSITY

(A State University, Accredited with "A" Grade by NAAC,
Ranked 13th among Indian Universities by MHRD-NIRF,
World Ranking : Times - 801-1000, Shanghai - 901-1000, URAP - 982)

Coimbatore - 641 046, Tamil Nadu, India

Program Educational Objectives (PEOs)	
The M.Com program describe accomplishments that graduates are expected to attain within five to seven years after graduation	
PEO1	To assume jobs of executive cadre in corporates
PEO2	To offer investment /finance/tax consultancy and business analytics
PEO3	To manage firms offering financial services
PEO4	To pursue research in commerce /Management
PEO5	To exercise professional skills and values

Program Specific Outcomes (PSOs)	
After the successful completion of M.Com program, the students are expected to	
PSO1	Undertake a research work with specializations
PSO2	Use software tools to carry out a specified financial analysis of a business application
PSO3	Apply the knowledge gained during the course of the program to solve the real time problems
PSO4	Meet the needs of industry 4.0
PSO5	Communicate effectively with professionals

Program Outcomes (POs)	
On successful completion of the M.Com program	
PO1	To ensure all round development of personality required for an executive
PO2	To build necessary skills concerning commercial theories and applications to business by using business analytics
PO3	To obtain practical knowledge in commercial activities by understanding training in commercial and industrial establishments
PO4	To develop a broad range of business skills and commercial knowledge, development of general and specific capabilities to meet the current and future expectations of business and industry
PO5	To enrich the necessary competencies and creativity to undertake entrepreneurship as a desirable and feasible career option

M.Com Curriculum

(For the students admitted during the academic year 2020 – 21 onwards)

Course Code	Title of the Course	Credits	Hours		Maximum Marks		
			Theory	Practical	CIA	ESE	Total
FIRST SEMESTER							
	Managerial Economics	4	3	-	25	75	100
	Corporate Accounting	4	3	-	25	75	100
	Information Technology in Business	4	3	-	25	75	100
	Marketing Management	4	3	-	25	75	100
	Elective-I :	4	3	-	25	75	100
SECOND SEMESTER							
	Business Research Methods	4	3	-	25	75	100
	Business Environment	4	3	-	25	75	100
	Applied Cost Accounting	4	3	-	25	75	100
	Human Resource Management	4	3	-	25	75	100
	Computer Applications: MS Office & Internet - Practical-I	4	3		40	60	100
	Elective-II :	4	3	-	25	75	100
THIRD SEMESTER							
	Direct Taxes	4	3	-	25	75	100
	Management Accounting	4	3	-	25	75	100
	Financial Management	4	3	-	25	75	100
	Internet & E-commerce	4	3	-	25	75	100
	Computer Applications: Tally - Practical-II	4	3		40	60	100
	Institutional Training (Report 40 marks and Viva 10 mks.)	2	-	-	50	-	50
	Elective-III :	4	3	-	25	75	100
FOURTH SEMESTER							
	Investment Management						
	International Business						
	Project Work & Viva-Voce (OR) in lieu of Project work, the following two papers may be opted.	8				200 (160 Marks – Project and 40 Marks Viva-Voce)	
	Principles and Practice of Insurance				25	75	100
	Industrial Law				25	75	100
	Elective-IV :				25	75	100
	Grand Total	90					2250

		Credits					
	ONLINE COURSE						
	*Offered by Swayam	2					
	VALUE ADDED COURSE						
1.	Soft Skill Development						
2.	Application of Software Packages for Research						
	CERTIFICATE COURSE						
1.	Entrepreneurship Development						
2.	Personnel Management and Industrial Relations						

Electives: List of Group of Elective Papers :

(Colleges can choose any one of the Group Papers as Electives) :

1. GROUP-A

1. Services Marketing
2. Marketing of Financial Services
3. Marketing of Health Services
4. Travel and Hospitality Services

2. GROUP-B

1. Financial Markets and Institutions
2. Indian Stock Exchanges
3. Futures and Options
4. Fundamental and Technical Analysis

3. GROUP-C

1. Principles of International Trade
2. Export and Import Procedure
3. Institutions Facilitating International Trade
4.India'sInternationalTrade

*In the core subjects, Number of Papers both theory and practical are included wherever applicable. Existing number of papers to be offered. However, the total credit and marks for core subjects Remains the same as stated above.

@ Includes 25 / 40% continuous internal assessment marks for theory and practical papers respectively.

III Semester :

1. Industrial/Institutional Training is to be made compulsory. The Student should take it up during the II Semester holidays and submit a report in the III Semester.
2. It carries 50 marks with 2 credits. Breakup for 50 marks (Only Internals)

Report 40 marks, Viva-voce 10 marks (Department level under the chairmanship of HOD)

3. Institution to be visited :

Banks, Insurance Companies, trading, manufacturing and service organizations, auditor office and other financial institutions.

4. Duration of the Visit : minimum of 21 days
5. Marks for the industrial training out of 50 should be sent to the University along with the III Semester Internal marks.

IV Semester:

1. Project Work and Viva-voce examination will be optional for the colleges. They can either opt for project or 2 theory papers in the IV semester which are given as below:

1. Principles and Practice of Insurance 2. Industrial Law

a. If Project is opted by the college 200 marks with 8 credits will be awarded. The break-up of marks will be as follows: Project work 160 marks (80%) and Viva voce exam 40 marks(20%).

External Examiners will be appointed by the University for conducting the viva-voce exam along with the concerned internal examiner. Monthly review of the project work has to be conducted by the guide along with the head of the department for a systematic progress of the work.

b. If the theory papers are opted instead of project work, the marks and credits will be given as other core papers i.e., CIA – 25 marks and semester exam-75 marks.

First Semester

Course code		MANAGERIAL ECONOMICS	L	T	P	C
Core/Elective/ Supportive		CORE	4			4
Pre-requisite		Basic understanding in economics terminologies	Syllabus Version		2020-21	

Course Objectives:

the main objectives of this course are to:

1. Familiarize the economic theories and law of variable proportion.
2. Make the students to understand the demand determinants.
3. Acquire knowledge in production function, cost and revenue and break even analysis.
4. Lay a foundation on economic models for demand & supply, pricing decisions.
5. Assess the effects of business cycle in a business and industrial sickness.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Acquire the knowledge about the nature and scope of Managerial Economics, demand analysis and law of variable proportion.	K1
2	Understand the role of Managerial Economist, goal of corporate enterprises, demand determinants, types of market, national income and public finance.	K2
3	Have thorough knowledge about various types of costs and revenues and Break Even point analysis.	K3
4	Analyze role of managerial economist in demand analysis, cost and production analysis.	K4
5	Evaluate the value of enterprises, pricing and output decisions, business cycles and causes and remedies of industrial sickness	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Managerial Economics- Introduction	18- hours

Managerial Economics: Meaning-Nature-Scope- Role and Responsibilities of Managerial Economist – Goals of Corporate Enterprises: Profit maximization and wealth maximization.

Unit:2	Demand analysis	18- hours

Demand analysis - Demand determinants – Demand distinctions- Law of demand-exceptions to law of demand– Elasticity of demand – Types, methods – Applications- Factors influencing elasticity of demand – Demand forecasting: Meaning-methods-advantages & disadvantages.

Unit:3	Production Function	18- hours

Production Function- Laws of returns-Law of variable proportions-Assumptions and Significance-Limitations. Cost and Revenue – Fixed cost – Variable cost-Total, Average and Marginal cost- Long run and short run costs curves-Revenue curves-Average and marginal revenue-Break Even Analysis– Economies of scale of production.

Unit:4	**Pricing and output decisions -different market situations**	**18- hours**
Pricing and output decisions in different market situations – Monopoly and Duopoly competition -Perfect and Imperfect - Pricing policies.		
Unit:5	**Business cycle**	**18- hours**
Business cycle – National income-Monetary and Fiscal Policy – Public finance- Industrial Sickness – causes –remedies.		
Unit:6	**Contemporary Issues**	
Online assignment , Group discussion and seminar		
	Total Lecture hours	**90- hours**

Books for Study	
1	Managerial Economics : Maheswari and Varshney, 2012
2	Managerial Economics : P.L.Metha, 2000
3	Managerial Economics : G.S.Gupta, 2001
Books for Reference	
1	Managerial Economics : D.Gopalakrishnan, 2000
2	Managerial Economics : B.M.Wali & Kalkundrikar, 2010
3	Managerial Economics : S. Sankaran, 2011
Related Online Contents	
1	https://youtu.be/n47SQ64MhYw
2	https://www.yourarticlelibrary.com/notes/national-income-definition-concepts-and-methods-of-measuring-national-income/30801
3	www.icai.org
Course Designed By:	

Mapping with Programme Outcomes					
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**
CO1	S	L	M	S	M
CO2	M	S	S	S	M
CO3	M	S	S	S	S
CO4	S	S	S	S	M
CO5	L	M	S	S	S

*S-Strong; M-Medium; L-Low

Course code		CORPORATE ACCOUNTING	L	T	P	C
Core/Elective/ Supportive		CORE	4			4
Pre-requisite		Broad knowledge in accounting entries	Syllabus Version		2020 -21	

Course Objectives:

The main objectives of this course are to:

1. Develop the conceptual framework of corporate accounting.
2. Make the students to learn procedure relating to preparation of company final accounts.
3. Educatethestudentstoprepareofstatementofaffairsandliquidator'sfinalstatement.
4. Impart the knowledge relating to banking and insurance companies.
5. Offer the ideas about human resource accounting, government accounting, responsibility accounting and Environmental Accounting.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Comprehend the accounting provisions in the Companies Act relating to preparation of final accounts of a company.	K1
2	Prepare accounts relating to Amalgamation, Absorption and Alteration of share capital.	K2
3	Prepare accounts at the time of liquidation of companies.	K3
4	Develop the knowledge on various accounting aspects pertaining to valuation of shares, holding company accounts and banking and insurance companies	K3
5	Be familiar with the theoretical framework of Human resource accounting, Government accounting , Responsibility accounting and Environmental Accounting	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Final accounts	18- hours

Preparation of Final accounts – Schedule VI Part I and Part II – Profit prior to incorporation – Managerial remuneration – Issue of Bonus shares – Preparation of Balance Sheet.

Unit:2	Amalgamation	

Amalgamation as Merger- Amalgamation as Purchase -Calculation of Purchase Consideration under various methods - Accounting treatment as per AS 14 in the books of Transferee Company. Absorption (Excluding inter – company holdings) – External reconstruction – Internal reconstruction (Excluding scheme of reconstruction).

Unit:3	Liquidation of companies	18- hours

Liquidation of companies: Meaning-causes-PreparationofStatementofAffairsandLiquidator's final statement. Holding company accounts excluding inter-company holdings: Preparation of Consolidated Balance sheet only.

Unit:4	Banking companies and Insurance Companies	18- hours

Accounts of Banking companies and Insurance Companies (Life and Fire Insurance only).

Unit:5	**Inflation accounting**	**18- hours**
Inflation accounting – Human resource accounting-Principles of Government accounting – Responsibility accounting-Environmental Accounting.		
Unit:6	**Contemporary Issues**	
Online assignment , Group discussion and seminar		
	Total Lecture hours	**90- hours**

Books for Study

1	Arulanandam, M.A. and Raman, K.S., "Advanced Acco unting", Volume II, Sixth Edition, Himalaya Publishing House, New Delhi, 2016.
2	Gupta, R.L. and Radhasamy, M., "Advanced Accountancy", Volume II, Fifth Edition, Sultan Chand and Sons, New Delhi, 2015.
3	Iyengar, S.P., "Advanced Ac countancy", Volume II, Fifth Edition, Sultan Chand and Sons, New Delhi, 2015.

Books for Reference

1	Pillai, R.S.N. and Bagavathi, "Advanced Accountancy", Volume II, Third Edition, Sultan Chand and Sons, New Delhi, 2018.
2	Reddy T.S. and Murthy, A., "A dvanced Accounting", Vo lume II, Sixth Edition, Margham Publications, Chennai, 2016.
3	Shukla, M.C., Grewal, T.S. and Gupta, S.C., "Advanced Accountancy", Volume II, Sixth Edition, S. Chand and Company Ltd., New Delhi, 2017.

Related Online Contents

1	www.icai.org
2	www.icsi.edu
3	www.caclubindia.com

Course Designed By:

Mapping with Programme Outcomes					
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**
CO1	S	S	S	M	M
CO2	M	M	S	M	S
CO3	S	S	S	S	M
CO4	M	M	S	M	S
CO5	S	S	M	S	M

*S-Strong; M-Medium; L-Low

Course code		INFORMATION TECHNOLOGY IN BUSINESS	L	T	P	C
Core/Elective/ Supportive		CORE	4			4
Pre-requisite		Need awareness on information technology in business	Syllabus Version		2020 -21	

Course Objectives:

The main objectives of this course are to:

1. Introduce computer hardware to determine software compatibility.
2. Recall types of computer systems.
3. Learn forward data processing systems.
4. Discuss the components of computer system.
5. Impart knowledge about E-Commerce basic concepts, and security issues in the Internet.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Analyze the impact of hardware and software in business	K4
2	Discuss the internet security aspects and e-business communication modes	K1 & K2
3	Construct the knowledge in data processing	K2
4	Examine the key features of machine language and input, output devices	K5
5	Construct the knowledge in e-commerce application and current trends in e-commerce	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Hardware and software	18- hours

Hardware and software: Computer systems – Importance of Computers in business – data and information – Data processing, data storage and data retrieval capabilities – Computer applications in various areas of business – Computer related jobs in business – Recent developments in Hardware and software – Laptop, Pen drive, Mobile computing, Bluetooth, Wireless printers and accessories, Broadband.

Unit:2	Types of computer systems	18- hours

Types of computer systems – Micro, Mini, Mainframe and Super computers – Analog, Digital and Hybrid computers – Business and Scientific computer systems – First, Second, Third and Fourth Generation computers – Laptop and Note book computers.

Unit:3	Data processing systems	18- hours

Data processing systems- batch, online and real time system – Time-sharing – Multi programming and Multi processing systems – Networking – Local area and wide area networks.

Unit:4	Components of computer system	18- hours

Components of computer system – input, output and storage devices – Software – System software and application software programming languages – Machine languages – Assembly languages – High level languages – Flow chart – system flow chart and program flow charts – Steps in developing a computer program.

Unit:5	**E-commerce**	**18- hours**
E-commerce –Internet –Intranet - Extranet – email its uses and importance- World Wide Web sites .		
Unit:6	**Contemporary Issues**	
Online assignment , Group discussion and seminar		
	Total Lecture hours	**90- hours**

Books for study

1	Abiramidevi, K. and Alagammai, M., "E -Commerce", First Edition, Margham Publications, Chennai, 2016.
2	Bajaj, K.K., "E -Commerce – The Cutting Edge of Business" , Eighth Edition, Tata McGraw Hill Publications Pvt. Ltd., New Delhi. 2017.
3	Joseph, S.J.P.T., "E -Commerce – An Indian Perspective", Fourth Edition, PHI Learning Private Ltd., New Delhi, 2016

Books for Reference

1	Rajaraman, V., "Essentials of E -Commerce Technology", Second Edition, PHI Learning Private Ltd., New Delhi, 2017.
2	Sanjeev, S., "E -Commerce and Digital Models for Business", Third Edition, Arise Publishers and Distributors, New Delhi, 2015.
3	Saxena, K., "The E -Commerce Guide", Seco nd Edition, Global India Publications Pvt. Ltd., New Delhi, 2016

Related Online Contents

1	https://youtu.be/DuyAza5teu8
2	https://youtu.be/A1LwJRYiaho
3	https://youtu.be/nxSDHBdsWqA
4	https://youtu.be/2mXJy5ghX3g

Course Designed By:

Mapping with Programme Outcomes

Mapping with Programme Outcomes					
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**
CO1	S	S	M	M	M
CO2	S	M	M	M	S
CO3	M	S	S	S	L
CO4	S	M	M	M	S
CO5	M	S	S	S	L

*S-Strong; M-Medium; L-Low

Course code		MARKETING MANAGEMENT	L	T	P	C
Core/Elective/ Supportive		CORE	4			4
Pre-requisite		Basic understanding of the marketing and its applications in decision making is required	Syllabus Version		2020-21	

Course Objectives:

The main objectives of this course are to:

1. Enable students to classify types of marketing and modern marketing concept.
2. Equip the learners on product planning, appraise pricing system and promotion in the markets.
3. Explain the various kinds of channels of distribution and function of middle man.
4. Enhance practical applications on advertising media.
5. Introduce the agricultural marketing and clarifying market research Vs marketing research

Expected Course Outcomes:

On the successful completion of the course, students will be able to:

1	Recollect the marketing concepts, types and modern marketing concept	K1
2	Identify the macro and micro environments of a market and buyer behavior	K2
3	Locate the different types of products, product line, product mix and pricing decisions	K3
4	Evaluate the important of channels of distribution and promotional mix	K4
5	Acquire the knowledge to market the agricultural produce and about marketing research.	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Introduction	18- hours

Market: Meaning-types. Marketing: Meaning-types (Relationship marketing-Digital marketing-Augmented marketing-Retail marketing-Event marketing-Green marketing- Demarketing-Remarketing-Social marketing -International Marketing)-importance marketing mix (4P's). Modern marketing concept: factors influencing the marketing concept – marketing system-marketing functions. Marketing Management: Meaning -Definition - Nature- Principles – Importance- Functions -Problems - Differences between Sales Management and Marketing Management.

Unit:2	Product	18- hours

Product: Meaning- features-classifications- Product policies: Product Planning and Development-Product Line-Product Mix-Product Branding-Product Packaging – Labeling: meaning-features-importance. Product Life Cycle: Meaning-importance-PLC Chart. Pricing: Objectives-kinds of pricing policy-factors influencing the pricing policy.

Unit:3	Channels of Distribution	18- hours

Channels of Distribution – Meaning - Basic channels of distribution - Selection of a suitable

channel - Factors Influencing Selection of a channel-middlemen in distribution-Kinds – Functions - Elimination of Middlemen - Arguments in favour of and against.		
Unit:4	**Promotional Mix**	**18- hours**
Promotional Mix: Meaning-importance. Advertising: Meaning-methods-media-advertising copy-qualities of a good advertising copy-evaluation of advertisements. Personal selling: Meaning-importance-duties-qualities of an effective salesman. Sales promotion: Meaning & importance.		
Unit:5	**Marketing Information and Research**	**18- hours**
Marketing Information and Research: Meaning-Importance- Components of marketing research-Market Research Vs Marketing Research. Advantages of Marketing Research. Agricultural Marketing: meaning-features –defects. Regulated market: meaning-features & importance.		
Unit:6	**Contemporary Issues**	
Online assignment , Group discussion and seminar		
	Total Lecture hours	**90- hours**

Books for study	
1	Marketing Management : C.B.Mamoria and Joshi, 2016
2	Marketing management : Dr.C.B. Gupta and Dr.N. Rajan Nair, 2018
3	Marketing Management : Philip Kotler, 2017
Books for Reference	
1	Modern Marketing : R.S.N.Pillai & Bagavathi, 2016
2	Fundamentals of Marketing : William J.Stanton, 2017
3	Marketing Management : Dr. Radha, 2018
Related Online Contents	
1	www.managementstudyguide.com
2	www.yourarticlelibrary.com
3	www.pondiuni.edu.in
Course Designed By:	

Mapping with Programme Outcomes					
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**
CO1	S	M	M	M	M
CO2	S	S	M	M	M
CO3	M	M	S	S	L
CO4	M	M	M	M	M
CO5	S	S	S	S	L

*S-Strong; M-Medium; L-Low

Second Semester

Course code	BUSINESS RESEARCH METHODS	L	T	P	C
Core/Elective/ Supportive	CORE	4			4
Pre-requisite	Basic research knowledge and application of statistical tools is needed	Syllabus Version		2020-21	

Course Objectives:

the main objectives of this course are to:

1. Develop an idea about various research designs and techniques
2. Understand sampling techniques of research and its applications
3. Emphasis the learners in application of appropriate tools in research
4. Make the learners to understand the significance of testing of hypothesis
5. Lay a foundation to become familiar in style of preparing research report.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Apply a range of quantitative and / or qualitative research techniques to business and management problems / issues	K1 & K2
2	Organize and conduct research in a more appropriate sampling method manner.	K2
3	Develop necessary critical thinking skills in order to evaluate different statistical tools used in research.	K2 & K3
4	Demonstrate knowledge and understanding of data analysis and interpretation in relation to the research process by testing hypothesis.	K4
5	Write a research report and thesis.	K5 & K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Introduction	18- hours

Business Research: Meaning – Scope - Significance –challenges-types-process– Qualities a good researcher –Ethics in research- Research problems: Identification-Selection. Hypothesis – Research design.

Unit:2	Sampling design	18- hours

Sampling design: Meaning-Sampling frame- Sampling and Non-Sampling Errors- Type I Error and Type II Error in research- Level of Significance- determination of sample size Methods of sampling. Census: merits and demerits - Census Vs Sampling. Pilot study –Pre test. Primary and Secondary data: Meaning-sources-merits-demerits. Methods of data collection: Observation-Interview-Survey- Email-Schedule and Questionnaire. Levels of measurement: Nominal-Ordinal- Interval Ratio. Scaling techniques: Rating scales- Attitude scales – Likert's Scale - Guttsman scale-Thurston scale.

Unit:3	Statistical tools	18- hours

Statistical tools used in research-Measures of Central tendency – Standard deviation – Correlation – simple, partial and multiple correlation –Auto correlation – Regression models – Ordinary Least Square methods – Multiple regression.

Unit:4	Testing of Hypothesis	18- hours

Testing of Hypothesis- Parametric test: 'Z' t est: Test for differences between proportions, difference between Means of two samples-differences between two Standard deviations and

testing the correlation co-efficient -'t' test: To Test the significant of the mea n of a random sample, Difference between means of two samples (Independent and paired Samples) testing. Anova: One way ANOVA -Two way ANOVA. Non-parametric test: Chi-square Test - Mann Whitney'U'Test - Kruskalwallis'H'Test.		
Unit:5	**Interpretation**	**18- hours**
Interpretation: Meaning-Significance. Report writing: Significance – Layout of research report-mechanics of writing a Research report – Precautions to be followed in Research Report- Types of reports- footnotes and bibliography writing; checking plagiarism.		
Unit:6	**Contemporary Issues**	
Online assignment , Group discussion and seminar		
	Total Lecture hours	**90- hours**

Books for study	
1	Agarwal, B.L., "Basic Statistics", Sixth Edition, New Age International Publishers, New Delhi, 2015.
2	Deepak C. and Neena, S., "Research Methodolog y: Concepts and Cases", Second Edition, Vikas Publishing House Pvt. Ltd., New Delhi, 2018.
3	Gupta.S.P.,"StatisticalMethods",Forty -fifth Edition, Sultan Chand and Sons, New Delhi, 2016.
Books for Reference	
1	Murry, R., Spiegel, Larry, J. and Stephens, "Theory and Problems of Statistics", Third Edition, Tata McGraw – Hill Publishing Co. Ltd., New Delhi, 2017.
2	Panneerselvam,R.,"ResearchMethodology",EleventhEdition,PHILearningPvt.Ltd.,Ne w Delhi, 2016.
3	Pillai, R.S.N. and Bhagavathi.,"S tatistics - TheoryandPractice",NinthEdition, S.Chand & Co. Ltd., New Delhi, 2017
Related Online Contents	
1	www.managementstudyguide.com
2	www.pondiuni.edu.in.
3	www.modares.ac.ir
4	https://youtu.be/qV-WoquC4dA
Course Designed By:	

Mapping with Programme Outcomes					
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**
CO1	S	S	S	M	M
CO2	S	M	S	M	S
CO3	S	S	M	S	M
CO4	M	S	S	M	S
CO5	S	S	M	S	M

*S-Strong; M-Medium; L-Low

Course code		BUSINESS ENVIRONMENT	L	T	P	C
Core/Elective/Supportive		CORE	4			4
Pre-requisite		An understanding about ways in which humans interact with the natural world	Syllabus Version		2020 -21	

Course Objectives:

The main objectives of this course are to:

1. Promote basic understanding on the concepts of business environment and that enable them to realize the impact of environment on business.
2. Educate learners about the impact of environmental changes in business.
3. Provide an insight into the ethical aspects in all areas of business.
4. Make students to aware on environmental problems related to business and commerce.
5. Lay of knowledge about the Indian and international business environment.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Inspect the internal and external environment pertaining to business	K2
2	Evaluate the industry policy and regulations	K5
3	Analyze the policies and legal provisions of the government	K4
4	Examine the impact of financial environment and labour legislation in india	K1
5	Asses the concepts of ethics in business and the relevant fields	K3

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	**Introduction**	**18- hours**

Concept of Business Environment- Significance-Types of Environment-External and Internal – Inter - Relationship between economic and non-economic environment Impact of environment on business and Strategic Decisions - Culture and business - Social Responsibilities of Business.

Unit:2	**Industrial Policies and Regulations**	**18- hours**

Industrial Policies and Regulations - New Industrial Policy 2013 - Public, Private, Joint and Co-operative Sectors - Privatization and Disinvestment - Ways of Privatization - Benefits and Arguments against Privatization - Privatization in India.

Unit:3	**Economic Systems**	**18- hours**

Economic Systems – Meaning – Characteristics -Types of economic systems Capitalism-Socialism-Mixed economy - Economic planning - Nature, Scope and Significance of Economic Planning in India - Achievements and Failures of Economic Planning.

Unit:4	**Technological environment**	**18- hours**

Technological environment-Factors Governing Technological Environment Management of Technology - Patents and Trademarks - Financial Institution in India. IFCI-ICICI-IDBI-IIBI-SIDBI-SFC's.

Unit:5	**Globalisation**	**18- hours**

Globalisation - Meaning and Dimensions - Features of Current Globalisation - Essential Conditions for Globalization - Globalisation of Indian business - Foreign Direct Investment - Concept, Advantages, Disadvantages and Determinants- India's pol icy towards FDI - Multinational Corporation – Meaning - Merits and Demerits - ControloverMNC's - MNC in India.

Unit:6	**Contemporary Issues**	

Online assignment , Group discussion and seminar

	Total Lecture hours	**90- hours**

Books for study		
1	Cherunilam, F., "Business Environment", Twentieth Revised Edition, Himalaya Publishing House, Mumbai, 2015.	
2	Aswathappa, K., "Essentials of Business Environment", Ninth Edition, Himalaya Publishing House, Mumbai, 2018.	
3	Francis,C.,"GlobalEcono my and Business Environment",SecondEdition,Himalaya Publishing House, Mumbai, 2015	
Books for Reference		
1	Misra, N., "Economic Environment of Business", First Edition, Himalaya Publications, Mumbai, 2017.	
2	Paul, J., "Business Environment", Fourth Edition, Tata McGraw Hill Publications, New Delhi, 2015.	
3	Premavathy, N., "Business Environment", Third Edition, Sri Vishnu Publication, Chennai, 2016.	
Related Online Contents		
1	https://youtu.be/D2U5c4WvST4	
2	https://youtu.be/1N09pOdTcXU	
3	https://youtu.be/ZNejKHKSbl0	
4	https://youtu.be/9EseSEgLsvU	
Course Designed By:		

Mapping with Programme Outcomes					
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**
CO1	S	M	M	M	M
CO2	S	S	S	S	L
CO3	S	M	M	M	M
CO4	S	S	M	M	M
CO5	M	M	S	S	L

*S-Strong; M-Medium; L-Low

Course code	APPLIED COST ACCOUNTING	L	T	P	C
Core/Elective/ Supportive	CORE	4			4
Pre-requisite	Broad knowledge in cost accounting	Syllabus Version		2020-21	

Course Objectives:

The main objectives of this course are to:
1. Provide knowledge of cost accounting and cost sheet.
2. Make learners to understand the costing aspects on material and labour.
3. Equip advanced knowledge on costs and their impact on value creation in the manufacturing and non- manufacturing companies.
4. Make clear about overhead and process costing methods.
5. Enrich the various methods relating to job, service, batch and contract costing

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Define the classification of cost, methods and techniques	K1
2	Evaluate cost sheet and material and labour control	K5
3	Differentiate cost control and cost reduction tools and techniques	K6
4	Solve labour, overhead and process costing methods	K2
5	Gain hands on experience in reconciliation of cost and financial accounting.	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Introduction	18- hours

Cost Accounting Meaning-definitions-nature- significance – Differences between financial and cost accounting – Installation of Costing system – Characteristics of ideal costing system – Methods of costing – Classification of costs- Preparation of cost sheet – Tender and Quotation.

Unit:2	Material	18- hours

Material: Need for material control- tools used for material control-types of purchase of material. Stores control: Fixing different levels of Materials – EOQ. Bin Card: Meaning & Importance- Bin Card Vs Stores Ledger. Preparation of Stores Ledger by using FIFO- LIFO –Simple average method-Weighted average method.

Labour: Time rate- Piece rate-points to be noted in wage fixation. Incentives: meaning & importance- Taylor's Differential piece rate - Halsey and Rowan plans. Labour turnover: meaning- Causes – effects- methods of reduction of labour turnover. Overtime and Idle time: meaning-causes-techniques of Control.

Unit:3	Overheads	18- hours

Overheads: Meaning – Classification – Allocation-Absorption- Apportionment of Overheads – Methods of Re-apportionment (Simultaneous equation and Repeated distribution method only)- Computation of Machine Hour Rate-Over absorption and Under absorption – Meaning and causes.

Unit:4	Process Costing	18- hours
Process Costing – Normal loss – Abnormal loss- Abnormal Gain – Inter Process profit- Equivalent production-Joint product and By-product costing. Contract costing: Treatment of profit on Incomplete Contract- Cost plus contract- Escalation Clause.		
Unit:5	**Operating Costing**	**18- hours**
Operating Costing: Meaning-objectives-Ascertainment of cost. Reconciliation of cost and financial accounts-need for reconciliation –reasons for disagreement in profit.		
Unit:6	**Contemporary Issues**	
Online assignment , Group discussion and seminar		
	Total Lecture hours	**90- hours**

	Books for study
1	Jain, S.P., Narang, K.L. and Agarwal, S.,"AdvancedCostAccounting(CostManagement)", Eleventh Edition, Kalyani Publishers, Ludhiana, 2015.
2	Madegowda, J., "Cost Management", First Edition, Himalaya Publishing House, Mumbai, 2015.
3	Mitra, J.K., "Advanced Cost Accounting" , First Edition, New Age International Publishers Pvt. Ltd., New Delhi, 2016.
	Books for Reference
1	Pillai. R.S.N. and Bagavathi. V., "Cost Accounting", Seventh Edition, Sultan Chand and Sons, New Delhi, 2016.
2	Reddy, T.S. and Reddy, Y.H.P., "Cost an d Management Accounting", Fourth Edition, Margham Publishers, Chennai, 2017.
3	Saxena, V.K. and Vashist. C.D., "Cost and Management Accounting", Fourth Edition, Sultan Chand and Sons, New Delhi, 2016
	Related Online Contents
1	https://youtu.be/Xlpb3KDcDC0
2	https://youtu.be/GJGklGGbCzw
3	https://youtu.be/6MJfGwijL6I
4	https://youtu.be/-Z4TiyJtyEA
Course Designed By:	

Mapping with Programme Outcomes					
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**
CO1	S	S	M	M	M
CO2	M	M	S	S	L
CO3	M	M	S	S	L
CO4	S	S	S	S	L
CO5	S	M	M	M	M

*S-Strong; M-Medium; L-Low

Course code		HUMAN RESOURCES MANAGEMENT	L	T	P	C
Core/Elective/ Supportive		CORE	4			4
Pre-requisite		Understanding of effective interpersonal skills of employees in the organization	Syllabus Version		2020-21	

Course Objectives:

The main objectives of this course are to:

The main objectives of this course are to:

1. Explain the importance of human resources and their effective management in organizations.
2. Demonstrate a basic understanding of different tools used in forecasting and planning human resource needs.
3. Outline the current theory and practice of recruitment and selection.
4. Describe appropriate implementation, monitoring and assessment procedures of training.
5. Explain the importance of the performance management system in enhancing employee performance.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Explain human resources planning, dealing with surplus and deficient man power	K1
2	Describe the meanings of terminology and tools used in managing employees effectively	K2
3	Prepare a selection strategy for a specific job	K2 & K3
4	Gain knowledge in develop, analyze and apply advanced training strategies and specifications for the delivery of training programs	K4
5	Compare and contrast the different techniques involved in the performance appraisal process.	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Introduction	18- hours

Human Resource Management –Definition-Objectives-Functions-Evolution and growth of HRM-Qualities of good HR Manager-Changing roles of a HR Manager-Problems and challenges of a HR Manager-Planning the Human resources-Objectives –Steps in human resources planning –Dealing with surplus and deficient man power-job analysis-Job description-Job specification.

Unit:2	Recruitment and Selection	18- hours

Recruitment and Selection-Procurement process-Placement-Induction-Objectives of recruitment sources-Internal and External recruitment –Application blank-Testing-Interviews-Types.

Unit:3	Training and Development	18- hours

Training and Development-Principles of Training-Assessment of training needs-On the Job training methods-Off the job training methods-Evolution of effectiveness of training programmes.

Unit:4	**Discipline**	**18- hours**
Discipline-Meaning-Causes of indiscipline-Acts of indiscipline-Procedure for Disciplinary Action-Organization conflict-Conflict in organizational behaviours-Individual aspect of conflict Organizational conflict-Management of conflict.		
Unit:5	**Performance Appraisal**	**18- hours**
Performance Appraisal-Process-Methods of performance appraisal-Appraisal counseling Motivation process-Theories of Motivation-Managing grievances and discipline.		
Unit:6	**Contemporary Issues**	
Online assignment , Group discussion and seminar		
	Total Lecture hours	**90- hours**

Books for study

1	Aswathappa, K., "Human Resource Management", Eighth Edition, Tata McGraw Hill Education India Pvt. Ltd., New Delhi, 2017.
2	Subbarao P.,"Esse ntials of HumanResourceManagementandIndustrialRelations",Sixth Edition,Himalaya Publishing House, Mumbai, 2015
3	PrasadL.M.,"HumanResourceManagement",SultanChand&Sons,NewDelhi,2015 .

Books for Reference

1	Rao,V.S.P.,"HumanRes ource Management", Second Edition, Cengage Publications, 2015.
2	Pattanayak, B., "Human Resource Management", Second Edition, PHI Learning Pvt., Ltd., Mumbai, 2013.
3	Henderson, I., "Human Resource Manag ement", Second Edition, University Press Pvt. Ltd., Hyderabad, 2016.

Related Online Contents

1	https://youtu.be/AHMSNngmwYk
2	https://youtu.be/eNcxtSF2-Ac
3	https://youtu.be/o2mi8zhnhYM
4	https://youtu.be/SYwUfCCMHvk

Course Designed By:

Mapping with Programme Outcomes

Cos	PO1	PO2	PO3	PO4	PO5
CO1	S	S	S	M	M
CO2	M	M	S	M	S
CO3	S	S	S	S	M
CO4	M	M	S	M	S
CO5	S	S	M	S	M

*S-Strong; M-Medium; L-Low

Course code		COMPUTER APPLICATIONS PRACTICALS I MS Office and Internet	L	T	P	C
Core/Elective/ Supportive		CORE			4	4
Pre-requisite		Hands on training in MS Office is required	Syllabus Version		2020-21	

MS WORD

1. Type a cost audit report and perform the following:
A) Right alignments, Bold the important words.
B) Center align the second paragraph and perform italics for the important words.
C) Change third paragraph into two column paragraph.
D) Insert page numbers at the bottom, Insert date, time and heading in the header section.
E) Character spacing for side headings.

2. Prepare a questionnaire (minimum 15 questions) in your area of specialization Marketing/ Finance / HR.
- Usebullets&numbering
- CheckthespellingaccordingtoBritishEnglish
- Usethesaurustoreplaceaword
- Usedropcap

3. Type a sample research report and perform the following functions:
Insert symbols, caption, page break, justification of text, indent a text, rearrange paragraphs using mouse.

4. Type a published horizontal form of a balance sheet of a company and perform the following
- Tables: - insert, delete rows &columns
- Borders: -top & bottom only
- Autoformattables
- Changebackground s to differentiate heading of the table with others.

5. Identify an organization and prepare an organizational chart prevailing in that concern.
6. Prepare a table showing Employees Performance appraisal system, using the following for:
- Useautoforma t for tables.
- Changethetextcoloroftheheadings.
- Sorttheemployeesinthealphabeticalorder.
- Linktheemployees'addressusinghyperlink.
- Mergetwocells.

7. Using three column format type any 5 differences between Cost, Financial and Management Accounting.
8. Prepare a diagrammatic representation showing the Elements of Cost, using auto shapes.
9. Prepare an attractive Advertisement to create a demand for a particular Accounting Package by using 3D effects, Clip arts, Stars, Banners in Auto shapes.
10. Perform mail merge operation for sending notice to share holders for AGM.

11. Type your curriculum vitae and perform Template and indent the text.

M.S.POWER POINT

1. Draw diagrams of different packing labels in MS Word and display it in PowerPoint.
2. Create contents of a sample research report on your area of specialization.
3. Prepare a PowerPoint Presentation for the following:

a) Product Advertisement, b)Company Advertisement

Using hyperlink to all slides, different animation effect for text & pictures, fully automatic – timing – 2 Minutes

MS EXCEL

1. Prepare a table showing the customer details of a bank. [Customer name, Nature of account, Account Number, Address, E-Mail ID] and Perform the following:

- Deletethecustomerwhoha d closed the A/c.
- Insertarowinbetweenthe1st&&2ndcustomer.
- InsertacolumninbetweenAddress&EmailIDandNameitasTelephoneNumber
- Hidethecolumn‘Address’

2. Create a table of a company with the following details [Name of the employees, Name of the department, Net Pay, City Address]

- Copytheproductiondepartmentemployeesinsheetnumber2.
- CopythedetailsoftheemployeesstayinginCoimbatorecity.
- Findthepersonwhoisgettingamaximumsalary.

3. Prepare payroll for the employees (10 employees) of an organization and count the number of employees who are getting the salary of more than Rs.10, 000/-. Calculate with the following components (DA, HRA, CCA, EPF, LIC) as a percentage of basic pay and sum the total basic pay, net pay of all employees.

4. Prepare an excel sheet under the main heading of assets & liabilities and perform the following:

- SelectacolumnandchangethenumberformattoRupeesandpaise(0.00)format.
- Changeaparticularrangeofcellsfontasbold
- Selectarowandhideit.
- Useshortcutkeyandgotosheet3andselectacell.
- Prepareabincardfortheissues&pur chases made during the particular month use Auto format wizard.

5. Prepare a demand forecasting for a new Product Life Cycle of a given product, collect the details regarding sales, and profit of a product for the past 10years, fit it in a chart, and present it in power point.

6. Prepare a trend analysis of a product whose year and sales figures are given (10 years).

7. Prepare a break-even chart using Chart Wizard.

8. Collect EPS and Market price of the shares, NAV and Turn over of 10 different companies from the leading business dailies and enter in a table. Calculate the price earnings per share. Copy it into

different sheets in the name of each company use copying, count function and statistical functions.

9. Find the correlation between demand and price of a product.

10. Create a table showing the following: 1) Years (Minimum 5 years) 2) Profit 3) Depreciation 4) Profit after Depreciation 5) Tax 6) Profit after tax 7) Cash Inflows 8) Cumulative cash inflows Of aprojectandfindit's **Payback Period**.12.PrepareFinalaccountsofabankingcompany'sinthe new format using excel.

M.S.ACCESS

1. Create a student's database Find Total, Average, and Display list where average is greater than 60% and Retrieve the students according to the highest marks.
2. Collect and Create a database for maintaining the address of the policy holders of an Insurance company with the following constraints:

I. Policy Number should be the primary key
II. Name should not be empty
III. Maintain at least 10 records
IV. Retrieve the addresses of female policyholders whose residence is at Coimbatore

3. Create a student's database using design view for students mark details: a) Add at least 10 records. b) Sort the names in alphabetical order. c) Find Total and Average d) Display list where total is greater than 350. e) Display list where marks are greater than 90 and total greater than 400. f) Apply Sort option to display records. g) Generate reports by using the above queries.
4. Collect pamphlets for 5 products and create product strategies in the MS ACCESS.
5. Using Access ledger Accounts Wizard, prepare the following accounts in the books of State Bank of India, Coimbatore.

A) GAIL Limited B) Indian Oil Corporation C) Reliance Petro Chemicals

April 1 Opening balance in current account

A/C No	**Name of the A/C holder**	**Rs.**
CA 250	Gail LTD	30000
CA 251	Indian Oil Corporation	40000
CA 252	Reliance Petro Chemicals	25000

April 2. Deposits received form GAIL Ltd Rs. 4000
April 2. With drawls by Indian Oil Corpn. Rs. 10000
April 3 Reliance Petro Chemicals deposited a cheque issued by Hindustan oils Rs.10000.
April 3. GAIL issued a cheque for Rs 20,000 to Indian Oil Corpn.
April 4. IOC encashed the Cheque
April 4. Insurance premium paid for Rs. 4000 as per standing instruction given by IOC.
April 5. Reliance Petro Chemicals withdrawn Rs. 5000
April 6. GAIL issued a cheque to IOC Rs.4000.
April 6. IOC deposited the cheque issued by GAIL.
April 7. Reliance deposited a cheque received from XYZ traders Rs. 5000.
You are required to prepare the general ledger of the bank and View individual accounts, Create accounts summary.

INTERNET

1. Connect the Internet through a browser.
2. Create an E-mail ID.
3. Send an email to your friend and check mail inbox and other facilities in your mailbox.
4. Learn how to use search engines and list some of your search results.

5. Visit any of the stock exchanges website and collect the information regarding share price.

6. Visit www.rbi.com and download some information.

7. Visit the website of Commerce & Industries Ministry and collect some information about the trade policy.
8. Visit a website for an online marketing and write the procedures to place an order

9. Discussion forums and E-groups.

10. Visit the website of National Informatics Centre, Go to the ministry of Finance and

Collect information regarding Economic Survey & Union Budget.

Third Semester

Course code		DIRECT TAXES	L	T	P	C
Core/Elective/ Supportive		CORE	4			4
Pre-requisite		Basic understanding of income tax practice and law	Syllabus Version		2020-21	

Course Objectives:

The main objectives of this course are to enable the students to

1. Enable students to understand computation of taxable income of various entities.
2. Acquaint the students with the concepts of tax administration.
3. Impart deep knowledge about the latest provisions of income tax act.
4. Develop application and analytical skill of the provisions of income tax law for income tax planning and management.
5. Educate learners about procedure for assessment and e-filing.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Calculate computation of taxable income under various sources.	K4& K5
2	Recollect the concept of tax administration and practices.	K1 & k2
3	Acquire the knowledge about latest provision of income tax act.	K3
4	Gain expert knowledge regarding the legitimate way of Tax Planning and Management.	K6
5	Able to pertain procedure for assessment and e-filing.	K3 & k6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	**Introduction**	**18- hours**

Income Tax Act–Definition–Income–Agricultural Income–Assessee – Previous year– Assessment year–Residential status–Scope of Total Income–Capital and Revenue–Receipts and Expenditure– Exempted Incomes.

Unit:2	**Computation of Income**	**18- hours**

Computation of Income from Salaries and Income from House property.

Unit:3		**18- hours**

Computation of Profits and Gains of Business or profession – Calculation of Capital gain.

Unit:4	**Computation of Income from other sources**	**18- hours**

Computation of Income from other sources – Set-Off and Carry Forward of Losses - Deduction from Gross Total Income – Assessment of Individuals.

Unit:5	**Income Tax Authorities**	**18- hours**

Income Tax Authorities – Procedure for Assessment – Collection of Tax – Procedure of e-filing.

	Total Lecture hours	**90- hours**

Books for Study(s)

1	Direct Taxes - B.B. Lal
2	Income Tax Law & Practice - Gaur & Narang
3	Income Tax Law & Practice - Dr.H.C.Mehorotra

Books for References	
1	Tax Laws - Dingar Pagare
2	Income Tax - Bhagavathi Prasad
3	
Related Online Contents	
1	https://www.youtube.com/watch?v=2PTQ7zQ1hv8
2	https://www.youtube.com/watch?v=saOtcilW1FY
3	https://www.youtube.com/watch?v=Qgt8I3Pqg-Q
4	https://www.youtube.com/watch?v=lrEneCa7gFI
Course Designed By:	

Mapping with Programme Outcomes					
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**
CO1	S	S	S	S	M
CO2	S	M	S	S	S
CO3	M	S	M	M	M
CO4	S	M	S	S	M
CO5	S	S	M	S	M

*S-Strong; M-Medium; L-Low

Course code		MANAGEMENT ACCOUNTING	L	T	P	C
Core/Elective/ Supportive		CORE	4			4
Pre-requisite		Understand about basic terms and rules of management accounting.	Syllabus Version		2020-21	

Course Objectives:

The main objectives of this course are to enable the students to:

1. Know the concept and importance of management accounting.
2. Understand the use of accounting tools for generating information for managerial decision making
3. Understand various method and technique in managerial accounting.
4. Comprehend and practices the established techniques & methods in management accounting.
5. Lay on foundation for budgeting and budgetary control.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Recollect the concept and importance of management accounting.	K1&K2
2	Understand the role of managerial accounting in management decision making.	K2
3	Get familiarize various methods and technique of managerial accounting.	K3&K6
4	Analyze the method and technique of management accounting used for managerial decision making.	K4&K5
5	Able to prepare budget and budgetary control	K5&K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	**Introduction**	**18- hours**

Nature and scope of Management Accounting – Meaning – Nature – Scope – Functions – Objectives–Importance–Limitations–Distinction between Financial Accounting and Management Accounting–Relationship between cost and management Accounting–Tools and Techniques of Management Accounting – Meaning and Process of financial statement Analysis and Interpretation.

Unit:2	**Ratio Analysis Working & Capital Management**	**18- hours**

Ratio Analysis – Meaning – Advantages of Ratio Analysis – Limitations – Classification of Ratios – Profitability – Turnover Ratios – Long-term Financial position – Working Capital Management – Meaning of Working capital – Importance Determinants and Computation of Working capital – Forecast of working capital Requirements.

Unit:3	**Fund Flow statement & Cash Flow Statement**	**18- hours**

Fund Flow statement – Meaning and concept of Funds and Flow of Funds – Importance or uses of Funds Flow statements – Limitations – Schedule of changes in working capital – Preparation of Funds Flow statement – Cash Flow statement – Comparison between Fund Flow statement and Cash Flow statement – Uses of Cash Flow statement – Limitations – Preparation of Cash Flow Statement.

Unit:4	Marginal Costing	18- hours
Marginal Costing – Definition of Marginal cost and Marginal Costing – Salient features – Advantages of Marginal Costing – Limitations – Break-Even Analysis – Cost-volume-profit Analysis – Applications of Marginal costing for Business Decision making.		
Unit:5	**Budgeting & Budgetary control**	**18- hours**
Budgeting and Budgetary control – Meaning- Definition – Objectives of Budgetary control – Essentials of Budgetary control – Advantages – Limitations – Classification and Types of Budgets – Sales, Production, Cost of Production, Purchase and Flexible Budgets – Cash Budget Standard costing and variance Analysis (Material and Labour only) - Advantages and Limitations of standard costing		
	Total Lecture hours	**90- hours**

Books for Study	
1	Management Accounting - R.K.Sharma & Shashi k.Gupta
2	Management Accounting - Manmohan Goyal
3	Management Accounting -S.N.Maheswari

Books for References	
1	Management Accounting - T.S.Reddy & Y Hari Prasad Reddy
2	Management Accounting - Khan & Jain
3	Management Accounting - R.S.N.Pillai and Bagavathy

Related Online Contents	
1	https://www.youtube.com/watch?v=MXhg1brAEdo
2	https://www.youtube.com/watch?v=wRRM0EWGBYU
3	https://www.youtube.com/watch?v=70h_MSyLVbs
4	https://www.youtube.com/watch?v=HIjjUO0KHz0

Course Designed By:

Mapping with Programme Outcomes					
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**
CO1	S	S	S	S	S
CO2	S	M	S	M	L
CO3	S	S	S	M	S
CO4	S	S	S	M	M
CO5	M	M	S	M	M

*S-Strong; M-Medium; L-Low

Course code		FINANCIAL MANAGEMENT	L	T	P	C
Core/Elective/ Supportive		CORE	4			4
Pre-requisite		Understanding about Finance, management and source of finance.	Syllabus Version		2020-21	

Course Objectives:

The main objectives of this course are to enable the students to

1. Understand the concept and importance of financial management.
2. Identify various sources of long-term and short-term finance.
3. Understand various method and technique for calculating cost of capital.
4. Know different types leverages used by the organization.
5. Understand various dividend policies followed by organization.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Recollect the concept and importance of financial management.	K1
2	Have thorough knowledge about various sources of long-term and short-term finance.	K2
3	Examine various method and technique for calculating cost of capital.	K3
4	Examine different type leverage technique followed by a organization.	K4&K5
5	Expert knowledge about various dividend policies.	K5&K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	**Introduction**	**18- hours**

Financial Management - Meaning, Nature, scope and objectives–Role and functions of Financial Management–Financial decisions–relationship between Risk and Return–Sources of finance–Short-term and Long-term finance.

Unit:2	**Cost of Capital**	**18- hours**

Cost of Capital-Meaning and importance–Cost of Debt, Preference, Equity and Retained Earnings– Weighted Average Cost of capital–Capital budgeting–Techniques – ROI, Payback period and Discounted cash flow.

Unit:3	**Leverages**	**18- hours**

Leverages - Financial Leverage– Operating leverage–EBIT and EPS analysis–Theories of Capital Structure – Net income approach– Net operating income Approach. MM Hypothesis – Determinants of capital structure-Capitalization –Over and Under Capitalization- Merits and Demerits.

Unit:4	**Dividend Theories**	**18- hours**

DividendTheories:Walter'smodel – GordonandMM'smodels –Dividend policy -Forms of Dividend – Determinants of dividend policy.

Unit:5	**Working Capital Management**	**18- hours**

Working Capital Management–Cash Management–Receivables Management–Inventory Management – Determinants and Computation of Working Capital.

	Total Lecture hours	**90- hours**

Books for Study	
1	Financial Management - Prasanna Chandra
2	Financial Management - I.M.Pandey
3	Financial Management - Khan & Jain
Books for References	
1	Financial Management - S.N.Maheswari
2	Principles of Managerial Finance - L.J.Gitman and Dr.M.Manickam
3	Financial Management - Sharma and Shashi K.Gupta
Related Online Contents	
1	https://www.youtube.com/watch?v=SkygyiP28Ho
2	https://www.youtube.com/watch?v=_4i0jNDzCOE
3	https://www.youtube.com/watch?v=lEu8TrIjVV8
4	https://www.youtube.com/watch?v=wRRM0EWGBYU&t=6s
Course Designed By:	

Mapping with Programme Outcomes					
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**
CO1	S	M	L	M	S
CO2	S	S	S	M	M
CO3	S	S	S	M	M
CO4	S	S	S	M	L
CO5	S	M	S	M	L

*S-Strong; M-Medium; L-Low

Course code		INTERNET & E-COMMERCE	L	T	P	C
Core/Elective/ Supportive		core	4			4
Pre-requisite		Understand the role of internet and e-commerce in business	Syllabus Version		2020-21	

Course Objectives:

The main objectives of this course are to enable the students to

1. Equip the students with the emerging trends in business.
2. Introduce and explore the use of information technology in all aspects of business.
3. Understand the relevance of e- commerce in the present scenario.
4. Get familiarize with the students cyber world and cyber regulations.
5. Understand future internet business in global market.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Acquire the knowledge about various trends in business.	K1&k2
2	Explore information technology in every aspect of business.	K3
3	Examine the role of e- commerce in the present business scenario.	K3 & K4
4	Discuss about the cyber security and cyber regulation in global business world.	K5
5	Discuss future relevance internet business in global business world	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	**Introduction**	**18- hours**

History of Internet & www - Meaning of electronic commerce – advantages and disadvantages – Internet, intranet and extranet – Technology of internet commerce.

Unit:2	**Business Process**	**18- hours**

Business Process Re-Engineering, Electronic Data Interchange – Advantages, electronic payment systems – Internet banking – ATM

Unit:3	**Internet frauds**	**18- hours**

Internet frauds – Internet security – Cyber Crimes - Cyber laws – e-governance

Unit:4	**Issues relating to e-commerce**	**18- hours**

Issues relating to e-commerce – Technology – Wireless applications, Broad band – Online transactions – use of mobile phones – SMS alerts Unit – V Future of Internet commerce – Hardware and Software, Trends – Information and application trends.

Unit:5	**Future of Internet commerce**	**18- hours**

Future of Internet commerce – Hardware and Software, Trends – Information and application trends

	Total Lecture hours	**90- hours**

Books for Study

1. Designing Systems for Internet Commerce - G.Winfield Treese Lawrence C.Stewart
2. E-commerce The Cutting Edge of Business - Kamelesh K Bajaj, Debjani Nag
3. Frontiers of Electronic Commerce - Kalakota and Whinston

Books for References	
1	E Business Road Map for Success - Dr.Ravi Kalakota, Marcia Robinson
2	International Technology in Business - Parameshwaran
3	
Related Online Contents	
1	https://www.youtube.com/watch?v=ESgMUiqNnXU
2	https://www.youtube.com/watch?v=kXJX-_PeYU0
3	https://www.youtube.com/watch?v=5aNpnz8hhTs
4	https://www.youtube.com/watch?v=mZ7Vefzh2hU
Course Designed By:	

Mapping with Programme Outcomes					
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**
CO1	S	M	L	M	S
CO2	S	S	S	M	M
CO3	S	S	S	M	M
CO4	S	S	S	M	L
CO5	S	M	L	S	M

*S-Strong; M-Medium; L-Low

Course code		COMPUTER APPLICATIONS PRACTICALS-II : TALLY	L	T	P	C
Core/Elective/ Supportive					4	4
Pre-requisite		Hands on training in tally	Syllabus Version		2020-21	

TALLY

1. By using Tally - Create Voucher & ledger with adjustments
(Using F11 and F12 keys)

2. Prepare Trial Balance, Profit & Loss A/C and Balance Sheet
(With minimum of any 5 adjustments)

3. Prepare Inventory statement using (Calculate Inventory by using all methods)
a) FIFO
b) LIFO
c) Simple Average method
d) Weighted Average Method.

4. Prepare a fund flow statement and give your opinion.

5. Prepare a cash flow statement and present your view.

6. Analyze the performance of an organization by using Ratio
(Minimum 5 Ratios are essential).

Fourth Semester

Course code		INVESTMENT MANAGEMENT	L	T	P	C
Core/Elective/ Supportive		CORE	4			4
Pre-requisite		Basic understanding about investment and portfolio management.	Syllabus Version		2020 -21	

Course Objectives:

The main objectives of this course are to enable the students to

1. provide a general understanding about investment avenues and personal finance.
2. give a broader understanding about behavioral finance and how it equip to decide personal Investment.
3. understand the characteristics of securities markets and the instruments traded therein.
4. give boarder understanding about fundamental and technical analysis.
5. analyze risk and return of securities and manage portfolios of investment.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	recall various investment avenues and personal finance.	K1
2	understand securities markets, regulation and its instruments	K2
3	examine fundamental analysis of an organization using financial data information.	K3&K4
4	examine technical analysis of an organization using financial data information.	K3&K4
5	evaluate risk return of securities in different investment proposal.	K5&K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	**Introduction**	**18- hours**

Nature, Meaning and scope of Investment – Importance of Investment – Factors influencing Investment – Investment media – Features of investment Programme – Investment Process – Development of Financial system in India.

Unit:2	**Capital Market**	**18- hours**

Capital Market – New issue Market and stock exchange in India – B.S.E – N.S.E –Kinds of Trading activity – Listing of Securities – SEBI and its Role and guidelines.

Unit:3	**Fundamental and Technical Analysis**	**18- hours**

Fundamental and Technical Analysis – Security evaluation – Economic Analysis – Industry Analysis – Company Analysis – Technical Analysis – Portfolio Analysis.

Unit:4	**Investment Alternatives**	**18- hours**

Investment Alternatives – Investment in Bonds, Equity Shares, Preference shares, Government Securities – Mutual Funds – Real Estate – Gold – Silver – Provident fund – Unit Trust – The Post Office Savings Scheme – LIC.

Unit:5	**Portfolio Management**	**18- hours**

Portfolio Management – Nature, Scope – SEBI Guidelines to Portfolio Management – Port folio Investment Process – Elements of Portfolio Management – Portfolio Revision – Needs and Problems – Capital Asset Pricing Model(CAPM)

	Total Lecture hours	**90- hours**

Books for Study	
1	Investment Management - Francis Cherunilam
2	Investment Management - Khan and Jain
3	Investment Management - Preeti Singh
Books for References	
1	Investment Management - V.K.Bhalla
2	Investment Management - Dr. R.P. Rustogi
3	Investment Management - Radha and Panameshwaran
4	Investment Management - Avadhanl
Related Online Contents	
1	https://www.youtube.com/watch?v=jAOWf4Zef2E
2	https://www.youtube.com/watch?v=ope5Y3Mrsaw
3	https://www.youtube.com/watch?v=8TJQhQ2GZ0Y
4	https://www.youtube.com/watch?v=_fLlS50rf-k
Course Designed By:	

Mapping with Programme Outcomes					
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**
CO1	S	M	L	M	S
CO2	S	S	S	M	M
CO3	S	S	S	M	M
CO4	S	S	S	M	L
CO5	S	M	L	S	M

*S-Strong; M-Medium; L-Low

Course code		INTERNATIONAL BUSINESS	L	T	P	C
Core/Elective/ Supportive		CORE	4			4
Pre-requisite		Basic understanding about international business, trade and monetary organization.	Syllabus Version		2020-21	

Course Objectives:

The main objectives of this course are to enable the students to

1. Introduce the concept of international business.
2. Create awareness on the changes in the international business arena.
3. Understand the role of global financial markets and instrument.
4. Understand the functions of WTO, IMF and IBRD.
5. Give various theories of foreign exchange.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Recall the concept of international business.	K1
2	Understand the level of changes international business in global era.	K2
3	Examine the role of global financial markets and instrument.	K3
4	Evaluate various functions of WTO, IMF AND IBRD.	K5
5	Understand various theories of foreign exchange.	K4&K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	**Introduction**	**18- hours**

International Business - Meaning, Nature and Scope – Role of Foreign Trade in the Economic Development of India – Balance of payment in the context of Economic Growth Process – Trade balance – Current Account position and Capital Account position – Trends – Principles of BOP – Correction of adverse BOP.

Unit:2	**Euro Currency Market**	**18- hours**

Euro Currency Market – GATT – WTO, World Bank and IMF – Functions.

Unit:3	**Export marketing**	**18- hours**

Export marketing – Meaning – An overview of export marketing – differences between export marketing and domestic marketing – salient features and basic functions of export marketing – export barriers – Tariff and non-tariff – Export market analysis – Feasibility of market entry – Sources of market information – Assessing sale prospects.

Unit:4	**India's Imports and Exports**	**18- hours**

Composition and directionofIndia'simportsandexports – Past trends, present position and prospects – Project consultancy and Service exports – Trends, prospects and problems – Important documents used in foreign trade.

Unit:5	**Foreign exchange**	**18- hours**

Foreign exchange – Theories of foreign exchange – administration of foreign exchange – Rate determination – Factors influencing fluctuations in foreign exchange – Exchange control in India.

	Total Lecture hours	**90- hours**

Books for Study

1	International Marketing Management - Varshney & Bhattachariya
2	International Business - Francis Cherunilam 3. Export Marketing - T.A.S. Balagopal

3	Money, Banking & International Trade - M.L.Seth 5. International Business - T.N. Chhara and M.Biswas
Books for References	
1	International Business - Subba Rao
2	International Business - C.Jeevanandam 8. Export Marketing - Rothor and Rothor
3	International Trade & Export Management- Francis Cherunilam
Related Online Contents	
1	https://www.youtube.com/watch?v=wFd8EgVNIJE
2	https://www.youtube.com/watch?v=exxiy5B0oVw
3	https://www.youtube.com/watch?v=PWBsY9VBgzw
4	https://www.youtube.com/watch?v=nT7ATwmx1rU
Course Designed By:	

Mapping with Programme Outcomes					
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**
CO1	S	M	L	M	S
CO2	S	M	S	M	M
CO3	S	S	S	M	M
CO4	S	M	S	M	L
CO5	S	M	L	S	M

*S-Strong; M-Medium; L-Low

Course code		PRINCIPLES AND PRACTICE OF INSURANCE	L	T	P	C
Core/Elective/ Supportive		CORE	4			4
Pre-requisite		Basic understanding about the concept of insurance and types	Syllabus Version		2020-21	

Course Objectives:

The main objectives of this course are to enable the students to

1. Give a comprehensive understanding on the general principles and concepts of insurance, insurance practices and procedures
2. Understand various types insurance and its policies.
3. Create awareness among students on the legal framework of insurance
4. Acquired knowledge in health insurance, group insurance products and mediclaim policies
5. Aware about IRDA Regulation act 2002

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Expert knowledge about general principles and concepts of insurance, insurance practices and procedures	K1&k2
2	Examine various types of insurance and its functions.	K3&K4
3	Discuss about legal framework about different insurance policies.	K5
4	Awareness about differed health policies and group insurance	K5&K6
5	Examine IRDA regulation act.	K3

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	**Introduction**	**18- hours**

Introduction to Insurance – Meaning definition – Nature and functions – Types of Insurance – Role and importance of insurance - Principles of insurance classification of Insurance.

Unit:2	**Life Insurance**	**18- hours**

Life Insurance – Meaning – Kinds of policies and plans – Types of Life Insurance products – Annuity contacts and their uses – Role of L.I.C. of India

Unit:3	**Health Insurance**	**18- hours**

Health Insurance – Individual and group insurance products – Mediclaim policies – its benefits – Cattle Insurance – Personal accident insurance.

Unit:4	**General insurance**	**18- hours**

General insurance – Marine, Fire, Motor and Miscellaneous Insurance – Insurance marketing – Network and customer service.

Unit:5	**Claims and settlement**	**18- hours**

Claims and settlement – Legal aspects – Guidelines for settlement of claims – IRDA – Regulatory provisions under IRDA Act 1999 – Regulations 2000 – IRDA Regulations 2002 – Protection of policy holders interest.

	Total Lecture hours	**90- hours**

Books for Study

1 Insurance Principles and Practices : M.N.Mishra

2	Principles and Practices of Insurance : P.Periasamy
3	Insurance Fundamentals, Environment : B.S.Bodla, M.C.Garg & K.P.Singh and Procedures
Books for References	
1	Principles of Insurance : N. Premarathy
2	Fundamental of Life Insurance : Mishra
3	Insurance -Theory and Practice : Tripathy
4	Principles of Insurance and : Alka Mittal & S.L. Gupta Risk Management
Related Online Contents	
1	https://www.youtube.com/watch?v=HGoiC04YZ74
2	https://www.youtube.com/watch?v=YMwpHhC_FFY
3	https://www.youtube.com/watch?v=cs2FB5k-En4
4	https://www.youtube.com/watch?v=hapKVJuQh-U
Course Designed By:	

Mapping with Programme Outcomes					
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**
CO1	S	L	M	M	S
CO2	S	M	S	S	S
CO3	S	S	S	M	M
CO4	S	S	S	S	L
CO5	S	M	M	S	M

*S-Strong; M-Medium; L-Low

Course code		INDUSTRIAL LAW	L	T	P	C
Core/Elective/ Supportive		CORE	4			4
Pre-requisite		Basic understanding about business regulatory organization and their practice.	Syllabus Version		2020 -21	

Course Objectives:

The main objectives of this course are to enable the students to

1. Acquire updated knowledge and develop understanding of the regulatory framework for business
2. Gain expert knowledge about various industrial act.
3. Be aware of opportunities available in various legal compliances so as to enable them employable.
4. Impart knowledge about current practice of industrial law.
5. Train in calculation on payment of gratuity.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand updated regulatory framework followed by the companies.	K1&K2
2	Examine various type of industrial act and its functions.	K3
3	Analyze various opportunities available in various legal compliances so as to enable them employable.	K4&K5
4	Create knowledge about current practice of industrial law	K6
5	Able to calculate Payment of Gratuity.	K3&K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Factories Act	18- hours

Factories Act 1948 – Provisions relating to health, Safety, Welfare – Employment of Child and young men – Audit workers – Women workers – The Child Labour (Prohibition and Regulation) Act 1986 – Child Labour Rules 1988.

Unit:2	Trade Unions Act	18- hours

Trade Unions Act 1926 – Definition – Registration – Rights and Privileges – Cancellation of registration - Political fund – Industrial Disputes Act 1947 – Provisions relating to strike, lockout, retrenchment, Layoff and closure – Machinery to solve disputes.

Unit:3	Payment of Bonus Act	18- hours

Payment of Bonus Act 1965 – Meaning of Gross Profit – Computation of available and allocable surplus – Eligibility for bonus – Minimum and Maximum bonus – Exemption – Applicability of the act – Payment of wages Act 1936 – permissible deductions – Time and Mode of payment – Minimum wages Act 1948 – The Tamilnadu Payment of subsistence Allowance Act 1981.

Unit:4	Social security Legislation	18- hours

Social security Legislation – Employees State Insurance Act 1948 – Definition – Medical Board – Purpose for which funds can be spent – Benefits – Employees provident Funds and miscellaneous Provisions Act 1952 – Scope – Object – Application of the Act – Definition – Employees PF Scheme – Employees Family pension scheme and Fund – Workmen'scompensationAct1923 – Employer'sliabilityandNon -liability – Ways open to workmen for claiming compensation – Disability – Partial – Permanent – Total disablement – Accusation – Diseases.

Unit:5	Payment of Gratuity Act	18- hours
The Payment of Gratuity Act 1972 – Gratuity – Scope and coverage – Definition – Payment of Gratuity – Compulsory Insurance – Protection of Gratuity – Environmental Protection Act – The Industrial Employment (Standing order) Act 1946.		
	Total Lecture hours	90- hours

Books for Study	
1	Industrial Law – N.D.Kapoor
2	Factory Laws applicable to Tamilnadu - S.Vaidyanathan, Madras Book Agency.
3	Industrial Law - S.MShukla and R.N.Saxena
Books for References	
1	Business and Industrial law - P.P.S.Gogna
2	The Child labour (Protection & Regulation) - Madras Book Agency Act 1986
3	The Tamil Nadu Payment of Subsistence - Madras Book Agency Athourance Act 1981
4	The Environment (Protection) Act 1986 -Professional Book Publishers
5	Lab our Industrial Laws -P.K. Padhi
Related Online Contents	
1	https://www.youtube.com/watch?v=6snzm5cfCBw
2	https://www.youtube.com/watch?v=1HaIGN7lflo
3	https://www.youtube.com/watch?v=m1tmK2DQwj8
4	https://www.youtube.com/watch?v=BWYh5hosin4
Course Designed By:	

Mapping with Programme Outcomes					
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**
CO1	S	M	L	M	S
CO2	S	M	S	M	M
CO3	M	S	S	M	M
CO4	S	M	S	M	L
CO5	M	M	L	S	M

*S-Strong; M-Medium; L-Low

Elective

Course code		SERVICES MARKETING	L	T	P	C
Core/Elective/ Supportive		ELECTIVE	4			4
Pre-requisite		Basic knowledge on service Marketing	Syllabus Version		2020-21	

Course Objectives:

The main objectives of this course are to enable the students to:

1. Understand the concepts of service marketing management.
2. Learn about service marketing process for different types of products and services.
3. Understand the tools used by marketing managers in decision situations.
4. Know more about marketing mix for selected marketing services.
5. Get insight in service quality.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Examine the nature of services, and distinguish between products and services	K2
2	Identify the major elements needed to improve the marketing of services	K4
3	Develop an understanding of the roles of relationship marketing and customer service in adding value to the customer's perception of a service	K4
4	Examining the key marketing services and market segmentation	K4
5	Evaluating service quality, measurement, causes and problems, principles guiding improving of quality	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	**Introduction**	**18 hours**

Services: - Meaning and definition of services – Importance of services in Indian Environment – Classification of services – Characteristic features of services – Growth of the service sector – Economic policy on services – Differences between goods and services.

Unit:2	**Service Marketing**	**18 hours**

Service Marketing: - Concept – Significance – Customer's expectation in Service Marketing – Managing demand and supply in service business.

Unit:3	**Marketing Mix**	**18 hours**

Marketing Mix for Services – Marketing mix of selected services: - Personal care Marketing – Entertainment Marketing – Education Marketing – Communication Marketing – Electricity Marketing.

Unit:4	**Key Services**	**18- hours**

Key Services Marketing:- Banking services – Insurance services – Transport services – Tourism services – Hotel services- Consultancy services – Hospital services - Market segmentation.

Unit:5	Service Quality	16 hours
Service Quality: - Introduction – Measurement of Service Quality – Scope of Service Quality – Tools for achieving Service Quality – Causes of Service Quality – Problems – Principles guiding improving of service quality.		
Unit:6	**Contemporary Issue**	**2 hours**
Online assignment and online seminar		
	Total Lecture hours	**90 hours**

Books for Study	
1	Services Marketing - P.N. Reddy, H.R. Appannaiah, S. Anil Kumar, Nirmala. 2017
2	Services Marketing - S.M. Jha. 2010

Books for References	
1	Services Marketing - Dr.S. Shajahan. 2018
2	Services Marketing – Dr. P . Natarajan, 2019

Related Online Contents	
1	https://youtu.be/GhFpvXsmBXY
2	https://youtu.be/MnsVEKEqVoM

Course Designed By:

Mapping with Programme Outcomes					
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**
CO1	S	M	M	M	S
CO2	M	S	M	S	S
CO3	S	S	S	S	S
CO4	M	S	S	M	M
CO5	S	M	S	M	S

*S-Strong; M-Medium; L-Low

Course code	MARKETING OF FINANCIAL SERVICES	L	T	P	C
Core/Elective/ Supportive	ELECTIVE	4			4
Pre-requisite	Basic knowledge on Financial Services	Syllabus Version		2020-21	

Course Objectives:

The main objectives of this course are to enable the students to

1. Develop and expand knowledge in the overall marketing environment of financial service.
2. Understand the key issues and future trends that surround financial service marketing
3. Be familiar with the nature and scope of various types of financial services.
4. Know about various services related to insurances and its policies.
5. Referring various real estate industry about their classification and its mechanism.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand how marketing theory underpins the marketing of financial services	K2 & K6
2	Appreciate how recent thinking in marketing and services marketing applies to financial services	K3
3	Identify key issues for marketers of financial services	K4
4	Interpretation of various reforms and types of insurance services related to life insurance	K2
5	Discussing about the concepts based on real estate industry and their investment pattern in markets, securitization mechanism'smeritsin India.	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	**Financial Market in India**	**18 hours**

Financial Market in India – Financial Sector Reforms – Money Market – Capital Market – Bond Market – Types of Bonds.

Unit:2	**Stock Exchanges**	**18 hours**

Stock Exchanges – Objectives of NSE – Bombay Stock Exchange (BSE) –OTCEI.

Unit:3	**Plastic cards**	**18 hours**

Plastic cards – Types of Card – Current Trends in Credit Card Industry – Benefits of Plastic Cards – Disadvantages of Plastic Cards. Bancassurance – Benefits of Bancassurance – Distribution Channels in Bancassurance – Success of Bancassurance.

Unit:4	**Insurance Services**	**18- hours**

Insurance Services – Insurance Sector Reforms – Types of Insurance Companies – Need of Insurance – Types of Insurance Policies – Role of Life Insurance.

Unit:5	**Real Estate Industry**	**16 hours**

Real Estate Industry – Concept – Classification – Benefit of Real Estate Investment –

Developments in the Indian Real Estate Markets. Securitization: Mechanism of Securitization – Advantages of Securitization – Securitization in India		
Unit:6	**Contemporary Issue**	**2 hours**
Online assignment and online seminar		
	Total Lecture hours	**90 hours**

Books for Study	
1	Financial Services - Nalini Prava Tripathy, 2017
2	Financial Institutions and Markets - L.M.Bole 2010
3	
Books for References	
1	Financial Markets & Institutions - Frederic S. Mishkin 2017
2	Financial Markets & Institutions – Gorden and Natarajan, 2019
Related Online Contents	
1	https://youtu.be/MsPgw4FodgE
2	https://youtu.be/qSPDtYWIKVU
3	https://youtu.be/-qvrRRTBYAk
Course Designed By:	

Mapping with Programme Outcomes					
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**
CO1	M	S	S	M	M
CO2	S	M	S	M	S
CO3	M	S	S	S	M
CO4	M	M	S	S	S
CO5	S	S	M	M	S

*S-Strong; M-Medium; L-Low

Course code		MARKETING OF HEALTH SERVICES	L	T	P	C
Core/Elective/ Supportive		ELECTIVE	4			4
Pre-requisite		Basic knowledge on health services	Syllabus Version		2020-21	

Course Objectives:

The main objectives of this course are to enable the students to

1. Understand healthcare decision making
2. Develop skills in applying marketing strategies
3. Predict the environmental trends and opportunities in the health sector.
4. Comparing about various online health services related to clinical health care.
5. Assessing about various rights and legal aspects related to consumer protection and safety measures.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand and critically and effectively apply a number of tools available to marketing managers in healthcare sector	K2
2	Appreciate and exercise critical judgment in implementing the marketing strategies in the health care sector	K5
3	Analyse real-life situations and provide solutions to challenges	K6
4	Assessing various online critical judgment in implementing the marketing strategies in the health care sector	K5
5	Adapting various legal systems related to consumer rights & protection, promotionagenciesandfoodnutrition'sin india	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	Marketing plans for services	18 hours

Marketing plans for services: process, strategy formulation, resource allocation and monitoring services communications- customer focused services- service quality- SERV QUAL model.

Unit:2	Hospital services	18 hours

Hospital services- Selecting Health Care Professionals- Emerging trends in Medicare Marketing Medicare – Thrust areas for Medicare services.

Unit:3	Marketing Mix for Hospitals	18 hours

Marketing Mix for Hospitals- Product Mix- Promotion Mix- Price Mix- Place Mix Strategic Marketing for Hospitals.

Unit:4	Online Health Services	18 hours

Online Health Services- Organization of Online Health Care Business- On-line Marketing and On-line financial & clinical transaction.

Unit:5	**Legal system**	**16 hours**
Legal system: Consumer Rights & Protection, medicine safety rules- Food & Nutrition Security in India - Health Promotion Agencies.		
Unit:6	**Contemporary Issue**	**2 hours**
Online assignment and online seminar		
	Total Lecture hours	**90 hours**

Books for Study	
1	Marketing Health Services : Richard .K. Thomas
2	Service Marketing : S.M. Jha, 2017
3	Changing Trends in Health & Nutrition : Sujata, K.Dass, 2016
4	TeachingToday‟sHealth:DavidJ.AnsPaugh&GeneEzell,2015
Books for References	
1	Marketing for Health services: A framework for communications, evaluation & Total Quality Management : Rod Sheaff, 2015
2	Service Marketing : Helen Woodruffe, 2018
3	Service Marketing : P.K. Sinha & S.C. Sahoo, 2016
Related Online Contents	
1	www.courseerra.org
2	www.edx.org
Course Designed By:	

Mapping with Programme Outcomes					
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**
CO1	S	M	M	M	S
CO2	S	M	S	S	M
CO3	M	S	S	M	S
CO4	M	S	S	S	M
CO5	S	S	M	S	S

*S-Strong; M-Medium; L-Low

Course code		TRAVEL AND HOSPITALITY SERVICES	L	T	P	C
Core/Elective/ Supportive		ELECTIVE	4			4
Pre-requisite		Basic knowledge on hospitality services	Syllabus Version		2020-21	

Course Objectives:

The main objectives of this course are to enable the students to :

1. Understand the structure, nature and operating characteristics of the different sectors of the hospitality industry: food service, lodging and tourism
2. Obtain an appreciation of the various functions of management and their interrelationships with other key concerns of managers such as marketing, finance and human resource management
3. identify the role of managers in the hospitality industry and to highlight their principal responsibilities.
4. Make understand the classification of hotels by physical characteristics.
5. Summarize hospitality services and behavioural profile of users related to hotel marketing in indian perspective.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Apply relevant technology for the production and management of travel and hospitality experiences.	K1
2	Plan, lead, organize and control resources for effective and efficient travel and hospitality operations.	K2
3	Create, apply, and evaluate marketing strategies for travel and hospitality destinations and organizations.	K3
4	Discussing about various hospitality services and its classification of hotels by price level.	K6
5	Examining the various behavioural profile of users and related to hotel marketing in indian perspective.	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	Introduction	18 hours

Tourism: Concept- Nature of Tourism: Significance of Tourism – Classification – Tourism in India – Future of Tourism – Basic and Geographical Components of Tourism – Definitions of Tourist and Foreign Tourist – Elements of Tourism.

Unit:2	Tourist Destination	18 hours

India – A Tourist Destination- Tourism Marketing: the concept – users of Tourism Services – Product Planning and Development – Market Segmentation for Tourism – Marketing Information System for Tourism

Unit:3	Marketing Mix for Tourism	18 hours

Marketing Mix for Tourism – the Product Mix – Promotion Mix – Price Mix – the Place Mix – the people – Tourism Marketing in Indian Perspective.

Unit:4	**Hospitality Services**	**18- hours**
Hospitality Services: Hotels – classification of Hotels by physical characteristics – classification of hotels by price level.		
		16 hours
Unit:5	**Behavioural profile of users**	
Behavioural profile of users – Market Information System for Hotels – Product Planning and Development – Marketing Mix for Hotels – Hotel Marketing in Indian Perspective.		
Unit:6	**Contemporary Issue**	**2 hours**
Online assignment and online seminar		
	Total Lecture hours	**90 hours**

Books for Study	
1	Tourism and Travel Management – Bishwanath Ghosh, 2017
2	International Tourism Management – A.K. Bhatia, 2016
Books for References	
1	Services Marketing – S.M.Jha, 2014
2	Services Marketing – Dr. P. Natarajan,2019
Related Online Contents	
1	https://youtu.be/MsPgw4FodgE
2	https://youtu.be/qSPDtYWIKVU
3	https://youtu.be/-qvrRRTBYAk
Course Designed By:	

Mapping with Programme Outcomes					
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**
CO1	M	S	S	S	M
CO2	S	S	M	M	S
CO3	M	M	S	S	S
CO4	S	S	M	M	S
CO5	M	S	S	M	M

*S-Strong; M-Medium; L-Low

Course code		FINANCIAL MARKETS AND INSTITUTIONS	L	T	P	C
Core/Elective/ Supportive		ELECTIVE	4			4
Pre-requisite		Basic knowledge on financial market and Institutions	Syllabus Version		2020-21	

Course Objectives:

The main objectives of this course are to enable the students to

1. Understand the overview of Indian financial system and securities exchange board of India.
2. Acquire knowledge in banking, small savings, provident funds, unit trust of India and mutual funds.
3. Be aware on the non banking financial intermediaries and non bank statutory financial organizations.
4. Explain investment information and credit rating agency of India Limited.
5. Defining basic concepts related to financial institutions, money market institutions, and Investment Information and Credit Rating Agency of India Limited.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Describe Indian Financial System and securities exchange board of India.	K1&K2
2	Classify Small Savings, Provident Funds, Unit Trust of India and Mutual Funds.	K2
3	Explore activities of non-financial banking	K4
4	Assessing about various investment information and credit rating agency	K5
5	Identifying about various financial institutions and related to its working and functions	K3

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	**Introduction**	**18 hours**

Financial Markets – An Overview – Money Market – Call Money Market – Commercial Paper Market – Commercial Bill Market – Certificate of Deposit (CD) Market – Treasury Bill Market – Government or Gilt-edged Securities Market.

Unit:2	**Capital Market**	**18 hours**

Capital Market–An Overview – Capital Market Instruments – Capital Market Reforms – New Issue Market(NIM) – Dept Market – Foreign Exchange Market – Derivatives Market.

Unit:3	**Financial Services Institutions**	**18 hours**

Financial Services Institutions – Clearing corporation of India Limited (CCIL) – Credit Rating and Information Services of India Limited (CRISIL) – Discount and Finance House of India Limited (DFHIL).

Unit:4	**Investment Agency**	**18- hours**

Investment Information and Credit Rating Agency of India Limited (ICRA) – Over the Counter Exchange of India (OTCEI) – National Securities Depository Limited (NSDL) – Securities Trading Corporation of India Limited (STCI).

Unit:5	**Financial Institutions**	**16 hours**
Financial Institutions – Money Market Institutions – Capital Market Institutions – National Housing Bank–Functions and working – Export-Import(EXIM) Bank of India – NABARD.		
Unit:6	**Contemporary Issue**	**2 hours**
Online assignment and online seminar		
	Total Lecture hours	**90 hours**

Books for Study

1	Financial Institutions and Markets, L.M.Bhole, Tata McGraw – Hill Publishing Co.,Ltd.2017
2	Financial Instruments and Services, Nalini Prava Tripathy, Prentice Hall of India. 2016
3	Financial Markets and Institutions, S. Gurusamy, Vijay Nicole Imprints (P) Ltd., 2018

Books for References

1	Financial Services: M.Y.Khan, Tata Mc Graw-Hill Publishing Co., Ltd. 2016
2	Financial Services: Dr.D.Joseph Anbarasu & Others, Sultan Chand & Sons. 2015

Related Online Contents

1	https://youtu.be/pY3WeLwGT4s
2	https://youtu.be/MsPgw4FodgE

Course Designed By:

Mapping with Programme Outcomes

Cos	PO1	PO2	PO3	PO4	PO5
CO1	S	M	M	S	S
CO2	S	S	M	S	M
CO3	M	S	S	S	M
CO4	S	S	S	M	S
CO5	M	S	S	M	S

*S-Strong; M-Medium; L-Low

Course code		INDIAN STOCK EXCHANGES	L	T	P	C
Core/Elective/ Supportive		ELECTIVE	4			4
Pre-requisite		Basic knowledge on Indian stock exchange	Syllabus Version		2020 -21	

Course Objectives:

The main objectives of this course are to enable the students to

1. Understand the overview of Indian Financial System and securities exchange board of India.
2. Acquire knowledge in banking, Small Savings, Provident Funds, Unit Trust of India and Mutual Funds.
3. Be aware on different platforms for trading of securities of various companies.
4. Taught about E-commerce Act and Internet Stock Trading.
5. Summarize about various concepts related internet stock trading features and SEBI functions.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Describe Indian stock exchanges and securities exchange board of India.	K1&K2
2	Classify and regulate the trading transactions with proper rules and regulations.	K2
3	Explore activities of the investors of stock exchange	K4
4	Determining the securities contracts regulation act and important provisions related to SEBI functions workings.	K5
5	Examining various basic concepts of internet stock trading features	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	Introduction	18 hours

Stock Exchange-Meaning and Functions – World's Stock Exchanges – Indian Stock Exchanges-Origin and Growth - Organisation Structure-Mode of Organisation-Membership-Stock Exchange Traders – Stock Exchange Trading-Jobbers Vs. Brokers-Stock Exchange Dealings Trading of Securities.

Unit:2	Stock Exchange Regulatory Framework	18 hours

Stock Exchange Regulatory Framework-Under the SEBI Act, BSCC Act, Defence of India Rule, Capital Issues Control Act 1947, Securities Contract Act 1956, Securities Contracts Rules 1957 – Profile of Indian Stock Exchanges-BSE,NSE, etc., - Restructuring Indian Stock Exchanges-Demutualization.

Unit:3	Listing	18 hours

Listing-Meaning, Characteristics, Steps, Legal provisions, Benefits, Consequences of Non-Listing – Delisting – Insider Trading – Speculation- Speculation Vs. Gambling-Investors Vs Speculators – Investor Protection.

Unit:4	Securities Contracts	18- hours

The Securities Contracts (Regulation) Act, 1956-Important provisions – SEBI-Functions and working.

Unit:5	**Internet Stock Trading**	**16 hours**
Internet Stock Trading-Meaning and features-Current Scenario-Regulating Internet Stock Trading-IPOs on the Internet-e-IPO – E-commerce Act and Internet Stock Trading – Stock Index Futures.		
Unit:6	**Contemporary Issue**	**2 hours**
Online assignment and online seminar		
	Total Lecture hours	**90 hours**

Books for Study	
1	Financial Services and Markets: Dr.S.Gurusamy, Vijay Nicole Imprints (P) Ltd, 2017
2	Financial Services: M.Y.Khan, Tata Mc Graw-Hill Publishing Company Limited. 2016
3	Financial Services: Dr.D.Joseph Anbarasu & Others, Sultan Chand & Sons.2015
Books for References	
1	. Financial Institutions and Markets, L.M.Bhole, Tata McGraw – Hill Publishing Company Limited. 2016
2	Financial Institutions and Markets – Gorden and Nataraj, 2019
3	
Related Online Contents	
1	www.udemy.com
2	https://youtu.be/-MveJRIDdgU
3	www.nscindia.com
Course Designed By:	

Mapping with Programme Outcomes					
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**
CO1	M	S	S	M	S
CO2	M	S	S	M	M
CO3	S	S	M	M	S
CO4	M	M	S	S	M
CO5	M	M	S	S	M

*S-Strong; M-Medium; L-Low

Course code		FUTURES AND OPTIONS	L	T	P	C
Core/Elective/ Supportive		ELECTIVE	4			4
Pre-requisite		Basic knowledge on Derivate market	Syllabus Version		2020-21	

Course Objectives:

The main objectives of this course are to enable the students to:

1. Provide delegates with a good understanding of how the futures and options markets work, together with the functions of the clearing house.
2. Understand and valuate the basic derivatives and their applications in the financial risk management and investment.
3. Learn the theoretical underpinnings and the practical applications in real world of derivative securities.
4. Learn the theoretical underpinnings and the practical applications in real world of derivative securities.
5. Defining various types of pay off for buyer and identifying commodity markets

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Evaluating the concepts and market mechanics of different types of financial derivatives	K1&K2
2	Analyze how financial derivatives are valued, based on the no-arbitrage and risk-neutral valuation approaches	K4
3	Evaluate the instruments that can be used to implement risk management strategies.	K5
4	Discovering various pay off for buyer of futures and other options like hedging and speculation.	K4
5	Identifying the evolution of commodity markets and exchanges in india.	K3

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	**Introduction**	**18 hours**

Introduction to Derivatives – Definition of derivatives products – participants in derivatives market, economic forever of derivatives market.

Unit:2	**Index Derivatives**	**18 hours**

Index Derivatives – Index number – economic significance of index movements – types of Indices – desirable attributes of an index – Derivatives in Nifty and Sensex.

Unit:3	**Forward contracts**	**18 hours**

Forward contracts - Limitations of forward markets – futures – Distinction between Future and Forward contracts – Futures terminitory options – Options terminitory , Call options and Put option.

Unit:4	**Pay off for Buyer**	**18 hours**

Pay off for buyer (long futures) of futures – pay off for seller (short futures) of futures

– Hedging, speculation and arbitrage – Options pay off – pay off profit for buyer of call options – pay off profit for writer of call options. Hedging and speculation in options.		
Unit:5	**Commodity Markets**	**16 hours**
Evolution of Commodity Markets – Commodity markets in India – Newyork Mercentile Exchange- London Metal Exchange , Chicago Board of Trades –Tokyo Commodity Exchange, Chicago Mercantile Exchange.		
Unit:6	**Contemporary Issue**	**2 hours**
Online assignment and online seminar		
	Total Lecture hours	**90 hours**

Books for Study	
1	Financial Services and Markets : Dr.S.Gurusamy, Vijay Nicole Imprints (P) Ltd, 2016
2	Financial Services : M.Y.Khan, Tata Mc Graw-Hill Publishing Company Limited. 2017
3	.Financial Services : Dr.D.Joseph Anbarasu & Others, Sultan Chand & Sons. 2018
Books for References	
1	The Financial and Analysis of Capital : A.J. Merrett, Allen Ykes projects 2016
2	Financial Management : P.V. Kulkarni & B.G. Sathya Prasad 2019
3	Financial Management : M.Y. Khan & P.K. Jain 2018
Related Online Contents	
1	www.udemy.com
2	https://youtu.be/-MveJRIDdgU
3	www.nscindia.com
Course Designed By:	

Mapping with Programme Outcomes					
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**
CO1	M	S	S	M	M
CO2	S	S	M	M	M
CO3	M	S	S	M	S
CO4	M	M	S	S	M
CO5	M	S	S	S	S

*S-Strong; M-Medium; L-Low

Course code		FUNDAMENTAL AND TECHNICAL ANALYSIS	L	T	P	C
Core/Elective/Supportive		ELECTIVE	4			4
Pre-requisite		Basic knowledge on Derivate market	Syllabus Version		2020-21	

Course Objectives:

The main objectives of this course are to enable the students to

1. Discovering various concepts based on investments and security analysis.
2. Define technical analysis and contrast it with fundamental analysis.
3. Explain the logic behind technical analysis and company analysis.
4. Discuss the basic tools used by technical analysts.
5. Explaining the concepts based on moving averages, charts and its related functions.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Examining various concepts related to investment and approaches to security valuation.	K4
2	Outline the theoretical contexts of the fundamental and technical analysis	K2
3	Summarize work on the basic tools used by technical analysts	K5
4	Determining the various theory and technical analysis related meaning	K5
5	Evaluate securities by measuring the intrinsic value of stock	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	**Introduction**	**18 hours**

Investment - meaning – importance – security analysis – risk and return – various approaches to security valuation.

Unit:2	**Fundamentals analysis**	**18 hours**

Fundamentals analysis – meaning – Market analysis – Indices of NSE and BSE

Unit:3	**Industry analysis**	**18 hours**

Industry analysis – meaning – methods - Company analysis – meaning – methods.

Unit:4	**Technical analysis**	**18 hours**

Technical analysis – meaning – Dow Theory – Elliot Wave Theory

Unit:5	**Moving Averages**	**16 hours**

Moving Averages – Charts – MACD -relative strengths.

Unit:6	**Contemporary Issue**	**2 hours**

Online assignment and online seminar

	Total Lecture hours	**90 hours**

Books for Study	
1	Investment analysis and portfolio management : Reily. 2016
2	Portfolio management : S.K. Baura. 2013
3	Modern portfolio theory and investment analysis : Elton and Gurbar. 2018
Books for References	
1	Securities analysis and portfolio management : Fischer and Jordan 2018
2	Investment :Jack Clark Francis & Richard w.Taylor. 2015
3	Investment management :V.K.Bhalla. 2016
Related Online Contents	
1	www.tradingcompus.in
2	Learn.tradimo.com
3	www.mooclist.com
Course Designed By:	

Mapping with Programme Outcomes					
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**
CO1	S	S	S	M	M
CO2	M	M	S	M	M
CO3	M	S	S	M	S
CO4	M	M	S	S	M
CO5	S	S	M	S	M

*S-Strong; M-Medium; L-Low

Course code		PRINCIPLES OF INTERNATIONAL TRADE	L	T	P	C
Core/Elective/Supportive		ELECTIVE	4			4
Pre-requisite		Basic knowledge on International trade	Syllabus Version		2020-21	

Course Objectives:

The main objectives of this course are to enable the students to

1. Be familiar with the process of international and domestic trade procedures.
2. Form a base of policy framework in international trading with special emphasis on India.
3. Appraise them of the documentation procedures and its sanctity in international business.
4. To know more about international investments and factors affecting international investments
5. Summarize Multinational Corporation and about the Globalizations

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Remember the major models of international trade and be able to distinguish between them in terms of their assumptions and economic implications	K2
2	Apply the principle of comparative advantage and its formal expression and interpretation within different theoretical models	K3
3	Simplify form the theory of international trade as well as international trade policy and to demonstrate the relevance of the theory	K6
4	Discussing about various international investments and its limitations, factors affected by investment Indian companies	K6
5	Summarize concepts based on multinational corporation and about the globalizations	K2

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	Introduction	18 hours

The global Economy – Perspective on the theory of International Trade – The importance of International trade – Counter Trade – Forms of Counter Trade – Reasons for Growth of Counter Trade – Global Trade and Developing Countries.

Unit:2	International commodity Agreements	18 hours

International commodity Agreements – Quota agreements, Buffer stock Agreements – Carts – State Trading – Bilateral and Multilateral contracts. Gains from Trade – Terms of Trade – Factors influencing the terms of trade.

Unit:3	Tariff	18 hours

Tariff – Meaning – Tariffs, Taxes and Distortions – Imports Tariffs and Export Taxes – Export Subsidies – Arguments for free Trade – Arguments for protection – Demerits of protection – Trade barriers.

Unit:4	International Investments	18 hours

International Investments – Types of Foreign Investment – significance of Foreign Investments – Limitations and Dangerous of Foreign Capital – Factors affecting International Investment – Foreign Investment by Indian companies.

Unit:5	**Multinational Corporation**	**16 hours**
Multinational Corporation – Definition and Meaning – Importance of MNCS – benefits of MNCs – Criticism – Globalizations – Meaning – stages – Essential conditions for Globalization – Implications and Importance of Globalization – Benefits – Obstacles to Globalization in India – Factors favoring Globalization.		
Unit:6	**Contemporary Issue**	**2 hours**
Online assignment and online seminar		
	Total Lecture hours	**90 hours**

Books for Study	
1	International Trade – Theory and Evidence – By James R.Markusen, James R.Melvin, William H.Kaempfer & Keith E.Maskus. 2017
2	International Trade and Export Management – Francis Cherunilam 2015
Books for References	
1	International Business – Francis Cherunilam 2016
2	International Business – P. Natarajan 2019
3	
Related Online Contents	
1	http://epgp.inflibnet.ac.in.ahl.php?csrno=438 paper no and title P11. International business environment module number and title : MI.Globalization Module Tag: BSE_P11_M1
Course Designed By:	

Mapping with Programme Outcomes					
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**
CO1	M	S	S	M	S
CO2	S	S	M	M	S
CO3	M	S	S	M	M
CO4	M	S	S	M	S
CO5	S	S	M	M	S

*S-Strong; M-Medium; L-Low

Course code		EXPORT AND IMPORT PROCEDURE	L	T	P	C
Core/Elective/Supportive		ELECTIVE	4			4
Pre-requisite		Basic knowledge on EXIM	Syllabus Version		2020-21	

Course Objectives:

The main objectives of this course are to enable the students to

1. Learn the export and import trade procedure
2. Know the functions of export and import promotion council
3. Learn the role of export and import consultancy like excise procedures
4. Give an understanding about the export and import warehousing laws and their regulations
5. Learn the custom practice while importing and documentation related to rules and regulations

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Recall the export and import licensing procedure	K1
2	Understand the functions of export and import promotion council	K2
3	Analyse the knowledge about customs procedure	K4
4	Evaluate the trading procedure	K5
5	Apply the export and import procedure for the given project	K3

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	**Introduction**	**18 hours**

Exports – Recent measures to boost Country's Exports – Rules for successful exporting – Preliminaries for starting export business – Deemed exports and its benefits – Finance for Exports.

Unit:2	**Categories of exporters**	**18 hours**

Different Categories of exporters - Registration of Exports – Appointing Overseas agents – Obtaining an export license – Arranging finance for exports – Packing goods for exports – Marketing goods for export.

Unit:3	**Excise procedure**	**18 hours**

Excise procedure – Insuring goods against Marine risks – Preparing export documents – Institutional support for Exports – Compulsory quality control and pre-shipment Inspection – Labeling – Shipping and customs clearance of goods.

Unit:4	**Import Trade law in India**	**18 hours**

Import Trade law in India – Preliminaries for starting Import Business – Registration of Importers – arranging finance for Import – Arranging letter of Credit for Imports – Balance of Payments – Liberalization of Imports.

Unit:5	Retirement of Import Documents	16 hours
Retirement of Import Documents and RBI‟s directives for making payment for Imports – Customs clearance of Imported Goods and payments of customs Duty – Imports under special schemes.		
Unit:6	**Contemporary Issue**	**2 hours**
Online assignment and online seminar		
	Total Lecture hours	**90 hours**

Books for Study	
1	How to Export and How to Import – Nabhi publications 2017
2	Export management – P.K. Khurana 2018
3	Export Management – T.A.S. Balagobal 2019
Books for References	
1	A Guide on Export Policy, Procedure and Documentation – M.I.Mahajan – Snow white publications 2015
Related Online Contents	
1	https://youtu.be/O0zs6CH-IPc
2	https://youtu.be/RyiWM0s_7K0
3	https://youtu.be/gjP0mI7pkgk
Course Designed By:	

Mapping with Programme Outcomes					
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**
CO1	M	S	S	M	M
CO2	M	S	S	S	M
CO3	M	M	S	S	S
CO4	S	S	M	S	S
CO5	S	M	S	S	M

*S-Strong; M-Medium; L-Low

Course code		INSTITUTIONS FACILITATING INTERNATIONAL TRADE	L	T	P	C
Core/Elective/Supportive		ELECTIVE	4			4
Pre-requisite		Basic knowledge on international trade	Syllabus Version		2020-21	

Course Objectives:

The main objectives of this course are to enable the students to

1. Reduce global poverty and improve people's living conditions and standards through facilitating internal trade institutions
2. Provide information about export promotion in India and related to its agencies.
3. Support sustainable economic, social and institutional development on international trade
4. Promote regional cooperation and integration on facilitating the international trade.
5. Assessing various international monetary fund and international development fund and its features.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Demonstrate the role and significance of foreign trade and its markets with its impact on various sectors in the economy.	K3& K6
2	Understand the conditions of financial markets and its impact in facilitating the international trade	K4
3	Identifying the awareness on the changes in the composition as well as direction of foreign trade after international trade and know the causes and effects of deficits in the balance of payments in facilitating institutions.	K3
4	Examine international monetary fund and concepts its principles	K4
5	Identifying various concepts based on international development association and features	K3

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	**Export promotion in India**	**18 hours**

Export promotion in India-Department of Commerce- Functional divisions- Advisory bodies Commodity organizations-Export promotion councils (EPCs)- Commodity Boards-Autonomous bodies- Service Institutions and organizations-Government trading organizations-State trading corporations- Major STC"s in India - State export –Promotion agencies-Impediments in export promotion.

Unit:2	**Role of RBI in export finance**	**18 hours**

Role of RBI in export finance –Role of commercial banks-Small Industrial Development Bank of India (SIDBI) - Objectives-Schemes-Export and Import bank of India (EXIM) - Objectives-Functions-Export Credit Guarantee Corporation of India (ECGC) – Functions – Special functions of ECGC.

Unit:3	**WTO**	**18 hours**

World Trade Organization – GATT – Objectives-Evolution of WTO-Functions-Principles of WTO- Organization structure- WTO agreements-GATS-TRIMS-TRIPS-Objectives of IPRS benefits- Limitations-Procedure of dispute settlement –WTO and anti dumping measures Evaluation of WTO- drawbacks/Criticisms.

Unit:4	**IMF**	**18 hours**
International Monetary Fund (IMF)-Objectives- Organization and management- Resources Financing facilities- Conditions on borrowers- Special drawing rights-World Bank- Purpose Organization structure- Guiding principle- Leading programs.		
Unit:5	**IDA**	**16 hours**
International Development Association (IDA)-Objectives-Memberships – Loan assistance International Financial Corporation (IFC)- Objectives-Main features- Asian Development Bank(ADB)- Objectives-UNCTAD-Functions-Basic principles- International trade centre.		
Unit:6	**Contemporary Issue**	**2 hours**
Online assignment and online seminar		
	Total Lecture hours	**90 hours**

Books for Study	
1	International Business (Text & cases) : Francis cherunilam. 2016
2	International Marketing : Rakesh Mohan Joshi. 2015
3	International Business (Text & cases) : P. Sudha Rao 2016
Books for References	
1	International Business Environment : Francis cherunilam.2016
2	Export Marketing : Achaya and Jain. 2013
3	Export Marketing : B.S. Rathir & J.S. Rathir 2018
Related Online Contents	
1	NPTEL
2	SWAMYAM /MOOCs
Course Designed By:	

Mapping with Programme Outcomes					
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**
CO1	M	S	S	M	M
CO2	S	S	M	M	M
CO3	S	S	S	M	S
CO4	S	S	M	M	S
CO5	S	M	M	S	M

*S-Strong; M-Medium; L-Low

Course code		INDIA'S INTERNATIONAL TRADE	L	T	P	C
Core/Elective/Supportive		ELECTIVE	4			4
Pre-requisite		Basic knowledge on export market	Syllabus Version		2020-21	

Course Objectives:

The main objectives of this course are to enable the students to

1. Understand the international trade environment, strategies and management.
2. Apply concepts, principles and theories to international trade situations.
3. Be aware on the different thinking and viewpoints of diverse cultures.
4. Knowing more about import and export laws related to regulations.
5. Providing information about the global trades towards developing countries facing problems

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Identify the basic difference between inter-regional and international trade	K2 & K6
2	Apply the legal framework in the real life businesses related to foreign trade regulations in India.	K3
3	Evaluate India's international trade performance about its objectives and principles.	K5
4	Identifying various concepts related to imports related to law of protection their rights	K3
5	Discovering more about global trades and developing countries and major problems faced by sectors.	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	**Development of Foreign Trade Policy**	**18 hours**

Development of Foreign Trade Policy- Indians Foreign Trade since 1951- EXIM policy 1992-1997- Objectives –Features; 1997-2002 policy- Salient features; EXIM policy 2002-2007 - Features; Foreign Trade Policy 2004-2009 - Salient features.

Unit:2	**Legal frame work of India's foreign trade**	**18 hours**

Legal frame work of India's foreign trade –Foreign trade (Development and regulation) Act, 1992 – Foreign Trade Regulation Rules, 1993- Foreign Trade (Exemption from application of rules in certain cases) Order 1993 – Exchange control regulation in India.

Unit:3	**India's export trade**	**18 hours**

India's export trade – Historical prospective - Trends – Composition of export trade – Direction of exports of principal products – Export of services – Export promotion – Objectives – Promotion measures – EOUs, EPZs and SEZs.

Unit:4	**Imports**	**18- hours**

Imports- Technology import contract- Technology policy and environment – selection and transfer issues – Law of protection of intellectual Property rights, Patents and Trade marks

Unit:5	**Global trade and developing countries**	**16 hours**
Global trade and developing countries – Highlights of Indian's trade performances - Determinants of Export and Import – Major problems of India's export sector – Impact of recent changes in foreign trade policy.		
Unit:6	**Contemporary Issue**	**2 hours**
Online assignment and online seminar		
	Total Lecture hours	**90 hours**

Books for Study

1	International Trade and Export Management - Francis cherunilam. 2015
2	Export Management - T.A.S Balagopal 3. International Trade - M.L. Varma 2016

Books for References

1	Global Marketing Management : Keegan 2018

Related Online Contents

1	e-PG Pathshala : (Commerce : P.07, M.33)
2	NPTEL : https: //onlinecourses.nptel.ac.in

Course Designed By:

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	M	S	S	M	M
CO2	S	S	M	S	M
CO3	S	S	S	M	S
CO4	M	M	S	S	M
CO5	S	M	M	S	S

*S-Strong; M-Medium; L-Low

Course Designed By

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Annexure

BHARATHIAR UNIVERSITY

(A State University, Accredited with "A" Grade by NAAC and 13th Rank among Indian Universities by MHRD-NIRF)
Coimbatore - 641 046, India

M. Com

Program Code:

Affiliated Colleges Syllabus

(With effect from 2020 - 2021)

MISSION

ELIGIBILITY FOR ADMISSION TO THE COURSE

"A Graduate in Commerce, B.Com. (Computer Ap plications), B.Com. (Information Technology), B.Com. (Professional Accounting), B.Com. (Finance), B.Com. (Banking and Insurance), B.Com. (International Business), B.Com. (Accounting & Taxation), B.Com. (Cost & Management Accounting), B.Com. (E-Com), B.Com. (Financial System), B.Com. (Foreign Trade), BBA, BBM, BBA. (CA), BBM. (CA), B.Com. (Corporate Secretaryship with CA), BCS, BCS. (CA), B.Com. Co-operation"

DURATION OF THE COURSE

The course shall extend over a period of two years comprising four Semesters, with two Semesters per year.

COURSE OF STUDY AND SCHEME OF EXAMINATION

The course of study and scheme of examination for the M.Com course shall consist of the following:

M.Sc. Chemistry

Syllabus

AFFILIATED COLLEGES

Program Code: 32D

2020 – 2021 onwards

BHARATHIAR UNIVERSITY

(A State University, Accredited with "A" Grade by NAAC,
Ranked 13th among Indian Universities by MHRD-NIRF,
World Ranking : Times - 801-1000, Shanghai - 901-1000, URAP - 982)

Coimbatore - 641 046, Tamil Nadu, India

Program Educational Objectives (PEOs)	
The **M. Sc. Chemistry**program aims that the graduates will become successful professional by indicating rational and analytical thinking abilities. The graduates will be mould to communicate efficiently and work in interdisciplinary research, and demonstrate scientific leadership in academia and industries.	
PEO1	Studentsacquireknowledge on major fields in Chemistry namely Organic, Inorganic Physicaland AnalyticalChemistry which would make them to recognise the key role played by chemistry in all the fields.
PEO2	Be motivated to prepare the students to pursue higher studies and research to meet out academic demands of the country.
PEO3	Have knowledge in wide range of chemistry techniques and application in scientific and engineering domains.
PEO4	Students will be stimulated to interchange their knowledge and skills for developing independent writing in their field of study
PEO5	Students will be allowed to design their own research project based on their firm theoretical understanding.

Program Specific Outcomes (PSOs)	
After the successful completion of **M.Sc. Chemistry** program, the students are expected to	
PSO1	To build the firm foundation in the fundamentals and correlate the application with the current developments in chemistry.
PSO2	To emphasize on integrating various disciplines of Science and encourage for interdisciplinary approach.
PSO3	To make current awareness on social, economic, and environmental problems facing globally.
PSO4	To motivate the students to prepare for competitive examinations, job carriers and get trained for industrial entrepreneurship.
PSO5	To acquire problem solving capacity, interpretation of results with the use of sophisticated instruments and devises new preparation techniques.
PSO6	To get sufficient expertise in the operational knowledge and laboratory skills in all major fields of chemistry.

Program Outcomes (POs)	
On successful completion of the **M. Sc. Chemistry**program	
PO1	To equip students to meet current industrial need
PO2	To equip students with advanced knowledge and insight in general and green chemistry
PO3	To enhance professional skills in chemistry by providing hands on training to operate the sophisticated instruments.
PO4	Acquire the knowledge on the role of chemistry in industries and to become entrepreneur
PO5	To equip students with different types of problem solving related to academic and industrial domain
PO6	Demonstrate, solve and understanding of major concepts in all disciplines of chemistry.
PO7	Develop analytical skills and problem solving skills requiring application of chemical principles.
PO8	The students can understand the role of chemistry in day to day life.
PO9	Create an awareness of the impact of chemistry on the environment, society, and development outside the scientific community.
PO10	Acquires the ability to synthesis, separate and characterize compounds using laboratory and instrumentation techniques.

BHARATHIAR UNIVERSITY: COIMBATORE 641 046

M. Sc. Chemistry Curriculum (Affiliated Colleges)

(For the students admitted during the academic year 2020 – 21 onwards)

Course Code	Title of the Course	Credits	Hours		Maximum Marks		
			Theory	Practical	CIA	ESE	Total
FIRST SEMESTER							
Paper - I	Organic Chemistry - I	4	5		25	75	100
Paper - II	Inorganic Chemistry - I	4	5		25	75	100
Paper - III	Physical Chemistry - I	4	5		25	75	100
Elective - I	Elective - I	4	3		25	75	100
Practical - I	Organic Chemistry -I			4	---	--	---
Practical - II	Inorganic Chemistry -I			4	--	--	---
Practical - III	Physical Chemistry -I			4	--	--	--
Total		16	18	12	100	300	400
SECOND SEMESTER							
Paper - IV	Organic Chemistry - II	4	5		25	75	100
Paper - V	Physical Chemistry - II	4	5		25	75	100
Paper - VI	Physical Methods in Chemistry - I	4	5		25	75	100
Elective - II	Elective II	4	3		25	75	100
Practical - I	Organic Chemistry -I	4		4	40	60	100
Practical - II	Inorganic Chemistry -I	4		4	40	60	100
Practical - III	Physical Chemistry -I	4		4	40	60	100
Total		28	18	12	220	480	700
THIRD SEMESTER							
Paper - VII	Organic Chemistry - III	4	5		25	75	100
Paper - VIII	Physical Chemistry - III	4	5		25	75	100
Paper - IX	Physical Methods in Chemistry - II	4	5		25	75	100
Elective - III	Elective - III	4	3		25	75	100
Practical - IV	Organic Chemistry - II			4	---	--	---
Practical - V	Inorganic Chemistry - II			4	--	--	---
Practical - VI	Physical Chemistry - II			4	--	--	--
Total		16	18	12	100	300	400
FOURTH SEMESTER							
Paper - X	Inorganic Chemistry - II	4	5		25	75	100
Paper - XI	Physical Chemistry - IV	4	5		25	75	100
Paper - XII	Polymer Technology	4	5		25	75	100
Elective - IV	Option given to choose either Elective Paper (OR) Project Work	4	3		25	75	100*

Practical Viva		2			50		50
Practical - IV	Organic Chemistry - II	4		4	40	60	100
Practical - V	Inorganic Chemistry - II	4		4	40	60	100
Practical - VI	Physical Chemistry - II	4		4	40	60	100
Total		30	18	12	270	480	750
Grand Total		90			690	1560	2250

ELECTIVE COURSES OFFERED				
	Group A	**Group B**	**Group C**	**Group D**
Paper - I/ Sem - I	Dye Chemistry	Green Chemistry	Green Chemistry	Introduction to industry 4.0
Paper - II/ Sem - II	Water Pollution and Industrial Effluents treatment	Water Pollution and Industrial Effluents treatment	Advanced Polymeric materials	Artificial intelligence
Paper - III/ Sem - III	Organic Synthetic Methodology, Oxidation and Reduction	Medicinal Chemistry	Kinetics of polymerization	Data analytics using r
Paper - IV/ Sem – IV Theory paper (or) Project work	Industrial Chemistry	Applied Electro Chemistry	Pharmaceutical Chemistry	Dye chemistry

For Project report - 80%; Viva-voce - 20%


First Semester

Course code	Paper I	TITLE OF THE COURSE	L	T	P	C
Core		Organic Chemistry –I (Organic Reaction Mechanisms)	4	1	-	4
Pre-requisite		Chemical reactions & their mechanism	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are to:

1. To understand the concept of aromaticity, antiaromaticity and nonaromaticity in organic compounds.
2. To know about the basics of aromatic and aliphatic electrophilic substitution reactions and its mechanism.
3. To understand the reaction pathway of the aliphatic, aromatic nucleophilic substitution reactions.
4. To know about the basic concept of various elimination reactions and reactive intermediates.
5. To acquire basic knowledge about the free radical generation, stability and few typical free radical name reactions.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Acquired the knowledge to distinguish about benzenoid and non-benzenoid aromatic compounds and their ions.	K2
2	To understand the basics of aromatic and aliphatic electrophilic substitution reactions; aromatic and aliphatic electrophilic substitution.	K2
3	Understood and got-in depth knowledge about reaction mechanisms	K5
4	Motivated and enabled the students to comprehend the possible chemical routes by which new pharmaceutically important compounds can be synthesized.	K3
5	Recognized the difference between electrophilic and nucleophilic substitution reactions on aromatic and aliphatic compounds, and to know about various aspects of elimination and free radical reactions.	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1		**13-- hours**

1. Aromaticity: Criteria, Non-benzenoid aromatics – annulenes, Azulenes and ferrocenes (synthesis not necessary). Anti-aromatic and non-aromatic compounds –Homoaromaticity.

2. Kinetic and nonkinetic methods of study of reaction mechanisms - Primary and secondary kinetic isotopic effects, non-kinetic methods of study of reaction mechanism – study of intermediates, isotopic labeling, stereochemical studies and cross over experiments. Hammond's postulate. Kinetic and thermodynamic control.

3. Linear free energy relationship - Hammett equation (Taft equation not necessary).		
Unit:2		**13-- hours**
Aromatic electrophilic substitution reactions: Mechanism, orientation and reactivity in mono substituted benzene rings. Activating and deactivating groups. Ortho/para ratio- *ipso* attack, orientation in disubstituted benzene rings. Typical reactions such as Friedel Crafts alkylation & acylation, Reimer-Tiemann, Vilsmeier- Haack reaction, Hofmann-Martius and Jacobsons reaction. Aliphatic electrophilic substitution reactions, Mechanism of SE^1, SE^2 and SE^i reaction. Stork- enamine reaction.		
Unit:3		**13-- hours**
Aliphatic nucleophilic substitution reactions and mechanisms: SN1, SN2, SNi mechanisms. Factors affecting nucleephilic substitution reaction – nature of the substrate, solvent, nucleophile and leaving group. Neighbouring group participation. Ambident nucleophiles and ambident substrates. Stereochemistry of nucleophilic substitution reactions. Substitution at vinyl carbon allylic carbon and bridge head carbon. Typical substitution reactions such as Von Braun reaction, Claisen condensation and hydrolysis of esters. Aromatic Nucleophilic Substitution reactions: SN1, SNAr and Benzyne mechanisms (Ziegler alkylation and Chichibabin reaction).		
Unit:4		**12-- hours**
1. Elimination reactions: El, E2, Ei, E1CB mechanisms, Hoffman and Sayetzeff rules, Stereochemistry of elimination reactions. Elimination Vs substitution. Typical elimination reactions such as Chugaev reaction. Hofmann degradation. Cope elimination. 2. Carbenes and nitrenes — structure, generation and reactions.		
Unit:5		**12-- hours**
Free radical reactions: Introduction -structure, stability and geometry of free radicals. Generations of long lived and short lived free radicals. Characteristics of free radical reactions - substitutions - additions and eliminations, rearrangements. of free radicals. Typical reactions such as Sandmeyar, Gamberg, Pechmann, Ullman, Pschorr and Hunsdiecker reactions.		
Unit:6		**2 hours**
Seminar, Webinar, Workshop, Training		
	Total Lecture hours	**65-- hours**
Text Book(s)		
1. Jerry March, Advanced Organic Chemistry - Reactions, Mechanism and Structure, Wiley-		

Interscience, 1992.
2. I.L. Finar, Organic Chemistry, Volume I and II, The fundamental principles, Sixth edition, Pearson education Ltd., 2014.

Reference Books

1	R.T. Morrison and R.N. Boyd — Organic chemistry.
2	E.S. Gould — Mechanism and Structure in Organic Chemistry
3	E. R. Alexander — Principles of ionic organicreactions
4	Fieser and Fieser — Advanced organic chemistry
5	J.B. Hendrickson, D.J.Gram and G.S.Hammond — Organic Chemistry
6	P.J. Garrat — Aromaticity
7	Badger — Aromaticity and aromatic character
8	D.V. Banthorpe — Eliminations

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://nptel.ac.in/courses/104/101/104101115/
2	https://nptel.ac.in/courses/104/103/104103110/
3	https://nptel.ac.in/courses/104/101/104101005/

Mapping with Programme outcomes

POs / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	S	S	S	S	S	S	S	S
CO2	M	S	S	S	S	M	S	S	S	S
CO3	M	S	S	S	M	S	S	M	S	M
CO4	M	S	S	S	M	S	S	M	S	M
CO5	S	S	M	S	S	S	M	S	S	S

*S-Strong; M-Medium; L-Low

Course code	Paper –II	Inorganic Chemistry –I	L	T	P	C
Core		Inorganic Rings and Nuclear chemistry	4	1	0	4
Pre-requisite		Theories on Inorganic rings and nuclear chemistry	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are to:

1. On successful completion of the course the students should have an idea about the Inorganic clusters
2. Learn about the electricals, thermoelectric and magnetic properties of solids.
3. After finishing this course the students will get an exposure to nuclear chemistry.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	To understand the difference between rings, chains, cages, clusters and their types.	K2
2	To create a new borazines, phosphonitrilic compounds and sulphur-nitrogen ring compounds.	K6
3	To distinguish between stochiometry and non-stochiometry defects in solids.	K4
4	To acquire the knowledge in electrical, magnetic and thermoelectric properties of solids	K2
5	To analyse the concepts involved in nuclear chemistry, various types of nuclear reactionsand applications of radioactive isotopes.	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1 **12 hours**

Heterocatenation- Silicate minerals-classification-Ortho, Pyro, Cyclic, Chain, Sheet, Three dimensional silicates- Zeolites - Isopoly and Heteropoly anions – Cages – boranes – Carboranes - Clusters – Metal clusters – Classification - Carbonyl clusters–Low Nuclearity carbonyl clusters (Dinuclear, trinuclear and tetranuclear carbonyl clusters)-High Nuclearity carbonyl clusters- Wades rule-Halide type clusters ($[Re_2X_8]^{2-}$, $[Re_3X_9]$, $[W_4(OR)_{12}]$, $[Mo_6Cl_8]^{4+}$, $[Nb_6Cl_{12}]^{2+}$- Cheveral phases and naked clusters-Organometallic clusters

Unit:2 **12 hours**

Borazines – phosphonitrilic compounds – sulphur - nitrogen ring compounds. Metallic state – free electron and band theories – non stochiometry – point defects in solids – Schotty - Frenkel defects – linear and dislocation effects.

Unit:3 **12 hours**

Electrical properties of solids: Conductors and nonconductors Conductivity in pure metals and alloys– superconductors –Occurrence of superconductivity- BCS theory-Type-I and Type-II, and High temperature (HT) superconductors- Preparation of HT superconductors-critical temperature – persistent currents- Meissner effect. Magnetic properties-Diamagnetism, Paramagnetism and Ferromagnetism-

Langevin equation-- Carie's law -Zener's theory -Domain Structure. Thermoelectric properties – Phenomenon thermoelectricity- Seeback, Peltier and Thomson effects – Synthesis of Thermoelectric materials- Applications of thermoelectric materials.

Unit:4		**11 hours**

Nuclear chemistry-the nuclues-subatomic particles and their properties –Stability of nucleus- binding energy- N/P ratio, packing fraction-nuclear forces-Meson theory-Nuclear models-Liquid drop model-shell model-mode of radioactive decay-α,β,γ decay -Half life period-nuclear isomerism-internal conversion.

Unit:5		**11 hours**

Nuclear reactions (Capture, Particle-particle, spallation, photodisintegration)- Q-value, coulombic barrier, cross section. Fission, fusion & theories of fission- Pinch Effect-Atom bomb, Hydrogen and Plutonium bomb-Fissile and fertile isotopes– U^{233}, U^{235}, Pu^{239}, Th^{232} Radioactive series (U, Th, Ac and Np series)- Atomic power projects in India, stellar energy-Application of radio isotopes-hot atom chemistry.

Unit:6		**2 hours**

Seminar, Webinar, Workshop, Training

	Total Lecture hours	**60 hours**

Text book(s) :

1. *Advanced Inorganic Chemistry*Wiley Eastern (P), Ltd., 1968- F. A. Cotton and G. Wilkinson

2 S. Glasstone, Source book of atomic Energy, Van Nonstrand Co.,1969..

3. U.K.Malik, G.D.Tuli, and R.D. Madan, (2010). *Selected Topics in Inorganic Chemistry*, S. Chand Publication.

Reference Books

1	Gurdeep Raj. (2014). *Advanced Inorganic Chemistry*. 12th Edition. Geol Publishing House.
2	G.M.Arora : Solid State Chemistry
3	R.A.Alberty and Silbey : Solid State Chemistry
4	J.P.Srivastava : Elements of Solid State Physics
5	H.J. Arniker, Essentials of nuclear chemistry, 2nd edition Wiley easternCo.,1987.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://nptel.ac.in/courses/104/104/104104101/
2	https://nptel.ac.in/courses/104/108/104108098/
3	https://nptel.ac.in/courses/104/103/104103069/

Mapping with Programme outcomes

POs / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	M	S	S	S	S	M	S	S	S
CO2	M	S	S	M	S	S	S	S	S	M
CO3	M	M	S	M	M	S	M	M	S	M
CO4	S	M	S	S	S	S	M	S	S	S

*S-Strong; M-Medium; L-Low

Course code	PAPER III	Physical chemistry – I	L	T	P	C
Core		Group Theory, Nanoscience and Computers in Chemistry	4	1	0	4
Pre-requisite		Basic principle of group theory, nano chemistry and computers	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are to:

1. To give a thorough introduction to the study nanoscience.
2. To learn the theories and basics of group theory and its applications.
3. To study the concepts and fundamentals of computers in chemistry

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	To evaluate the symmetry elements present in the new molecules	K5
2	To understand the elementary ideas of group theory, point group,	K2
3	To evaluate the applications and relationship between Group theory and vibrational spectroscopy.	K5
4	To acquire the basic knowledge about nanoscience, nanofabrication, preparation and experimental techniques of nano materials and their characterisation.	K3
5	To implement the applications of computers in chemistry	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1 **12 hours**

Symmetry elements and symmetry operations: definition of identical and equivalent elements configurations- symmetry operations and symmetry elements-rotation-axis of symmetry- reflections symmetry planes-inversion center-improper rotations-rotation-reflection axis-effect of performing successive operations (commutative and non - commutative) - inverse operations. Groups and their basic Properties: Definition of a group -basic properties of a group-definition of Abelian group-isomorphic group-similarity transformation and classes-group multiplication tables-symmetry classification of molecules into point groups (Schoenflies symbol only) difference between point group and space group.

Unit:2 **12 hours**

Definition of reducible and irreducible representations-irreducible representations as orthogonal vectors-direct product rule-the great orthogonality theorem and its consequences (statement only proof not needed)-determinations of the characters for irreducible representation of $C_{2v}$and C_{3v} point groups using the orthogonality theorem. Calculation of character values of reducible representations per unshifted atom for each type of symmetry operation (Character table may be provided to the students)-

determination of total Cartesian representation—determination of direct sum from total Cartesian representation. Group theory and vibrational spectroscopy-vibrational modes as basis for group representation symmetry selection rules for IR and Raman spectra (mutual exclusion principle)-classification of vibrational modes. Application of group theory to chemical bonding

- Hybridizationschemesforσbondinginab $_4$ (Td) type (methane).
- Hybridizationschemesforπbondinginab $_3$ (D3h) type (borontrichloride).

Unit:3		**12 hours**

Nanoscience Definition of nanodimensional materials - Historical milestones - Properties at the nanoscale dimension- Physical basis and principles. 0D, 1D, 2D, 3D Structures. Graphite to buckyballs to Carbon nanotubes (CNT). Single and Multiwalled CNT. Synthesis of – Nanotubes (Laser abalation, Electric Arc method, Catalytic Chemical Vapour Deposition-Homogeneous and heterogeneous including mechanism of growth -tip based root based), Functionalisation of nanotubes,

Unit:4		**11 hours**

Nanowires and nanorods (Template assisted synthesis- Pressure, Electrochemical, PVD, CVD and MOCVD methods, Template filling - Melt and solution filling, Electrospinning). Nanofabrication: Top-down approach – Nanolithography - Photo, Deep ultraviolet, X-ray, Electron beam, and Ion beam lithography. Soft lithography - dip pen nanolithography. Bottom- up approach - STM/AFM atomic manipulation. Chemical method (Sol-gel synthesis).

Unit:5		**11 hours**

Introduction to computers and computation in chemistry Basic structure and functioning of computers with PC as an illustrative example- memory. I/O devices secondary storage-computer languages-operating systems with DOS as an example- introduction to UNIX and WINDOWS-data processing, principle of programming- algorithms and flow charts. Data entry devices for sequential processing-data entry devices for direct access processing-data communication concepts: LAN, WAN, e-mail internet concept; computer virus; soft ware packages.

Unit:6		**2 hours**
Seminar, Webinar, Workshop, Training		
	Total Lecture hours	**60 hours**

Text book(s) :

1. F.A.Cotton : Chemical applications of Group theory.
2. M. Orchin and H.H. Jaffe : Symmetry, Orbital and spectra
3. G. Davidson : Introductory Group theory for Chemists 4 K.V. Raman : Computers in Chemistry

Reference Books

1	E. Balagurusamy and Deenadialu : Introduction to Computer
2	E. Balagurusamy : Programming in C
3	Jackie Ying - Nanostructured Materials, Academic Press; 1st edition,2001.
4	Gregory L. Timp – Nanotechnology, American Institute of Physics; 1st edition,1998.
5	Guozhong Cao – Nano structures and nano materials: Synthesis, property esand Applications-Imperial College Press(2004)
5	K. Eric Drexler- Engines of Creation. AnchorBooks/Doubleday
6	K. Eric Drexler- Nanosystems: Molecular Machinery, Manufacturing, and Computation**.** John Wiley & Sons, Inc.: New York,2001.
7	Robert A. Freitas Jr.- Kinematic Self-Replicating Machines**.** LandesBioscience: Georgetown, TX.2004
8	J. Storrs Hall, Nanofuture: What's Next For Nanotechnology, Prometheus Books,2005
9	NorioTaniguchi- Nanotechnology - Oxford University Press,2005

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://nptel.ac.in/courses/104/101/104101094/
2	https://nptel.ac.in/courses/104/104/104104080/
3	https://nptel.ac.in/courses/118/104/118104008/

POs / CO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	M	S	S	M	M	S	S	S	M	M
CO2	M	S	S	S	S	S	S	S	S	S
CO3	S	M	S	S	M	S	M	S	S	M
CO4	S	S	S	M	M	S	S	S	M	M
CO5	S	M	S	S	M	S	M	S	S	M

*S-Strong; M-Medium; L-Low

Mapping with Programme outcomes


Second
Semester

Course code	PAPER IV	Organic Chemistry –II	L	T	P	C
Core		Molecular rearrangements and Photochemistry	4	1		4
Pre-requisite		Basic concept of molecular rearrangements and photochemistry	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are to:

1. To understand the versatile knowledge about the different addition reactions.
2. To understand the basic concept of conformational analysis and stereochemistry.
3. To know about the principles of molecular rearrangements and it is essentially involving in the namereactions.
4. To acquire basic knowledge about organic photochemistry.
5. On successful completion of the course the students have mastered in synthetically important name reactions in organic chemistry.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	To understand molecular rearrangements that play vital role in the synthesis of new organic molecules	K2
2	To acquire and comprehend knowledge in photochemistry and pericyclic reactions	K2
3	To interpret the mechanism of addition, oxidation and reduction reactions	K3
4	To understand and analyse the concepts, types and nomenclature instereoisomerism	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1		**13 hours**

Molecular rearrangements: Introduction - Wagner - Meerwein rearrangements, Neber rearrangement, Baeyer —Villiger rearrangement. Rearrangements to electron deficient nitrogen and oxygen — Dienone phenol, Favorski, Fries, Wolf, Benzidine and Stevens rearrangements. Chapman, Neber, ArdntEister Synthesis, Fischer Indole Synthesis, Schmidt rearrangement, Lossen and Wallach rearrangements.

Unit:2		**13 hours**

Concerted reactions: Conservation of orbital symmetry – Woodward-Hoffman rules. Electrocyclic reactions – 1,3-dienes and 1,3,5-trienes. Analysis of reaction stereochemistry using correlation diagrams method and FMO method. Cycloadditions [2+2] and [4+2] – analysis using correlation diagram and FMO methods. Sigmatropic rearrangements – FMO method- Cope and Claisen rearrangements, di-pi-methane rearrangement. PMO Approach.

Unit:3		**13 hours**

1. Organic photochemistry: Introductory theory of light absorption, photophysical processes – Jablonski diagram, energy transfer photochemical reaction of ketones - Norrish type I and type II reactions. Paterno – Buchi reaction and cis and trans isomerisation.

2. Oxidation and reductions: Mechanisms — oxidation of olefins, alcohols, glycols, ozonolysis and aromatization reaction and Sommelet reaction.

3. Reduction reactions and selectivity in reduction. Reduction reactions involving metalhydrides ($LiAlH_4$ and $NaBH_4$). Reduction of nitro compounds, carbonyl compounds and aromatic compounds. Typical reactions such as Birch reduction, Clemmensen, Wolff – Kishner and MPV reduction.

Unit:4		**12 hours**

1. Additon reactions: Electrophilic and nucleophilic. Addition to double and triple bonds — Hydration. hydroxylation. Michael addition. hydroboration and epoxidation.

2. Addition to carbonyl compounds: Mannich reaction, Dieckmann, Stobbe, Knovenagel, Darzen, Wittig, Thorpe and Benzoin reactions.

Unit:5		**12 hours**

Stereoisomerism – Configurational& conformational isomerism**:**

1. Introduction, definition & classification. Molecular representation (Fischer projection, Newmann projection formula). Basic requirements of optical isomerism. Optical isomerism exhibited by a few nitrogen and sulphur compounds – the role of nitrogen inversion.

2. Configurational nomenclature: D & L, R & S and E &Z (olefins) nomenclatures.

3. Conformations of acyclic and cyclic molecules: Configurations and conformations of cyclohexane, mono and disubstitutedcyclohexanes (conformational equilibrium – delta G). Configurations and conformations of fused polycyclic systems – decalin, perhydrophenanthrene, perhydroanthracene. Stereoselective and stereospecific reactions.

Unit:6		**2 hours**

Seminar, Webinar, Workshop, Training

	Total Lecture hours	**75 hours**

Text Book(s):

1. Jerry March : Advanced Organic Chemistry

2. Pant Dc Mayo : Molecular rearrangements vol. 1 &II

Reference Books

1	Jaffee and Drchin : Orbitalsymmetry
2	L.N.Ferguson — The modern structural theory of organic chemistry
3	Entwistle : Orbital symmetry correlations in organicchemistry
4	Lehr and Marchand : Orbitalsymmetry
5	Pant Dc Mayo : Molecular rearrangements vol. 1 &II

6	N.J. Turro : Molecularphotochemistry
7	C.H. Depuy and O.S. Chapman : Molecular reactions andphotochemistry
8	W.A. Pnyer : Introduction to free radicalchemistry
9	S.M.Munergee and S.P.Singh : Reaction mechanisms in organicchemistry
10	J.M. Coxon and B.Halton : Organicchemistry
11	C.A.Buntcn -- Nucleophilic substitution at the saturated carbon atom
12	J .Miller -— Atomic nucleophiclic substitution
13	C.K. lngold — Structure and mechanism in organic chemistry
14	K.Milson — Introduction to stereochemistry
15	E. L.Eliel — Stereochemistry of carbon compounds
16	Whitaker David — Stereochemistry
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://nptel.ac.in/courses/104/106/104106077/
2	https://nptel.ac.in/courses/104/101/104101005/
3	https://nptel.ac.in/courses/104/105/104105038/
4	https://nptel.ac.in/courses/104/105/104105086/

Mapping with Programme outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M	M	S	S	S	M	S	S	S	M
CO2	M	M	S	S	S	M	S	S	S	M
CO3	M	S	S	S	S	S	S	S	S	S
CO4	S	S	S	S	S	S	S	S	S	S

*S-Strong; M-Medium; L-Low

Course code	PAPER V	PHYSICAL CHEMISTRY – II	L	T	P	C
Core		Quantum chemistry and nanomaterials	4	1	0	4
Pre-requisite		Understanding the physical & mathematical aspects of quantum mechanics	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are to:

1. To present the basic principles of quantum chemistry.
2. To learn the theories and basics of quantum mechanical treatment.
3. To motivate the student to enjoy the application of nanoscience.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the concepts of classical and quantum mechanics, to picture out the failure of classical mechanics.	K4
2	To comprehend the approximate methods in quantum mechanics.	K5
3	To acquire the knowledge about quantum chemistry, heat capacity of solids, Schrodinger equation and various operators	K6
4	To understand the applications of Schrodinger equation to one D box, rigid rotor, harmonic oscillator, H-atom and various theories in quantum chemistry.	K2
5	To implement nanoscalecharacterisation and applications of nanomaterials.	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1 **12 hours**

1. Success of quantum theory and the Failure of classical mechanics in explaining blackbody radiation, heat capacity of solids, photo-electric effect and the H-atom spectrum.(Derivation of Plank's distributionlawandEinstein'sheatcapacityequationnot needed).Heisenberg'suncertainityprinciple.

2. The time-dependent and time-independent schrodinger equations — Born'sinterpretation of the wave function. Requirements of the acceptable wave function. Postulates of quantum mechanics.

3. Algebra of operators. Sums and products of operators. Commutator. Linear operators. Eigen functions and eigen values. Correspondence between physical quantities in classical mechanics and operators in quantum mechanics. Hamiltonian operator. Angular momentum operator. Quantization of angular momentum and its spatial orientation. Average (expectation) values.

Unit:2 **12 hours**

1. Particle in a one - dimensional box. Quantization of energy. Normalization of wave function. Orthogonality of the particle in a one—dimensional box wave functions.
Illustration of the uncertainty principle and correspondence principle with reference to the particle in a one dimensional box. Particle in a three-dimensional box. Separation of variables.

2. Solving of Schrodinger equation for the one—dimensional harmonic oscillator. Harmonic oscillator

model of a diatomic molecule. Illustration of the uncertainty principle and correspondence principle with reference to harmonic oscillator.
3. Solving of Schrodingcr equation for a rigid rotor. Rigid rotor model of a diatomic molecule.

Unit:3		**12 hours**

1. Schrodinger equation for the H-atom (or H-like species) separation of variables (solving of radial equation is not needed but nature of solution is given), energy levels. Radial factors of the H-atom wave functions. Orbitals and orbital shapes. Probability density and radial distribution functions. The most probable distance of the H-atom (or H-like species) 1S electron.
2. Need for approximation methods. The perturbation theory (first order only). Application of the perturbation method to He-atom.
3. The variation method. Application of variation method to He-atom.

Unit:4		**11 hours**

Nano scale characterisation: Fundamentals of Nano-device measurements. Traditional surface and material analysis techniques- Raman, X-RD, SAXS, Measurements of Nano-devices and Atomic scale characterization – SEM/TEM, SEM with EDX, Scanning probe microscopies (AFM and STM). Chemical Characterization, Optical measuring systems-Surface Plasmon Resonance, pattern recognition and inspection systems.

Unit:5		**11 hours**

Applications of nano materials: Biological applications- Polymeric nanomaterials for drug delivery, Hydroxyapatite. Industrial applications - Nanorobots, Nano electro mechanical systems (NEMS). Computing - Present and future - Quantum methods of information processing. Chemical Applications – Catalysis, Nanosensors, Nanomedicine-Domestic Applications- Self cleaning surfaces, Nano paints, water treatment, cosmetics. Environmental effects of nano.

Unit:6		**2 hours**

Seminar, Webinar, Workshop, Training

	Total Lecture hours	**75 hours**

Text Book(s):

1. Ira. N.Levine, Allyn& Bacon IC: Quantum Chemistry,1974 .
2. Mc. Quarie : Quantum Chemistry

Reference Books

1	Ira.N.Levine, McGrav : Physical Chemistry, Hill Book Company,1971
2	Ira.N.Levine, Wiley : Interscience, N.Y.1975
3	Jackie Ying - Nanostructured Materials, Academic Press; 1st edition, 2001.
4	Gregory L. Timp – Nanotechnology, American Institute of Physics; 1st edition, 1998.

5	Guozhong Cao – Nano structures and nano materials: Synthesis, properties and Applications-Imperial College Press(2004)
6	K. Eric Drexler- Engines of Creation. Anchor Books/Doubleday
7	K. Eric Drexler- Nanosystems: Molecular Machinery, Manufacturing, and Computation**.** John Wiley & Sons, Inc.: New York, 2001.
8	Robert A. Freitas Jr.- Kinematic Self-Replicating Machines**.** Landes Bioscience: Georgetown, TX.2004
9	J. Storrs Hall, Nanofuture: What's Next For Nanotechnology, Prometheus Books, 2005.
10	NorioTaniguchi- Nanotechnology - Oxford University Press, 2005.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://nptel.ac.in/courses/104/101/104101126/
2	https://nptel.ac.in/courses/115/101/115101107/
3	https://nptel.ac.in/courses/115/103/115103104/
4	https://nptel.ac.in/courses/113/106/113106093/

Mapping with Programme outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	M	M	M	S	S	M	M	S	S
CO2	S	M	M	M	S	S	M	M	S	S
CO3	M	M	M	M	S	S	M	M	S	S
CO4	M	M	S	S	M	M	S	S	M	M
CO5	S	M	M	M	S	S	M	M	S	S

*S-Strong; M-Medium; L-Low

Course code	PAPER VI	PHYSICAL METHODS IN CHEMISTRY - I	L	T	P	C
Core			4	1		4
Pre-requisite		Basicsof EPR, Mossbauer and neutron and X-ray diffraction	Syllabus Version	2020-2021		

Course Objectives:

The main objectives of this course are to:

1. To understand the key role of various physical techniques like ORD, CD, DTA, DSC, TGA, ESCA, GLC and HPLC.
2. To understand the basis of mossbauer spectroscopy
3. To understand the basics of ESR and its applications.
4. To acquire the knowledge about of neutron and X – ray diffraction

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	To understand the principle, theory and applications of different chromatography techniques	K2
2	To analyse the concepts and methods used in solid state and chemical crystallography	K4
3	To interpret the principles and applications of ORD, CD, AES andUPS	K4
4	To recognize the principles involved in TGA, DTA, DSC, refractometry, turbidinetry and Nephelometry	K5
5	To acquire deep knowledge about Mossbauer spectroscopy and ESR spectroscopy and utilize to create a new molecule of interest.	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1 **12-- hours**

Chromatography – Principles, theory, instrumentation and applications in chemical analysis of the following – column, paper, thin layer and ion-exchange – GC, GLC and HPLC. Purification of common organic solvents. Atomic absorption spectroscopy and Flame emission spectroscopy – basic principles – Instrumentation and applications.

Unit:2 **12-- hours**

Solid state and Chemical Crystallography – Diffraction methods – X-ray , neutron and electron Diffraction – Structure of NaCl , KCl and CsCl – Determination of lattice type and unit Cell dimensions – Power Camera – indexing the powder pattern – An elementary discussion of structural factors and scattering factor – Structures of rutile, fluorite, Antifluorite, zinc blende,wurtzite, diamond and graphite.

Unit:3 **12-- hours**

Circular dichroism and optical rotatory dispersion-basic principles-basic principles of O.R.D.

and C.D.-cotton effects-Octants rule-axial halo ketone rule application of O.R.D. and C.D. Electronspectroscopy: ESCA (XPS): principle, chemical shifts-description of SCA spectrometer, X-ray sources, samples analysis, detectors and recordingdevices-applications. Auger electron spectroscopy (AES) and ultra-violet photo electron spectroscopy (UPS/PES)-principles and applications.		
Unit:4		**11-- hours**
Thermal analysis – Thermogravimetric Analysis (TGA), Differential Thermal Analysis (DTA) and Differential Scanning Calorimetry (DSC) – Basic principles. Refractometry- Refractometer theory – basic principles – Abbey Refractometer – Applications. Turbidimetry and Nephelometry-applications.		
Unit:5		**11-- hours**
Mossbauer Spectroscopy - principles – Spectrometer – Isomer shift – Quadruple interaction – Nuclear Zeeman Splitting – Applications ESR Spectroscopy - theory – Derivative curves – 'g' shift – hyperfine splitting – Isotropic and anisotropic systems – Zero field splitting and Kramer degeneracy – Identification of free radicals – Applications.		
Unit:6		**2 hours**
Seminar, Webinar, Workshop, Training		
	Total Lecture hours	**60-- hours**

Text Book(s):

1.A. I. Vogel : A text book of quantitative inorganic analysis

2.G. D. Christian : Analytical Chemistry

Reference Books

1	G. D. Christian : Analytical Chemistry
2	D. A. Skoog and D. M. West : Fundamentals of AnalyticalChemistry
3	D. A. Skoog : Instrumental methods ofanalysis
4	B. K. Sharma : Instrumental methods ofanalysis
5	H. H. Willard, L.L.Merrit, J.A. Dean: Instrumental methods ofanalysis
6	S.N.Khopkar : Fundamental concepts of AnalyticalChemistry
7	Drago, Physical methods in InorganicChemistry
8	Djerassi, Optical RotatoryDispersion
9	Chatwal, Instrumental Methods ofAnalysis
10	Sharma, Instrumental Methods of ChemicalAnalysis
11	Sharma, Chromatography

12	Arora, Solid StateChemistry
13	Alberty and Silbey, Solid StateChemistry
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://nptel.ac.in/courses/104/104/104104101/
2	https://nptel.ac.in/courses/104/106/104106048/

Mapping with Programme outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	M	S	S	S	M	S	S	S
CO2	M	S	S	M	S	S	S	M	M	S
CO3	S	M	S	S	M	M	S	S	S	S
CO4	M	S	S	S	S	M	S	S	M	S
CO5	S	M	S	S	M	S	S	S	M	S

*S-Strong; M-Medium; L-Low


Third Semester

Course code	PAPER VII	ORGANIC CHEMISTRY - III	L	T	P	C
Core		Chemistry of Natural Products	4	1	-	4
Pre-requisite		Basic idea on natural products	Syllabus Version	2020-2021		

Course Objectives:

The main objectives of this course are to:

1. To study about the chemistry in terpeniods
2. To study about the chemistry in steriods
3. To know about the Alkaloids
4. To acquire the knowledge about important organic reagents used synthesis organic natural products.
5. To understand the composition of the important natural materials around them.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	To remember the basic reaction involved in the synthesis of various natural products	K1
2	To understand the reactions and reagents that play vital role in the synthesis of new organic molecules.	K4
3	To acquire comprehend knowledge in Terpenoids, Steroids, and Alkaloids.	K4
4	To the evaluate the applications of novel reagents in the synthesis of natural molecules	K2

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1 **13-- hours**

Terpenoids: Isolation and classification of terpenoids — structural elucidation and synthesis of zingiberene, eudesmol, juvenile hormone, abeitic acid and caryophyllene.

Unit:2 **13-- hours**

Steroids: Introduction — structural elucidation of cholesterol (synthesis not required), ergosterol, equilenin, estrone, testosterone and progesterone.

Unit:3 **13-- hours**

Alkaloids: Introduction – isolation of alkaloids, structural elucidation and synthesis of morphine, reserpine. Quinine, atropine and glaucine.

Unit:4 **12-- hours**

1. Proteins and nucleic acids: Classification and characteristics (structure) of proteins — synthesis of polypeptides and oxytocin, enzymes and coenzymes. Structure of RNA and DNA and their biological importance.
2. Heterocyclic compounds: Structure, synthesis and reactions of flavones, isoflavones, purines (adenine and guanine) and anthocyanins (cyanin and pelargonin).

Unit:5		**12-- hours**
Reactions and reagents: Reactions in organic synthesis: Oppanauer oxidation, Barbier – Wieland degradation, Barton reaction, Jones oxidation and Vilsmeier reaction. Reagents in organic synthesis: Preparations and synthetic applications of DDQ (2,3-dichloro-5,6-dicyano-1,4-benzoquinone), DBU (1,5-diazabicyclo[5.4.0]undecene-5), DCC (dicyclohexylcarbodiimide) NBS, PCC, PDC and crown ethers.		
Unit:6		**2 hours**
Seminar, Webinar, Workshop, Training		
	Total Lecture hours	**65-- hours**

Text Book(s):

1. I.L.Finar, Organic Chemistry, Volume I & II, The fundamental principles, Sixth edition, Pearson education Ltd., 2014.
2. O.P.Agarwal : Natural product chemistry

Reference Books	
1	I.L.Finar, Organic Chemistry, Volume I& II, The fundamental principles, Sixth edition, Pearson education Ltd., 2014.
2	P.S.Kalsi : Chemistry of naturalproducts
3	J.N.Guntu and R.Kapoor : Organic reactions and reagents
4	Acheson : Introduction to heterocyclic compounds
5	Katritsky : Principles of heterocyclic chemistry
6	TadeuszAniszewski: Alkaloids
7	

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://nptel.ac.in/courses/104/103/104103023/
2	https://nptel.ac.in/courses/104/105/104105040/
3	https://nptel.ac.in/courses/102/101/102101049/

Mapping with Programme outcomes

PO / **CO**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	M	S	S	S	S	S	S	S	S	S
CO2	S	S	M	S	S	M	M	S	S	M
CO3	M	S	S	S	S	S	S	S	S	S
CO4	S	S	S	S	S	S	S	S	S	S

*S-Strong; M-Medium; L-Low

Course code	PAPER — VIII	PHYSICAL CHEMISTRY — III	L	T	P	C
Core		Thermodynamics	4	1	0	4
Pre-requisite		Fundamental concepts of thermodynamics	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are to:

1. To have an exposure to the Thermodynamics.
2. To acquire awareness about the basic concepts of Quantum Statistics.
3. To understand basics of Heat capacities of solids.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	To understand the ideas of Thermodynamics	K2
2	To acquire basic knowledge about Quantum Statistics	K2
3	To analyze the quantum mechanics propblem	K4
4	To implement the evaluation of Thermodynamic properties E, H, S, A, G, Cv and Cp .	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1 **12 hours**

Themodynamics and Non-ideal systems: Chemical potential and the definition of fugacity. Determination of fugacity of gases by graphical method and from equations of state. Variation of fugacity with temperature. fugacity and the standard state for non-ideal gases. Definition of activity. Activity coefficient. Temperature coefficient of activity. Standard states. Applications of activity concept to solutions. The rational and practical approaches. Measurement of activity of solvent from colligative properties. Determination of activity of solute.

Unit:2 **12 hours**

Third Law of Thermodynamics: Probability and third law. Need for third law. Nernst heat theorem and other forms stating third law. Thermodynamic quantities at absolute zero. Statistical meaning of third law and apparent exception. Mathematical Introduction: Theories of permutation & combination, Laws of probability. Distribution laws. Gaussian distribution.

Unit:3 **12 hours**

Quantum statistics: Maxwell - Boltzmann statistics. Thermodynamic probability. Thermodynamic probabilities of systems in equilibrium. Boltzrnann expression for entropy. Stirling's approximation. States of maximum thermodynamics probability. Legrangian multipliers, thermodynamic probabilities of systems involving energy levels. Maxwell - Boltzmann distribution law. Evaluation of alpha and beta in M.B. distribution law.

Unit:4		**11 hours**
Partition function: Partition function - definition, justification of nomenclature, microcanonical and canonical ensembles. Molecular partition function and canonical function. The relation between the total partition function of a molecule and the separate partition functions. 'Translational partition function, rotational partition function. Effect of molecular symmetry on rotational partition function. Ortho and para hydrogen. Vibrational partition function. Electronic partition function. Evaluation of thermodynamic properties E, H, S, A, G, Cv and Cp from monoatomic and diatomic ideal gas molecule partition functions		
Unit:5		**11 hours**
Heat capacities of solids: Einstein's and Debye's theories of heat capacities of solids. Bose - Einstein and Fermi-Dirac Statistics: Bose-Einstein distribution law. Entropy of Bose- Einstein gas. Plank distribution law for black-body radiation. Fermi – Dirac distribution law. Entropy of a Fermi-Dirac gas.		
Unit:6		**2 hours**
Seminar, Webinar, Workshop, Training		
	Total Lecture hours	**60 hours**

Text Book(s):

1. Klotz : Chemical thermodynamics .
2. P.W.Atkins : Physical Chemistry

Reference Books

1	S. Glasstone:Thermodynamics
2	M . C. Gupta: Statistical thermodynamics
3	Lee. Sears and Salinger : Statistical thermodynamics

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://nptel.ac.in/courses/104/103/104103112/
2	https://nptel.ac.in/courses/112/105/112105266/
3	https://nptel.ac.in/courses/104/106/104106094/

Mapping with Programme outcomes

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	M	S	S	S	M	S	S	S	M
CO2	M	S	L	M	L	S	L	M	L	S
CO3	S	M	S	S	S	M	S	S	S	M
CO4	M	S	S	M	S	S	S	M	S	S

*S-Strong; M-Medium; L-Low

Course code	PAPER-IX	PHYSICAL METHODS IN CHEMISTRY -II	L	T	P	C
Core			4	1	0	4
Pre-requisite		Background knowledge on spectroscopy	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are to:

To understand the basis of visible, IR, UV, ^{1}H NMR, ^{13}C NMR and Mass Spectroscopy

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	To understand the principle, theory, and applications of different spectral techniques.	K2,K3 &K6
2	To interpret the principle and applications of ^{1}H NMR ,^{13}CNMR and Mass Spectroscopy	K4
3	To acquire deep knowledge about characterization of organic molecules using IR, UV,	K5
4	To acquire deep understanding about ^{1}HNMR , ^{13}C NMR and Mass Spectroscopy	K5
5	To acquire deep knowledge about Correlation NMR Spectroscopy	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1 **12 hours**

Infrared Spectroscopy Principle of infrared spectroscopy - description of double beam IR spectrophotometer-IR spectra of polyatomic molecules-factors affecting the vibrational frequencies-application of IR spectroscopy for organic and inorganic compounds-problems.

Unit:2 **12 hours**

Ultraviolet and Visible Spectroscopy-Electronic spectra of diatomic molecules – Laws of photometry – Electronic absorption transitions – Correlation of electronic structure with molecular structure – Simple chromophoric groups – Effects of conjugation – Woodward – Fieser rules – Aromatic system and systems with extended conjugation – applications to organic and inorganic compounds – Instrumentation.

Unit:3 **12 hours**

^{1}H NMR Spectroscopy-magnetic properties of nuclei – theory of nuclear resonance – Chemical shift and its measurement – Factors influencing chemical shift – Chemical equivalence and magnetic equivalence – solvents and NMR spectra – Spin –Spin coupling – Spin-Spin splitting systems – Proton exchange reactions – Heteronuclear coupling – Deuterium exchange – Double resonances–Chemical

shift reagents–Applications to organic and inorganic compounds - Instrumentation –CW and FT NMR.

Unit:4		**11 hours**

^{13}C NMR Spectroscopy- magnetic moment and natural abundance- broad band decoupling- deuterium coupling- NOE effect- Off-resonance decoupling- peak assignments using DEPT spectrum – structural applications of ^{13}C NMR spectroscopy. Correlation NMR Spectroscopy- theory- ^{1}H-^{1}H COSY, ^{1}H-^{13}C COSY:

Unit:5		**11 hours**

Mass Spectrometry-Theory – Instrumentation – Isotopic abundance – Determination of molecular weights and formulae, Ionisation techniques (CI, FD, FAB &ESI) – Nitrogen rule – Metastable ions and peaks – Ion fragmentation mechanisms – Retro Diels-Alder rearrangement – Mclafferty rearrangement – Fragmentation associated with functional groups – aliphatic and aromatic compounds – Elimination due to orthogroups.

Unit:6		**2 hours**

Seminar, Webinar, Workshop, Training

	Total Lecture hours	**60 hours**

Text Books:

1. Silverstein, Basler and Morrill, Spectrometric identification of Organic Compounds.
2. R. S. Drago, Physical Methods in Inorganic Chemistry.
3. Pavia and Lampman, Introduction to Spectroscopy

Reference Books

1	W. Kemp, Organic Spectroscopy
2	P. S. Kalsi, Spectroscopy of Organic Compounds
3	C. N. Banwell, Fundamentals of Spectroscopy
4	Das and James, Mass Spectrometry
5	F. W. McLafferty, Mass Spectrometry
6	Sheinmann, Introduction to Spectroscopic Methods
7	Silverstein and Webster, Spectrometric Identification of Organic Compounds
8	Y. R. Sharma, Elementary Organic Absorption Spectroscopy
9	R. Chang, Basic Principles of Spectroscopy
10	B. Stuart, Infrared Spectroscopy: Fundamentals and Applications, John Wiley & Sons Ltd (2004)

11	Abraham and Lofters: 13C NMR spectroscopy

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://nptel.ac.in/courses/104/108/104108124/
2	https://nptel.ac.in/courses/104/101/104101117/
3	https://nptel.ac.in/courses/104/108/104108097/
4	https://nptel.ac.in/courses/104/101/104101099/

Mapping with Programme outcomes

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	M	S	S	M	S	M	S	S
CO2	S	M	S	S	S	S	M	S	S	S
CO3	M	S	S	S	S	S	S	S	S	S
CO4	S	M	S	S	S	S	M	S	S	S
CO5	M	S	S	S	S	S	S	S	S	S

*S-Strong; M-Medium; L-Low


Fourth
Semester

Course code	PAPER – X	INORGANIC CHEMISTRY – II	L	T	P	C
Core		COORDINATION CHEMISTRY	4	1	0	4
Pre-requisite		Understanding of basic concept of coordination chemistry	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are to:

1. To know the basic principles of coordination chemistry
2. To know the basic principles of organometallic compounds
3. To understand the important theories of coordination chemistry
4. To utilize the applications of coordination compounds

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	To understand some principles and theories in coordination chemistry	K2
2	To learn about organometallic and bio inorganic chemistry	K3
3	To analyze the concepts, types, and nomenclature of coordination chemistry	K4
4	To evaluate the application of coordination compound in various fields	K5
5	To analyze the concepts, types, and nomenclature of coordination chemistry	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1 **12 hours**

Crystal field theory – spectrochemical series – molecular orbital theory –comparison of MOT and CFT-pi- bonding – magnetic behaviour of the transition metal ions (Paramagentic and diamagnetic properties, cooperative magnetism). Thermochemical correlation.

Unit:2 **12 hours**

Term symbols for the 3d-block elements and their ions – Orgel diagram (d^3 and d^5 only) – Tanabe-Sugano diagram for Co^{3+} system – John-Tellar distortions– spin-orbit coupling – Nephelauxetic effect – charge transfer spectra.-Racah parameters. Substitution reactions in square planar and octahedral complexes – trans effect – redox reactions (Inner and Outer sphere mechanism)

Unit:3 **12 hours**

d-Block metal carbonyls – General preparation, properties structure and Spectroscopic properties (^{13}C and IR) EAN Rule–Preparation, properties and structure of Iron carbonyls – Preparation and Structure of $Fe_2(CO)_9$ and $Co_4(CO)_{12}$ – Carbonyl hydrides $[HMn(CO)_5]$, $[HCo(CO)_4]$, $[H_2Fe(CO)_4]$ (Preparation and chemical reaction only)- Complexes of molecular nitrogen and oxygen (synthesis and reactions). Isolobal analogies.

Unit:4 **11 hours**

Cyclopentadienyl complex - Ferrocene – synthesis, structure and reactions (Acetylation, aminomethylation, metalation, Nitration and Halogenation). Homogeneous catalysis by coordination compounds – hydroformylation using $Co(CO)_4H$– Carboxylation of methanol – hydrogenation of alkenes (Wilkinson's catalyst) - Wacker oxidation of alkenes-Alkene metathesis (Grubb'scatalyst) -Reppe synthesis (Nickel based catalyst) -Vasca'scompound – Zeise salt.		
Unit:5		**11 hours**
The Inorganic composition of cells- Sodium and potassium transport- Cytochromes (electron transfer)-Zinc enzymes (carbonic anhydrase) – Peroxidases-Oxidases - Oxygenases-Photosynthetic oxygen production-Nitrogen fixation (*in vivo* and *in vitro*). Hemoglobin – myoglobin - cyanocobalamin – chlorophyll (structure and functions). Chelation therapy, antitumour agents - *cis*platin.		
Unit:6		**2 hours**
Seminar, Webinar, Workshop, Training		
	Total Lecture hours	**60 hours**

Text Book(s):

1. Shriver and Atkins, Inorganic Chemistry, Fifth Edition.
2. K.F. Purcell and J.C. Cotz, Inorganic chemistry, , Fifth Edition

Reference Books

1	James E. Huheey, Ellen A. Keiter and Richerd L. Keiter : Inorganic Chemistry, IV Edn., 1993
2	Cotton and Wilkinson : Advanced inorganic Chemistry, Wiley Eastern (P), Ltd.,1968
3	H.J. Emeleus and A.G.Sharp : Modern aspects of Inorganic Chemistry, IV Edn.,1989
4	R.S. Drago : Physical methods in Inorganic Chemistry,1978
5	R.C. Mehrotra and A. Singh : Organometallic Chemistry

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://nptel.ac.in/courses/104/101/104101121/
2	https://nptel.ac.in/courses/104/103/104103069/
3	https://nptel.ac.in/courses/104/104/104104109/
4	https://nptel.ac.in/courses/104/105/104105031/

Mapping with Programme outcomes

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M	S	S	M	M	S	S	S	M	M
CO2	M	S	S	S	S	S	S	S	S	S
CO3	S	M	S	S	M	M	M	S	S	M
CO4	S	S	S	M	L	S	S	S	M	L
CO5	M	S	S	S	S	S	S	S	S	S

*S-Strong; M-Medium; L-Low

Course code	PAPER XI	PHYSICAL CHEMISTRY – IV	L	T	P	C
Core		Reaction Kinetics and Electrochemistry	4	1	-	4
Pre-requisite		Basic knowledge on kinetics	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are to:

1. To learn about relation between different theories of reaction rate
2. To study of reaction rate in solution and fast reaction
3. To learn about the concept of homogeneous and heterogeneous catalysis
4. To learn about the polarography, coulometric and amperometric methods of estimations.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	To analyze the different theories of reaction rates.	K4
2	To understand the kinetic aspects of chemical reactions and the role of catalysts	K2
3	To acquire the knowledge about theories of double layer.	K3
4	To learn polarography, coulometric and amperometric methods of estimations.	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1 **13 hours**

Theories of reaction rates: Arrhenius theory. Hard - sphere collision theory of gas – phase reactions. Activated complex theory or absolute reaction rate theory (ARRT) for ideal gas reactions (in terms of partition functions). Relation between activated - complex theory and hard - sphere collision theory. Thermodynamic formulations of activated complex theory & kinetic isotopic effect.

Unit:2 **13 hours**

1. Reactions in solution: Comparison between gas-phase and solution reactions. The influence of the solvent on the reactions between ions. Influence of ionic strength on rates of reactions in solution - Primary salt effect. Influence of pressure on rates of reactions in solution. Significance of volume and entropy of activations.
2. Study of Fast reactions: Flow methods, pulse methods, relaxation methods, Shock-tube method & nuclear magnetic resonance method.

Unit:3 **13 hours**

1. Homogeneous catalysis: Specific and general acid - base catalysis. Bronsted catalysis law. Hammett acidity function. Enzyme catalysis (single substrate reaction only).
Michaelis-Menton law. Influence of pH and temperature on enzyme catalysis.
2. Surface phenomenon and heterogeneous catalysis: Adsorption and free energy relation at interfaces. Gibb's adsorption isotherm. Physisorption and chemisorption. Adsorption isotherms (Freundlich& Langmuir). Kinetics of heterogeneous catalysis. Langmuir - Hinshelwood and Langmuir – Rideal-Eley mechanism.

Unit:4		**12 hours**
1. Interionic attraction theory: Debye – Huckel – Onsager equation. Falkenhagen effect. Wien effect. Activity and activity coefficient. Ionic strength. Debye – Hukel limiting law and its applications. 2. Theories of double layer. Helmholtz – Perrin - Gouychapmann – Stern theories.		
Unit:5		**12 hours**
1. Polarography: Current – voltage relationships. The dropping mercury electrode. Diffusion current. Half – wave potentials. Applications of polarography. Amperometric titrations. 2. Fundamental principles of coulometric methods. Constant current and controlled potential methods. Simple applications.		
Unit:6		**2 hours**
Seminar, Webinar, Workshop, Training		
	Total Lecture hours	**75 hours**

Text Book(s)

1. K.J. Laidler: Chemical kinetics. Tata McGraw Hill
2. Gurdeep Raj: Chemical kinetics. Goel Publishing House

Reference Books

1	Puri, Sharma &Pathania: Principles of Physical Chemistry
2	A. A. Frost & R. G. Pearson: Kinetics and Mechanism. Wiley Eastern, Pvt
3	S. Glasstone: Introduction to electrochemistry.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://nptel.ac.in/courses/104/106/104106094/
2	https://nptel.ac.in/courses/104/106/104106089/

Mapping with Programme outcomes

PO / CO	PO1	PO2	PO3	PSO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M	H	S	S	S	H	S	S	S	H
CO2	S	S	S	S	S	S	S	S	S	S
CO3	M	S	S	H	S	S	S	H	S	S
CO4	S	S	S	H	S	S	S	H	S	S

*S-Strong; M-Medium; L-Low

Course code	Paper - XII	POLYMER TECHNOLOGY	L	T	P	C
Core			4	1	-	4
Pre-requisite		Basic of polymer chemistry	Syllabus Version	2020-2021		

Course Objectives:

The main objectives of this course are to:

1. To understand the plastic materials commonly used.
2. To know about the manufacture and compatibility of polymers.
3. To recognize the additives added to them.
4. To learnt the techniques of converting basic polymers into finished products.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	To understand the manufacturing methods of polymers.	K2
2	To understand the various degradation method for polymers	K2
3	To learn the techniques of adding additives and converting virgin polymer into plastic.	K3
4	To understand Fabrication process, methods of making plastics, fibres and elastomers.	K2
5	To create a new technology for polymer synthesis.	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1 **12-- hours**

Polymerization process: Bulk polymerization, solution polymerization, suspension polymerization, emulsion polymerization, meltpolycondensation, solution polycondensation and interfacial polycondensation. Production of polymers: polythene (LDPE and HDPE), polystyrene, PVC, ABS plastics, polyvinyl alcohol, polymethyl methacrylate, phenol formaldehyde, urea formaldehyde and epoxy resins.

Unit:2 **12-- hours**

Polymer degradation: Types of degradation – chain-end and random, thermal degradation, mechanical degradation, photo degradation, oxidative degradation, degradation by high-energy radiation. Polymer additives –fillers, antioxidants, thermal and UV- stabilizers, colorants, flame retardants, blowing agents and plasticizers – effect of plasticizers on polymer properties, compatibility of plasticizers and polymers.

Unit:3 **12-- hours**

Fabrication process – One-dimensional processes: coatings and adhesives – Two-dimensional

processes: Extrusion moulding, flat film extrusion, calendering, blown film extrusion and lamination. Three dimensional processes: Injection moulding, blow moulding, transfer moulding, foaming and forming process.

Unit:4		**11-- hours**

Fibre technology: Production of natural and synthetic fibers: Regenerated cellulose, nylon 6, nylon 6,6, polyethylene terephthalate, and polyacrylonitrile. Properties of textile fibers, criteria for fiber formation. Spinning processes – melt spinning, dry spinning and wet spinning. Treatment of fibers: sizing, dyeing, finishing and lubrication.

Unit:5		**11-- hours**

Elastomer technology: Natural rubber, synthetic rubbers - SBR, butyl rubber, nitrile rubber, urethane rubber, chloroprene rubber and silicone rubber. Vulcanization – chemistry of vulcanization (sulphur and nonsulphur vulcanizations), physical aspects of vulcanization. Reinforcement: Theories of reinforcement, carbon as filler and reinforcing agent, carbon black, effects of carbon black structure on reinforcement.

Unit:6		**2 hours**

Seminar, Webinar, Workshop, Training

	Total Lecture hours	**60-- hours**

Text Book(s):

1. F. Rodriguez : Principles of polymer science, TMH Edition, 1970
2. Dryden : Outlines of chemical technology, East West Press, 1965
3. L.K. Arnold : Introduction to plastics, George Allen Ltd. 1968

.

Reference Books

1	E.W. Duck : Plastics and rubbers, Butterworths, London, 1971
2	F.W. Billmeyer : Text books of polymer science, Wiely, Interscience 1971
3	K.K. Walczak : Formation of synthetic fibres
4	Morton : Introduction to rubber technology
5	W.C. Wake : The analysis of rubber and rubber-like polymers
6	Cagle : Hand-book of adhesive bonding, McGraw Hill
7	D.H. Kecalble : Physical chemistry of adhesion, Wiley-Interscience
8	R.M. Ogorikewiez : Thermoplastics – Properties and design, John Wiley
9	I.I. Rublin : Injection moulding theory and practice, Wiley Inter science

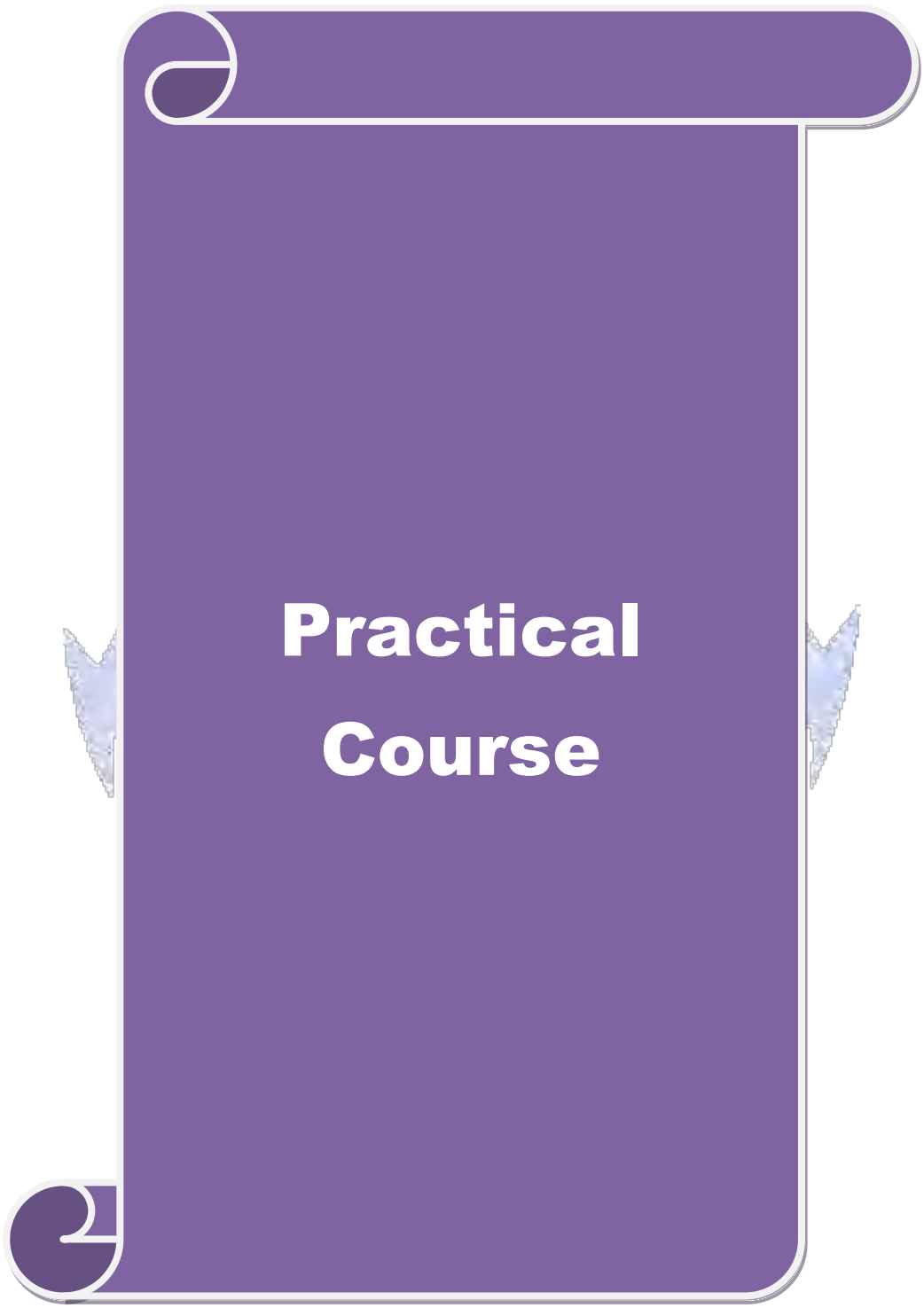
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://nptel.ac.in/courses/104/105/104105124/
2	https://nptel.ac.in/courses/103/106/105106205/

Mapping with Programme outcomes

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	M	S	S	M	S	M	S	S
CO2	S	M	S	S	S	S	M	S	S	S
CO3	M	S	S	S	S	S	S	S	S	S
CO4	S	M	S	S	S	S	M	S	S	S
CO5	M	S	S	S	S	S	S	S	S	S

*S-Strong; M-Medium; L-Low


Practical
Course

Course code	PRACTICAL – I	Organic Chemistry – I	L	T	P	C
PRACTICALS			0	0	6	4
Pre-requisite		Knowledge on organic synthesis	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are to:

1. To learn the separation techniques and systematic analysis of organic mixtures.
2. To know how to distinguish between aromatic-aliphatic, saturated-unsaturated compounds and to find out elements present and functional groups.
3. To develop the skill for the preparation of organic compounds involving the following reactions: hydrolysis, acetylation, bromination, nitration, benzoylation and oxidation motivate the students to understand the basic principles of chemical kinetics, potentiometric and conductometric titrations.
4. To execute the idea about recrystallisation

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	To understand the separation techniques and systematic analysis of organic mixtures	K2
2	To distinguish between aromatic-aliphatic, saturated-unsaturated compounds and to find out elements present and functional groups	K3
3	To develop skill for the preparation of organic compounds involving the following reactions: hydrolysis, acetylation, bromination, nitration, benzoylation and oxidation	K4
4	To execute the idea about recrystallisation.	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

	Analysis of two components – component mixtures. Separation and characterization of compounds.	**30 hours**
	About ten preparations involving one or two or three stages comprising of the following processes:	**30 hours**

Nitration, acylation, halogenation, diazotisation, rearrangement, hydrolysis, reduction, alkylation and oxidation and preparations illustrating the following: Benzoin condensation, Cannizzaro reaction, Perkin reaction, Reimer-Tiemann reaction, Sandmeyer reaction, Fries rearrangement, Skraup synthesis.

Note: A minimum of six organic mixtures should be analyzed by each student. A minimum of ten preparations involving one or two stages should be done by each student

	Total Lecture hours	**60 hours**

Text Book(s):

1. Vogel‟sTextbookofpracticalorganicchemistry,5th edition, Prentice Hall, 2008

Reference Books

1	N.S. GnanaPrakasam, G.Ramamurthy, Organic chemistry Manual, S.Viswanathan Co., Ltd
2	Raj K Bansal, Laboratory manual of organic chemistry, III edn, New age international (p) Ltd, 1996

Mapping with Programme outcomes

PO / **CO**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	M	S	S	M	S	M	S	S
CO2	S	M	S	S	S	S	M	S	S	S
CO3	M	S	S	S	S	S	S	S	S	S
CO4	S	M	S	S	S	S	M	S	S	S

*S-Strong; M-Medium; L-Low

Course code	PRACTICAL – II	Inorganic Chemistry – I	L	T	P	C
PRACTICALS		PRACTICAL – II	0	0	6	4
Pre-requisite		Knowledge on organic synthesis	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are to:

1. To acquire knowledge about the analysis of mixtures of cations each consisting of two familiar metal cations and two less familiar metal cations.
2. To understand the preparation of metal complexes.
3. To know reaction behind the separation of cations.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	To analysis of mixtures of cations each consisting of two familiar metal cations and two less familiar metal cations	K4
2	To understand the principles behind analysis of mixtures of cations	K2
3	To apply the knowledge for the preparation of metal complexes.	K3
4	To evaluate the estimation of metal ions using colorimetry.	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

	Analysis of two components – component mixtures. Separation and characterization of compounds.	**30 hours**

Qualitative analysis, employing semimicro methods and spot tests of mixtures of common cations and ions of the following less familiar elements. Thallium, Tungsten, Selenium, Tellurium, Molybdenum, Cerium, Thorium, Titanium, Zirconium, Vanadium, Beryllium, Uranium and Lithium.

30 hours

About ten preparations involving different techniques selected from the following: Lead tetra acetate, dipyridiniumhexachloroplumbate, hydroxylamine hydrochloride,
ortho-and para-hydroxy phenyl mercuric chloride, potassium cupric chloride, chrome alum, copper(I) chloride, trithio urea copper(I), potassium trioxalato-aluminato(III), potassium trioxalato chromate(III), potassium trioxalato ferrate(III), hexamine cobalt(III) chloride, chloropentammine chromium(III), chloroaquopentammine chromium(III) nitrate, tetrammine copper(II) sulphate, ammonium hexachlorostanate(IV).

Note: A minimum of six inorganic mixtures, each of two common and two rare elements should analysed by a student. A minimum of six preparations should be done by a student.

	Colorimetric estimations	

Colorimetric estimations (using Nessler technique and colorimeters) of copper, iron, nickel, manganese, chromium and zirconium.

	Total Lecture hours	**60 hours**

Text Book(s):

1.V.V.Ramanujam, Inorganic Semimicro qualitative analysis, 3rd edition, National Publishing company,1974	
Reference Books	
1	R.Mukhopadhyay&P.Chatlerjee, Advanced Practical Chemistry,Book& Allied (p) ltd 2007. C
2	J.Mendham, R.C. Denney, M.J.K.ThomasDarid&J.Bares, Vogels quantitative chemical analysis, 6h edition prentice hall 2000.
3	Vogel'squalitativeInorganicanalysis,6th edition Longman.

Mapping with Programme outcomes

PO / **CO**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	M	S	S	S	S	M	S	S	S
CO2	M	S	S	S	S	S	S	S	S	S
CO3	S	M	S	S	S	S	M	S	S	S
CO4	M	S	S	S	S	S	S	S	S	S

*S-Strong; M-Medium; L-Low

Course code	PRACTICAL – III	Physical Chemistry – I	L	T	P	C
PRACTICALS			0	0	6	4
Pre-requisite		Knowledge on basis of physical Chemistry	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are to:

1. To understand the simple eutectic system, molecular weight determination by Rast method, partition coefficient.
2. To recognize the principle of acid base titration, redox titration and precipitation titration using potentiometry.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	To understand the simple eutectic system, molecular weight determination by Rastmethod, partition coefficient.	K4
2	Recognized the principle of acid base titration, redox titration and precipitation titration using potentiometry.	K2
3	To evaluate the thermodynamic quantities from e. m. f. data	K5
4	To analyze the refractive index mixture	

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

	Analysis of two components – component mixtures. Separation and characterization of compounds.	**60 hours**

Thermodynamics:
a. Heat of solution from solubility
b. Heat of solution by calorimetry Molecular weight determination by
i. Freezing point depression of solvents (benzene and water) by Beckmannmethod.
ii. By Rastmicromethods

Distribution of activity and activity co-efficients by freezing point method.
Distribution co-efficient and determination of equilibrium constant.
Properties of matter:
Variation of viscosity of liquids with temperature.
Determination of refractive index (Unknown composition of a mixture of liquids).
Heterogeneousequilibria
Thermal analysis of binary systems forming compounds with congruent melting points.
Three component systems (chloroform-acetic acid-water).
Electromotive force Determination of standard potentials (Cu, Zn, Ag)
Evaluation of thermodynamic quantities from e. m. f. data (Daniel cell).
Determination of pH and pka values using hydrogen and quinhydrone electrodes and glass electrode (pH meter), potentiometric acid-base titrations.
Determination of formal redox potential of a redox system, redox titrations.

Determination of instability constant (of silver ammonia complex) and its dependence on temperature. Determination of solubility product of a sparingly soluble salt (concentration cell and chemical cell). Determination of activity co-efficients from e. m. f. data. Precipitation titration of a mixture of halides.		
	Total Lecture hours	**60 hours**
Text Book(s): **1.** P.S.Sindhu"PracticalinPhysicalChemistry",Macmillan,2005		
Reference Books		
1	H.R. Crockford, J.W. Nowell,"Laboratorymanual ofPhysical Chemistry",John Wileyand Sons, Inc.	

Mapping with Programme outcomes

PO / **CO**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	M	S	S	M	S	M	S	S
CO2	M	S	S	S	S	S	S	S	S	S
CO3	S	M	M	M	S	S	M	S	S	S
CO4	M	S	S	S	S	M	S	S	S	S

*S-Strong; M-Medium; L-Low

Course code	PRACTICAL – IV	Organic Chemistry – II	L	T	P	C
PRACTICALS			0	0	6	4
Pre-requisite		Knowledge on organic separation	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are to:

1. To know about the estimation of phenol, methyl ketone, glucose, nitro, amino, and methoxy groups.
2. To acquire knowledge about the analysis of oils (RM value, iodine value, saponification value and acetyl value), extraction and estimation of active constituents like lactose from milk, caffeine from tea.
3. To understand the preparation of organic compounds.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	To evaluate the amount of phenol, methyl ketone, glucose, nitro, amino, and methoxy groups present in organic compounds.	K5
2	To analyze the oil by using various methods	K4
3	To develop skill for the preparation of organic compounds from literatures.	K3
4	To apply the separation skills to extract various compounds from the natural source	K3

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Estimation	**20 hours**

Estimation of phenol, methyl ketone, glucose, nitro, amino and methoxy groups, unsaturation.

Analysis of oils	**20 hours**

Reichart – Meisel value, Iodine value, Saponification value and acetyl value.

Extraction and estimation of active constituents:	**20 hours**

a. Lactose from milk
b. Caffeine from tea
c. Nicotine from tobacco extract
d. Citric acid or ascorbic acid from a tablet or from a natural source.

About five preparations from literature.

Total Lecture hours	**60 hours**

Text Book(s):

1.Vogel‟sTextbookofpracticalorganicchemistry,5 th edition, Prentice Hall, 2008

Reference Books	
1	N.S. GnanaPrakasam, G.Ramamurthy, Organic chemistry Manual, S.Viswanathan Co., Ltd

Mapping with Programme outcomes

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	M	S	S	M	S	M	S	S
CO2	M	S	S	S	S	S	S	S	S	S
CO3	S	M	M	M	S	S	M	S	S	S
CO4	M	S	S	S	S	M	S	S	S	S

*S-Strong; M-Medium; L-Low

Course code	PRACTICAL – V	Inorganic Chemistry – II	L	T	P	C
PRACTICALS		PRACTICAL – V	0	0	6	4
Pre-requisite		Knowledge on organic synthesis	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are to:

1. To acquire knowledge about industrial analysis of brass, bronze, stainless steel, cement and glass.
2. To understand the mechanism behind the preparation of metal complexes
3. To know about the estimation of metal ions using volumetric and gravimetric estimations.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	To analyze the industrial samples such as brass, bronze, stainless steel, cement and glass.	K4
2	To understand the mechanism behind the preparation of metal complexes	K2
3	To evaluate the amount of metal ions using volumetric and gravimetric estimations.	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Industrial analysis:	**20 hours**

a. Analysis of two of the following alloys – brass, bronze, stainless steel, solder type metal.
b. Analysis of any one of the following – cement, dolomite, glass.

Titrimetry:	**20 hours**

Oxidation using ceric and vanadium salts: Complexometric titrations involving estimation of calcium, magnesium, nickel, zinc and hardness of water.

Chromatography:	**5 hours**

Column, paper, thin layer and ion exchange.

Titrations in non-aqueous solvents	**5 hours**
Preparation, analysis and study of the properties of co-ordination complexes	**10 hours**

Note: Quantitative analysis (involving volumetric and gravimetric estimations) of at least five mixtures of cations should be done by a student. The volumetric procedure may also include EDTA titration for estimation of mixtures of cations.

Total Lecture hours	**60 hours**

Text Book(s):

1.R.Mukhopadhyay&P.Chatlerjee, Advanced Practical Chemistry,Book& Allied (p) ltd 2007. C	
Reference Books	
1	J.Mendham, R.C. Denney, M.J.K.ThomasDarid&J.Bares, Vogels quantitative chemical analysis, 6h edition prentice hall 2000.

Mapping with Programme outcomes

PO / **CO**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	M	S	S	M	S	M	S	S
CO2	S	M	S	S	S	S	M	S	S	S
CO3	M	S	S	S	S	S	S	S	S	S
CO4	S	M	S	S	S	S	M	S	S	S

*S-Strong; M-Medium; L-Low

Course code	PRACTICAL – VI	Physical Chemistry – II	L	T	P	C
PRACTICALS			0	0	6	4
Pre-requisite		Knowledge on basis of physical Chemistry	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are to:

1. To recognize the principle of acid base titration, redox titration, and precipitation titration using conductometry.
2. To study the rate of polymerization of monomer solutions by viscosity.
3. To know about the rate of reaction between persulphate and iodide ions.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	To understand the principle of acid base titration, redox titration, and precipitation titration using conductometry	K2
2	To analyze the rate of polymerization of monomer solutions by viscosity.	K4
3	To evaluate the rate of reaction between persulphate and iodide ions	K5
4	To apply a kinetics to different reactions.	

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

60 hours

Conductivity experiments:
Determination of

i) Equivalent conductance of a strong electrolyte and the verification of Debye-HuckelOnsagar law.
ii) Verification of Ostwald dilution law and kohlrausch law for weak electrolytes.

Conductometric determination of pka of a weak acid.
Hydrolysis constant of aniline hydrochloride.
Determination of the solubility of a sparingly soluble salt.
Conductometric titrations:
Acid-base and precipitation titrations (including mixture of halides).
Colorimetric estimation using Beer-Lambert law (copper, nickel).

Dropping mercury cathodes – half-wave potentials and estimations by differential method of cadmium, copper, zinc and lead.

Chemical kinetics:
i. Evaluation of Arrhenius parameters using acid hydrolysis of an ester.
ii. Base catalyzed hydrolysis of an ester conductometrically.

Rate of reaction between persulphate and iodide ions study of salt effects over the persulphate – iodide reaction.
Study of rate of polymerization of monomer solutions by viscosity.
Evaluation of

i) Catalytic constant of a strong acid for the iodination of acetone or hydrolysis of an ester.

ii)	Catalytic constants for weak acids and verification of Bronsted catalysis law. Adsorption experiments: Adsorption of oxalic, acetic, formic acids on activated charcoal – Freundlish isotherm – surface area determination.	
	Total Lecture hours	**60 hours**

Text Book(s):

1. P.S.Sindhu"PracticalinPhysicalChemistry",Macmillan,2005

Reference Books

1	H.R. Crockford, J.W. Nowell, "Laboratory manual of Physical Chemistry", John Wiley and Sons, Inc.

Mapping with Programme outcomes

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	M	S	S	M	S	M	S	S
CO2	M	S	S	S	S	S	S	S	S	S
CO3	S	M	S	S	S	S	M	S	S	S
CO4	M	S	S	S	S	S	S	S	S	S

*S-Strong; M-Medium; L-Low


Elective Course

Course code	GROUP A: Elective PAPER I&GROUP D: Elective PAPER IV	DYE CHEMISTRY	L	T	P	C
Elective		GROUP A: Elective PAPER I&GROUP D: Elective PAPER IV	3	0	0	3
Pre-requisite		Fundamentals about the Dye	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are to:

1. To understand the chemistry of dyes
2. To interpret the various types of dyes, synthesis, reactions and applications
3. To recognise the pigments, cosmetics and colouring agents

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Learnt the chemistry of dyes	K3
2	Studied the organic intermediate in the dye chemistry	K4
3	Gained the knowledge to interpret the various types of dyes, synthesis, reactions andapplications	K4
4	Expertise in the pigments, cosmetics and colouring agents	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1		**9 hours**

Colour and Constitution: Relationship of colour observed to wavelength of light absorbed – Terms used in colour chemistry – chromophores, Auxochromes, Bathochromic shift, Hypsochrmic shift. Quinonoid theory and modern theories: Valence bond theory, molecular orbital theory.

Unit:2		**9 hours**

Chemistry of organic intermediates used in dye manufacture. Benzene, Naphathalene and Anthroqucnone intermediates. Nitro dyes, Nitrosodyes, Azo dyes – principles governing azo coupling – mechanism of diazotization coupling with amines, coupling with phenols. Classification according to the number of azo groups and application – Tautomerism in azo dyes.

Unit:3		**9 hours**

Synthesis of specifics dyes and uses Orange IV, Diamond Block F, Metanil yellow, Tartrazines Direct Deep Black, Eriochrome Black T, Eriochrome Red B, Cellition Scarlet B, Congo Red, Malachite

green, methylene blue, Safranine – T, Acid Magenta, Cyanin Green G, Alizarine, Benzanthrone, Indigo, Copper phthalo cyanine, Sulphur black – T .		
Unit:4		**8 hours**
Synthesis, reactions and applications of xanthene dyes, 'Cyanine dyes, acridine dyes, Sulphur dyes, Anthranquinone dyes: Anthraquinone mordant dyes, Anthroquinone acid dyes and Anthraqyinone disperse dyes.		
Unit:5		**8 hours**
Pigments – Introduction - Requirements of organic pigments Types of Pigments – Applications. Fluorsecent. Brightening agents – application of dyes in other areas – Leather, paper, medicine, chemical analysis, cosmetics, colouring agents Food and Beverages		
Unit:6		**2 hours**
Seminar, Webinar, Workshop, Training		
	Total Lecture hours	**45 hours**

Text Book(s)

1.Organic chemistry volume – I I.L.Finar

2.The chemistry of synthetic dyes volume I, III, III+IV K. Venkataraman.

Reference Books

1	Synthetic Dyes – GurdeepR.Chatwal
2	An Introduction to synthetic drugs and dyes Ra. Chawathe.Shah.
3	An introduction to industrial chemistry B.K.Sharma.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://nptel.ac.in/courses/116/104/116104044/

Mapping with Programme outcomes

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	M	S	S	M	S	M	S	S
CO2	S	M	S	S	S	S	M	S	S	S
CO3	M	S	S	S	S	S	S	S	S	S
CO4	S	M	S	S	S	S	M	S	S	S

*S-Strong; M-Medium; L-Low

Course code	GROUP C: Elective PAPER III	Kinetics of polymerization	L	T	P	C
Elective		GROUP C: Elective PAPER III	3	0	0	3
Pre-requisite		Fundamentals about the polymers	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are to:

1. To understand the kinetics of step polymerisation, radical chain polymerisation and ionic chain polymerisation
2. To acquire the knowledge about chain copolymerisation and its kinetics in detail
3. To recognise the Zigler –Natta catalysis, role of Zigler-natta catalyst in polymerization and basic kinetics

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	To understand the kinetics of step polymerization and radical chain polymerization and ionic chain polymerisation	K2
2	To apply knowledge for polymerization mechanism in industrial need.	K3
3	To apply the Zigler –Natta catalyst in polymerization reaction	K3
4	To acquire the knowledge about chain copolymerisation and its kinetics in detail	K4
5	To understand the different types of copolymer	K2

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1 **9 hours**

Step polymerization: Theory of reactivity of large molecules, reactivity of functional groups and molecular size. kinetics of step polymerization, self catalysedpolymerization,external catalysis of polymerizations. CycizationVs linear polymerization, thermodynamic and kinetic consideration. Molecular weight control and distribution in Linearpolymerization

Unit:2 **9 hours**

Kineticsof'radicalchainpolymerization:Kineticschemeforpolymerizationinthepresenceofan initiator. Thermal decomposition of initiators. redox initiation. Photochemical initiation, propagation and terminations — rate expression. Initiator efficiency, auto acceleration mechanism. Kinetics of chain transfer, chain transfer to monomer, initiation and solvents.

Unit:3 **9 hours**

Ionic chain polymerization: Comparision of radical and ionic polymerizations. Cationic polymerization - initiation, propagation and termination - chain transfer to monomer spontaneous and backbiting. Kinetics expression and validity of steady state assumption. The nature and mechanism of anionic polymerization, effect of monomers, initiators and solvents. Initiation, termination - polymerization

without termination, termination by impurities and added transfer agents. Kinetics of polymerization withterminations.

Unit:4		**8 hours**

Chain copolymerization Types of copolymers, evaluation of monomer reactivity ratio copolymer composition, the copolymer equation. Types — of copolyrnerizationbehaviour — ideal co-polymerization, alternating copolymerization and block — copolymerizations. The Q-e scheme and rate of copolymerization — chemical controlled termination, diffusion controlled termination.

Unit:5		**8 hours**

Ziegler — Natta catalysis and polymerization: Definition Ziegler-Natta catalysts, chemical description of Ziegler-Nattn catalysts for olefins, co-factors determining behaviour of catalysts. modification of Ziegler—Natta catalysts by third components, mechanisms for initiation and propagation mechanisms for stereochemical control of alpha—olefins. isotactic and syndiotacticpropagation. Basic kinetics schemes and rate of polymerization.

Unit:6		**2 hours**

Seminar, Webinar, Workshop, Training

	Total Lecture hours	**45 hours**

Text Book(s)

1. P.J.Flory:Principlesof'PolymerChemistry,CornellUnit,Press.NewYork,1953
2. HR. Allcock and F.W. Lampc : Contemporary Polymer Chemistry, PrenticeHall, Englewood, NJ,1981

Reference Books

1	N.G. Gaylord and H.F.Mark : Linear and StereographerAdditionPolymers, Wiley (lnterscience), New York,1959
2	F.W.Billmeyer : Jr. Textbook of Polymer Science, Wiley,New York,1984
3	R.B. Seymour and CE. Carraher : Polymer Chemistry, An IntroductionDekker, New York,1981
4	T Keii : Kinetics of Ziegler — Natta Polymerization; Chapman and Hall,1972

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://nptel.ac.in/courses/104/105/104105124/
2	https://nptel.ac.in/courses/103/106/105106205/

Mapping with Programme outcomes

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M	S	S	S	S	S	S	S	S	S
CO2	S	M	S	S	S	S	M	S	S	S
CO3	S	S	M	S	S	M	S	M	S	S
CO4	S	M	S	S	S	S	M	S	S	S
CO5	M	S	S	S	S	S	S	S	S	S

*S-Strong; M-Medium; L-Low

Course code	GROUP A: Elective Paper IV	Industrial Chemistry	L	T	P	C
Elective		GROUP A: Elective Paper IV	3	0	0	3
Pre-requisite		Fundamentals of chemistry behind the industry	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are to:

1. To understand the chemistry of fuel petroleum and nuclear fuels
2. To acquire brief knowledge about rubber, glass, cement, ceramics, paints, pigments, fertilisers and explosion.
3. To know about the applications of rubber, glass, cement, ceramics, paints, pigments, fertilisers and explosion.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	To understand the chemistry of fuel petroleum and nuclear fuels.	K2
2	To acquire brief knowledge about rubber, glass, cement, ceramics, paints, pigments, fertilizers and explosion.	K3
3	To understand the chemistry of rupper, glass, cement, ceramics, paints and pigments	K2
4	To create the new paints, ceramics and pigments based the knowledge acquired.	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1 **9 hours**

Fuels: Introduction – what is a fuel – calorific value – classification of fuels properties of fuels – petroleum: classification of petroleum – Origin of petroleum – petroleum resources in India – Cracking of petroleum: Thermal cracking – catalytic cracking – knocking – chemical structure and knocking – octane rating. Improvement of anti- knocking characteristics of fuel. Non petroleum fuels. Benzol and power alcohol. Nuclear fuels: Nuclear reactor, Breeder reactor Disposal of radio active wastes.

Unit:2 **9 hours**

Rubber: Importance of rubber – Coagulation of rubber – Draw backs of raw rubber –Vulcanisation of rubber – Properties of vulcanized rubber. Synthetic rubber – Buna – s, Neoprene rubber, Buna – N, Thiokol, silicone rubber, Spong rubber, Foam rubber

Unit:3 **9 hours**

Glass: Introduction – physical and chemical properties of glass –Raw materials – methods of manufacture: Formation of the Batch material, melting, shaping, Annealing and finishing. Cement: Manufacture and setting of cement. Ceramics: Manufacturing process – Application of clolurs to the pottery – Earthenware'sandstonewares.

Unit:4		**8 hours**
Paints and pigments; Pigments: Introduction – Requirements of a pigment Typical inorganic pigments – Application. Paints: Classification of paints – Distempers- constituents of paints – setting of the paint – Requirements of a good paint – Emulsion paints – Latex paints – paint removers – Varnishes – Solvents and thinners.		
Unit:5		**8 hours**
Unit V Fertilizers: Plant nutrients – Fertilizers type – Essential requirements – Fertility of the soil – PH. value of the soil, classification of fertilizers, straight and mixed fertilizers. Nitrogenous fertilizers: Manufacture of Ammonium nitrate, Ammonium sulphate, Urea, nitrolim, CAN. Phosphatic fertilizers: Normal superphosphate and triple superphosphate. Potassiumfertilizers. Explosives: Introduction - Classification – Characteristics, Nitro Cellulose – TNB - TNT – Dynamite – Cordite, Gun Powder – RDX – HMX - Tetryl – Pentryl – Hexyl.		
Unit:6		**2 hours**
Seminar, Webinar, Workshop, Training		
	Total Lecture hours	**45 hours**

Text Book(s)

1. Industrial Chemistry – B. K.Sharma
2. Engineering Chemistry –Sharma

Reference Books

1	Engineering Chemistry - P.C. Jain & Monika Jain
2	Industrial Chemistry – B. N.Chakarbarty
3	Engineering Chemistry – KuriaKose**&**Chemical technology –Shukla

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://nptel.ac.in/courses/116/104/116104044/
2	https://nptel.ac.in/courses/103/107/103107086/
3	https://nptel.ac.in/courses/105/106/105106178/

Mapping with Programme outcomes

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	M	S	S	S	S	M	S	S	S
CO2	M	S	S	S	S	S	S	S	S	S
CO3	S	M	S	S	S	S	M	S	S	S
CO4	M	S	S	S	S	S	S	S	S	S

*S-Strong; M-Medium; L-Low



Course code	GROUP A & B: ELECTIVE Paper II	Water Pollution and Industrial Effluents treatment	L	T	P	C
Elective		GROUP A & B: ELECTIVE Paper II	3	0	0	3
Pre-requisite		Fundamentals of pollution	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are to:

1. To acquire knowledge about characteristics of water in detail.
2. To understand water pollution, complete physico chemical examination of water.
3. To recognize industrial effluents and their treatment in brief.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	To understand characteristics of water indetail.	K2
2	To apply the knowledge on water pollution.	K3
3	To analyse the complete physico chemical features of water.	K5
4	To evaluate the industrial effluents and their treatment in brief.	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1 **9 hours**

Characteristics of water – Introduction – sources of water – Hardness of water - Units of hardness – problems on calculation of hardness – Disadvantages of hard water – Scale and sludge formation in boiler – Boiler Corrosion - Softening methods – problems on softening – desalination of Brackish water: Distillation, Electro dialysis and reverse osmosis.

Unit:2 **9 hours**

Water Pollution: Introduction – Definition of water pollution – water Pollutants – physical and chemical pollution of water – ground water pollution – harmful effects of ground water pollution – surface water. River water and sea water pollution, Oil pollution of water. Effects oil pollution in marine water – Radioactive materials in water.

Unit:3 **9 hours**

Complete physico chemical Examination of water: collection of samples – colour – odour Turbidity PH – temperature – Soilds: Total Solids, Dissolved solids, suspended solids, settable solids – Acidity – Free carbon dioxide – Alkalinity – Hardness – calcium, Magnesium, Sodium - Potassium - Iron – Aluminum – Sulphate – Silica – Heavy metal such as Arsenic, Calcium, chromium – copper – lead - Manganese – Mercury – Nickle – Selenium – Tin and Zinc – Dissolved Oxygen, BOD, COD, Permanganate value – Ammonia Nitrogen – Albuminoidal nitrogen – Total Kjeldhal Nitrogen etc.

Unit:4		**8 hours**
Industrial Effluents: Pulp and paper industries Cotton Processing – Cane sugar industry - Distillery – Dairy– Iron production. Electroplating industry – oil field and oil refinery – Fertilizer industry - Pesticide manufacture - Rubber wastes –Slaughter House and Meat packing – Soaps and Detergents manufacture - Soft Drinks Manufactures. Viscose rayon Manufacture – Radio active Pollution.		
Unit:5		**8 hours**
Treatment of Industrial Effluents : Primary Treatment: Screening – Sedimentation – Equalization – Neutralization – Coagulation. Secondary Treatment: Aerated Lagoons – Trickling Filtration – Activated sludge process – Oxidation. Ditch – Oxidation Ponds - Anaerobic digestion. Tertiary Treatment : Evaporation – Reverse osmosis – Dialysis – Ion Exchange – chemical precipitation Activated Carbon Treatment. Tolerance limits for Industrial Effluents.		
Unit:6		**2 hours**
Seminar, Webinar, Workshop, Training		
	Total Lecture hours	**45 hours**

Text Book(s)

1. Industrial Effluents – N.Manivasakam
2. Physico chemical Examination of Water, sewage and Industrial Effluents – N. Manivasakam

Reference Books

1	Water Pollution P.K.Goel
2	Engineering chemistry P.C. Jain & Monika Jain
3	Environmental Chemistry B. K.Sharma
4	Insecticides, Pesticides and Agro based Industries R.C. Falful, K. Goel ,R.K. Gupta

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://nptel.ac.in/courses/123/105/123105001/
2	https://nptel.ac.in/courses/126/105/126105012/

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Mapping with Programme outcomes

PO / **CO**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	M	S	S	M	S	M	S	S
CO2	S	M	S	S	S	S	M	S	S	S
CO3	S	M	S	S	S	S	M	S	S	S
CO4	M	S	S	S	S	S	S	S	S	S

*S-Strong; M-Medium; L-Low

Course code	GROUP B & C Elective Paper I	GREEN CHEMISTRY	L	T	P	C
Elective		GROUP B & C Elective Paper I	3	0	0	3
Pre-requisite		Fundamentals of green chemistry	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are to:

1. To implement the principles and tools of green chemistry
2. To acquire knowledge about microwave assisted organic synthesis and its advantages
3. To understand the terms ionic liquid & PTC and their applications in green chemistry
4. To review the use of supported catalysis, biocatalysts, alternative synthesis, reagents and reaction conditions used in green chemistry.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	To understand and implement the principles and tools of greenchemistry.	K2 & K3
2	To apply the knowledge about microwave assisted organic synthesis and its advantages	K3
3	To understand the terms ionic liquid & PTC and their applications in green chemistry.	K2
4	To evaluate the use of supported catalysis, biocatalysts, alternative synthesis, reagents and reaction conditions used in green chemistry.	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1		**9 hours**

Introduction to green chemistry: Green chemistry-relevance and goals, Anastas' twelve basic principles of green chemistry - Tools of green chemistry: alternative starting materials, reagents, catalysts, solvents and processes with suitable examples.

Unit:2		**9 hours**

Microwave mediated organic synthesis (MAOS): Microwave activation – advantage of microwave exposure – specific effects of microwave – Neat reactions – solid supports reactions _ Functional group transformations – condensations reactions – oxidations – reductions reactions – multi-componentreactions.

Unit:3		**9 hours**

Ionic liquids and PTC Introduction – synthesis of ionic liquids – physical properties – applications in alkylation – hydroformylations – expoxidations – synthesis of ethers – Friedel-craft reactions – Diels-Alder reactions – Knoevengal condensations – Wittig reactions – Phase transfer catalyst - Synthesis – applications.

Unit:4		**8 hours**

UNIT IV

Supported catalysts and bio-catalysts for Green chemistry

Introduction – the concept of atom ecomomy – supported metal catalysts – mesoporoussilicas – the use of Biocatalysts for green chemistry - modified bio catalysts – fermentations and biotransformations – fine chemicals by microbial fermentations – vitamins and amino acids - Baker's yeast mediated biotransformations– Bio-catalyst mediated Baeyer-Villiger reactions – Microbial polyester synthesis.

Unit:5		**8 hours**

Alternative synthesis, reagents and reaction conditions: A photochemical alternative to Friedel-crafts reactions - Dimethyl carbonate as a methylating agent – the design and applications of green oxidants – super critical carbon dioxide for synthetic chemistry.

Unit:6		**2 hours**

Seminar, Webinar, Workshop, Training

	Total Lecture hours	**45 hours**

Text Book(s)

1. Green Chemistry – Environmentally benign reactions – V. K. Ahluwalia. AneBooks India (Publisher). (2006).
2. Green Chemistry – Designing Chemistry for the Environment – edited by Paul T. Anastas& Tracy C. Williamson. Second Edition, (1998).

Reference Books

1	**References:** Green Chemistry – Frontiers in benign chemical synthesis and processes- edited by Paul T. Anastas& Tracy C. Williamson. Oxford University Press,(1998).
2	Green Chemistry – Environment friendly alternatives- edited by RashmiSanghi& M. M. Srivastava, Narora Publishing House, (2003).

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://nptel.ac.in/courses/104/105/104105087/
2	https://nptel.ac.in/courses/104/103/104103022/

Mapping with Programme outcomes

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	M	S	S	S	S	M	S	S	S
CO2	M	S	S	S	S	S	S	S	S	S
CO3	S	M	S	S	S	S	M	S	S	S
CO4	M	S	S	S	S	S	S	S	S	S

*S-Strong; M-Medium; L-Low

Course code	GROUP B :Elective Paper III	Medicinal Chemistry	L	T	P	C
Elective		GROUP B :Elective Paper III	3	0	0	3
Pre-requisite		Fundamentals of medicinal chemistry	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are to:

1. To understand the terminologies used in drug chemistry, common types ofcommunicable diseases, drug mechanism and action
2. To acquire detailed knowledge in drug design and structure activity relationship
3. To know about various types of therapeutic agents

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understood the terminologies used in drug chemistry, common types of communicable diseases, drug mechanism and action.	K2
2	Acquired detailed knowledge in drug design and structure activityrelationship.	K5
3	To analyze various types of therapeutic agents.	K4
4	To create new drugs for various applications.	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1 **9 hours**

Drugs: Introduction, Terminologies used in drug chemistry. Drugs and Diseases- diseases transmission. Common types of communicable diseases – Cholera, Malaria, Lymphatic Filariasis, Jaundice, Anaemia.

Unit:2 **9 hours**

Drug metabolism and action: Requirements of an ideal drug, drug metabolism, effect of age, species and strain difference, hereditary and genetic factors on drug metabolism, role of cytochromes in drug metabolism, The P-450 Catalytic Cycle, metabolic transformation of Halothane, Phase I-Non-synthetic reactions, Phase II-synthetic reactions,

Unit:3 **9 hours**

Drug design and structure activity relationship: a general treatment of the approachesto drug designs, including the methods of variation, study of the use of biochemicaland physiological information involving new drugs. Basic consideration of drug design – Denovo drug design – lead seeking methods, structural factors in drug design, physical and chemical factors in drug design.

Unit:4 **8 hours**

Quantitative Structure Activity Relationship (QSAR): Fundamentals of QSAR – objectives, expressions of biological activity, parameters related to chemical structure, correlative methods and analysis of results. A study of the SAR of important categories of drugs. Therapeutic targets for drug discovery.

Unit:5		**8 hours**
Therapeutic agents: Antibiotics - β-lactam antibiotics, aminoglycosidal antibiotics, tetracyclines, chloramphenicol and antitumour antibiotics. Analgesic – Endogenous analgetic peptides, Opioid analgetic peptides and their simplified structures. Anti-inflammatory agents. Diuretics. Psychopharmacological drugs, Cardiac drugs, Antihypertensive agents, Cardiac glycosides, Anticancer agents. Antiviral agents.		
Unit:6		**2 hours**
Seminar, Webinar, Workshop, Training		
	Total Lecture hours	**45 hours**

Text Book(s)

1. William Paul Purcell, George E. Bass, John Mark Clayton, Strategy of Drug Design, John Wiley & Sons Inc,1973.
2. Wilson, Charles O. & Ole Gisvold, Textbook of Organic Medicinal and Pharmaceutical Chemistry, Lippincott publishers, 1962.

Reference Books

1	**References:** Graham L. Patrick- An Introduction to Medicinal Chemistry, Oxford University Press, USA; 3rd edition, 2005.
2	K. BagavathiSundari –Applied Chemistry, MJP Publishers, 2006.
3	Alfred Burger & Manfred E. Wolff, Burger's Medicinal Chemistry, John Wiley & Sons Inc; 4th edition, 1981.
4	E. J. Ariens- Drug Design, Academic Press1980.
5	William O. Foye, Thomas L. Lemke, David A. Williams, Principles of Medicinal Chemistry, Williams & Wilkins; 4th edition,1995.
6	H. John Smith, Smith and Williams' Introduction to the Principles of Drug Design and Action, Fourth Edition, CRC; 4th edition, 2004.
7	Stanley M. Roberts & R.F. Newton- Prostaglandins and Thromboxanes, Butterworth- Heinemann Ltd, 1982.
8	Jasjit S. Bindra&RanjnaBindra- Prostaglandin Synthesis, Butterworth-Heinemann, Ltd., 1982.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://nptel.ac.in/courses/104/106/104106106/

Mapping with Programme outcomes

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	M	S	S	M	S	M	S	S
CO2	S	M	S	S	S	S	M	S	S	S
CO3	M	S	S	S	S	S	S	S	S	S
CO4	M	S	S	S	S	S	S	S	S	S

*S-Strong; M-Medium; L-Low

Course code	GROUP B: ELECTIVE PAPER IV	APPLIED ELECTROCHEMISTRY	L	T	P	C
Elective		GROUP B: ELECTIVE PAPER IV	3	0	0	3
Pre-requisite		Fundamentals of electrochemistry	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are to:
1. To understand principles of corrosion, corrosion monitoring and corrosion inhibition..
2. To Learn the electroanalytical techniques like cyclic voltammetry, anodic stripping voltammetry and electrogravimetry

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	To understand the principle and importance of corrosion.	K2
2	Recognized the principles, importance and classification of corrosion and corrosion monitoring methods.	K4
3	Gained the knowledge about corrosion inhibition in detail.	K5
4	Understood the theory, basic instrumentation and applications of various electroanalytical techniques used in corrosion.	K2

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1 **9 hours**

Principles of corrosion Definition – cost of corrosion – importance of corrosion studies – classification of corrosion – expression for corrosion rates – Electrochemical principles of corrosion

Unit:2 **9 hours**

Corrosion monitoring Coupon (weight loss) method – electrical resistance method – gasometric method – potentiodynamic polarization method – impedance method – hydrogen permeation method

Unit:3 **9 hours**

Corrosion inhibition – definition – importance – classification of inhibitors – based on electrode process – based on environment – mechanism of inhibitor action in acidic environment

Unit:4 **8 hours**

Electroanalytical Techniques – I Cyclic voltammetry (CV)– theory – basic instrumentation – applications Anodic stripping voltammetry (ASV)– theory – basic instrumentation –applications.

Unit:5 **8 hours**

Electroanalytical Techniques – II Bulk electrolysis- electrogravimetry – controlled potential (potentiostatic) electrogravimetry – electroseparation – controlled current (coulostatic)

electrogravimetry – current – time behaviour – comparative account of potentiostatic and coulostatic techniques.		
Unit:6		**2 hours**
Seminar, Webinar, Workshop, Training		
	Total Lecture hours	**45 hours**

Text Book(s)

1. An Introduction to metallic corrosion and its prevention by Raj Narayanan.
2. Vogel'sTextbookofQuantitativeChemicalAnalysisbyG.H.Jeffery,J.Bassett,J.Mendham,and R.C.Denney , Longman Scientific & Technical, 5th edition,1989.

Reference Books

1	Electrochemical methods – fundamentals and applications – Allen J. Bard and Larry R.Faulkner, Wiley International editions
2	Electroanalytical chemistry – Basil H. Vassons and Galen W. Ewing, Wiley Inter science Publication1983
3	Chemistry Experiments for Instrumental methods – Donald T. Sawyer, William R. Heineman, Janice M. Beebe, John Wiley & Sons, 1984.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://nptel.ac.in/courses/113/104/113104082/
2	https://nptel.ac.in/courses/113/104/113104089/

Mapping with Programme outcomes

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	M	S	S	M	S	M	S	S
CO2	S	M	S	S	S	S	M	S	S	S
CO3	S	M	S	S	S	S	M	S	S	S
CO4	M	S	S	S	S	S	S	S	S	S

*S-Strong; M-Medium; L-Low

Course code	GROUP C - ELECTIVE PAPER II	ADVANCED POLYMERIC MATERIALS	L	T	P	C
Elective		GROUP C - ELECTIVE PAPER II	3	0	0	3
Pre-requisite		Fundamentals of polymer chemistry	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are to:
1. To choose any research work related to the advanced polymeric materials.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Acquire the knowledge about dendrimers, hyper-branched polymers and polymer nano composites.	K4
2	Recognise the importance of synthetic biomedical polymers for drug delivery and conducting polymers.	K5
3	Understand the synthetic route, structure, properties and uses of engineering plastics.	K2

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1 **9 hours**

Dendrimers and hyperbranched polymers Properties of Dendrimers and Hyperbranched Polymers and their Blends: Dendrimers and their structure, synthesis of Dendrimers, Hyperbranched Polymers and their structure. Synthesis of hyperbranched polymers, branching and polydispersity, conformation, general concepts of polymer blends. Blends of Dendritic polymers with thermoplastics.

Unit:2 **9 hours**

Polymer nano composites Polyamide/clay nano composites - Synthesis, characterization and properties of Nylon 6- clay hybrid. Polystyrene/clay nano composites – Surface initiated polymerization, syndiotactic polystyrene / clay nano composites, properties. Poly (butylenes terephthalate) (PBT) based nano composites, Epoxy nano composites on layered silicates. Polypropyelene layered silicate nanocomposites.

Unit:3 **9 hours**

Synthesis Biomedical polymers for drug delivery Polymers as biomaterials, biomedical applications of syntheticpolymers,syntheticpolymersforbiomedicalapplications,poly(α -hydroxy esters), poly (lactic acid), poly (anhydrides), poly (phosphazenes), controlled drug delivery, methods of drug delivery,

Unit:4 **8 hours**

Conducting polymers Correlation of chemical structure and electrical conductivity. Structure of conducting polymers Poly (acetylene), poly (pyrrole)s, poly (thiophene)s, polyanilines, poly (p-phenylenesulphide), poly (p-phenylenevinylene)s. Different methods of synthesis of polyaniline: solution polymerization, interfacial polymerization, electrochemical synthesis, enzyme synthesis and photo induced polymerization of aniline. Applications of conducting polymers: Membranes and ion

exchanger, corrosion protection, gas sensors, biosensors, electrocatalysis.

Unit:5		**8 hours**

Engineering plastics Acrylonitrile butadiene styrene (ABS),Polycarbonates (PC),Polyamides (PA), Polybutylene terephthalate (PBT), Polyethylene terephthalate (PET), Polyphenylene oxide (PPO),Poly sulphone (PSU), Polyether ether ketone (PEEK). Polyimides, Poly phenyleneSulphide (PPS), Synthetic route, structure, properties and uses.

Unit:6		**2 hours**

Seminar, Webinar, Workshop, Training

	Total Lecture hours	**45 hours**

Text Book(s)

1. Advance polymeric materials Editors : Gabriel O. Shonaike& Suresh G. Advani, CRCpress–2003.

Reference Books

1	Progress in preparation, processing and applications of polyaniline. Progress in polymer Science 34 (2009) 783 – 810
2	Monographs in electrochemistry Conducting polymers – a new era in electrochemistry Editor: F. Scholz Springer – Verlag, Germany
3	Polymer nano composites Editor: Y-W Mai, Wood head Publishing Ltd. 2006 M.Sc. Chemistry (Colleges) 2010-11

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://nptel.ac.in/courses/104/105/104105124/

Mapping with Programme outcomes

PO / CO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	M	S	S	M	S	M	S	S
CO2	S	M	S	S	S	S	M	S	S	S
CO3	M	S	S	S	S	S	S	S	S	S

*S-Strong; M-Medium; L-Low

Course code	GROUP C - ELECTIVE PAPER IV	PHARMACEUTICAL CHEMISTRY	L	T	P	C
Elective		GROUP C - ELECTIVE PAPER IV	3	0	0	3
Pre-requisite		Fundamentals of pharmaceutical chemistry	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are to:

1. To compete during their search for jobs in the pharmaceutical companies.
2. To acquire the knowledge about medicinal plants and medicinally important compounds.
3. To recognise the importance of Antibiotics, sulpha drugs, Analgesics
4. To analyze the Antipyretics, Antihypertensive, hypotensive and antineoplastic drugs.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	To understand the important terminologies used in pharmaceutical chemistry, naming ofdrugs and mechanism of drug action	K2
2	To acquire the knowledge about medicinal plants and medicinally important compounds.	K4
3	To recognise the importance of Antibiotics, sulpha drugs, Analgesics,	K5
4	To analyze the Antipyretics, Antihypertensive, hypotensive and antineoplastic drugs.	

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	**9 hours**

Introduction Important terminologies used in pharmaceutical chemistry – pharmacology – drug – pharmocophore – antimetabolites – mutation – grams test – actinomycetes – immunological agents – vaccines – toxoids – immune – human sera – primary immunization – routes of drug administration – additive effect – synergism – antagonism – placebo – important drugs which cause dependence – dosage – mechanism of drug action – factors influencing the metabolism of drugs – principles of bio assay – encapsulation – naming of drugs

Unit:2	**9 hours**

Medicinal plants and medicinally important compounds Indian medicinal plants – medicinal plants in cure of diseases – spices as medicines – medicinal plants in the kitchen garden – plant poisoning – medicinally important compounds of Mg, Al, P, As, Hg and Fe-testing cholesterol in serum-estimation of bilirubin in serum – estimation of urea in serum and estimation of inorganic chlorides in blood serum.

Unit:3	**9 hours**

Antibiotics and Sulpha drugs Antibiotics – penicillin – semisynthetic penicillin – chloramphenicol – streptomycin – cephalosporin – antifungals – nystatin – griseofluvin. Sulpha drugs – sulphathiazole – sulphamerazine – sulphaguanidine – sulphadiazine - mechanism of action – uses.

Unit:4		**8 hours**
Analgesics and Antipyretics Introduction to pharmaceutical chemistry analgesics – Morphine analogues and its modification – Codeine – Synthetic narcotic analgesiscs – Pethidines and methadones – Narcotic antagonists – Nalorphine – Antipyretic analgesics – pyrazoles – salicylic acid – paraaminophenol derivatives – Aspirin and salol hypnotics and sedatives – Barbiturates – Benzodiazipines.		
Unit:5		**8 hours**
Antihypertensive, hypotensive drugs and antineoplastic drugs Antihypertensive and hypotensive drugs – mechanism of lowering blood pressure – α- methyl dopa – pargyline – bertyline – hydralazine – propranolol and antiarrhythmic agents, antitubercular drugs – PAS – INH – ethambutol, rifampicin – pyrazinamide. Antineoplastic drugs – alkylating agents – nitrogen mustards – aziridines – sulphonic acid esters – 1,2 – epoxides – antimetabolites – folic acid and pyrimidine antagonista – vinca alkaloids – hormones – oral contraceptives.		
Unit:6		**2 hours**
Seminar, Webinar, Workshop, Training		
	Total Lecture hours	**45 hours**

Text Book(s)

1. Berger, A medicinal chemistry, Wiley interscience, New York, Volume I and II, 1990.
2. AsutoshKar, Medicinal chemistry, Wiley Eastern Ltd, Chennai, 1992.

Reference Books

1	BentleyandDriver's,TextbookofPharmaceuticalChemistry,1985.
2	Wilson, O. Giswold and F. George, Textbook of Organic medicinal and pharmaceutical chemistry, Philadelphia, 1991.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://nptel.ac.in/courses/104/106/104106106/

Course Designed By:

Mapping with Programme outcomes

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	M	S	S	M	S	M	S	S
CO2	S	M	S	S	S	S	M	S	S	S
CO3	M	S	S	S	S	S	S	S	S	S
CO4	S	M	S	S	S	S	M	S	S	S

*S-Strong; M-Medium; L-Low

Course code	GROUP A: ELECTIVE PAPER III	Organic Synthetic Methodology, Oxidation and Reduction	L	T	P	C
Elective		GROUP A: ELECTIVE PAPER III	3	0	0	3
Pre-requisite		Fundamentals of organic chemistry	Syllabus Version	2020-2021		

Course Objectives:

The main objectives of this course are to:

1. To apply the IUPAC nomenclature in naming of acyclic and monocyclic compounds.
2. To acquire brief knowledge about various synthetic methodologies
3. To review the different types of reagents used in oxidation and reduction
4. To implement the applications of UV, IR, NMR and Mass spectral techniques

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	To remember the IUPAC nomenclature in naming of acyclic and monocyclic compounds.	K4
2	To evaluate the various synthetic methodologies used for synthetic chemistry.	K5
3	To review the different types of reagents used in oxidation and reduction	K2
4	To implement the applications of UV, IR, NMR and Mass spectral techniques	

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1 **9 hours**

Nomenclature - IUPAC nomenclature of acyclic and monocyclic compounds- Nomenclature of bicyclic system – large ring compounds (muscone, civetone) Novel ring system – adamantane – diadamantane, cubane (strained ring) catenane (interlocked system), bulvalene (fluxional molecule) (Synthesis not necessary) **Reagents in Organic Synthesis** - Hexamethylphosphorictiamide (HMPT), Polyphosphoric acid (PPA), 1,3-dithiane (umpolung), Lithium dimethylcuprate (LDC), Lithium disopropylamide (LDA), crown ethers, Phase transfer catalysts (PTC).

Unit:2 **9 hours**

Synthetic Methodology – Retrosynthesis – disconnection approach – synthons and synthetic equivalents – guidelines for choosing disconnections– linear and convergent synthesis - functional group interconversions – functional group addition-one group C-X disconnections – two group C-X bond disconnections – one group C-C bond disconnections – regioselectivity – two- group C-C bond disconnections - importance of the order of events – chemoselectivity – reversal of polarity. Protecting groups – protection of alcohols, carbonyl groups, carboxylic group and aminogroup.

Unit:3 **9 hours**

Oxidation – Jone'sreagent,Chromylchloride,Dioxiranes,DMSO,DMSO -Ac_2O, DMSO-oxalyl chloride (Swern reaction), Etard reaction, SeO_2, Lemieux reagents ($NaIO_4$ with $KMnO_4$& OsO_4), allylic oxidation (SeO_2&NBS),Fenton'sreagent.oxidationofaminesandsulphides,Wackerprocess

(ketone from alkene) and ceric ammonium nitrate (CAN).

Unit:4		**8 hours**

Reduction –Metal hydride reduction – typical reactions and conditions used –$NaCNBH_3$ reductions, hydroboration, 9BBN, tri –n- butyl tinhydride (TBH), DIBAL–H, Me_3SiCN, tri tertiarybutoxy aluminum hydride. Dissolving metal reductions –Rosenmund reduction, McMurrays coupling, acyloin condensation,Wilkinson'scatalyst,Bakersyeast.

Unit:5		**8 hours**

Applications of UV, IR, ^1H NMR and Mass spectral techniques to solve the structures of simple organic molecules (simple problems based on data)

Unit:6		**2 hours**

Seminar, Webinar, Workshop, Training

	Total Lecture hours	**45 hours**

Text Book(s)

1. Jerry March, Advanced Organic Chemistry
2. House, Modern Synthetic Reactions
3. Carruthers, Some Modern Methods of Organic Synthesis

Reference Books

1	Norman, Principles of Organic Synthesis
2	Pine, Organic Chemistry
3	Ireland, Organic Synthesis
4	Waren, Designing Organic Synthesis-A Programmed Introduction to Synthetic Approach
5	Furthrhop and Penzlin, Organic Synthesis Concepts, Methods and Starting Materials
6	Mackie and Smith, Guide lines to Organic Synthesis
7	Gurtu and Kapoor, Organic Reactions and Reagents.
8	Fieser and Fieser, Reagents in Organic Synthesis.
9	Jagdamba Singh and L.D.S. Yadav, Organic Synthesis
10	Silverstein, Bassler and Morril, Spetrometric identification of Organic Compounds.
11	Kemp, Organic Spectroscopy
12	Kalsi, Spectroscopy of OrganicCompounds.
13	Y. R. Sharma, Elementary Organic Absorption Spectroscopy
14	Silverstein and Webster, Spectrometric Identification of Organic Compounds.

15	S.C. Pal, Nomenclature of Organic Compounds
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://nptel.ac.in/courses/104/108/104108078/
2	https://nptel.ac.in/courses/104/101/104101005/

Mapping with Programme outcomes

PO / **CO**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	M	S	S	M	S	M	S	S
CO2	S	M	S	S	S	S	M	S	S	S
CO3	S	M	S	S	S	S	M	S	S	S
CO4	M	S	S	S	S	S	S	S	S	S

*S-Strong; M-Medium; L-Low

Course code	GROUP D: ELECTIVE PAPER I	Introduction to Industry 4.0	L	T	P	C
Elective		GROUP D: ELECTIVE PAPER I	3	0	0	3
Pre-requisite		Fundamentals on emerging Technology in computer science	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are to:

1. At the end of completing this course, students will have knowledge on Industry 4.0, need for digital transformation and the following Industry 4.0 tools:

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	To understand the concept of Industry 4.0	K2
2	To apply the concept of Artificial Intelligence	K3
3	To analyze the Big Data and IoT	K4
4	To evaluate the Applications and Tools of Industry 4.0	K4
5	To create the awareness regarding the job 2030	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Industry 4.0	9 hours

Need – Reason for Adopting Industry 4.0 - Definition – Goals and Design Principles -Technologies of Industry 4.0 – Big Data – Artificial Intelligence (AI) – Industrial Internet of Things - Cyber Security – Cloud – Augmented Reality

Unit:2	Artificial Intelligence	9 hours

Artificial Intelligence: Artificial Intelligence (AI) – What & Why? - History of AI - Foundations of AI -The AI - environment - Societal Influences of AI – Application Domains and Tools - Associated Technologies of AI - Future Prospects of AI – Challenges of AI.

Unit:3	Big Data and IoT	9 hours

Big Data : Evolution - Data Evolution - Data : Terminologies - Big Data Definitions - Essential of Big Data in Industry 4.0 - Big Data Merits and Advantages - Big Data Components : Big Data Characteristics - Big Data Processing Frameworks - Big Data Applications - Big Data Tools - Big Data Domain Stack : Big Data in Data Science – Big Data in IoT - Big Data in Machine Learning - Big Data in Databases - Big Data Use cases : Big Data in Social Causes - Big Data for Industry -Big Data Roles and Skills -Big Data Roles - Learning Platforms; Internet of Things (IoT) : Introduction to IoT – Architecture of IoT - Technologies for IoT - Developing IoT Applications - Applications of IoT - Security in IoT.

Unit:4	Applications and Tools of Industry 4.0	9 hours

Applications of IoT – Manufacturing – Healthcare – Education – Aerospace and Defense –

Agriculture – Transportationa and Logistics – Impact of Industry 4.0 on Society: Impact on Business, Government, People. Tools for Artificial Intelligence, Big Data and Data Analytics, Virtual Reality, Augmented Reality, IoT, Robotics.		
Unit:5	**Jobs 2030**	**9 hours**
Industry 4.0 – Education 4.0 – Curriculum 4.0 – Faculty 4.0 – Skills required for Future - Tools for Education – Artificial Intelligence Jobs in 2030 – Jobs 2030 - Framework for aligning Education with Industry 4.0.		
	Total Lecture hours	**45 hours**
Text Book: P. Kaliraj, T. Devi, Higher Education for Industry 4.0 and Transformation to Education 5.0, 2020		
Reference Books		
1	P. Kaliraj, T. Devi, Higher Education for Industry 4.0 and Transformation to Education 5.0, 2020	
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]		
1	https://nptel.ac.in/courses/106/102/106102220/	
2	https://nptel.ac.in/courses/106/104/106104189/	

Mapping with Programme outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	S	S	M	S	S	S	M	S
CO2	S	M	M	S	S	M	M	S	S	M
CO3	S	S	S	S	M	S	S	S	M	S
CO4	M	M	S	S	S	S	S	S	S	S
CO5	S	S	S	M	M	S	S	M	M	S

*S-Strong; M-Medium; L-Low

Course code	GROUP D: ELECTIVE PAPER II	ARTIFICIAL INTELLIGENCE	L	T	P	C
Elective		GROUP D: ELECTIVE PAPER II	3	0	-	3
Pre-requisite		Design intelligent agents to solve real world problems	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are to:

1. to introduce Artificial Intelligence & machine learning
2. to facilitate students to learn & apply AI tools for solving research issues
3. to understand the basics of robotic process automation
4. to develop automated solutions for research problems

.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Gained the knowledge on Artificial Intelligence & machine learnings	K1 & K2
2	Student will apply AI tools for solving research issues	K2 & K3
3	Student will understand the basics of robotic process automation	K4
4	Student can acquired the knowledge on automated solutions for research problems.	K5 & K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Artificial Intelligence (AI):	9-- hours

Introduction to AI – Fundamentals – Need for AI – Foundations of AI – AI environment – Application domains of AI – AI tools – Challenges and Future of AI

Unit:2	Machine learning (ML) and Deep learning (DL) & Artificial Intelligence in Biology research:	9-- hours

Fundamentals of ML and DL – ML algorithms to find associations across biological data, cellular image classification and identification of genetic variations.

AI in drug design – AI in Phylogeny – AI in next generation sequencing – AI in protein structure prediction – AI in protein folding analysis.

Unit:3	Python programming	9-- hours

Introduction to Python language – Python, Machine learning and AI - Data types, variables and operators – Conditions and loops – Structure of a Python program – Packages and function – Writing simple python codes.

Unit:4	Robotic Process Automation (RPA)	9-- hours

Fundamentals of RPA – Programming basics from RPA perspective – Applying RPA – RPA

development methodology – Architecture of RPA – RPA and emerging ecosystem.		
Unit:5	**UiPath Studio**	**9-- hours**
Introduction - Automation debugging – Automation library – Activities Packages – Basic automation tasks - Text and image automation – Data tables in RPA – Extracting data from data tables and pdf – Building simple Automation projects.		
	Total Lecture hours	**45-- hours**
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]		
1	https://nptel.ac.in/courses/112/103/112103280/	
2	https://nptel.ac.in/courses/106/106/106106145/	

Mapping with Programme outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M	M	S	S	S	S				
CO3	S	S	S	S	S	S	S	S	S	S
CO3	S	M	S	S	S	S	M	S	S	S
CO4	S	S	S	S	S	S	S	S	S	S

*S-Strong; M-Medium; L-Low

Course code	GROUP D: ELECTIVE PAPER III	Data Analytics using R	L	T	P	C
Elective		GROUP D: ELECTIVE PAPER III	3	0	0	3
Pre-requisite		Emphasis on statistical & analytical skills on computer language	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are to:

1. To introduce the concept of Data Analytics
2. To understand the features of R.
3. To utilize the concept of data analytics and R

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Student get the knowledge about data analytics	K2
2	Student can apply the concept of data analytics	K3
3	Student can analyze new tools used in robotics	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1 — **9 hours**

Introduction Data Analytics – Data Analysis Vs Data Analytics – Data Analytics – Types - Data Analytics – Framework – Data Analytics – Tool - R language - Understanding R features - Installing R and RStudio – Packages and Library – Importing and Exporting Files: CSV File – JSON File – txt File –Excel File – Xml File - Command Line Vs. Scripts. - Data Pre-Processing – Missing Value – Omitting Null Values – Data Transformation – Data Selection – Data Integration.

Unit:2 — **9hours**

Understanding R features - Installing R and RStudio – Packages and Library – Importing and Exporting Files: CSV File – JSON File – txt File –Excel File – Xml File – Command Line Vs. Scripts Data Manipulation: Slicing - Subscripts and Indices – Data Subset – Dplyr Package: Select Function - Filter Function - Mutate Function - Arrange Function.

Unit:3 — **9 hours**

Data Summarization & Visualization - Mean – Median – Mode - Variablity Measures - Variance – Range - IQR – Standard Deviation – Sum of Squares –Identifying Outliers using IQR. Data Visualization – Introduction – Datasets – Exploratory Data Analytics – Univariate Analysis – Histogram - Bivariate Analysis - Box Plot – Multivariate Analysis - Scatter Plot - MASS Package - Categorical Variable –Bar Chart – Mosaic Plot.

Unit:4 — **9 hours**

Reporting Tool – Analysing Gathering Information – Story Telling – R Markdown – R Markdown Framework - rmarkdown package – Knit for Embedded Code: knitr package - Convert File:HTML,

PDF, MS Word - Markdown Formatted Text - ShinyApp – shiny package: Built Shiny app – Control Widgets – Customize Reactions – Reactive Expressions - Customize Appearance - Deploy Shiny app.		
Unit:5		**9 hours**
Data Analytics Case Studies – Marketing – Logistic Management – Insurance – Behavioural Analytics – Data Analytics on Diamond Dataset.		
	Total Lecture hours	**45 hours**

Text Book(s):

1.VigneshPrajapati,"BigDataAnalyticswithRandHadoop",PacktPublishing,ISBN - 978-1-78216-328-2, 2013.

Reference Books

1	V.Bhuvaneswari,"DataAnalyticswithRStepbyStep",ScitechPublisher,ISBN – 978-81- 929131-2-4, Edition 2016.
2	Roger D.Peng,"RProgrammingforDataScience",LeanPublishing,2014.
3	SholomWeiss,et.al,"TheTextMiningHandbook:AdvancedApproachesinAnalysing UnstructuredData",Springer,Paperback2010.
4	EmmanuelParadis,"RforBeginners",2005.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://nptel.ac.in/courses/106/107/106107220/
2	https://nptel.ac.in/courses/110/106/110106072/

Mapping with Programme outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	S	S	M	S	S	S	S	M
CO2	S	M	M	S	S	M	M	M	S	S
CO3	S	S	S	S	M	S	S	S	S	M

*S-Strong; M-Medium; L-Low

Annexure

M. Sc. CHEMISTRY (Affiliated colleges)

Syllabus

(With effect from 2020-21)

Bharathiar University (affiliated colleges)
(A State University, Accredited with "A" Grade by NAAC and
13th Rank among Indian Universities by MHRD-NIRF)
Coimbatore 641 046, INDIA

M. Sc. Physics

Syllabus

AFFILIATED COLLEGES

Program Code: 32C

2020 – 2021 onwards

BHARATHIAR UNIVERSITY

(A State University, Accredited with "A" Grade by NAAC,
Ranked 13th among Indian Universities by MHRD-NIRF,
World Ranking : Times - 801-1000, Shanghai - 901-1000, URAP - 982)

Coimbatore - 641 046, Tamil Nadu, India

Program Educational Objectives (PEOs)

The **M. Sc. Physics** program describe accomplishments that graduates are expected to attain within five to seven years after graduation	
PEO1	Graduates will become experts in various professional zones like industry, research, academic, business, etc. at par with national and international standards.
PEO2	Acquired knowledge in physical concepts facilitate the graduates to recognize, formulate, examine, explore and implement the ideas for societal developments.
PEO3	Graduates capable enough to meet any challenge as an individual or in a part of team towards achieving prospective scope in innovative projects.
PEO4	Graduates will have cognitive base to achieve academic excellence by learning diverse phenomena of physical concepts help them to lead and execute inter- and multidisciplinary academic and research works.
PEO5	Graduates will be skilled enough to perceive novel and innovative concepts to develop cutting edge technologies as entrepreneurial pursuit.
PEO6	Graduates will have a proficiency to enhance the application prospects of physics by interfacing the philosophical concepts with suitable perceptions beyond the subject boundary.

Program Specific Outcomes (PSOs)

After the successful completion of **M.Sc., Physics** program, the students are expected to	
PSO1	Be a potential graduate with the stuff of vibrant subject knowledge in every subdivision of Physics especially in Classical Mechanics, Quantum Mechanics, Mathematical Physics, Nuclear Physics, Electronics and Materials Science with application tendency.
PSO2	Be a science person to extend the application of Physics discipline to different sectors of common or needy people.
PSO3	Have the competence to get clear any comprehensive examination offers superior opportunity in official, academic and research sectors.
PSO4	Have the skill to manage computational tools to explore scientific activity even at subatomic particle level using theoretical concepts without empirical approach.
PSO5	Be a skillful to perceive rare or exceptional scientific phenomena using the concepts of physical science and to find solution to any challengeable task.
PSO6	Be an efficient to employ research work by applying the subject knowledge acquired from diverse objectives of Physics.
PSO7	Have the ability to meet any employment challenge demands intense subject proficiency.

Program Outcomes (POs)

On successful completion of the M. Sc. Physics program	
PO1	Understand the concepts of advanced physics and capable to apply them in real time problems to find appropriate solutions.
PO2	Develop model and analyse to derive solution using the background of theoretical physics.
PO3	Augment the application feasibility of Physics theoretical formulations in combination with relative concepts belongs to other discipline.
PO4	Apply learned experimental skill to develop newer materials with unique characteristics employing variety of synthesis techniques.
PO5	Develop software tools by applying the learned concepts in combination belongs to Mathematical physics, Quantum mechanics and computational physics.
PO6	Perceive novel and contemporary research philosophies globally facilitate to work at par with international standards.
PO7	Meet any challenge globally for employment in academic, research and industry by exposing the learned skill in diverse zone under Physics discipline.

BHARATHIAR UNIVERSITY: COIMBATORE 641 046

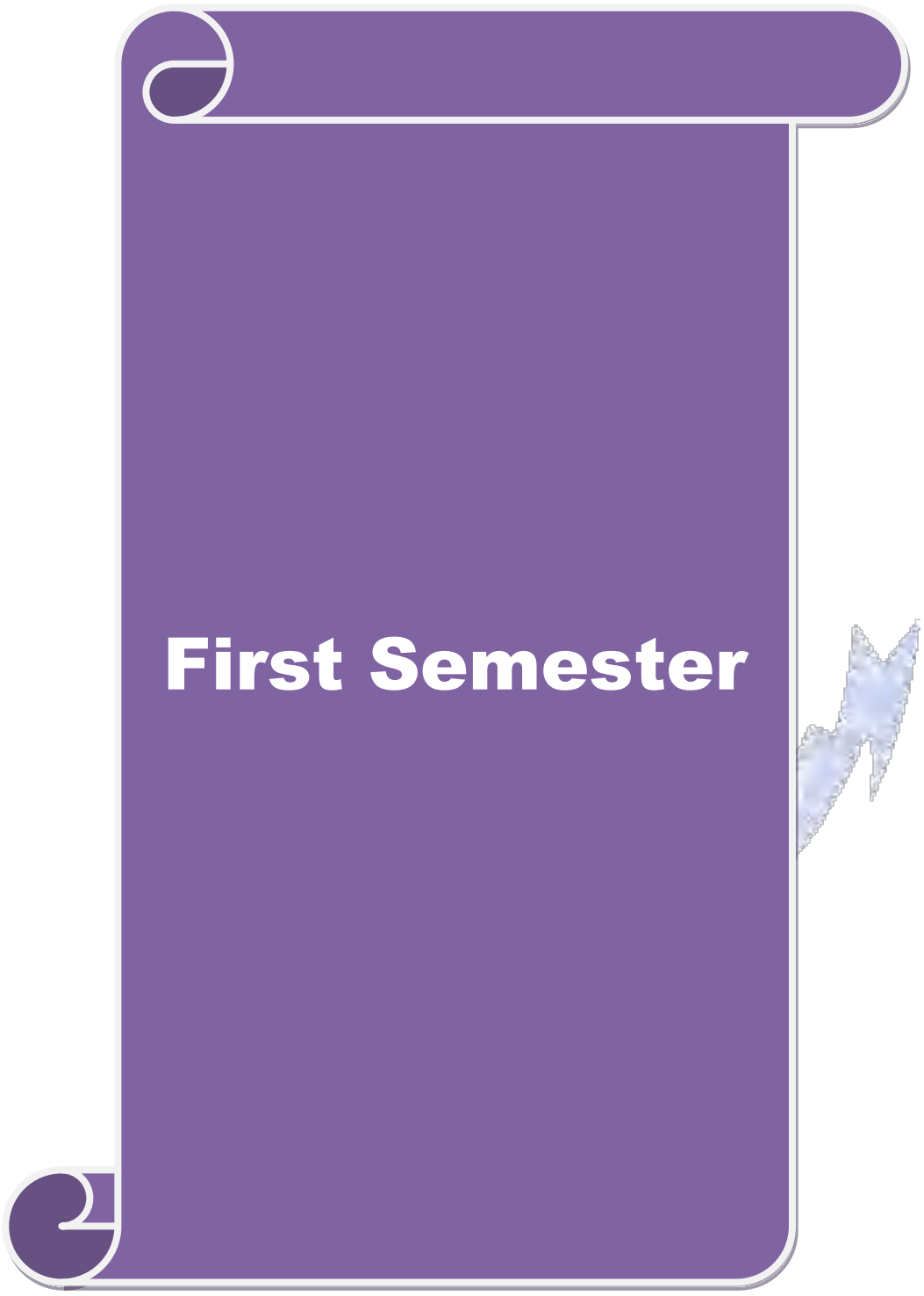
M. Sc. Physics Curriculum (AFFILIATED COLLEGES – OBE PATTERN)

(For the students admitted during the academic year 2020 – 21 onwards)

Course Code	Title of the Course	Credits	Hours/week		Maximum Marks		
			Theory	Practical	CIA	ESE	Total
FIRST SEMESTER							
13A	Paper - I Classical Mechanics	4	4	-	25	75	100
13B	Paper - II Mathematical Physics-I	4	4	-	25	75	100
13C	Paper - III Integrated Electronics	4	4	-	25	75	100
13D	Paper - IV Advanced Computational Physics	4	4	-	25	75	100
	Practical - I General Physics	-		3	-	-	-
	Practical - II Electronics	-		3	-	-	-
	Elective I	4	4	-	25	75	100
	Total		20	6			500
SECOND SEMESTER							
23A	Paper - V Quantum Mechanics-I	4	4	-	25	75	100
23B	Paper -VI Mathematical Physics- II	4	4	-	25	75	100
23C	Paper -VII Atomic and Molecular Spectroscopy	4	4	-	25	75	100
23P	Practical- I General Physics	4	-	4	40	60	100
23Q	Practical- II Electronics	4	-	4	40	60	100
	Elective II	4	4		25	75	100
	Total		16	8			600
THIRD SEMESTER							
33A	Paper - VIII Quantum Mechanics – II	4	4	-	25	75	100
33B	Paper - IX Classical Electrodynamics	4	4	-	25	75	100
33C	Paper - X Statistical Mechanics	4	4	-	25	75	100
33D	Paper - XI Condensed Matter Physics	4	4	-	25	75	100
	Practical- III Advanced Practicals	-	-	3	-	-	-
	Practical- IV Special Electronics	-	-	3	-	-	-
	Elective III	4	4	-	25	75	100
	Total		20	6			500
FOURTH SEMESTER							
43A	Paper -XII Nuclear and Particle Physics	4	4	-	25	75	100
43B	Paper -XIII Communication Electronics	4	4	-	25	75	100
43C	Paper -XIV Laser and Nonlinear Optics	4	4	-	25	75	100
43P	Practical- III Advanced Practicals	4	-	5	40	60	100
43Q	Practical- IV Special Electronics	4	-	5	40	60	100
	Project	6	-	5	-	-	150*
	Total		12	15			650
	Grand Total	90	68	35			2250
ONLINE COURSES							
	MOOC, SWAYAM, NPTEL, Websites						

	etc.						

* Project report - 120 marks (80%); Viva-voce - 30 marks (20%)


First Semester

FIRST SEMESTER

Course code	13A	CLASSICAL MECHANICS	L	T	P	C
Core Paper I			4	0	0	4
Pre-requisite		Students should have basic understanding in mathematical physics and Newtonian mechanics	Syllabus Version			2020 - 2021

Course Objectives:

The main objectives of this course are to:
1. Understand basics of variational principle, Lagrangian and Hamiltonian formalism
2. know about central force problem, phase space, canonical transformation and Hamilton Jacobi technique
3. apply normal mode analysis to physical systems
4. learn concepts of special relativity and familarise basics of non-linear dynamics

Expected Course Outcomes:

On successful completion of the course, the students will be able to :

1	familarise basic mathematical tools like variational calculus to mechanical systems and able to compute Lagrangian and Hamiltonian equation of motion	**K2**
2	understand central force problem and also system in non-inertial reference frame	**K3**
3	analyse mechanics problems through canonical transformation technique and Hamilton Jacobi technique	**K4**
4	learn rigid body dynamics and normal mode analysis	**K5**
5	study basic concept of special theory of relativity and non-linear dynamics	**K5**

K1 – Remember, K2 – Understand, K3 – Apply, K4 – Analyze, K5 – Evaluate, K6 – Create

Unit I	Variational Principle: Lagrange's and Hamilton's Equations	10 hours

Newton's Three Laws of Motion (Review) – Constraints, Degrees of freedom, Generalized Coordinates and Configuration Space. Variational Principle – Hamilton's Principle – Derivation of Euler Lagrangian Equation of Motion – Symmetries and Conservation Laws – Cyclic Coordinates. Phase Space – Hamilton's Canonical Equation of Motion using Variational Principle – Physical Significance of Hamiltonian.
Applications – Lagrangian and Hamilton's Equation of Motion for Simple Pendulum, Linear Harmonic Oscillator and A Charged Particle in Electromagnetic Fields

Unit II	Central Force and Non-inertial Frame	12 hours

Motion in a Central Force Field in Lagrangian Formalism – Reduction of Two Body Problem to the Equivalent One Body Problem – Classification of Orbits for Inverse Square Forces - Virial Theorem – Differential Equation for the Orbits - Two Body Collisions. Classical Scattering in Laboratory and Centre of Mass Frames - Non-inertial Frames – Rotating frame of Reference - Pseudo Forces - Coriolis Force and Effects of Coriolis Force on the Moving Bodies

Unit III	Canonical Transformation and Hamilton Jacobi method	12 hours

Principle of Least Action – Statement and Proof – Canonical Transformation – Generating Functions and its different form – Poisson's Bracket – Properties – Angular momentum Algebra – Liouville's Theorem (without Proof) - Hamilton Jacobi method – Harmonic Oscillator Problem - Hamilton's Characteristic Functions – Conservative Systems – Kepler Problem - Action and Angle Variables – Linear Harmonic Oscillator using Action and Angle Variables

Unit IV	**Rigid Body and Small Oscillations**	**12 hours**
Motion of a Rigid Body – Euler Angles – Angular Momentum and Interia Tensor – Moment of Inertia and Products of Inertia – Principal Axis – Rotational Kinetic Enegy - Euler's Equation of Motion – Torque Free Motion – Free motion of a Symmetric Top - Theory of Small Oscillations – Potential Energy – Stable and Unstable Equilibrium – Eigenvalue Problem – Frequencies of Free Vibrations - Normal Modes – Normal Coordnates – Linear Triatomic Molecule – Double Pendulum		
Unit V	**Theory of Relativity and Introduction to Non-Linear Dynamics**	**12 hours**
Lorentz Transformations – Mass and Energy Equivalance – Relativistic Kinematics - Force in Relativistic Kinematics and Lorentz Transformation of Force – Lagrangian and Hamiltonian in Relativistic Kinematics – Minkowski space – world point and world line – space time intervals - Dynamical Systems – Autonomous and Non-Autonomous Systems - Phase Portraits – Simple Harmonic Oscillator in One Dimension – Simple Pendulum – Linear Stability Analysis – Classification of Fixed Points		
Unit VI	**Contemporary Issues**	**2 hours**
Expert Lectures, Online Seminars – Webinars		
	Total Lecture Hours	**60 hours**

Text Book(s)	
1	Classical Mechanics – J. C. Upadhyaya, Himalaya Publishing House, 2012.
2	Introduction to Classical Mechanics – R. G. Takwala and P.S. Puranik, Tata – McGraw Hill, New Delhi, 1980.
Reference Books	
1	Classical Mechanics – H. Goldstein, C.P. Poole and J. Safko, 3rd Edition, Pearson, 2012
2	Classical Mechanics - N. C. Rana and P.S. Joag, Tata McGraw Hill, 2001
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites, etc.]	
1	https://nptel.ac.in/courses/122/106/122106027/
2	https://ocw.mit.edu/courses/physics/8-09-classical-mechanics-iii-fall-2014/lecture-notes/

Course Designed By: Dr. A Nishara Begum and Dr. S.S. Naina Mohammed
(ss.nainamohammed@gmail.com)

Mapping with Programme Outcomes							
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**
CO1	S	S	S	L	L	M	M
CO3	S	M	M	L	M	S	M
CO3	S	S	S	L	M	S	M
CO4	S	S	M	L	M	S	M
CO5	S	S	M	L	M	M	M

*S-Strong; M-Medium; L-Low

Course code	13 B	MATHEMATICAL PHYSICS I	L	T	P	C
Core Paper II			4	0	0	4
Pre-requisite		Students should have basic understanding in vectors, trignometry, algebra and calculus	Syllabus Version			2020 - 2021

Course Objectives:

The main objectives of this course are to:

1. understand basics of vector analysis, curvilinear coordinate system, linear vector space and tensors
2. familiarize infinite series and error analysis
3. learn complex variables and residue theorem technique to solve real integrals appearing in physics problems
4. understand differential equations and self adjoint operators

Expected Course Outcomes:

On successful completion of the course, the students will be able to :

1	understand vector calculus and also able to write operators in different coordinate system	**K2**
2	apply linear vector space concepts in quantum mechanics	**K3**
3	understand convergence of infinite series, error analysis and curve fitting	**K4**
4	evaluate real integrals appearing in science and engineering problems	**K5**
5	solve differential equations and understand self adjoint operators used in quantum mechanics	**K5**

K1 – Remember, K2 – Understand, K3 – Apply, K4 – Analyze, K5 – Evaluate, K6 – Create

Unit I	Vector Analysis and Partial Differential Equations	10 hours

Vector Integration – Line Integral – Path Independence – Exact Differential – Surface Integral – Flux – Volume Integral – Divergence Theorem – Stokes Theorem – Green Theorem– Gauss's law – Laplace's Equation and Poission's Equation in Electrostatics - Orthogonal Curvilinear Coordinates – Unit Vectors in Curvilinear Coordinate System – Arc Length and Volume Element – The Gradient, Divergence, Curl and Laplacian Operator in Cartesian, Cylindrical and Spherical Polar Coordinate System

Unit II	Linear Vector Space and Tensors	10 hours

Definition of Linear Vector Space – Linear Independence – Basis and Dimensions of a Vector Space – Scalar Product – Schwartz Inequality – Orthonormal Basis (ONB) - Gram Schmid Orthogonalization Procedure – Linear Transformations – Linear Operators – Matrix Representation of a Linear - Tensors – Covariant and Contravariant Tensors – Mixed Tensors - Rank of Tensors - Symmetric and Anti Symmetric Tensors – Kronecker Delta – Levi Civita Symbol - Contraction – Tensor Product – Exterior Product – Metric Tensor

Unit III	Infinite Series and Error Analysis	12 hours

Introduction to Sequence and Series – Summation of Series – Geometric Series – Arthematic and

Geometric Series – Difference Method – Convergence of Series – Absolute and Conditional Convergence – Convergence of a Serie Containing Only Real Positive Terms – Preliminary Test – Comparision Test – Ratio Comparision Test – Quotient Test – Integral Test – Cauchy's Root Test – Grouping tems – Alternating Series Test – Operations with Series – Taylor and Maclaurin Series – Errors Analysis – Propagation of Errors - Normal Distribution of Error - Standard Error – Principle of Least Squares – Application of Solution to Linear Equation – Curve Fitting

Unit IV	**Complex Variables**	**14 hours**

Complex Variables and Functions – Analytic Functions – Cauchy Riemann Condition with Proof – Complex Integration – Cauchy's Integral Theorem – Cauchy's Integral Formula – Taylor Series Expansion - Laurent Series Expansion – Singularities – Poles – Cauchy Residue Theorem – Computations of Residue – Evaluation of integrals using Residues – Principal Value Integrals

Unit V	**Ordinary Differential Equations**	**12 hours**

First and Second Order Ordinary Differential Equations with Constant Coefficients – Initial Value Problem – Method of Finding Solutions – Superposition Principle – Wronskian – Second Order Differential Equations with Variable Coefficients – Definition of Ordinary and Singular Points – Power Series Solution – Solutions About Ordinary Point and Singular Point – Frobenius Method - Operators – Sturm Liouville Condition – Self Adjoint Operators – Discussions on Completeness Property (no proof).

Unit VI	**Contemporary Issues**	**2 hours**

Expert Lectures, Online Seminars – Webinars

	Total Lecture Hours	**60 hours**

Text Book(s)

1	Mathematical Methods for Physicists (a comprehensive guide) – George B. Arfken and Hans J. Weber and Frank E. Harris, Elsevier Academic Press, 7th Edition, 2013.
2	Mathematical Methods for Physics and Engineering – K. F. Riley, M. P. Hobson and S. J. Bence, Cambridge University Press, 3rd Edition, 2006.
3	Mathematical Physics – P. K. Chattopadhyay, New Age International Publishers, 2nd Edition, 2013.

Reference Books

1	Advanced Engineering Mathematics – Erwin Kreyszig, Herbert Kreyszig and Edward J. Norminton, John Wiley & Sons, 10th Edition, 2011
2	Mathematical Methods in the Physical Sciences – Mary L. Boas, John Wiley & Sons, 3rd Edition, 2006.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites, etc.]

1	https://nptel.ac.in/courses/115/106/115106086/
2	https://nptel.ac.in/courses/115/103/115103036/

Course Designed By: Dr. A. Ramalingam and Dr. S.S. Naina Mohammed
(ss.nainamohammed@gmail.com)

Mapping with Programme Outcomes							
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**
CO1	S	S	S	L	S	S	M
CO3	S	S	S	L	S	S	M
CO3	S	S	M	L	S	M	M
CO4	S	S	M	L	S	S	M
CO5	S	S	S	L	S	S	M

*S-Strong; M-Medium; L-Low

Course code	**13C**	**INTEGRATED ELECTRONICS**	**L**	**T**	**P**	**C**
Core Paper III			**4**	**0**	**0**	**4**
Pre-requisite		Students should have the basic knowledge about analog and digital electronics	**Syllabus Version**		**2020-2021**	

Course Objectives:

The main objectives of this course are to:
1. Acquire knowledge and apply it to various electronic devices
2. Develop knowledge about analog and digital electronics
3. Motivate the students to apply the principles of electronics in their day – to – day life

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Analyze various semiconductor devices and their applications	**K3**
2	Study the characteristics of Op-amp and it's applications	**K3**
3	Update the knowledge of signal processing	**K4**
4	Develop the fundamental concepts and techniques used in data storage elements	**K5**
5	Design different types of registers and counters	**K5**

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit I	**Semiconductor Devices and IC fabrication**	**12 hours**

Semiconductor diodes – Characteristics – Ideal diode – Clipper and clamper circuits. Special diodes: Zener, Schottky and Tunnel diodes- Applications – Junction transistors – JFET, MOSFET, UJT and SCR – applications – Principle of Integrated Circuits – fabrication process – Linear and Digital Integrated Circuits

Unit II	**Operational Amplifier and Applications**	**12 hours**

Op Amp characteristics – DC & AC characteristics - Frequency Response of an Op Amp -Parameters of an Op Amp - Sign Changer - Scale Changer – Adder - Subtractor - Phase Shifter -Differential Amplifier – Integrator – Differentiator - Analog Computer Setup to Solve Linear Simultaneous Equations - Differential Equations in Physics - Logarithmic & Exponential Amplifiers - Active Filters

Unit III	**Signal Processing & Data Acquisition**	**12 hours**

Wave Form Generators and Wave Shaping Circuits - Sinusoidal Oscillators - Phase Shift Oscillator - Wein Bridge Oscillator - Crystal Oscillator - Multivibrators, Comparators - Schmitt Trigger-Square Wave & Triangular Wave Generators - Pulse Generators - IC 555 Timer and its Application – Signal and

Signal Processing - Analog Multiplexer and Demultiplexer - D/A Converters - A/D Converters		
Unit IV	**Flip - Flops**	**10 hours**
Types of Flip-flops – RS Flip-flop, Clocked RS Flip-flop, Clocked D Flip-flop, Positive-Edge-Triggered RS Flip-flop, Negative-Edge - Triggered RS Flip-flop, Edge-Triggered D Flip-flop, Positive-Edge - Triggered JK Flip-flop, Flip-flop timing, JK Master-Slave Flip-flop, Conversion of SR Flip-flop to JK Flip-flop		
Unit V	**Registers, Counters and Memories**	**12 hours**
Types of Registers – Serial in Serial out - Serial in Parallel out - Parallel in Serial out - Parallel in Parallel out - Counters – Asynchronous (Ripple) counters - Synchronous counters - Mod 2 to Mod 10 counters and Decade counters - Memories: RAM, ROM, PROM, EPROM and CCD		
Unit VI	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**60 hours**

Text Book(s)	
1	Microelectronics, Millman & Grabel, McGraw Hill, Second edition (2017)
2	Digital Principles and Applications, Malvino & Leach, McGrawHill, Seventh edition (2011)
3	Linear Integrated circuits, D. R. Choudhury & S. Jain, New Age International, New Delhi, Second edition (2003)
Reference Books	
1	Integrated Electronics, Millman & Halkias, Tata McGraw Hill, 17th Reprint (2000)
2	Electronics Principles & Applications, A.B. Bhattacharya New Central Book Agency (P) LTd., Kolkata (2007)
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://nptel.ac.in/course.html/electronics/operational amplifier
2	https://nptel.ac.in/course.html/digital circuits/
Course Designed By: Dr. P. Sagunthala & Dr. U. Karunanithi (karunanithiu30@gmail.com)	

Mapping with Programme outcomes:

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	S	M	S	M	L	S	M
CO2	S	S	S	M	M	L	M
CO3	S	M	M	S	S	M	L
CO4	M	S	M	L	S	M	S
CO5	S	M	S	M	L	M	S

*S-Strong; M-Medium; L-Low

Course code	13D	ADVANCED COMPUTATIONAL PHYSICS	L	T	P	C
Core Paper IV			4	0	0	4
Pre-requisite		The Students should have basic knowledge in differential equation and linear algebra.	Syllabus Version		2020-2021	

Course Objectives:

Primary objectives:

1. To equip the computational skill using various mathematical tools.
2. To apply the software tools to explore the concepts of physical science.
3. To approach the real time activities using physics and mathematical formulations.
4. To apply various mathematical entities, facilitate to visualise any complicate tasks.
5. To enhance the problem-solving aptitudes of students using various numerical methods.
6. To promote computer programming skills with the help of MATLAB tools.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand and apply numerical methods to find out solution of algebraic equation using different methods under different conditions, and numerical solution of system of algebraic equation.	**K2**
2	Apply various interpolation methods and finite difference concepts.	**K3**
3	Work out numerical differentiation and integration whenever and wherever routine are not applicable.	**K3**
4	Identify modern programming methods and describe the extent and limitations of computational methods in physics	**K4**
5	Process, analyze and plot data from a variety of physical phenomena and interpret their meaning	**K5**

K1 - Remember; **K2** – Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit I	Numerical Differentiation	12 hours
Finding Roots of a Polynomial - Bisection Method - Newton Raphson Method - Solution of Simultaneous Linear Equation by Gauss elimination method - Solution of Ordinary Differential Equation by Euler – Runge Kutta Fourth Order Method for solving first order Ordinary Differential Equations		
Unit II	**Numerical integration**	**10 hours**
Newton's cotes formula – Trapezoidal rule - Simpson's 1/3 rule - Simpson's 3/8 rule - Boole's rule - Gaussian quadrature method (2 point and 3 point formula) - Giraffe's root square method for solving algebraic equation		
Unit III	**Matlab Fundamentals**	**12 hours**
Introduction – Matlab Features – Desktop Windows: Command, Workspace, Command History, Array editor and Current Directory – Matlab Help and Demos – Matlab Functions, Operators and commands, Basic Arithmetic in Matlab – Basic Operations with Scalars - Vectors and Arrays - Matrices and Matrix Operations - Complex Numbers - Matlab Built - In Functions - Illustrative Examples		
Unit IV	**Matlab Programming**	**12 hours**
Control Flow Statements: if else, else if, Switch Statements – For, While Loop Structures – Break Statement – Input / Output Commands – Script 'm' Files – Function 'm' Files – Controlling output		
Unit V	**Matlab Graphics**	**12 hours**
2D Plots - Planar Plots, Log Plots, Scatter Plots, Contour Plots - Multiple Figures, Graph of a Function – Titles, Labels, Text in Graph - Line Types, Marker types, Colors - 3D Graphics - Curve Plots - Mesh and Surface Plots - Illustrative Examples		
Unit VI	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars - webinars		
	Total Lecture hours	**60 hours**

Text Book(s)

1	Numerical methods in Science and Engineering - M.K. Venkataraman, National Publishing Co. Madras, 1996
2	Getting Started With Matlab – Rudra Pratap, Oxford University Press-New Delhi

Reference Books

1	Numerical methods using Matlab – John Mathews & Kurtis Fink, Prentice Hall, New Jersey 2006
2	Matlab Programming - David Kuncicky, Prentice Hall

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://onlinecourses.nptel.ac.in/noc20_ma33/preview
2	https://nptel.ac.in/course/103106074/

3	https://nptel.ac.in/course/122106033/
Course Designed By: Dr. R. Ilango (ilangoramu@gmail.com)	

Mapping with Programme outcomes							
COS	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**
CO1	S	M	M	L	S	S	M
CO2	S	L	M	M	L	S	S
CO3	S	M	S	M	M	M	L
CO4	M	S	L	S	S	L	M
CO5	L	M	M	M	S	S	S

*S - Strong; M - Medium; L – Low.


Second
Semester

SECOND SEMESTER

Course code	23 A	QUANTUM MECHANICS I	L	T	P	C
Core Paper V			4	0	0	4
Pre-requisite		Students should have basic understanding in mathematical physics and classical mechanics	Syllabus Version		2020 - 2021	

Course Objectives:

The main objectives of this course are to:
1. Understand basics of state vector in abstract representation
2. Solve bound state problems
3. Learn angular momentum algebra and concept of spin in quantum mechanics
4. Apply approximation methods

Expected Course Outcomes:

On successful completion of the course, the students will be able to :

1	familiarize Dirac notation	**K2**
2	apply Schrodinger equations to exactly solvable simple problems	**K3**
3	learn quantum mechanical angular momentum algebera and spin	**K4**
4	compute corrections in energy and wavefunctions using approximation technique	**K5**
5	calculate transition probability and also selection rules for transition	**K5**

K1 - Remember; **K2** – Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit I	**Basic Formalism**	**8 hours**

Postulates of Quantum Mechanics – Max Born Statistical Interpretation of Wavefunction – Probability Density – Wavefunction in Position Representation and Momentum Representation – Derivation of Schrodinger Time Independent Wave Equation – Stationary State – Dirac Notation – State Vector - Hilbert Space – Basis – Orthonormal Basis – Change of Basis – Unitary Transformation – Equation of Motion in Schrodinger Representation – Heisenberg Representation and Dirac Representation.

Unit II	**Applications of Schrodinger Wave Equations**	**10 hours**

Bound State Problems – One Dimensional Infinite Square Well (0,L) – Three Dimensional Infinite Cubic Well – Concept of Degeneracy – One Dimensional Finite Square Well – Potential Step – Square Potential Barrier – Explanation of Alpha Decay – Solution of Linear Harmonic Oscillator by Schrodinger Approach (Differential Equation Method) and Heisenberg Approach (Creation and Annihilation Operator Method) – Central Potential – Hydrogen Atom (qualitatively)

Unit III	**Angular Momentum Algebra**	**12 hours**

Orbital Angular Momentum Algebra – Spin Angular Momentum Alegbra – Pauli Spin Matrices – Eigen Values and Eigen Vector of Pauli Spin Matrices – Properties of Pauli Spin Matrices – Total Angular Momentum Algebra – Complete Set Of Compactable Operators – Commutation Relations of J^2, J_z , J_+ and J_- – Eigen Values of of J^2, J_z - matrix representation of of J^2, J_z , J_+ and J_- - addition of angular momenta – Clebsch Gordon coefficients and its properties – CG Coefficients for Spin Half systems and Spin One systems.

Unit IV	**Stationary Approximation Method**	**14 hours**

Time Indepdent Perturbation Theory – Non Degenerate Case – Ground State of Helium Atom – Degenerate Case - Stark Effect in Hydrogen Atom – Variation Method – The Hellmann Feynman Theorem – Estimation of Ground State of Helium Atom – Estimation of Ground State of Deutron – WKB Approximation – Connection Formula – Validity – Barrier Penetration – Alpha Emission		
Unit V	**Time Dependent Perturbation Theory**	**14 hours**
Time Dependent Perturbation Theory – Formalism - Transition Probability – Transition Probability for a Constant Perturbation - Transition into a constinuum of final states – Fermi Golden Rule – Transistion Probability for a Harmonic Perturbation – Stimulated Emission – Principle of Detailed Balancing - Selection Rules - Rayleigh Scattering - Raman Scattering		
Unit VI	**Contemporary Issues**	**2 hours**
Expert Lectures, Online Seminars - Webinars		
Total Lecture Hours		**60 hours**

Text Book(s)	
1	Quantum Mechanics – Nouredine Zettili, John Wiley & Sons, Ltd, 2nd Edition, 2009
2	Quantum Mechanics – G. Aruldhas, PHI Learning Private Limited, 2nd Edition, 2009
Reference Books	
1	Quantum Mechanics - V. Devanathan - Narosa Publishing - New Delhi, 2005
2	Quantum Mechanics - L.I. Schiff - McGraw Hill, 3rd Edition, 1968
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites, etc.]	
1	https://nptel.ac.in/courses/122/106/122106034/
2	https://ocw.mit.edu/courses/physics/8-04-quantum-physics-i-spring-2016/lecture-notes/

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(ss.nainamohammed@gmail.com)

Mapping with Programme outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	S	S	S	L	M	S	M
CO2	S	S	S	L	S	M	S
CO3	M	M	S	L	M	M	M
CO4	M	S	S	L	S	M	M
CO5	S	S	S	L	M	M	M

*S - Strong; M - Medium; L – Low.

Course code	23 B	MATHEMATICAL PHYSICS II	L	T	P	C
Core Paper VI			4	0	0	4
Pre-requisite		Students should have basic understanding in mathematical physics I	Syllabus Version			2020 - 2021

Course Objectives:

The main objectives of this course are to:
1. Understand basics of Fourier series, Fourier Transform and Laplace Transform
2. Learn special functions
3. Familiraize Greens function technique and integral equations
4. Know about group theory applied in physical problems

Expected Course Outcomes:

On successful completion of the course, the students will be able to :

1	Apply Fourier series and Fourier transform techniques to physics and engineering problems	K3
2	Apply Laplace transform techniques to physics and engineering problems	K3
3	Understand special functions used in quantum mechancs and electrodynamics course	K4
4	Solve differential equations using Green's function technique	K5
5	Familarize basic group theory concepts used in spectroscopy and nuclear physics	K5

K1 - Remember; **K2** – Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit I	Fourier Series and Fourier Transform	12 hours

Introduction to Fourier Series – Dirichlet's Theorem and Dirichlet's Conditions – Fourier Coefficients – Even and Odd Functions – Complex Form of Fourier Series - Change of Interval – Perseval's Relations – Applications of Fourier Series – Fourier Transform – Fourier Transform of Gaussian Function – Fourier Sine and Cosine Transform – Properties of Fourier Transforms – Perseval Theorem – Fourier Transforms of Derivatives – Applications to Differential Equations and Boundary Value Problems – Introduction to Discrete Fourier Transform.

Unit II	Laplace Transform	8 hours

Introduction to Laplace Transforms - Laplace Transform for Elementary Functions and Dirac Delta Function – Properties of Laplace Transform – Laplace Transform of Derivatives – Convolution Theorem - Inverse Laplace Transform – Properties – Dirac Delta Function - Properties of Laplace Transform – Solution to Differential Equations

Unit III	Special Functions	12 hours

Solution of Differential Equations of – Legendre, Hermite, Laguerre and Bessel Differential Equations using Power Series method – Generating Function, Rodrigues Formule, Recuression Relations, Orthogonality Relations.

Unit IV	Green's Function and Partial Differential Equations	12 hours

Dirac Delta Distribution – Non Homogeneous Boundary Value Problems and Green's Function – Green's

Function for One – Dimensional Problems – Green's Function for Poisson's Equation and a Formal Solution of Electrostatic Boundary Value Problems – Green's Function for Quantum Mechanical Scattering Problem - Partial Differential Equation – Variable Separable Method – Solutions of Laplace Equations, Wave Equations and Heat Equation in Two and Three Dimensions		
Unit V	**Group Theory**	**14 hours**
Introduction to Group Theory – Group Multiplication Table – Cyclic Group - Subgroup – Cosets - Classes – Invariant Subgroup – Homomorphism and Isomorphism – The Group Symmetry of an Equilateral Triangle and a Square – Group Representation – Reducible and Irreducible Representation – Schur's Lemma and Orthogonality Theorem – Character Tables – Introduction to Lie Groups and Lie Algebras – SU(2) and SO(3)		
Unit VI	**Contemporary Issues**	**2 hours**
Expert Lectures, Online Seminars – Webinars		
	Total Lecture Hours	**60 hours**

Text Book(s)	
1	Mathematical Methods for Physicists (a comprehensive guide) – George B. Arfken and Hans J. Weber and Frank E. Harris, Elsevier Academic Press, 7th Edition, 2013.
2	Mathematical Methods for Physics and Engineering – K. F. Riley, M. P. Hobson and S. J. Bence, Cambridge University Press, 3rd Edition, 2006.
3	Mathematical Physics – P. K. Chattopadhyay, New Age International Publishers, 2nd Edition, 2013.
Reference Books	
1	Advanced Engineering Mathematics – Erwin Kreyszig, Herbert Kreyszig and Edward J. Norminton, John Wiley & Sons, 10th Edition, 2011
2	Mathematical Methods in the Physical Sciences – Mary L. Boas, John Wiley & Sons, 3rd Edition, 2006.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites, etc.]	
1	https://nptel.ac.in/courses/115/106/115106086/
2	https://nptel.ac.in/courses/115/103/115103036/
Course Designed By: Dr. S.S. Naina Mohammed (ss.nainamohammed@gmail.com)	

Mapping with Programme outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	S	S	S	L	S	M	M
CO2	S	S	S	L	S	M	M
CO3	S	S	S	L	S	M	M
CO4	S	S	S	L	S	S	M
CO5	S	S	S	L	S	M	M

*S - Strong; M - Medium; L – Low.

Course code 23 C	ATOMIC AND MOLECULAR SPECTROSCOPY	L	T	P	C
Core Paper VII		4	0	0	4
Pre-requisite	Students should have basic understanding of electricity and magnetism,classical and quantum mechanics	Syllabus Version			**2020 - 2021**

Course Objectives:

The main objectives of this course are to:

1. understand the nature of electromagnetic radiation, molecular structure, nature of bonding and symmetry of molecular groups.
2. know about atom and its spectral lines
3. to acquaint molecular groups according to their moment of inertia and the spectra arising from each group
4. learn concepts of different spectroscopic techniques.

Expected Course Outcomes:

On successful completion of the course, the students will be able to :

1	familarise basics on characterization of electromagnetic radiation and quantization of energy	**K1**
2	understanding different spectral lines arising from atoms and interaction of spectral lines with the external source	**K2**
3	able to design spectroscopic experiments, able to accurately record and analyze the results of such experiments	**K3**
4	learn different spectroscopic techniques to analyse molecular structure	**K4**
5	analyse linear, vibrational and rotational motion of the molecules and can evaluate corresponding energy transitions	**K5**

K1 - Remember; **K2** – Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit I	**Atomic & Microwave Spectroscopy**	**10 hours**

Atomic Spectroscopy - Spectra of Alkali Metal Vapours - Normal Zeeman Effect - Anomalous Zeeman Effect -Magnetic Moment of Atom and the G Factor - Lande's 'g' Formula - Paschen Back Effect - Hyperfine Structure of Spectral Lines

Microwave Spectroscopy - Experimental Methods - Theory of Microwave Spectra of Linear, Symmetric Top Molecules - Hyperfine Structure - Quadrupole Moment - Inversion Spectrum of Ammonia

Unit II	**Infrared & Raman Spectroscopy**	**12 hours**

IR Spectroscopy: Practical Aspects - Theory of IR Rotation Vibration Spectra of Gaseous Diatomic Molecules -

Applications - Basic Principles of FTIR Spectroscopy **Raman Spectroscopy:** Classical and Quantum Theory of Raman Effect - Rotation Vibration Raman Spectra of Diatomic and Polyatomic Molecules – Applications - Laser Raman Spectroscopy		
Unit III	**Electronic Spectra: Fluorescence & Phosphorescence Spectroscopy**	**12 hours**
Excitation of Diatomic Species - Vibrational Analysis of Band Systems of Diatomic Molecules - Deslandre's Table - Intensity Distribution - Franck Condon Principle - Rotational Structure of Electronic Bands - Resonance and Normal Fluorescence - Intensities of Transitions - Phosphorescence - Population of Triplet State and Intensity -Experimental Methods - Applications of Fluorescence and Phosphorescence		
Unit IV	**NMR & NQR Spectroscopy**	**12 hours**
NMR Spectroscopy: Quantum Mechanical and Classical Description - Bloch Equations - Relaxation Processes - Experimental Technique - Principle and Working of High Resolution NMR Spectrometer - Chemical Shift. **NQR Spectroscopy:** Fundamental Requirements - General Principle - Experimental Detection of NQR Frequencies - Interpretation and Chemical Explanation of NQR Spectroscopy		
Unit V	**ESR & Mossbauer Spectroscopy**	**12 hours**
ESR Spectroscopy: Basic Principles-Experiments - ESR Spectrometer-Reflection Cavity and Microwave Bridge - ESR Spectrum - Hyperfine Structure **Mossbauer Spectroscopy:** Mossbauer Effect - Recoilless Emission and Absorption - Mossbauer Spectrum - Experimental Methods - Hyperfine Interaction - Chemical Isomer Shift - Magnetic Hyperfine and Electric Quadrupole Interaction		
Unit VI	**Contemporary Issues**	**2 hours**
Expert Lectures, Online Seminars – Webinars		
Total Lecture Hours		**60 hours**
Text Book(s)		
1	Molecular Structure and Spectroscopy - G. Aruldhas	
2	Introduction to Atomic Spectra - H. E. White, McGraw-Hill Inc., US (1934).	
Reference Books		
1	Spectroscopy: Volumes I, II and III - B.P. Straugham & S.Walker	
2	Fundamental of molecular spectroscopy - C.B.Banwell	
3	Introduction to molecular spectroscopy - G.M.Barrow	
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites, etc.]		
1	https://nptel.ac.in/courses/115/105/115105100/	
2	https://onlinecourses.nptel.ac.in/noc20_cy31/preview	
Course Designed By: Dr. A. Ramalingam & Dr. A.Anis Fathima (anismaaz@gmail.com)		

Mapping with Programme outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	**S**	S	S	M	M	S	S
CO2	S	S	S	M	M	S	S
CO3	S	S	S	M	M	M	M

CO4	S	S	S	S	M	S	M
CO5	S	S	S	S	M	S	M

*S - Strong; M - Medium; L – Low.

SEMESTER I & II

Course code	**23P**	**PRACTICAL I - GENERAL PHYSICS** (Examination at the end of Second Semester)	**L**	**P**		**C**
				I	**II**	
Core Practical		Students should have the fundamental knowledge of experimental Physics and Programming skills	**0**	**3**	**4**	**4**
Pre-requisite			**Syllabus Version**		**2020 - 21**	

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the basics of experimental physics and compare the results with theoretical calculations.	**K2**
2	Gain knowledge of new conception in practical oriented problems and visualize the experiments through MATLAB programming.	**K3**
3	Equip the students in basic communication skills in the course of performing the laboratory experiments in groups and by interpreting the results	**K6**

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

S. No.	**LIST OF EXPERIMENTS** (Any twelve experiments)
1	Young's Modulus - Elliptical Fringes (Cornu's Method)
2	Young's Modulus - Hyperbolic Fringes (Cornu's Method)
3	Viscosity of a Liquid - Mayer's Oscillating Disc
4	Determination of Stefan's Constant
5	Rydberg's Constant - Solar Spectrum

6	Thickness of Wire by Air Wedge and Diffraction
7	Determination of Audio Frequencies - Bridge Method
8	Thermionic Work function
9	Thermal Conductivity-Forbe's Method
10	Electronic Charge e by Millikan's Oil Drop Method
11	Electronic Specific Charge e/m by Thomson's Method
12	Thermistor - Temperature Coefficient and Band Gap Energy Determination
13	Specific Heat of a Liquid – Ferguson's Method
14	Biprism on Optical Bench - Determination of Wavelength
15	He Ne Laser - Measurement of Wavelength using reflectance grating
16	Thickness of the wire by diffraction using spectrometer
17	He Ne Laser - Measurement of refractive index of liquids
18	He Ne Laser - Power distribution measurement
19	He Ne Laser - Thickness of wire
20	Fabry-Perot Interferometer - Study of Fine Structure
21	Geiger Muller Counter - Determination of Half Life period of Radioactive element
MATLAB Programming	
22	Matlab Programming - Roots of a Quadratic Equation & Solution of a System of Linear Equations
23	Matlab Programming - Solution of Ordinary Differential Equations – First Order
24	Matlab Programming – Runge - Kutta Method
25	Matlab Programming – Newton - Raphson Method
26	Matlab Programming - Mean, Median & Standard Deviation
27	Matlab Programming - Curve Fitting & Interpolation
28	Matlab Programming - Matrix Summation, Subtraction and Multiplication
29	Matlab Programming - Matrix Inversion and Solution of Simultaneous Equations

SEMESTER I & II

Course code	23Q	PRACTICAL II - ELECTRONICS (Examination at the end of Second Semester)	L	P		C
				I	II	
Core Practical		Students should have the fundamental knowledge in IC's and Programming skills	0	3	4	4
Pre-requisite			Syllabus Version		2020 - 21	

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Acquire knowledge on semiconductor devices and op amps characteristics	**K2**
2	Apply circuit systems to construct electronic devices	**K3**
3	Evaluate functioning of circuits	**K5**

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

S. No.	LIST OF EXPERIMENTS (Any twelve experiments)
1	Design of Regulated and Dual Power Supply and Construction using fixed voltage regulator and 723
2	Basic Logic Gates - Digital IC's
3	Parameters of Op Amp
4	Design of Wave Form Generators- using Op Amp and Timer 555
5	Design of Wein's Bridge Oscillator – Op Amp
6	Design of Active Filters - Op Amp
7	Design of Differential Amplifier – Op Amp
8	Design of Phase Shift Oscillator – Op Amp
9	Sign Changer, Scale Changer, Adder and Subtractor – Op Amp
10	Analog Computer Setup – Solving Simultaneous Equations
11	Design of UJT Relaxation Oscillator
12	CRO-Differentiating, Integrating, Clipping and Clamping Circuits, Square Wave Testing
13	Source Follower
14	SCR – Characteristics and an application
15	A.C. Amplifier - Inverting, Non-Inverting, Voltage Follower using Op Amp
16	Function generator using IC 8038
17	Measurement of Hall Coefficient of Semiconductor -Estimation of Charge Carrier Concentration
18	Digital IC's - Counters, shift register (7476)
19	Schmitt Trigger using discrete components and OP AMP/Timer 555
MATLAB Programming	
20	Matlab Programming - Charging of Capacitor in an RC Circuit with three Time Constants
21	Matlab Programming – Full Wave Rectifier – Determination (a) Peak – to – Peak Value of Ripple Voltage, (b) DC Output Voltage (c) Discharge Time of the Capacitor (d) Period of Ripple Voltage
22	Matlab Programming-Plot of Voltage and Current of RLC Circuit Under Steady State Conditions
23	Matlab Programming- NPN Transistor - Plotting Input & Output Characteristics
24	Matlab Programming - Frequency Response of a Low Pass Op-Amp Filter Circuit

25	Matlab Programming–Diode-Forward Characteristics Plot & Load Line Plot-Estimation of Operating Point




Third Semester

THIRD SEMESTER

Course code	33A	QUANTUM MECHANICS II	L	T	P	C
Core Paper VIII			4	0	0	4
Pre-requisite		Students should have basic understanding in quantum mechanics I	Syllabus Version		2020 - 2021	

Course Objectives:

The main objectives of this course are to:
1. understand basics of scattering theory
2. learn theory of radiation and density matrix
3. apply approximation methods

Expected Course Outcomes:

On successful completion of the course, the students will be able to :

1	understand the mathematical foundation of quantum mechanics	**K2**
2	apply Schrodinger equations to exactly solvable simple problems using approximation methods	**K3**
3	learn relativistic effects in quantum mechanics and quantum field theory	**K4**
4	compute corrections in energy and wavefunctions using approximation technique	**K5**

K1 - Remember; **K2** – Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit I	Scattering Theory	8 hours

Scattering Amplitude - Expression in terms of Green's Function - Born Approximation and its Validity - Partial Wave Analysis - Phase Shifts - Scattering by Coulomb and Yukawa Potential

Unit II	Application to Atomic Structure	12 hours

Identical Particles – constructing symmetric and antisymmetric functions - latter determinant – Pauli's Exclusion principle - Central Field Approximation - Thomas Fermi Model - Hartree's Self Consistent Model - Hartree Fock Equation - Alkali Atoms - Doublet Separation - Intensities

Unit III	Relativistic Wave Equation	12 hours

Klein Gordon Equation - Plane Wave Equation - Charge and Current Density - Application to the study of Hydrogen Like Atoms - Dirac Relativistic Equation for a Free Particle - Dirac Matrices - Dirac Equation in Electromagnetic Field - Negative Energy States

Unit IV	Theory of Radiation (Semi Classical Treatment)	12 hours

Einstein's Coefficients - Spontaneous and Induced Emission of Radiation from Semi Classical Theory - Radiation Field as an Assembly of Oscillators - Interaction with Atoms - Emission and Absorption Rates - Density Matrix and its Applications

Unit V	Introduction to Quantum Field Theory	14 hours

Elements of Quantum Field Theory – Review of Classical Field Theory – Lagrangian and Hamiltonian Formalism – Classical Fields – Quantization of the Fields – Schrodinger Fields – Quantization – Quantization into Bosons – Quantization into Fermions – Relativistic Fields - Scalar Fields – One Component Real Field – Fourier Decomposition – Quantization of Scalar Fields – Ground State and Normal Ordering – Basic Idea of Dirac Fields (no derivation – only qualitative discussion)

Unit VI	**Contemporary Issues**	**2 hours**
Expert Lectures, Online Seminars – Webinars		
	Total Lecture Hours	**60 hours**
Text Book(s)		
1	Quantum Mechanics – Nouredine Zettili, John Wiley & Sons, Ltd, 2nd Edition, 2009	
2	Relativistic Quantum Mechanics and Quantum field Theory - V. Devanathan – Alpha Science International Ltd., Oxford, UK	
Reference Books		
1	Quantum Mechanics – G. Aruldhas, PHI Learning Private Limited, 2nd Edition, 2009	
2	Quantum Mechanics - L.I. Schiff - McGraw Hill, 3rd Edition, 1968	
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites, etc.]		
1	https://nptel.ac.in/courses/122/106/122106034/	
2	https://ocw.mit.edu/courses/physics/8-04-quantum-physics-i-spring-2016/lecture-notes/	
Course Designed By: Dr. A Nishara Begum (anishara@yahoo.com)		

Mapping with Programme outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	S	S	S	L	M	S	M
CO2	S	S	S	L	S	M	S
CO3	M	M	S	L	M	M	M
CO4	M	S	S	L	S	M	M
CO5	S	S	S	L	M	M	M

*S - Strong; M - Medium; L – Low

Course code	33B	CLASSICAL ELECTRODYNAMICS	L	T	P	C
Core Paper IX			4	0	0	4
Pre-requisite		Students should have basic understanding in mathematical physics, classical mechanics and tensor notation	Syllabus Version		2020 - 2021	

Course Objectives:

The main objectives of this course are to:

1. calculate electric field and electric potential for a given configuration of charges in free space and matter
2. understand magnetic properties of materials
3. optical properties like reflection, refraction, interference, diffraction and polarization of electromagnetic waves
4. learn basics of electromagnetic radiations and relativistic kinematics and dynamics

Expected Course Outcomes:

On successful completion of the course, the students will be able to :

1	familarize mathematical concepts and boundary conditions used in classical electrodynamics	**K2**
2	analyze transmission of electromagnetic waves through wave guide	**K3**
3	apply maxwell's equations to material medium and analyse its electrical and magnetic properties	**K4**
4	derive formulas to experimentally measurable quantities (like electric and magnetic susceptibility)	**K5**
5	evaluate electric, magetic fields, electric potential and vector potentials for point charge and radiation emitted by moving charges	**K5**

K1 - Remember; **K2** – Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit I	**Electromagnetic Thoery**	**8 hours**

Coulomb's law and Gauss's law – Laplace and Poisson Equations – Energy in Electrostatics - Boundary Value Problems - Laplace Equations in One and Three Dimensions – Uniqueness Theorem and Boundary Conditions – Method of Images and Multi pole Expansion

Unit II	**Electric Fields in Macroscopic Media**	**8 hours**

Dipole – Concept of Induced Dipole – Alignment of Polar Molecules - Polarization – The Fields of a Polarized Object – Bound Charges – Field inside a Dielectric - The Electric Displacement – Gauss's Law in the Presence of Dielectrics – Linear Dielectrics – Susceptibility, Permittivity and Dielectric Constant – Boundary Value Problems in Linear Dielectrics – Energy in Dielectric Systems – Forces on Dielectrics

Unit III	Magnetostics and Magnetic Fields in Matter	10 hours
The Lorentz Force Law – The Biot Savart Law – Applications - The Divergence and Curl of B – Ampere's Law – Applications - Magnetic Vector Potential - Magnetostatic Boundary Conditions – Multiplole Expansion of the Vector Potential – Magnetic Fields in Matter – Magnetisation – Concept of Bound Current – Magnetic Field inside a Matter – The Auxiliary Field H – Linear and Non Linear Media - Magnetic Susceptibility and Permeability		
Unit IV	**Electrodynamics**	**16 hours**
Equation of Continuity – Displacement Current – Maxwell's Equations – Poynting Vector with proof – Momentum in Electro Magnetic Field – Maxwell's equation in free space, Dielectric and Condutors – Reflection and Refraction, Polarization, Fresnel's Law, Interference, Coherence and Diffraction – Dispersion Relation in Plasma – Scalar and Vector Potential - Gauge Transformation – Coulomb Gauge and Lorentz Gauge – Transmission Lines and Guided waves – TE waves in a Rectangular Wave Guide		
Unit V	**Radiation and Relativitistic Electrodynamics**	**16 hours**
Continuous Charge Distribution – Retarded Potentials and Advanced Potentials – Jefimenko's Equations – Lienard Wiechert Potentials - Radiation – Electric Dipole Raditions – Magnetic Dipole Radiations – Power Radiated by Point Charge – Abraham – Lorentz Formula Lorentz Invariance of Maxwells Equations - Four Vector – Four Velocity – Relativisitc Energy and Momentum – Relativistic Kinematics – Relativistic Dynamics – The Field Tensor – Electrodynamics in Tensor Notation – Relativistic Potentials (Scalar and Vector Potentials)		
Unit VI	**Contemporary Issues**	**2 hours**
Expert Lectures, Online Seminars – Webinars		
	Total Lecture Hours	**60 hours**

Text Book(s)	
1	Introduction to Electrodynamics – David J. Griffiths, Pearson, 4th Edition, 2012
2	Classical Electromagnetism – Jerrold Franklin, Dover Publications, Inc.,2nd Edition, 2017
3	Basics of Electromagnetism – I. E. Irodov, CBS Publishers & Distributors, 2001
Reference Books	
1	Classical Electrodynamics – J. D. Jackson, Wiley Eastern, 3rd Edition, 2004
2	Classical Electrodynamics – W. Greiner, Spring Verlag New York, Inc. , 1998
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites, etc.]	
1	https://nptel.ac.in/courses/122/106/122106034/
2	https://ocw.mit.edu/courses/physics/8-04-quantum-physics-i-spring-2016/lecture-notes/

Course Designed By: Dr. A. Ramalingam (ramligri@rediffmail.com)

Mapping with Programme outcomes

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7

CO1	S	S	S	L	S	M	S
CO2	S	S	S	L	M	M	S
CO3	S	S	S	S	S	S	S
CO4	S	S	S	S	S	S	S
CO5	S	S	S	M	M	M	S

*S - Strong; M - Medium; L – Low.

Course code	**33C**	**STATISTICAL MECHANICS**	**L**	**T**	**P**	**C**
Core Paper X			**4**	**0**	**0**	**4**
Pre-requisite		Students should have basic understanding in classical and quantum mechanics	Syllabus Version			2020 - 2021

Course Objectives:

The main objectives of this course are to:
1. understand basics of probability, statistics and distribution functions
2. know about classical and quantum statistics
3. compute probability distributions for MB, BE and FD statistics
4. learn phase transition and familarise basics of non-equilibrium statistical mechanics

Expected Course Outcomes:

On successful completion of the course, the students will be able to :

1	familarise basic mathematical tools like probability, statistics and approximation technique	K2
2	understand ensemble, connection between microstate and macrostates	K3
3	understand other branches in physics better	K4
4	calculate partition function and compute thermodynamics relations	K5
5	apply to multi disciplinary areas	K6

K1 – Remember, K2 – Understand, K3 – Apply, K4 – Analyze, K5 – Evaluate, K6 – Create

Unit I	**Mathematical Foundations to Statistical Mechanics**	**8 hours**

Random Variables - Probability – Probability and Frequency Probability of an Ensemble – Basic Rules of Probability Theory – Mean Values of Discrete and Continuous Random Variables – Sterling's Approximation. Variance Dispersion – Probability Distribution – Binomial – Poisson – Mean and Fluctuations – Gaussian Distribution – Standard Deviation – Central Limit Theorem.

Unit II	**Review of Thermodynamics, Classical Statistics**	**10 hours**

Review of Classical Thermodynamics – Zeroth Law, First Law, Second Law and Third Law and Its Consequences - Thermodynamics Potentials – Maxwell's Relations – Equipartition Theorem (without Proof) – Dulong Petit's Law - Microstates – Macrostates - Phase Space – Density Distribution in Phase Space - Liouville's Theorem, Proof and its Consequences – Statistical Equilibrium - Postulates of Statistical

Mechanics - Classical Statistics - Maxwell Boltzmann Distribution – Maxwell Distribution of Speeds – Root Mean Square Speed – Average Spead – Most Probable Speed.		
Unit III	**Stationary Ensembles and Density Matrix**	**12 hours**
Ensemble and Classification - Micro Canonical Ensemble – Density of States – Application - Classical Ideal Gas - Two Level System – Concept of Negative Temperature - Canonical Ensemble – Derivation of Gibbs Canonical Distribution - Partition Function – Mean and Fluctuations - Applications – Classical Ideal Gas - – Discussion of Gibb's Paradox and Sakkur Tetrode Equation - Classical Harmonic Oscillator – Rigid Rotator - Statistics of Paramagnetism - Curie Law - Quantum Systems – State – Pure and Mixed State – Density Matrix – Entropy – Boltzmann Gibbs Entropy – Information Theory – Shannon Entropy – Introduction to Classical and Quantum Information Theory (Qualitatively).		
Unit IV	**Quantum Statistics**	**14 hours**
Quantum Statistics – Bose – Einstein Distribution – Fermi Dirac Distribution – Comparision – Wavefunctions Exchange and Symmetry - Applications – Black Body Radiation and Planck Distribution Law – Einstein Theory of Solids – Debye Theory of Solids – Quantum Mechanical Paramagnetic Susceptibility - Energy and Pressure of Ideal Bose Einstein Gas - Energy and Pressure of Ideal Fermi Dirac Gas – Free Electron Model and Electronic Emission – Bose Einstein Condensation.		
Unit V	**Phase Transition and Basics of Nonequilibrium Statistical Mechanics**	**14 hours**
Phase Equilibria – Equilibrium Conditions – Classification of Phase Transition – Phase Diagram – Clausius Claperon Equation – Van der Waal's Equation – Second Order Phase Transitions – Ginzburg Landau Theory – Phase Transition in Ferromagnetic Materials – Liquid Helium - Onsagar Relations – Fluctuations – Energy, Pressure and Enthalpy – Ising Model – One Dimension – Bragg William Approximation – Effusion - Diffusion – Random walk and Brownian Motion – Qualitative Discussion of Principle of Detailed Balance, Focker Planck's Equation and Boltzmann's H Theorem (without proof).		
Unit VI	**Contemporary Issues**	**2 hours**
Expert Lectures, Online Seminars - Webinars		
Total Lecture Hours		**60 hours**
Text Book(s)		
1	Fundamentals of Statistical Mechanics – B. B. Laud, New Age International Publishers, 2nd Edition, 2018.	
2	Introduction to Statistical Physics – Kerson Huang, CRC Press, 2nd Edition, 2010.	
Reference Books		
1	An introductory course of Statistical Mechanics – P. B. Pal, Narosa Publishing House, 2008.	
2	Statistical Mechanics - R. K. Pathria, Elsevier, 2nd Edition, 2005.	
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites, etc.]		
1	https://nptel.ac.in/courses/115/106/115106111/	
2	https://ocw.mit.edu/courses/physics/8-333-statistical-mechanics-i-statistical-mechanics-of-particles-fall-2013/lecture-notes/	
Course Designed By: Dr. A. Ramalingam & Dr. S.S. Naina Mohammed (ss.nainamohammed@gmail.com)		

Mapping with Programme outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	S	S	S	M	S	S	S
CO2	S	S	S	L	S	S	S
CO3	S	S	S	L	M	S	S
CO4	S	S	S	L	M	S	M
CO5	M	S	M	L	M	M	M

*S - Strong; M - Medium; L – Low.

Course code	**33D**	**CONDENSED MATTER PHYSICS**	**L**	**T**	**P**	**C**
Core Paper XI			**4**	**0**	**0**	**4**
Pre-requisite		Students should have basic knowledge in band theory and electronic configuration	**Syllabus Version**			**2020-2021**

Course Objectives:

The main objectives of this course are to:

1. gain an understanding of the interplay between classical and quantum mechanical phenomena
2. understand microscopic/atomic processes acting between many atoms/molecules that produces the typical properties of different solid-state matter

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	to know the continuance in condensed matter physics in some central areas	K1
2	provide the basic knowledge and also give an overview of current problems within the field of condensed matter/materials science mainly on functional materials	K5
3	learn about phenomenon of magnetism	K2
4	predict magnetic properties of atoms and molecules based on their electronic configurations	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit I	**Crystal Structure**	**12 hours**

Crystal classes and system - 2D, 3D lattices - Bravais lattices – Point groups – Space groups – Reciprocal lattice – Ewald's sphere construction – Braggs law – Atomic scattering factor - Diffraction – Structure factor

– Experimental techniques – Laue, Powder, Rotation methods - Bonding of common crystal structures – NaCl, CsCI, ZnS and Diamond – Packing density – hcp, ccp,- random stacking and polytypism		
Unit II	**Lattice Vibrations and Thermal Properties**	**12 hours**
Vibration of monoatomic lattices – Lattices with two atoms per primitive cell – Quantization of lattice vibrations – Phonon momentum – Inelastic scattering of neutrons by phonons – Lattice heat capacity – Einstein model – Density of modes in one-dimension and three- dimension – Debye model of the lattice heat capacity – Thermal conductivity – Umklapp process		
Unit III	**Free Electron Theory, Energy Bands and Semiconductor Crystals**	**12 hours**
Energy levels and density of orbitals – Fermi-Dirac distribution – Free electron gas in three-dimensions – Heat capacity of the electron gas – Electrical conductivity and Ohms law – Motion in magnetic fields – Hall effect – Thermal conductivity of metals – Nearly free electron model – Electron in a periodic potential – Semiconductors – Band gap – Effective mass – Intrinsic carrier concentration		
Unit IV	**Diamagnetism, Paramagnetism, Ferromagnetism and Antiferromagnetism**	**10 hours**
Langevin classical theory of Diamagnetism and paramagnetism – Weiss theory – Quantum theory of paramagnetism – Demagnetization of a paramagnetic salt – Paramagnetic susceptibility of conduction electrons – Hund's rules – Ferromagnetic order – Curie point and the exchange integral – Temperature dependence of saturation magnetization – Magnons – Antiferro magnetic order – Ferromagnetic domains – Origin of domains – Coercive force and hysteresis		
Unit V	**Dielectrics, Ferroelectrics and Superconductivity**	**12 hours**
Macroscopic electric field – Local electric field at an atom – Dielectric constant and polarizability – Clausius Mossotti equation – Polarization catastrophe – Ferroelectric domains– Occurrence of Superconductivity – Meissner effect – London equation – Coherence length – BCS theory – Flux quantization – Type I and Type II Superconductors – Josephson superconductor tunneling – DC and AC Josephson effect – SQUID – Applications of superconductors		
Unit VI	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars - webinars		
Total Lecture hours		**60 hours**
Text Book(s)		
1	C. Kittel, Introduction to Solid State Physics, 5th Ed. (Wiley Eastern, New Delhi,1977)	
2	N. W. Ashcrof and N. D. Mermin, Solid State Physics (International Edition, Philadelphia, 1976)	
3	J. S. Blakemore, Solid State Physics, Second Edition (Cambridge University Press, Cambridge, London, 1974)	
4	A. J. Dekker, Solid State Physics (Mac Millan, Madras, 1971)	
Reference Books		
1	M. M.Woolfson, An Introduction to X-ray Crystallography (Cambridge University Press, Cambridge, 1991)	

2	T. P. Sheahen, Introduction to High-Temperature Superconductors (Plenum press, New York, 1994)
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://nptel.ac.in/courses/113/104/113104014/
2	https://www.udemy.com/course/physics-intro-to-electricity-magnetism/
4	https://nptel.ac.in/courses/115/104/115104088/
Course Designed By: Mrs. S. Sasikala (sasiphysics86@gmail.com)	

Mapping with Programme Outcomes							
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**
CO1	S	L	S	M	M	M	S
CO3	L	S	S	M	M	S	L
CO3	M	S	S	L	M	M	S
CO4	L	M	M	S	S	M	S
CO5	S	S	M	L	M	M	S

*S - Strong; M - Medium; L – Low.

Fourth Semester

FOURTH SEMESTER

Course code	43A	NUCLEAR& PARTICLE PHYSICS	L	T	P	C
Core Paper XII			4	0	0	4
Pre-requisite		The students should have basic knowledge in nuclear structure, nuclear models and different elementary particles.	Syllabus Version		2020-2021	

Course Objectives:

1.To impart higher level knowledge and understanding of nuclear physics and technology.

2. Enhance student ability to develop mathematical models of defined physical systems.

3. Enable students to analyse mathematical models of physical systems for enhancement of system performance and arrive at limitations of physical systems.

4.To respond the global energy and environmental needs and objectives

Expected Course Outcomes:

On the successful completion of the course, students

1	will have a versatile and solid background in fundamental physics and its application.	K2
2	Have the capability of doing back-of the envelope calculations in a diversity of situations	K5
3	Can apply the theory of nuclear physics for newer applications	K3
4	Can promote the exchange of ideas and research within the nuclear/atomic science community	K2
5	Gain skills to pursue physics as a teaching and research career	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

UNIT I	NUCLEAR STRUCTURE	10 hours

Distribution of Nuclear Charge-Nuclear Mass-Mass Spectroscopy-Mass Spectrometer- Theories of Nuclear Composition (proton-electron, proton-neutron)- Bound States of Two Nucleons-Spin States- Pauli's Exclusion Principle-Tensor Force-Static Force- Exchange Force.

UNIT II	RADIOACTIVITY	12 hours

Alpha Decay: Properties of α Particles-Gamow's Theory of α Decay-Geiger Nuttal Law- α Ray Energies-Fine Structure of α Rays- α Disintegration Energy-Long Range α Particles. **Beta Decay:** Properties of β Particles-General Features of β Ray Spectrum- Pauli's Hypothesis-Fermi's Theory of β Decay – Forms of Interactions and Selection Rules. **Gamma Decay:** Absorption of γ Rays by Matter-Interaction of γ Rays with Matter-Measurement of γ Ray Energies-Internal Conversion

UNIT III	NUCLEAR MODELS	12 hours

Liquid Drop Model: Bohr Wheeler Theory of Fission-Condition for Spontaneous Fission-Activation Energy. **Shell Model:** Explanation of Magic Numbers-Prediction of Shell Model-

Prediction of Nuclear Spin and Parity-Nuclear Statistics-Magnetic Moment of Nuclei-Nuclear Isomerism.
Collective Model: Explanation of Quadrupole Moments

UNIT IV	**NUCLEAR REACTIONS**	**12 hours**

Kinds of Reactions and Conservation Laws-Energy of Nuclear Reaction-Iso Spin- Continuum Theory of Nuclear Reaction-Resonance-Breit and Wigner Dispersion Formula - Stages of a Nuclear Reaction- Statistical Theory of Nuclear Reaction-Kinematics of Stripping and Pickup Reaction.

UNIT V	**PARTICLE PHYSICS**	**12 hours**

Leptons-Hadrons-Mesons-Hyperons – P ions - Mesons, Resonances- Strange Mesons and Baryons-Gell-Mann Okuba Mass formula for Baryons - CP Violation in Neutral Kaon (K0) Decay- Symmetry and Conversion Laws-Quark Model-Reaction and Decays.

UNIT:6	**CONTEMPORARY ISSUES**	**2 hours**

Expert lectures, online seminars – webinars

	Total Lecture hours	**60 hours**

Text Book(s) for Study

1	Nuclear and Particle Physics-Pandya and Yadav
2	Nuclear Physics-J.C. Tayal -Umesh Prakashan- Gujarat

Text Book(s) for Reference

1	Nuclear Physics- D.C. Sharma-K. Nath & Co-Meerut1600
2	Concepts of Nuclear Physics-Bernard L. Cohen-Tata McGraw Hill- New Delhi 1600,1978
3	Introductory Nuclear Physics-Kenneth S. Krane-John Wiley & Sons
4	Physics of Nucleus and Particles-Volume I& II-B. Nermeir & Sheldon

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://nptel.ac.in/courses/115/104/115104043/
2	https://nptel.ac.in/courses/115/106/115106087/
3	https://nptel.ac.in/courses/115/103/115103101/

Course Designed By: Mrs. S. Sasikala (sasiphysics86@gmail.com)

Mapping with Programme Outcomes							
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**
CO1	S	S	M	M	M	S	M
CO2	M	S	L	M	L	S	L
CO3	S	M	S	S	M	M	L

CO4	M	S	L	M	S	M	L
CO5	S	L	M	M	S	L	M

*S-Strong; M-Medium; L-Low

Course code	**43B**	**COMMUNICATION ELECTRONICS**	**L**	**T**	**P**	**C**
Core Paper XIII			**4**	**0**	**0**	**4**
Pre-requisite		Students should have adequate knowledge in electromagnetic radiation	**Syllabus Version**		**2020-2021**	

Course Objectives:

The main objectives of this course are to:

1. Understand basic concepts of communication and optical communication system
2. Identify different types of modulation and multiplexing formats
3. Compute a simple optical power budget

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	become effective communicators and critical consumers of messages preparing them for life.	K2
2	integrate the strengths of the liberal arts tradition with the theoretical foundation to enter in the research.	K1
3	gain knowledge in microwave analysis and design techniques	K2
4	apply knowledge of mathematics, science and engineering fundamentals to the solution of complex engineering problems in electronic circuits and communication system	K3
5	Familiar with design consideration of fiber optics system.	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	**Antennas & Wave Propagation**	**10 hours**

Terms and Definition - Effect of Ground on Antennas - Grounded /4 - Ungrounded antenna Antenna-Antenna Arrays-Broadside and End Side Arrays-Antenna Gain- Directional High Frequency Antennas - Sky Wave Propagation - Ionosphere- Eccles & Larmor Theory-Magneto Ionic Theory-Ground Wave Propagation

Unit:2	**Microwaves**	**8 hours**

Microwave Generation - Multi cavity Klystron-Reflex Klystron – Magnetron - Travelling Wave Tubes (TWT) and other Microwave Tubes – MASER - Gunn Diode

Unit:3	**Radar and Television**	**12 hours**

Elements of a Radar System-Radar Equation-Radar Performance Factors-Radar Transmitting Systems-Radar Antennas-Duplexers-Radar Receivers and Indicators - Pulsed Systems-Other Radar Systems-Colour TV Transmission and Reception

Unit:4	**Communication Electronics**	**14 hours**

Analog and Digital Signals - Modulation - Types of Modulation- Amplitude modulation theory - Frequency spectrum of the AM wave - Representation of AM - Power relations in the AM wave - Generation of AM - Basic requirements- Description of frequency and phase modulation - Mathematical representation of FM – Frequency spectrum of FM wave		
Unit:5	**Optical Fibres**	**14 hours**
Propagation of Light in an Optical Fibre - Acceptance Angle-Numerical Aperture- Step and graded Index Fibres-Optical Fibre as a Cylindrical Wave Guide-Fibre Losses and Dispersion-applications.		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars - webinars		
	Total Lecture hours	**60 hours**

Text Book(s)	
1	Electronic Communication System-George Kennedy & Davis -Tata McGraw Hill 4th edition1989
2	Optical fibre and fibre optic communication systems- S K Sarkar - S.Chand Pub-2007 edition
3	Electronics Devices and circuits– Sanjeev Gupta & Santhosh Gupta, Dhanpat Rai Publications.
Reference Books	
1	Principles of Communication Systems-Taub Schilling-TMH 1986
2	Communication Systems-Simon Haykin-John Wiley & Sons 2005
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	http://nptel.ac.in/courses/115/107/115107095/
2	http://nptel.ac.in/courses/108/104/108104113/
3	http://nptel.ac.in/courses/108/101/108101112/
Course Designed By: Dr. R. Thiyagarajan (thiyagu_phy@rediffmail.com)	

Mapping with Programme Outcomes						
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**
CO1	S	L	M	M	S	L
CO3	S	M	M	S	M	L
CO3	L	M	M	S	S	S
CO4	M	L	S	S	S	M
CO5	L	M	M	S	M	S

*S - Strong; M - Medium; L – Low.

Course code	43C	LASER PHYSICS AND NONLINEAR OPTICS	L	T	P	C
Core Paper XIV			4	0	0	4
Pre-requisite		Students should have fundamentals of mathematical formulations, wave theory and operation of laser	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are to:

1. familiar with basics of nonlinear optics and interaction of electromagnetic waves with matter particle
2. understand the mechanism of laser radiation and its propagation in different media
3. get insight into the crystalline property modifications by electromagnetic interaction
4. aware the role of laser in industrial and research activities

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	familiar with the properties of different types of laser and its operation	**K2**
2	understand the process of optical amplification and gain saturation	**K2**
3	apply the theoretical concepts of laser optics for industrial purposes	**K3**
4	differentiate the efficiency of continuous and pulsed laser mechanism	**K4**
5	explore the significance of non linear optical phenomena and its applications	**K5**

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit I	**Lasers - Fundamentals and Types**	**10 hours**

Basic Construction and Principle of Lasing - Einstein Relations and Gain Coefficient - Creation of a Population Inversion - Three Level System – Four Level System - Threshold Gain Coefficient for Lasing - Laser types – He Ne Laser - CO_2 Laser - Nd:YAG Laser - Semiconductor Laser

Unit II	**Laser Operation**	**8 hours**

Optical Resonator - Laser Modes - Axial modes - Transverse modes - Modification in Basic Laser Structure - Basic Principle of Mode Locking - Active Mode Locking - Passive Mode Locking – Q Switching - Pulse Shaping

Unit III	**Laser Beam Characteristics**	**12 hours**

Wavelength - Coherence - Mode and Beam Diameter - Polarizations - Introduction to Gaussian Beam width - Divergence - Radius of Curvature - Rayleigh Range - Guoy Phase Shift - 3D Gaussian

Beams – ABCD Law for Gaussian Beam - Complex Radius of Curvature - Tensorial ABCD Law		
Unit IV	**Focusing of Laser Beam**	**14 hours**
Diffraction - Limited spot size - M^2 Concept of Beam Quality - Spherical Aberration- Thermal Lensing Effects - Depth of Focus - Tight focusing of laser beam - Angular Spectrum Representation of Optical Near Field – Aplanatic lens - Focusing of Higher order laser modes - Radially Polarized Doughnut mode - Azimuthally Polarized Doughnut mode		
Unit V	**Non-Linear Optics**	**14 hours**
Introduction - Nonlinear Optical Media - The Nonlinear Wave Equation - Scattering Theory - Born Approximation – Second Order Nonlinear Optics – Second Harmonic Generation (SHG) and Rectification - The Electro Optic Effect – Three Wave Mixing - Frequency and Phase Matching - Third Harmonic Generation - Optical Kerr Effect – Self Focusing – Four Wave Mixing (FWM) - Optical Phase Conjugation (OPC) - Use of Phase Conjugators in Wave Restoration		
Unit VI	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**60 hours**

Text Book(s)	
1	Nonlinear Optics - D.L. Mills - Basic Concepts, Springer, Berlin, 1998
2	Lasers and Nonlinear Optics - B.B. Laud – 2nd Edition New Age International (P) Ltd.
Reference Books	
1	Laser Material Processing - M. Steen, J. Mazumder – Springer (2010)
2	Fundamentals of Photonics - Bahaa E. A. Saleh, Malvin Carl Teich - John Wiley & Sons, Inc.
3	Solid State Laser Engineering - Walter Koechner, 6th Edition, Springer
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.	
1	https://nptel.ac.in/courses/115/101/115101008/
2	https://spie.org/education/courses/coursedetail/SC047?f=InCompany
3	https://ipenche.chania.teicrete.gr/an-introduction-to-laser-physics-and-systems/
Course Designed By: Dr. A Nishara Begum (anishara@yahoo.com)	

Mapping with Programme Outcomes							
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**
CO1	S	S	M	M	S	L	S
CO2	S	M	M	S	M	L	M
CO3	M	M	M	S	S	S	S
CO4	M	L	S	S	S	M	M
CO5	M	S	M	S	M	S	S

*S - Strong; M - Medium; L – Low.

SEMESTER III & IV

Course code	43P	PRACTICAL III - ADVANCED PRACTICALS (Examination at the end of Fourth Semester)	L	P		C
				III	IV	
Core Practical		Students should have the fundamental knowledge of Optics, Electricity, Magnetism and Programming skills	0	3	5	4
Pre-requisite			Syllabus Version		2020 - 21	

Expected Course Outcomes:		
On the successful completion of the course, student will be able to:		
1	Explore the concepts involved in optics	**K3**
2	Gain knowledge of new conception in practical oriented problems and visualize the experiments through MATLAB programming.	**K3**
3	acquire strong laboratory skills	**K6**
4	Enhance the day to day requirements in industries, research fields.	**K3**
K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create		

S. No.	LIST OF EXPERIMENTS (Any twelve experiments)
1	Arc Spectra-Constant Deviation Spectrograph-Copper, Iron& Brass
2	Michelson Interferometer- λ, dλ and Thickness of Mica Sheet
3	Susceptibility-Guoy and Quincke'sMethod
4	Compressibility of a Liquid-Ultrasonic Method
5	Hall Effect and its application
6	e/m-Zeeman Effect
7	e/m-Magnetron Method
8	B-H Curve-Anchor Ring
9	B-H Curve-Solenoid
10	Double Slit-Wavelength Determination
11	G.M Counter-Characteristics
12	Kelvin's Double Bridge-Determination of Very Low Resistance & Temperature Coefficient of Resistance.
13	He-Ne Laser determination of particle size.
14	Conductance of photoconductor, photovoltaic cell (solar cell) and photodiode
MATLAB Programming	
15	Matlab Programming-Radioactive Decay
16	Matlab Programming-Numerical Integration
17	Matlab Programming-Double Integration
18	Matlab Programming-Solution of Ordinary Differential Equations – 2ndOrder
19	Matlab Programming-Computer Simulation of Equations of Motion for a System of Particles
20	Matlab Programming-Computer Simulation of 1-D and 2-D LatticeVibrations
21	Matlab Programming-Computer Simulation of Kronig-Penney Model
22	Matlab Programming-Numerical simulation of Wave-Functions of Simple Harmonic

	Oscillator
23	Matlab Programming-Simulation of Wave Functions for a Particle in Critical Box
24	Matlab Programming-Solution of Diffusion Equation

SEMESTER I & II

Course code	**43 Q**	**PRACTICAL IV – SPECIAL ELECTRONICS** (Examination at the end of Second Semester)	**L**	**P**		**C**
				I	**II**	
Core Practical		Students should have the fundamental knowledge in Op-amp and Microprocessor	**0**	**3**	**5**	**4**
Pre-requisite			**Syllabus Version**		**2020 - 21**	

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Acquire knowledge on op amps characteristics and Microprocessor	**K2**
2	Apply circuit systems to construct electronic devices	**K3**
3	produce electronic professionals to work as Electronic circuit Designer	**K5**
4	Enhance the day to day requirements in industries, research fields.	**K3**

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

S. No.	**LIST OF EXPERIMENTS** (Any twelve experiments)
1	Op-Amp: Simultaneous Addition &Subtraction
2	Op-Amp: Instrumentation Amplifier-Temperature Measurement
3	Op-Amp: Instrumentation Amplifier-Light Intensity-Inverse Square Law
4	Op-Amp: V to I & I to V Converter
5	Op-Amp: Circuits Using Diodes-Half Wave, Full Wave, Peak Value, Clipper, Clamper
6	Op-Amp: Log and Antilog Amplifier
7	Op-Amp: Analog Computation-Second Order Differential Equation
8	Op-Amp Comparator-Zero Crossing Detector, Window Detector, Time Marker
9	IC 555 Timer Application-Monostable, Linear Astable 10.A/D Converters-Any One Method
10	Converters-Binary Weighted & Ladder Methods
11	IC Counters with Feedback
12	Microprocessor: LED Interfacing Name Display (rolling)
13	Microprocessor: Stepper Motor Interfacing
14	Microprocessor: Traffic Control Simulation
15	Microprocessor: ADC Interface-Wave Form Generation
16	Microprocessor: Hex Keyboard Interfacing
17	Microprocessor: Musical Tone Generator Interface
18	Microcontroller: Blinking of LEDs either 8051 or 16F84 20 Microcontroller: Controlling LED with switch
19	Microcontroller: DC motor control
20	Microcontroller: triangle wave generator



Elective Course

ELECTIVE - I

Course code	1EA	ROBOTICS, ARTIFICIAL INTELLIGENCE AND INFORMATION THEORY	L	T	P	C
			4	0	0	4
Pre-requisite		Students should have basic understanding in basic physics, mathematical physics and computer knowledge	Syllabus Version		2020 - 2021	

Course Objectives:

The main objectives of this course are to:
1. understand basics of robotics
2. introduce basics of artificial intelligence
3. learn fundamentals of python programming, cyber security and ethical hacking
4. facilitate students to learn and apply Ardunio IDE and introduce basics of information theory

Expected Course Outcomes:

On successful completion of the course, the students will be able to :

1	understand basics of robotics and robotic sensors	**K2**
2	learn fundamentals of artificial intelligence	**K2**
3	develop an idea to write programme using python, basics of cyber security and hacking	**K3**
4	learn and impliment interfacing between experiments and Ardunio IDE	**K5**
5	familiarize basics of classical and quantum computers	**K2**

K1 – Remember, K2 – Understand, K3 – Apply, K4 – Analyze, K5 – Evaluate, K6 – Create

Unit I — **Basics of Robotics** — **12 hours**

Robot – Definition of Robot – Industrial Robot – Laws of Robotics – Motivating Factors – Advantages and Disadvantages of Robots – Characteristics of an Industrial Robot – Components of an Industrial Robot – Comparison of the Human and Robot Manipulator – Robot Wrist and End of Arm Tools – Robot Terminology – Robotic Joints – Classification of Robots – Robot Classification on the Basis of Coordinate System, Power Source and Method of Control - Robot Selection – Robot Workcell – Robotics and Machine Vision – Robotic Accidents , Safety, Maintenance and Installation – Robotic Sensors – Types of Sensors in Robots – Exteroceptors – Tactile Sensors – Proximity Sensors – Range Sensors – Machine Vision Sensors – Velocity Sensors – Proprioceptors

Unit II — **Artificial Intelligence** — **10 hours**

Introduction to Artificial Intelligence (AI) – Need for AI – Applications domains of AI – tools – Challenges and Future of AI – Fundamentals of Machine Learning and Deep Learning – Machine Learning algorithms to find associations across Biological Data, Cellular Image Classification and Identification of Genetic Variations – AI in Bio Physics Research – AI in drug Design – AI in next generation Sequencing – AI in Protein Structure – AI in Protein Folding Analysis

Unit III — **Basics of Python Programming, Cyber Security and Ethical Hacking** — **12 hours**

Introduction – Python – Data Types – Variables and Operators – Conditions and Loops – Structure of a Python Program– Packages and Function – Writing Simple Python Codes – Cyber Security - Security Environment – Threats – Cyber Crime – Vulnerabilities in Software – Open Access Data – Open Source Software – Ethical Hacking – Hacker and Cracker – Computer Fraud – Malware Threats – Viruses and Worms – Trojans – Spyware – Malware Counter Measures – Ethical and Legality

Unit IV	**Programming Basics with C using Ardunio IDE, Sensors and Actuators**	**14 hours**
Installing and Setting up the Arduino IDE – Basic Syntax – Data Types / Variables / Constant – Operators Conditional Statements and Loops – Using Arduino C Library Functions for Serial, Delay and Other Invoking Functions – Strings and Mathematics Library Functions – Basics of Analogy and Digital Sensors – Interfacing Temperature Sensors, Ultrasound Sensor, Infrared Sensor, LED and Buzzer with Arduino – Introduction to ESP8266 NODEMCU Wifi Module – basic knowledge of Programming NODEMCU using Arduino IDE		
Unit V	**Information Theory**	**10 hours**
Classical Information Theory – Classical Bits - Classical Computers – Classical Turing Machine – von Neumann Computer – Classical Logic Gates and Logic Circuits – Quantum Information Theory – Quantum Bits (Qbits) – Superposition Principle – Collapse of Wavefunction – EPR Paradox – Bell's inequality with proof – Quantum Turning Machine – Quantum Gates - Basics of Quantum Teleportation and Cryptography		
Unit VI	**Contemporary Issues**	**2 hours**
Expert Lectures, Online Seminars – Webinars		
	Total Lecture Hours	**60 hours**

Text Book(s)	
1	Industrial Automation and Robotics – A. K. Gupta, S. K. Arora and J. R. Westcott, Mercury Learning and Information LLC, 2017
2	Arduino Cookbook – Michael Margolis, O' Reilly Media, Inc., 2011
3	An Introduction to Python – Fred L. Drake and Guido Van Russom, Network Theory Limited
4	Artificial Intelligence: A modern approach – Stuart Russell and Peter Norvig, Prentice Hall, 3rd Edition, 2009
Reference Books	
1	Principles of Information Security – Michael E Whitman and Herbert J Mattord, Vikas Publishing House, 4th Edition, 2011
2	Ethical Hacking: A Beginners Guide to Learning the World of Ethical Hacking – Lakshay Eshan, Shockwave Publishing, 2018
3	Quantum Computation and Quantum Information – Michael A. Nielsen and Isaac L. Chuang, Cambridge University Press, 2000
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites, etc.]	
1	https://nptel.ac.in/courses/106105166/
2	http://www.theory.caltech.edu/people/preskill/ph229/

Course Designed By: Dr. S.S. Naina Mohammed (ss.nainamohammed@gmail.com)

Mapping with Programme Outcomes

COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**
CO1	S	M	S	M	L	S	S
CO2	S	M	S	L	L	M	M
CO3	S	M	S	L	M	M	M
CO4	S	M	S	S	M	S	S
CO5	S	M	S	L	M	M	M

*S - Strong; M - Medium; L – Low.

ELECTIVE - I

Course code	1EB	ELEMENTS OF NANOSCIENCE AND NANOTECHNOLOGY	L	T	P	C
			4	0	0	4
Pre-requisite		The students should have basic understanding in materials	Syllabus Version		2020 -2021	

Course Objectives:

The main objectives of this course are able

1. to learn about basic of nanoscience and technology
2. to acquire the knowledge about classification of nanomaterials
3. to learn about properties and characterization techniques of nanomaterials.
4. to understand the various applications of nanomaterials in different fields.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	understand the fundamentals properties and different types of nanomaterials	K2
2	learn quantum dots, wells and wires	K3
3	study the morphological and size of the nanoparticles using various analytical techniques	K4
4	tune the size and shape of the nanomaterials for diverse applications	K5
5	synthesize nanomaterials using various physical, chemical and biological approaches	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit I	Overview of Nanoscience	10 hours

Nano revolution of the 20th century - Properties at Nanoscale (optical, electronic and magnetic) Theory - definitions and scaling

Unit II	Different Classes of Nanomaterials	12 hours

Metal and Semiconductor Nanomaterials - Quantum dots, Wells and Wires - Molecule to Bulk Transitions Bucky Balls and Carbon Nanotubes

Unit III	Synthesis of Nanomaterials	12 hours

Top down (Nanolithography, CVD) – bottom up (sol gel processing, chemical synthesis) - Wet Deposition Techniques – Self assembly (Supramolecular approach) - Molecular Design and Modeling

Unit IV	Characterization	12 hours

TEM, SEM and SPM Technique - Fluorescence Microscopy and Imaging

Unit V	Applications	12 hours

Solar Energy Conversion and Catalysis - Molecular Electronics and Printed Electronics Nanoelectronics - Polymers with a special architecture - Liquid Crystalline Systems - Linear and Nonlinear Optical and Electro Optical properties - Applications in Displays and other devices - Advanced Organic Materials for Data Storage – Photonics – Plasmonics - Chemical and Biosensors - Nanomedicine and Nano Biotechnology



Unit VI	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars - webinars		
	Total Lecture hours	**60 hours**

Book(s) for Study

1	Nanocrystals: Synthesis, Properties and Applications - C.N.R. Rao, P.J. Thomas and G.U. Kulkarni, Springer (2007)
2	Nanostructured Materials and Nanotechnology - Hari Singh Nalwa, Academic Press, 2002

Book(s) for Reference

1	Nanocrystals: Synthesis, Properties and Applications, C.N.R. Rao, P.J. Thomas and G.U. Kulkarni, Springer (2007)
2	Nanoscience: Nanotechnologies and Nanophysics - C. Dupas, P. Houdy, M. Lahmani, Springer Verlag Berlin Heidelberg, 2007

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	http://www.ncpre.iitb.ac.in/slotbooking/SOP/62SOP.pdf
2	https://en.wikipedia.org/wiki/Nanomaterials
3	https://www.nano.gov/you/nanotechnology-benefits

Course Designed By: Dr M. Parthibavarman (varmanphysics85@gmail.com)

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	S	S	S	M	S	L	S
CO2	M	S	S	S	S	S	M
CO3	S	M	S	M	L	M	S
CO4	L	L	M	L	M	S	S
CO5	M	S	M	S	S	M	L

*S-Strong; M-Medium; L-Low

ELECTIVE - I

Course code	1EC	INTRODUCTORY ASTRONOMY, ASTROPHYSICS & COSMOLOGY	L	T	P	C
			4	0	0	4
Pre-requisite		Students should have basic knowledge in general relativity	Syllabus Version	2020-2021		

Course Objectives:

The main objectives of this course are to:
1. Learn how the systematic method and quantitative influence are used in Cosmology
2. Explicate large scale universe are evolved
3. Characterize light year, astronomical unit and transmit these to the size of the planets

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Apply physical principles in a broad range to astronomical situations.	**K3**
2	Be able to formulate scientific problems in mathematical terms and apply analytical and numerical methods towards its solution.	**K5**
3	Develop skills to design observing projects with research telescopes and projects drawing upon data in the literature and in archives.	**K4**
4	Establish competence in focused areas of astrophysical theory and experiment	**K5**
5	Build up skills in cosmological models to analyze physical properties of universe.	**K6**

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit I	History of Astronomy	10 hours

Introductory History of Astronomy - Ptolemy's Geocentric Universe – Copernicus Heliocentric Universe - Tycho Brahe and Galileo's Observations - Kepler's Laws of Planetary Motion - Newtonian Concept of Gravity - Highlights of Einstein's Special and General Theory of Relativity - Curved Space Time - Evidence of Curved Space Time - Bending of Light - Time Dilation

Unit II	Stars & Galaxies	12 hours

Stars and Galaxies – Distances - Trigonometric Parallax - Inverse Square Law- Magnitude of Stars – Apparent Magnitude - Absolute Magnitude and Luminosity – Color and Temperature - Composition of Stars - Velocity, Mass and Sizes of Stars - Types of Stars - Temperature Dependence - Spectral Types - Hertzsprung-Russell (HR) Diagram - Spectroscopic Parallax

Unit III	Lives and Death of Stars	12hours

Stellar Evolution - Mass Dependence - Giant Molecular Cloud – Proto star-Main Sequence Star – Sub giant, Red Giant, Supergiant - Core Fusion - Red Giant (Or) Supergiant – Planetary Nebula (Or) Supernova - White Dwarfs - Novae And Supernovae- Neutron Stars – Pulsars - Black Holes - Detecting Black Holes-The Sun- Its Size and Composition- Sun's Interior Zones – Sun's Surface -Photosphere- Chromospheres – Corona - Sun's Power Source-Fusion Reaction Mechanism

Unit VI	Cosmology - I	12 hours

Introduction to Cosmology - Basic Observations and implications - Olbers Paradox - Expanding Universe - Gravitational Red shift - Doppler Effect - Hubble's Law and the age of Universe - Cosmological Principle - The Perfect Cosmological Principle - Observation and interpretation

of Cosmic Microwave background Radiation (CMBR) - Evidence Supporting the General Big Bang Theory - Salient features of steady state theory		
Unit V	**Cosmology - II**	**12 hours**
Fate of the Universe - Dependence on Mass (Curvature of Space) - Critical density – Open Universe - Closed Universe – Homogenous and Isotropic Freidman – Robertson - Walker Universes - Deriving the Geometry of the Universe from the Background Radiation – Flatness Problem – Horizon Problem - Inflation and its effect on the universe - The Cosmological Constant		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars - webinars		
	Total Lecture hours	**60 hours**

Text Book(s)

1	The Life and Death of Stars, Kenneth R. Lang
2	Physical Foundations of cosmology, Viatcheslav Mukhanov.

Reference Books

1	Lectures on Astronomy, Astrophysics, And Cosmology, Luis A.Anchordoqu
2	Lecture Notes of Department of Physics, University of Wisconsin-Milwaukee
3	Astrophysics of the Solar System, K.D.Abhayankar
4	An Introduction to Planetary Physics, Kaula.W.M
5	Astrophysics of the Sun,Harold Zirin.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://nptel.ac.in/courses/115/105/115105046/
2	http://www.nptelvideos.in/2012/12/astrophysics-cosmology.html
3	https://onlinecourses.swayam2.ac.in/arp19_ap73/preview

Course Designed By: Dr. A. Ramalingam (ramligri@rediffmail.com)

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	S	L	S	S	M	S	M
CO3	M	M	S	S	L	L	S
CO3	M	S	S	S	L	M	S
CO4	S	L	M	L	S	S	S
CO5	L	M	S	M	S	L	M

*S-Strong; M-Medium; L-Low

ELECTIVE - II

Course code	2EA	PLASMA PHYSICS	L	T	P	C
			4	0	0	4
Pre-requisite		Students should have basic knowledge in fundamentals of Plasma Physics	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are to:
1. explore the plasma universe by means of in-situ and ground-based observations
2. understand the model plasma phenomena in the universe
3. explore the physical processes which occur in the space environment

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	calculate fundamental properties of a plasma given appropriate information	**K2**
2	apply basic electromagnetism to derive the kinetic theory of plasmas	**K3**
3	will able to distinguish single particle approach and fluid approach	**K4**
4	apply concepts and analyze plasma diagnostics techniques	**K4**
5	interpret geomagnetic field measurements in terms of currents flowing in Earth's ionosphere and magnetosphere	**K5**

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit I	Fundamental Concepts about Plasma	10 hours

Kinetic pressure in a partially ionized - mean free path and collision cross section- mobility of charged particles - Effect of magnetic field on the mobility of ions and electrons - Thermal conductivity - Effect of magnetic field - Quasi neutrality of plasma - Debye shielding distance - Optical properties of plasma

Unit II	Motion of Charged Particles in Electric and Magnetic Field	12 hours

Particle description of plasma – Motion of charged particle in electrostatic field- Motion of charged particle in uniform magnetic field - Motion of charged particle in electric and magnetic fields - Motion of charged particle in inhomogeneous magnetic field- Motion of charged particle in magnetic mirror confinement - motion of an electron in a time varying electric field - Magneto hydrodynamics – Magneto hydrodynamic equations - Condition for magneto hydrodynamic behavior

Unit III	Plasma Oscillations and Waves	12 hours

Introduction, theory of simple oscillations - electron oscillation in a plasma - Derivations of plasma oscillations by using Maxwell's equation - Ion oscillation and waves in a magnetic field - thermal effects on plasma oscillations - Landau damping - Hydro magnetic waves - Oscillations in an electron beam

Unit IV	Plasma Diagnostics Techniques	12 hours

Single probe method - Double probe method - Use of probe technique for measurement of plasma parameters in magnetic field - microwave method - spectroscopic method - laser as a tool for plasma diagnostics – X ray diagnostics of plasma - acoustic method – conclusion

Unit V	Possible Applications of Plasma Physics	12 hours
Magneto hydrodynamic Generator - Basic theory - Principle of Working - Fuel in MHD Generator - Generation of Microwaves Utilizing High Density Plasma – Plasma Diode		
Unit VI	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**60 hours**

Text Book(s)

1	Plasma Physics - Plasma State of Matter - S.N. Sen, Pragati Prakashan, Meerut
2	Principles of Plasma Diagnostics - I. H. Hutchinson

Reference Books

1	Introduction to Plasma Physics - F.F.Chen, Plenum Press, London
2	Introduction to Plasma Physics - M.Uman
3	Plasma Diagnostic Techniques - R.H. Huddlestone & S.L. Leonard

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://www.youtube.com/watch?v=wO2HS7hcSb8
2	https://ocw.mit.edu/courses/nuclear-engineering/22-611j-introduction-to-plasma-physics-i-fall-2003/lecture-notes/

Course Designed By: Dr. R. Thiyagarajan (thiyagu_phy@rediffmail.com))

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	S	S	S	S	S	S	S
CO2	S	S	S	M	S	S	M
CO3	S	S	M	L	M	M	L
CO4	S	S	S	M	S	M	M
CO5	S	S	S	M	M	M	M

*S-Strong; M-Medium; L-Low

ELECTIVE - II

Course code	2EB	CRYSTAL GROWTH METHODS AND CHARACTERIZATION	L	T	P	C
			4	0	0	4
Pre-requisite		The students should have basic understanding in Solid state physics	Syllabus Version		2020 -2021	

Course Objectives:

The main objectives of this course are to:
1. provide an extended knowledge on advanced condensed matter topic like crystal growth methods
2. provide the necessary understanding on the theories involve in the nucleation and growth process
3. provide fundamental concepts behind the solution, melt and vapour growth techniques
4. provide necessary knowledge on the functioning of various characterization tools

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	understand the process of crystal nucleation and growth	**K2**
2	know about various crystal growing techniques	**K3**
3	understand the methodologies of solution and gel growth techniques	**K2, K3**
4	understand the concepts behind the melt and vapour growth techniques	**K2, K3**
5	know about different characterization techniques	**K4, K5**

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit I	**NUCLEATION THEORY**	**10 hours**

Importance of crystal growth – Classification of crystal growth methods – Nucleation Theory - Kinds of nucleation – Homogeneous nucleation - Heterogeneous nucleation - secondary nucleation - Classical theory of nucleation: Gibbs Thomson equations for vapour and solution – Kinetic theory of nucleation – Energy of formation of a spherical nucleus and cylindrical nucleus.

Unit II	**SOLUTION GROWTH TECHNIQUES**	**12 hours**

Growth from low temperature solutions - Selection of solvents and solubility – Meir's solubility diagram – Saturation and Supersaturation – Metastable zone width – Growth by restricted evaporation of solvent, slow cooling of solution and temperature gradient methods - Gel Growth Technique - Principle – Various types – Structure of gel – Importance of gel – Experimental procedure – Chemical reaction method – Single and double diffusion method – Chemical reduction method – Complex and de complexion method – Advantages of gel method - Growth from high temperature solutions - Flux growth – Hydrothermal growth method

Unit III	**MELT GROWTH TECHNIQUES**	**12 hours**

Basics of melt growth - Bridgman method – Growth apparatus - Crucibles, Heater, Measurement and Control of Temperature – growth process – Applications of Bridgman method - Czochralski technique – Growth apparatus – seed preparation – pulling rate – shape of crystal melt interface – Growth process

Unit IV	**VAPOUR GROWTH TECHNIQUES**	**12 hours**

Physical Vapour Transport (PVT) – Processes of sublimation and condensation principle – crystal growth in closed and semi open ampoules – Chemical Vapour Transport – Criteria for the choice of transport reaction – Transported materials and transporting agents – Temperature variation method for crystal growth - Stationary temperature profile - Linearly time varying temperature profile and Oscillatory temperature profile

Unit V	**CHARACTERIZATION TECHNIQUES**	**12 hours**
X Ray Diffraction (XRD) – Powder and single crystal – UV Visible - Fourier Transform Infrared (FT- IR) and Raman spectroscopic analysis – TG DTA/DSC Thermal Analysis - Vickers Micro hardness - Chemical Etching		
Unit VI	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars - webinars		
	Total Lecture hours	**60 hours**

Text Book(s)	
1	J. C. Brice, Crystal Growth Processes, John Wiley and Sons, New York, 1986.
2	P. SanthanaRagavan and P. Ramasamy, Crystal Growth Processes and Methods, KRU Publications, Kumbakonam, 2001.
3	H.L. Bhat, Introduction to Crystal Growth Principles and Practice CRC Press, Taylor & Francis Group, Boca Raton, Florida, 2015.
Reference Books	
1	Govindhan Dhanaraj, Kullaiah Byrappa, Vishwanath Prasad, Michael Dudley (Eds.), Hand book of Crystal Growth Springer Heidelberg Dordrecht London New York, 2010.
2	B.R. Pamplin, Crystal Growth, Pergamon Press, Oxford, 1975.
3	K. Sangwal, Elementary Crystal Growth (Edited), SAAN Publishers, Lublin, 1994.
4	Sam Zhang, Lin Ki, Ashok Kumar, Materials Characterization Techniques, CRC Press, Taylor & Francis Group, Boca Raton, Florida, 2009.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://nptel.ac.in/courses/113/105/113105025/
2	https://nptel.ac.in/courses/104/104/104104011/
3	https://onlinecourses.nptel.ac.in/noc19_cy35/preview

Course Designed By: Dr. K Srinivasan (nivas_5@yahoo.com)

Mapping with Programme Outcomes							
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**
CO1	M	M	M	S	M	S	S
CO3	M	M	S	S	M	S	S
CO3	S	S	S	S	M	S	S
CO4	S	S	S	S	M	S	S
CO5	S	M	S	S	M	S	M

*S-Strong; M-Medium; L-Low

ELECTIVE - II

Course code	2EC	ATMOSPHERIC PHYSICS	L	T	P	C
			4	0	0	4
Pre-requisite		Students should have basic knowledge in thermodynamics	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are to:
1. familiarize microphysical principles and determine the structures of the atmosphere and clouds
2. apply principles of cloud microphysics to the solution of atmospheric problems
3. impart knowledge on clouds, precipitation and air pollution
4. study meteorological systems and global energy balance

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	know the composition and structure of atmosphere	**K2**
2	understand and apply radar meteorology	**K3**
3	able to interpret clouds and precipitation	**K4**
4	describe the meteorological systems, global energy balance and to calibrate air pollution	**K5**
5	create a scope to identify new areas of research in the field of atmospheric science	**K6**

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit I	Physical & Dynamic Meteorology	12 hours

Physical Meteorology: Structure of Earth's Atmosphere and Composition - Law of Thermodynamics of the Atmosphere - Adiabatic Process - Potential Temperature - Clausius Clapyeron Equation - Laws of Black Body Radiation - Solar and Terrestrial Radiation – Albedo - Green House Effect - Heat Balance of Earth Atmosphere System

Unit II	Dynamic Meteorology	10 hours

Fundamental Forces - Structure of Static Atmosphere - Momentum, Continuity and Energy Equations - Thermodynamics of the Dry Atmosphere - Elementary Applications of the Basic Equations - Circulation Theorem – Vorticity - Potential Vorticity and Potential Vorticity Equations

Unit III	Climate & Monsoon Dynamics	12 hours

Climate Classification - Polar, Artic, Antarctic, Temperate & Tropical Climates Wind, Temperature & Pressure Distribution over India in the Lower, Middle and Upper Atmosphere during Pre – Post - and Mid - Monsoon Season - Dynamics of Monsoon Depression and Easterly Waves - Intra Seasonal and Inter annual Variability of Monsoon – Quasi Bi Weekly and 30 - 60 Day Oscillations - Walker Circulation, Southern Oscillations & El Nino

Unit IV	Atmospheric Pollution	12 hours

Role of Meteorology in Atmospheric Pollution - Atmospheric Boundary Layer - Air Stability - Local Wind Structure - Ekman Spiral - Turbulence & Boundary Layer Scaling - Residence Time and Reaction Rates of Pollutants - Sulphur Compounds - Carbon Compounds - Organic compounds –Aerosols - Toxic Gases and Radio Active Particles - Trace Gases

Unit V	**Radar Meteorology**	**12 hours**
Basic Meteorology - Radar Principles and Technology - Radar Signal Processing & Display - Weather Radar - Observation of Precipitating Systems - Estimation of Precipitation - Radar observation of Tropical Storms & Cyclones - Use of Weather Radar in Aviation - Clear Air Radars - Observation of a Clear Air Phenomena		
Unit VI	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars - webinars		
Total Lecture hours		**60 hours**

Text Book(s)

1	The Atmosphere - Frederick K. Lutgens and Edward J. Tarbuk
2	Dynamic Meteorology - J.R. Holton, Academic Press NY

Reference Books

1	The Physics of Monsoons - R.N. Keshvamurthy & M. Shankar Rao, Allied Publishers
2	Principles of Air Pollution Meteorology – Tom Lyons & Prillscott, CBS Publishers & Distributors

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://nptel.ac.in/courses/119/106/119106008/
2	https://nptel.ac.in/courses/119/102/119102007/
3	https://nptel.ac.in/courses/119/108/119108004/

Course Designed By: Mrs. B. Thilaga Rajeswari (raajee1979@gmail.com)

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	L	M	M	S	S	S	S
CO3	S	L	S	M	S	S	M
CO3	S	S	L	S	M	S	L
CO4	L	L	S	S	L	S	M
CO5	M	L	M	S	M	M	S

*S-Strong; M-Medium; L-Low

ELECTIVE - III

Course code	3EA	EXPERIMENTAL TECHNIQUES & DATA ANALYSIS	L	T	P	C
			4	0	0	4
Pre-requisite		Students should know the fundamentals of Electronic Circuits	Syllabus Version	2020-2021		

Course Objectives:

The main objectives of this course are to:

1. acquainted with the concept of errors.
2. make awareness about the constructions and working principle of sensors and transducers.
3. recognize the parameters those are measurable in electronic instruments.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Develop an appropriate experimental research design for an engineering case study	**K5**
2	Taking into account practical limitations	**K6**
3	Apply knowledge of statistical analysis to assess a hypothesis by selecting appropriate statistical tests and interpreting the test results accurately	**K3**
4	Propose an appropriate statistical model for a given dataset and interpret the goodness of fit	**K5**

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit I	Introduction	12 hours

Introduction - Measurement of errors: accuracy, precision, resolution, sensitivity - absolute and relative errors - Types of errors - gross error, systematic error and random error- standards of measurements - classification of standards, time and frequency standards, electrical standards

Unit II	Electrical Transducer Classification	10 hours

Active and Passive transducers - resistive, inductive, capacitive, thermocouple and Piezoelectric transducers - Digital transducers

Unit III	Amplifiers and signal Conditioning	12 hours

Instrumentation amplifiers - Isolation amplifiers - Chopper amplifiers - Voltage to frequency and voltage to current converters - Frequency multipliers - logarithmic amplifiers - S/H Circuits Active filters - Low pass, High pass, Band pass and Band stop filters

Unit IV	Analysis	12 hours

Wave Analyzers - Audio frequency Wave analyzer - Heterodyne wave analyzer - Harmonic distortion analyzers - Resonant harmonic distortion analyzer - Heterodyne harmonic distortion analyzer - Fundamental suppression harmonic distortion analyzer - Spectrum analyzer - Spectra of CW, AM, FM and PM waves

Unit V	Electronic Measuring Instruments	12 hours

Q meter - Vector impedance meter - Digital frequency meter - Digital voltmeter - Phase meter- RF power and voltage measurement - Power factor meter - Vector voltmeter - Display and Recording: X-Y Recorders - Magnetic Tape recorders - Storage Oscilloscope

Unit VI	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**60 hours**

Text Book(s)

1	Electrical & Electronics Measurement &Instrumentation - A. K. Sawhney
2	Electronic Instrumentation – H.S. Kalsi TMH

Reference Books

1	Modern Electronic Instrumentation - W.D.Cooper
2	Instrumentation Devices and Systems - C.S. Rangan, G.R. Sharma and VSV Mani, Tata McGraw Hill Publications
3	Introduction to Instrumentation and Control - A.K. Ghosh - Prentice HallIndia Publications
4	Modern Electronic Instrumentation and Measurement Techniques - A.O. Hefnick and W.D. Cooper., Prentice Hall India Publications.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://onlinecourse.nptel.ac.in/noc19_ee38/preview
2	https://nptel.ac.in/courses/117/102/117102059/
3	https://www.udem.com/course/electronic-measurements-and-instrumentation/

Course Designed By: Dr. B. Gnanavel (gnanavelphd@gmail.com)

Mapping with Programme Outcomes							
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**
CO1	L	M	S	M	M	S	S
CO3	M	L	S	S	S	S	M
CO3	M	S	S	L	M	M	M
CO4	S	S	M	M	M	S	S
CO5	L	M	S	S	M	M	S

*S-Strong; M-Medium; L-Low

ELECTIVE - III

Course code	3EB	THIN FILM PHYSICS	L	T	P	C
			4	0	0	4
Pre-requisite		Students should have basic knowledge in the state of matter particles	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are to:

1. understand the basic concepts of thin films technology
2. acquire the knowledge about thin film coating, its characterization and its applications
3. explain the electric, electronic, magnetic, and structural behavior of functional materials, the experimental methods used to investigate their functionality, mathematical and computational techniques used to model their properties

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	gain knowledge on the mechanism, process for the synthesis and evolution of thin films	**K2**
2	understand principles, advantages and drawbacks of different thin film deposition methods	**K2**
3	familiarize basics of defects and dislocations, and learn how it can be identified and removed	**K3**
4	learn characterization techniques to analyze sample	**K4**
5	apply the knowledge of thin film in research level applications	**K4**

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit I	Preparation of Thin Film	10 hours

Nature of Thin Film - Deposition Technology - Distribution of Deposit - Resistance Heating - Thermal Evaporation - Flash Evaporation

Unit II	Deposition techniques	12 hours

Electron Beam Method - Cathodic Sputtering - Glow Discharge Sputtering - Low Pressure Sputtering - Reactive Sputtering - RF Sputtering - Chemical Vapour Deposition (CVD) - Chemical Deposition

Unit III	Film Thickness & Its Control	12 hours

Mass Methods - Optical Method – Photometry – Ellipsometry - Interferometry - Other Methods - Substrate Cleaning - Microscopic Defect and Dislocation - Edge Dislocation - Screw Dislocation - Boundary Defect - Stress Effect - Removal of Defect - Defect and Energy State

Unit IV	Thin Film Analysis	12 hours

Electron Diffraction Technique - High Energy Electron Diffraction - Low Energy Electron Diffraction - Electron Microscopy - Scanning Electron Microscopy – X Ray Photoelectron Spectroscopy - Mass Spectroscopy - Thermodynamics of Nucleation - Nucleation Theories - Film Growth - Incorporation of Defects, Impurities in Film - Deposition Parameters and grain size

Unit V	Thin Film Growth Process	12 hours

Epitaxy - Thin Film Structure – Substrate Effect - Epitaxial Deposit – Twinning and Multi twinning - Phase Transition - Dissociations - Film Thickness Effect - Crystal Growth Process

Unit VI	Contemporary Issues	2 hours
Expert lectures, online seminars – webinars		
	Total Lecture hours	**60 hours**

Text Book(s)	
1	Thin Film Fundamentals - A. Goswami, New Age International-New Delhi
2	Thin Film Phenomena - K.L.Chopra
Reference Books	
1	Handbook of Thin Film Technology-L.T. Meissel& R. Glang-McGrawHill
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://www.youtube.com/watch?v=o9uRmL38R6A
2	

Course Designed By: Dr. R. Thiyagarajan (thiyagu_phy@rediffmail.com))

Mapping with Programme Outcomes							
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**
CO1	S	M	M	S	M	S	S
CO2	S	M	M	S	M	M	S
CO3	S	S	S	S	M	M	S
CO4	S	L	S	S	M	S	M
CO5	M	L	M	S	L	M	M

*S-Strong; M-Medium; L-Low

ELECTIVE - III

Course code	3EC	MICROPROCESSOR AND MICROCONTROLLER	L	T	P	C
			4	0	0	4
Pre-requisite		The students should have fundamental knowledge about digital electronics	Syllabus Version		2020 -2021	

Course Objectives:

1. To study the Architecture of µP8085 & µC8051
2. To study the addressing modes & instruction set of 8085 & 8051.
3. To introduce the need & use of Interrupt structure of 8085 & 8051.
4. To develop skill in simple applications development with programming 8085 & 8051

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	learn instruction set of microprocessor	**K2**
2	perform experiments using Intel 8051 microcontrollers and interfacing experiments such as seven segment display, stepper motor control, traffic light control	**K3**
3	identify architecture of microprocessor and microcontroller and use microcontrollers in instrumentation applications	**K4**
4	know the various peripheral devices of Intel 8051 and interfacing them	**K5**
5	create interface between laboratory experiments and microcontroller, and write instruction code	**K6**

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit I	Introduction & Instruction Set of 8085	12 hours

Pin Diagram – Architecture – De multiplexing the Bus – Generation of Control Signals – Fetching, Decoding and Execution of Instruction – Instruction set – Addressing modes – Instruction format – Memory Read Machine Cycle – Simple Programs

Unit II	Interfacing Concepts	12 hours

Peripheral I/O Instructions – Device Selection and Data Transfer – Input Interfacing – Parallel and Serial Interface - Introduction to Programmable Peripheral Interface 8255 – Pin Diagram – Architecture – Modes of Operation: I/O and BSR – Architecture and Operation of 8251 (USART) - 8085 Interrupts

Unit III	Applications Of µP	10 hours

Time Delay Program – Traffic Light Control System – Water Level Controller – Stepper Motor Control – Interfacing DAC – Interfacing ADC – Temperature Measurement

Unit IV	Introduction & Assembly Programming of 8051	12 hours

Microcontrollers and Embedded Processors – Microcontrollers for Embedded Systems – Overview of 8051 Family – 8051 Instruction Set and Registers - Introduction to 8051 Assembly Programming – the Program Counter and ROM – Data Types and Directives – Flag Bits and PSW Register – Register Bank and Stack – Loop and Jump Instructions – I/O Port Programming Addressing Modes – Simple Programs

Unit V	Interfacing and Real time Applications of µC	12 hours

Interfacing LCD to the 8051 – Interfacing ADC – Interfacing Sensors to 8051 – Interfacing Stepper Motor – 8051 Interfacing to the Keyboard – Interfacing DAC to the 8051 - Real time applications

Unit VI	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars - webinars		
	Total Lecture hours	**60 hours**

Text Book(s)

1	Microprocessor Architecture, Program And Its Application With 8085 - R.S. Gaonkar, New Age International (P) Ltd
2	Microprocessor and Its Application - S. Malarvizhi, Anuradha Agencies Publications
3	The 8051 Microcontroller And Embedded Systems Using Assembly And C - Muhammad Ali Mazidi, Janice Gillispie Mazidi and Rolin D. McKinlay, PHI, 2nd Edition, 2006

Reference Books

1	The 8085 Microprocessor, Architecture, Programming and Interfacing – K Uday Kumar, S. Uma Shankar, Pearson
2	Fundamentals of Microprocessors and Microcontrollers - B. Ram, Dhanpat Rai Publications
3	Fundamentals of Microprocessors and Microcontrollers - B. Ram, Dhanpat Rai Publications

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://nptel.ac.in/courses/108/105/108105102/
2	https://nptel.ac.in/courses/106/108/106108100/
3	https://nptel.ac.in/courses/108/103/108103157/

Course Designed By: Dr M. Parthibavarman (varmanphysics85@gmail.com)

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	M	M	M	S	S	S	M
CO3	S	M	M	L	M	S	S
CO3	L	S	L	M	S	S	S
CO4	S	S	S	L	L	M	M
CO5	L	S	M	S	S	S	M

*S-Strong; M-Medium; L-Low

ELECTIVE - III

Course code	3ED	PHYSICS OF NON-CONVENTIONAL ENERGY RESOURCES	L	T	P	C
			4	0	0	4
Pre-requisite		The students should have basic knowledge about conventional energy resources	Syllabus Version		2020 -2021	

Course Objectives:

The main objectives of this course are to:

1. To develop the human recourse in non-conventional Energy resources
2. To create several self-employment opportunities in renewable energy and energy efficiency sectors for modestly-trained and self-trained human resources exist in all geographic locations of the country
3. It will help to develop the skills required in renewable energy and energy management fields

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	understand various renewable energy technologies	**K2**
2	understand characteristics of solar radiation and solar energy devices	**K3**
3	learn and apply geothermal energy and fuel cells	**K3**
4	get awareness of non conventional sources of energy technologies	**K4**
5	acquirer the knowledge of storage technologies from the autonomous renewable energy sources and various possible mechanisms about renewable energy projects	**K5**

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit I	**Introduction to Non conventional Energy**	**10 hours**

Introduction – Various non conventional energy resources – Availability – Classification - Relative merits and Demerits Solar Cells - Theory of Solar Cells - Solar Cell Materials - Solar Cell Array - Solar Cell Power Plant - Limitations

Unit II	**Solar Thermal Energy**	**12 hours**

Solar Thermal Energy - Solar radiation - Flat Plate Collectors and their Materials - Applications and Performance - Focusing of Collectors and their Materials - Applications and Performance - Solar Thermal Power Plants - Thermal Energy Storage for Solar Heating and Cooling - Limitations

Unit III	**Geothermal Energy and Fuel Cells**	**12 hours**

Geothermal Energy - Resources of Geothermal Energy - Thermodynamics of Geo Thermal Energy Conversion - Electrical Conversion – Non electrical Conversion - Environmental Considerations - Magneto Hydrodynamics (MHD) - Principle of Working of MHD Power Plant - Performance and Limitations – Fuel Cells - Principle of Working of Various Types of Fuel Cells and their Working - Performance and Limitations

Unit IV	**Wind Energy and Power Generation**	**12 hours**

Wind Power and its Sources - Site Selection – Criterion - Momentum Theory - Classification of Rotors - Concentrations and Augments - Wind Characteristics - Performance and Limitations of Energy Conversion Systems

Unit V	**Bio mass**	**12 hours**
Bio mass - Availability of Bio mass and its Conversion Theory - Ocean Thermal Energy Conversion (OTEC) – Availability - Theory and Working Principle - Performance and Limitations - Wave and Tidal Wave - Principle of Working - Performance and Limitations		
Unit VI	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars - webinars		
	Total Lecture hours	**60 hours**

Text Book(s)

1	Introduction to Non-Conventional Energy Resources -Raja etal, SciTech Publications
2	Non-conventional Energy Resources -D.S. Chauhan, New Age International

Reference Books

1	Renewal Energy Resources - John Twideu and Tony Weir, BSP Publications, 2006
2	Energy Resources: Conventional & Non-Conventional - M.V.R. Koteswara Rao, BSP Publications, 2006
3	Renewal Energy Technologies: A Practical Guide for Beginners C.S. Solanki-PHI Learning

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

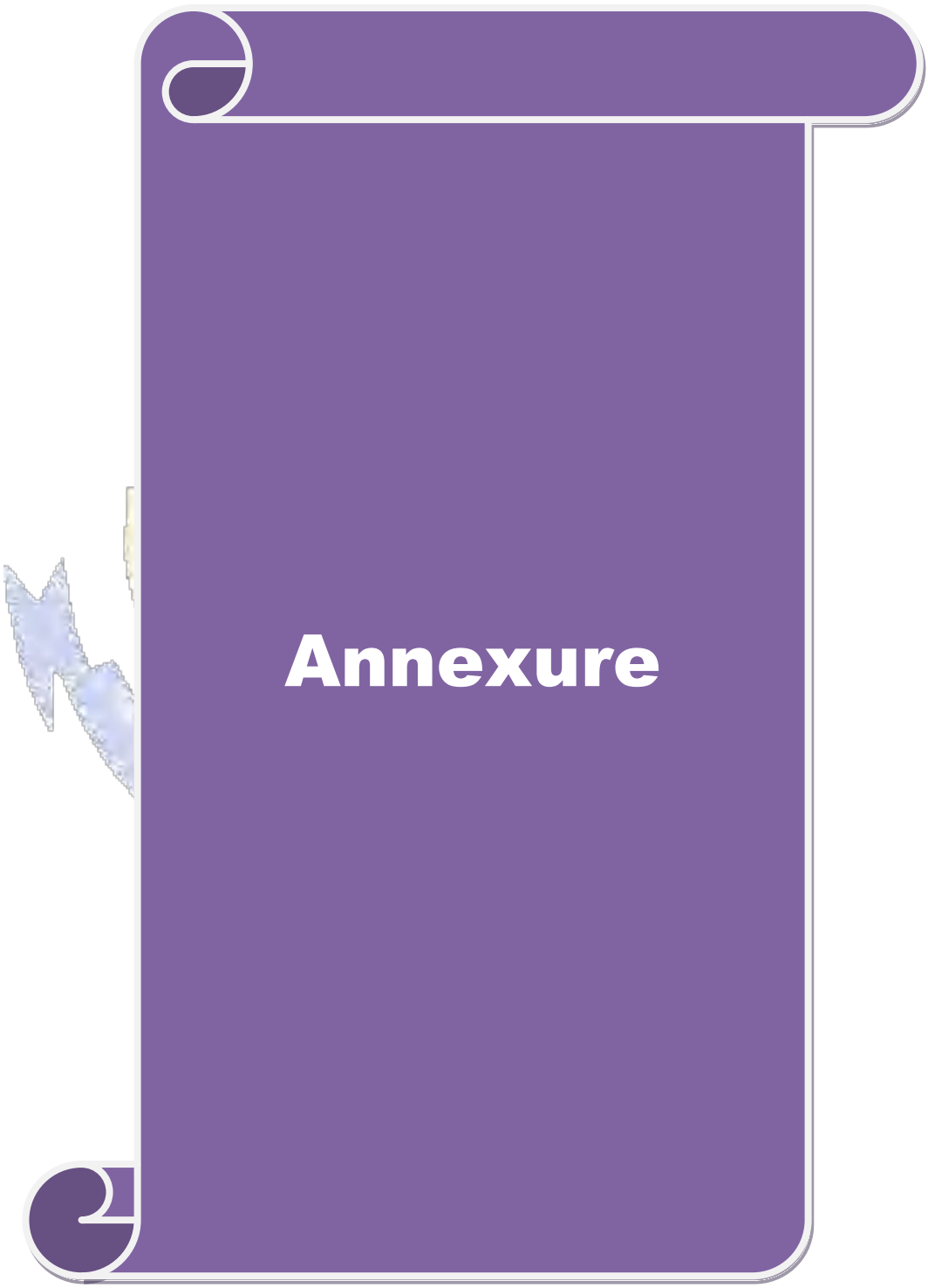
1	https://nptel.ac.in/courses/121/106/121106014/
2	https://onlinecourses.nptel.ac.in/noc20_ge06/preview
3	https://nptel.ac.in/courses/103/107/103107157/

Course Designed By: Dr. A. Ramalingam (ramligri@rediffmail.com)

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	S	S	M	S	S	L	M
CO3	S	M	S	L	S	S	S
CO3	M	M	L	M	S	S	L
CO4	S	M	S	L	L	S	M
CO5	L	M	S	S	S	M	M

*S-Strong; M-Medium; L-Low

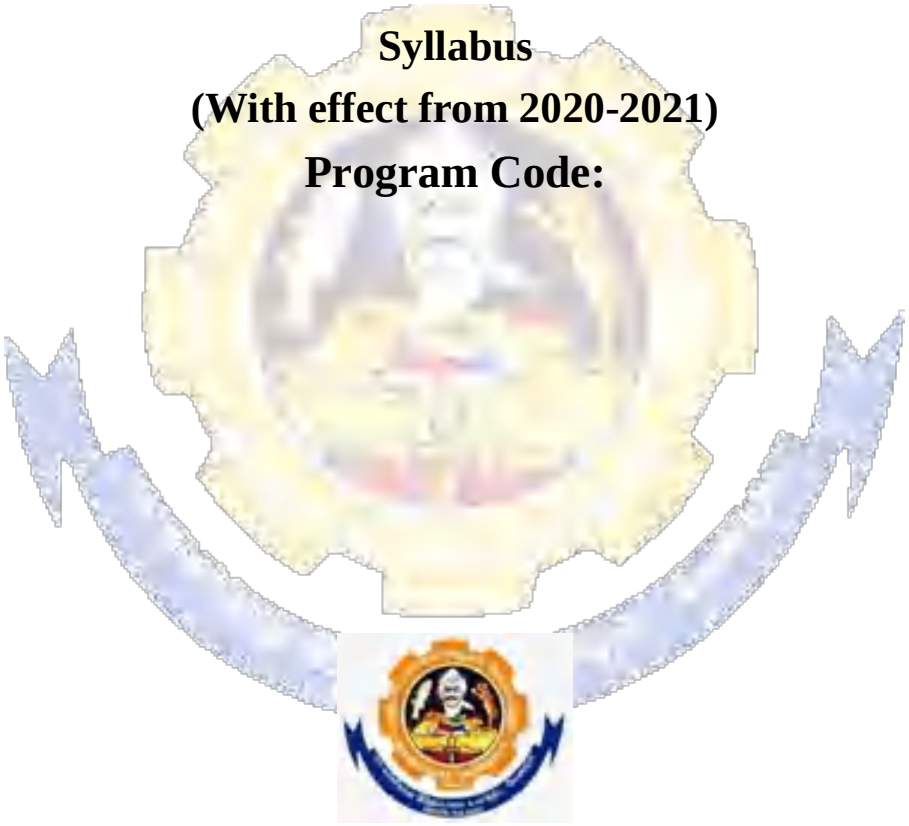

Annexure

M. Sc. Physics

Syllabus

(With effect from 2020-2021)

Program Code:



DEPARTMENT OF PHYSICS

Bharathiar University

(A State University, Accredited with "A" Grade by NAAC and 13th Rank among Indian Universities by MHRD-NIRF)

Coimbatore 641 046, INDIA

LIST OF ELECTIVE PAPERS (College can choose any one elective paper from the choices under each section)		
Course	**Course code**	**Course Title**
Elective – I	**1EA**	Robotics, Artificial Intelligence and Information Theory **(Industry 4.0)**
	1EB	Elements of Nano science and Nanotechnology
	1EC	Introductory Astronomy, Astrophysics & Cosmology
Elective – II	**2EA**	Plasma Physics
	2EB	Crystal growth methods and characterization
	2EC	Atmospheric Physics
Elective - III	**3EA**	Experimental Techniques & Data Analysis
	3EB	Thin film Physics
	3EC	Microprocessor and Microcontroller
	3ED	Non- Conventional energy resources

MARKS DISTRIBUTION (EXTERNAL AND INTERNAL (CIA))

I. THEORY

TOTAL MARKS	EXTERNAL		INTERNAL	Overall Passing Minimum (Internal + External)
	Max. Marks	Passing Minimum	Max. Marks	
100	75	38	25	**50**

S. No	Theory – CIA Breakups	
	Maximum Marks	25
1	Tests (2 hours test - Best one out of two)	**5**
2	Model Exam - End semester (3 hours)	**10**
3	Assignment + Seminar	**10**

II. PRACTICALS

TOTAL MARKS	EXTERNAL		INTERNAL	Overall Passing Minimum (Internal + External)
	Max. Marks	Passing Minimum	Max. Marks	
100	60	30	40	**50**

S. No	Practical – CIA Breakups	
	Maximum CIA Marks	40
1.	At least 12 experiments to be completed.	**20**
2.	Tests: Best one out of two	**15**
3.	Record	**5**

M. Sc. Zoology

Syllabus

AFFILIATED COLLEGES

Program Code:32F

2020 – 2021 onwards

BHARATHIAR UNIVERSITY

(A State University, Accredited with "A" Grade by NAAC,
Ranked 13th among Indian Universities by MHRD-NIRF,
World Ranking: Times -801-1000,Shanghai -901-1000, URAP - 982)

Coimbatore - 641 046, Tamil Nadu, India

Program Educational Objectives (PEOs)	
The **M. Sc. Zoology** program describe accomplishments that graduates are expected to attain within five to seven years after graduation	
PEO1	M.Sc., graduates can work as Professors & researchers. They can become teachers or animal trainers in all fields of biology.
PEO2	They can find jobs in any field of biological and biomedical related labs and research areas
PEO3	They can enter into environment, ecosystems and pollution control sectors.
PEO4	They can find employment in Zoos and Museums.
PEO5	They fit into Biotechnology & Microbiology companies
PEO6	They can earn and shine in Agriculture & Farming
PEO7	They can work in Veterinary sector
PEO8	They are eligible to serve as Wild life conservator
PEO9	Clinical Laboratory Technician
PEO10	Higher studies as Ph.D in Zoology

Program Specific Outcomes (PSOs)	
After the successful completion of **Zoology** program, the students are expected to	
PSO1	Elucidate animal-animal, animal-plant, animal-microbe interactions and their consequences to animals, humans and the environment.
PSO2	Develop deeper understanding of key concepts of biology at biochemical, molecular and cellular level, physiology and reproduction at organismal level, and ecological impact on animal behavior.
PSO3	Strengthen of genetics and cytogenetic principle in light of advancements in understanding human genome and genomes of other model organisms.
PSO4	Describe the of expression of genome revealing multiple levels of regulation and strategies to manipulate the same in the benefit of the mankind.
PSO5	Learn handling DNA sequence data and its analysis which equip students to get employed in R&D in the industry involved in DNA sequencing services, diagnostics, and micro biome analysis.
PSO6	Understand relationships of variations in phenotypic expression of genomes and their genome wide interaction with other organisms.
PSO7	Develop an understanding of zoological science for its application in medical entomology, apiculture, aquaculture, agriculture and modern medicine.
PSO8	Develop theoretical and practical knowledge in handling the animals and using them as model organism.
PSO9	Maintain high standards of learning in animal sciences
PSO10	Focus to prepare them with research-oriented approach in frontier areas of research in Zoology and preparing them for advancements

Program Outcomes (POs)	
On successful completion of the M. Sc. Zoology program	
PO1	Expected to attain written skills via assignment, projects & reports & seminar
PO2	To develop presentation & communication skills through research
PO3	To attain analytical skills like understanding & interpreting the results
PO4	To know the basics of instrumentation
PO5	To develop taxonomical skills by identifying the animal species
PO6	To learn about animal biodiversity, bioinformation ecosystem
PO7	To understand human beings studying the biology anatomy physiology etc.,
PO8	To Create an awareness of the impact of Zoology on the environment, society, and development outside the scientific community.
PO9	To study and understand the classification of whole phyla includes in Non chordates with the help of charts/models/pictures.
PO10	To inculcate the scientific temperament in the students and outside the Scientific community.

BHARATHIAR UNIVERSITY : COIMBATORE 641 046
M.Sc., ZOOLOGY DEGREE COURSE (COLLEGES - CBCS PATTERN)
MODIFIED SCHEME OF EXAMINATION
(For the students admitted during the academic year 2020 – 21 onwards)

Course Code	Paper	Title of the Course	Credits	Hours		Maximum Marks		
				Theory	Practical	CIA	ESE	Total
		FIRST SEMESTER						
13A	Core I	Structure and functions of Invertebrates	4	6	-	25	75	100
13B	Core II	Comparative anatomy of Chordates	4	6	-	25	75	100
13C	Core III	Animal Biodiversity & Conservation	4	6	-	25	75	100
13D	Core IV	Environmental Biology	4	6	-	25	75	100
23P	Practical I	(Comprises of Papers I,II&III)	-	-	2	-	-	-
23Q	Practical II	(Comprises of Papers IV&V)	-	-	2	-	-	-
23R	Practical III	(Comprises of Papers VI,VII&VIII)	-	-	2	-	-	-
		Total	**16**					**400**
		SECOND SEMESTER						
23A	Core V	Biophysics & Biostatistics	4	6	-	25	75	100
23B	Core VI	Biochemistry	4	6	-	25	75	100
23C	Core VII	Cell & Molecular Biology	4	6	-	25	75	100
23D	Core VIII	Developmental Biology	4	6	-	25	75	100
23P	Practical I	(Comprises of Papers I,II&III)	4	-	2	40	60	100
23Q	Practical II	(Comprises of Papers IV&V)	4	-	2	40	60	100
23R	Practical III	(Comprises of Papers VI,VII&VIII)	4	-	2	40	60	100
		Total	**28**					**700**
		THIRD SEMESTER						
33A	Core IX	Comparative Animal Physiology	4	6	-	25	75	100
33B	Core X	Immunology	4	6	-	25	75	100
3EC	Elective I	Elective I: Entomology Paper I	4	5	-	25	75	100
3EB	Elective II	Elective II A: Microbiology (or)	4	5	-	25	75	100
		***Research Methodology**	***4**	**5**	**-**	**25**	**75**	**100**
43P	Practical IV	(Comprises of Papers IX&X)	-	-	2	-	-	-
43Q	Practical V	(Comprises of Papers XI&XII)	-	-	2	-	-	-
4EP	Elective Practical I	Elective I Practical (Comprises of Paper Elective I)	-	-	2	-	-	-
4EQ	Elective Practical II	Elective II Practical (Comprises of Paper Elective II) (or) *** Project work**	-	-	2	-	-	-
			-		***2**	-	-	-
		Total	**16**					**400**
		FOURTH SEMESTER						
43A	Core XI	Genetics	4	6	-	25	75	100
43B	Core XII	Evolution	4	6	-	25	75	100
4EC	Elective I	Elective I: Entomology Paper II	4	5	-	25	75	100
4EB	Elective II	Elective II B: Bioinstrumentation &	4	5	-	25	75	100

		biological techniques and Biotechnology & Genetic engineering (or) ***Project work**	-	-	-	-	-	-
43P	Practical IV	(Comprises of Papers IX&X)	3	-	2	30	45	75
43Q	Practical V	(Comprises of Papers XI&XII)	3	-	2	30	45	75
4EP	Elective Practical I	Elective I Practical (Comprises of Paper Elective I)	4	-	2	40	60	100
4EQ	Elective Practical II	Elective II Practical (Comprises of Paper Elective II) (or) ***Project work**	4	-	2	40	60	100
			***8**		-	-		***200**
		Total	**30**					**750**
		Grand Total	**90**					**2250**
		ONLINE COURSES						

List of Elective Papers (opted by the colleges)		
Elective-II Choose A or B	**A**	1.Elective II A: Microbiology- III Semester 2.Elective II B: Bioinstrumentation And Biotechnology 3.Elective I- Research Methodology- III Semester
	B	1.*Elective I – Research Methodology – III Semester 2.*Research Project for 200 marks for III & IV Semester

* For Elective II, if *B is opted,
*Theory Paper – Research Methodology will carry100 marks and
*For Project 200 marks (Project work =160 marks and Viva-voce =40 marks).

Project Guidelines:

1. Internal and external examiners will evaluate the project work and award marks out of 160.

2. Internal and external examiners will conduct viva-voce examination and award marks out of 40.

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First Semester

Course code	13A	STRUCTURE AND FUNCTIONS OF INVERTEBRATES	L	T	P	C
Core/Elective/Supportive		Core Paper I	6	0	0	4
Pre-requisite		Basic knowledge about Invertebrate forms and their functions	Syllabus Version	2020 - 2021		

Course Objectives:

The main objectives of this course are:

1. To understand about the procedures and trends in taxonomy.
2. To understand important physiological functions in various Invertebrate forms.
3. To know about the larval forms of Invertebrates.
4. To know about the organization of Minor Phyla and its characters.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand concepts of taxonomy, its procedures, methods in collection and preservation of animals as well as classification of animals based on coelom.	K1
2	Attain knowledge about locomotory organs, locomotion, feeding and digestion in various Invertebrates.	K2
3	Gain knowledge about organs of respiration, respiratory pigments, their mechanism, organs and products of excretion, mechanism and its relation to osmoregulation.	K3
4	Understand the organization and function of nervous system in various Invertebrates and its evolutionary advances.	K4
5	Integrate the strategies and evolutionary significance of free living and parasitic larval forms of Invertebrates as well as organization and characters of Minor Phyla groups.	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	PRINCIPLES OF ANIMAL TAXONOMY	-- hours

Species concept; International code of zoological nomenclature - Taxonomic procedures. New trends in taxonomy - Animal collection, handling and preservation - Organization of coelom – Acoelomates – Pseudocoelomates - Coelomates: Protostomia and Deuterostomia.

Unit:2	LOCOMOTION,NUTRITION AND DIGESTION	21 hours

Locomotion: Pseudopodia - Flagella and ciliary movement in protozoa - Hydrostatic movement in Coelenterata, Annelida and Echinodermata - Nutrition and Digestion: Patterns of feeding and digestion in lower metazoan - Filter feeding in polychaeta, Mollusca and Echinodermata.

Unit:3	RESPIRATION AND EXCRETION	21 hours

Respiration: Organs of respiration: gills, lungs and trachea - Respiratory pigments - Mechanism of respiration – Excretion: Organs and products of excretion - coelom, coelomoducts, nephridia and Malphigian tubules - Mechanisms of excretion - Excretion and osmoregulation.

Unit:4	NERVOUS SYSTEM	21 hours

Nervous system: Primitive nervous system: Coelenterata and Echinodermata - Advanced nervous system: Annelida, Arthropoda (crustacean and insecta) and Mollusca (cephalopoda) - Trends in neural evolution.

Unit:5	LARVAL FORMS AND MINOR PHYLA	21 hours

Invertebrata larvae: Larval forms of free living invertebrates - Larval forms of parasites - Strategies

and evolutionary significance of larval forms - Minor Phyla - Organization and general characters, morphology, anatomy and affinities of Rotifera, Phoronida and Chaetognatha.		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**107 hours**

Text Book(s)

1	Parker, T,J., Haswell, W.A. Text Book of Zoology, Macmillan Co., London
2	Barnes, R.D. Invertebrate Zoology, III edition. W.B. Saunders Co., Philadelphia
3	Barrington, E.J.W. Invertebrate structure and function. Thomas Nelson and Sons Ltd., London
4	Young, J.Z. Life of Invertebrates, Clarendon Press, Oxford.

Reference Books

1	Hyman, L.H. The invertebrates. Vol. l Protozoa through Ctenophora, McGraw Hill Co., New York
2	Hyman, L.H. The Invertebrates. Vol.2. McGraw Hill Co., New York.
3	Hyman, L.H. The Invertebrate smaller coelomate groups, Vol.5. McGraw Hill Co., New York
4	Hyman, L.H. The Invertebrates. Vol.8. McGraw Hill Co., New York and London
5	Russel-Hunter, W.D. A biology of higher Invertebrates, the Macmillan Co. Ltd., London
6	Jagerstein, G. Evolution of Metazoan life cycle, Academic Press, New York & London.
7	Narendran, T.C. An Introduction to Taxonomy, Zoological Survey of India.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	Systems Biology (NPTEL) web https://nptel.ac.in/courses/102/106/102106035/

Course Designed By: Dr. K. Sakthi Shree

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M	S	S	L	S	M	S	S	M	L
CO2	S	M	M	L	S	S	S	M	S	M
CO3	S	M	M	L	S	S	S	M	S	M
CO4	L	L	L	L	S	M	S	M	S	S
CO5	M	M	S	L	S	S	S	S	S	S

*S-Strong; M-Medium; L-Low

Course code	13B	COMPARATIVE ANATOMY OF CHORDATES	L	T	P	C
Core/Elective/Supportive		Core Paper II	6	0	0	4
Pre-requisite		Basic knowledge about vertebrate anatomy and physiology	Syllabus Version		2020 - 2021	

Course Objectives:

The main objectives of this course are

1. To understand about vertebrate morphology and its origin.
2. To study about structure and function of Protochordate types.
3. To study about vertebrate classification and development, structure and function of integument types.
4. To understand the flow of blood and evolution of circulatory organs and process of respiration.
5. To know about the various aspects of skeletal system and evolution of urinogenital system
6. To understand the working of nervous system and sense organs.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the origin of Chordata, concept of Protochordata, importance of Vertebrate morphology and biology of some Protochordates.	K1
2	Gain knowledge about Vertebrate classification, as well as structure and function of integument and its derivatives.	K2
3	Analyze the evolution of heart, aortic arches and portal systems, blood components as well as respiratory mechanisms and organs in various Vertebrates.	K4
4	Understand the comparative form and function of skeletal system and its parts and analyze the evolution of urinogenital system in different Vertebrates.	K2& K5
5	Gain knowledge about comparative anatomy of nervous system and its components as well as receptors of olfaction, taste and hearing and other organs.	K2

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	PROTOCHORDATA AND CHORDATE MORPHOLOGY	21 hours

Origin of Chordata: Concept of Protochordata - The nature of vertebrate morphology - Definition, scope and relation to other disciplines - Importance of the study of vertebrate morphology, Biology of Cephalochodata, Hemichordata and Urochordata.

Unit:2	VERTEBRATE CLASSIFICATION AND INTEGUMENT	21 hours

Origin and classification of vertebrates. Vertebrate integument and its derivatives - Development, general structure and functions of skin and its derivatives - Glands, scales, horns, claws, nail, hoofs, feathers and hairs.

Unit:3	CIRCULATION AND RESPIRATION	21 hours

Blood - Evolution of heart - Evolution of aortic arches and portal systems - Respiratory system - Characters of respiratory tissue - Internal and external respiration - Comparative account of respiratory organs in Vertebrate classes.

Unit:4	SKELETAL SYSTEM AND URINOGENITAL SYSTEM	21 hours

Skeletal system: Form, function, body size and skeletal elements of the body - Comparative account of jaw suspensorium, vertebral column - Limbs and girdles - Evolution of urinogenital system in different vertebrates (Pisces, Amphibians, Reptiles, Birds and Mammals).		
Unit:5	**NERVOUS SYSTEM AND SENSE ORGANS**	**21 hours**
Nervous system - Comparative anatomy of the brain in relation to its functions - Comparative anatomy of spinal cord – Nerves-Cranial, Peripheral and Autonomous nervous system. Sense organs: Simple receptors - Organs of olfaction, taste and hearing - Lateral line system-Electroreception		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**107 hours**

Text Book(s)

1	Kingsley J S. Outline of Comparative Anatomyof Vertebrates. Central Book Depot, Allahabad.
2	Kent, George C &Carr, Robert K. Comparative Anatomy of Vertebrates, Mc Graw-Hill Science.
3	Young, J.Z. Life of vertebrates. The Oxford University Press, London.
4	Weichert, C.K. and Presch, W. Elements of chordate anatomy, 4th Edn. McGraw Hall Books Co., New York
5	Malcom Jollie, Chordata morphology. East-West Press Pvt. Ltd., New Delhi.

Reference Books

1	Smith, H.S. Evolution of chordate structure. Hold Rinehart and Winstoin Inc., NewYork
2	MilltonHilderbrand. Analysis of vertebrate structure. IV. Ed. John Wiley and Sons Inc., New York.
3	Romer, A.S. Vertebrate body, IIIrd Ed. W.B. Saunders Co., Philadelphia.
4	Montagna, W. Comparative anatomy. John Wiley and Sons Inc.
5	Walters, H.E. and Sayles, L.D. Biology of vertebrates. Macmillan & Co., New York
6	Torrey, T.W. Morphogenesis of vertebrates, John Wiley and Sons Inc.,New York and London
7	Colbert, E.H. Evolution of the vertebrates, John Wiley and Sons Inc., New York.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	General Human Anatomy (WMA): https://www.mooc-list.com/course/general-human-anatomy-wma
2	Evolutionary Biology: https://onlinecourses.swayam2.ac.in/cec20_bt06/preview

Course Designed By: Dr. K. Sakthi Shree

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M	M	M	L	S	S	S	L	S	M
CO2	S	M	L	L	S	S	S	S	S	M
CO3	M	L	M	L	S	S	S	S	S	M
CO4	S	M	M	L	S	S	S	S	S	M
CO5	S	M	M	L	S	S	S	S	S	M

*S-Strong; M-Medium; L-Low

Course code	13C	ANIMAL BIODIVERSITY AND CONSERVATION	L	T	P	C
Core/Elective/Supportive		Core Paper III	6	0	0	4
Pre-requisite		Basic knowledge about animal biodiversity and conservation	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are to:

1. Acquire the knowledge of biodiversity in different geographical areas.
2. Understand the strategies evolved to conserve biodiversities and their habitats.
3. Know the measures in vogue to restore the biodiversity and environment.
4. Levels of organization in animals.
5. Analyze the evolutionary affinities of vertebrates.
6. Create awareness against wildlife crimes and pollution in conserving biodiversity.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1.	Understand the significance of conservation of biodiversity.	K2
2.	Appreciate the various conservation strategies to protect biodiversity.	K4
3.	Know the comparative anatomy and evolutionary affinities of vertebrates.	K2
4.	Admire the values of ethical committee in animal research	K3
5.	Develop awareness against wildlife crimes and wildlife degradation by pollution	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	BIODIVERSITY	21 hour

Biodiversity –terrestrial, marine and agro ecosystems.
Hotspots – significance of Western Ghats and Indo-Burma region.
Biosphere reserves in India and their prospects.
Rare endemic and endangered species – IUCN Red list category – CITES

Unit:2	CONSERVATION BIOLOGY	21 hour

In-situ and Ex-situ conservation
Project Tiger and Elephant
Human animal conflicts – Deforestation, Afforestation and Forest fire.
Animal ethics – Ethical committee
Discontinuation of dissection in educational institutions.

Unit:3	SYSTEMATIC ZOOLOGY	21 hour

Species concept – levels of structural organization – Unicellular – Multicellular forms – Colonial.

Levels of organization: Kingdom Animalia – salient features of all phylum – classification up to class for invertebrates and up to orders for vertebrates with examples

Unit:4	SCOPE AND IMPORTANCE OF WILDLIFE OF INDIA	21 hour

Definition of wildlife: Causes of wildlife depletion.
Economic importance of wildlife.
Need for wildlife conservation.
India - the country of mega wildlife biodiversity.

Unit:5	**MODERN CONCEPTS IN WILDLIFE CONSERVATION**	**21 hour**
Wildlife Crimes: Wildlife forensics and its applications in detecting wildlife crimes. Wildlife toxicology: Types of contaminants - methods of toxicity evaluation. Bio concentration, bio accumulation and bio magnifications. Impacts of pesticides and heavy metals on amphibia, reptilia, aves and mammals. CAMP and PHVA-Analysis and reports. Environmental Impact Assessment (EIA) Methods and their role in wildlife conservation.		
Unit:6	**Contemporary Issues**	**2 hour**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**107 hours**

Text Book(s)

1.	Textbook of Biodiversity - K V Krishnamurthy, by Science Publishers.
2.	Glimpses of Biodiversity- B.Blosetti.
3.	Biodiversity: An Introduction, 2nd Edition- Kevin J. Gaston, John I. Spicer, Wiley-Blackwell.
4.	Comparative Anatomy, Function, Evolution – Kenneth V.Kardong
5.	The life of vertebrates – J.Z.Young
6.	Comparative anatomy – Nigam
7.	Manual of Zoology – Egambaranathar Iyyer

Reference Books

1.	Minor Phyla – Kotpal
2.	Agrobiodiversity -David Wood, Jillian M. Lenné, CABI Pub., Nature
3.	WILLIAM MN (2019) Biodiversity , CBS Publishers
4.	Anne Elizabeth Maczulak (2010) Biodiversity – Infobase publication

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	Ecology and Wildlife Conservation (FutureLearn): https://www.mooc-list.com/course/ecology-and-wildlife-conservation-futurelearn
2	Wildlife Conservation: https://nptel.ac.in/courses/102/104/102104068/
	Wildlife Ecology: https://swayam.gov.in/nd1_noc20_bt38/preview

Course Designed By: Dr. A. Thangaraj

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	S	L	S	S	M	M	M	S
CO2	S	S	S	L	S	S	M	M	M	S
CO3	S	S	S	L	S	S	S	S	S	S
CO4	S	S	S	L	S	M	M	M	S	S
CO5	S	S	S	L	S	S	S	S	S	S

*S-Strong; M-Medium; L-Low

Course code	13D	ENVIRONMENTAL BIOLOGY	L	T	P	C
Core/Elective/Supportive		Core Paper IV	6	0	0	4
Pre-requisite		Basic understanding about our own environment	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are to:

1. Explain core concepts in ecology, and summarize our ecological understanding of environmental problems.
2. Describe how humans need nature to survive.
3. Summarize ways n which sustainability has been defined.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Describe and debate various global and regional environmental concerns that affect various forms of life	K3
2	Appreciate the impact of human activities on other life and the environment.	K4
3	Argue the significance of native biodiversity and need for its conservation	K2
4	Investigate specific cases of environmental pollution or natural challenges, and their impact	K5
5	Apply chemistry, biology, molecular biology and microbiology skill to environment issues	K3

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	THE ENVIRONMENT	21 hours

The Environment: Physical environment; biotic environment; biotic and abiotic interactions. Habitat and Niche: Concept of habitat and niche; niche width and overlap; fundamental and realized niche; resource partitioning; character displacement.

Unit:2	POPULATION ECOLOGY	21 hours

Population Ecology: Characteristics of a population; population growth curves; population regulation; life history strategies (r and K selection); concept of metapopulation – demes and dispersal, interdemic extinctions, age structured populations. Species Interactions: Types of interactions, interspecific competition, herbivory, carnivory, pollination, symbiosis.

Unit:3	COMMUNITY ECOLOGY	21 hours

Community Ecology: Nature of communities; community structure and attributes; levels of species diversity and its measurement; edges and ecotones. Ecological Succession: Types; mechanisms; changes involved in succession; concept of climax.

Unit:4	ECOLOGY OF ECOSYSTEM	21 hours

Ecology of Ecosystem: Ecosystem structure; ecosystem function; energy flow and mineral cycling (C,N,P); primary production and decomposition; structure and function of some Indian ecosystems: terrestrial (forest, grassland) and aquatic (fresh water, marine, estuarine). Biogeography: Major terrestrial biomes; theory of island biogeography; biogeographical zones of India.

Unit:5	APPLIED ECOLOGY	21 hours

Applied Ecology: Environmental pollution and Bioremediation; global environmental change; biodiversity: status, monitoring and documentation; major drivers of biodiversity change;

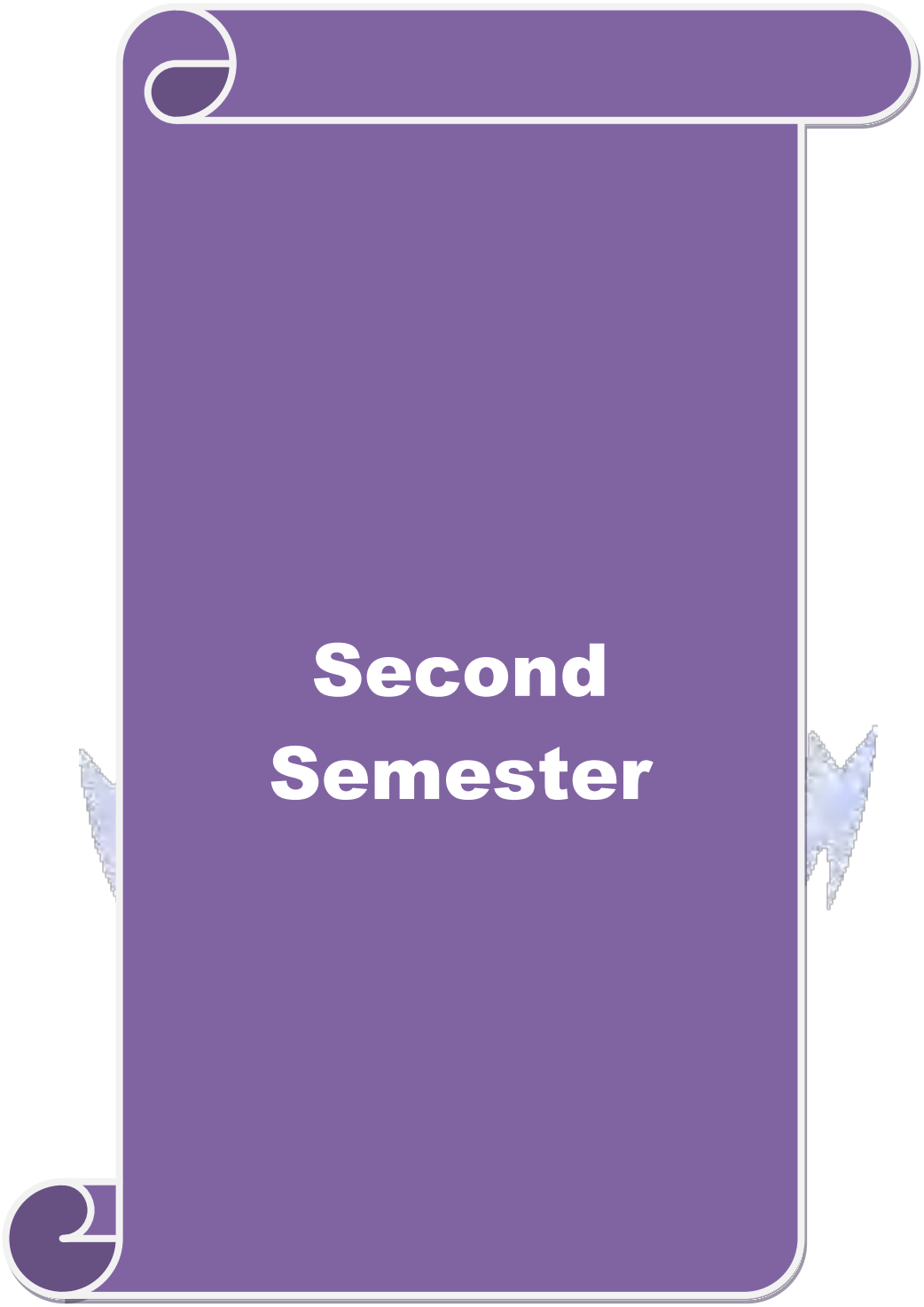
biodiversity management approaches. Conservation Biology: Principles of conservation, major approaches to management, Indian case studies on conservation/management strategy (Project Tiger, Biosphere reserves).		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**107 hours**

Text Book(s)	
1	Odum: Fundamentals of Ecology
2	Odum: Basic Ecology
3	Turk and Turk: Environmental Science
Reference Books	
1	Primark: A Primer of Conservation Biology
2	Calabrese: Pollutants and High-Risk Groups
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	Ecology and Environment: https://www.classcentral.com/course/swayam-ecology-and-environment-14021
2	Environmental Studies: https://onlinecourses.swayam2.ac.in/cec19_bt03/preview
3	Ecology and Environment, Prof. Abhijit Deshpande and Prof. R. Ravi Krishna , IIT Madras, https://swayam.gov.in/nd1_noc19_ge23/preview
Course Designed By: Dr. A. Mohankumar	

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	S	L	S	S	S	S	S	S
CO2	S	S	S	L	S	S	M	S	L	S
CO3	S	S	S	L	S	S	M	S	L	S
CO4	S	S	S	L	L	M	L	M	S	S
CO5	S	S	S	L	S	S	S	S	S	S

*S-Strong; M-Medium; L-Low


Second
Semester

Course code	23A	BIOPHYSICS AND BIOSTATISTICS	L	T	P	C
Core/Elective/Supportive		Core Paper V	6	0	0	4
Pre-requisite		Basic knowledge about Biophysics and Biostatistics	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are to:

1. To develop awareness about the application of statistics in Zoology.
2. To train how the biological data are processed and interpretations are made.
3. To develop skill in understanding & handling molecular science & instrumentation.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Illustrate the basic concepts of probability and biostatistics.	K5
2	The course will give an idea how data should be managed & Processed.	K2
3	The course will develop the research aptitude of the students.	K4
4	The students will be capable of interpreting and understanding the basis of molecular biology.	K2
5	The learner will be trained in preparing solutions and handling instruments at basic level.	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	BIOELECTRICITY AND RADIATION	21 hours

Bioelectricity

Membrane, Resting and action potential. Ionic distribution and membrane potential, recording of action potential.

Radiation

Electromagnetic radiation. Laws of light absorption - Beer Lamberts law, Biological applications of X-rays, Infra-red rays, and Ultra violet rays.

Unit:2	BIOENERGETICS	21 hours

Laws of thermodynamics, concept of free energy, oxidation reduction (redox) reactions. Energy coupling reactions, energy rich compounds, ATP cycle, standard free energy and negative entropy changes in living systems, enzyme catalysis.

Unit:3	BIOLOGICAL DATA, MEASUREMENTS AND VARIABLES	21 hours

Biological data

Source, Collection – Classification – Tabulation, Diagrammatic representation. Frequency curves, Frequency Polygon, Ogive

Measurements and variables

Central tendency - Arithmetic mean, Median and Mode Dispersions, Deviations, Co–efficient of variance. Standard Deviations and standard Error.

Unit:4	TEST OF SAMPLES	21 hours

Sampling, distribution of samples and sampling errors. Chi – squaretest,Student—ttest,ANOVA one way and two way.

Unit:5	PROBABILITY	21 hours

Correlation – types, methods - Karl Pearson's co -efficient Regression–types and significance -

calculation of regression co–efficient Probability- Definition, Types, Additional and Multiplication theorems.		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**107 hours**

Text Book(s)	
1	Casey. 1993 Biophysics
2	Shiv Kumar Practical Statistics *Chand & Sons*, Delhi.
Reference Books	
1	Sokal R R&Rohlf F J Biostatistics *Freeman*, San Francisco
2	Giese. A.C. 1969 Cell Physiology
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	Biophysical chemistry: https://onlinecourses.nptel.ac.in/noc20_cy33/preview
2	Biostatistics and Mathematical Biology: https://swayam.gov.in/nd2_ugc19_ma03/preview
Course Designed By: Dr. A. Reniprabha	

Mapping with Programme Outcomes

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	S	S	L	L	L	L	L	S
CO3	S	S	S	S	L	L	L	L	L	S
CO3	S	S	S	S	L	L	L	L	L	S
CO4	S	S	S	S	L	L	L	L	L	M
CO5	S	S	S	S	L	L	L	L	L	M

*S-Strong; M-Medium; L-Low

Course code	23B	BIOCHEMISTRY	L	T	P	C
Core/Elective/Supportive		Core Paper VI	6	0	0	4
Pre-requisite		Basic knowledge about Biochemistry	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are to:

1. To understand the basics of molecules
2. To elucidate its interaction & biomolecular bonding
3. To understand the basic metabolism.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the physical and chemical concepts in biology.	K2
2	Learn the structure, properties and functions of biomolecules.	K2
3	Analyze enzymes and concepts of bioenergetics.	K4
4	Appreciate the various carbohydrate metabolic pathways.	K5
5	Understand metabolism of nucleic acid, amino acid and lipid.	K2

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	BASIC PRINCIPLE	21 hours

Structure of atoms, molecules and chemical bonds
Principles of biophysical chemistry (pH, buffer, reaction kinetics, thermodynamics, colligative properties).

Unit:2	STABILIZING INTERACTION	21 hours

Stabilizing interactions (Van der Waals, electrostatic, hydrogen bonding, hydrophobic interaction, etc.). Composition, nature of bonds/linkages, structure of biomolecules (carbohydrates, lipids, proteins, nucleic acids and vitamins).

Unit:3	BIOENERGETICS	21 hours

Bioenergetics, glycolysis, oxidative phosphorylation, coupled reaction, group transfer, biological energy transducers. Principles of catalysis, classification of enzymes and enzyme kinetics, enzyme regulation, inhibitors of enzymes - mechanism of enzyme catalysis, isozymes

Unit:4	CONFORMATION OF PROTEINS	21 hours

Conformation of proteins (Ramachandran plot, primary, secondary, tertiary and quaternary structures, domains, motif and folds). Conformation of nucleic acids (helix (A, B, Z), t-RNA, micro-RNA).

Unit:5	METABOLISM	21 hours

Stability of proteins and nucleic acids. Metabolism of amino acids, carbohydrates, lipids, nucleotides and vitamins.

Unit:6	Contemporary Issues	2 hours

Expert lectures, online seminars – webinars

	Total Lecture hours	107 hours

Text Book(s)	
1	I.H. Segal, Biochemical calculations, john Wiley & sons
2	T.E. Creighton, Proteins-structure and Molecular Properties, W.H. Freeman & Company.
Reference Books	
1	D.Voet and J.G. Voet. Biochemistry, John wiley & sons.
2	D.Freifelder, Physical Biochemistry, W.H. Freeman & Company
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	Biochemistry: https://swayam.gov.in/nd1_noc20_cy10/preview
2	Biochemistry & Molecular Biology: https://swayam.gov.in/nd2_cec19_bt02/preview
3	Biochemistry: Biomolecules, Methods, and Mechanisms (edX): https://www.mooc-list.com/course/biochemistry-biomolecules-methods-and-mechanisms-edx
Course Designed By: Dr. A. Reniprabha	

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	S	M	L	L	M	M	L	S
CO2	S	S	S	M	L	L	M	M	L	S
CO3	S	S	S	M	L	L	M	M	L	S
CO4	S	S	S	M	L	L	M	M	L	S
CO5	S	S	S	M	L	L	M	M	L	S

*S-Strong; M-Medium; L-Low

Course code	23C	CELL AND MOLECULAR BIOLOGY	L	T	P	C
Core/Elective/Supportive		Core Paper VII	6	0	0	4
Pre-requisite		Basic knowledge about Cell and Molecular Biology	Syllabus Version		2020-2021	

Course Objectives:

1. To provide an overview of cell structure, basic components of cells and their function..
2. To learn the fundamental concepts of cell structure, dynamic character of cellular organelles function and relationshipbetween molecular levels.
3. To make aware of how cellular components generate and utilize energy inside the cells.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand and apply the principles and techniques of molecular biology in basic research, or in the health professions.	K3
2	Gain knowledge about molecular level regulation of cellular processes, cell signalling, transportation and proliferation in cells.	K2
3	Analyze the picture of the cellular environment and regulation of cellular process at the molecular level.	K4
4	Students will learn about the mechanisms and regulation of cell communication, gene expression, genome maintenance and regulation involved in the flow of genetic information.	K4
5	Ensuring accurate macromolecular biosynthesis, unity and diversity at the molecular and cellular levels and the relationship.	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	INTRODUCTION OF BIOMEMBRANE	15 hours

Introduction – experimental systems in Cell Biology Biomembranes - Molecular composition and arrangement functional consequences - Transport across cell membrane- Diffusion, active transport and pumps and uniports, symports and antiport - Membrane potential - Co-transport by symports or antiporters - Transport across epithelia.

Unit:2	CYTOSKELETON	15 hours

Microfilaments and microtubules-structure and dynamics - Microtubules and mitosis - Cell movements-intracellular transport, role and kinesin and dynein, signal transduction mechanisms Cilia and flagella - Cell-cell signalling - Cell surface receptors - Second messenger system - MAP kinase pathways - Signalling from plasma membrane to nucleus.

Unit:3	CELL- CELL ADHESION AND COMMUNICATION	15 hours

Ca++ dependent homophilic cell-cell ahension - Ca++ independent homophilic cell-cell ahension Gap junctions and connexions - Cell matrix adhesion – Integrins – Collagen - Non-collagen components - Cell cycle - cyclins and cyclin dependent kinases - Regulation of CDK-cycline activity.

Unit:4	GENOME ORGANIZATION	15 hours

Hierarchy in organization - Chromosomal organization of coding and non-coding DNA – Regulation of gene expression - Mobile DNA - Morphological and functional elements of eukaryotic chromosomes - Genetic analysis in Cell Biology.

Unit:5	INTRACELLULA RPROTEIN TRAFFIC	15 hours

Protein synthesis on free and bound polysomes - Uptake into ER - Membrane proteins, Golgi

sorting, post-translational modifications - Biogenesis of mitochondria, and nuclei - Trafficking mechanisms - Biology of cancer - Biology of aging - Apoptosis-definition, mechanism and significance.		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**-- hours**

Text Book(s)

1	Arumugam N, (2007) 6 th edition. *CellBiology*, Saras Publications,Nagercoil.
2	Meyyan RP. (2005). Cell Biology, Saras Publications, Nagercoil.
3	Singh SP and Thomas BS. (2012). *Cellbiology*. Rastogi Publications, Meerut - 02,
4	Verma, PS and Agarwal VK (2004). *Cell biology, Genetics, Molecular Biology, Evolution and Ecology*. S.Chand& Company Ltd. New Delhi.

Reference Books

1	Chariotte J. Averse. (1995). *MolecularCellBiology*. AddisionWesley Publ. Co.
2	De Robertis EDP and De Robertis EMF, (1987).*CellandMolecularBiology*, Lippincott Williams &Wilkins., India.
3	Gupta PK., (2008). *Cellandmolecularbiology*, Rastogi publications, Shivaji Road, Meerut
4	Power CB. (2009).*CellBiology*, Himalaya Publishing House, Mumbai.
5	Tomar and Singh, (1999). *CellBiology*. Rastogi Publication, Meerut.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://www.classcentral.com/course/swayam-cell-biology-13937
2	https://www.universalclass.com/i/course/cell_molecular_biology_101.htm
3	https://www.edx.org/learn/cellular-biology

Course Designed By: Dr. A. Raja Rejeswari

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	S	S	L	L	M	M	L	M
CO2	S	S	S	S	L	L	M	M	L	M
CO3	S	S	S	S	L	L	M	M	L	M
CO4	S	S	S	S	L	L	L	L	L	M
CO5	S	S	S	S	L	L	L	L	L	M

*S-Strong; M-Medium; L-Low

Course code	23D	DEVELOPMENTAL BIOLOGY	L	T	P	C
Core/Elective/Supportive		Core Paper VIII	6	0	0	4
Pre-requisite		Basic information on animal embryology	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are to:

1. To make aware of the students about the theories, concepts and basics of Developmental Biology.
2. To provide students the idea of sex cells, fertilization, cleavage, differentiation and development of organs.
3. To make aware of the induction, organizers and development of extra embryonic structures.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	The learner will be able to understand methodological approaches to the study of embryonic development and the characteristics of the principle experimental models.	K2
2	The students will be able to identify embryonic structures in preparations, photographs and diagrams	K5
3	The students will able to develop an idea, how to arrange sequences in developmental processes in order.	K4
4	The learner will be able to understand the derivatives of embryonic structures.	K2
5	The students will be attain a basic conceptual knowledge of the principle cellular mechanisms of development and identify the genetic and molecular elements that are involved.	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	BASIC CONCEPTS OF DEVELOPMENT	21 hours

Potency, commitment, specification, induction, competence, determination and differentiation; morphogenetic gradients; cell fate and cell lineages; stem cells; genomic equivalence and the cytoplasmic determinants; imprinting; mutants and transgenics in analysis of development

Unit:2	GAMETOGENESIS, FERTILIZATION AND EARLY DEVELOPMENT	21 hours

Production of gametes, cell surface molecules in sperm-egg recognition in animals; zygote formation, cleavage, blastula formation, embryonic fields, gastrulation and formation of germ layers in animals; embryogenesis, establishment of symmetry.

Unit:3	MORPHOGENESIS AND ORGANOGENESIS IN ANIMALS	21 hours

Cell aggregation and differentiation in Dictyostelium; axes and pattern formation in Drosophila, amphibia and chick; organogenesis – vulva formation in Caenorhabditis elegans, eye lens induction, limb development and regeneration in vertebrates; differentiation of neurons, post embryonic development- larval formation, metamorphosis; environmental regulation of normal development; sex determination.

Unit:4	NEOTENY AND REGENERATION	21 hours

Neoteny: Occurrence and significance – Regeneration: Regenerative capacity in the Animal Kingdom – Factors influencing regeneration – Stimulation and Suppression – Polarity and Gradients – Development of immune system in vertebrates.

Unit:5	AGING AND ASSISTED REPRODUCTIVE TECHNOLOGY	21 hours

Programmed cell death, aging and senescence - Asexual reproduction - Assisted Reproductive

Technology (ART) – Male infertility – Sperm abnormalities – Superovulation – IVF, ICSI, GIFT – Screening of genetic disorders.		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**107 hours**

Text Book(s)	
1	Balinsky., Introduction to Embryology
2	Grant, Biology of Devloping System
Reference Books	
1	Austen, C.R. and short, R.V., Reproduction in animals.
2	Schatten and Schatten. Molecular biology of fertilization.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	NOC: Introduction to Developmental Biology, Prof. Subramaniam K, IIT Madras, https://nptel.ac.in/courses/102/106/102106084/]
Course Designed By: Dr. A. Reniprabha	

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	S	S	M	L	M	M	L	S
CO2	S	S	S	S	M	L	M	M	L	S
CO3	S	S	S	S	M	L	M	M	L	S
CO4	S	S	S	S	M	L	M	M	L	S
CO5	S	S	S	S	M	L	M	M	L	S

*S-Strong; M-Medium; L-Low

Course code	23P	STRUCTURE AND FUNCTION OF INVERTEBRATES, COMPARATIVE ANATOMY OF CHORDATES AND ANIMAL BIODIVERSITY & ORGANIZATION	L	T	P	C
Core/Elective/Supportive		PRACTICAL – I	0	0	2	4
Pre-requisite		Fundamental knowledge on animal anatomy and biodiversity	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are to:

1. To understand important physiological functions in various Invertebrate forms.
2. To understand the working of nervous system and sense organs.
3. Acquire the knowledge of biodiversity in different geographical areas.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Attain knowledge about locomotory organs, locomotion,feeding and digestion in various Invertebrates.	K2
2	Integrate the strategies and evolutionary significance of free living and parasitic larval forms of Invertebrates as well as organization and characters of Minor Phyla groups.	K5
3	Understand the origin of Chordata, concept of Protochordata, importance of Vertebrate morphology and biology of some Protochordates.	K1
4	Gain knowledge about Vertebrate classification, as well as structure and function of integument and its derivatives.	K2
5	Appreciate the various conservation strategies to protect biodiversity.	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

STRUCTURE AND FUNCTIONS OF INVERTEBRATA — **12 hours**

1. Comparative study of system: Invertebrata (any two animals)
   Appendages, external morphology, digestive system, nervous system and reproductive system.
2. Culture of earthworm in laboratory to identify the stages.
3. Culture and identification of morphology of Drosophila.

COMPARATIVE ANATOMY OF CHORDATES — **12 hours**

1. Comparative study of system: chordate (any two animals) External morphology, digestive and reproductive system.
2. Identification of Beck and feet in different birds (any locally available birds) Photography of Beck and feet.
3. Comparative study of scales of any preserved fish Cycloid, ctenoid, placoid and ganoid scales.
4. Comparative study of different types of chordate bones (any four animals) Skull, fore limb, hind limb.
5. Morphological modification of limb in fish, amphibia, reptiles, birds and mammals.

ANIMAL BIODIVERSITY AND ORGANIZATION — **12 hours**

1. Plankton identification of from fresh/marine water (5 slides preparation).

2. Quantitative estimation of plankton using haemocytometer.

SPOTTERS (Non-chordate and chordate) (each any five specimens) — **12 hours**

1. Biological importance
2. Medical importance
3. Beneficial pests
4. Evolutionary significance
5. Economic importance

FIELD STUDY AND FIELD TRIP – Zoological visit, biodiversity area

Submission at the time of Practical Examination
1. Plankton: 5 slides
2. Report on the Field study and Field trip
3. Bonafide Record

	Total Lecture hours	**48 hours**

Text Book(s)

1	Advanced Practical Zoology by Sinha, J., Chatterjeee A.K., Chattopadhyay P. 2011. Arunabha Sen Publishers.
2	Practical Zoology Invertebrate by H.S. Bhamrah. 2003. Dominant Publishers.

Reference Books

1	Modern Experimental Zoology by Preeti Guptha and Mridula Chaturvedi. 2000
2	Manual of Practical Zoology: Chordates by Verma.(2000. S. Chand Publishing

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M	S	S	L	S	M	S	S	M	L
CO2	S	M	M	L	S	S	S	M	S	M
CO3	S	M	M	L	S	S	S	M	S	M
CO4	L	L	L	L	S	M	S	M	S	S
CO5	M	M	S	L	S	S	S	S	S	S

*S-Strong; M-Medium; L-Low

Course code	23Q	ENVIRONMENTAL BIOLOGY, BIOPHYSICS & BIOSTATISTICS	L	T	P	C
Core/Elective/Supportive		PRACTICAL - II	0	0	2	4
Pre-requisite		Basic information on ecology, biophysics and data analysis	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are to:

1. Explain core concepts in ecology, and summarize our ecological understanding of environmental problems.
2. To train how the biological data are processed and interpretations are made.
3. To develop skill in understanding & handling molecular science & instrumentation.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Investigate specific cases of environmental pollution or natural challenges, and their impact	K5
2	Apply chemistry, biology, molecular biology and microbiology skill to environment issues	K3
3	The students will be capable of interpreting and understanding the basis of molecular biology.	K2
4	The learner will be trained in preparing solutions and handling instruments at basic level.	K4
5	The course will develop the research aptitude of the students.	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

I. ANALYSIS OF WATER — **12 hours**

Determination of:

1. pH
2. Total dissolved solids
3. Turbidity / light penetration
4. CO_2 and O_2
5. Hardness (Temporary and permanent)
6. Calcium and Magnesium
7. BOD and COD (Demonstration only) All the above parameters in a. Pond/pool water b. Canal/River water c. Sewage water

II. ANALYSIS OF SOIL (ANY THREE) — **12 hours**

Determination of:

1. Soil Moisture
2. Chlorides
3. Sulphates
4. Nitrates
5. Total Phosphates
6. Total organic matter All the above parameters in a. Clayey soil, b. Sandy soil, c.Garden soil / Red soil

III. BIOLOGICAL ANALYSIS (SPOTTERS) — **12 hours**

1. Qualitative analysis of organisms (Pollution indicator): **(any Ten)**

BIOPHYSICS: — **12 hours**

1. Preparation of buffers (acetate, phosphate, citrate, borate buffers)
2. Determination of pH titration curve of proteins and calculate the pI values
3. Determination of Glucose content of a given sample. (Calorimeter method)

BIOSTATISTICS: 1. Construction of (a) Frequency polygon (b) Histograms from the Data given (The basic data may be from any material available around) 2.Calculationof(a)Standarddeviation(b)Correlationand(c)Student'stestfromthegivendata.		
FIELD TRIPS 1. Visit to – Drinking water treatment plant; Industrial effluent treatment plant; Pollution control lab.		
Submission at the time of Practical Examination 1. Report on the Field study and Field trips 2. Bonafide Record		
	Total Lecture hours	**48 hours**

Text Book(s)	
1	Advanced Practical Zoology by Sinha, J., Chatterjeee A.K., Chattopadhyay P. 2011. Arunabha Sen Publishers.
2	Environmental biology and ecology laboratory manual by Lynn. (2003). Kendall Hunt Publishing
Reference Books	
1	Modern Experimental Zoology by Preeti Guptha and Mridula Chaturvedi. 2000
2	Fundamentals of Biochemistry by Jain J.L, Sunjay Jain, Nitin Jain. 2007.
3	Toxicology Laboratory Lab Manual by 5. Oberdorster Eva. 2009. Kendall Hunt Publishing

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	S	L	S	S	S	S	S	S
CO2	S	S	S	L	S	S	M	S	L	S
CO3	S	S	S	L	S	S	M	S	L	S
CO4	S	S	S	L	L	M	L	M	S	S
CO5	S	S	S	L	S	S	S	S	S	S

*S-Strong; M-Medium; L-Low

Course code	23R	BIOCHEMISTRY, CELL & MOLECULAR BIOLOGY AND DEVELOPMENTAL BIOLOGY	L	T	P	C
Core/Elective/Supportive		PRACTICAL - III	0	0	2	4
Pre-requisite		Basic understanding on Biochemistry, cell biology and developmental biology	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are to:

1. To elucidate its interaction of molecules.
2. To provide an overview of cell structure, basic components of cells and their function.
3. To provide students the idea of sex cells, fertilization, cleavage, differentiation and development of organs.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the physical and chemical concepts in biology.	K2
2	Understand metabolism of nucleic acid, amino acid and lipid.	K2
3	Understand and apply the principles and techniques of molecular biology in basic research, or in the health professions.	K3
4	Ensuring accurate macromolecular biosynthesis, unity and diversity at the molecular and cellular levels and the relationship.	K5
5	The learner will able to understand methodological approaches to the study of embryonic development and the characteristics of the principle experimental models.	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

BIOCHEMISTRY	12 hours

1. Qualitative and quantitative estimation of Carbohydrates, Proteins and Lipids from the given samples.
2. Preparation of Haemin crystals.
3. Quantitative estimation of Haemoglobin.
4. Separation of plasma, Serum and cells from blood.
5. Colorimetric estimation of glucose from blood
6. Estimation of cholesterol in the blood
7. Estimation of alkaline and acid phosphatases

CELL AND MOLECULAR BIOLOGY	12 hours

1. Mounting of Polytene chromosome from the salivary gland of a *Chironomus* larva.
2. Squash preparation of onion root tip to study the stages of Mitosis.
3. Isolation of DNA and RNA from an animal tissue (Demonstration only)
4. Study of different cells from the vertebrate animal (Brain, Liver, Gonad, Kidney and Muscle)

DEVELOPMENTAL BIOLOGY:	12 hours

1.Regeneration study in Tadpole/Earth-worm
2. Study the life cycle of *Drosophila melanogaster*.
3. Patterning of the adult wing and *Drosophila* and demonstration of the effect of cell death on the pattering of the adult wing.
4. Effect of Thyroxin on the growth of tadpoles (Demonstration only)
5. Study of Embryonic developmental stages (Frog and Chick)
6. Blastoderm mounting of chick embryo using vital stains

	Total Lecture hours	36 hours

Text Book(s)	
1	Advanced Practical Zoology by Sinha, J., Chatterjeee A.K., Chattopadhyay P. 2011. Arunabha Sen Publishers.
2	A Manual of Practical Zoology by Verma P.S. 2000. S Chand publication.
Reference Books	
1	Clinical Embryology: A Practical Guide by 1. Zsolt Peter Nagy, Alex C. Varghese, Ashok Agarwal. 2013. Springer-Verlag New York Inc
2	Fundamentals of Biochemistry by Jain J.L, Sunjay Jain, Nitin Jain. 2007.
3	Cell and Molecular Biology: A Lab Manual by Chaitanya K.V. 2013. Prentice Hall India Learning Private Limited

Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	S	M	L	L	M	M	L	S
CO2	S	S	S	M	L	L	M	M	L	S
CO3	S	S	S	M	L	L	M	M	L	S
CO4	S	S	S	M	L	L	M	M	L	S
CO5	S	S	S	M	L	L	M	M	L	S

*S-Strong; M-Medium; L-Low

Third Semester

Course code	33A	COMPARATIVE ANIMAL PHYSIOLOGY	L	T	P	C
Core/Elective/Supportive		Core Paper IX	6	0	0	5
Pre-requisite		Basic knowledge about the organ and organ systems of invertebrates and vertebrates.	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are to:

To make the students,

1. To understand the significance and types of adaptation in animals.
2. To acquire the knowledge of the adaptive changes in organs and organ system of different animals to suite their environment.
3. To analyze the effects of yogic practices in physiology.
4. To learn the functionalities of different organ systems.
5. To understand the gastrointestinal hormones and sex hormones
6. To understand the role of hormones in pregnancy and lactation

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Acquire the knowledge of organisms surviving in various environments.	K1
2	Learn the significance of thermo and osmo regulations to cope well with the ecological stress.	K4
3	Understand the physiological responses of the yogic practices in human.	K3
4	Appreciate the mechanism of respiratory, excretory physiology, neural and muscular physiology and the influence of hormones in reproduction.	K2
5	Evaluate the various mode of life and adaptive modification of their organ systems in animals.	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit: I	ADAPTATION AND HOMEOSTASIS	21 hours

Adaptation - Levels and Mechanism of adaptation - Significance of body size – Adaptation, acclimation and acclimatization - Concepts of homeostasis.

Physiological adaptations of different environments: Marine - Shores and Estuaries – Freshwater - Extreme aquatic environments - Terrestrial life. Extreme terrestrial environments - Parasitic habitats.

Stress Physiology - Basic concept of environmental stress and strain; concept of elastic and plastic strain; stress resistance, stress avoidance and stress tolerance.

Unit: II	MECHANISM OF THERMO AND OSMO REGULATIONS & YOGIC PRACTICES	21 hours

Physiological mechanism of thermo regulation.

Physiological adaptation to osmatic and ionic stress; mechanism of cell volume regulation. Osmoregulation in aquatic and terrestrial environments.

Physiological response to oxygen deficient stress.

Physiological effects of physical exercises and yogic practices – Meditation & Yoga.

Unit: III	RESPIRATORY PHYSIOLOGY	21 hours

Respiratory physiology – Respiratory organs - Structure and function.

Respiratory gases – uptake – respiratory pigments – O2 & CO2 dissociation curves – transport of respiratory gases.		
Unit: IV	**EXCRETORY PHYSIOLOGY AND ENDOCRINOLOGY**	**21 hours**
Excretory physiology – Excretory organs – mechanism of excretion – physiology – adaptations of excretion to environment – Excretory products: synthesis and elimination. Endocrine glands – Feedback regulation – Pituitary – gonadal axis. Role of reproductive hormones - gamete formation – fertilization - embryonic development – parturition – lactation -neuroendocrine regulation.		
Unit: V	**NEURAL AND MUSCULAR PHYSIOLOGY**	**21 hours**
Neural physiology – Neurons structure and types. Nerve impulse transmission - resting and action potential — neurotransmitters – mechanism of neural transmission. Neuro-degenerative diseases. Muscular physiology - Muscle contraction – theories – molecular mechanism of muscle contraction.		
Unit: VI	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**107 hours**

Text Book(s)	
1	Knut Schmidt Nielsen (1997) Animal physiology – adaptation and environment by -, Duke University. Fifth Edition.
2	Clifford Ladd Prosser Saunders, (1973)Comparative Animal Physiology: Environmental physiology.
3	Hoar, W.S. General and Comparative Animal Physiology, Prentice Hall of India.
4	4. Schiemdt Nielsen. Animal Physiology: Adaptation and Environment. Cambridge.
5	Strand, F.L. Physiology: A regulation System Approach. Macmillan Publishing Co., New York.
6	Pummer, L. Practical Biochemistry, Tata McGraw-Hill
7	Prosser, C.L. (1973) Environmental and Metabolic Animal Physiology. Wiley-Liss Inc., New York.
8	Philip Carew Withers (1992) **Comparative Animal Physiology.**
Reference Books	
1	Wilson K. and Walker. J. Practical Biochemistry
2	R.W.Hill(1978):"ComparativePhysiologyo f Animals – AnEnvironmentalApproach" Harper & Row Publication.
3	Hochachka, P.W. and Somero, G. N. Biochemical Adaptation. Princeton, New York.
4	Eckert, R. Animal Physiology: Mechanisms and Adaptations. W.H. Freeman and Company, New York.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	Animal Physiology : https://swayam.gov.in/nd1_noc20_bt42/preview
2	Physiology and Biochemistry: https://swayam.gov.in/nd2_cec20_bt19/preview
3	Animal Physiology : https://www.classcentral.com/course/swayam-animal-physiology-12894
Course Designed By: Dr. A. Reniprabha	

Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	S	S	M	M	S	S	L	S
CO2	S	S	S	S	M	M	S	S	L	S
CO3	S	S	S	S	M	M	S	S	L	S
CO4	S	S	S	S	M	M	S	S	L	S
CO5	S	S	S	S	M	M	S	S	L	S

*S-Strong; M-Medium; L-Low

Course code	33B	IMMUNOLOGY	L	T	P	C
Core/Elective/Supportive		Core Paper X	6	0	0	4
Pre-requisite		Basic knowledge about the immunology	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are to:

1. To provide the basic knowledge of different elements of immune system and describe the role of immune system in both maintaining health and contributing to diseases.
2. To identify the cellular and molecular basis of immune responsiveness.
3. To explain immunological response and how it is triggered and regulated.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understanding the multiple interaction between different components of the immune system during the normal immune response.	K2
2	Apply basic techniques for identifying antigen antibody reaction, familiarize with the terminology related with Immunology.	K3
3	Apply basic techniques for identifying antigen antibody interactions	K3
4	Make clear the stages of immune responses, uptake and antigen presentation, cell activation, effector and memory cell and apoptosis mechanisms.	K4
5	Elucidate the reasons for immunization and the effect of immune system including Allergy, hypersensitivity and autoimmunity.	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	INNATE AND ACQUIRED IMMUNITY	21 hours

Phylogeny and Ontogeny of immune system - Organization and structure of lymphoid organs Cells of the immune system and their differentiation - Lymphocyte traffic - Nature of immune response.

Unit:2	NATURE OF ANTIGENS	21 hours

Antigenicity and immunogenicity - Factors influencing immunogenicity - Epitopes and haptens Super antigens - Structure and Functions of Antibodies - Classes and subclasses - Gross and fine structure - Antibody mediated effector functions - Antigen- Ab interactions in vitro and in vivo.

Unit:3	COMPLEMENT SYSTEM	21 hours

Components, control proteins and activation pathways Major Histocompatibility Complex in mouse and HLA system in human MHC haplotypes - Class I and class II molecules - Cellular distribution – Peptide binding - Expression and diversity - Disease susceptibility and MHC/HLA Organization and expression of Ig genes - Models for Ig gene structure - Multigene organization of Ig genes - DNA rearrangements and mechanisms - Generation of antibody diversity - Differential expression of Ig genes.

Unit:4	T-CELL GENERATION, ACTIVATION AND DIFFERENTIATION	21 hours
Isolation, molecular components and structure of T-cell receptor complex - T-cell maturation and thymus - T_H- cell activation mechanism - T- cell differentiation - Cell death and T- cell population - B- cell generation, activation and differentiation - B-cell receptors - Selection of immature self-reactive B-cells - B-cell activation and proliferation - T_H- B- Cell interactions		
Unit:5	**CYTOKINES**	**21 hours**
Definition and salient functional features - Cytokine receptors - Cytokines and immune response - Cell-mediated effector functions - Cell adhesion molecules - Effectors cells and molecules - CTL and NK cells- mechanism of action - Immunological tolerance and Anti-immunity - Delayed type hypersensitivity - Hypersensitivity: Types and immunological reactions and immune response to infection agents especially intracellular parasites.		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars - webinars		
	Total Lecture hours	**107 hours**

Text Book(s)

1	Abul Abbas Andrew Lichtman Shiv Pillai. (2015).*Basic Immunology-Function and Disorder of the Immune System.* Imprint-Elsevier.
2	Dulsy Fatima and Arumugam N. (2000). *Immunology.* Saras Publications., Nagercoil.

Reference Books

1	Benjamini E, Coico R and Sunskise G. (2000).*Immunology-A short course.* Wiley – Liss Publication, NY.
2	Chapel H and Halbey M. (1986).*Essentials of Clinical Immunology*. ELBS. 1986.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://www.edx.org/learn/immunology
2	https://www.classcentral.com/course/edx-fundamentals-of-immunology-part-1-1597

Course Designed By: Dr. A. Raja Rajeshwari

Mapping with Programme Outcomes

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	S	L	L	L	L	M	L	S
CO2	S	S	S	L	L	L	L	M	L	S
CO3	S	S	S	L	L	L	L	M	L	S
CO4	S	S	S	L	L	L	L	M	L	S
CO5	S	S	S	L	L	L	L	M	L	S

*S-Strong; M-Medium; L-Low

Course code	3EC	ENTOMOLOGY – I	L	T	P	C
Core/Elective/Supportive		Elective I	5	0	0	4
Pre-requisite		Basic knowledge on Entomology	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are to:

1. To make the students understand the insect world.
2. To study the systems and its organization in insects.
3. To evaluate the importance of insects.

Expected Course Outcomes:

On the successful completion of the course, student will be able:

1	To identify the insects based on external feature.	K1
2	To understand the organization of systems	K2
3	To evaluate the physiological differences.	K5
4	To understand the protective mechanisms	K2
5	To analyze the significance of endocrines	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	CLASS INSECTA	21 hours

Classification up to order with example for each order Identification of insects using keys **Insect Collection** Methods, preservation and significance.

Unit:2	COMPARATIVE MORPHOLOGY	21 hours

Head, thorax, abdomen and appendages ***Functional Morphology*** Mouthparts, genitalia (male, female)

Unit:3	COMPARATIVE PHYSIOLOGY	21 hours

Digestive system Respiratory system Circulatory system Excretory system Nervous system Reproductive system Digestive system Respiratory system Circulatory system Excretory system Nervous system Reproductive system

Unit:4	INTEGUMENT	21 hours

Integument – Structure clinical competition and functions, Synthesis of chitin
Moulting: Apolysis, ecdysis and sclerotisation **Growth -** Insect growth, Metamorphosis: types, significance and hormonal regulations

Unit:5	INSECT ENDOCRINOLOGY	21 hours

Endocrine Glands Hormones and Neurohormones –functions ***Insect adaptations*** Adaptations to environmental stress Diapauses, pheromones, insect flight, the biomimetics.

Unit:6	CONTEMPORARY ISSUES	2 hours

Expert lectures, online seminars – webinars

	Total Lecture hours	107 hours

Text Book(s)	
1	Imms 1986 Textbook of Entomology
2	Snodgrass 1983 Insect Morphology
3	Chapman 1973 Insect Structure and Morphology
Reference Books	
1	Wigglesworth 1969 Insect Physiology
2	Alka Prakash 1996 Applied Entomology
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	Applied Entomology: https://onlinecourses.swayam2.ac.in/cec20_bt02/preview
2	Insect-Human Interactions (Coursera): https://www.mooc-list.com/course/bugs-101-insect-human-interactions-coursera
Course Designed By: Dr. M. Muthusamy	

Mapping with Programme Outcomes

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	S	L	S	S	M	S	S	S
CO2	S	S	S	L	S	S	M	S	S	S
CO3	S	S	S	L	S	S	M	S	S	S
CO4	S	S	S	L	S	S	M	S	S	S
CO5	S	S	S	L	S	S	M	S	S	S

*S-Strong; M-Medium; L-Low

Course code	3EB	MICROBIOLOGY	L	T	P	C
Core/Elective/Supportive		Elective II	5	0	0	4
Pre-requisite		Knowing the microbial world and its implications	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are to:

1. The course is intended to make aware of the students about the classification, diversity, organization, application and pathogenicity of the microorganisms existing the ecosystem.
2. The course will help the students to learn about the various microbial culture techniques and its handling.
3. The course will give an idea that how microbes are used in various industries for generation of various products related to day to day life.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	The students will be able to explain the taxonomy, diversity and general structure of micro-organisms.	K4
2	They will develop knowledge about the culture, sterilization, handling, identification and assessing growth characters of microorganisms.	K4
3	The students will develop knowledge about the general microbial techniques for isolation of pure cultures of bacteria, fungi and algae and will master the aseptic techniques to perform routine culture handling tasks safely and effectively.	K2
4	The students will get idea about the microbial spoilage and the potentials in the usage of microbes in agriculture.	K5
5	The students will develop an awareness about the various microbial diseases and the causative organisms.	K3

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	INTRODUCTION– SCOPE AND HISTORY OF MICROBIOLOGY	21 hours

Introduction– Scope and History of microbiology –Classification of bacteria, fungi, yeast and virus. Structure and functions of bacteria and virus. Reproduction in bacteria – Transformation, conjugation, transduction.

Unit:2	CULTIVATION AND CONTROL OF MICROORGANISM	21 hours

Cultivation and control of microorganism – Methods of collection of sample – methods of estimation of microorganism in soil, water and air – Isolation and identification of bacteria. Methods of sterilization and disinfection – Microbial control – Physical and chemical –techniques of pure culture.

Unit:3	MICROBIAL ECOLOGY	21 hours

Microbial Ecology: Distribution of microorganism in soil, water and air – Environmental factors influencing the distribution of microorganism – Role of microorganisms in the cycling of nutrients – Carbon and Nitrogen cycle.

Unit:4	FOOD MICROBIOLOGY	21 hours

Food Microbiology: Sources, types incidence of microorganism in vegetables, meats, milk and dairy products – spoilage of food, fruits, vegetables, cereals, meat, caned products – Factors influencing spoilage – Principles of food preservation.

Unit:5	**MICROBIAL TECHNOLOGY**	**21 hours**
Microbial Technology: Genetically modified organisms in food production – Single Cell Protein (SCP) production – Production of organic acids (acetic acid), ethanol – Antibiotics – Microbial toxins		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**107 hours**

Text Book(s)

1	Burden, K.L. and R.P. Williams (6th Ed.) 1968. Microbiology. The Macmillan Co., London P. 818.
2	Dawes, E.A. (Ed.) 1986. Energy conservation in bacterial photosynthesis. In: Microbial energetics. Blackie & Son Ltd., Glasgon, 133-144pp

Reference Books

1	Doelle, H.W. (Ed.) 1969. Fermentation acetic acid bacteria and lactic acid bacteria. In: Bacterial metabolism. Academic Press. New York, London. 256 – 351 pp.
2	Hay, J.M. (Ed.) 1986. Modern Food Microbiology. CBS publishers, Delhi. 622 pp.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	Food Microbiology and Food Safety: https://onlinecourses.swayam2.ac.in/cec20_ag13/preview
2	Food Microbiology: https://onlinecourses.swayam2.ac.in/cec20_ag09/preview
3	Applied Environmental Microbiology: https://onlinecourses.nptel.ac.in/noc20_ce17/preview

Course Designed By: Dr. A. Mohankumar

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	S	M	S	L	M	S	S	S
CO2	S	S	S	M	S	L	M	S	S	S
CO3	S	S	S	M	S	L	M	S	S	S
CO4	S	S	S	M	S	L	M	S	S	S
CO5	S	S	S	M	S	L	M	S	S	S

*S-Strong; M-Medium; L-Low

Course code	3EB	RESEARCH METHODOLOGY	L	T	P	C
Core/Elective/Supportive		Elective II	5	0	0	4
Pre-requisite		Basic information about research and research articles	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are to:

1. To familiarize the basics of research
2. To know the literature collection
3. To understand the perfection of research.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	To understand and improve the art of scientific writing.	K2
2	To familiarize the various literature sources.	K3
3	To analyze the raw data and its interpretation	K4
4	To apply the tools to substantiate scientific findings	K3
5	To create an awareness on publication skills.	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	BASICS OF RESEARCH	21 hours

Topic selection - Planning research – defining objectives - Preparation of work plans. Identification of suitable methodology - Preparation of project proposal – Funding agencies – Student project scheme of TNSCST & TANSCHE.

Unit:2	COLLECTION OF LITERATURE	21 hours

Collection of literature- News articles – Newsletters – Journals. Digital library and search of articles - Key words and search - Internet – Google Scholar – Pub med – Inflibnet – Medline – Agricola – Science direct -Open access Journals - virtual sources - other sources.

Unit:3	DATA ANALYSIS	21 hours

Collection of samples / data – Data analysis – Microsoft Excel – Construction of tables – headings - footer - hypothesis testing – Test of Significance – Tabulation – Presentation of results.

Unit:4	THESIS STRUCTURE	21 hours

Thesis structure –Components - Writing Introduction – review of literature – Materials & Methods – Presentation of results – Discussion of Results based on literature – Arrangement of Bibliography and how to quote reference in thesis - Appendix.

Unit:5	PUBLISHING OF ARTICLES	21 hours

Publishing of Articles in newspapers /newsletters - Selection of journals – ISSN Number – Peer reviewed Journals – Science citation index – impact factor and importance. Manuscripts preparation for Journals – components – Submission and Publication.

Unit:6	Contemporary Issues	2 hours

Expert lectures, online seminars - webinars

	Total Lecture hours	107 hours

Text Book(s)	
1	Anderson, Durston & Polle 1970: Thesis and assignment, writing Wiley Eastern Limited
2	Fisher R.A, 1950: Statistical methods of research workers
3	Freumd J E, 1967: Modern elementary statistics, Prentice Hall, Inc. Englewood cliffs, N J.
Reference Books	
1	Malter K, 1972: Statistical analysis in Biology, Chapmen Hall, London.
2	Rajendrakumar C 2008 Research Methodology SB Nanja for APHA publishing Corporation New Delhi
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	Research Methodology: https://swayam.gov.in/nd2_cec20_hs17/preview
2	Understanding Research Methods: https://www.mooc-list.com/course/understanding-research-methods-coursera
Course Designed By: Dr. A. Mohankumar	

Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	S	S	L	L	L	M	L	S
CO2	S	S	S	S	L	L	L	M	L	S
CO3	S	S	S	S	L	L	L	M	L	S
CO4	S	S	S	S	L	L	L	M	L	S
CO5	S	S	S	S	L	L	L	M	L	S

*S-Strong; M-Medium; L-Low


Fourth
Semester

Course code	43A	GENETICS	L	T	P	C
Core/Elective/Supportive		Core Paper XI	6	0	0	4
Pre-requisite		Basic knowledge about Genes and Chromosomes which have learned in undergraduate course	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are to:

1. To study the nature and function of Genes and Chromosomes
2. To acquire knowledge on the structure of Mendel an principles, Gene mapping methods, Microbial genetics, Human genetics, Mutation and Molecular Genetics.
3. To acquire knowledge on the Gene concepts and their role in inheritance.
4. Understand the Chromosomes and their nature
5. To understand the role of DNA,RNA and Nucleotides and their functions

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Acquire knowledge on the Nature and functions of Genes and learn the mechanism of their action	K4
2	Learn the structure and functions of Gene mapping and Mutations and familiarize on their functions	K3
3	Understand the Microbial genetics and Molecular Genetics and their role in molecular biology	K2
4	Able to learn the Structure and functions of the Nucleotides	K2
5	Know the factors about genes and their role in the development of an organism	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	BASIC CONCEPTS OF GENETICS	21 hours

Mendelian principles: Dominance, segregation, independent assortment. Concept of gene: Allele, multiple alleles, pseudoallele, complementation tests Extensions of Mendelian principles: Co-dominance, incomplete dominance, gene interactions, pleiotropy, genomic imprinting, penetrance and expressivity, phenocopy, linkage and crossing over, sex linkage, sex limited and sex influenced characters.

Unit:2	GENE MAPPING METHODS	21 hours

Linkage maps, tetrad analysis, mapping with molecular markers, mapping by using somatic cell hybrids, DNA foot printing. Extra chromosomal inheritance: Inheritance of Mitochondrial genes, maternal inheritance

Unit:3	MICROBIAL GENETICS AND HUMAN GENETICS	21 hours

Methods of genetic transfers – transformation, conjugation, transduction and sexduction, mapping genes by interrupted mating, fine structure analysis of genes Pedigree analysis, lod score for linkage testing, karyotypes, genetic disorders - Human Genome Project. Quantitative genetics: Polygenic inheritance, heritability and its measurements, QTL mapping

Unit:4	MUTATION, POPULATION GENETICS	21 hours

Types, causes and detection, mutant types – lethal, conditional, biochemical, loss of function,

gain of function, germinal verses somatic mutants, insertional mutagenesis. Structural and numerical alterations of chromosomes: Deletion, duplication, inversion, translocation, ploidy and their genetic implications; Recombination: Homologous and non-homologous recombination including transposition. Population Genetics: Genetic equilibrium – distinguishing forces – natural selection – mutation and genetic drift.		
Unit:5	**MOLECULAR GENETICS**	**21 hours**
. Structure of gene – genetic code – gene regulation – genome analysis – functional genomics – RNA processing – Transcription: factors and regulation – Translation: control and regulation; Patterns of change in nucleotide and amino acid sequences.		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**107 hours**

Text Book(s)

1	Brooker: Genetics: Analysis and Principles 2
2	Principles of Genetics;Gardener
3	Basics of Human Genetics-Versha Katira
4	Russell: Genetics

Reference Books

1	Recombinant DNA technology –James.D.Watson,
2	Emery'sElementsofMedicalGeneti cs
3	Concepts of Genetics. -Klug W.S
4	The Gene-Siddhartha Mukherjee

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://swayam.gov.in/
2	https://www.mooc.org/
4	https://nptel.ac.in/

Course Designed By: Dr. Banuravi Ganesh

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	S	L	L	L	M	M	L	S
CO2	S	S	S	L	L	L	M	M	L	S
CO3	S	S	S	L	L	L	M	M	L	S
CO4	S	S	S	L	L	L	M	M	L	S
CO5	S	S	S	L	L	L	M	M	L	S

*S-Strong; M-Medium; L-Low

Course code	43B	EVOLUTION	L	T	P	C
Core/Elective/Supportive		Core Paper XII	6	0	0	4
Pre-requisite		Basic information about animal evolution	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are to:

1. To introduce the evolutionary concepts.
2. To make them understand how life originated.
3. To realize the current working of evolution.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	To understand the prehistoric life and its origin.	K2
2	To evaluate the impact of evolution.	K4
3	To analyze how the higher animals evolved.	K5
4	To understand the evolution of genes.	K2
5	To imagine how the future evolution will be	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	EMERGENCE OF EVOLUTIONARY THEORIES	21 hours

Lamarck – Darwin – Concepts – evolutionary synthesis – evolutionary time scale – eras – periods – epoch. Human evolution: Stages of primate evolution including Homo. Behavioral Evolution: Altruism and evolution – Group selection and kin selection.

Unit:2	MOLECULAR EVOLUTION	21 hours

Role of gene in evolution - Evolution of gene families, Molecular drive - Assessment of molecular variation Origin of higher categories Phylogenetic gradualism and punctuated equilibrium - Major trends in the origin of higher categories - Micro- and Macro-evolution – speciation.

Unit:3	MOLECULAR PHYLOGENETICS	21 hours

Construction of phylogenetic trees - Phylogenetic inference –Distance methods, parsimony methods, maximum likelihood method - Immunological techniques.

Unit:4	MOLECULAR PHYLOGENETICS	21 hours

Amino acid sequences and phylogeny - Nucleic acid phylogeny-DNA-DNA hybridizations, Restriction Enzyme sites, Nucleotide sequence comparisons and homologies - Molecular clocks.

Unit:5	POPULATION GENETICS AND ECOLOGY	21 hours

Metapopulations - Monitoring natural populations - Why small populations become extinct? - Loss of genetic variations - Conservation of genetic resources in diverse taxa – Artificial evolution (in vitro).

Unit:6	Contemporary Issues	2 hours

Expert lectures, online seminars - webinars

	Total Lecture hours	107 hours

Text Book(s)	
1	Dobzhansky, Th. Genetic and Origin of Species. Columbia University Press.
2	Dobzhansky, Th., F.J. Ayala, G.L. Stebbines and J.M Valentine. Evolution. Surjeet Publication, Delhi
3	Jha, A.P. Genes and Evolution. John Publication, New Delhi.
Reference Books	
1	Futuyama, D.J. Evolution Biology, Suinuaer Associates, INC Publishers, Dunderland.
2	Hartl, D.L. A Primer of Population Genetics. Sinauer Associates. Inc, Massachusetts.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	Paleontology: Theropod Dinosaurs and the Origin of Birds: https://www.classcentral.com/course/theropods-birds-5236
2	Evolutionary Biology: https://swayam.gov.in/nd2_cec20_bt06/preview
Course Designed By: Dr.A. Reniprabha	

Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	S	L	L	L	M	M	M	S
CO2	S	S	S	L	L	L	M	M	M	S
CO3	S	S	S	L	L	L	M	M	M	S
CO4	S	S	S	L	L	L	M	M	M	S
CO5	S	S	S	L	L	L	M	M	M	S

*S-Strong; M-Medium; L-Low

Course code	4EC	ENTOMOLOGY - II	L	T	P	C
Core/Elective/Supportive		Elective	5	0	0	4
Pre-requisite		Basic information about agricultural pest, insect vectors and its control measures	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are to:

1. To make the students understand the interaction of insects
2. How to control the insect pests without affecting the environment
3. To understand the modern control measures.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	To understand how the insect life helps in its control	K2
2	To analyze the methods of integrated pest management	K4
3	To elucidate the importance of insects	K5
4	To know the principles of insect toxicology.	K2
5	To apply the biological knowledge to control the pests.	K3

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	INTERACTION OF INSECTS	21 hours

Interaction of Insects Social Insects: Caste differentiation and social behaviour of Termite, Honey Bee and Ant Insect – Plant interaction Insect vector – Host relationship **Bionomics and control measures** a. Locusta migratoria – Polyphagus grasshopper b. Odentotermis obesus– Polyphagus termite c. Heliothis armigera – Polyphagus moth d. Spodoptera litura – Polyphagus caterpillar e. Oryctus rhynocerus – Coconut beetle

Unit:2	BIOLOGY AND CONTROL MEASURES OF INSECT PESTS	21 hours

Biology and Control measures of Insect pest Economic crops – Cotton and Sugarcane Stored grains – Paddy, Wheat and Flour **Insect control methods** Cultural, physical, mechanical, biological and chemical control methods Integrated pest management

Unit:3	INSECT VECTORS	21 hours

Insect Vectors Systematics, biology and control measures of insect vectors of human diseases Flies -Anopheles sp, Culex sp and Aedes sp. and Musca domestica Roaches and bugs – Periplanita americana and Cimex indicus **Insects of Commercial Importance** Honey Bee – Types and the differences in nest building, production of honey Silk Moth – Types and the differences in life cycles and production of silk Lac Insect – Indian type only

Unit:4	INSECT TOXICOLOGY	21 hours

Insect Toxicology Principles and Scope **Chemistry and mode of action of the Insecticides** Inorganic compounds: Arsenic and fluorine compounds Organic compounds: Organochloride, organophosphorus and carbamates, Botanical Insecticides

Unit:5	INSECTS AND MODERN CHEMICALS	21 hours

Insects and Modern chemicals Growth regulatory compounds Microbial insecticides Pheromones and pest control

Insecticides and Introduction to insect genetics Formulation and appliances Mechanism of Insecticide resistance – Genetical, Physiological and Biochemica		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**107 hours**

Text Book(s)	
1	Imms 1986 Textbook of Entomology
2	Snodgrass 1983 Insect Morphology
3	Alka Prakash 1996 Applied Entomology
Reference Books	
1	Chapman 1973 Insect Structure and Morphology
2	Wigglesworth 1969 Insect Physiology
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	Applied Entomology: https://onlinecourses.swayam2.ac.in/cec20_bt02/preview
Course Designed By: Dr. M. Muthusamy	

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	S	L	S	M	M	M	M	S
CO2	S	S	S	L	S	M	M	M	M	S
CO3	S	S	S	L	S	M	M	M	M	S
CO4	S	S	S	L	S	M	M	M	M	S
CO5	S	S	S	L	S	M	M	M	M	S

*S-Strong; M-Medium; L-Low

Course code	4EB	BIOINSTRUMENTATION AND BIOTECHNOLOGY	L	T	P	C
Core/Elective/Supportive		ELECTIVE IIB	5	0	0	4
Pre-requisite		Basic knowledge on Bioinstrumentation and Biotechnology	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are to:

1. The objective of this course is to give a firm foundation in the fundamentals of modern Molecular techniques.
2. The course will give idea various protocols followed in Biotechnology in relation to animal science.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	To develop an idea about the various techniques used in modern biotechnology.	K1
2	To understand the basic principles of all techniques	K2
3	To analyze the latest techniques and its implication	K4
4	To know how to isolate & sequence a gene	K5
5	To apply the knowledge in purifying the environment	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	BIOINSTRUMENTATION	21 hours

Microscopy – Interference microscope, Fluorescence microscope, Phase contrast microscope, Electron microscope (TEM & SEM). Centrifugation – Principle and applications, types. pH meter. Spectrophotometry - visible and UV spectrophotometry. Atomic Absorption Spectrophotometer. Chromatographic techniques – Principle and applications of chromatography, types of chromatography. Electrophoresis – Principle and applications

Unit:2	BIOLOGICAL TECHNIQUES	21 hours

Southern blotting, Western Blotting, DNA finger printing techniques. Hybridoma technology – production and applications of monoclonal antibodies. Geiger Muller counter- principles and applications. Liquid Scintillation counter-principle and applications. Applications of radio isotopes in biological sciences. Autoradiography. Applications of Flow cytometry, Cell separation and culture techniques.

Unit:3	GENE TRANSFER METHODS AND TRANSGENIC ORGANISMS	21 hours

Gene Transfer Methods and Transgenic Organisms Gene Transfer Methods in Animals – Transgenic animals. Somatic cell hybridization – mechanism and applications. **Recombinant DNA Technology** Recombinant DNA – PCR, Restriction enzymes for cloning – Techniques used in recombinant DNA technology – Cloning vectors for rDNA – Construction of chimeric DNA – Molecular probes – Construction and screening of genomic libraries.

Unit:4	ISOLATION, SYNTHESES AND SEQUENCING OF GENES	21 hours

Isolation, Syntheses and Sequencing of Genes Isolation of genes – using DNA and RNA Probes; Gene therapy - types of gene therapy. **Industrial Biotechnology** Fermentation - Designing of Bioreactors – stages of fermentation and fermentation products – conversion of waste into biogas – conversion of waste into ethanol.

Unit:5	**ENVIRONMENTAL BIOTECHNOLOGY**	**21 hours**
Environmental biotechnology Biotechnological methods of pollution control- biological treatment of waste water - biotechnology for solid waste treatment - microbial bioremediation of polluted environment – aerobic and anaerobic treatment - bioleaching and biomining for recovery of resources – compost making		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars - webinars		
	Total Lecture hours	**107 hours**

Text Book(s)

1	Dubey, R.C. 2002. A text book of biotechnology. S. Chand and Company Ltd., New Delhi.
2	Gabriel Melchias, 2001. Biodiversity and conservation, Oxford IBH Publ. Co. Pvt. Ltd, NewDelhi, Calcutta.
3	Glazer, A.N. and Hiroshi Nikaido, 1995. Microbial biotechnology: Fundamentals of Applied Biotechnology, W.H. Freeman and Company, New York.

Reference Books

1	Gupta, P.K. 2003. Elements of Biotechnology, Rastogi Publ. Meerut.
2	Rao, C.V. 2002. An introduction to immunology, Narosa publishing House, New Delhi.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	Fundamentals of Biotechnology: https://nptel.ac.in/courses/102/103/102103045/
2	Biomedical Signal Processing: https://onlinecourses.nptel.ac.in/noc20_ee41/preview

Course Designed By: Dr. Banuravi Ganesh

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	S	S	L	L	L	M	L	S
CO2	S	S	S	S	L	L	L	M	L	S
CO3	S	S	S	S	L	L	L	M	L	S
CO4	S	S	S	S	L	L	L	M	L	S
CO5	S	S	S	S	L	L	L	M	L	S

*S-Strong; M-Medium; L-Low

Course code	43P	COMPARATIVE ANIMAL PHYSIOLOGY AND IMMUNOLOGY	L	T	P	C
Core/Elective/Supportive		PRACTICAL - IV	0	0	2	4
Pre-requisite		Basic understanding on Physiology and immunology of animals	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are to:

1. To make them understand physiology through practicals
2. To equip them to do the experiments individually
3. To understand the basics of immunology

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	To understand the physiological mechanisms	K2
2	To evaluate the experimental design	K5
3	To interact their results	K6
4	To present their findings and discuss on it	K2
5	To handle the instruments	K3

K1 – Remember; **K2** – Understand; **K3** – Apply; **K4** – Analyze; **K5** – Evaluate; **K6** – Create

COMPARATIVE ANIMAL PHYSIOLOGY (Use any two cultured species which are not in endangered list)	**12 hours**

1. Determination of the rate of activity of salivary amylase (Human saliva).
   i) Ptyalin activity in relation to temperature and calculation of Q10.
   ii) Ptyalin activity in relation to pH and calculation of Q10.
2. Recording of diastolic and systolic pressure during, standing, sitting & lying posture.
3. Biological responses of animals to various osmotic concentrations and their effects i) Change in weight of Earthworm in heteroosmotic media ii) Pattern of osmotic responses of crab in heterosmotic media iii) Active uptake of Na+ and Cl- of a fish from the environmental water and change in salinity.
4. Determination of the specific gravity of the blood of a vertebrate animal-by copper sulphate method.
5. Effect of temperature on the opercular movement of fish and calculation of Q10.
6. Determination of the median threshold concentration of sucrose for housefly population.
7. Effect of drugs on the heartbeat of cockroach (Result with graphical representation corresponding to different concentration and time intervals expected)
8. Determination of the rate of ammonia and urea excretion in fish.
9. Determination of the haemoglobin content in fish blood.

IMMUNOLOGY:	**12 hours**

1. Study of Antigen and Antibody reaction through the study of Blood grouping.
2. Study of Rh factor through the study of Blood grouping.
3. Estimation of protein by Lowry'smethod
4. Widal Test
5. Western blotting (Demonstration only)
6. ELISA (Demonstration only)
7. Separation of lymphocytes from whole blood

Total Lecture hours	**24 hours**

Text Book(s)	
1	Advanced Practical Zoology by Sinha, J., Chatterjeee A.K., Chattopadhyay P. 2011. Arunabha Sen Publishers.
2	Medical Laboratory Technology, Methods and Interpretations by Ramnik Sood. 2006. Jaypee publishers.
Reference Books	
1	Modern Experimental Zoology by Preeti Guptha and Mridula Chaturvedi. 2000
2	Richard L. Myers Immunology: A Laboratory Manual. 1994. McGraw-Hill Inc., US; 2nd Revised edition edition.
4	Cell and Molecular Biology: A Lab Manual by Chaitanya K.V. 2013. Prentice Hall India Learning Private Limited

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	S	S	L	L	S	M	M	S
CO2	S	S	S	S	L	L	S	M	M	S
CO3	S	S	S	S	L	L	S	M	M	S
CO4	S	S	S	S	L	L	S	M	M	S
CO5	S	S	S	S	L	L	S	M	M	S

*S-Strong; M-Medium; L-Low

Course code	43Q	GENETICS AND EVOLUTION	L	T	P	C
Core/Elective/Supportive		PRACTICAL - V				
Pre-requisite		Basic knowledge about genetics and evolution of animals	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are to:

1. To study the nature and function of Genes and Chromosomes
2. To acquire knowledge on the structure of Mendel an principles, Gene mapping methods, Microbial genetics, Human genetics, Mutation and Molecular Genetics.
3. To realize the current working of evolution.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Acquire knowledge on the Nature and functions of Genes and learn the mechanism of their action	K4
2	Learn the structure and functions of Gene mapping and Mutations and familiarize on their functions	K3
3	Able to learn the Structure and functions of the Nucleotides	K2
4	To analyze how the higher animals evolved.	K5
5	To understand the evolution of genes.	K2

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

GENETICS: **12 hours**

1. Genetic characteristics of a class room sample.
   i) Dermatoglyphic patterns (Finger print),
   ii) Ear lobe,
   iii) Rolling of tongue,
   iv) Mid digital hairs,
   v)Widow'speak,
   vi) Inward bending of little finger.
2. Study of morphology of Drosophila melanogaster
3. Culture of Drosophila melanogaster
4. Identification of sex and mutant characters Drosophila melanogaster
5. Demonstration of dosage compensation in Drosophila males and females.
6. Preparation of genital plate of Drosophila melanogaster
7. Estimation of allelic Frequency based on ABO Blood Group.
8. Identification of Rh factor in blood groups
9. Preparation of buccal smear to show squamous epithelial cells.
10. Study of Barr body using buccal smear of volunteers
11. Study of stages of mitosis and meiotic chromosomes of grasshopper by observation of permanent slides and calculation of chiasma frequency

EVOLUTION: **12 hours**

1. Evolutionary significances: Fossils of each any five from non-chordate and chordate.
2. Analogous and homologous organs of vertebrate animals (Frog, *Calotes*, Pigeon and Rabbit)
3. Mimicry and colouration of animals.

Total Lecture hours **24 hours**

Text Book(s)	
1	Advanced Practical Zoology by Sinha, J., Chatterjeee A.K., Chattopadhyay P. 2011. Arunabha Sen Publishers.
2	Manual of Practical Zoology: Chordates by Verma.(2000. S. Chand Publishing
Reference Books	
1	Cell and Molecular Biology: A Lab Manual by Chaitanya K.V. 2013. Prentice Hall India Learning Private Limited
2	A Manual of Practical Zoology: Invertebrates by Verma P.S.. 2010. S Chand publication.
3	A Manual of Practical Zoology by Verma P.S. 2000. S Chand publication.

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	S	L	L	L	M	M	L	S
CO2	S	S	S	L	L	L	M	M	L	S
CO3	S	S	S	L	L	L	M	M	L	S
CO4	S	S	S	L	L	L	M	M	L	S
CO5	S	S	S	L	L	L	M	M	L	S

*S-Strong; M-Medium; L-Low

Course code	4EP	ENTOMOLOGY I & II) (Avoid collecting animals from Wild)	L	T	P	C
Core/Elective/Supportive		ELECTIVE I PRACTICAL	0	0	2	4
Pre-requisite		Necessary understanding about Biology of Insects	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are to:

1. To make the students understand the insect world.
2. To study the systems and its organization in insects.
3. How to control the insect pests without affecting the environment

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	To identify the insect based on external feature.	K1
2	To understand the organization of systems	K2
3	To analyze the significance of endocrines	K4
4	To know the principles of insect toxicology.	K2
5	To apply the biological knowledge to control the pests.	K3

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

1. IDENTIFICATION OF INSECTS	**12 hours**
A. Key to each order B. One insect for each order (South Indian insects only)	
2. DISSECTION	**12 hours**
Digestive system, Nervous system and Reproductive system (Any two) Cockroach Gryllotalpa Nepa Cybister Silk moth	
3. MOUNTING	**12 hours**
Mouthparts, Salivary gland and Sting apparatus (Any two) Honey bee Cockroach House fly Mosquito	
4. Morphological studies of different types of antennae and legs of insects. 5. Qualitative study of haemocytes in the haemolymph of cockroach 6. Qualitative study of lipids, carbohydrates and proteins in the haemolymph of cockroach. 7. Identification of Insect pests of the following (3 major pests in each) i. Paddy ii. Cotton iii. Sugarcane iv. Vegetables v. Storage products 8. Collection and preservation of insects.	**12 hours**
9. SPOTTERS	**12 hours**
a. Systematic b. Pests c. Medical importance d. Veterinary importance e. Economic importance	

f. Insect whole mounts – 10 slides

Field study and visit – Visits to agricultural fields and forests for on spot study of pests and damage caused by them.

Submission at the time of Practical Examination

1. Report on the Field study and Field trips
2. Bonafide Record
3. Insect photographic album/chart

	Total Lecture hours	**60 hours**

Text Book(s)

1	Advanced Practical Zoology by Sinha, J., Chatterjeee A.K., Chattopadhyay P. 2011. Arunabha Sen Publishers
2	A Manual of Practical Zoology: Invertebrates by Verma P.S.. 2010. S Chand publication

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	Practical Zoology Invertebrate by H.S. Bhamrah. 2003. Dominant Publishers.

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	S	L	S	S	M	S	S	S
CO2	S	S	S	L	S	S	M	S	S	S
CO3	S	S	S	L	S	S	M	S	S	S
CO4	S	S	S	L	S	S	M	S	S	S
CO5	S	S	S	L	S	S	M	S	S	S

*S-Strong; M-Medium; L-Low

Course code	4EQ	MICROBIOLOGY, BIOINSTRUMENTATION & BIOLOGICAL TECHNIQUES AND BIOTECHNOLOGY & GENETIC ENGINEERING	L	T	P	C
Core/Elective/Supportive		ELECTIVE II PRACTICAL	0	0	2	4
Pre-requisite		Basic information on biological techniques and its applications	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are to:

1. The objective of this course is to give a firm foundation in the fundamentals of modern Molecular techniques.
2. The course is intended to make aware of the students about the classification, diversity, organization, application and pathogenicity of the microorganisms existing the ecosystem.
3. The course will give an idea that how microbes are used in various industries for generation of various products related to day to day life.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	To develop an idea about the various techniques used in modern biotechnology.	K1
2	To analyze the latest techniques and its implication	K4
3	The students will develop an awareness about the various microbial diseases and the causative organisms.	K3
4	The students will be able to explain the taxonomy, diversity and general structure of micro-organisms.	K4
5	The students will get idea about the microbial spoilage and the potentials in the usage of microbes in agriculture.	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

MICROBIOLOGY: **12 hours**

1. Sterilization – Principles and methods.
2. Media preparation – Liquid and Solid media, Agar deep, slant and plate.
3. Pure culture techniques – Streak plate, pour plate, spread plate.
4. Identification of Gram positive and Gram negative bacterial strains.
5. Enumeration of microorganisms using haemocytometer.
6. Water quality analysis – MPN.
7. Isolation of microorganisms from spoiled foods – Meat, milk, Cereals and Bread.
8. Milk quality – Dye reduction test.
9. Antibiotic sensitivity: oxidase test
10. Identification of symbiotic bacterioids from root nodules of leguminous plants

BIOINSTRUMENTATION & BIOLOGICAL TECHNIQUES: **12 hours**

1. Separation technique of amino acids using paper chromatography.
2. Separation of Proteins on gel electrophoresis
3. Study on the Principles of the Instruments and their uses.
    1. pH Meter
    2. Colorimeter
    3. Spectrophotometer
    4. Electrophoresis apparatus
    5. Microtome

BIOTECHNOLOGY & GENETIC ENGINEERING **12 hours**

1. Fermenter Design and Working Principle
2. Organic acid Production -- Citric acid (solid state or submerged).
3. Production and assay of extra cellular enzyme – Protease—submerged.
4. Wine Production.
5. Antibacterial sensitivity test.
6. Isolation and estimation of DNA & RNA
7. Preparation of tissue culture medium
8. Preparation of single cell suspension from spleen and thymus.
9. Cell counting and viability
10. Immobilisation of cells (Bacteria/Yeast) by entrapment.

Total Lecture hours	**36 hours**

TEXT BOOK

1	Advanced Practical Zoology by Sinha, J., Chatterjeee A.K., Chattopadhyay P. 2011. Arunabha Sen Publishers.
2	Medical Laboratory Technology, Methods and Interpretations by Ramnik Sood. 2006. Jaypee publishers.

Reference Books

1	Cell and Molecular Biology: A Lab Manual by Chaitanya K.V. 2013. Prentice Hall India Learning Private Limited
2	Manual of Practical Physiology and Endocrinology by Harsh Vardhan Bhask. 2009. Campus Books International
3	Richard L. Myers Immunology: A Laboratory Manual. 1994. McGraw-Hill Inc., US; 2nd Revised edition.

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	S	M	S	L	M	S	S	S
CO2	S	S	S	M	S	L	M	S	S	S
CO3	S	S	S	M	S	L	M	S	S	S
CO4	S	S	S	M	S	L	M	S	S	S
CO5	S	S	S	M	S	L	M	S	S	S

*S-Strong; M-Medium; L-Low

Annexure

General Instructions:

1. **Elective Courses:** Minimum Two for Each Semester.
2. **Supportive Courses:** Minimum One for first three Semesters.
3. **Value Added Courses:** Minimum 2 and maximum 5 for Each Department for Entire Program
4. **Job Oriented Certificate Courses:** Two Courses (Each one on First and Second Year)
5. All the Board of Studies are requested to follow the same template and use the TIMES NEW ROMAN FONT with the Size of 12.
6. The Course Designer should be mentioned in each of the corses.

Details for the Certificate Course

1	**Name of the Course**	
2	**Name of the Department**	
3	**Name of the Faculty Member**	
4	**Inter/Intra Department**	
5	**Objectives of the Course**	
6	**Topics to be Covered**	
7	**Duration of the Course**	
8	**Eligibility**	
9	**Registration**	
10	**Description of the Course**	
11	**Job Opportunities**	
12	**Number of Candidates**	
13	**Course Fee**	

M. Sc. Mathematics

Syllabus

AFFILIATED COLLEGES

Program Code: 32A

2020 – 2021 onwards

BHARATHIAR UNIVERSITY

(A State University, Accredited with "A" Grade by NAAC,
Ranked 13th among Indian Universities by MHRD-NIRF,
World Ranking : Times - 801-1000, Shanghai - 901-1000, URAP - 982)

Coimbatore - 641 046, Tamil Nadu, India

Program Educational Objectives (PEOs)	
The **M. Sc. Mathematics** program describe accomplishments that graduates are expected to attain within five to seven years after graduation	
PEO1	Provide a strong foundation in different areas of Mathematics, so that the students can compete with their contemporaries and excel in the various careers in Mathematics.
PEO2	Motivate and prepare the students to pursue higher studies and research, thus contributing to the ever-increasing academic demands of the country.
PEO3	Enrich the students with strong communication and interpersonal skills, broad knowledge and an understanding of multicultural and global perspectives, to work effectively in multidisciplinary teams, both as leaders and team members.
PEO4	Facilitate integral development of the personality of the student to deal with ethical and professional issues, and also to develop ability for independent and lifelong learning.



Program Specific Outcomes (PSOs)	
After the successful completion of **M. Sc. Mathematics** program, the students are expected to	
PSO1	Communicate concepts of Mathematics and its applications.
PSO2	Acquire analytical and logical thinking through various mathematical tools and techniques.
PSO3	Investigate real life problems and learn to solve them through formulating mathematical models.
PSO4	Attain in-depth knowledge to pursue higher studies and ability to conduct research. Work as mathematical professional.
PSO5	Achieve targets of successfully clearing various examinations/interviews for placements in teaching, banks, industries and various other organizations/services.



Program Outcomes (POs)	
On successful completion of the M. Sc. Mathematics program, the students will be able to	
PO1	Demonstrate in-depth knowledge of Mathematics, both in theory and application.
PO2	Attain the ability to identify, formulate and solve challenging problems in Mathematics.
PO3	Know the various specialised areas of advanced mathematics and its applications.
PO4	Analyze complex problems in Mathematics and propose solutions using research-based knowledge.
PO5	Obtain the accurate solutions for the community oriented problems via various mathematical models.
PO6	Work individually or as a team member or leader in uniform and multidisciplinary settings.
PO7	Crack lectureship and fellowship exams affirmed by UGC like CSIR-NET and SET.
PO8	Apply the Mathematical concepts, in all the fields of learning including higher research, and recognize the need and prepare for lifelong learning.
PO9	Know the use of computers both as an aid and as a tool to study problems in Mathematics.
PO10	Inculcate the knowledge of formulation and apply the mathematical concepts which are suitable for real life applications.

BHARATHIAR UNIVERSITY : : COIMBATORE 641 046
M. Sc. Mathematics Curriculum (Affiliated Colleges)
(For the students admitted during the academic year 2020 – 21 onwards)

Course Code	Title of the Course	Credits	Hours		Maximum Marks		
			Theory	Practical	CIA	ESE	Total
FIRST SEMESTER							
	Abstract Algebra	4	6	–	25	75	100
	Real Analysis	4	7	–	25	75	100
	Ordinary Differential Equations	4	7	–	25	75	100
	Numerical Methods	4	6	–	25	75	100
	Elective-I	4	4	–	25	75	100
Total		20	30	–	125	375	500
SECOND SEMESTER							
	Linear Algebra	4	6	–	25	75	100
	Complex Analysis	4	7	–	25	75	100
	Partial Differential Equations	4	7	–	25	75	100
	Mechanics	4	6	–	25	75	100
	Elective-II	4	4	–	25	75	100
Total		20	30	–	125	375	500
THIRD SEMESTER							
	Topology	4	7	–	25	75	100
	Fluid Dynamics	4	7	–	25	75	100
	Mathematical Statistics	4	6	–	25	75	100
	Graph Theory	4	6	–	25	75	100
	Elective-III	4	4	–	25	75	100
Total		20	30	–	125	375	500
FOURTH SEMESTER							
	Functional Analysis	4	7	–	25	75	100
	Mathematical Methods	4	7	–	25	75	100
	Optimization Techniques	4	6	–	25	75	100
	Computer Programming* (C++ Theory)	4	4	–	25	75	100
	Computer Programming (C++ Practical)	4	–	2	40	60	100
	Elective-IV	4	4	–	25	75	100
	Project	6				150	150*
Total		30	28	2	165	585	750
Grand Total		90	118	2	540	1710	2250

First Semester

Course code		Paper 1: ABSTRACT ALGEBRA	L	T	P	C
Core/Elective/ Supportive		Core	6	0	0	4
Pre-requisite		Basic knowledge in Modern Algebra at Undergraduate level.	Syllabus Version		20-21	

Course Objectives:

The main objectives of this course are to:

1. To provide deep knowledge about various algebraic structures.
2. To introduce Galois Theory and to see its application to the solvability of polynomial equations by radicals.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand Sylows theorem and its applications	K3
2	Formulate some special types of rings and their properties.	K6
3	Acquire knowledge on extension fields and roots of polynomials	K4
4	Analyze the elements of Galois theory and Galois Groups over the rationals	K4
5	Understand the basic concepts of solvability by radicals and finite fields.	K2

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Group Theory	18 hours

Another Counting Principle, Sylow's Theorem: 1st, 2nd and 3rd parts of Sylow's Theorems – double coset – the normalizer of a group.

Unit:2	Group Theory (contd) and Ring Theory	17 hours

Direct Products: External and Internal direct Products, Euclidean Rings, A Particular Euclidean Rings, Polynomial rings.

Unit:3	Ring Theory (contd) and Fields	18 hours

Polynomials over rational fields – extension fields – roots of polynomials – splitting fields.

Unit:4	Fields (contd)	18 hours

More about roots – simple extension – fixed fields – symmetric rational functions – normal extension - Galois group – fundamental theorem of Galois theory.

Unit:5	Fields (contd) and Selected Topics	17 hours

Solvability by radicals: Solvable group – the commutator subgroup – Solvability by radicals - Finite fields.

Unit:6	Contemporary Issues	2 hours

Expert lectures, online seminars - webinars

	Total Lecture hours	90 hours

Text Book(s)	
1	I.N. Herstein, Topics in Algebra, Secnd Edition, John Wiley and Sons, New York, 1975. UNIT I: Chapter 2 : Sections 2.11, 2.12 UNIT II: Chapter 2 : Section 2.13 Chapter 3 : Sections 3.7 - 3.9 UNIT III: Chapter 3 : Section 3.10 Chapter 5 : Sections 5.1,5.3 UNIT IV: Chapter 5 : Sections 5.5,5.6 UNIT V: Chapter 5 : Section 5.7 Chapter 7 : Section 7.1
Reference Books	
1	Serge Lang, Algebra, Third Edition, Addison-Wesley, Mass, 1993.
2	John B. Fraleigh, A First Course in Abstract Algebra, Addison Wesley, Mass, 1982.
3	M. Artin, Algebra, Prentice-Hall of India, New Delhi, 1991.
4	V. K. Khanna and S.K. Bhambri, A Course in Abstract Algebra, Vikas Publishing House Pvt Limited, 1993.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://nptel.ac.in/content/storage2/111/106/111106113/MP4/mod08lec44.mp4
2	https://nptel.ac.in/content/storage2/111/106/111106113/MP4/mod08lec45.mp4
3	https://nptel.ac.in/content/storage2/111/106/111106131/MP4/mod08lec39.mp4
4	https://nptel.ac.in/content/storage2/111/106/111106131/MP4/mod08lec42.mp4
Course Designed By: D. Saravanan	

Mapping with Programme Outcomes

COs \ POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M	L	L	L	M	S	L	S	M	M
CO2	S	S	M	L	L	S	L	S	M	S
CO3	M	L	S	M	S	M	M	L	L	S
CO4	M	L	S	S	S	M	M	L	L	S
CO5	L	M	M	S	M	L	S	M	S	M

*S-Strong; M-Medium; L-Low

Course code		PAPER 2: REAL ANALYSIS	L	T	P	C
Core/Elective/ Supportive		Core	7	0	0	4
Pre-requisite		Basic knowledge in Undergraduate Analysis.	Syllabus Version		20-21	

Course Objectives:

The main objectives of this course are to:

1. Evaluate integral of a function of a real variable in the sense of Riemann Stieltjes integral and gain its properties.
2. Acquire Knowledge and demonstrate understanding the statement and proof of convergence theorems and its applications.
3. Understand the requirement and concept of Lebesgue measure, Measurable functions and Lebesgue integral.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Apply the Riemann Stieltjes integral and bring its properties and rectifiable curves.	K3
2	Remembering of sequences and series along with its properties	K1
3	Analyze the concept of linear transformation and find the extreme values of implicit functions.	K4
4	Understand the fundamental concept of Lebesgue measure.	K2
5	Evaluate the complex integration and the benefits of Lebesgue Integral	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Riemann Stiltjes Integral	21 hours

Definition and Existence of the Integral – properties of the integral – Integration and differentiation – Integration of vector valued function – rectifiable curves.

Unit:2	Sequences and Series of Functions	21 hours

Uniform convergence and continuity – uniform convergence and integration - uniform convergence and differentiation – equicontinuous families of functions – The Stone Weierstrass theorem.

Unit:3	Functions of Several Variables	21 hours

Linear transformation – contraction principle – Inverse function theorem – Implicit function theorem.

Unit:4	Lebesgue Measure	20 hours

Outer measure – Measurable sets and Lebesgue measure – Measurable functions –Littlewood's Theorem.

Unit:5	Lebesgue Integral	20 hours

The Lebesgue integral of bounded functions over a set of finite measure – integral of a non – negative function – General Lebesgue Integral.

Unit:6	Contemporary Issues	2 hours
Convergence in Measure – https://www.youtube.com/watch?v=_wThvhkiH5M		
	Total Lecture hours	**105 hours**

Text Book(s)

1	Principles of Mathematical Analysis, McGraw Hill, New York, 1976. Unit I &II : Chapter 6 & 7. Unit III : Chapter 9 (Pages 204 to 227)
2	Real Analysis by H.L. Roydon, Third Edition, Macmillan, New York, 1988. Unit IV : Chapter 3 (except Section – 4) Unit V :Chapter 4 (Sections 2, 3 & 4 only)

Reference Books

1	R. G. Bartle, Elements of Real Analysis, 2nd Edition, John Wily and Sons, New York, 1976.
2	Walter Rudin, Real and Complex Analysis, 3rd Edition, McGraw-Hill, New York, 1986.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://www.youtube.com/watch?v=DO0Dzz07DNI
2	https://nptel.ac.in/courses/111/101/111101100/
3	https://www.youtube.com/watch?v=Y5yEMXZnzYw
4	https://youtu.be/msIZz8ydzcM

Course Designed By: Dr. V Jeyanthi

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	L	S	S	M	S	M	S	S	S	S
CO3	S	M	M	L	S	S	S	L	L	L
CO3	L	M	S	L	M	M	M	S	M	S
CO4	L	M	S	L	M	S	S	S	M	M
CO5	M	L	S	M	S	L	M	M	L	L

*S-Strong; M-Medium; L-Low

Course code		ORDINARY DIFFERENTIAL EQUATIONS	L	T	P	C
Core/Elective/ Supportive		Core	7	0	0	4
Pre-requisite		Basic knowledge in differential equations at Undergraduate level.	Syllabus Version		20-21	

Course Objectives:

The main objectives of this course are to:

1. Study Solutions of Linear differential equations with constant and variable coefficients.
2. Understand and able to apply various theoretical ideas that underlined in existence and uniqueness theorems, Linear independence and dependence, Wronskian etc.,
3. Enables the students to develop the strong background on modeling, formulating, solving and interpreting physical problems.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Recall the types of linear homogeneous equations of second order equations with constant coefficients and apply the method to solve.	K1
2	Analyze non-homogeneous ODE using the method of undermined coefficients and annihilator method to solve the same.	K4
3	Understand and Apply the theorems on Initial value problem to ordinary differential equations.	K2 & K3
4	Comprehend the Euler equations, the Bessel's equation and Regular, Singular points at infinity and to evaluate.	K5
5	Identify the research problem where differential equation can be used to model the problem.	K6

K1 - Remember; **K2** - Undestand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Linear Equations with Constant Coefficients	20 hours

Introduction - Second order homogenous equations - Initial value problem for second order equations - Linear dependence and independence - A formula for Wronskian..

Unit:2	Linear Equations with Constant Coefficients (Contd)	21 hours

The Non- homogenous equations of order two-homogenous and Non - homogenous equations of order n - Initial value problems for n^{th} order equations- Annihilator method to solve non-Homogenous equation.

Unit:3	Linear Equations with Variable Coefficients	21 hours

Initial value problem - Existence and uniqueness theorem - The Wronskian and linear independence - Reduction of the order of a homogenous equation - The non- Homogenous equation - Homogenous equations with analytic coefficients - The Legendre equations.

Unit:4	Linear Equations with Regular Singular Points	20 hours

The Euler equations - Second order equations with regular singular points - Exceptional cases - The Bessel equation – The Bessel equation contd.

Unit:5	Existence and Uniqueness of Solutions to First Order Equations	21 hours

Equations with variable separated - Exact equations - The method of successive approximation - The Lipschitz Condition - Convergence of the successive approximation - Non-local existence of solutions - Approximations and uniqueness of solutions.

Unit:6	Contemporary Issues	2 hours

Expert lectures, online seminars - webinars

	Total Lecture hours	105 hours

Text Book(s)

1. Earl A. Coddington, An Introduction to Ordinary Differential Equations, Prentice-Hall of India Private Limited, New Delhi 2008.
   - UNIT I: Chapter 2 : Sections 2.1 – 2.5.
   - UNIT II: Chapter 2 : Sections 2.6 – 2.8, 2.10,2.11.
   - UNIT III: Chapter 3 : Sections 3.1 – 3.8
   - UNIT IV: Chapter 4 : Sections 4.1 – 4.4, 4.6 – 4.8
   - UNIT V: Chapter 5 : Sections 5.1 – 5.8

Reference Books

1. Williams E. Boyce and Richard C. Diprima, Elementary Differential Equations and Boundary Value Problems, 10th edition, John Wiley and Sons, New York 2012.
2. S. G. Deo and V. Raghavendra, Ordinary Differential Equations and Stability Theory, Tata McGraw-Hill, New Delhi 1980.
3. George F. Simmons, Differential Equations with Application and Historical Notes, Tata McGraw Hill, New Delhi 1974.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1. https://nptel.ac.in/courses/111/104/111104031/#
2. https://nptel.ac.in/courses/122/107/122107037/

Course Designed By: Dr. V. Jeyanthi

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	M	M	S	L	S	M	S	L
CO3	M	S	S	M	S	S	S	S	S	M
CO3	L	M	S	S	S	S	S	S	S	S
CO4	M	S	L	M	S	M	S	S	L	S
CO5	L	M	S	S	S	M	S	S	L	M

*S-Strong; M-Medium; L-Low

Course code		Numerical Methods	L	T	P	C
Core/Elective/ Supportive		Core	6	0	0	4
Pre-requisite		Basic Knowledge in numerical methods at Undergraduate level.	Syllabus Version	20-21		

Course Objectives:

The main objectives of this course are to:

1. To make the students understand solving Algebraic and Transcendental equations.
2. To know about how and when to use various interpolation function finding the various numerical differentiation and integration formulae and using them to solve problems.
3. To understand the methods of finding solution to the differential equations of various orders.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Solve problems in numerical differentiation and integration	K3
2	Solve system of equations using various methods.	K3
3	Apply various methods to find numerical solution of first and second order ordinary differential equations.	K3
4	Explain the various methods for solving Boundary Value Problems and Characteristic Value Problems	K2
5	Understand the Explicit method and the Crank Nicolson method for solving partial differential equations.	K2

K1 - Remember; **K2** - Undestand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Solution of Nonlinear Equations, Numerical Differentiation and Integration	18 hours

Solution of Nonlinear Equations: Newton's method – Convergence of Newton's method – Bairstow"s Method for quadratic factors.

Numerical Differentiation and Integration: Derivatives from Differences tables – Higher order derivatives – Divided difference, Central-Difference formulas– Composite formula of Trapezoidal rule – Romberg integration – Simpson's rules.

Unit:2	Solution of System of Equations	17 hours

The Elimination method – Gauss and Gauss Jordan methods – LU Decomposition method – Matrix inversion by Gauss-Jordan method – Methods of Iteration – Jacobi and Gauss Seidal Iteration – Relaxation method – Systems of Nonlinear equations.

Unit:3	Solution of Ordinary Differential Equations	17 hours

Taylor series method – Euler and Modified Euler methods – Runge-kutta methods – Multistep methods – Milne's method – Adams Moulton method.

Unit:4	Boundary Value Problems and Characteristic Value Problems	18 hours

The shooting method – solution through a set of equations – Derivative boundary conditions – Characteristic value problems – Eigen values of a matrix by Iteration – The power method.

Unit:5	Numerical Solution of Partial Differential Equations	18 hours
Representation as a difference equation – Laplace's equation on a rectangular region – Iterative methods for Laplace equation – The Poisson equation – Derivative boundary conditions – Solving the equation for time-dependent heat flow (i) The Explicit method (ii) The Crank Nicolson method – solving the wave equation by Finite Differences.		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars - webinars		
	Total Lecture hours	**90 hours**

Text Book(s)

1	Curtis F. Gerald, Patrick O. Wheatley, Applied Numerical Analysis, Fifth Edition, Addison Wesley, (1998).

Reference Books

1	S. C. Chapra and P. C. Raymond: Numerical Methods for Engineers, Tata McGraw Hill, New Delhi, 2000.
2	S.S. Sastry: Introductory methods of Numerical Analysis, Prentice Hall of India, New Delhi, 1998.
3	P. Kandasamy et al., Numerical Methods, S.Chand & Co.Ltd., New Delhi, 2003.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://nptel.ac.in/courses/111/107/111107105/
2	https://freevideolectures.com/course/3504/numerical-methods-of-ordinary-and-partial/1
3	https://www.classcentral.com/course/swayam-numerical-methods-for-engineers-14213

Course Designed By: Dr. N. Mala

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	M	L	S	S	M	L	S	M	M
CO3	S	M	L	S	S	M	L	S	M	M
CO3	S	M	L	S	S	M	L	S	M	M
CO4	S	S	S	S	M	S	S	M	L	L
CO5	S	S	S	S	M	S	S	M	L	L

*S-Strong; M-Medium; L-Low

Second Semester

Course code		LINEAR ALGEBRA	L	T	P	C
Core/Elective/ Supportive		Core	6	0	0	4
Pre-requisite		A good familiarity with Calculus and Modern Algebra.	Syllabus Version	20-21		

Course Objectives:

The main objectives of this course are to:

1. Develop a strong foundation in linear algebra that provide a basic for advanced studies.
2. Study of Linear Transformations, Algebra of Polynomials, Invariant space and their properties.
3. Give particular attention to canonical forms of linear transformations, diagonalizations of linear transformations, matrices and determinants.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the basic concepts of Linear transformations, characteristic roots and matrices of linear transformation and its applications.	K3
2	Explain about the algebra of polynomials, polynomial ideals and prime factorization of a polynomial.	K4
3	Understand the basic concepts of determinants and its additional properties.	K3
4	Recognize the concepts of Invariant subspaces and diagonalization process.	K2
5	Analyze canonical Form, Jordan Form and Rational canonical Form.	K4

K1 - Remember; **K2** - Undestand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Linear Transformations	18 hours

Linear transformations – Isomorphism of vector spaces – Representations of linear transformations by matrices – Linear functionals.

Unit:2	Algebra of Polynomials	17 hours

The algebra of polynomials –Polynomial ideals - The prime factorization of a polynomial - Determinant functions.

Unit:3	Determinants	18 hours

Permutations and the uniqueness of determinants – Classical adjoint of a (square) matrix – Inverse of an invertible matrix using determinants – Characteristic values – Annihilating polynomials.

Unit:4	Diagonalization	18 hours

Invariant subspaces – Simultaneous triangulations – Simultaneous diagonalization – Direct-sum decompositions – Invariant direct sums – Primary decomposition theorem.

Unit:5	The Rational and Jordan Forms	17 hours

Cyclic subspaces – Cyclic decompositions theorem (Statement only) – Generalized Cayley – Hamilton theorem - Rational forms – Jordan forms.

Unit:6	Contemporary Issues	2 hours
Inner Product Spaces – https://www.youtube.com/watch?v=ERfbtPBEYVA		
	Total Lecture hours	**90 hours**

Text Book(s)

1 Kenneth M Hoffman and Ray Kunze, Linear Algebra, Second Edition, Prentice-Hall of India Pvt. Ltd, New Delhi, 2013.

UNIT I:	Chapter 3	: Sections 3.1-3.5
UNIT II:	Chapter 4	: Sections 4.1, 4.2, 4.4, 4.5
	Chapter 5	: Sections 5.1, 5.2
UNIT III:	Chapter 5	: Sections 5.3, 5.4
	Chapter 6	: Sections 6.1-6.3
UNIT IV:	Chapter 6	: Sections 6.4 - 6.8
UNIT V:	Chapter 7	: Sections 7.1 – 7.3

Reference Books

1. M. Artin, Algebra, Prentice-Hall of India Pvt. Ltd., 2005.
2. S. H. Friedberg, A. J. Insel and L. E. Spence, Linear Algebra, Fourth Edition, Prentice-Hall of India Pvt. Ltd., 2009.
3. I. N. Herstein, Topics in Algebra, Second Edition, Wiley Eastern Ltd, New Delhi, 2013.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1. https://www.khanacademy.org/math/linear-algebra/vectors-and-spaces
2. https://nptel.ac.in/courses/111/106/111106051/

Course Designed By: Prof. D. Saravanan

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	M	L	M	S	S	S	M	M
CO2	M	S	S	M	L	S	S	S	M	M
CO3	S	S	M	L	M	S	S	S	M	M
CO4	L	M	L	S	M	S	M	M	L	L
CO5	M	S	S	M	L	S	S	S	M	M

*S-Strong; M-Medium; L-Low

Course code		COMPLEX ANALYSIS	L	T	P	C
Core/Elective/ Supportive		Core	7	0	0	4
Pre-requisite		Basic knowledge in complex analysis at Undergraduate level.	Syllabus Version		20-21	

Course Objectives:

The main objectives of this course are to:

1. Define and recognize the basic properties of the complex numbers
2. Enable the students to the differentiability of complex functions and the results related on the study.
3. Study Cauchy's integral formula, local properties of analytic functions, general form of Cauchy's theorem and evaluation of definite integral.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Remembering the concept of Analytic function and as a mapping on the plane and understand Mobius Transformation.	K1
2	Understand Cauchy's Integral Formula on open sets on the plane and know about poles , residues and singularities.	K2
3	Apply the Cauchy's integral formula in residue theorems and in evaluation of definite integrals.	K3 & K4
4	Analyze and represent the sum function of a power series as an Analytic Function.	K5
5	Study and Understand periodic function, Weierstrass $\wp$ function and its applications.	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Introduction to the Concept of Analytic Function, Conformality, Linear Transformations	20 hours

Introduction to the concept of analytic function: Limits and continuity – Analytic functions – Polynomials – Rational functions.

Conformality: Arcs and closed curves – Analytic functions in regions – Conformal Mapping – Length and Area.

Linear Transformations: The Linear group – The Cross ratio – Elementary Riemann Surfaces.

Unit:2	Complex Integration and Cauchy's Integral Formula	20 hours

Complex Integration: Line Integrals Rectifiable Arcs – Line Integrals as Functions of Arcs – Cauchy's theorem for a rectangle - Cauchy's theorem in a disk.

Cauchy's Integral formula: The Index of a point with respect to a closed curve – The Integral formula – Higher derivatives Removable singularities, Taylor's Theorem – Zeros and Poles – The Local Mapping– The Maximum principle – chains and cycles.

Unit:3	The Calculus of Residues and Harmonic Functions	21 hours

The Calculus of Residues: The Residue theorem – The Argument principle – Evaluation of definite integrals.

Harmonic functions: The Definitions and basic Properties – Mean value property – Poisson's Formula.

Unit:4	Series and Product Developments, Partial fractions and Factorization	21 hours

Series and Product Developments: Weierstrass Theorem – The Taylor Series – The Laurent Series.
Partial fractions and Factorization: Partial Fractions – Infinite Products – Canonical Products.

Unit:5	Elliptic Functions	21 hours

Simply Periodic Functions: Representation by Exponentials-The Fourier Development - Functions of Finite Order.
Doubly Periodic Functions: The Period Module-Unimodular Transformations - The Canonical Basis-General Properties of Elliptic Functions.
Weierstrass Theory: The Weierstrass $\wp$-function.

Unit:6	Contemporary Issues	2 hours

Expert lectures, online seminars - webinars

	Total Lecture hours	105 hours

Text Book(s)

1. L. V. Ahlfors, Complex Analysis, McGraw Hill, New York, 1979.
   - UNIT I: Chapter 2 : Sections 1.1 – 1.4
   - Chapter 3 : Sections 2.1 – 2.4, 3.1, 3.2 and 3.4
   - UNIT II: Chapter 4 : Sections 1.1 – 1.5, 2.1 – 2.3, 3.1 – 3.4 and 4.1
   - UNIT III: Chapter 4 : Sections 5.1 – 5.3, 6.1 – 6.3
   - UNIT IV: Chapter 5 : Sections 1.1 – 1.3, 2.1 – 2.3
   - UNIT V: Chapter 7 : Sections 1.1 – 1.3

Reference Books

1. S. Ponnusamy and H. Silverman, A Complex Variable with applications, Birkhauser, Boston, 2006.
2. Karunakaran V, Complex Analysis, Narosa Publishing House Pvt. Ltd, Second Edition, New Delhi, 2006.
3. Roopkumar R, Complex Analysis, Dorling Kinderley Pvt. Ltd, New Delhi, 2015.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1. https://nptel.ac.in/courses/111/103/111103070/
2. https://nptel.ac.in/courses/111/106/111106084/
3. https://youtu.be/sJcpfmF5oHo

Course Designed By: Dr. V. Jeyanthi

Mapping with Programme Outcomes

COs \ POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	M	L	L	M	M	M	L	M
CO2	M	S	M	L	M	M	M	M	L	M
CO3	M	S	M	S	M	M	S	S	M	M
CO4	M	S	S	S	M	S	S	M	L	S
CO5	S	M	S	S	M	S	S	M	M	S

*S-Strong; M-Medium; L-Low

Course code		PARTIAL DIFFERENTIAL EQUATIONS	L	T	P	C
Core/Elective/ Supportive		Core	7	0	0	4
Pre-requisite		Knowledge in Undergraduate differential equations.	Syllabus Version		20-21	

Course Objectives:

The main objectives of this course are to:

1. Introduce different methods to solve partial differential equation.
2. Acquire knowledge in classification of partial differential equations and the methods to solve.
3. Enables the students to find the solution of Partial Differential Equation of practical application like in Engineering, Physics, etc.,

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand and remember the physical situations with real world problems to construct mathematical models using partial differential equations and study the methods to solve.	K1 &K 2
2	Analyze the type of partial differential equations and different methods to solve.	K4
3	Evaluate Laplace equation and analyze its applications.	K5
4	Apply variable separable method to solve Laplace and Diffusion equation	K3
5	Finding the appropriate method to solve the partial differential equations	K6

K1 - Remember; **K2** – Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Partial Differential Equations of the First Order	21 hours

Partial Differential Equations – Origins of First Order Differential Equations – Cauchy's Problem for first order equations – Linear Equations of the first order – Nonlinear partial differential equations of the first order – Cauchy's method of characteristics – Compatible system of First order Equations – Solutions satisfying Given Condition, Jacobi's method.

Unit:2	Partial Differential Equations of the Second Order	21 hours

The Origin of Second Order Equations – Linear partial Differential Equations with constant coefficients – Equations with variable coefficients – Separation of variables – The method of Integral Transforms – Non – linear equations of the second order.

Unit:3	Laplace's Equation	21 hours

Elementary solutions of Laplace equation – Families of Equipotential Surfaces – Boundary value problems – Separation of variables – Surface Boundary Value Problems – Separation of Variables – Problems with Axial Symmetry – The Theory of Green's Function for Laplace Equation.

Unit:4	The Wave Equation	21 hours

The Occurrence of the wave equation in Physics – Elementary Solutions of the One – dimensional Wave equations – Vibrating membrane, Application of the calculus of variations – Three dimensional problem – General solutions of the Wave equation.

Unit:5	The Diffusion Equation	19 hours
Elementary Solutions of the Diffusion Equation – Separation of variables – The use of Integral Transforms – The use of Green's functions.		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars - webinars		
	Total Lecture hours	**105 hours**

Text Book(s)

1	Ian Sneddon, Elements of Partial Differential Equations, McGraw Hill International Book Company, New Delhi, 1983.

Reference Books

1	M. D. Raisinghania, Advanced Differential Equations, S. Chand and Company Ltd., New Delhi, 2001.
2	K. Sankara Rao, Introduction to Partial Differential Equations, Second edition, Prentice-Hall of India, New Delhi, 2006.
3	J. N. Sharma and K. Singh, Partial Differential Equations for Engineers and Scientists, Narosa Publishing House, 2001.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://www.youtube.com/watch?v=bPPWp65qpIA
2	When do PDE NOT have solutions? https://www.youtube.com/watch?v=BmTFbUAOeec&list=PLGCj8f6sgswntUil8yzohR_qazOfYZCg_&index=49

Course Designed By: Dr. V. Jeyanthi

Mapping with Programme Outcomes

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M	M	M	L	M	M	M	S	L	M
CO2	M	M	S	M	S	S	S	S	M	L
CO3	L	S	M	S	S	S	M	S	L	L
CO4	M	S	M	S	S	S	S	S	L	L
CO5	M	S	M	S	S	S	M	S	M	M

*S-Strong; M-Medium; L-Low

Course code		MECHANICS	L	T	P	C
Core/Elective/ Supportive		Core	6	0	0	4
Pre-requisite		Basic knowledge of Statics and Dynamics at Undergraduate level.	Syllabus Version		20-21	

Course Objectives:

The main objectives of this course are to:

1. understand the concepts of generalized coordinates, virtual work, Lagrange's equations and Hamilton's Principle. To discuss the applications of the above concepts with suitable examples.
2. Proficient in derivation and application of Hamilton-Jacobi equations
3. gain knowledge about canonical transformations, Lagrange and Poisson brackets.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	understand the basic concepts of the mechanical system, generalized coordinates, work, energy and momentum.	K1
2	solve and analyze the Lagrange's equations and integrals of motion with examples.	K3
3	understand the Hamilton's Principle and other variational principles and gain ability to analyze those principles to the problems arising in practical situations	K4
4	understand and develop the Hamilton's Principal function and Hamilton Jacobi equation	K5
5	Get familiar with canonical transformations, conditions of canonicity of a transformation in terms of Lagrange and Poisson brackets.	K6

K1 - Remember; **K2** - Undestand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	**Introductory Concepts**	**18 hours**

Mechanical system – Generalized Coordinates – Constraints – Virtual Work – Energy and Momentum.

Unit:2	**Lagrange's Equations**	**18 hours**

Derivations of Lagrange's Equations: Derivations of Lagrange's Equations – Examples – Integrals of Motion.

Unit:3	**Hamilton's Equations**	**17 hours**

Hamilton's Principle – Hamilton's Equations.

Unit:4	**Hamilton – Jacobi Theory**	**18 hours**

Hamilton's Principle function – Hamilton – Jacobi Equation – Separability.

Unit:5	**Canonical Transformations**	**17 hours**

Differential forms and Generating Functions – Lagrange and Poisson Brackets.

Unit:6	**Contemporary Issues**	**2 hours**

Infinitesimal Canonical Transformation – https://www.youtube.com/watch?v=jSt1RS4QbEk

	Total Lecture hours	**90 hours**

Text Book(s)	
1	D. T. Greenwood, Classical Dynamics, Dover Publications, New York, 1997. Unit-I: Chapter 1: Sections 1.1 – 1.5 Unit-II: Chapter 2: Sections 2.1 – 2.3 Unit-III: Chapter 4: Sections 4.1 – 4.2 Unit-IV: Chapter 5: Sections 5.1 – 5.3 Unit-V: Chapter 6: Sections 6.1, 6.3
Reference Books	
1	F. Gantmacher, Lectures in Analytic Mechanics, MIR Publishers, Moscow, 1975.
2	I. M. Gelfand and S. V. Fomin, Calculus of Variations, Prentice-Hall of India, New Delhi, 1963.
3	S. L. Loney, An Elementary Treatise on Statics, Kalyani Publishers, New Delhi, 1979.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	http://math.ucr.edu/home/baez/classical/texfiles/2005/book/classical.pdf.
2	https://nptel.ac.in/courses/115/103/115103115/
4	https://www.youtube.com/watch?v=G6OX1NpToaw
Course Designed By: Prof. D. Saravanan	

Mapping with Programme Outcomes										
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	**S**	**M**	**S**	**M**	**S**	**M**	**S**	**L**	**S**	**L**
CO2	**M**	**S**	**M**	**S**	**S**	**L**	**M**	**S**	**L**	**M**
CO3	**S**	**S**	**M**	**S**	**S**	**L**	**S**	**S**	**M**	**L**
CO4	**S**	**S**	**M**	**S**	**S**	**M**	**M**	**S**	**L**	**S**
CO5	**S**	**S**	**M**	**S**	**S**	**M**	**M**	**S**	**L**	**S**

*S-Strong; M-Medium; L-Low

Third Semester

Course code		TOPOLOGY	L	T	P	C
Core/Elective/ Supportive		Core	7	0	0	4
Pre-requisite		Basic knowledge of Real Analysis at Undergraduate level.	Syllabus Version		20-21	

Course Objectives:

The main objectives of this course are to:

1. To introduce the concepts of point-set topology with emphasis on continuous functions, homeomorphism ,connectedness, compactness, countability and separation axioms.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Acquire knowledge about various types of topological spaces and their properties	K1
2	Discuss connected spaces, the components of a space	K2
3	Apply the properties and derive the proofs of theorems.	K3
4	Construct a variety of examples and counter examples in topology	K3
5	Understand the properties of the compact spaces and analyse the different types of compactness.	K4

K1 - Remember; **K2** - Undestand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	Topological Spaces and Continuous functions	21 hours

Types of Topological Spaces and Examples - Basics for a topology - The order topology -The product topology on X x Y - The subspace topology - Closed sets and limits points - Continuous functions.

Unit:2	Topological Spaces and Continuous functions (Contd) and Connectedness	21 hours

The Product Topology - The metric topology - Sequence lemma- Uniform limit theorem- Connected spaces - Connected subspaces of the real line - Components and Local connectedness.

Unit:3	Compactness	20 hours

Compact spaces - Compact subspaces of the real line -Uniform continuity theorem - Limit Point Compactness – complete metric spaces –compactness in metric spaces.

Unit:4	Countability and Separation Axioms	20 hours

First and Second countable spaces - Lindeloff and Separable spaces - Countability axioms - The separation axioms - Normal spaces - The Uryshon’s lemma.

Unit:5	Countability and Separation Axioms and Tychonoff Theorem	21 hours

The Urysohn Metrization Theorem - Tietze Extension Theorem - The Tychonoff theorem – Stone Cech compactifications.

Unit:6	Contemporary Issues	2 hours
Expert lectures, online seminars - webinars		
	Total Lecture hours	**105 hours**

Text Book(s)

1	James R. Munkres, Topology, Second Edition, Prentice-Hall of India, New Delhi, 2006.

Reference Books

1	G. F. Simmons, Introduction to Topology and Modern Analysis, Tata McGraw-Hill Edition, New Delhi, 2004.
2	Fred H. Croom, Principles of Topology, Cengage India Pvt Ltd, New Delhi, 2009.
3	Seymour Lipschutz, Schaum's Outline of Theory and Problems of General Topology, McGraw-Hill Edition, New Delhi, 2006.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://nptel.ac.in/content/storage2/courses/111106054/Topology%20complete%20course.pdf
2	https://www.youtube.com/watch?v=Oe3Qjk3t0go&lc=UghijV07WCAwpHgCoAEC
3	https://www.youtube.com/watch?v=2OMPmrHEO2M

Course Designed By: Dr. C. Janaki

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	L	M	S	L	M	M	S	L	M	S
CO2	S	M	M	L	L	S	S	M	S	M
CO3	S	M	S	L	M	S	S	S	M	S
CO4	S	S	S	M	L	S	S	S	M	S
CO5	S	M	S	M	M	S	S	S	M	S

*S-Strong; M-Medium; L-Low

Course code		FLUID DYNAMICS	L	T	P	C
Core/Elective/ Supportive		Core	7	0	0	4
Pre-requisite		Knowledge in Kinematics and Differential equations at Undergraduate level.	Syllabus Version		20-21	

Course Objectives:

The main objectives of this course are to:

1. able to know the fundamental concepts of fluids and its properties.
2. develop the problems solving skill in fluid dynamics.
3. know the real-life applications of fluid dynamics.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Recall the basic concepts of velocity, density and curvilinear co-ordinates.	K1
2	Understand the concepts and equations of fluid dynamics	K2
3	Analyze and understand the concepts of the force experienced by a two-dimensional fixed body in a steady irrotational flow.	K2& K4
4	Analyze the approximate solutions of the Navier – Stokes equation.	K4& K5
5	Analyze and apply the appropriate method to solve integral equation of boundary layer, Blasius equation and its series solution.	K3& K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Bernoulli's Equation and Equations of Motion	20 hours

Introductory Notions – Velocity – Stream Lines and Path Lines – Stream Tubes and Filaments – Fluid Body – Density – Pressure. Differentiation with respect to the time – Equation of continuity – Boundary conditions – Kinematical and physical – Rate of change of linear momentum – Equation of motion of an inviscid fluid.

Unit:2	Equations of Motion (Contd)	20 hours

Euler's momentum Theorem – Conservative forces – Bernoulli's theorem in steady motion – energy equation for inviscid fluid – circulation – Kelvin's theorem – vortex motion – Helmholtz equation.

Unit:3	Two-Dimensional Motion	21 hours

Two Dimensional Motion – Two Dimensional Functions – Complex Potential – basic singularities – source – sink – Vortex – doublet – Circle theorem. Flow past a circular cylinder with circulation – Blasius Theorem – Lift force. (Magnus effect)

Unit:4	Dynamics of Real Fluids	21 hours

Viscous flows – Navier-Stokes equations – Vorticity and circulation in a viscous fluid – Steady flow through an arbitrary cylinder under pressure – Steady Couette flow between cylinders in relative motion – Steady flow between parallel planes.

Unit:5	The Laminar Boundary Layer in Incompressible Flow	21 hours

Boundary Layer concept – Boundary Layer equations – Displacement thickness, Momentum thickness – Kinetic energy thickness – integral equation of boundary layer – flow parallel to semi

infinite flat plate – Blasius equation and its solution in series.		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars - webinars		
	Total Lecture hours	**105 hours**

Text Book(s)

1	**Units I and II:** L. M. Milne Thomson, Theoretical Hydro Dynamics, Macmillan Company, 5th Edition (1968). Chapter I : Sections 1.0 – 1.3., 3.10-3.41 (omit 3.32) Chapter III : Sections 3.42 – 3.53 (omit 3.44)
2	**Units III, IV and V:** Modern Fluid Dynamics Volume I, N. Curle and H. J. Davies, D. Van Nostrand Company Limited., London, 1968. Chapter III : Sections 3.1 – 3.7.5 (omit 3.3.4, 3.4, 3.5.2,3.6) Chapter V : Sections 5.2.1– 5.3.3 Chapter VI : Sections 6.1 – 6.3.1 (omit 6.2.2., 6.2.5)

Reference Books

1	F. Chorlton, Textbook of Fluid Dynamics, CBS Publishers, New Delhi, 2004.
2	A. J. Chorin and A. Marsden, A Mathematical Introduction to Fluid Dynamics, Springer-Verlag, New York, 1993.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://nptel.ac.in/courses/112/106/112106200/
2	https://nptel.ac.in/courses/112/105/112105171/

Course Designed By: Dr. V. Jeyanthi

Mapping with Programme Outcomes

COs \ POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M	S	M	M	M	L	L	M	M	S
CO2	M	S	M	M	S	M	S	M	M	S
CO3	L	M	M	M	S	M	S	S	M	S
CO4	M	M	S	S	M	M	S	S	M	S
CO5	L	M	S	M	M	M	S	S	M	S

*S-Strong; M-Medium; L-Low

Course code		MATHEMATICAL STATISTICS	L	T	P	C
Core/Elective/ Supportive		Core	6	0	0	4
Pre-requisite		Basic Knowledge in Statistics and Probability theory.	Syllabus Version		20-21	

Course Objectives:

The main objectives of this course are to:

1. Enables to learn different aspects of statistics.
2. Acquire knowledge about moments and properties of theoretical distributions.
3. Study unbiasedness and consistency of limiting distributions.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Remembering the understanding the basic concepts such as statistics, probability and random variables.	K1 & K2
2	Applying the concepts and methods to find the moments of the distributions.	K3
3	Study multivariate distributions and the independence of random variables. Further evaluating the marginal distributions from bivariate distributions.	K5
4	Analyze and study the properties of some discrete as well as continuous distributions	K4
5	Understand the convergence of distributions and central limit theorem.	K2

K1 - Remember; **K2** - Undestand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Probability and Distributions	18 hours

Introduction - Set Theory - The Probability Set Function - Conditional Probability and Independence –Random Variables - Discrete Random Variables- Continuous Random Variables.

Unit:2	Probability and Distributions (continued) and Multivariate Distributions	17 hours

Probability and Distributions: Expectation of a Random Variables - Some Special Expectations - Important Inequalities.

Multivariate Distributions: Distributions of Two Random Variables - Transformations: Bivariate Random Variables - Conditional Distributions and Expectations - Independent Random Variables.

Unit:3	Some Special Distributions	18 hours

The Binomial and Related Distributions - The Poisson Distribution - The Γ, $\chi 2$, and β Distributions - The Normal Distribution.

Unit:4	Some Special Distributions (continued), Unbiasedness, Consistency and Limiting Distributions	17 hours

Some Special Distributions (continued): t and F-Distributions.

Unbiasedness, Consistency and Limiting Distributions: Expectations of Functions - Convergence in Probability - Convergence in Distribution - Central Limit Theorem.

Unit:5	Some Elementary Statistical Inferences	18 hours
Sampling and Statistics – More on Confidence Intervals - Introduction to Hypothesis Testing - Additional Comments About Statistical Tests - Chi-Square Tests – The Method of Monte Carlo.		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars - webinars		
	Total Lecture hours	**90 hours**

Text Book(s)

1	Robert V. Hogg, Allen T. Craig and Joseph W. McKean, Introduction to Mathematical Statistics, Sixth Edition, Pearson Education, 2005. Unit-I: 1.1 – 1.7 Unit-II: 1.8 – 1.10, 2.1 – 2.3, 2.5 Unit-III: 3.1 – 3.4 Unit-IV: 3.6, 4.1 – 4.4 Unit-V: 5.1, 5.4 – 5.8

Reference Books

1	Michael J. Crawley, The R Book, John Wiley & Sons, Second Edition (2013).
2	Marek Fisz, Probability Theory and Mathematical Statistics, John Wiley.
3	Vijay K. Rohatgi and A.K. Md. Ehsanes Saleh, An Introduction to Probability and Statistics, Wiley India, Second Edition (2001).
4	M. Rajagopalan and P. Dhanavanthan, Statistical Inference, PHI Learning Pvt. Ltd., New Delhi (2012).

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://nptel.ac.in/courses/111/104/111104032/#
2	https://nptel.ac.in/courses/111/105/111105090/

Course Designed By: Dr. V. Jeyanthi

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	M	M	L	L	M	S	S	S	S
CO2	M	S	M	L	S	S	M	S	S	S
CO3	S	M	S	M	M	S	S	M	L	S
CO4	M	M	S	M	M	S	M	S	M	S
CO5	M	M	L	M	S	M	S	S	S	S

*S-Strong; M-Medium; L-Low

Course code		GRAPH THEORY	L	T	P	C
Core/Elective/ Supportive		Core	6	0	0	4
Pre-requisite		Self-explanatory course	Syllabus Version	2020-2021		

Course Objectives:

The main objectives of this course are to:

1. To provide deep knowledge about fundamental concepts of Graphs and Trees.
2. To introduce Matchings, Coloring, and Chromatic Number and to see its application in higher order thinking.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the basic concepts of Graphs and Trees	K2
2	Analyze vertex and edge connectivity concepts	K4
3	Acquire knowledge in Matching and Colourings	K4
4	Apply Chromatic Number	K3
5	Determining the planar, non-planar, and directed graphs	K3

K1 - Remember; **K2** - Undestand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	Graphs, Subgraphs and Trees	18 hours

Graphs, Subgraphs: Graphs and Simple Graphs– Graph Isomorphism – The Incidence and Adjacency matrices, Subgraphs – Vertex Degrees – paths and Connection – Cycles.
Trees: Trees – Cut edges and Bonds – cut vertices – Cayley's formula.

Unit:2	Connectivity, Euler tours and Hamilton Cycles	17 hours

Connectivity: Connectivity – Blocks.
Euler tours and Hamilton Cycles: Euler tours - Hamilton Cycles.

Unit:3	Matchings and Edge Colourings	18 hours

Matchings: Matchings coverings in Bipartite Graphs – Perfect Matchings.
Edge colourings: Edge chromatic number – Vizing's theorem.

Unit:4	Independent sets, Cliques and Vertex Colourings	18 hours

Independent sets, Cliques: Independent sets – Ramsey's theorem.
Vertex Colourings: Chromatic Number – Brook's Theorem – Hajo's Conjecture – Chromatic Polynomials – Girth and Chromatic number.

Unit:5	Planar Graphs and Directed Graphs	17 hours

Planar Graphs: Plane and planar Graphs – Dual Graphs – Euler's formula – Brides – Kuratowski's theorem (Proof omitted) – The Five Colour Theorem and the Four Colour Conjecture.
Directed Graphs: Directed Graphs.
Simple problems in the exercise of all units can also be included.

Unit:6	Contemporary Issues	2 hours
Interval graphs, chordal graphs – https://www.youtube.com/watch?v=Tg2_YO4CCNc		
	Total Lecture hours	90 hours

Text Book(s)

1. J. A. Bondy and U. S. R. Murty, Graph Theory with Applications, American Elsevier Company Inc., New York, 1976.
   - Unit-I: Sections: 1.1 – 1.7, 2.1 – 2.4
   - Unit-II: Sections: 3.1 – 3.2, 4.1 – 4.2
   - Unit-III: Sections: 5.1 – 5.3, 6.1 – 6.2
   - Unit-IV: Sections: 7.1 – 7.2, 8.1 – 8.5
   - Unit-V: Sections: 9.1 – 9.6, 10.1

Reference Books

1. Frank Harary, Graph Theory, Addison-Wesley, Reading, 1969.
2. M.Murugan, Graph Theory and Algorithms, Second Edition, Muthali Publishing House, Chennai, 2018.
3. K. R. Parthasarathy, Basic Graph Theory, Tata McGraw Hill, New Delhi, 1994.
4. Douglas B. West, Introduction to Graph Theory, Prentice Hall of India, 2001.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1. https://nptel.ac.in/courses/111/106/111106050/
2. https://nptel.ac.in/courses/106/108/106108054/

Course Designed By: Dr. R. Buvaneswari

Mapping with Programme Outcomes

COs \ POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	L	M	M	L	M	M	M	S	M	S
CO2	M	S	S	M	M	L	L	S	M	S
CO3	S	S	S	M	L	L	L	M	L	M
CO4	L	M	S	S	M	L	M	S	M	M
CO5	M	L	S	M	M	M	M	S	M	S

*S-Strong; M-Medium; L-Low

Fourth Semester

Course code		FUNCTIONAL ANALYSIS	L	T	P	C
Core/Elective/ Supportive		Core	7	0	0	4
Pre-requisite		Know the basic concepts of Real Analysis and Linear Algebra at Undergraduate level	Syllabus Version		20-21	

Course Objectives:

The main objectives of this course are to:

1. To get an overview of normed spaces and familiarize on Banach space, Hilbert space , conjugate space ,bounded linear operators and spectral theory.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Familiarize with the concepts of normed linear spaces and operators on normed linear space	K1
2	Demonstrate an understanding of the concepts of Hilbert spaces and Banach spaces, and their role in mathematics	K2
3	Apply the theorems.	K3
4	Obtain Orthogonal complements, Orthonormal sets and conjugate space.	K4
5	Understand the concepts of linear operators, self adjoint, unitary operators , isometric isomorphism on Hilbert spaces ,Determinants ,the spectrum of an operator, Banach algebra .	K2

K1 - Remember; **K2** - Undestand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Banach Spaces	21 hours

Banach spaces – The definition and some examples – Continuous linear transformations – The Hahn-Banach theorem –Dual spaces- The natural imbedding of N in N** - The open mapping theorem - Closed Graph theorem.

Unit:2	Hilbert spaces	21 hours

The conjugate of an operator – Uniform boundedness Principal - Hilbert spaces – The definition and some simple properties – Orthogonal complements and complements - Orthonormal sets and sequences – Maximal Orthonormal sets.

Unit:3	Hilbert spaces (Contd)	21 hours

The Conjugate space H* - Representation of functional on Hilbert spaces -The adjoint of an operator – Self-adjoint operators – Normal and unitary operators – Projections.

Unit:4	Finite-Dimensional Spectral Theory	20 hours

Matrices – Determinants and the spectrum of bounded operator – The spectral theorem.

Unit:5	General Preliminaries on Banach Algebras	20 hours

The definition and some examples of Banach algebra – Regular and singular elements – Topological divisors of zero – The spectrum – The formula for the spectral radius.

Unit:6	Contemporary Issues	2 hours
Commutative Banach Algebras – https://www.youtube.com/watch?v=SW-GuE0waxM		
	Total Lecture hours	**105 hours**

Text Book(s)

1	G. F. Simmons, Introduction to Topology and Modern Analysis, McGraw-Hill Book Company, London, 1963. Unit I: Sections: 46 – 50. Unit II: Sections: 51 – 54. Unit III: Sections: 55 – 59. Unit IV: Sections: 60 – 63. Unit V: Sections: 64 – 68.

Reference Books

1	C. Goffman and G. Pedrick, A First Course in Functional Analysis, Prentice Hall of India, New Deli, 1987.
2	G. Bachman and L. Narici, Functional Analysis, Academic Press, New York, 1966.
3	L. A. Lusternik and V.J. Sobolev, Elements of Functional Analysis, Hindustan Publishing Corporation, New Delhi, 1971.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://nptel.ac.in/courses/111/105/111105037/
2	https://ocw.mit.edu/courses/mathematics/18-102-introduction-to-functional-analysis-spring-2009/lecture-notes/

Course Designed By: Dr. C. Janaki

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	S	M	M	M	S	L	M	S
CO2	S	S	M	M	L	S	S	M	S	M
CO3	M	M	L	S	S	S	S	S	M	S
CO4	S	M	S	L	L	S	S	S	M	S
CO5	S	S	S	L	M	S	S	M	S	M

*S-Strong; M-Medium; L-Low

Course code		MATHEMATICAL METHODS	L	T	P	C
Core/Elective/ Supportive		Core	7	0	0	4
Pre-requisite		Basic Knowledge in Calculus and Differential equations.	Syllabus Version		20-21	

Course Objectives:

The main objectives of this course are to:

1. Give an introduction to mathematical methods for solving application-oriented problems
2. Able to know the concepts line Integral Transforms, Integral Equations and calculus of variations.
3. Develop the alternatives to solve the real-life problems.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand and Apply various transforms and Integral equations to solve problems in all respects.	K2 & K3
2	Recognize and solve the special cases of Volterra Integral equations by the method of resolvent kernel, method of successive approximations and by using transforms.	K1& K5
3	Understand the relations between the Hankel, Fourier transform and their applications in evaluating the equations.	K2& K5
4	Understand the formulation of variational problems, the variation of functional and its properties.	K2
5	Demonstrate and apply the methods in all application problems in day-today life.	K5& K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Integral Equations	21 hours

Types of Integral equations – Integral Fredholm Alternative - Approximate method – Equation with separable Kernel - Volterra integral equations – Fredholm's theory.

Unit:2	Application of Integral Equations to Ordinary Integral Equations and Singular Integral Equations	21 hours

Initial value problems Boundary value problems – singular integral equations – Abel Integral equation.

Unit:3	Fourier Transforms	20 hours

Fourier Transforms, Fourier sine and cosine transforms – Fourier transforms of derivatives - convolution integral – Parseval's Theorem - Solution of Laplace Equations by Fourier transform.

Unit:4	Hankel Transforms	20 hours

Properties of Hankel Transforms – Hankel transformation of derivatives of functions - The Parseval's relation – relation between Fourier and Hankel transforms - Axisymmetric Dirichlet problem for a half space - Axisymmetric Dirichlet problem for a thick plate.

Unit:5	Calculus of Variations	21 hours
Variation and its properties – Euler's(Euler Lagrange's) equation – functionals dependent on the functions of several independent variables – variational problems in parametric form –applications.		
Unit:6	**Contemporary Issues**	**2 hours**
Z-transform and inverse Z-transform – http://www.digimat.in/nptel/courses/video/111107098/ L39.html		
	Total Lecture hours	**105 hours**

Text Book(s)

1	**Units I and II:** Ram P. Kanwal, Linear Integral Equations Theory and Technique, Academic Press, New York, 1971. Unit I: Chapter 2: 46 – 50. Unit II: Chapter 3: 51 – 54.
2	**Units III and IV:** I. N. Sneddon, The Use of Integral Transforms, McGraw-Hill, New York, 1972. Unit III: Chapter 2: 2.3 – 2.5, Chapter 3: 3.3 – 3.4. Unit IV: Chapter 5: 5.1 – 5.2, Chapter 8: 8.1 – 8.2.
3	**Unit V:** L. Elsgolts, Differential Equations and Calculus of Variations, Mir Publishers, Moscow, 1970. Unit V: Chapter 6: 6.1 – 6.3, 6.4 – 6.7.

Reference Books

1	Calculus of Variations, A.S. Gupta, Prentice Hall of India, New Delhi, 2005.
2	Integral Equations and Boundary value problems, M.D. Raisinghania, S. Chand and Company, 2007.
3	M.L. Krasnov, Problems and Exercises in Integral Equations, Mir Publication Moscow 1971.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://nptel.ac.in/courses/111/107/111107103/
2	https://nptel.ac.in/courses/111/107/111107098/(Lec 51 to 55)
3	https://youtu.be/tfRZqIflEfQ

Course Designed By: Dr. V. Jeyanthi

Mapping with Programme Outcomes

COs / Pos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M	M	L	M	M	M	M	S	L	S
CO2	M	M	L	M	M	L	S	M	M	M
CO3	L	M	M	M	L	L	S	M	M	M
CO4	L	M	M	L	M	L	M	S	M	S
CO5	M	M	M	S	M	M	S	S	L	S

*S-Strong; M-Medium; L-Low

Course code		OPTIMIZATION TECHNIQUES	L	T	P	C
Core/Elective/ Supportive		Core	6	0	0	4
Pre-requisite		Basic knowledge in Operation Research at Undergraduate level.	Syllabus Version		20-21	

Course Objectives:

The main objectives of this course are to:

1. To make the students understand solving LPP using various methods.
2. To understand the application of queuing theory in real life situation and methods of solving related problems.
3. To understand the concept of Kuhn tucker method.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Explain various techniques to solve real life problems expressed in terms of LPP.	K2
2	Solving LPP through Dynamic Programming	K3
3	Apply the fundamental concept of Inventory control.	K3
4	Understanding the queuing theory	K2
5	Solving NLPP using Kuhn–Tucker Method	K3

K1 - Remember; **K2** - Undestand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Integer Programming	18 hours

Introduction – Integer Programming Formulations – Gomory's construction–Fractional cut method(all integer)–The Cutting – Plane Algorithm – Branch–and–Bound Technique – Zero–One Implicit Enumeration Algorithm.

Unit:2	Dynamic Programming	18 hours

Introduction – Application of Dynamic Programming: Capital Budgeting Problem – Reliability Improvement Problem – Stage–coach Problem – Cargo Leading Problem – Minimizing Total Tardiness in Single Machine Scheduling Problem – Optimal Subdividing Problem – Solution of Linear Programming Problem through Dynamic Programming.

Unit:3	Inventory	17 hours

Introduction–Inventory Decisions–Cost Associated– with Inventories – Factors Affecting inventory – Economic Order Quantity–Deterministic Inventory Problems with No Shortages–Deterministic inventory Models with shortages–EOQ with Price Breaks–Multi Item Deterministic problems–Inventory Problems with Uncertain Demand.

Unit:4	Queuing Theory	17 hours

Introduction – Queuing System–Elements of Queuing System – Operating Characteristics of Queuing System – Classification of Queuing Models– Model–I (M/M/1):(∞/FIFO), Model–II (M/M/1) : (N/FIFO), Model–III (M/M/C):(∞/FIFO), Model–IV (M/M/C):(N/FIFO). Problems in above four models.

Unit:5	Nonlinear Programming	18 hours
Introduction – Lagrangian Method –Jacobi Method– Kuhn–Tucker Method – Quadratic Programming – Separable Programming – Chance–Constrained Programming or Stochastic Programming.		
Unit:6	**Contemporary Issues**	**2 hours**
Goal Programming – https://freevideolectures.com/course/2678/advanced-operations-research/9		
	Total Lecture hours	**90 hours**

Text Book(s)

1	Hamdy A. Taha, Operations Research, Sixth edition, Prentice–Hall of India private Limited, New Delhi,1997.

Reference Books

1	Kanti Swarup, P. K. Gupta, Man Mohan, Operations Research, Sultan Chand & Sons, Educational Publishers, New Delhi.
2	Prem Kumar Gupta, D. S. Hira Operations Research, Seventh Edition, S. Chand & Company Pvt. Ltd, 2014.
3	F. S. Hillier and J. Lieberman, Introduction to Operation Research, Seventh Edition, Tata–McGraw-Hill Publishing Company, New Delhi, 2001.
4	R. Panneerselvam, Operations Research, Second Edition, PHI Learning Private Limited, Delhi, 2015.
5	I. Griva, S. G. Nash and A. Sofer, Linear and Nonlinear Optimization, SIAM Publication, 2018.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://www.youtube.com/watch?v=WmeUT0jQdwc
2	https://www.youtube.com/watch?v=FTEMe5oUrds&list=PLLy_2iUCG87Bq8RGMTdeFZiB-87V4i9p1&index=28
3	https://www.youtube.com/watch?v=2aPlzhsEsIw
4	https://www.youtube.com/watch?v=PavZX3hAL6I

Course Designed By: Dr. N. Mala

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M	L	S	M	M	S	S	S	S	S
CO2	S	M	S	S	S	S	M	S	L	S
CO3	S	M	S	S	S	S	M	S	L	S
CO4	M	L	S	M	M	S	S	S	S	S
CO5	S	M	S	S	S	S	M	S	L	S

*S-Strong; M-Medium; L-Low

Course code		COMPUTER PROGRAMMING (C++ THEORY)	L	T	P	C
Core/Elective/ Supportive		Core	4	0	0	4
Pre-requisite		Basic knowledge in C++ Programming such as Tokens, Expressions, Control Structure, Classes and Objects.	Syllabus Version		20-21	

Course Objectives:

The main objectives of this course are to:

1. To give the students an awareness of the object oriented programming.
2. To enable the students to write the C++ programs using classes, functions and interfaces.
3. To make applications using C++ programs.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand and apply the C++ structure, tokens, expressions, control structures	K2, K3
2	Ability to declare various prototyping, friend and virtual functions	K3
3	Create Classes, objects, arrays of objects, constructors, and Destructors	K3, K4
4	Analyze over loading operators and inheritance	K4
5	Deliberate files, pointers and templates. Create, design and develop quality programs in C++	K4, K5

K1 - Remember; **K2** - Undestand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	Tokens, Expressions and Control Structure	12 hours

Basic Concept of Object-Oriented Programming- Basic Concept of OOPS-Benefits of OOP – Applications of OOP. **Tokens, Expressions and Control Structure:** Introduction – Tokens – Keywords – Identifiers and Constants – Basic Data Types – User Defined Data Types – Derived Data Types – Declaration of Variables – Dynamic Initialization of Variables – Reference Variables – Operators - Scope Resolution Operator- Control Structures.

Unit:2	Functions in C++	12 hours

Functions in C++: Introduction – The Main Function – Function Prototyping – Call by Reference– Return by Reference – Inline Functions – Default Arguments – const Arguments – Recursion – Function Over Loading – Friend and Virtual Functions – Math Library Functions.

Unit:3	Classes and Objects & Constructors and Destructors	12 hours

Classes and Objects: Introduction – C Structures Revisited – Specifying a Class –Defining Member Functions – A C++ Program with Class – Making An Outside Function Inline –Nesting Of Member Functions – Private Member Functions – Arrays Within A Class –Arrays of Objects – Objects as Function Arguments – Friend Functions.

Constructors and Destructors: Introduction – Constructors – Parameterized Constructors – Multiple Constructors in a Class – Constructors with Default Arguments – Dynamic Initializations of Objects – Copy Constructor – Destructors.

Unit:4	Operator Overloading, Inheritance and Extending Classes	11 hours
Operator Overloading: Introduction – Defining Operator Overloading – Overloading Unary Operators – Overloading Binary Operators – Overloading Binary Operators Using Friends – Manipulating of Strings Using Operators – Rules for Overloading Operators. **Inheritance - Extending Classes:** Introduction – Defining Derived Classes – Single Inheritance – Making a Private Member Inheritable – Multilevel Inheritance – Multiple Inheritance – Hierarchical Inheritance – Hybrid Inheritance – Virtual Base Classes – Abstract Classes.		
Unit:5	**Streams and Working with files**	**11 hours**
Streams: Introduction – C++ Streams – C++ Stream Classes. **Working with files:** Classes for File Stream Operations - Opening and Closing a File – File Modes – File Pointers and their Manipulations – Sequential Input and Output Operations –Random Access.		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars - webinars		
	Total Lecture hours	**60 hours**

Text Book(s)

1	E. Balaguruswamy, Object–Oriented Programming with C++, Sixth Edition, Tata McGraw-Hill Publishing Company Limited. Unit I : 1.4 – 1.6, 3.1 – 3.14 and 3.24 Unit II : 4.1 – 4.11 Unit III : 5.1 – 5.9, 5.13 – 5.15, 6.1 – 6.7 and 6.11 Unit IV : 7.1 – 7.7 and 8.1 – 8.10 Unit V : 10.1 – 10.3 and 11.1 – 11.8

Reference Books

1	Programming with C++ by D. Ravichandran, -Tata McGraw Hill publishing company limited, New Delhi.
2	Object Oriented Programming with C++ by S.S.Vinod Chandra, New age.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://nptel.ac.in/courses/106/105/106105151/
2	https://youtu.be/1rJZb_Ugc4E

Course Designed By: Prof. D.Saravanan.

Mapping with Programme Outcomes

COs / Pos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	M	S	M	M	S	L	M	S	S
CO2	M	S	S	M	S	S	L	M	S	S
CO3	M	M	L	S	M	M	L	S	S	M
CO4	M	S	S	L	M	S	M	S	S	M
CO5	M	M	L	L	S	S	M	S	S	M

*S-Strong; M-Medium; L-Low

Course code		COMPUTER PROGRAMMING (C++ PRACTICAL)	L	T	P	C
Core/Elective/ Supportive		Core	0	0	2	4
Pre-requisite		basic knowledge in programming	Syllabus Version		20-21	

Course Objectives:

The main objectives of this course are to:

1. To enable the students to solve problems in C++ using different numerical methods.
2. To make the mathematical calculations simpler.

1. friend FUNCTION usage: Create two classes to store the value of distances in meters-centimetres and feet-inches. Write a program that can create the values of the class objects and add one object with another. Use a friend function to carry out addition operation. The result may be stored in any object depending on the units in which results are required. The display should be in the order of meters & centimetre and feet & inches depending on the order of display.

2. OVERLOADING OBJECTS: Create a class that contains one float data member. Overload all the four arithmetic operators so that operate on the objects of the class.

3. OVERLOADING CONVERSIONS: Design a class **Polar** which describes a point in a plane using polar co-ordinates **radius** and **angle**. Use the overloaded + operator to add two objects of **Polar**. Note that we cannot add polar values of two points directly. This requires first the conversion of points into rectangular co-ordinates and finally converting the result into polar co-ordinates. You need to use following trigonometric formulae: *= r * cos (a);* *= r * sin (a);*= ; = ∗ + ∗ .

4. OVERLOADING VECTOR: Define a class for Vector containing scalar values. Apply overloading concepts for Vector Addition, Multiplication of a Vector by a scalar quantity, replace the values in a Position Vector.

5. OVRELOADING MATRIX:
Create a class **MAT** of size m * n. Define all possible matrix operations for **MAT** type objects. Verify the identity: $(A-B)^2 = A^2+B^2 - 2AB$.

6. INHERITANCE: Create three classes: **alpha, beta** and **gamma**, each containing one data member. The class **gamma** should be inherited from both **alpha** and **beta**. Use a constructor function in the class **gamma** to assign values to the data members of all the classes. Write a program to print the value of data members of all the three classes.

7. FILE HANDLING: Write a program to create a disk file containing the list of names and telephone numbers in two columns, using a class object to store each set of data. Design an interactive menu to access the file created and to implement the following tasks:
(a) Determine the telephone number of the specified person.
(b) Determine the name if a telephone number is known.
(c) Update the telephone number, whenever there is a change.

Elective Courses

Course code		Elective 1: NUMBER THEORY	L	T	P	C
Core/Elective/ Supportive		Elective	4	0	0	4
Pre-requisite		Basic knowledge in Number system, divisibility and some related functions.	Syllabus Version		20-21	

Course Objectives:

The main objectives of this course are to:

1. To give Introduction to Elementary Number Theory.
2. To show how certain number theorems can be applied within Cryptography.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Find quotients and remainders and greatest common divisors applying Euclidean Algorithm	K3
2	Understand the definitions of congruence, residue classes and least residues	K2
3	Analyze the concept of Prime Power Moduli and Quadratic Residues	K4
4	Determine multiplicative inverses, modulo n and use to solve linear congruence.	K3
5	Acquire knowledge on Linear Diaphantine equation	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	Divisibility	11 hours

Divisibility and Euclidean algorithm.

Unit:2	Congruences	12 hours

Congruences, Euler's theorem, Wilson's Theorem. Solutions of congruences, Congruences of Degree 1. Chinese Remainder Theorem, The functions $\phi(n)$, Congruences of higher degree.

Unit:3	Congruences (contd), Quadratic Reciprocity	11 hours

Prime power moduli, Prime modulus. Quadratic residues - Quadratic reciprocity.

Unit:4	Jacobi Symbol and Some Functions of Number Theory	12 hours

The Jacobi symbol – Greatest integer function - Arithmetic functions – The Moebius Inversion formula.

Unit:5	Arithmetic Functions and Diophantine Equations	12 hours

Multiplication of arithmetic functions, Linear Diophantine equations – The equation $x^2 + y^2 = z^2$ - The equation $x^4 + y^4 = z^2$.

Unit:6	Contemporary Issues	2 hours

Sum of Four Squares – https://www.youtube.com/watch?reload=9&v=ZBJLWHpNpI8

	Total Lecture hours	60 hours

Text Book(s)	
1	Ivan Niven and Herbert Zuckerman, An Introduction to the Theory of Numbers, John Wiley and Sons Inc., 1972. Unit-I: Chapter I: Sections: 1.1 – 1.3 Unit-II: Chapter II: Section: 2.1 – 2.5 Unit-III: Chapter II: Section: 2.6 – 2.7, Chapter III: Section: 3.1 – 3.2 Unit-IV: Chapter III: Section: 3.3, Chapter IV: Section: 4.1 – 4.3 Unit-V: Chapter IV: Section: 4.4, Chapter V: Section: 5.1 – 5.6
Reference Books	
1	T. M. Apostol, Introduction to Analytic Number Theory, Springer Verlag, 1976.
2	Kenneth H. Rosen, Elementary Number Theory and its Applications, Addison Wesley Publishing Company, 1968.
3	George E. Andrews, Number Theory, Hindustan Publishing, New Delhi, 1989.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https:// freevideolectures.com/course/3027/cryptography-and-network-security
2	https://www.youtube.com/watch?v=SCvtxjpVQms&t=3321s (NPTEL)
3	https://www.youtube.com/watch?v=Oyw5OmOd9B8&list=PLLtQL9wSL16iRzTi2aKPiHO1f1UjTTkJD (Mathpod)
Course Designed By: Dr. R. Buvaneswari	

Mapping with Programme Outcomes

~~COs~~ ~~Pos~~	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	M	M	L	M	M	M	M	M	S
CO2	M	S	L	M	M	S	M	M	S	S
CO3	L	M	S	M	S	S	M	M	S	S
CO4	L	M	M	L	L	M	M	S	S	S
CO5	S	M	M	L	M	S	M	S	S	S

*S-Strong; M-Medium; L-Low

Course code		ELECTIVE 2: DIFFERENTIAL GEOMETRY	L	T	P	C
Core/Elective/ Supportive		Elective	4	0	0	4
Pre-requisite		Basic knowledge of differential calculus and geometry	Syllabus Version		20-21	

The main objectives of this course are to:

1. Gain knowledge about curves and its characterizations.
2. Get sufficient knowledge on Elementary Theory of surfaces.
3. Make the students to familiarize with space curves and curves on surfaces.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Define and understand basic definitions of the theory of curves.	K1
2	Interpret the notions of surface of revolution and direction coefficients.	K2
3	Analyze the elements of Analytic representation.	K4
4	Acquire knowledge on first fundamental form and second fundamental form.	K4
5	Explain Meusnier's theorem and Euler's Theorem on elementay theory of surface.	K3

K1 - Remember; **K2** - Undestand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	**Curves**	**11 hours**

Analytic representation - Arc Length – Osculation plane.

Unit:2	**Curves (Continued)**	**12 hours**

Curvature torsion – Formulas of Frenet - Contact – Natural equations – Helices – General solutions of Natural equations.

Unit:3	**Curves (Continued) and Elementary Theory of Surface**	**12 hours**

Evolutes and Involutes - Elementary theory of surface: Analytic representation.

Unit:4	**Elementary Theory of Surface (Continued)**	**12 hours**

First fundamental form – Normal, Tangent plane – Developable surfaces - Second fundamental form.

Unit:5	**Elementary Theory of Surface (Continued)**	**11 hours**

Meusnier's theorem – Euler's Theorem – Dupin's indicatrix – Some surfaces.

Unit:6	**Contemporary Issues**	**2 hours**

Quadratic Surfaces – https://youtu.be/E1L672Q5gd8

	Total Lecture hours	**60 hours**

Text Book(s)

1	Dirk J. Struik, Lectures on Classical Differential Geometry, Addison Wesley Publishing Company, 1961.

Reference Books	
1	Differential Geometry by T.J. Willmore, Oxford University Press (Seventeenth Impression - 2002).
2	Differential Geometry by A First Course by D. Somasundaram, Narosa Publishing House, Reprint 2008.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://nptel.ac.in/noc/courses/noc16/SEM2/noc16-ma07/
2	https://www.youtube.com/watch?v=tKnBj7B2PSg
3	http://pages.uoregon.edu/koch/math433/Final.pdf
Course Designed By : Prof. M. Indhumathi	

Mapping with Programme Outcomes

COs / POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	M	M	S	S	L	S	S	L	M
CO2	M	S	M	M	M	M	M	L	M	S
CO3	S	M	S	M	L	M	S	M	S	L
CO4	M	S	L	S	S	L	M	S	M	S
CO5	M	S	M	S	M	M	S	M	S	M

*S-Strong; M-Medium; L-Low

Course code		ELECTIVE 3: NEURAL NETWORKS	L	T	P	C
Core/Elective/ Supportive			4	0	0	4
Pre-requisite		Self-explanatory	Syllabus Version		20-21	

Course Objectives:

The main objectives of this course are to:

1. To know the main fundamental principles and techniques of neural network systems and investigate the principal neural network models and applications.
2. Acquire in-depth knowledge in Non-linear dynamics
3. Apply neural network to classification and generalization problems.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand and analyze different neutron network models	K2 &K4
2	Understand the basic ideas behind most common learning algorithms for multilayer perceptions, radial-basis function networks.	K2
3	Describe Hebb rule and analyze back propagation algorithm with examples.	K4
4	Study convergence and generalization and implement common learning algorithm,	K6
5	Study directional derivatives and necessary conditions for optimality and to evaluate quadratic functions.	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Neuron Model and Network Architectures	12 hours

Mathematical Neuron Model- Network Architectures- Perceptron-Hamming Network- Hopfield Network-Learning Rules.

Unit:2	Perceptron Architectures	12 hours

Perceptron Architectures and Learning Rule with Proof of Convergence. Supervised Hebbian Learning -Linear Associator.

Unit:3	Supervised Hebbian Learning	12 hours

The Hebb Rule-Pseudo inverse Rule-Variations of Hebbian Learning-Back Propagation - Multilayer Perceptrons.

Unit:4	Back Propagation	11 hours

Back propagation Algorithm-Convergence and Generalization - Performances Surfaces and Optimum Points-Taylor series.

Unit:5	Performance Surfaces and Performance Optimizations	11 hours

Directional Derivatives - Minima-Necessary Conditions for Optimality-Quadratic Functions-Performance Optimizations-Steepest Descent-Newton's Method-Conjugate Gradient.

Unit:6	Contemporary Issues	2 hours
Widrow-Hoff Rule – https://www.youtube.com/watch?v=niF7XUvfEu4		
	Total Lecture hours	60 hours

Text Book(s)

1	Martin T. Hagan, Howard B. Demuth and Mark Beale, Neural Network Design, Vikas Publishing House, New Delhi,2002.

Reference Books

1	James A. Freeman, David M. Skapura, Neural Networks Algorithms, Applications and Programming Techniques, Pearson Education, 2003.
2	Robert J. Schalkoff, Artificial Neural Network, McGraw-Hill International Edition, 1997.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://nptel.ac.in/courses/117/105/117105084/
2	https://nptel.ac.in/courses/106/106/106106184/

Course Designed By: Dr. V. Jeyanthi

Mapping with Programme Outcomes

COs / POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	L	M	M	M	L	M	S	S	M
CO2	S	M	M	L	L	L	L	M	M	M
CO3	L	M	M	S	L	L	L	M	M	M
CO4	M	M	L	L	M	L	L	L	M	S
CO5	M	M	M	L	L	L	L	S	M	M

*S-Strong; M-Medium; L-Low

Course code		ELECTIVE 4: MAGNETOHYDRODYNAMICS	L	T	P	C
Core/Elective/ Supportive		Elective	4	0	0	4
Pre-requisite		Knowledge of fluid dynamics	Syllabus Version		20-21	

Course Objectives:

The main objectives of this course are to:

1. Understand the concepts of electromagnetism, electrostatic energy and magnetostatic energy.
2. Gain knowledge about boundary conditions of electric and magnetic fields.
3. Develop flexibility and creativity of the students in applying mathematical ideas and techniques to unfamiliar problems arising in everyday life.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the basic concepts of Electromagnetism, Fundamental Laws and fluid motion in magnetic field.	K2
2	Solve and analyze the Naiver-Stokes equations and velocity Magneto fluid dynamic equations with examples.	K3
3	Understand the MHD approximation and gain ability to analyze Magnetic Reynolds number.	K4
4	Gain knowledge about the Magneto hydrostatics and Alfven waves in incompressible MHD.	K5
5	Understand and develop the Hartmann Flow in the presence of magnetic field.	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	Title of the Unit (Capitalize each Word)	12 hours

Electromagnetism – Fundamental Laws – Electrostatic Energy – Electrodynamics Ampere's Law – Lorentz force on a moving charge – Magnetostatic Energy – Faraday's Law of Induction – Poynting stresses.

Unit:2	Title of the Unit (Capitalize each Word)	12 hours

Electromagnetic Equations with respect to moving axes – boundary conditions of electric and magnetic fields. Kinematics of fluid motion – equation of continuity – Stress tensor – Navier-stokes equations – boundary condition – Velocity Magneto fluid dynamic equations.

Unit:3	Title of the Unit (Capitalize each Word)	10 hours

MHD approximation – equation of Magnetic diffusion in a moving conducting medium – Magnetic Reynolds number.

Unit:4	Title of the Unit (Capitalize each Word)	12 hours

Alfven's theorem Law of isorotation - Magneto hydrostatics – Force-free field – Alfven waves in incompressible MHD.

Unit:5	Title of the Unit (Capitalize each Word)	12 hours

Incompressible viscous flows in the presence of magnetic field – Hartmann Flow – unsteady Hartmann flow – Magneto fluid dynamic pipe flow.

Unit:6	Contemporary Issues	2 hours
Helmholtz's Theorem for Electric Field – https://youtu.be/LOGy8hBTQEQ		
	Total Lecture hours	60 hours

Text Book(s)	
1	Crammer K.R. and Pai S.I, Magneto Fluid Dynamics for Engineers and Applied Physicists, McGraw Hill, 1973.
2	Ferraro, VCA and Plumpton, Introduction to Magneto Fluid Dynamics, Oxford, 1966.

Reference Books	
1	P. A. Davidson, An Introduction to Magnetohydrodynamics, Cambridge University press, 2001.
2	R. V. Polovin, V. P. Demutskii, Fundamentals of Magnetohydrodynamics, Springer US, 1990.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://www.youtube.com/watch?v=mE3uY_yKsCo
2	https://www.youtube.com/watch?v=rFJ1UZSFZno
3	https://www.youtube.com/watch?v=A9pUXEI128U

Course Designed By: Prof. M. Indhumathi.

Mapping with Programme Outcomes

COs / POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	M	M	S	L	M	S	L	M	M
CO2	M	S	M	M	M	S	M	S	S	M
CO3	S	M	M	M	S	L	M	M	M	M
CO4	M	M	S	S	L	S	S	M	S	M
CO5	S	M	M	S	M	M	M	S	M	S

*S-Strong; M-Medium; L-Low

Course code		ELECTIVE 5: FUZZY LOGIC AND FUZZY SETS	L	T	P	C
Core/Elective/ Supportive		Elective	4	0	0	4
Pre-requisite		Self-explanatory	Syllabus Version		20-21	

Course Objectives:

The main objectives of this course are to:

1. identify fuzzy sets and perform set operations on fuzzy sets.
2. apply fuzzy logic in various real-life situations such as decision making and inventory control.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Gain knowledge about the basic types of fuzzy sets and the difference between crisp sets and fuzzy sets and the concept of operations on fuzzy sets	K1, K2
2	Analyze and apply the knowledge of fuzzy relations.	K3,K4
3	Develop the basic concepts of fuzzy measures.	K6
4	Explore the concept of uncertainity. .	K6
5	Understand the types of uncertainity measures and principles	K3

K1 - Remember; **K2** - Undestand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Crisp Sets and Fuzzy Sets	12 hours

Introduction-Crisp sets: An over view-The Notion of Fuzzy Sets-basic concepts of Fuzzy Sets – Classical Logic: complement-Fuzzy Union-Fuzzy intersection – Combination of operations – General aggregation of operations.

Unit:2	Fuzzy Relations	12 hours

Crisp and Fuzzy relations – Binary relations – Binary relations on a single set – Equivalence and similarity relations – Compatibility on Tolerance Relations-Orderings – Morphism – Fuzzy relations Equations.

Unit:3	Fuzzy Measures	11 hours

General discussion – Belief and plausibility Measures –Probability measures – Possibility and Necessity measures.

Unit:4	Fuzzy Measures, Uncertainty	11 hours

Relationship among classes of fuzzy measures - Types of Uncertainty – Measures of Fuzziness-Classical Measures of Uncertainty.

Unit:5	Uncertainty and Information	12 hours

Measures of Dissonance-Measures of Confusion – Measures of Non-Specificity – Uncertainty and Information – Information and Complexity – Principles of Uncertainty and information.

Unit:6	Contemporary Issues	2 hours

Expert lectures, online seminars - webinars

	Total Lecture hours	**60 hours**
Text Book(s)		
1	George J. Klir and Tina A. Folger, Fuzzy Sets, Uncertainty and Information, Fourth printing, Prentice Hall of India Private Limited, 1995. Unit-I: 1.1 – 1.5, 2.2 - 2.6 Unit-II: 3.1 – 3.8 Unit-III: 4.1 – 4.4 Unit-IV: 4.5, 5.1 – 5.3 Unit-V: 5.4 – 5.9.	
Reference Books		
1	George J. Klir and Bo Yuan, Fuzzy Sets and Fuzzy Logic - Theory and Applications, Prentice-Hall of India Private Limited	
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]		
1	https://giocher.wordpress.com/chapter-2-par-2-2-fuzzy-relations-and-the-extension-principle/	
2	https://nptel.ac.in/courses/108/104/108104157/	
Course Designed By: Prof. D. Saravanan		

Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	**L**	**M**	**S**	**L**	**M**	**L**	**S**	**M**	**S**	**S**
CO2	**M**	**S**	**M**	**S**	**S**	**S**	**S**	**S**	**S**	**S**
CO3	**S**	**S**	**L**	**M**	**S**	**S**	**L**	**M**	**L**	**S**
CO4	**S**	**S**	**L**	**M**	**S**	**S**	**L**	**M**	**L**	**S**
CO5	**M**	**S**	**M**	**S**	**S**	**S**	**S**	**S**	**M**	**S**

*S-Strong; M-Medium; L-Low

Course code		ELECTIVE 6: CONTROL THEORY	L	T	P	C
Core/Elective/ Supportive		Elective	4	0	0	4
Pre-requisite		Basic knowledge in differential equations at Undergraduate level.	Syllabus Version		20-21	

Course Objectives:

The main objectives of this course are to:

1. Understand the concepts of Observability, Controllability and Stability.
2. Gain knowledge about linear time varying systems.
3. Develop the ability of solving linear feedback control.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Explain observability and estimate the observability of constant coefficient system, linear, nonlinear system, and discuss reconstruction kernel.	K2
2	Apply controllability criteria to constant coefficient system, linear, nonlinear system, and explain steering function.	K3
3	Analyze the stability of linear system, linear time varying system, perturbed linear system and nonlinear system.	K4
4	Evaluate stabilizabilization via linear feedback control, Bass method.	K5
5	Analyze controllable subspace, and stabilization with restricted feedback.	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	**Observability**	**12 hours**

Linear Systems – Observability Grammian – Constant coefficient systems – Reconstruction kernel – Nonlinear Systems.

Unit:2	**Controllability**	**12 hours**

Linear systems – Controllability Grammian – Adjoint systems – Constant coefficient systems – steering function – Nonlinear systems.

Unit:3	**Stability**	**10 hours**

Stability – Uniform Stability – Asymptotic Stability of Linear Systems.

Unit:4	**Perturbed Linear Systems**	**12 hours**

Linear time varying systems – Perturbed linear systems – Nonlinear systems.

Unit:5	**Stabilizability**	**12 hours**

Stabilization via linear feedback control – Bass method – Controllable subspace – Stabilization with restricted feedback.

Unit:6	**Contemporary Issues**	**2 hours**

Expert lectures, online seminars - webinars

	Total Lecture hours	**60 hours**

Text Book(s)	
1	K. Balachandran and J. P. Dauer, Elements of Control Theory, Narosa, New Delhi, 1999.
Reference Books	
1	R. Conti, Linear Differential Equations and Control, Academic Press, London, 1976.
2	R. F. Curtain and A. J. Pritchard, Functional Analysis and Modern Applied Mathematics, Academic Press, New York, 1977.
3	J. Klamka, Controllability of Dynamical Systems, Kluwer Academic Publisher, Dordrecht, 1991.
4	D. L. Russell, Mathematics of Finite Dimensional Control Systems, Marcel Dekker, New York, 1979.
5	E. B. Lee and L. Markus, Foundations of optimal Control Theory, John Wiley, New York, 1967.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://www.youtube.com/watch?v=39Ggoj2fQ2c
2	https://nptel.ac.in/courses/115/108/115108104/
3	https://nptel.ac.in/courses/107/106/107106081/
Course Designed By: Prof. M. Indhumathi	

Mapping with Programme Outcomes										
COs ~~POs~~	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	**S**	**M**	**M**	**L**	**S**	**S**	**M**	**L**	**M**	**M**
CO2	**M**	**M**	**S**	**M**	**M**	**M**	**M**	**M**	**M**	**S**
CO3	**S**	**S**	**M**	**M**	**M**	**M**	**S**	**S**	**S**	**S**
CO4	**M**	**M**	**S**	**S**	**S**	**S**	**L**	**M**	**S**	**M**
CO5	**S**	**S**	**M**	**S**	**M**	**M**	**L**	**M**	**M**	**M**

*S-Strong; M-Medium; L-Low

Course code		ELECTIVE 7: CRYPTOGRAPHY	L	T	P	C
Core/Elective/ Supportive		Elective	4	0	0	4
Pre-requisite		Basic knowledge in Modular arithmetic and finite field.	Syllabus Version		20-21	

Course Objectives:

The main objectives of this course are to:

1. Provide the deeper understanding in cryptography and its application to network security.
2. Able to know the applications of number theory in cryptography.
3. Know the methods of public key cryptography and its usefulness.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the basic concepts and objective of cryptography and recall the concept of modular arithmetic.	K1 & K2
2	Understand mathematical foundations required for various cryptographic algorithms.	K2
3	Apply the concept and properties of modular arithmetic in various algorithms to find the solution.	K3 & K5
4	Describe and Analyze existing authentication protocols for two party communications.	K4
5	Evaluate security mechanisms in the theory of networks and apply the appropriate algorithms.	K3 & K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Title of the Unit (Capitalize each Word)	12 hours

Introduction – Encryption and Secrecy – The objective of Cryptography - Number Theory – Introduction – Modular Arithmetic.

Unit:2	Title of the Unit (Capitalize each Word)	12 hours

Integer factorization problem – Pollard's rho factoring – Elliptic curve factoring – Discrete logarithm problem.

Unit:3	Title of the Unit (Capitalize each Word)	12 hours

Finite fields – Basic properties – Arithmetic of polynomials –Factoring polynomials over finite fields – Square free factorization.

Unit:4	Title of the Unit (Capitalize each Word)	10 hours

Symmetric key encryption – Stream ciphers – Block Ciphers – DES.

Unit:5	Title of the Unit (Capitalize each Word)	12 hours

Public key cryptography – Concepts of public key cryptography – Modular arithmetic – RSA – Discrete logarithm – Elliptic curve cryptography.

Unit:6	Contemporary Issues	2 hours
Expert lectures, online seminars - webinars		
	Total Lecture hours	**60 hours**

Text Book(s)

1	Hans Delfs, Helmut Knebl, Introduction to Cryptography, Springer Verlag, 2002.
2	Alfred J. Menezes, Paul C. Van Oorschot, Scott A. Vanstone, Handbook of Applied Cryptography, CRC Press, 2000.
3	William Stallings, Cryptography and Network Security, Prentice Hall of India, 2000.

Reference Books

1	Cryptography and Information Security, Pachghare V.K., PHI Learning Pvt. Ltd., New Delhi, 2009
2	Cryptography and Network Security, Behrouz A. Forouzan and Debdeep Mukhopathyey, 2013, second edition, Mc Graw Hill Education Pvt. Ltd., New Delhi.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://nptel.ac.in/courses/106/105/106105162/
2	https://nptel.ac.in/courses/106/105/106105031/

Course Designed By: Dr. V. Jeyanthi

Mapping with Programme Outcomes

COs / POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M	L	M	M	L	M	M	L	M	S
CO2	L	S	L	L	M	M	M	M	M	M
CO3	M	L	M	L	L	M	L	L	L	M
CO4	M	M	M	L	M	L	L	S	M	S
CO5	L	M	L	M	L	M	L	M	M	S

*S-Strong; M-Medium; L-Low

Course code		ELECTIVE 8: MATLAB	L	T	P	C
Core/Elective/ Supportive		Elective	4	0	0	4
Pre-requisite		Self-explanatory	Syllabus Version		20-21	

Course Objectives:

The main objectives of this course are to:

1. Understand the Matlab Desktop, Command window and the Graph Window.
2. Be able to carry out numerical computations and analyses.
3. Understand the mathematical concepts upon which numerical methods rely.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the basic concepts of starting windows and solve the MATLAB applications.	K2
2	Create arrays and solve them in MATLAB.	K6
3	Solve problems using M files and apply the same for advanced data objects in MATLAB.	K4
4	Understand the importance of MATLAB in differential equations and assess it for plotting graphs using layouts.	K6
5	Diagnose various applications of MATLAB in curve fitting, statistics and integration.	K5

K1 - Remember; **K2** - Undestand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Starting with Matlab and Creating Arrays	12 hours

Starting with Matlab: Starting MATLAB, MATLAB Windows - Working in the Command Window - Arithmetic Operations with Scalars - Display Formats - Elementary Math Built-In Functions - Defining Scalar Variables - Useful Commands for Managing Variables - Script Files - Examples of MATLAB Applications.

Creating Arrays: Creating a One-Dimensional Array (Vector) - Creating a Two-Dimensional Array (Matrix) - Notes about Variables n MATLAB - The Transpose Operator - Array Addressing - Using a Colon: In Addressing Arrays - Adding Elements to Existing Variables - Deleting Elements - Built-In Functions for Handling Arrays - Strings and Strings as Variables.

Unit:2	Mathematical Operations with Arrays, Using Script Files and Managing Data	12 hours

Mathematical Operations with Arrays: Addition and Subtraction - Array Multiplication - Array Division - Element-By-Element Operations - Using Arrays in MATLAB Built-in Math Functions - Built-in Functions for Analyzing Arrays - Generation of Random Numbers - Examples of MATLAB Applications.

Using Script Files and Managing Data: The MATLAB Workspace and the Workspace Window - Input to A Script File - Output Commands - The Save And Load Commands - Importing And Exporting Data - Examples of MATLAB Applications.

Unit:3	Two-Dimensional Plots and Three-Dimensional Plots	12 hours

Two-Dimensional Plots: The plot Command - The fplot Command - Plotting Multiple Graphs in the Same Plot - Formatting a Plot - Plots with Logarithmic Axes - Plots with Error Bars - Plots With Special Graphics - Histograms - Polar Plots - Putting Multiple Plots on the Same Page -

Multiple Figure Windows - Examples of MATLAB Applications.
Three-Dimensional Plots: Line Plots - Mesh and Surface Plots - Plots with Special Graphics - The View Command - Examples of Matlab Applications.

Unit:4	**Programming In Matlab, User-Defined Functions and Function Files**	**12 hours**

Programming In Matlab: Relational and Logical Operators - Conditional Statements - The Switch-Case Statement - Loops - Nested Loops and Nested Conditional Statements - The Break and Continue Commands - Examples of MATLAB Applications.
User-Defined Functions and Function Files: Creating A Function File - Structure of a Function File - Local And Global Variables - Saving A Function File - Using A User-Defined Function - Examples of Simple User-Defined Functions - Comparison Between Script Files and Function Files - Anonymous And Inline Functions - Function Functions - Subfunctions - Nested Functions - Examples Of MATLAB Applications.

Unit:5	**Polynomials, Curve Fitting, Interpolation and Applications in Numerical Analysis**	**10 hours**

Polynomials, Curve Fitting, and Interpolation: Polynomials - Curve Fitting - Interpolation - The Basic Fitting Interface - Examples of MATLAB Applications.
Applications in Numerical Analysis: Solving an Equation with One Variable - Finding a Minimum or a Maximum of a Function - Numerical Integration - Ordinary Differential Equations - Examples of MATLAB Applications.

Unit:6	**Contemporary Issues**	**2 hours**

Expert lectures, online seminars - webinars

	Total Lecture hours	**60 hours**

Text Book(s)

1	Amos Gilat, MATLAB An Introduction with Applications, John Wiley & Sons, Inc., 2011.

Reference Books

1	Rudra Pratap, Getting Started with MATLAB– A Quick Introduction for Scientists and Engineers, Oxford University Press.
2	William John Palm, Introduction to MATLAB 7 for Engineers, McGraw-Hill Professional, 2005.
3	Dolores M. Etter and David C. Kuncicky, Introduction to MATLAB 7, Printice Hall, 2004.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://nptel.ac.in/courses/103/106/103106118/
2	http://web4.cs.ucl.ac.uk/teaching/3085/archive/2010/matlab_tutorial/matlab_booklet.pdf
3	https://www.youtube.com/watch?v=zJm8VHg4TbQ

Course Designed By: Prof. M. Indhumathi

Mapping with Programme Outcomes										
COs / POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	M	S	L	S	M	S	S	S	S
CO2	M	S	M	M	M	S	M	M	S	M
CO3	M	M	S	S	S	S	M	S	M	S
CO4	S	M	M	L	M	M	S	M	S	M
CO5	S	M	M	S	M	S	M	S	M	S

*S-Strong; M-Medium; L-Low

Course code		ELECTIVE 9: LaTex	L	T	P	C
Core/Elective/ Supportive		Elective	4	0	0	4
Pre-requisite		Self-explanatory	Syllabus Version		20-21	

Course Objectives:

The main objectives of this course are to:

1. Understand richness of Latex rather than using M.S word for documentation.
2. Proficient in documentation using mathematical symbols, graphs and tables.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand basic concepts of Text formatting and LaTex file	K2
2	Demonstrating command names and arguments, Special characters.	K3
3	Apply the commands to create document layout and displayed output	K3, K6
4	Create Table, Printing Text, Foot notes and marginal notes	K6
5	Apply LaTex commands to mathematical formulae	K3

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	Introduction	11 hours

Text formatting, TEX and its offspring, What's different in LATEX 2ε, Distinguishing LaTex 2ε, Basics of a LaTex file.

Unit:2	Commands and Environments	11 hours

Command names and arguments, Environments, Declarations, Lengths, Special Characters – Spaces and carriage returns, Quotation marks, Hyphens and dashes, Printing command characters, The date, Exercises.

Unit:3	Document Layout and Organization, Displayed Text	14 hours

Document class, Page style, Parts of the document, Table of contents – Automatic entries, Printing the table of contents, Fine-Tuning text – Line breaking, Page breaking. Displayed Text – Changing font – Emphasis, Choice of font size, Font attributes, Centering and indenting, Lists.

Unit:4	Displayed Text (Continued)	10 hours

Tables, Printing literal text, Footnotes and marginal notes.

Unit:5	Mathematical Formulae	12 hours

Mathematical environments, Main elements of math mode,
Mathematical symbols – Greek letters, function names, Additional elements, Fine–tuning mathematics – Horizontal spacing, Selecting font size in formulas.

Unit:6	Contemporary Issues	2 hours

Expert lectures, online seminars – webinars

	Total Lecture hours	**60 hours**

Text Book(s)

1 Helmut Kopka and Patrick W. Daly, A Guide to LATEX, Third Edition, Addison – Wesley, London,1999.

Unit I : Chapter 1 : Sections : 1.1-1.3, 1.4.1, 1.5.
Unit II : Chapter 2 : Sections : 2.1-2.4, 2.5.1-2.5.4, 2.5.9, 2.7.
Unit III : Chapter 3 : Sections : 3.1-3.3, 3.4.1, 3.4.2, 3.5.2, 3.5.5,
Chapter 4 : 4.1.1-4.1.3, 4.2, 4.3
Unit IV : Chapter 4 : Sections : 4.8-4.10.
Unit V : Chapter 5: Sections : 5.1, 5.2, 5.31, 5.3.8, 5.4, 5.4.1 – 5.4.8, 5.5.1, 5.5.2.

Reference Books

1 Velusamy Kavitha and Mani Mallikarjunan, Fundamentals of Latex for Mathematicians, Physicists and Engineers, LAP LAMBERT Academy Publishing, Germany, 2013.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1 https://www.youtube.com/watch?v=Q4FozDTRE_4
2 https://www.youtube.com/watch?v=DvDO1mea1w0

Course Designed By: Dr. R Buvaneswari

Mapping with Programme Outcomes

COs / POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	M	L	M	M	M	L	L	M	M
CO2	M	L	L	M	M	M	L	L	M	M
CO3	L	M	L	M	M	S	L	S	S	M
CO4	M	L	L	M	M	M	L	L	M	M
CO5	L	M	M	M	M	S	L	S	S	M

*S-Strong; M-Medium; L-Low

Course code		10 - ELEMENTS OF STOCHASTIC PROCESSES	L	T	P	C
Core/Elective/ Supportive		Elective	4	0	0	4
Pre-requisite		Basic concepts of Statistics and Operation Research at Undergraduate level	Syllabus Version		20-21	

Course Objectives:

The main objectives of this course are to:

1. Acquire knowledge about the concept of Markov Chain and Queueing System.
2. Understand the methods of Birth and Death queues with Finite and Infinite Capacity.
3. Develop the ability of Standard Brownian Motion.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Acquire adequate knowledge about Continuous Time Markov Chain and Queueing Systems.	K1
2	Gain understanding on the Renewal Process, Cumulative Process and Semi-Markov Process.	K3
3	Apply different methods and solve Birth and Death queues.	K3
4	Examine the computations of M/G/1 and G/M/1 Queues and Network of Queues.	K4
5	Conclude the idea of Brownian Motion and First Passage Times.	K5

K1 - Remember; **K2** - Undestand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	**Continuous-Time Markov Models**	**12 hours**

Continuous Time Markov Chain, Examples, Transient Analysis, Occupancy Times, Limiting Behavior.

Unit:2	**Generalized Markov Models**	**12 hours**

Renewal Process, Cumulative Process, Semi-Markov Process, Examples and Long term Analysis.

Unit:3	**Queueing Models**	**12 hours**

Queueing Systems, Single-Station Queues, Birth and Death queues with Finite and Infinite Capacity.

Unit:4	**Queueing Models (Contd)**	**10 hours**

M/G/1 and G/M/1 Queues and Network of Queues.

Unit:5	**Brownian Motion**	**12 hours**

Standard Brownian Motion, Brownian Motion and First Passage Times.

Unit:6	**Contemporary Issues**	**2 hours**

Black Scholes – https://www.youtube.com/watch?v=Xy_txjKPNyg

	Total Lecture hours	**60 hours**

Text Book(s)	
1	V. G. Kulkarni, Introduction to Modelling and Analysis of Stochastic Systems, Second Edition, Springer, 2011.
Reference Books	
1	J. Medhi, Stochastic Processes, New Age, 2009.
2	S. M. Ross, Stochastic Processes, Wiley Series in Probability and Statistics, 1996.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://nptel.ac.in/courses/111/102/111102014/#
2	https://nptel.ac.in/courses/111/102/111102014/#
3	https://digitalcommons.usu.edu/cgi/viewcontent.cgi?article=2145&context=gradreports
Course Designed By: Prof. M. Indhumathi	

Mapping with Programme Outcomes

COs / POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M	S	M	S	M	S	S	L	S	S
CO2	S	M	L	M	L	M	L	M	S	M
CO3	S	S	M	M	M	M	S	L	M	M
CO4	M	M	S	S	S	S	M	M	S	S
CO5	M	M	M	S	M	M	S	M	S	S

*S-Strong; M-Medium; L-Low

Annexure

M. Sc. Mathematics

Syllabus

(With effect from 2020-2021 onwards)

Program Code :

DEPARTMENT OF MATHEMATICS
Bharathiar University
(A State University, Accredited with "A" Grade by NAAC and
13th Rank among Indian Universities by MHRD-NIRF)
Coimbatore 641 046, INDIA

BHARATHIAR UNIVERSITY : : COIMBATORE 641046

DEPARTMENT OF MATHEMATICS

MISSION

1. To create opportunities which will ensure academic excellence in critical thinking, humanistic and scientific inquiry.

2. To organize, connect, create and communicate mathematical ideas effectively, through Dedication, Discipline and Determination.

@ For Project report – 120 marks, Viva-voce – 30 marks.

The number of students for conducting Project Viva-voce is 10 per session. If the number of the remaining students exceeds 5 then the Viva-voce for them can be conducted in the next session.

LIST OF ELECTIVES	
1	Number Theory
2	Differential Geometry
3	Neural Networks
4	Magnetohydrodynamics
5	Fuzzy Logic and Fuzzy Sets
6	Control Theory
7	Cryptography
8	Matlab
9	LaTex
10	Elements of Stochastic Process
11	Data Analytics using R
12	Python for Data Analytics

*** New Course Added / Course Syllabus Modified**

Matlab, LaTex	Theory Practical			20 10	55 15	100	

M. Sc. COMPUTER SCIENCE

Syllabus

AFFILIATED COLLEGES

Program Code: 32K

2020 – 2021 onwards

BHARATHIAR UNIVERSITY

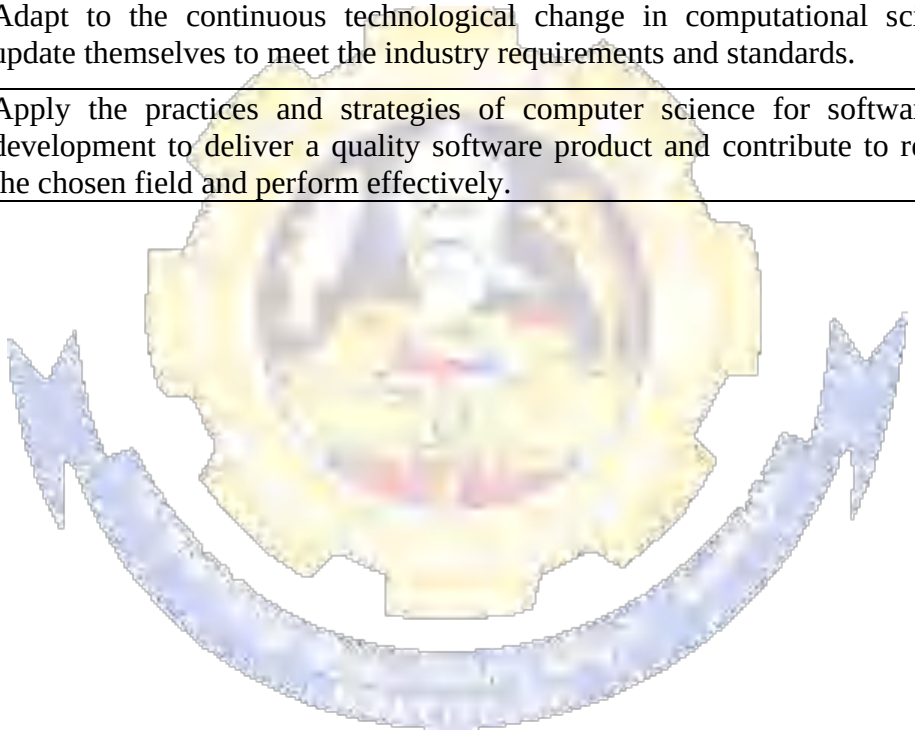
(A State University, Accredited with "A" Grade by NAAC,
Ranked 13th among Indian Universities by MHRD-NIRF,
World Ranking : Times - 801-1000, Shanghai - 901-1000, URAP - 982)

Coimbatore - 641 046, Tamil Nadu, India

Program Educational Objectives (PEOs)	
The **M.Sc. CS** program describe accomplishments that graduates are expected to attain within five to seven years after graduation	
PEO1	To enrich the students with the clear picture of the course objectives and to map their requirements.
PEO2	To enable the students, to understand the core concepts, visualize and to apply them in the real time scenarios.
PEO3	To impart the need for consistent learning, importance of research & development for the welfare of the society and to the nation at large.



Program Specific Outcomes (PSOs)	
After the successful completion of **M.Sc. CS** program, the students are expected to	
PSO1	Able to analyze, design and develop problem solving skills in the discipline of computer science.
PSO2	Acquire evaluation of potential benefits of alternative solution in designing software and/or hardware systems in broad range of open source programming languages to withstand technological changes.
PSO3	Able to pursue careers in IT industry/ consultancy/ research and development, teaching and allied areas related to computer science.
PSO4	Adapt to the continuous technological change in computational science and update themselves to meet the industry requirements and standards.
PSO5	Apply the practices and strategies of computer science for software project development to deliver a quality software product and contribute to research in the chosen field and perform effectively.



Program Outcomes (POs)	
On successful completion of the **M.Sc. CS** program	
PO1	Develop creativity and problem solving skills with the knowledge of computing and mathematics.
PO2	Ability to develop and carry out experiments, interpret and infer data.
PO3	Design algorithms and develop software to aid solutions to industry and governments.
PO4	Review the latest technology and tool handling mechanism.
PO5	Analyze the outcome to solve global environment related issues.
PO6	Apply the knowledge in lifelong learning journey to equip themselves.
PO7	Identify the perspective of business practices, risks and limitations.
PO8	Work with professional and ethical values.
PO9	Formulate the responsibilities of human rights and entrepreneurial spirit.
PO10	Understand the methods to communicate effectively and work collectively.

BHARATHIAR UNIVERSITY : : COIMBATORE 641 046

M. Sc. Computer Science (*Affiliated Colleges*)

(Effective For the candidates admitted during the academic year -2020 – 2021 & onwards)

REVISED SCHEME OF EXAMINATIONS – CBCS PATTERN

Course Code	Title of the Course	Credits	Hours		Maximum Marks		
			Theory	Practical	CIA	ESE	Total
FIRST SEMESTER							
	Paper I : Analysis & Design of Algorithms	4	5		25	75	100
	Paper II : Object Oriented Analysis and Design & C++	4	5		25	75	100
	Paper III : Python Programming	4	5		25	75	100
	Paper IV : Advanced Software Engineering	4	5		25	75	100
	Practical I : Algorithm and OOPS Lab	4		5	40	60	100
	Practical II : Python Programming Lab	4		5	40	60	100
	Total	24	20	10			
SECOND SEMESTER							
	Paper V : Data Mining and Warehousing	4	4		25	75	100
	Paper VI Advanced Operating Systems	4	4		25	75	100
	Paper VII Advanced Java Programming	4	4		25	75	100
	Paper VIII : Artificial Intelligence & Machine Learning	4	4		25	75	100
	Elective – I	4	4		25	75	100
	Practical III: Data Mining Lab using R	4		5	40	60	100
	Practical IV: Advanced Java Programming Lab	4		5	40	60	100
	Total	28	20	10			
THIRD SEMESTER							
	Paper IX : Digital Image Processing	4	4		25	75	100
	Paper X: Cloud Computing	4	4		25	75	100
	Paper XI: Network Security and Cryptography	4	4		25	75	100
	Paper XII : Data Science	4	4		25	75	100

	& Analytics						
	Elective – II	4	4		25	75	100
	Practical V: Digital Image Processing Lab using MATLAB	4		4	40	60	100
	Practical VI : Cloud Computing Lab	4		4	40	60	100
	Practical VII : Web Application development &hosting	2		2	20	30	50
	Total	30	20	10			
FOURTH SEMESTER							
	Project work and Viva-voce (200 marks)	8					200*
	Total	8					200
	Grand Total	90					2250
ONLINE COURSES							
1.	**#SWAYAM / MOOC**	2					
2.	**#Job oriented Certificate course**	2					

***** Project Report – 160 marks & Viva Voce – 40 marks

During II or III Semester (Optional)


First
Semester

Course code		ANALYSIS & DESIGN OF ALGORITHMS	L	T	P	C
Core/Elective/Supportive		Core	4			4
Pre-requisite		Basic Data Structures & Algorithms	Syllabus Version		2020-21 Onwards	

Course Objectives:

The main objectives of this course are to:

1. Enable the students to learn the Elementary Data Structures and algorithms.
2. Presents an introduction to the algorithms, their analysis and design
3. Discuss various methods like Basic Traversal And SearchTechniques, divide and conquer method, Dynamic programming, backtracking
4. Understood the various design and analysis of the algorithms.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Get knowledge about algorithms and determines their time complexity. Demonstrate specific search and sort algorithms using divide and conquer technique.	K1,K2
2	Gain good understanding of Greedy method and its algorithm.	K2,K3
3	Able to describe about graphs using dynamic programming technique.	K3,K4
4	Demonstrate the concept of backtracking & branch and bound technique.	K5,K6
5	Explore the traversal and searching technique and apply it for trees and graphs.	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	INTRODUCTION	15 hours

Introduction: - Algorithm Definition and Specification – Space complexity-Time Complexity-Asymptotic Notations - Elementary Data Structure: Stacks and Queues – Binary Tree - Binary Search Tree - Heap – Heapsort- Graph.

Unit:2	TRAVERSAL AND SEARCH TECHNIQUES	15 hours

Basic Traversal And Search Techniques: Techniques for Binary Trees-Techniques for Graphs - Divide and Conquer: - General Method – Binary Search – Merge Sort – Quick Sort.

Unit:3	GREEDY METHOD	15 hours

The Greedy Method: - General Method – Knapsack Problem – Minimum Cost Spanning Tree – Single Source Shortest Path.

Unit:4	DYNAMIC PROGRAMMING	15 hours

Dynamic Programming - General Method – Multistage Graphs – All Pair Shortest Path – Optimal Binary Search Trees – 0/1 Knapsacks – Traveling Salesman Problem – Flow Shop Scheduling.

Unit:5	BACKTRACKING	13 hours
Backtracking: - General Method – 8-Queens Problem – Sum Of Subsets – Graph Coloring – Hamiltonian Cycles – Branch And Bound: - The Method – Traveling Salesperson.		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**75 hours**

Text Books	
1	Ellis Horowitz,"Computer Algorithms", Galgotia Publications.
2	Alfred V.Aho,John E.Hopcroft,Jeffrey D.Ullman, "Data Structures and Algorithms".
Reference Books	
1	Goodrich, "Data Structures & Algorithms in Java", Wiley 3rd edition.
2	Skiena,"The Algorithm Design Manual",SecondEdition,Springer , 2008
3	AnanyLevith,"Introduction to the Design and Analysis of algorithm", Pearson Education Asia, 2003.
4	Robert Sedgewick,Phillipe Flajolet,"An Introduction to the Analysis of Algorithms", Addison-Wesley Publishing Company,1996.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://nptel.ac.in/courses/106/106/106106131/
2	https://www.tutorialspoint.com/design_and_analysis_of_algorithms/index.htm
3	https://www.javatpoint.com/daa-tutorial
Course Designed By:	

Mapping with Programming Outcomes										
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	M	S	M	S	L	M	L	S	M
CO2	S	S	S	S	S	M	S	M	S	M
CO3	S	S	S	S	S	M	S	M	S	M
CO4	S	S	S	S	S	M	S	M	S	M
CO5	S	S	S	S	S	M	S	M	S	M

*S-Strong; M-Medium; L-Low

Course code		OBJECT ORIENTED ANALYSIS AND DESIGN & C++	L	T	P	C
Core/Elective/Supportive		Core	4			4
Pre-requisite		Basics of C++ and Object Oriented Concepts	Syllabus Version		2020-21 Onwards	

Course Objectives:

The main objectives of this course are to:

1. Present the object model, classes and objects, object orientation, machine view and model management view.
2. Enables the students to learn the basic functions, principles and concepts of object oriented analysis and design.
3. Enable the students to understand C++ language with respect to OOAD

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the concept of Object-Oriented development and modeling techniques	K1,K2
2	Gain knowledge about the various steps performed during object design	K2,K3
3	Abstract object-based views for generic software systems	K3
4	Link OOAD with C++ language	K4,K5
5	Apply the basic concept of OOPs and familiarize to write C++ program	K5,K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	OBJECT MODEL	15 hours

The Object Model: The Evolution of the Object Model – Elements of the Object Model – Applying the Object Model. Classes and Objects: The Nature of an Object – Relationship among Objects**.**

Unit:2	CLASSES AND OBJECTS	15 hours

Classes and Object: Nature of Class – Relationship Among classes – The Interplay of classes and Objects. Classification: The importance of Proper Classification –identifying classes and objects –Key Abstractions and Mechanism.

Unit:3	C++ INTRODUCTION	15 hours

Introduction to C++ - Input and output statements in C++ - Declarations -control structures – Functions in C++.

Unit:4	INHERITANCE AND OVERLOADING	13 hours

Classes and Objects –Constructors and Destructors –operators overloading –Type Conversion-Inheritance – Pointers and Arrays.

Unit:5	**POLYMORPHISM AND FILES**	**15 hours**
Memory Management Operators- Polymorphism – Virtual functions – Files – Exception Handling – String Handling -Templates.		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**75 hours**

Text Books

1	"Object Oriented Analysis and Design with Applications", Grady Booch, Second Edition, Pearson Education.
2	"Object -Oriented Programming with ANSI & Turbo C++", Ashok N.Kamthane, First Indian Print -2003, Pearson Education.

Reference Books

1	Balagurusamy "Object Oriented Programming with C++", TMH, Second Edition, 2003.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://onlinecourses.nptel.ac.in/noc19_cs48/preview
2	https://nptel.ac.in/noc/courses/noc16/SEM2/noc16-cs19/
3	https://www.tutorialspoint.com/object_oriented_analysis_design/ooad_object_oriented_analysis.htm

Course Designed By:

Mapping with Programming Outcomes

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	S	M	S	M	S	M	S	S
CO2	S	S	S	M	S	M	S	M	S	S
CO3	S	S	S	M	S	M	S	M	S	S
CO4	S	S	S	M	S	M	S	M	S	S
CO5	S	S	S	M	S	M	S	M	S	S

*S-Strong; M-Medium; L-Low

Course code		PYTHON PROGRAMMING	L	T	P	C
Core/Elective/Supportive		Core	4			4
Pre-requisite		Basics of any OO Programming Language	Syllabus Version		2020-21 Onwards	

Course Objectives:

The main objectives of this course are to:

1. Presents an introduction to Python, creation of web applications, network applications and working in the clouds
2. Use functions for structuring Python programs
3. Understand different Data Structures of Python
4. Represent compound data using Python lists, tuples and dictionaries

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the basic concepts of Python Programming	K1,K2
2	Understand File operations, Classes and Objects	K2,K3
3	Acquire Object Oriented Skills in Python	K3,K4
4	Develop web applications using Python	K5
5	Develop Client Server Networking applications	K5,K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	INTRODUCTION	15 hours

Python: Introduction – Numbers – Strings – Variables – Lists – Tuples – Dictionaries – Sets– Comparison.

Unit:2	CODE STRUCTURES	15 hours

Code Structures: if, elseif, and else – Repeat with while – Iterate with for – Comprehensions – Functions – Generators – Decorators – Namespaces and Scope – Handle Errors with try and except – User Exceptions.

Unit:3	MODULES, PACKAGES AND CLASSES	15 hours

Modules, Packages, and Programs: Standalone Programs – Command-Line Arguments – Modules and the import Statement – The Python Standard Library. **Objects and Classes:** Define a Class with class – Inheritance – Override a Method – Add a Method – Get Help from Parent with super – In self Defense – Get and Set Attribute Values with Properties – Name Mangling for Privacy – Method Types – Duck Typing – Special Methods –Composition.

Unit:4	DATA TYPES AND WEB	13 hours

Data Types: Text Strings – Binary Data. **Storing and Retrieving Data:** File Input/Output – Structured Text Files – Structured Binary Files - Relational Databases – NoSQL Data Stores.

Web: Web Clients – Web Servers – Web Services and Automation

Unit:5	SYSTEMS AND NETWORKS	15 hours

Systems: Files –Directories – Programs and Processes – Calendars and Clocks.

Concurrency: Queues – Processes – Threads – Green Threads and gevent – twisted – Redis.

Networks: Patterns – The Publish-Subscribe Model – TCP/IP – Sockets – ZeroMQ –Internet Services – Web Services and APIs – Remote Processing – Big Fat Data and MapReduce – Working in the Clouds.

Unit:6	Contemporary Issues	2 hours

Expert lectures, online seminars – webinars

	Total Lecture hours	75 hours

Text Books

1	Bill Lubanovic, “Introducing Python”, O’Reilly, First Edition-Second Release, 2014.
2	Mark Lutz, “Learning Python”, O’Reilly, Fifth Edition, 2013.

Reference Books

1	David M. Beazley,“Python Essential Reference”, Developer’s Library, Fourth Edition,2009.
2	SheetalTaneja,Naveen Kumar, “Python Programming-A Modular Approach”,PearsonPublications.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://www.programiz.com/python-programming/
2	https://www.tutorialspoint.com/python/index.htm
3	https://onlinecourses.swayam2.ac.in/aic20_sp33/preview

Course Designed By:

Mapping with Programming Outcomes

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	M	S	S	S	M	M	S	M
CO2	S	S	S	S	S	S	S	M	S	M
CO3	S	S	S	S	S	S	S	M	S	M
CO4	S	S	S	S	S	S	S	M	S	M
CO5	S	S	S	S	S	S	S	M	S	M

*S-Strong; M-Medium; L-Low

Course code		ADVANCED SOFTWARE ENGINEERING	L	T	P	C
Core/Elective/Supportive		Core	4			4
Pre-requisite		Basics of Software Engineering & SPM	Syllabus Version		2020-21 Onwards	

Course Objectives:

The main objectives of this course are to:

1. Introduce to Software Engineering, Design, Testing and Maintenance.
2. Enable the students to learn the concepts of Software Engineering.
3. Learn about Software Project Management, Software Design & Testing.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand about Software Engineering process	K1,K2
2	Understand about Software project management skills, design and quality management	K2,K3
3	Analyze on Software Requirements and Specification	K3,K4
4	Analyze on Software Testing, Maintenance and Software Re-Engineering	K4,K5
5	Design and conduct various types and levels of software quality for a software project	K5,K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	INTRODUCTION	15 hours

Introduction: The Problem Domain – Software Engineering Challenges - Software Engineering Approach – Software Processes: Software Process – Characteristics of a Software Process – Software Development Process Models – Other software processes.

Unit:2	SOFTWARE REQUIREMENTS	15 hours

Software Requirements Analysis and Specification : Requirement engineering – Type of Requirements – Feasibility Studies – Requirements Elicitation – Requirement Analysis – Requirement Documentation – Requirement Validation – Requirement Management – SRS - Formal System Specification – Axiomatic Specification – Algebraic Specification - Case study: Student Result management system. Software Quality Management – Software Quality, Software Quality Management System, ISO 9000, SEI CMM.

Unit:3	PROJECT MANAGEMENT	15 hours

Software Project Management: Responsibilities of a software project manager – Project planning – Metrics for Project size estimation – Project Estimation Techniques – Empirical Estimation Techniques – COCOMO – Halstead‟s software science – Staffing level estimation – Scheduling – Organization and Team Structures – Staffing – Risk management – Software Configuration Management – Miscellaneous Plan.

Unit:4	SOFTWARE DESIGN	15 hours

Software Design: Outcome of a Design process – Characteristics of a good software design – Cohesion and coupling - Strategy of Design – Function Oriented Design – Object Oriented Design - Detailed Design - IEEE Recommended Practice for Software Design Descriptions.		
Unit:5	**SOFTWARE TESTING**	**13 hours**
Software Testing: A Strategic approach to software testing – Terminologies – Functional testing – Structural testing – Levels of testing – Validation testing - Regression testing – Art of Debugging – Testing tools - Metrics-Reliability Estimation. Software Maintenance - Maintenance Process - Reverse Engineering – Software Re-engineering - Configuration Management Activities.		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**75 hours**

Text Books	
1	An Integrated Approach to Software Engineering – Pankaj Jalote, Narosa Publishing House, Delhi, 3rd Edition.
2	Fundamentals of Software Engineering – Rajib Mall, PHI Publication, 3rd Edition.
Reference Books	
1	Software Engineering – K.K. Aggarwal and Yogesh Singh, New Age International Publishers, 3 rd edition.
2	A Practitioners Approach- Software Engineering, - R. S. Pressman, McGraw Hill.
3	Fundamentals of Software Engineering - Carlo Ghezzi, M. Jarayeri, D. Manodrioli,PHIPublication.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://www.javatpoint.com/software-engineering-tutorial
2	https://onlinecourses.swayam2.ac.in/cec20_cs07/preview
3	https://onlinecourses.nptel.ac.in/noc19_cs69/preview
Course Designed By:	

Mapping with Programming Outcomes										
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	M	S	S	S	M	M	M	M
CO2	S	S	S	S	S	S	S	M	S	S
CO3	S	S	S	S	S	S	S	M	S	S
CO4	S	S	S	S	S	S	S	M	S	S
CO5	S	S	S	S	S	S	S	M	S	S

*S-Strong; M-Medium; L-Low

Course code		PRACTICAL I : ALGORITHM AND OOPS LAB	L	T	P	C
Core/Elective/Supportive		Core			4	4
Pre-requisite		Basic Programming of C++ language	Syllabus Version		2020-21 Onwards	

Course Objectives:

The main objectives of this course are to:

1.This course covers the basic data structures like Stack, Queue, Tree , List.
2. This course enables the students to learn the applications of the data structures using various techniques
3. It also enable the students to understand C++ language with respect to OOAD concepts
4. Application of OOPS concepts.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the concepts of object oriented with respect to C++	K1,K2
2	Able to understand and implement OOPS concepts	K3,K4
3	Implementation of data structures like Stack, Queue, Tree , List using C++	K4,K5
4	Application of the data structures for Sorting, Searching using different techniques.	K5,K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

LIST OF PROGRAMS **75 hours**

1) Write a program to solve the tower of Hanoi using recursion.
2) Write a program to traverse through binary search tree using traversals.
3) Write a program to perform various operations on stack using linked list.
4) Write a program to perform various operation in circular queue.
5) Write a program to sort an array of an elements using quick sort.
6) Write a program to solve number of elements in ascending order using heap sort.
7) Write a program to solve the knapsack problem using greedy method
8) Write a program to search for an element in a tree using divide & conquer strategy.
9) Write a program to place the 8 queens on an 8X8 matrix so that no two queens Attack.
10) Write a C++ program to perform Virtual Function
11) Write a C++ program to perform Parameterized constructor
12) Write a C++ program to perform Friend Function
13) Write a C++ program to perform Function Overloading
14) Write a C++ program to perform Single Inheritance
15) Write a C++ program to perform Employee Details using files.

Expert lectures, online seminars – webinars

Total Lecture hours	**75 hours**

Text Books	
1	Goodrich, "Data Structures & Algorithms in Java", Wiley 3rd edition.
2	Skiena,"The Algorithm Design Manual",SecondEdition,Springer , 2008
Reference Books	
1	AnanyLevith,"Introduction to the Design and Analysis of algorithm", Pearson Education Asia, 2003.
2	Robert Sedgewick,Phillipe Flajolet,"An Introduction to the Analysis of Algorithms", Addison-Wesley Publishing Company,1996.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://onlinecourses.nptel.ac.in/noc19_cs48/preview
2	https://nptel.ac.in/noc/courses/noc16/SEM2/noc16-cs19/
3	https://www.tutorialspoint.com/object_oriented_analysis_design/ooad_object_oriented_analysis.htm
Course Designed By:	

Mapping with Programming Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	M	S	S	S	M	M	S	S
CO2	S	S	S	S	S	S	S	M	S	S
CO3	S	S	S	S	S	S	S	M	S	S
CO4	S	S	S	S	S	S	S	M	S	S

*S-Strong; M-Medium; L-Low

Course code		PRACTICAL II : PYTHON PROGRAMMING LAB	L	T	P	C
Core/Elective/Supportive		Core			4	4
Pre-requisite		Basics of any OO Programming Language	Syllabus Version		2020-21 Onwards	

Course Objectives:

The main objectives of this course are to:

1. This course presents an overview of elementary data items, lists, dictionaries, sets and tuples
2. To understand and write simple Python programs
3. To Understand the OOPS concepts of Python
4. To develop web applications using Python

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Able to write programs in Python using OOPS concepts	K1,K2
2	To understand the concepts of File operations and Modules in Python	K2,K3
3	Implementation of lists, dictionaries, sets and tuples as programs	K3,K4
4	To develop web applications using Python	K5,K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

LIST OF PROGRAMS	75 hours

Implement the following in Python:

1. Programs using elementary data items, lists, dictionaries and tuples
2. Programs using conditional branches,
3. Programs using loops.
4. Programs using functions
5. Programs using exception handling
6. Programs using inheritance
7. Programs using polymorphism
8. Programs to implement file operations.
9. Programs using modules.
10. Programs for creating dynamic and interactive web pages using forms.

Total Lecture hours	75 hours

Text Books

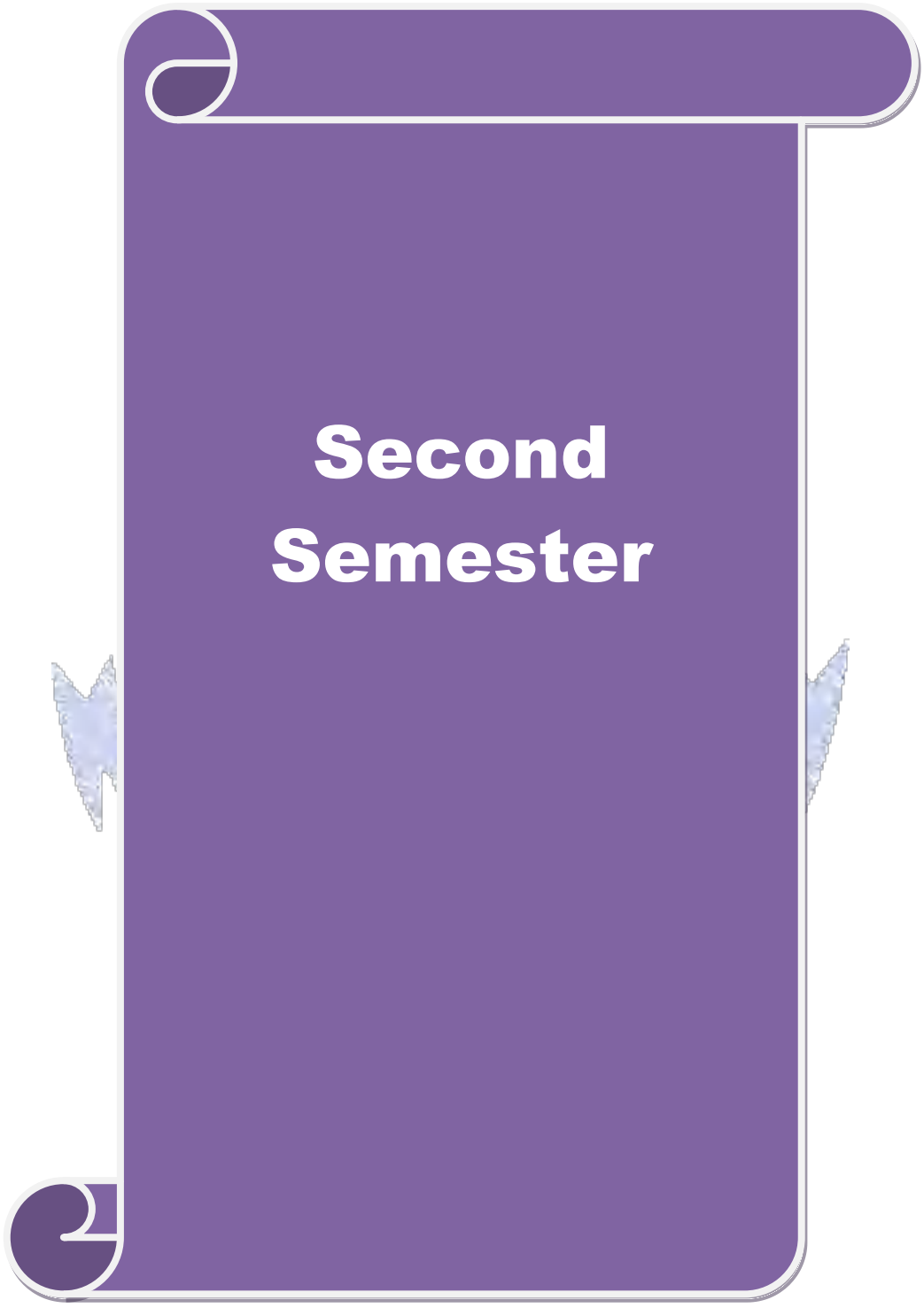
1	Bill Lubanovic, “Introducing Python”, O’Reilly, First Edition-Second Release, 2014.
2	Mark Lutz, “Learning Python”, O’Reilly, Fifth Edition, 2013.

Reference Books

1	David M. Beazley,"Python Essential Reference", Developer's Library, Fourth Edition,2009.
2	SheetalTaneja,Naveen Kumar, "Python Programming-A Modular Approach",PearsonPublications.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://www.programiz.com/python-programming/
2	https://www.tutorialspoint.com/python/index.htm
3	https://onlinecourses.swayam2.ac.in/aic20_sp33/preview
Course Designed By:	

Mapping with Programming Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	M	S	S	S	M	M	S	S
CO2	S	S	S	S	S	S	S	M	S	M
CO3	S	S	S	S	S	S	S	M	S	S
CO4	S	S	S	S	S	S	S	M	S	S

*S-Strong; M-Medium; L-Low


Second
Semester

Course code		DATA MINING AND WAREHOUSING	L	T	P	C
Core/Elective/Supportive		Core	4			4
Pre-requisite		Basics of RDBMS & Algorithms	Syllabus Version		2020-21 Onwards	

Course Objectives:

The main objectives of this course are to:

1. Enable the students to learn the concepts of Mining tasks, classification, clustering and Data Warehousing.
2. Develop skills of using recent data mining software for solving practical problems.
3. Develop and apply critical thinking, problem-solving, and decision-making skills.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the basic data mining techniques and algorithms	K1,K2
2	Understand the Association rules, Clustering techniques and Data warehousing contents	K2,K3
3	Compare and evaluate different data mining techniques like classification, prediction, Clustering and association rule mining	K4,K5
4	Design data warehouse with dimensional modeling and apply OLAP operations	K5,K6
5	Identify appropriate data mining algorithms to solve real world problems	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	BASICS AND TECHNIQUES	12 hours

Basic data mining tasks – data mining versus knowledge discovery in databases – data mining issues – data mining metrics – social implications of data mining – data mining from a database perspective.

Data mining techniques: Introduction – a statistical perspective on data mining – similarity measures – decision trees – neural networks – genetic algorithms.

Unit:2	ALGORITHMS	12 hours

Classification: Introduction – Statistical – based algorithms - distance – based algorithms- decision tree - based algorithms - neural network – based algorithms –rule - based algorithms – combining techniques.

Unit:3	CLUSTERING AND ASSOCIATION	12 hours

Clustering: Introduction – Similarity and Distance Measures – Outliers – Hierarchical Algorithms - Partitional Algorithms.

Association rules: Introduction - large item sets - basic algorithms – parallel & distributed algorithms – comparing approaches- incremental rules – advanced association rules techniques – measuring the quality of rules.

Unit:4	DATA WAREHOUSING AND MODELING	11 hours

Data warehousing: introduction - characteristics of a data warehouse – data marts – other aspects

of data mart. Online analytical processing: introduction - OLTP & OLAP systems Datamodeling –star schema for multidimensional view –data modeling – multifactstar schema or snow flake schema – OLAP TOOLS – State of the market – OLAP TOOLS and the internet.		
Unit:5	**APPLICATIONS OF DATA WAREHOUSE**	**11 hours**
Developing a data WAREHOUSE: why and how to build a data warehouse –data warehouse architectural strategies and organization issues - design consideration – data content – metadata distribution of data – tools for data warehousing – performance considerations – crucial decisions in designing a data warehouse. Applications of data warehousing and data mining in government: Introduction - national data warehouses – other areas for data warehousing and data mining.		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**60 hours**

Text Books	
1	Margaret H. Dunham, "Data Mining: Introductory and Advanced Topics", Pearson education,2003.
2	C.S.R. Prabhu, "Data Warehousing Concepts,Techniques, Productsand Applications", PHI, Second Edition.
Reference Books	
1	Arun K.Pujari, "Data Mining Techniques", Universities Press (India) Pvt. Ltd.,2003.
2	Alex Berson, Stephen J. Smith, "Data Warehousing, Data Mining and OLAP", TMCH, 2001.
3	Jiawei Han & Micheline Kamber, "Data Mining Concepts & Techniques", 2001, Academicpress.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://www.javatpoint.com/data-warehouse
2	https://nptel.ac.in/noc/courses/noc20/SEM1/noc20-cs12/
3	https://www.btechguru.com/training--it--database-management-systems--file-structures--introduction-to-data-warehousing-and-olap-2-video-lecture--12054--26--151.html
Course Designed By:	

Mapping with Programming Outcomes										
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	M	S	S	S	S	M	M	M	M
CO2	S	S	S	S	S	S	S	M	S	S
CO3	S	S	S	S	S	S	S	M	S	S
CO4	S	S	S	S	S	S	S	M	S	S
CO5	S	S	S	S	S	S	S	M	S	S

*S-Strong; M-Medium; L-Low

Course code		ADVANCED OPERATING SYSTEMS	L	T	P	C
Core/Elective/Supportive		Core	4			4
Pre-requisite		Basics of OS & its functioning	Syllabus Version		2020-21 Onwards	

Course Objectives:

The main objectives of this course are to:

1. Enable the students to learn the different types of operating systems and their functioning.
2. Gain knowledge on Distributed Operating Systems
3. Gain insight into the components and management aspects of real time and mobile operating systems.
4. Learn case studies in Linux Operating Systems

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the design issues associated with operating systems	K1,K2
2	Master various process management concepts including scheduling, deadlocks and distributed file systems	K3,K4
3	Prepare Real Time Task Scheduling	K4,K5
4	Analyze Operating Systems for Handheld Systems	K5
5	Analyze Operating Systems like LINUX and iOS	K5,K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	BASICS OF OPERATING SYSTEMS	12 hours

Basics of Operating Systems: What is an Operating System? – Main frame Systems –Desktop Systems – Multiprocessor Systems – Distributed Systems – Clustered Systems –Real-Time Systems – Handheld Systems – Feature Migration – Computing Environments -Process Scheduling – Cooperating Processes – Inter Process Communication- Deadlocks –Prevention – Avoidance – Detection – Recovery.

Unit:2	DISTRIBUTED OPERATING SYSTEMS	12 hours

Distributed Operating Systems: Issues – Communication Primitives – Lamport‟s Logical Clocks – Deadlock handling strategies – Issues in deadlock detection and resolution-distributed file systems –design issues – Case studies – The Sun Network File System-Coda.

Unit:3	REAL TIME OPERATING SYSTEM	10 hours

Realtime Operating Systems : Introduction – Applications of Real Time Systems – Basic Model of Real Time System – Characteristics – Safety and Reliability - Real Time Task Scheduling

Unit:4	HANDHELD SYSTEM	12 hours

Operating Systems for Handheld Systems: Requirements – Technology Overview –Handheld Operating Systems – PalmOS-Symbian Operating System- Android –Architecture of android –

Securing handheld systems		
Unit:5	**CASE STUDIES**	**12 hours**
Case Studies : Linux System: Introduction – Memory Management – Process Scheduling – Scheduling Policy - Managing I/O devices – Accessing Files- iOS : Architecture and SDK Framework - Media Layer - Services Layer - Core OS Layer - File System.		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**60 hours**

Text Books

1	Abraham Silberschatz; Peter Baer Galvin; Greg Gagne, "Operating System Concepts", Seventh Edition, John Wiley & Sons, 2004.
2	MukeshSinghal and Niranjan G. Shivaratri, "Advanced Concepts in Operating Systems – Distributed, Database, and Multiprocessor Operating Systems", Tata McGraw-Hill, 2001.

Reference Books

1	Rajib Mall, "Real-Time Systems: Theory and Practice", Pearson Education India, 2006.
2	Pramod Chandra P.Bhatt, An introduction to operating systems, concept and practice, PHI, Third edition, 2010.
3	Daniel.P.Bovet& Marco Cesati,"Understanding the Linux kernel",3rd edition,O"Reilly, 2005
4	Neil Smyth, "iPhone iOS 4 Development Essentials – Xcode", Fourth Edition, Payload media, 2011.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://onlinecourses.nptel.ac.in/noc20_cs04/preview
2	https://www.udacity.com/course/advanced-operating-systems--ud189
3	https://minnie.tuhs.org/CompArch/Resources/os-notes.pdf

Course Designed By:

Mapping with Programming Outcomes

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	M	S	S	S	S	M	M	M	M
CO2	S	M	S	S	S	S	S	M	S	M
CO3	S	M	S	S	S	S	S	M	S	M
CO4	S	M	S	S	S	S	S	M	S	M
CO5	S	M	S	S	S	S	S	M	S	M

*S-Strong; M-Medium; L-Low

Course code		ADVANCED JAVA PROGRAMMING	L	T	P	C
Core/Elective/Supportive		Core	4			4
Pre-requisite		Basics of Java & its Usage	Syllabus Version		2020-21 Onwards	

Course Objectives:

The main objectives of this course are to:

1. Enable the students to learn the basic functions, principles and concepts of advanced java programming.
2. Provide knowledge on concepts needed for distributed Application Architecture.
3. Learn JDBC, Servlet packages, JQuery, Java Server Pages and JAR file format

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the advanced concepts of Java Programming	K1,K2
2	Understand JDBC and RMI concepts	K2,K3
3	Apply and analyze Java in Database	K3,K4
4	Handle different event in java using the delegation event model, event listener and class	K5
5	Design interactive applications using Java Servlet, JSP and JDBC	K5,K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	BASICS OF JAVA	12 hours

Java Basics Review: Components and event handling – Threading concepts – Networking features – Media techniques

Unit:2	REMOTE METHOD INVOCATION	12 hours

Remote Method Invocation-Distributed Application Architecture- Creating stubs and skeletons-Defining Remote objects- Remote Object Activation-Object Serialization-Java Spaces

Unit:3	DATABASE	10 hours

Java in Databases- JDBC principles – database access- Interacting- database search – Creating multimedia databases – Database support in web applications

Unit:4	SERVLETS	12 hours

Java Servlets: Java Servlet and CGI programming- A simple java Servlet-Anatomy of a java Servlet-Readingdata from a client-Reading http request header-sending data to a client and writing the http response header-working with cookies

Java Server Pages: JSP Overview-Installation-JSP tags-Components of a JSP page-Expressions-Scriptlets-Directives-Declarations-A complete example

Unit:5	ADVANCED TECHNIQUES	12 hours

JAR file format creation – Internationalization – Swing Programming – Advanced java

techniques		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**60 hours**

Text Books	
1	Jamie Jaworski, "Java Unleashed", SAMS Techmedia Publications,1999.
2	Campione, Walrath and Huml, "The Java Tutorial", AddisonWesley,1999.
Reference Books	
1	Jim Keogh," The Complete Reference J2EE", Tata McGrawHill Publishing Company Ltd,2010.
2	David Sawyer McFarland, "JavaScript And JQuery- The Missing Manual", Oreilly Publications, 3rd Edition,2011.
3	Deitel and Deitel, "Java How to Program", Third Edition, PHI/Pearson Education Asia.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://www.javatpoint.com/servlet-tutorial
2	https://www.tutorialspoint.com/java/index.htm
3	https://onlinecourses.nptel.ac.in/noc19_cs84/preview
Course Designed By:	

Mapping with Programming Outcomes

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	S	S	S	S	M	M	M	S
CO2	S	S	S	S	S	S	S	M	S	S
CO3	S	S	S	S	S	S	S	M	S	S
CO4	S	S	S	S	S	S	S	M	S	S
CO5	S	S	S	S	S	S	S	M	S	S

*S-Strong; M-Medium; L-Low

Course code		ARTIFICIAL INTELLIGENCE & MACHINE LEARNING	L	T	P	C
Core/Elective/Supportive		Core	4			4
Pre-requisite		Basics of AI & an Introduction about ML	Syllabus Version		2020-21 Onwards	

Course Objectives:

The main objectives of this course are to:

1. Enable the students to learn the basic functions of AI, Heuristic Search Techniques.
2. Provide knowledge on concepts of Representations and Mappings and Predicate Logic.
3. Introduce Machine Learning with respect Data Mining, Big Data and Cloud.
4. Study about Applications & Impact of ML.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Demonstrate AI problems and techniques	K1,K2
2	Understand machine learning concepts	K2,K3
3	Apply basic principles of AI in solutions that require problem solving, inference, perception, knowledge representation, and learning	K3,K4
4	Analyze the impact of machine learning on applications	K4,K5
5	Analyze and design a real world problem for implementation and understand the dynamic behavior of a system	K5,K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	INTRODUCTION	12 hours

Introduction: AI Problems - Al techniques - Criteria for success. Problems, Problem Spaces, Search: State space search - Production Systems - Problem Characteristics - Issues in design of Search.

Unit:2	SEARCH TECHNIQUES	12 hours

Heuristic Search techniques: Generate and Test - Hill Climbing- Best-First, Problem Reduction, Constraint Satisfaction, Means-end analysis. Knowledge representation issues: Representations and mappings -Approaches to Knowledge representations -Issues in Knowledge representations - Frame Problem.

Unit:3	PREDICATE LOGIC	12 hours

Using Predicate logic: Representing simple facts in logic - Representing Instance and Isa relationships - Computable functions and predicates - Resolution - Natural deduction. Representing knowledge using rules: Procedural Vs Declarative knowledge - Logic programming - Forward Vs Backward reasoning - Matching - Control knowledge.

Unit:4	MACHINE LEARNING	12 hours

Understanding Machine Learning: What Is Machine Learning?-Defining Big Data-Big Data in Context with Machine Learning-The Importance of the Hybrid Cloud-Leveraging the Power of Machine Learning-The Roles of Statistics and Data Mining with Machine Learning-Putting Machine Learning in Context-Approaches to Machine Learning.		
Unit:5	**APPLICATIONS OF MACHINE LEARNING**	**10 hours**
Looking Inside Machine Learning:The Impact of Machine Learning on Applications - Data Preparation-The Machine Learning Cycle.		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**60 hours**

Text Books	
1	Elaine Rich and Kevin Knight," Artificial Intelligence", Tata McGraw Hill Publishers company Pvt Ltd, Second Edition, 1991.
2	George F Luger, "Artificial Intelligence",4th Edition, Pearson Education Publ,2002.
Reference Books	
1	Machine Learning For Dummies®, IBM Limited Edition by Judith Hurwitz, Daniel Kirsch.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://www.ibm.com/downloads/cas/GB8ZMQZ3
2	https://www.javatpoint.com/artificial-intelligence-tutorial
3	https://nptel.ac.in/courses/106/105/106105077/
Course Designed By:	

Mapping with Programming Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	S	S	S	S	S	M	M	S
CO2	S	S	S	S	S	S	S	M	S	S
CO3	S	S	S	S	S	S	S	M	S	S
CO4	S	S	S	S	S	S	S	M	S	S
CO5	S	S	S	S	S	S	S	M	S	S

*S-Strong; M-Medium; L-Low

Course code		PRACTICAL III : DATA MINING USING R	L	T	P	C
Core/Elective/Supportive		Core			4	4
Pre-requisite		Basics of DM Algorithms & R Programming	Syllabus Version		2020-21 Onwards	

Course Objectives:

The main objectives of this course are to:

1. To enable the students to learn the concepts of Data Mining algorithms namely classification, clustering, regression….
2. To understand & write programs using the DM algorithms
3. To apply statistical interpretations for the solutions
4. Able to use visualizations techniques for interpretations

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Able to write programs using R for Association rules, Clustering techniques	K1,K2
2	To implement data mining techniques like classification, prediction	K2,K3
3	Able to use different visualizations techniques using R	K4,K5
4	To apply different data mining algorithms to solve real world applications	K5,K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

LIST OF PROGRAMS	**75 hours**

1. Implement Apriori algorithm to extract association rule of datamining.
2. Implement k-means clustering technique.
3. Implement any one Hierarchal Clustering.
4. Implement Classification algorithm.
5. Implement Decision Tree.
6. Linear Regression.
7. Data Visualization.

Total Lecture hours	**75 hours**

Text Books

1	Margaret H. Dunham, “Data Mining: Introductory and Advanced Topics”, Pearson education,2003.
2	C.S.R. Prabhu, “Data Warehousing Concepts,Techniques, Productsand Applications”, PHI, Second Edition

Reference Books

1	ArunK.Pujari, “Data Mining Techniques”, Universities Press (India) Pvt. Ltd.,2003.
2	Alex Berson, Stephen J. Smith, “Data Warehousing, Data Mining and OLAP”, TMCH, 2001.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://www.javatpoint.com/data-warehouse
2	https://nptel.ac.in/noc/courses/noc20/SEM1/noc20-cs12/
3	https://www.btechguru.com/training--it--database-management-systems--file-structures--introduction-to-data-warehousing-and-olap-2-video-lecture--12054--26--151.html
Course Designed By:	

Mapping with Programming Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	M	S	S	S	M	M	S	S
CO2	S	S	S	S	S	S	S	M	S	M
CO3	S	S	S	S	S	S	S	S	S	S
CO4	S	S	S	S	S	S	S	M	S	S

*S-Strong; M-Medium; L-Low

Course code		PRACTICAL IV : ADVANCED JAVA LAB	L	T	P	C
Core/Elective/Supportive		Core			4	4
Pre-requisite		Basics in Java Programming	Syllabus Version		2020-21 Onwards	

Course Objectives:

The main objectives of this course are to:

1.To enable the students to implement the simple programs using JSP, JAR
2.To provide knowledge on using Servlets, Applets
3.To introduce JDBC and navigation of records
4.To understand RMI & its implementation
5.To introduce to Socket programming

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand to the implement concepts of Java using HTML forms, JSP & JAR	K1,K2
2	Must be capable of implementing JDBC and RMI concepts	K3,K4
3	Able to write Applets with Event handling mechanism	K4,K5
4	To Create interactive web based applications using servlets and jsp	K5,K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

LIST OF PROGRAMS	**75 hours**

1. Display a welcome message usingServlet.
2. Design a Purchase Order form using Html form andServlet.
3. Develop a program for calculating the percentage of marks of a student usingJSP.
4. Design a Purchase Order form using Html form andJSP.
5. Prepare a Employee pay slip usingJSP.
6. Write a program using JDBC for creating a table, Inserting, Deleting records and listout therecords.
7. Write a program using Java servlet to handle formdata.
8. Write a simple Servlet program to create a table of all the headers it receives along withtheir associatedvalues.
9. Write a program in JSP by using sessionobject.
10. Write a program to build a simple Client Server application usingRMI.
11. Create an applet for a calculator application.
12. Program to send a text message to another system and receive the text message from the system (use socket programming).

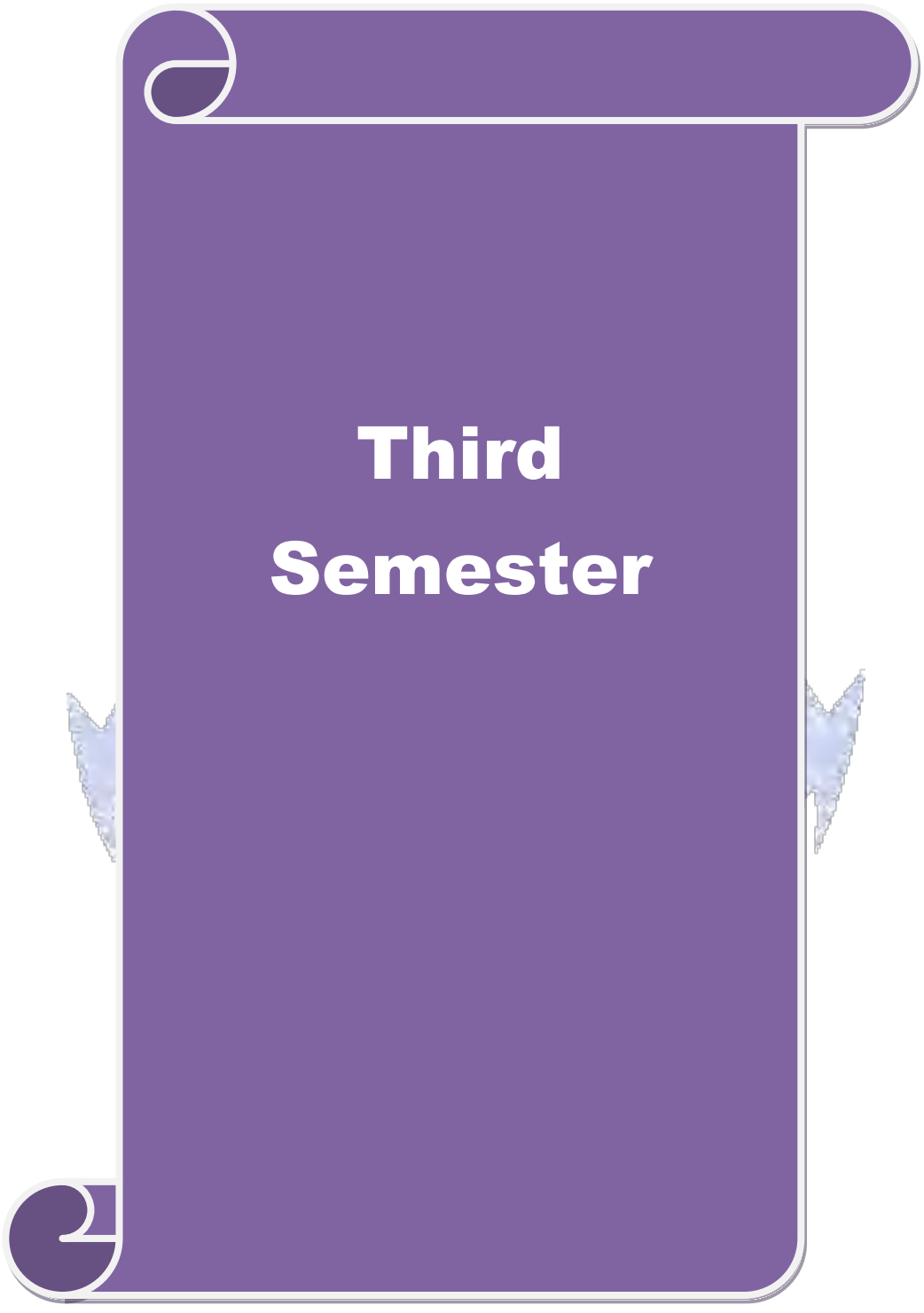
Expert lectures, online seminars – webinars

Total Lecture hours	**75 hours**

Text Books	
1	Jamie Jaworski, “Java Unleashed”, SAMS Techmedia Publications,1999.
2	Campione, Walrath and Huml, “The Java Tutorial”, AddisonWesley,1999.
Reference Books	
1	Jim Keogh,” The Complete Reference J2EE”, Tata McGrawHill Publishing Company Ltd,2010.
2	David Sawyer McFarland, “JavaScript And JQuery- The Missing Manual”, Oreilly Publications, 3rd Edition,2011.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://www.javatpoint.com/servlet-tutorial
2	https://www.tutorialspoint.com/java/index.htm
3	https://onlinecourses.nptel.ac.in/noc19_cs84/preview
Course Designed By:	

Mapping with Programming Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	M	S	S	S	M	M	S	M
CO2	S	S	S	S	S	S	S	M	S	S
CO3	S	S	S	S	S	S	S	S	S	S
CO4	S	S	S	S	S	S	S	S	S	S

*S-Strong; M-Medium; L-Low


Third
Semester

Course code		DIGITAL IMAGE PROCESSING	L	T	P	C
Core/Elective/Supportive		Core	4			4
Pre-requisite		Basics of Image Processing	Syllabus Version		2020-21 Onwards	

Course Objectives:

The main objectives of this course are to:

1. Learn basic image processing techniques for solving real problems.
2. Gain knowledge in image transformation and Image enhancement techniques.
3. Learn Image compression and Segmentation procedures.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the fundamentals of Digital Image Processing	K1,K2
2	Understand the mathematical foundations for digital image representation, image acquisition, image transformation, and image enhancement	K2,K3
3	Apply, Design and Implement and get solutions for digital image processing problems	K3,K4
4	Apply the concepts of filtering and segmentation for digital image retrieval	K4,K5
5	Explore the concepts of Multi-resolution process and recognize the objects in an efficient manner	K5,K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	INTRODUCTION	12 hours

Introduction: What is Digital image processing – the origin of DIP – Examples of fields that use DIP – Fundamentals steps in DIP – Components of an image processing system. Digital Image Fundamentals: Elements of Visual perception – Light and the electromagnetic spectrum – Image sensing and acquisition – Image sampling and Quantization – Some Basic relationship between Pixels – Linear & Nonlinear operations.

Unit:2	IMAGE ENHANCEMENT	12 hours

Image Enhancement in the spatial domain:- Background – some basic Gray level Transformations – Histogram Processing – Enhancement using Arithmetic / Logic operations – Basics of spatial filtering – Smoothing spatial filters – Sharpening spatial filters – Combining spatial enhancement methods.

Unit:3	IMAGE RESTORATION	12 hours

Image Restoration: A model of the Image Degradation / Restoration Process – Noise models – Restoration is the process of noise only – Spatial Filtering – Periodic Noise reduction by frequency domain filtering – Linear, Portion – Invariant Degradations – Estimating the degradation function – Inverse filtering – Minimum mean square Error Filtering – Constrained least squares filtering – Geometric mean filter – Geometric Transformations.

Unit:4	IMAGE COMPRESSION	11 hours
Image Compression: Fundamentals – Image compression models – Elements of Information Theory – Error Free compression – Lossy compression – Image compression standards.		
Unit:5	**IMAGE SEGMENTATION**	**11 hours**
Image Segmentation: Detection and Discontinuities – Edge Linking and Boundary deduction – Thresholding – Region-Based segmentation – Segmentation by Morphological watersheds – The use of motion in segmentation.		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**60 hours**

Text Books	
1	Rafael C. Gonzalez, Richard E. Woods, "Digital Image Processing", Second Edition, PHI/Pearson Education.
2	B. Chanda, D. Dutta Majumder, "Digital Image Processing and Analysis", PHI, 2003.
Reference Books	
1	Nick Efford, "Digital Image Processing a practical introducing using Java", Pearson Education, 2004.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://nptel.ac.in/courses/117/105/117105135/
2	https://www.tutorialspoint.com/dip/index.htm
3	https://www.javatpoint.com/digital-image-processing-tutorial
Course Designed By:	

Mapping with Programming Outcomes										
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	M	S	S	S	M	S	M	M	S
CO2	S	S	S	S	S	M	S	M	S	S
CO3	S	S	S	S	S	S	S	M	S	S
CO4	S	S	S	S	S	S	S	M	S	S
CO5	S	S	S	S	S	S	S	M	S	S

*S-Strong; M-Medium; L-Low

Course code		CLOUD COMPUTING	L	T	P	C
Core/Elective/Supportive		Core	4			4
Pre-requisite		Basics of Cloud & its Applications	Syllabus Version		2020-21 Onwards	

Course Objectives:

The main objectives of this course are to:

1. Gain knowledge on cloud computing, cloud services, architectures and applications.
2. Enable the students to learn the basics of cloud computing with real time usage
3. How to store and share, in and from cloud?

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the concepts of Cloud and its services	K1,K2
2	Collaborate Cloud for Event & Project Management	K3,K4
3	Analyze on cloud in – Word Processing, Spread Sheets, Mail, Calendar, Database	K4,K5
4	Analyze cloud in social networks	K5,K6
5	Explore cloud storage and sharing	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	INTRODUCTION	12 hours

INTRODUCTION Cloud Computing Introduction, From, Collaboration to cloud, Working of cloud computing, pros and cons, benefits, developing cloud computing services, Cloud service development, discovering cloud services.

Unit:2	CLOUD COMPUTING	12 hours

CLOUD COMPUTING FOR EVERYONE Centralizing email communications, cloud computing for community, collaborating on schedules, collaborating on group projects and events, cloud computing for corporation, mapping, schedules, managing projects, presenting on road.

Unit:3	CLOUD SERVICES	12 hours

USING CLOUD SERVICES Collaborating on calendars, Schedules and task management, exploring on line scheduling and planning, collaborating on event management, collaborating on contact management, collaborating on project management, collaborating on word processing, spreadsheets, and databases.

Unit:4	OUTSIDE THE CLOUD	12 hours

OUTSIDE THE CLOUD Evaluating web mail services, Evaluating instant messaging, Evaluating web conference tools, creating groups on social networks, Evaluating on line

groupware, collaborating via blogs and wikis.		
Unit:5	**STORING AND SHARING**	**10 hours**
STORING AND SHARING Understanding cloud storage, evaluating on line file storage, exploring on line book marking services, exploring on line photo editing applications, exploring photo sharing communities, controlling it with web based desktops.		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**60 hours**

Text Books	
1	Michael Miller, "Cloud Computing", Pearson Education, New Delhi, 2009.
Reference Books	
1	Anthony T. Velte, "Cloud Computing: A Practical Approach", 1st Edition, Tata McGraw Hill Education Private Limited, 2009.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://nptel.ac.in/courses/106/105/106105167/
2	https://www.tutorialspoint.com/cloud_computing/index.htm
3	https://www.javatpoint.com/cloud-computing-tutorial
Course Designed By:	

Mapping with Programming Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	L	S	M	S	M	S	M	M	M	S
CO2	M	S	M	S	S	S	M	M	M	S
CO3	S	S	S	S	S	S	S	S	S	S
CO4	S	S	S	S	S	S	S	S	S	S
CO5	M	S	S	S	S	S	S	S	S	S

*S-Strong; M-Medium; L-Low

Course code		NETWORK SECURITY AND CRYPTOGRAPHY	L	T	P	C
Core/Elective/Supportive		Core	4			4
Pre-requisite		Basics of Networks & its Security	Syllabus Version		2020-21 Onwards	

Course Objectives:

The main objectives of this course are to:

1. Enable students to learn the Introduction to Cryptography, Web Security and Case studies in Cryptography.
2. To gain knowledge on classical encryption techniques and concepts of modular arithmetic and number theory.
3. To explore the working principles and utilities of various cryptographic algorithms including secret key cryptography, hashes and message digests, and public key algorithms.
4. To explore the design issues and working principles of various authentication Applications and various secure communication standards including Kerberos, IPsec, and SSL/TLS and email.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the process of the cryptographic algorithms	K1,K2
2	Compare and apply different encryption and decryption techniques to solve problems related to confidentiality and authentication	K2,K3
3	Apply and analyze appropriate security techniques to solve network security problem	K3,K4
4	Exploresuitable cryptographic algorithms	K4,K5
5	Analyze different digital signature algorithms to achieve authentication and design secure applications	K5,K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	INTRODUCTION	12 hours

Introduction to Cryptography – Security Attacks – Security Services –Security Algorithm- Stream cipher and Block cipher - Symmetric and Asymmetric-key Cryptosystem Symmetric Key Algorithms: Introduction – DES – Triple DES – AES – IDEA – Blowfish – RC5.

Unit:2	CRYPTO SYSTEM	12 hours

Public-key Cryptosystem: Introduction to Number Theory - RSA Algorithm – Key Management - Diffie-Hell man Key exchange – Elliptic Curve Cryptography Message Authentication and Hash functions – Hash and Mac Algorithm – Digital Signatures and Authentication Protocol.

Unit:3	NETWORK SECURITY	12 hours

Network Security Practice: Authentication Applications – Kerberos – X.509 Authentication services and Encryption Techniques. E-mail Security – PGP – S / MIME – IP Security.

Unit:4	WEB SECURITY	10 hours
Web Security - Secure Socket Layer – Secure Electronic Transaction. System Security - Intruders and Viruses – Firewalls– Password Security.		
Unit:5	**CASE STUDY**	**12 hours**
Case Study: Implementation of Cryptographic Algorithms – RSA – DSA – ECC (C / JAVA Programming). Network Forensic – Security Audit - Other Security Mechanism: Introduction to: Stenography – Quantum Cryptography – Water Marking - DNA Cryptography		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**60 hours**

Text Books

1	William Stallings, "Cryptography and Network Security", PHI/PearsonEducation.
2	Bruce Schneir, "Applied Cryptography", CRC Press.

Reference Books

1	A.Menezes, P Van Oorschot and S.Vanstone, "Hand Book ofApplied Cryptography", CRC Press, 1997
2	AnkitFadia,"Network Security",MacMillan.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://nptel.ac.in/courses/106/105/106105031/
2	http://www.nptelvideos.in/2012/11/cryptography-and-network-security.html
3	https://www.tutorialspoint.com/cryptography/index.htm

Course Designed By:

Mapping with Programming Outcomes

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	M	S	M	L	S	M	S	M	S
CO2	S	S	S	S	S	S	S	S	S	S
CO3	S	S	S	S	S	S	S	S	S	S
CO4	S	S	S	S	S	S	S	S	S	S
CO5	S	S	S	S	S	S	S	S	S	S

*S-Strong; M-Medium; L-Low

Course code		DATA SCIENCE & ANALYTICS	L	T	P	C
Core/Elective/Supportive		Core	4			4
Pre-requisite		Basics of Data Science & its Applications	Syllabus Version		2020-21 Onwards	

Course Objectives:

The main objectives of this course are to:

1. Introduce the students to data science, big data & its eco system.
2. Learn data analytics & its life cycle.
3. To explore the programming language R, with respect to the data mining algorithms.
4. Relate the relationship between artificial intelligence, machine learning and data science.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the concept of data science and its techniques	K1,K2
2	Review data analytics	K2,K3
3	Apply and determine appropriate Data Mining techniques using R to real time applications	K3,K4
4	Analyze on clustering algorithms	K4,K5
5	Analyze on regression methods in AI	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	INTRODUCTION	12 hours

Introduction of Data Science: data science and big data – facets of data-data science process- Ecosystem- The Data Science process – six steps- Machine Learning.

Unit:2	BASICS OF DATA ANALYTICS	12 hours

Data Analytics life cycle - review of data analytics - Advanced data Analytics-technology and tools.

Unit:3	DATA ANALYTICS USING R	12 hours

Basic Data Analytics using R : R Graphical User Interfaces – Data Import and Export – Attribute and Data Types –Descriptive Statistics – Exploratory Data Analysis –Visualization Before Analysis – Dirty Data – Visualizing a Single Variable – Examining Multiple Variables – Data Exploration Versus Presentation.

Unit:4	CLUSTERING	12 hours

Overview of Clustering : K-means – Use Cases – Overview of the Method – Perform a K-means Analysis using R –Classification – Decision Trees – Overview of a Decision Tree – Decision Tree Algorithms – Evaluating a Decision Tree – Decision Tree in R – Bayes' Theorem – Naïve Bayes Classifier – Smoothing – Naïve Bayes in R.

Unit:5	**ARTIFICIAL INTELLIGENCE**	**10 hours**
Artificial intelligence: Machine Learning and deep learning in data science - Clustering, association rules. Linear regression-logistic regression-Additional regression methods.		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**60 hours**

Text Books	
1	Introducing-Data-Science-Big-Data-Machine-Learning-and-more-using-Python-tools-2016. Pdf
2	Data science in big data analytics-Wiley 2015 John Wiley & Sons
Reference Books	
1	A simple introduction to Data Science - Lars Nielson 2015
2	Introducing Data Science Davy Cielen, Arno D.B.Meysman, Mohamed Ali 2016 Manning Publication
3	R Programming for Data Science - Roger D.Peng 2015 Lean Publication
4	Data Science & Big Data Analytics: Discovering, Analyzing , Visualizing and Presenting Data
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://www.tutorialspoint.com/python_data_science/index.htm
2	https://www.javatpoint.com/data-science
3	https://nptel.ac.in/courses/106/106/106106179/
Course Designed By:	

Mapping with Programming Outcomes

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	S	S	S	S	S	M	M	S
CO2	S	S	S	S	S	S	S	M	S	S
CO3	S	S	S	S	S	S	S	M	S	S
CO4	S	S	S	S	S	S	S	M	S	S
CO5	S	S	S	S	S	S	S	M	S	S

*S-Strong; M-Medium; L-Low

Course code		PRACTICAL V : DIGITAL IMAGE PROCESSING Using MATLAB	L	T	P	C
Core/Elective/Supportive		Core			4	4
Pre-requisite		Basic Programming of Image Processing & an intro to MATLAB	Syllabus Version		2020-21 Onwards	

Course Objectives:

The main objectives of this course are to:

1.To understand the basics of Digital Image Processing fundamentals, image enhancement and image restoration techniques

2. To enable the students to learn the fundamentals of image compression and segmentation

3. To understand Image Restoration & Filtering Techniques

4. Implementation of the above using MATLAB

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	To write programs in MATLAB for image processing using the techniques	K1,K2
2	To able to implement Image Enhancements & Restoration techniques	K2,K3
3	Capable of using Compression techniques in an Image	K3,K4
4	Must be able to manipulate the image and Segment it	K5,K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

LIST OF PROGRAMS	**60 hours**

1. Implement Image enhancementTechnique.
2. Histogram Equalization
3. ImageRestoration.
4. Implement ImageFiltering.
5. Edge detection using Operators (Roberts, Prewitts and Sobelsoperators)
6. Implement image compression.
7. Image Subtraction
8. Boundary Extraction using morphology.
9. Image Segmentation

Total Lecture hours	**60 hours**

Text Books

1	Rafael C. Gonzalez, Richard E. Woods, “Digital Image Processing”, Second Edition,

	PHI/Pearson Education.
2	B. Chanda, D. Dutta Majumder, "Digital Image Processing and Analysis", PHI, 2003.
Reference Books	
1	Nick Efford, "Digital Image Processing a practical introducing using Java", Pearson Education, 2004.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://nptel.ac.in/courses/117/105/117105135/
2	https://www.tutorialspoint.com/dip/index.htm
3	https://www.javatpoint.com/digital-image-processing-tutorial
Course Designed By:	

Mapping with Programming Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	M	S	S	S	M	M	S	S
CO2	S	S	S	S	S	S	S	M	S	S
CO3	S	S	S	S	S	S	S	M	S	S
CO4	S	S	S	S	S	S	S	M	S	S

*S-Strong; M-Medium; L-Low

Course code		PRACTICAL VI : CLOUD COMPUTING LAB	L	T	P	C
Core/Elective/Supportive		Core			4	4
Pre-requisite		Basic Programming using Cloud	Syllabus Version		2020-21 Onwards	

Course Objectives:

The main objectives of this course are to:

1.This course covers the basic data structures like Stack, Queue, Tree , List.

2. This course enables the students to learn the applications of the data structures using various techniques

3. It also enable the students to understand C++ language with respect to OOAD concepts

4. Application of OOPS concepts

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the concepts of object oriented with respect to C++	K1,K2
2	Able to understand and implement OOPS concepts	K3,K4
3	Implementation of data structures like Stack, Queue, Tree , List using C++	K4,K5
4	Application of the data structures for Sorting, Searching using different techniques.	K5,K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

LIST OF PROGRAMS	60 hours

1. Working with Google Drive to make spreadsheet and notes.
2. Launch a Linux Virtual Machine.
3. To host a static website
4. Exploring Google cloud for the following a) Storage b) Sharing of data c) manage your calendar, to-do lists, d) a document editing tool
5. Working and installation of Google App Engine
6. Working and installation of Microsoft Azure
7. To Connect Amazon Redshift with S3 bucket
8. To Create and Query a NoSQL Table

Expert lectures, online seminars – webinars

Total Lecture hours	60 hours

Text Books

1	Michael Miller, “Cloud Computing”, Pearson Education, New Delhi, 2009.

Reference Books

1	Anthony T. Velte, "Cloud Computing: A Practical Approach", 1st Edition, Tata McGraw Hill Education Private Limited, 2009.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://nptel.ac.in/courses/106/105/106105167/
2	https://www.tutorialspoint.com/cloud_computing/index.htm
3	https://www.javatpoint.com/cloud-computing-tutorial
Course Designed By:	

Mapping with Programming Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	M	S	S	S	M	M	S	S
CO2	S	S	S	S	S	S	S	M	S	S
CO3	S	S	S	S	S	S	S	M	S	S
CO4	S	S	S	S	S	S	S	M	S	S

*S-Strong; M-Medium; L-Low

Course code		PRACTICAL VII : WEB APPLICATION DEVELOPMENT AND HOSTING	L	T	P	C
Core/Elective/Supportive		Core			2	2
Pre-requisite		Basic Programming using HTML tags	Syllabus Version		2020-21 Onwards	

Course Objectives:

The main objectives of this course are to:

1.Able to design a web page using HTML tags

2.To enable the students to use Framesets, hyper links and different formatting features of HTML tags

3.Enable the students to use Forms & other controls in a web page

4.To create interactive applications using PHP

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand & implement the basic HTML tags to create static web pages	K1,K2
2	Capable of using hyperlinks, frames , images, tables, ...in a web page	K2,K3
3	Able to write dynamic web applications using HTML forms	K4,K5
4	Must be able to write dynamic web applications in PHP & HTML tags using XAMPP.	K5,K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

LIST OF PROGRAMS **30 hours**

1. Develop a website for your college using advanced tags of HTML.

2. Write names of several countries in a paragraph and store it as an HTML document, world.html. Each country name must be a hot text. When you click India (for example), it must open india.html and it should provide a brief introduction about India.

3. Develop a HTML document to i)display Text with Bullets / Numbers - Using Lists ii) to display the Table Format Data

4. Develop a Complete Web Page using Frames and Framesets which gives the Information about a Hospital using HTML.

5. Write a HTML document to print your Bio-Data in a neat format using several components.

6. Develop a HTML document to display a Registration Form for an inter-collegiate function.

7. Using HTML form accept Customer details like Name, City, Pin code, Phone number and Email address and validate the data and display appropriate messages for violations using PHP

(Eg. Name is Mandatory field; Pin code must be 6 digits, etc.).

8. Write a program to accept two numbers n1 and n2 using HTML form and display the Prime

numbers between n1 and n2 using PHP.	
Total Lecture hours	**30 hours**
Text Books	
1	Ivan Bayross, "Web Enabled Commercial Applications Development Using HTML, JavaScript, DHTML and PHP", BPB Publications, 4th Revised Edition, 2010.
Reference Books	
2	A.K.Saini and SumintTuli, "Mastering XML", First Edition, New Delhi, 2002.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://www.tutorialspoint.com/xml/index.htm
2	https://www.tutorialspoint.com/internet_technologies/websites_development.htm
3	https://www.youtube.com/watch?v=PlxWf493en4
Course Designed By:	

Mapping with Programming Outcomes										
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	M	S	S	S	M	M	S	S
CO2	S	S	S	S	S	S	S	M	S	S
CO3	S	S	S	S	S	S	S	M	S	S
CO4	S	S	S	S	S	S	S	M	S	S

*S-Strong; M-Medium; L-Low


Elective
Courses

Course code		MULTIMEDIA AND ITS APPLICATIONS	L	T	P	C
Core/Elective/Supportive		Elective	4			4
Pre-requisite		Basics of Multimedia	Syllabus Version		2020-21 Onwards	

Course Objectives:

The main objectives of this course are to:

1. To introduce the students the concepts of Multimedia, Images & Animation.
2. To introduce Multimedia authoring tools
3. To understand the role of Multimedia in Internet
4. To know about High Definition Television and Desktop Computing – Knowledge based Multimedia systems

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the basic concepts of Multimedia	K1,K2
2	Demonstrate Multimedia authoring tools	K2,K3
3	Analyze the concepts of Sound, Images, Video & Animation	K4
4	Apply and Analyze the role of Multimedia in Internet and real time applications	K4,K5
5	Analyze multimedia applications using HDTV	K5,K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	INTRODUCTION	12 hours

What is Multimedia? – Introduction to making Multimedia – Macintosh and Windows Production platforms – Basic Software tools.

Unit:2	MULTIMEDIA TOOLS	12 hours

Making Instant Multimedia – Multimedia authoring tools – Multimedia building blocks – Text – Sound.

Unit:3	ANIMATION	10 hours

Images – Animation – Video.

Unit:4	INTERNET	12 hours

Multimedia and the Internet – The Internet and how it works – Tools for World Wide Web – Designing for the World Wide Web.

Unit:5	MULTIMEDIA SYSTEMS	12 hours

High Definition Television and Desktop Computing – Knowledge based Multimedia systems.

Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars - webinars		
	Total Lecture hours	**60 hours**

Text Books

1	Tay Vaughan, "Multimedia making it work", Fifth Edition, Tata McGrawHill.
2	John F. Koegel Bufford, "Multimedia Systems", Pearson Education.

Reference Books

1	Judith Jeffloate, "Multimedia in Practice (Technology and Applications)", PHI,2003.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://www.tutorialspoint.com/multimedia/index.htm
2	https://www.tutorialspoint.com/basics_of_computer_science/basics_of_computer_science_multimedia.htm
3	https://nptel.ac.in/courses/117/105/117105083/

Course Designed By:

Mapping with Programming Outcomes

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	S	S	M	S	M	M	M	S
CO2	S	S	S	S	M	S	M	S	S	S
CO3	S	S	S	S	S	S	S	S	S	S
CO4	S	S	S	S	S	S	S	S	S	S
CO5	S	S	S	S	S	S	S	S	S	S

*S-Strong; M-Medium; L-Low

Course code		EMBEDDED SYSTEMS	L	T	P	C
Core/Elective/Supportive		Elective	4			4
Pre-requisite		Basics of Micro Controller	Syllabus Version		2020-21 Onwards	

Course Objectives:

The main objectives of this course are to:

1. Present the introduction to 8051 Microcontroller Instruction Set, concepts on RTOS & Software tools.
2. Gain the knowledge about the embedded software development.
3. Learn about Microcontroller and software tools in the embedded systems.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the concept of 8051 microcontroller	K1,K2
2	Understand the Instruction Set and Programming	K2,K3
3	Analyze the concepts of RTOS	K3,K4
4	Analyze and design various real time embedded systems using RTOS	K5
5	Debug the malfunctioning system using various debugging techniques	K5,K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6**– Create

Unit:1	8051 MICROCONTROLLER	12Hours

8051 Microcontroller: Introduction - 8051 Architecture-Input/Output Pins, Ports and Circuits - External Memory - Counters / Timers - Serial Data Input / Output –Interrupts

Unit:2	PROGRAMMING BASICS	12Hours

Instruction Set and Programming Moving Data-Addressing Modes-Logical operations-Arithmetic Operation-Jump and Call Instructions-Simple Program. Applications: Keyboard Interface- Display Interface-Pulse Measurements-DIA and AID Conversions-Multiple Interrupts.

Unit:3	CONCEPTS ON RTOS	12Hours

CONCEPTS ON RTOS: Introduction to RTOS-Selecting an RTOS-Task and Task states - Tasks and data- Semaphores and shared data. MORE operating systems services: Interrupt Process communication - Message Queues, Mailboxes and pipes- Timer Functions-Events - Memory Management-Interrupt Routines in an RTOS Environment.

Unit:4	DESIGN USING RTOS	10Hours

Basic Design using a RTOS: Principles - Encapsulating semaphores and Queues-Hard real time scheduling considerations-Saving memory space and power- introductions to RTL &QNX.

Unit:5	SOFTWARE TOOLS	12Hours

SOFTWARE TOOLS: Embedded software Development Tools:Hosts and Target Machines-

Linker/Locators for Embedded software-getting Embedded software into the Target systems. Debugging Techniques: Testing on your Host machine -Instruction set simulators- The assert macro- using laboratory tools.		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**60Hours**

Text Books	
1	David E. Simon, "An Embedded Software primer" Pearson Education Asia, 2003.
2	Kenneth J Ayala, "The 8051 Microcontroller and Architecture programming and application", Second Edition, Penram International.
Reference Books	
1	Raj Kamal, "Embedded Systems – Architecture, programming and design", Tata McGraw – Hill, 2003.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://onlinecourses.nptel.ac.in/noc20_cs14/preview
2	https://www.javatpoint.com/embedded-system-tutorial
3	https://www.tutorialspoint.com/embedded_systems/index.htm
Course Designed By:	

Mapping with Programming Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	L	L	L	S	M	S	S	M	M	S
CO2	M	M	S	S	M	S	M	S	S	S
CO3	M	S	S	S	S	S	S	S	S	S
CO4	S	S	S	S	S	S	S	S	S	S
CO5	S	S	S	S	S	S	S	S	S	S

*S-Strong; M-Medium; L-Low

Course code		INTERNET OF THINGS	L	T	P	C
Core/Elective/Supportive		Elective	4			4
Pre-requisite		Basics of Sensors & its Applications	Syllabus Version		2020-21 Onwards	

Course Objectives:

The main objectives of this course are to:

1. About Internet of Things where various communicating entities are controlled and managed for decision making in the application domain.
2. Enable students to learn the Architecture of IoT and IoT Technologies
3. Developing IoT applications and Security in IoT, Basic Electronics for IoT, Arduino IDE, Sensors and Actuators Programming NODEMCU using Arduino IDE.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand about IoT, its Architecture and its Applications	K1,K2
2	Understand basic electronics used in IoT & its role	K2,K3
3	Develop applications with C using Arduino IDE	K4
4	Analyze about sensors and actuators	K5,K6
5	Design IoT in real time applications using today's internet & wireless technologies	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	INTRODUCTION	12 hours

Introduction to IoT: Evolution of IoT – Definition & Characteristics of IoT - Architecture of IoT – Technologies for IoT – Developing IoT Applications – Applications of IoT – Industrial IoT – Security in IoT

Unit:2	BASIC ELECTRONICS FOR IoT	12 hours

Basic Electronics for IoT: Electric Charge, Resistance, Current and Voltage – Binary Calculations – Logic Chips – Microcontrollers – Multipurpose Computers – Electronic Signals – A/D and D/A Conversion – Pulse Width Modulation.

Unit:3	PROGRAMMING USING ARDUINO	12 hours

Programming Fundamentals with C using Arduino IDE: Installing and Setting up the Arduino IDE – Basic Syntax – Data Types/ Variables/ Constant – Operators – Conditional Statements and Loops – Using Arduino C Library Functions for Serial, delay and other invoking Functions – Strings and Mathematics Library Functions.

Unit:4	SENSORS AND ACTUATORS	10 hours

Sensors and Actuators: Analog and Digital Sensors – Interfacing temperature sensor, ultrasound

sensor and infrared (IR) sensor with Arduino – Interfacing LED and Buzzer with Arduino.		
Unit:5	**SENSOR DATA IN INTERNET**	**12 hours**
Sending Sensor Data Over Internet: Introduction to ESP8266 NODEMCU WiFi Module – Programming NODEMCU using Arduino IDE – Using WiFi and NODEMCU to transmit data from temperature sensor to Open Source IoT cloud platform (ThingSpeak).		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**hours**

Text Books	
1	Arshdeep Bahga, Vijay Madisetti, "Internet of Things: A Hands-On Approach", 2014. ISBN: 978-0996025515
2	Boris Adryan, Dominik Obermaier, Paul Fremantle, "The Technical Foundations of IoT", Artech Houser Publishers, 2017.
Reference Books	
1	Michael Margolis, "Arduino Cookbook", O"Reilly, 2011
2	Marco Schwartz, "Internet of Things with ESP8266", Packt Publishing, 2016.
3	Dhivya Bala, "ESP8266: Step by Step Tutorial for ESP8266 IoT, Arduino NODEMCU Dev. Kit", 2018.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://onlinecourses.nptel.ac.in/noc20_cs66/preview
2	https://www.javatpoint.com/iot-internet-of-things
3	https://www.tutorialspoint.com/internet_of_things/index.htm
Course Designed By:	

Mapping with Programming Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	M	M	M	S	M	S	M	M	S	M
CO2	M	S	M	S	M	S	M	S	S	S
CO3	S	S	S	S	M	S	M	S	S	S
CO4	S	S	S	S	S	S	S	S	S	S
CO5	S	S	S	S	S	S	S	S	S	S

*S-Strong; M-Medium; L-Low

Course code		CRITICAL THINKING, DESIGN THINKING AND PROBLEM SOLVING	L	T	P	C
Core/Elective/Supportive		Elective	4			4
Pre-requisite		Basics of Logical & Reasoning Skills	Syllabus Version		2020-21 Onwards	

Course Objectives:

The main objectives of this course are to:

1. Learn critical thinking and its related concepts
2. Learn design thinking and its related concepts
3. Develop Thinking patterns, Problem solving & Reasoning

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the concepts of Critical thinking and its related technology	K1,K2
2	Focus on the explicit development of critical thinking and problem solving skills	K2,K3
3	Apply design thinking in problems	K3,K4
4	Make a decision and take actions based on analysis	K4,K5
5	Analyze the concepts of Thinking patterns, Problem solving & Reasoning in real time applications	K5,K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	CRITICAL THINKING	12 hours

Critical Thinking: Definition, Conclusions and Decisions, Beliefs and Claims, Evidence – finding, evaluation, Inferences, Facts – opinion, probable truth, probably false, Venn diagram. Applied critical thinking: Inference, Explanation, Evidence, Credibility, Two Case Studies, critical thinking and science, critical evaluation, self assessment.

Unit:2	DESIGN THINKING	12 hours

Design Thinking: Introduction, Need of Design Thinking, problem to question - design thinking process, Traditional Problem Solving versus Design Thinking, phases of Design Thinking, problem exploration, Stake holder assessment, design thinking for manufacturers, smart Idea to implementation.

Unit:3	CASE STUDY	12 hours

Thinking to confidence, fear management, duty Vs passion, Team management, Tools for Thinking, prototype design, Relevance of Design and Design Thinking in engineering, human centered design, case study: apply design thinking in problem.

Unit:4	PROBLEM SOLVING	10 hours

Problem solving: problem definition, problem solving methods, selecting and using information, data processing, solution methods, solving problems by searching, recognizing patterns, spatial

reasoning, necessity and sufficiency, choosing and using models, making choices and decisions.		
Unit:5	**REASONING**	**12 hours**
Reasoning: Deductive and hypothetical reasoning, computational problem solving; generating, implementing, and evaluating solutions, interpersonal problem solving. Advanced problem solving: Combining skills – using imagination, developing models, Carrying out investigations, Data analysis and inference. Graphical methods of solution, Probability, tree diagrams and decision trees		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**60 hours**

Text Books	
1	John Butterworth and Geoff Thwaites, Thinking skills: Critical Thinking and Problem Solving, Cambridge University Press, 2013.
2	H. S. Fogler and S. E. LeBlanc, Strategies for Creative Problem Solving, 2nd edition, Pearson, Upper Saddle River, NJ, 2008.
Reference Books	
1	A. Whimbey and J. Lochhead, Problem Solving & Comprehension, 6th edition, Lawrence Erlbaum, Mahwah, NJ, 1999.
2	M. Levine, Effective Problem Solving, 2nd edition, Prentice Hall, Upper Saddle River, NJ, 1994.
3	Michael Baker, The Basic of Critical Thinking, The Critical Thinking Co press, 2015.
4	David Kelley and Tom Kelley, Creative Confidence, 2013.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://www.tutorialspoint.com/critical_thinking/index.htm
2	https://www.tutorialspoint.com/design_thinking/design_thinking_quick_guide.htm
3	https://nptel.ac.in/courses/109/104/109104109/
Course Designed By:	

Mapping with Programming Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	M	S	S	S	M	S	S	S
CO2	S	S	M	S	S	S	M	S	S	S
CO3	S	S	M	S	S	S	S	S	S	S
CO4	S	S	S	S	S	S	S	S	S	S
CO5	S	S	S	S	S	S	S	S	S	S

*S-Strong; M-Medium; L-Low

Course code		MOBILE COMPUTING	L	T	P	C
Core/Elective/Supportive		Elective	4			4
Pre-requisite		Basics of Mobile Communication	Syllabus Version		2020-21 Onwards	

Course Objectives:

The main objectives of this course are to:

1. Present the overview of Mobile computing, Applications and Architectures.
2. Describe the futuristic computing challenges.
3. Enable the students to learn the concept of mobile computing.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the need and requirements of mobile communication	K1,K2
2	Focus on mobile computing applications and techniques	K2,K3
3	Demonstrate satellite communication in mobile computing	K4
4	Analyze about wireless local loop architecture	K5,K6
5	Analyze various mobile communication technologies	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	INTRODUCTION	12 hours

Introduction: Advantages of Digital Information - Introduction to Telephone Systems –Mobile communication: Need for Mobile Communication – Requirements of Mobile Communication – History of Mobile Communication.

Unit:2	MOBILE COMMUNICATION	12 hours

Introduction to Cellular Mobile Communication – Mobile Communication Standards –Mobility Management – Frequency Management – Cordless Mobile Communication Systems.

Unit:3	MOBILE COMPUTING	12 hours

Mobile Computing: History of data networks – Classification of Mobile data networks - CDPD System – Satellites in Mobile Communication: Satellite classification – Global Satellite Communication – Changeover from one satellite to other – Global Mobile Communication – Interferences in Cellular Mobile Communication.

Unit:4	MOBILE COMMUNICATION SYSTEM	11 hours

Important Parameters of Mobile Communication System – Mobile Internet: Working of Mobile IP – Wireless Network Security – Wireless Local Loop Architecture: Components in WLL – Problems in WLL – Modern Wireless Local Loop – Local Multipoint Distribution Service – Wireless Application Protocol.

Unit:5	COMMUNICATION TECHNOLOGY	11 hours

WCDMA Technology and Fiber Optic Microcellular Mobile Communication – Ad hoc Network and Bluetooth technology – Intelligent Mobile Communication system – Fourth Generation Mobile Communication systems.		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**60 hours**

Text Books	
1	T.G. Palanivelu, R. Nakkeeran, "Wireless and Mobile Communication", PHI Limited, 2009.
2	Jochen Schiller, "Mobile Communications", Second Edition, Pearson Education, 2007.
Reference Books	
1	Asoke K Talukder, Hasan Ahmed, Roopa Yavagal, "Mobile Computing",TMH, 2010.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://www.tutorialspoint.com/mobile_computing/index.htm
2	https://www.javatpoint.com/mobile-computing
3	https://nptel.ac.in/noc/courses/noc16/SEM2/noc16-cs13/
Course Designed By:	

Mapping with Programming Outcomes

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	L	M	L	L	M	S	M	M	M	M
CO2	S	S	S	M	M	S	M	S	S	S
CO3	S	S	S	S	M	S	S	S	S	S
CO4	S	S	S	S	S	S	S	S	S	S
CO5	S	S	S	S	S	S	S	S	S	S

*S-Strong; M-Medium; L-Low

Course code		BLOCK CHAIN TECHNOLOGY	L	T	P	C
Core/Elective/Supportive		Elective	4			4
Pre-requisite		Basics of Block Chain & Crypto Currency	Syllabus Version		2020-21 Onwards	

Course Objectives:

The main objectives of this course are to:

1. Understand the fundamentals of block chain and cryptocurrency.
2. Understand the influence and role of block chain in various other fields.
3. Learn security features and its significance.
4. Identify problems &challenges posed by Block Chain.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Demonstrate blockchain technology and crypto currency	K1,K2
2	Understand the mining mechanism in blockchain	K2
3	Apply and identify security measures, and various types of services that allow people to trade and transact with bitcoins	K3,K4
4	Apply and analyze Blockchain in health care industry	K4,K5
5	Analyze security, privacy, and efficiency of a given Blockchain system	K5,K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	INTRODUCTION	12 hours

Introduction to Blockchain - The big picture of the industry – size, growth, structure, players. Bitcoin versus Cryptocurrencies versus Blockchain - Distributed Ledger Technology (DLT). Strategic analysis of the space – Blockchain platforms, regulators, application providers. The major application: currency, identity, chain of custody.

Unit:2	NETWORK AND SECURITY	12 hours

Advantage over conventional distributed database, Blockchain Network, Mining Mechanism, Distributed Consensus, Blockchain 1.0, 2.0 and 3.0 – transition, advancements and features. Privacy, Security issues in Blockchain.

Unit:3	CRYPTOCURRENCY	12 hours

Cryptocurrency - History, Distributed Ledger, Bitcoin protocols -Symmetric-key cryptography - Public-key cryptography - Digital Signatures -High and Low trust societies - Types of Trust model: Peer-to-Peer, Leviathan, and Intermediary. Application of Cryptography to Blockchain

Unit:4	CRYPTOCURRENCY REGULATION	11 hours

Cryptocurrency Regulation - Stakeholders, Roots of Bit coin, Legal views - exchange of cryptocurrency - Black Market - Global Economy. Cyrptoeconomics – assets, supply and

demand, inflation and deflation – Regulation.		
Unit:5	**CHALLENGES IN BLOCK CHAIN**	**11 hours**
Opportunities and challenges in Block Chain – Application of block chain: Industry 4.0 – machine to machine communication – Data management in industry 4.0 – future prospects. Block chain in Health 4.0 - Blockchain properties - Healthcare Costs - Healthcare Quality - Healthcare Value - Challenges for using blockchain for healthcare data		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**60 hours**

Text Books	
1	Arvind Narayanan, Joseph Bonneau, Edward Felten, Andrew Miller and Steven Goldfeder, "Bitcoin and Cryptocurrency Technologies: A Comprehensive Introduction", Princeton University Press (July 19, 2016).
2	Antonopoulos, "Mastering Bitcoin: Unlocking Digital Cryptocurrencies"
Reference Books	
1	Satoshi Nakamoto, "Bitcoin: A Peer-to-Peer Electronic Cash System"
2	Rodrigo da Rosa Righi, Antonio Marcos Alberti, Madhusudan Singh, "Blockchain Technology for Industry 4.0" Springer 2020.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://www.javatpoint.com/blockchain-tutorial
2	https://www.tutorialspoint.com/blockchain/index.htm
3	https://nptel.ac.in/noc/courses/noc20/SEM1/noc20-cs01/
Course Designed By:	

Mapping with Programming Outcomes										
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	S	S	S	S	S	M	S	M
CO2	S	S	S	S	S	S	S	S	S	S
CO3	S	S	S	S	S	S	S	S	S	S
CO4	S	S	S	S	S	S	S	S	S	S
CO5	S	S	S	S	S	S	S	S	S	S

*S-Strong; M-Medium; L-Low

Course code		WEB SERVICES	L	T	P	C
Core/Elective/Supportive		Elective	4			4
Pre-requisite		Basics of Distributed Computing	Syllabus Version		2020-21 Onwards	

Course Objectives:

The main objectives of this course are to:

1. Present the Web Services , Building real world Enterprise applications using Web Services with Technologies XML, SOAP , WSDL , UDDI
2. Get overview of Distributed Computing, XML, and its technologies
3. Update with QoS and its features
4. Develop Standards and future of Web Services

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand web services and its related technologies	K1,K2
2	Understand XML concepts	K2,K3
3	Analyze on SOAP and UDDI model	K4,K5
4	Demonstrate the road map for the standards and future of web services	K5
5	Analyze QoS enabled applications in web services	K5,K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	INTRODUCTION	12 hours

Introduction to web services – Overview of Distributed Computing- Evolution and importance of web services-Industry standards, Technologies and concepts underlying web services-Web services and enterprises-web services standards organization-web services platforms.

Unit:2	XML FUNDAMENTALS	12 hours

XML Fundamentals – XML documents - XML Namespaces- XML Schema –Processing XML.

Unit:3	SOAP MODEL	12 hours

SOAP: The SOAP model- SOAP messages-SOAP encoding- WSDL: WSDL structure-interfacedefinitions-bindings-services-Using SOAP and WSDL-UDDI: About UDDI- UDDI registrySpecification- Core data structures-Accessing UDDI

Unit:4	TECHNOLOGIES AND STANDARDS	12 hours

Advanced web services technologies and standards: Conversations overview-web services conversation language-WSCL interface components. Workflow: business process management-workflows and workflow management systems Security: Basics-data handling and forwarding-data storage-errors-Web services security issues.

Unit:5	QUALITY OF SERVICE	10 hours
Quality of Service: Importance of QoS for web services-QoS metrics-holes-design patterns-QoS enabled web services-QoS enabled applications. Web services management-web services standards and future trends.		
Unit:6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**60 hours**

Text Books

1	Sandeep Chatterjee, James Webber, "Developing Enterprise Web Services: An Architects Guide", Prentice Hall, Nov 2003.
2	Keith Ballinger, "NET Web services: Architecture and Implementation with .Net", Pearson Education, First Edition, Feb 2003.

Reference Books

1	Ramesh Nagappan, "Developing Java Web Services: Architecting and developing secure Web Services Using Java", John Wiley and Sons, first Edition Feb 2003.
2	Eric A Marks and Mark J Werrell, "Executive Guide to Web services", John Wiley and sons, March 2003.
3	Anne Thomas Manes, "Web Services: A managers Guide", Addison Wesley, June 2003.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://www.tutorialspoint.com/webservices/index.htm
2	https://www.javatpoint.com/web-services-tutorial
3	https://www.btechguru.com/training--programming--xml--web-services--web-services-part-1-video-lecture--11801--24--147.html

Course Designed By:

Mapping with Programming Outcomes

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	S	M	M	S	M	M	M	S
CO2	S	S	S	M	M	S	M	S	M	S
CO3	S	S	S	S	S	S	S	S	S	S
CO4	S	S	S	S	S	S	S	S	S	S
CO5	S	S	S	S	S	S	S	S	S	S

*S-Strong; M-Medium; L-Low

Course code		ROBOTIC PROCESS AUTOMATION FOR BUSINESS	L	T	P	C
Core/Elective/Supportive		Elective	4			4
Pre-requisite		Basics of Robots & its Applications	Syllabus Version		2020-21 Onwards	

Course Objectives:

The main objectives of this course are to:

1. Learn the concepts of RPA, its benefits, types and models.
2. Gain the knowledge in application of RPA in Business Scenarios.
3. Identify measures and skills required for RPA

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Demonstrate the benefits and ethics of RPA	K1,K2
2	Understand the Automation cycle and its techniques	K2
3	Draw inferences and information processing of RPA	K3,K4
4	Implement & Apply RPA in Business Scenarios	K5
5	Analyze on Robots & leveraging automation	K5,K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	INTRODUCTION	12 hours

Introduction to RPA - Overview of RPA - Benefits of RPA in a business environment - Industries & domains fit for RPA - Identification of process for automation - Types of Robots - Ethics of RPA & Best Practices - Automation and RPA Concepts - Different business models for implementing RPA - Centre of Excellence – Types and their applications - Building an RPA team - Approach for implementing RPA initiatives.

Unit:2	AUTOMATION	12 hours

Role of a Business Manager in Automation initiatives - Skills required by a Business Manager for successful automation - The importance of a Business Manager in automation - Analyzing different business processes - Process Mapping frameworks - Role of a Business Manager in successful implementation – Part 1 - Understanding the Automation cycle – First 3 automation stages and activities performed by different people.

Unit:3	AUTOMATION IMPLEMENTATION	12 hours

Evaluating the Automation Implementation Detailed description of last 3 stages and activities performed by different people - Role of a Business Manager in successful completion – Part 2 - Activities to be performed post-implementation - Guidelines for tracking the implementation success - Metrics/Parameters to be considered for gauging success - Choosing the right licensing option - Sending emails - Publishing and Running Workflows.

Unit:4	ROBOT	12 hours

Ability to process information through scopes/systems - Understand the skill of information processing and its use in business - Leveraging automation - Creating a Robot - New Processes. Establish causality by variable behavior - Understand the skill of drawing inference or establishing causality by tracking the behavior of a variable as it varies across time/referenced variable - Leveraging automation for this skill - Robot & new process creation.

Unit:5	**ROBOT SKILL**	**10 hours**

Inference from snapshots of curated terms – Omni-source data curation - Multisource trend tracking - Understand the skill of drawing inference from the behavior of curated terms by taking snapshots across systems in reference to time/variable(s) - Leveraging automation for this skill – Robot creation and new process creation for this skill.

Unit:6	**Contemporary Issues**	**2 hours**

Expert lectures, online seminars – webinars

	Total Lecture hours	**60 hours**

Text Books

1	Alok Mani Tripathi" Learning Robotic Process Automation: Create Software robots and automate business processes with the leading RPA tool" Packt Publishing Limited March 2018.
2	Tom Taulli "The Robotic Process Automation Handbook" Apress , February 2020.

Reference Books

1	Steve Kaelble" Robotic Process Automation" John Wiley & Sons, Ltd., 2018

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

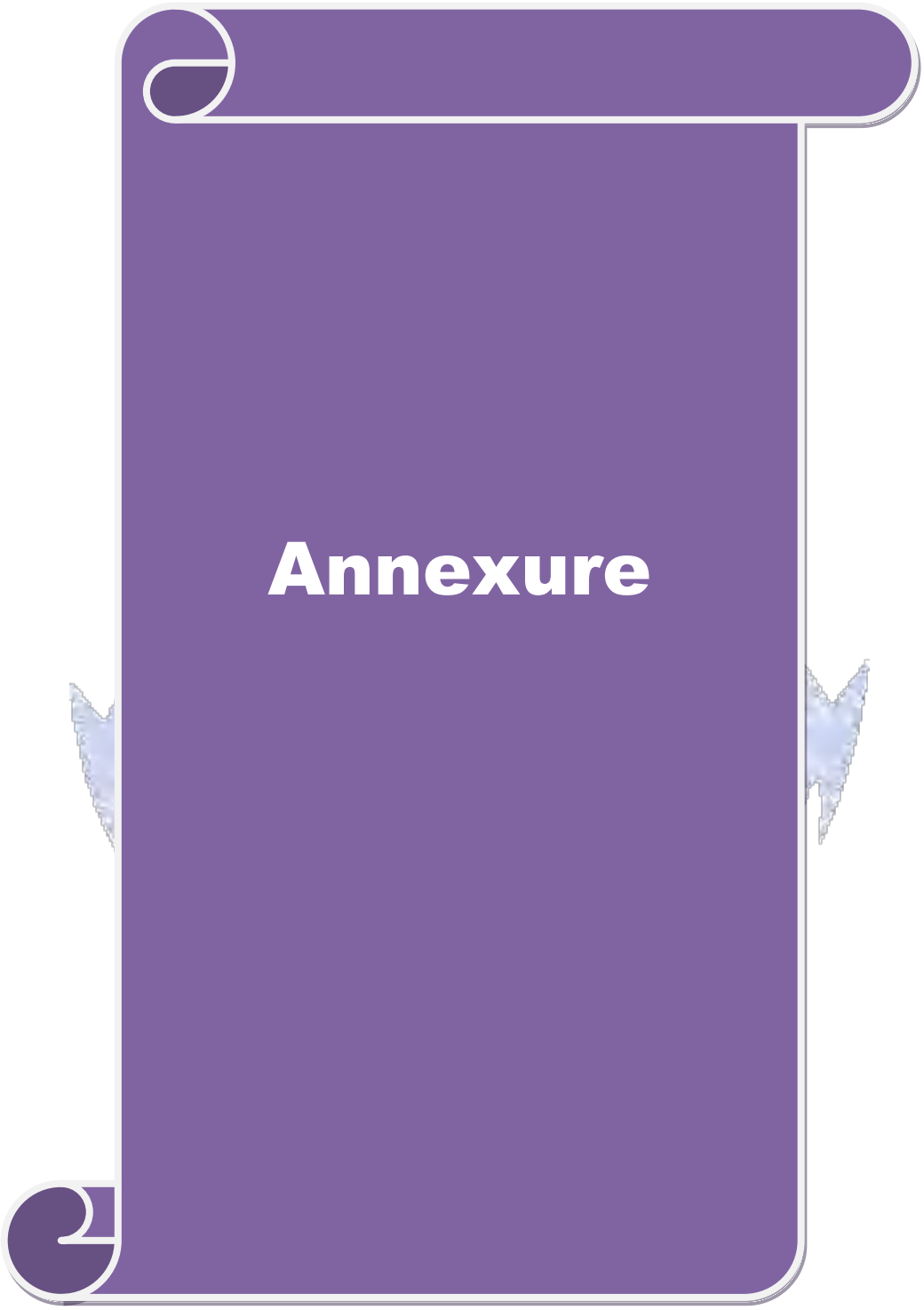
1	https://www.tutorialspoint.com/uipath/uipath_robotic_process_automation_introduction.htm
2	https://www.javatpoint.com/rpa
3	https://onlinecourses.nptel.ac.in/noc19_me74/preview

Course Designed By:

Mapping with Programming Outcomes

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	S	S	S	S	S	M	S	S
CO2	S	S	S	S	S	S	S	M	S	S
CO3	S	S	S	S	S	S	S	M	S	S
CO4	S	S	S	S	S	S	S	M	S	S
CO5	S	S	S	S	S	S	S	M	S	S

*S-Strong; M-Medium; L-Low


Annexure

M.Sc. COMPUTER SCIENCE

Syllabus
(With effect from 2020 -2021 & Onwards)

Program Code:

DEPARTMENT OF COMPUTER SCIENCE

Bharathiar University
(A State University, Accredited with "A" Grade by NAAC and 13th Rank among Indian Universities by MHRD-NIRF)
Coimbatore 641 046, INDIA

BHARATHIAR UNIVERSITY : : COIMBATORE 641046
DEPARTMENT OF COMPUTER SCIENCE

MISSION

1. To keep pace with emerging technologies and concepts, students are thrown open to the ever changing arena, meeting the industry requirements and standards, with the necessary knowledge and skill sets.

2. Are trained to explore more, at their own pace, knowing the demands of the IT world.

3. Apart from all the technical stuff, to inculcate the students about the Human Values and Professional ethics and to play a vital role in the society. Imparting them not only as world class Professionals, but also as tech savvy human beings to serve mankind.

4. **ELECTIVE – I**
5. 1.1. Multimedia and its Applications
6. 1.2. Embedded Systems
7. 1.3. Internet of Things
8. 1.4. Critical Thinking, Design Thinking and Problem Solving
9.
10.
11. **ELECTIVE – II**
12. 2.1. Mobile Computing
13. 2.2. Block Chain Technology
14. 2.3. Web Services
15. 2.4. Robotic Process Automation for Business

M.Com. (International Business)

Syllabus

AFFILIATED COLLEGES

Program Code: 31S

2020 – 2021 onwards

BHARATHIAR UNIVERSITY

(A State University, Accredited with "A" Grade by NAAC,
Ranked 13th among Indian Universities by MHRD-NIRF,
World Ranking : Times - 801-1000, Shanghai - 901-1000, URAP - 982)

Coimbatore - 641 046, Tamil Nadu, India

Program Educational Objectives (PEOs)	
The M.Com.(International Business) program describes accomplishments that graduates are expected to attain within five to seven years after graduation	
PEO1	Prepares students for a career with increased responsibility focusing on multicultural concerns, diversity and international business strategies.
PEO2	Work as a team member and also lead a team
PEO3	Integrate critical thinking and analytical decision making
PEO4	Involve in lifelong learning
PEO5	Exercise professional skills and values

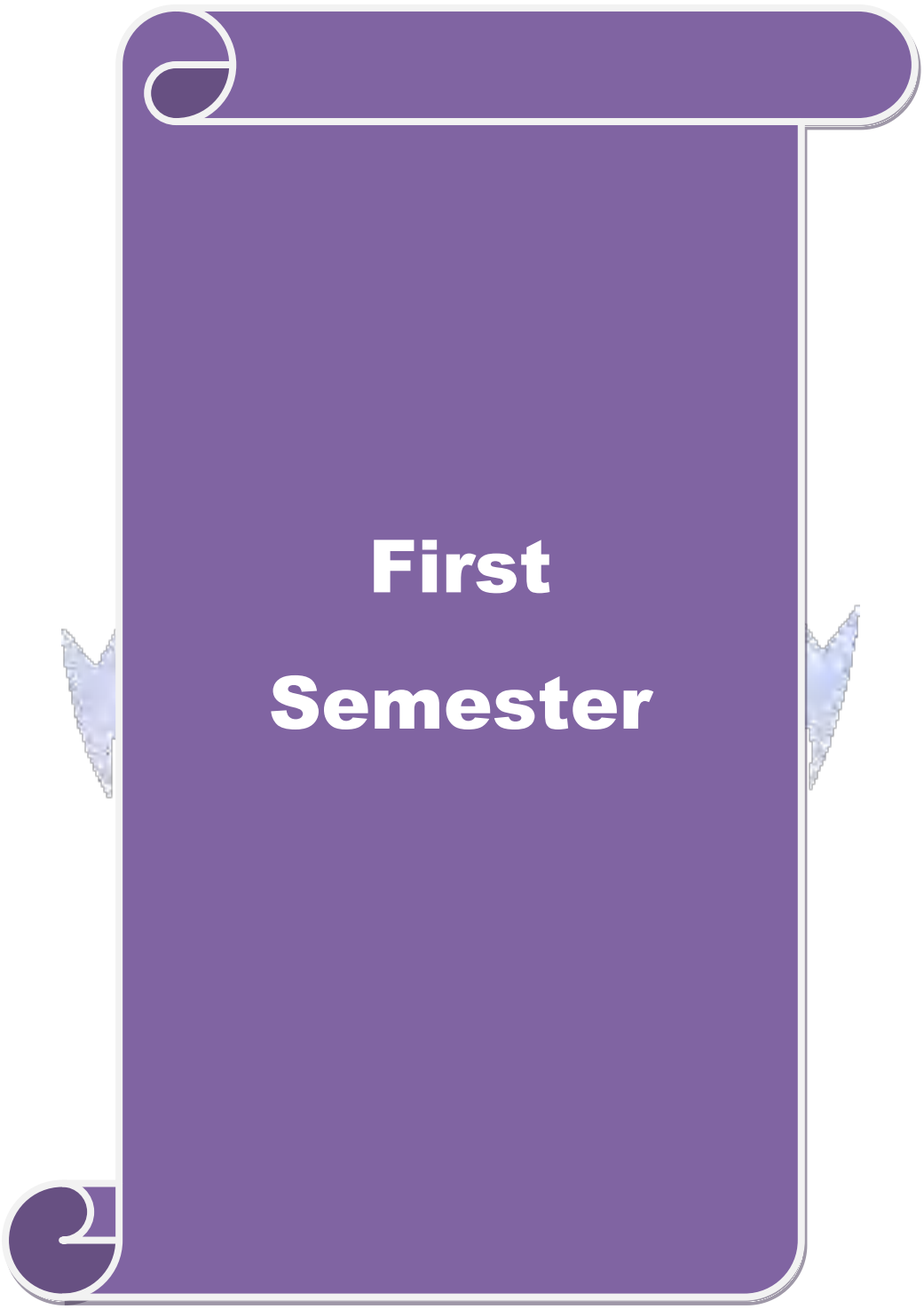
Program Specific Outcomes (PSOs)	
After the successful completion of the M.Com.(International Business) program, the students are expected to	
PSO1	Undertake a research work with specializations
PSO2	Use software tools to carry out a specified financial analysis of a business application
PSO3	Apply the knowledge gained during the course of the program to solve the real time problems in import and export
PSO4	Meet the needs of industry 4.0
PSO5	Communicate effectively with professionals

Program Outcomes (POs)	
On successful completion of M.Com.(International Business) program	
PO1	Apply critical and analytical research skill to evaluate the challenging problems
PO2	Adapt to sustain in the challenging era
PO3	Graduates are enabled with the Knowledge in the practical applications of import and export
PO4	Learners will be able to do higher education and advance research in the field of international business
PO5	Learners will be able to prove their proficiency with the ability to engage in export trade

M.Com (International Business) Curriculum

(For the students admitted during the academic year 2020 - 21 – 21 onwards)

Course Code	Title of the Course	Credits	Hours		Maximum Marks		
			Theory	Practical	CIA	ESE	Total
FIRST SEMESTER							
	Global Business Environment	4	3	-	25	75	100
	International Marketing Management	4	3	-	25	75	100
	Managerial Economics	4	3	-	25	75	100
	Financial Accounting	4	3	-	25	75	100
	Elective-I :	4	3	-	25	75	100
SECOND SEMESTER							
	International Trade Procedure	4	3	-	25	75	100
	Logistics & Supply Chain Management	4	3	-	25	75	100
	Foreign Exchange Management	4	3	-	25	75	100
	Cost and Management Accounting	4	3	-	25	75	100
	Computer Applications: MS Office & Internet - Practical I	4	3		40	60	100
	Elective -II :	4	3	-	25	75	100
THIRD SEMESTER							
	Business Research Methods	4	3	-	25	75	100
	International Financial Management	4	3	-	25	75	100
	Export –Import Finance	5	3	-	25	75	100
	Indirect Tax Laws	4	3	-	25	75	100
	Industrial Training (Report 40 marks and Viva 10 marks.	2			50	-	50
	Elective/Diploma-III :	3	3	-	25	75	100
FOURTH SEMESTER							
	Strategic Management	4	3	-	25	75	100
	International Economics	4	3	-	25	75	100
	Computer Lab (Tally)	4	3	-	40	60	100
	Project Work & Viva-Voce (OR) In lieu of Project work, the following two papers may be opted.	8			160 Marks – Project and 40 Marks Viva-Voce)		200
	1. International Business Relations	4	3	-	25	75	100
	2. Industrial Law	4	3	-	25	75	100
	Elective/Diploma-IV :	3	3	-	25	75	100
	Grand Total	90					2250


First
Semester

Course code		GLOBAL BUSINESS ENVIRONMENT	L	T	P	C
Core/Elective/Supportive		Core	4		-	4
Pre-requisite		Basic knowledge on Global business environment	Syllabus Version		2020 - 21	

Course Objectives

1.To be familiar with the basic concept of international business environment
2.To understand the national physical environment, includingRostow's view and tax structure
3.To have insight knowledge about cultural factors and attitude
4. To develop and understanding of legal environment in International Business
5. To learn Fundamentals of environmental protection and international policy

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Acquire the basic knowledge various national physical environment and its impact on international business.	K1
2	Understand the complex business environment with international business perspectives by applying and establish the strategies with ethical and social values to achieve the market share for their establishment for longer period.	K2
3	Acquire the impact of the legal environment and its application in international business to attain the business to attain the business prospective towards national building.	K3
4	Develop the effective use of world resources with social, cultural and ethical background.	K4
5	Evaluate the environmental protection and economics policies to offer valuable solution for sustainability.	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Introduction	18 Hours

International business: Meaning – nature- concepts – international trade – analyzing the business environment – types – Micro and Macro environment: Role of Political environment- role of social – cultural environment- role of economic environment in international business.

Unit:2	National Physical Environment	18 Hours

The national physical environment – Topography – Climate – The nature of Economic activity – Rostow's view.Infrastructure – Transportation.Energy – communication – Urbanization – Tax structure- Inflation-foreign investment.

Unit:3	Cultural environment	18 Hours

Cultural environment: Material culture – language – Aesthetics – design, color, music, brand names – educational – religious – Attitudes and values – Eastern Vs Western Culture.

Unit:4	Legal environment	18Hours

Legal environment – Bases for legal system – Jurisdictions International Legal disputes –

International dispute resolution crime, Corruption and law – Commercial law within countries – Impact on International law on Business of human Rights.		
Unit:5	**Fundamentals of environmental**	**18 Hours**
Fundamentals of environmental protection and economics – Environmental problems, air, water pollution – forests – land use – Environmental policy : Basic approach – Regulation – Distributive effects – International policy – India's policy and the relevant constitutional provisions – law of environment – protection in India.		
Unit:6		
Asian Negotiating Style, Assignments, Seminar, Group Discussionand CurrentAffairs		
	Total Lecture Hours	**90 Hours**

Books for study	
1	International Marketing :Onkvist& Shaw, 2014
2	International Marketing : Philip R. Careora, 2016
3	Environmental Economics : M. Karpagam, 2018
Books for Reference	
1	Global Marketing Management(3rd edition 2012) by Kieferlee,Steve carter, Oxford University Press, 2017
2	International Business Environment(First Reprint 2011) by SukumarNandhini, The Mcgraw-Hill Publications, 2016
3	Global Marketing Management (8 edition April 25,2013) by Warren J.Keegam, Prentice Hall India Publishing, New Delhi, 2018
4	International Marketing Text and cases-(14th edition,2015), Franchischerunilam, Himalaya Publishing House, New Delhi, 2018
5	International Marketing management (25th revised edition,2015), Varshney and Bhattacharya,Sultanchand and Sons, New Delhi, 2019
Related Online Contents	
1	http://epgp.inflibnet.ac.in.ahl.php?csrno=438 paper no and title P11. International business environment module number and title :MI.Globalization Module Tag: BSE_P11_M1
2	www.rbi.org.in
3	www.eximguru.com
Course Designed By:	

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	M	M	S	S
CO2	S	M	M	S	M
CO3	M	M	S	M	S
CO4	M	S	M	M	M
CO5	M	M	S	M	S

*S-Strong; M-Medium; L-Low

Course code		INTERNATIONAL MARKETING MANAGEMENT	L	T	P	C
Core/Elective/Supportive		Core	4		-	4
Pre-requisite		Broad understanding about Marketing and brand Concepts	Syllabus Version		2020 - 21	

Course Objectives:

1.To know the basic concepts principles of the International Marketing
2. To understand the consumer behavior in the international contexts
3. To developthe product idea and procedure to introduce a new product
4. To understand and evaluate the application of marketing
5. To acquire knowledge about Global Marketing

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand and evaluate the application of marketing	K2
2	Identify the skill sets required in marketing	K4
3	Examine the various functions of International Marketing	K4
4	Determine the various Marketing areas	K5
5	Gain knowledge on Global Marketing	K6

K1 - Remember; **K2**– Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Introductions	18 Hours

National & International Marketing: Definition – Special features of International Marketing – Barriers in International Marketing – Future of Global Marketing.

Unit:2	International Marketing	18 Hours

Management of International Marketing – Defining customer value and satisfaction –retaining customers – delivering customer value & satisfaction – Implementing total quality marketing – Competitive marketing strategies – Balancing customer and Customer Orientations.

Unit:3	Marketing decisions	18 Hours

International Marketing decisions – Products strategies and product planning – Branding and Packaging decision – Pricing strategies.

Unit:4	Managing direct and on-line marketing	18 hours

Managing direct and on-line marketing – the growth and benefits of direct marketing – indirect marketing – major channel for direct marketing – on-line marketing –conducting on-line marketing – Challenges of on-line marketing.

Unit:5	Case Studies	18 Hours

Case Studies (based on the above units).

Unit:6		
Assignments, Seminar, Group Discussion and Current Affairs / Quiz / Self Study Component		
	Total Lecture Hours	**90 Hours**

Books for study	
1	Marketing Management : Philip Kotler (Millennium edition), 2017
2	International Marketing :SakOnkvist& John J. Shaw, 2018
3	Principles of International Marketing : Philip Kotler& Gray Armstrong, 2015
Books for Reference	
1	Global Marketing Management : Keegan, 2014
2	International Marketing Management : Varshney and Bhattacharya, 2019
3	International Marketing (4th Edition, 2010) by P.K. Vasudeva, Excel Book, New Delhi , 2017
Related Online Contents	
1	e-PG Pathshala : (Commerce : P.07, M.33)
2	NPTEL : https: //onlinecourses.nptel.ac.in
Course Designed By:	

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	M	S	M	L	L
CO2	M	S	S	M	S
CO3	S	M	M	M	L
CO4	M	S	S	M	M
CO5	M	S	S	M	M

*S-Strong; M-Medium; L-Low

Course code		MANAGERIAL ECONOMICS	L	T	P	C
Core/Elective/Supportive		Core	4		-	4
Pre-requisite		To make the students to understand the application of principles of economics in the field if managerial decision making	Syllabus Version		2020 - 21	

Course Objectives:

1. To offer expertise and knowledge on the application of economic theories and concepts to business decisions.
2. To make the students to understand the application of economic tools to demand forecasting and pricing methods
3. To Assess the effects of business cycle in a business
4. To apply economics models for demand & supply, pricing decisions.
5. To familiarize the students to understand the national income

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Acquire the knowledge about the Nature and Scope of Managerial Economics Demand Analysis and Cost Concepts	K1
2	Understand the role of Managerial Economist, Goals of Corporate Enterprises, Demand determinants, type of market, National income and public finance	K2
3	Be familiar withGovernmentpricingpoliciesandalsoaboutTRIM'sandTRIP'S	K3
4	Analyze role of managerial economist in demand analysis, cost and production analysis	K4
5	Evaluate the value of enterprises, pricing and output decisions, business cycles and causes and remedies of industrial sickness.	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1 **18 Hours**

Managerial Economics: Meaning-Nature-Scope- Role and Responsibilities of Managerial Economist – Goals of Corporate Enterprises: Profit maximization and wealth maximization.

Unit:2 **18 Hours**

Demand analysis - Demand determinants – Demand distinctions – Elasticity of demand – Types, methods – Applications – Demand forecasting for industrial goods – Consumer goods – Consumer durables – Factor influencing elasticity of demand.

Unit:3 **18 Hours**

Cost and production analysis - Cost concepts – Cost and output relationship - cost control – Short run and Long run - cost functions - production functions – Break-even analysis - Economies scale of production.

Unit:4		**18Hours**
Pricing and output decisions in different market situations – Monopoly and Duopoly competition - _Perfect and Imperfect - Pricing policies.		
Unit:5		**18 Hours**
Business cycles – National income, monetary and fiscal policy – Public finance. TRIMsIntellectual Property rights – TRIPs – Industrial Sickness – causes –remedies.		
Unit:6	**Contemporary Issues**	
Assignments, Seminar, Group Discussionand Current Affairs		
	Total Lecture hours	**90 Hours**

Books for study	
1	Maheswari and Varshney : Managerial Economics, 2017
2	P.L.Metha : Managerial Economics, 2016
3	G.S.Gupta : Managerial Economics, 2018
Books for Reference	
1	Reddy P N &Appannaiah .H.R : -Essential of Managerial Economics, 2019
2	Peterson Craig .H CrisLewis .W Managerial Economics, 2019
Related Online Contents	
1	https://youtu.be/n47SQ64MhYw
2	https://youtu.be/dyq-G8tyuOU
Course Designed By:	

Mapping with Programme Outcomes					
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**
CO1	M	S	M	L	L
CO2	M	S	S	M	S
CO3	S	M	M	M	L
CO4	M	S	S	M	M
CO5	M	S	S	M	M

*S-Strong; M-Medium; L-Low

Course code		FINANCIAL ACCOUNTING	L	T	P	C
Core/Elective/Supportive		Core	4		-	4
Pre-requisite		Basic knowledge in Accounting Concepts	Syllabus Version		2020 - 21	

Course Objectives:

The main objectives of this course are to:

1. To enable the students to understand the basic concepts of accounting with Indian Accounting Standards.
2. To enable the students to learn about Single Entry System and Royalty Accounts.
3. To impart the knowledge about Departmental Accounts and Branch Accounts.
4. To provide the techniques about Depreciation Accounting
5. To offer the knowledge to prepare the accounts relating to insolvency of an individual

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Acquire the conceptual skills to prepare Single Entry system and Royalty Accounts	K1 & K2
2	Analyse the calculation of Interest and Installment amount under Hire Purchase System and Installment Purchase System.	K2 & K3
3	Prepare the Departmental Accounts and Branch Accounts.	K4
4	Prepare the Insolvency accounts	K5 & K6
5	Explain the Human Resource Accounting	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Introductions	18 Hours

Accounting: Meaning-Importance-Accounting Concepts-Convention. Trial Balance-Trading and Profit and Loss Account and Balance Sheet of Sole traders with simple adjustments-Trial balance Vs Balance sheet. Accounting Standards – Meaning – **Significance of Accounting Standards**. Overview of Important Accounting Standards: AS 1 (Disclosure Accounting Policies)-AS 2 (Valuation of Inventories) – AS 6 (Depreciation Accounting)-AS 9 (Revenue Recognition) – AS 10 (Accounting for Fixed Assets).

Unit:2	Hire purchase	18 Hours

Hire purchase and Installment systems- Hire Purchasing Trading account- Goods on sale or Return

Unit:3	Departmental accounts	18 Hours

Departmental accounts – transfers at cost or selling price –Branch excluding foreign branches

Unit:4	Single Entry system & Depreciation	18 Hours

Single Entry system-meaning and features-Statement of affairs method and Conversion method. Accounting for Depreciation – Significance of depreciation-methods of providing depreciation- Royalty excluding Sublease.

Unit:5	Insolvency accounts	18 Hours

Insolvency accounts of an individual-Preparation of Statement of Affairs-Deficiency account-Inflation Accounting – Social Accounting – Environmental Accounting- Human Resource Accounting. (Theory only)		
Unit:6	**Contemporary Issues**	
Assignments, Seminar, Group Discussionand Current Affairs		
	Total Lecture Hours	**90 Hours**

Books for study	
1	Advanced Accountancy - R.L.Gupta&M.Radhasamy, 2017
2	Advanced Accountancy - S.P.Jain&K.L.Narang, 2018
3	Advanced Accountancy - M.C.Shukla&T.S.Grewal, 2019
Books for Reference	
1	Financial Accounting - T.S.Reddy&A.Murthy, 2019
Related Online Contents	
1	www.icai.org
2	www.icsi.edu
3	www.caclubindia.com
Course Designed By:	

Mapping with Programme Outcomes					
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**
CO1	S	S	M	M	M
CO2	S	S	M	S	S
CO3	S	S	M	S	S
CO4	S	S	M	M	M
CO5	S	S	M	S	S

*S-Strong; M-Medium; L-Low

Course code		INTERNATIONAL TRADE PROCEDURE	L	T	P	C
Core/Elective/Supportive		Core	4		-	4
Pre-requisite		To equip the students with knowledge of International Trade procedure	Syllabus Version	2020 - 21		

Course Objectives:

1. To develop the students to convert themselves to familiar to do and to involve in the international business.
2. To familiarize the students about Different categories of Exporters
3. To impart the knowledge about Export and Import Documentation.
4. To provide Knowledge on Warehousing in Exporters
5. To offer the knowledge to case studies

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Acquire the basic knowledge of the terms used in International business such as licensing procedure	K1
2	Understand the role of registered exports, export oriented units	K2
3	Acquire the application skill in connection with license duty trade control capital goods under EPCG scheme used in foreign trade	K3
4	Develop the analytical skill about the role of warehousing in connection with in ports, NRI norms, free trade zones, customs procedures and customs duty and RBI regulations relating to letter of credit.	K4
5	Evaluate the activities refereeing the past cases relating to international trade procedures	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Introductions	18 Hours

International Trade – Internal and International trade. Export Trade Control: Different categories of Exporters – Export licensing procedures and formalities – Role of ECGC in export promotion – Deemed exports and its benefits.

Unit:2	Registered Exporters	18 Hours

Registered Exporters: Definition of export House and Trading House – Incentives given to Free trade Zones and 100% EOUs – salient features and benefits – Norms governing the establishment and governing of the units – Project exports and consultancy exports.

Unit:3	Import Trade Control	18 Hours

Import Trade Control : License – Duty Entitlement Passbook Scheme – Harmonized IEC code number adopted for classification of import trade control items – Import of capital goods under EPCG scheme – Import of raw materials and components under OGL actual user condition – Import for stock and sale – Restricted and Banned items for imports – Canalisation of Imports and various canalizing agencies.

Unit:4	Warehousing in imports	18Hours
Warehousing in connection with imports – Bonded warehousing – Special facilities provided for NRIs and the norms for import of various items by them – Import of Capital goods and raw materials for Free Trade Zones and 100% EOUs – Customs Procedures for Imports – Customs duty and Indian Customs tariff. Export and Import Documentation: Acceptance of document of L/C, D/A and D/P– Approved methods of RBI regulations – Suppliers credit.		
Unit:5	**Case Studies**	**18 Hours**
Case Studies (based on the above units).		
Unit:6	**Contemporary Issues**	
Assignments, Seminar, Group Discussion, Current Affairs, discussions with industrialist, debate and Brain storming		
	Total Lecture Hours	**90 Hours**

	Books for study
1	How to Import :Nabhps Publication, 2018
2	How to Export :Nabhps Publication, 2019
3	Export Marketing : T. A. S. Balagopal, 2017
	Books for Reference
1	A Guide on Export Policy Procedure and Documentation : M. L. Mahajan, 2017
	Related Online Contents
1	https://youtu.be/UCNuQfyoNTw
2	https://youtu.be/V4AjcG3-z38
3	https://youtu.be/O0zs6CH-IPc
	https://youtu.be/jj0H1Ly3XVM
Course Designed By:	

Mapping with Programme Outcomes					
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**
CO1	S	S	M	M	M
CO2	S	S	M	S	S
CO3	S	S	M	S	S
CO4	S	S	M	M	M
CO5	S	S	M	S	S

*S-Strong; M-Medium; L-Low

Course code		LOGISTICS & SUPPLY CHAIN MANAGEMENT	L	T	P	C
Core/Elective/Supportive		Core	4		-	4
Pre-requisite		Basic Knowledge about Supply Chain Management	Syllabus Version		2020 - 21	

Course Objectives:

1. To create awareness about the logistics and supply chain activities taken in order to deliver the good.
2. To understand supply chain management problems
3. Acquire knowledge about the supply chain integrates and strategies
4. Students will know about how to manage different strategic analysis Alliances procurement and out sourcing and dimensions of customer value to service industries .
5. Alliances procurement and out sourcing and dimensions of customer value to service industries .

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the marketing concepts and its application in logistics management	K1
2	Appraise and apply the practical aspects in logistics management	K5
3	Develop the logistics strategies to promote the product	K4
4	Defining the strategies to be adopted in logistics management	K3
5	Create a good logistics manger to apply the strategy	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6**– Create

Unit:1	Introductions	18 Hours

Logistics Management: Origin and Definition – Types of Logistics – Logistics Management – Ware House Management – Automation and Outsourcing - Customer Service and Logistics Management – A Perspective - Concepts in Logistics and Physical Distribution - Distribution and Inventory

Unit:2	Inventory Control	18 Hours

Types of Inventory Control - Demand Forecasting - Warehousing and Stores Management – Routing - Transportation Management - Some Commercial Aspects in Distribution Management – Codification - Distribution Channel Management - Distribution Resource Planning (DRP) - Logistics in 21st Century

Unit:3	Supply Chain Management	18 Hours

Supply Chain Management: Introduction and Development- Nature and Concept - Importance of Supply Chain - Value Chain - Components of Supply Chain - The Need for Supply Chain - Understanding the Supply Chain Management - Participants in Supply Chain – Global Applications

Unit:4	Role of a Manager in Supply Chain	18Hours

Role of a Manager in Supply Chain - Supply Chain Performance Drivers - Key Enablers in Supply Chain Improvement - Inter-relation between Enablers and Levels of Supply Chain Improvement- Systems and Values of Supply Chain		
Unit:5	**Aligning the Supply Chain**	**18 Hours**
Aligning the Supply Chain with Business Strategy - SCOR Model –Outsourcing and 3PLs – Fourth Party Logistics – Bull Whip Effect and Supply Chain – Supply Chain Relationships – Conflict Resolution Strategies – Certifications		
Unit:6	**Contemporary Issues**	
Assignments, Seminar, Group Discussion and Current Affairs		
	Total Lecture hours	**90 Hours**

Books for study	
1	D K Agrawal, Textbook of Logistics and Supply Chain Management, MacMillan 2003, 1st Edition, 2017
Books for Reference	
1	Logistics and Supply Chain Management - Cases and Concepts. G Raghuram& N Rangaraj, Mac Millan, 2019
2	Logistics & Supply Chain Management: Creating Value-Adding Networks: Martin Christopher, FT Press, 2017
3	Supply Chain Management: Janat Shah, Text and Cases, 1st Edition, Pearson, 2013
Related Online Contents	
1	NPTEL
2	SWAMYAM /MOOCs
3	YouTube channels
Course Designed By:	

Mapping with Programme Outcomes					
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**
CO1	S	S	S	S	M
CO2	S	S	S	S	M
CO3	S	M	S	S	M
CO4	M	S	S	S	M
CO5	S	M	S	L	M

*S-Strong; M-Medium; L-Low

Course code		**FOREIGN EXCHANGE MANAGEMENT**	**L**	**T**	**P**	**C**

Core/Elective/Supportive	Core	4		-	4
Pre-requisite	Basic knowledge on Foreign Exchange Management	**Syllabus Version**		**2020 - 21**	

Course Objectives:

1. To understand the evolution, growth, structure, components of the International and Domestic Forex Market.
2. To understand various financial terminologies and transactions involved in the Forex Market
3. To understand how the foreign exchange market operates
4. To understand the principles of currency values
5. To explain the techniques can be used Hedge

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Analyze Foreign Exchange Transactions	K4
2	Evaluate authorized dealers in nationalized	K5
3	Understand Foreign exchange risk and exposure	K2
4	Analyze Inter Bank Deals- cover deals trading	K4
5	Create Foreign Exchange Management	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	**Introductions**	**18 Hours**

Foreign exchange – Administration of Foreign Exchange – Foreign Exchange transactions – purchases and sales transactions – Authorized dealers – Foreign currency accounts –Multinational Banking.

Unit:2	**Foreign exchange market**	**18 Hours**

Foreign exchange market – Functions – Exchange rates – Exchange quotations – spot and forward transactions – Merchant rates – TT Selling rate- TT Buying rate-Forward exchange contract- Features of Forward exchange contract.

Unit:3	**Foreign exchange risk and exposure**	**18 Hours**

Foreign exchange risk and exposure – External techniques of exposure management – Internal techniques of exposure management.

Unit:4	**Inter Bank Deals**	**18Hours**

Inter Bank Deals- cover deals trading, SWAP Deals – Arbitrage operations-Managing foreign exchange reserves-Fiscal and Monetary policies in India- Devaluation –pros and cons.

Unit:5	**Case Studies**	**18 Hours**
Case Studies (based on the above units).		
Unit:6	**Contemporary Issues**	
Assignments, Seminar, Group Discussion and Current Affairs		
	Total Lecture hours	**90 Hours**

Books for study	
1	International Finance : Maurice. D. Levi, 2016
2	Foreign Exchange, International Finance : A. V. Rajwade, 2013
3	Global Financial Markets : Ian H. Giddy, 2019
Books for Reference	
1	Foreign Exchange Arithmetic : C. Jeevanandham, 2019
2	International Economics : Methane, 2017
Related Online Contents	
1	https://youtu.be/Ea-j0qbKkVE
2	https://youtu.be/e5zI4NhvST8
3	https://youtu.be/BbYHRtypG5M
Course Designed By:	

Mapping with Programme Outcomes					
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**
CO1	S	S	S	S	M
CO2	S	S	S	S	M
CO3	S	M	S	S	M
CO4	M	S	S	S	M
CO5	S	M	S	L	M

*S-Strong; M-Medium; L-Low

Course code		COST AND MANAGEMENT ACCOUNTING	L	T	P	C
Core/Elective/Supportive		Core	4		-	4
Pre-requisite		Knowledge in basics of Cost and Management Accounting	Syllabus Version		2020 - 21	

Course Objectives:

1. To facilitate the students about various tools and techniques available in Cost and Management Accounting
2. To give in-depth knowledge about the preparation of cost sheet and about material and labour cost management
3. To impart the knowledge about preparation of Fund flow and Cash flow statements
4. To understand the application of marginal cost techniques
5. equip themselves in the preparation of various budgets

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Select the appropriate tools for managerial decision making	K2&K3
2	Construct cost sheet and apply various techniques using marginal costing technique for managerial decision making	K3&K6
3	Illustrate the preparation of Funds flow and /cash flow statement	K2 &K5
4	Familiar in BEP analysis	K5
5	Develop the techniques to prepare different types of budgets	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Introductions	18 Hours

Cost Accounting Meaning-definitions-nature- significance – Differences between financial and cost accounting – Installation of Costing system – Characteristics of ideal costing system – Methods of costing – Classification of costs- Preparation of cost sheet.

Material: Need for material control- tools used for material control-types of purchase of material. Stores control: Fixing different levels of Materials – EOQ. Bin Card: Meaning-Importance- Bin Card Vs Stores Ledger. Preparation of Stores Ledger by using FIFO- LIFO –Simple average method-Weighted average method.

Unit:2	Labor & Overheads	18 Hours

Labour: Time rate- Piece rate-points to be noted in wage fixation. Incentives: meaning-importance-Taylor's Differential piece rate - Halsey and Rowan plans. Labour turnover: meaning- Causes – effects- methods of reduction of labour turnover.

Overheads: Meaning – Classification – Allocation-Absorption- Over absorption and Under absorption – Meaning and causes.

Unit:3	Management Accounting	18 Hours

Management Accounting: – Meaning – Nature – Scope – Functions – Objectives – Importance – Limitations –Tools and Techniques of Management Accounting. Ratio Analysis: Meaning – Advantages – Limitations – Classification of Ratios.		
Unit:4	**Funds Flow Statement**	**18Hours**
Funds Flow Statement: Meaning-Merits-Demerits- Preparation of Funds Flow Statement. Cash flow Statement: Meaning-Merits-Demerits - Cash Flow Statement Vs Fund Flow Statement - Preparation of Cash flow Statement as per AS-3.		
Unit:5	**Marginal Costing**	**18 Hours**
Marginal Costing: Meaning -Salient features – Advantages – Limitations-Cost-volume-profit Analysis – Budgeting and Budgetary control – Meaning- Definition – Objectives– Essentials– Advantages – Limitations –Types of Budgets – Preparation of Production Budget, Flexible Budget and Cash Budget.		
Unit:6	**Contemporary Issues**	**2 Hours**
Assignments, Seminar, Group Discussion, Current Affairs		
	Total Lecture Hours	**90 Hours**

Books for study	
1	Cost Accounting - Jain &Narang, 2019
2	Cost Accounting - S.P. Iyengar, 2017
3	Cost Accounting - T.S.Reddy&Y.H.P.Reddy, 2019
Books for Reference	
1	Management Accounting - T.S.Reddy&Y.H.P.Reddy, 2017
2	Management Accounting - S.N.Maheswari, 2019
Related Online Contents	
1	https://www.youtube.com/watch?v=_z4-7xr6ur8
2	https://www.youtube.com/watch?v=0OJ2PIGiwJE
3	https://epgp.inflibnet.ac.in/Home/ViewSubject?catid=6
Course Designed By:	

Mapping with Programme Outcomes					
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**
CO1	S	S	M	S	S
CO2	S	S	M	S	S
CO3	S	S	M	S	S
CO4	S	S	M	S	S
CO5	S	S	M	S	S

*S-Strong; M-Medium; L-Low

Course code		**COMPUTER APPLICATIONS PRACTICAL-I MS OFFICE AND**	**L**	**T**	**P**	**C**

		INTERNET				
Core/Elective/Supportive			**4**			**4**
Pre-requisite		E-Reading and Writing	**Syllabus Version**		**2020 - 21**	

Course Objectives:

1. To gain familiarity with the concepts and terminology used in the development, implementation and operation of business application systems.
2. To explore various methods that Information Technology can be used to support existing businesses and strategies.
3. To investigate emerging technology in shaping new processes, strategies and business models.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Recollect the fundamentals concepts of MS Office and Internet	K1
2	Accomplish projects utilizing business theories, Internet resources and computer technology.	K2
3	Work with simple design and development tasks for the main types of business information systems	K3
4	Achieve hands-on experience with productivity/application software to enhance business activities.	K4
5	Knowledge about working with spreadsheets	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	**18 Hours**

MS OFFICE - MS WORD - Type your curriculum vitae using templates/wizards in MS Word 2. Prepare a L/C in MS Word. 3. Prepare a Bill of Exchange. 4. Prepare a Quotation to various suppliers in order to purchase Raw materials: use mail merge. 5. Collect and prepare the certificate of origin. 6. Collect and prepare a pay slip. 7. Collect and prepare an invoice. 8. Collect and prepare a packing list. 9. Create a sample research reports (only on topics). 10. Draw a product lifecycle. 11. Draw an organizational chart in MS Word. 12. Prepare a minute for a meeting. 13. Draft a letter to various newspapers to display the press notes of the workshop conducted in your department: use mail merge. 14. Prepare

Unit:2	**18 Hours**

MS EXCEL -1. Find the correlation between demand and supply. 2. Prepare an excel sheet under the main heading of assets and liabilities and perform the following: a. Select a column and change the number format to rupees and paise format. b. Change a particular range of cells font as bold. c. Select key and go to sheet no.3 and select cell. 3. Calculate T Test and F Test for the data collected from any statistical book. 4. Create customs Exchange rate in Excel(buying rate and selling rate) 5. Take the sample data and draw a demand and supply curve and fix the price in Excel. 6. Draw a Break Even Chart with imaginary figures. 7. Draw an Indifference curve analysis. 8. Prepare a sales budget. 9. Prepare a market survey report for any product. 10. Estimate GDP and National income in Excel

Unit:3	**18 Hours**

MS POWERPOINT - Prepare an agenda for an inauguration function of a one day seminar. 2. Draw

a diagram of different packing labels and symbols in MS Word and display it in the power point. 3. Create an advertisement using PowerPoint. 4. Create a slide show of various activities of your department during the academic year. 5. Present using Power point the procedures involved in exporting a product. 6. List down the countries in the European Union and also the currencies.

Unit:4		**18 Hours**

MS ACCESS - Create G8 countries (SAARC) trade data in access. 2. Create a database for countries cultural environment in access. 3. Create a database of major MNC‟s in India and their business using Access. 4. Display the details of soft wares developed by any corporate in India and perform the following: a. Display the details of the packages whose software costs exceed 20 thousand. b. Display the details of the software that are developed in Tally. c. What is a price of costliest software developed in accounting? 5. Create a table with the following fields and insert the values: a. company name b. proprietor c. address d. suppliers name e. number of employees f. GP percentageDo the following: a. Display all the records of the company in ascending order with GP percentage. b. Display the name of the company whose supplier name is TELCO c. Display the details of the company whose GP percentage greater than 20 d. Display the details of the company having employee ranging from 300 to 1000 e. Display the name of the company whose supplier is name as TATA 6. Create a table named student in the following fields and insert the values a. student name b. gender c. roll number d. department name e. address f. percentage Calculate the following: a. calculate the average percentage of the students b. display the names of the students whose percentage is greater then 30 c. display the details of the student who got the highest percentage d. display the details of the students whose percentage is 50 and 70 e. display the details of the students whose percentage is greater than the percentage of roll number 12CA01. 7. Create a table named product with the following fields: a. product number b. product name c. unit of measure d. quantity e. total amount Do the following: a. Select the records whose unit of measurement is Kg b. Select the records whose quantity is greater than 10 and less than or equal to 20. c. Calculate the entire total amount by using sum operation. d. Calculate the number of records whose unit price is greater then 50 with count operation. 8. Create the table payroll with the following fields a. employee number b. employee name c. department d. Basic pay e. HRA f. DA g. PF h. Net pay Calculate the following: a. Net pay. b. Arrange the records in ascending order according to the net pay. c. Display the details of the employees working in sales department. d. Select the details of the employees whose HRA is greater than 1000 and DA greater than 1000.

Unit:5		**18 Hours**

INTERNET -Discussions on various forms and E groups. 2. Download the port areas in the map and display it in the Power Point. 3. Browse and collect the country profile. View as slide show. 4. Collectthevariousorganizationsassisting India'sforeigntradeandprep are a report. 5. Collect and prepare the containers lists based on the commodity features. 6. Use Export 911.com and download any one export document. 7. collect and prepare sailing routes and bunkering ports 8. Download the information regarding storage factor of different commodities. 9. Download the shipping space in any of the leading ports in India and download the information regarding ship repair and construction. 10. Download the information regarding the different types of marine risks. 11. Download the information regarding ship schedule at different ports: a. birth time b. sailing time c. arrival time and display it in Power point.

Unit:6		
Assignments, Seminar, Group Discussion, Current Affairs / self study working with computer		
	Total Lecture Hours	**90 Hours**

Books for study	
1	Computer Applications in Business" by Parameswaran R Anil Kumar, Dr. Pardeep Gupta, Dr. PardeepAhlawat, 2017
2	Introduction to Computers Peter Norton ,,Sixth Edition McGrawHill, 2019
3	Computer Fundamentals – P.K Sinha (B.P.B publication), 2014
Books for Reference	
1	Fundamentals of Computer – V.Rajaramanna (Prentice Hall), 2016
2	Computers and Commonsense Hunt, J. Shelley ,Prentice Hall of India, 2017
3	Fundamentals of Information Technology, A and Leon M,Leon,Vikas 2002
Related Online Contents	
1	https://www.youtube.com/watch?v=Mndo33lGYOo
2	NPTEL
3	Swayam / MOOCS
Course Designed By:	

Mapping with Programme Outcomes					
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**
CO1	S	S	M	S	S
CO2	S	S	M	S	S
CO3	S	S	M	S	S
CO4	S	S	M	S	S
CO5	S	S	M	S	S

*S-Strong; M-Medium; L-Low


Third
Semester

Course code		BUSINESS RESEARCH METHODS	L	T	P	C
Core/Elective/Supportive		CORE	4			4
Pre-requisite		Basic knowledge about Statistics	Syllabus Version		2020 - 21	

Course Objectives:

The main objectives of this course are:

1. To develop understanding of the basic framework of the research process and various research designs and techniques
2. To identify the various sources of information for literature review and data collection
3. To impart knowledge for enabling students to develop data analytics skills and meaningful interpretation to the data sets so as to solve the business/Research problem
4. To write research reports and research proposal.
5. To explain the interpretation

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Apply a range of quantitative and / or qualitative research techniques to business and management problems / issues	K1
2	Demonstrate knowledge and understanding of data analysis and interpretation in relation to the research process	K2,K3
3	Develop necessary critical thinking skills in order to evaluate different research approaches utilized in the business/industry	K4,K5
4	Write the research report and research proposal	K5
5	Identify the overall process of designing a research study from its inception to its report.	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Introuctions	18 Hours

Business Research – Meaning – Scope and Significance – Utility of Business research – Qualities of good researcher – Types of research – Research process – Identification, Selection and formulation of research problems – Hypothesis – Research design

Unit:2	Sampling & Data Collections	18 Hours

Sampling design: Meaning-Sampling frame- Sampling and Non-Sampling Errors- Type I Error and Type II Error in research- Level of Significance- determination of sample size-Methods of sampling. Census: merits and demerits - Census Vs Sampling. Pilot study –Pre test. Primary and Secondary data: Meaning-sources-merits-demerits. Methods of data collection: Observation-Interview-Survey-Email-Schedule and Questionnaire. Levels of measurement: Nominal- Ordinal- Interval Ratio. Scaling techniques: Rating scales- Attitude scales – Likert'sScale -Guttsman scale-Thurston scale.

Unit:3	Statistical tools	18 Hours

Statistical tools used in research-Measures of Central tendency – Standard deviation – Correlation – simple, partial and multiple correlation –Auto correlation – Regression models –Ordinary Least Square methods – Multiple regression.

Unit:4	Testing of Hypothesis	18- hours
Testing of Hypothesis- Parametrictest:'Z'test:Testfordifferencesbetweenproportions,difference between Means of two samples-differences between two Standard deviations and testing the correlation co-efficient -'t'test:ToTestthesignificantofthemeanofarandomsample,Difference between means of two samples (Independent and paired Samples) testing. Anova: One way ANOVA -Two way ANOVA. Non-parametric test: Chi-square Test - MannWhitney'U'Test - Kruskal wallis 'H'Test.		
Unit:5	**Interpretation & Report Writing**	**18 Hours**
Interpretation: Meaning-Significance. Report writing: Significance – Layout of research report-mechanics of writing a Research report – Precautions to be followed in Research Report- Types of reports- footnotes and bibliography writing; checking plagiarism.		
	Total Lecture hours	**90 Hours**

Text Book(s)	
1	Emory : Business Research Methods, 2016
2	Rummel&Ballaine : Business Research Methods, 2017
3	S.P. Gupta : Statistical Methods, 2018
Reference Books	
1	C.R. Kothari : Research Methodology, 2015
Related Online Contents	
1	https://www.youtube.com/watch?v=FkhFSSL-AZY
2	https://www.youtube.com/watch?v=6NItBL8pTYQ
3	https://www.youtube.com/watch?v=Ngui6XbcVLc
4	https://www.youtube.com/watch?v=IhjyR0DR9WQ
Course Designed By:	

Mapping with Programme Outcomes					
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**
CO1	S	S	M	S	M
CO2	M	S	S	S	M
CO3	S	M	S	S	L
CO4	M	S	S	M	M
CO5	S	S	S	S	L

Course code		INTERNATIONAL FINANCIAL MANAGEMENT	L	T	P	C
Core/Elective/ Supportive		CORE	4			4
Pre-requisite		Basic understanding about management and it functions.	Syllabus Version		2020 - 21	

Course Objectives:

1. To understand the concept and importance of international financial management.
2. To identify the various International Monetary Investments.
3. To understand the various international bank and IMF.
4. To know Exchange Rate Theories and derivatives.
5. To introduce case studies.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Help to understand the important concept of international financial management	K2
2	Discover how the international capital markets, foreign exchange markets, and the derivatives market can be used to manage transaction and operating risks facing the multinational firm.	K3
3	Identify methods of financing international operations and strategies for foreign direct investment and alternative methods.	K3
4	Familiar with the role of IMF and World Bank.	K5
5	Demonstrate basic understanding of how to use foreign exchange derivatives and other techniques to manage foreign exchange exposures of firms.	K2

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	Introductions	18 Hours

International Financial Management – Definition – Meaning - International Money Markets – Money Market Instruments – International Capital Markets – Comparison of New York, Indian Money Market – International Bond Market – Bond Issue Drill – Bench Mark Drill – Euro Currency Market – Euro Dollar – Euro Deposit and Loans.

Unit:2	International Monetary and Financial Environment	18 Hours

International Monetary and Financial Environment – International Monetary Investments.

Unit:3	Exchange Rate	18 Hours

Exchange Rate Theories – Derivatives – Forward Rate Agreements – Currency Futures and Interest Futures - International Banking – Role of IMF in International Liquidity – International Institutions – World Bank.

Unit:4	International Development Associations	18 Hours

International Development Associations – International Finance Corporation – The International Debt and Country Analysis – Recent Changes in International Financing.

Unit:5	**Case Studies**	**18 Hours**
Case Studies (Based on the above units)		
	Total Lecture hours	**90 Hours**

Text Book(s)	
1	International Finance : P. R. Bhatt, 2016
2	International Finance : Maurice D. Levi, 2014
3	International Finance Management : P. K. Jain, 2013
Reference Books	
1	International Finance Management : V. K. Bhalla, 2015
2	International Finance Management : Alan C. Shapiro, 2012
Related Online Contents	
1	https://www.youtube.com/watch?v=r6oVh2YHoiA
2	https://www.youtube.com/watch?v=eciQ3sTftBs
3	https://www.youtube.com/watch?v=kYR-AIZl7NY
4	https://www.youtube.com/watch?v=9phqDzH1rJE
Course Designed By:	

Mapping with Programme Outcomes					
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**
CO1	S	M	S	S	S
CO2	S	S	S	M	M
CO3	S	M	S	M	M
CO4	S	S	M	M	L
CO5	S	M	L	S	M

*S-Strong; M-Medium; L-Low

Course code		EXPORT – IMPORT FINANCE	L	T	P	C
Core /Elective/Supportive		CORE	4			4
Pre-requisite		Basic understanding about export and import.	Syllabus Version		2020 - 21	

Course Objectives:

1. To know different source of finance such as long term , medium term and short term finance.
2. To understand about pre-shipment and post shipment finance facilities.
3. Toknow various methods of payment for imports.
4. To havea insight knowledge about Import and export banks and various procedure for getting long-term finance.
5. To introduce case studies.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Acquire the basic knowledge various source of finance such as long term , medium term and short term	K1
2	Examine various procedure for pre shipment and pro shipment procedure.	K4
3	Expert knowledge about various method of payment for import business.	K2
4	Evaluate different procedure for getting long-term finance	K5
5	Awareness in case studies.	

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	**Introductions**	**18- hours**

Introduction to Export Finance: Terms of International Payments – Modes of International Payments – Financing of Export Credit needs – Short Term Sources of Finance – Medium and Long Term Sources of Finance – Export Credit System in India.

Unit:2	**Pre-shipment Finance**	**18- hours**

Pre-shipment Finance – Categories of Pre-Shipment Finance – Facilities of Pre-shipment Credit - Pre-shipment Credit in Foreign Currency (PCFC) – Interest rate on Pre-shipment Credit, Post-shipment Credit Finance – Categories of Post-Shipment Credit in rupees – Post-Shipment credit in Foreign Currency – Refinance of Pre-Shipment and Post shipment Finance.

Unit:3	**Introduction of import finance**	**18- hours**

Introduction of import finance – Bulk import finance for inputs – Import finance against foreign loans of credit – European – Asian Countries investment part feasibility – Foreign Exchange for import of inputs – Payments methods for imports.

Unit:4	**Long term finance**	**18- hours**

Long term finance – Deferred payments for EXIM – Categories of deferred payments – Buyers credit – Application procedures for the long term finance – Approval bodies – conditions for approving. Financial agencies – Reserve Bank of India – Industrial and Export Credit Department – Exchange Control Department – EXIM Bank – Commercial Bank – Export Credit Guarantee Corporation – ICICI – IDBI – IFCI.

Unit:5	**Case Studies**	
Case Studies (based on the above units).		
	Total Lecture hours	**90- hours**

Text Book(s)	
1	International Marketing : M. L. Varma & Agarwal, 2013
2	Export Import Finance :Parasram, 2014
3	International Finance : Maurice D. Levi, 2014
Reference Books	
1	Harberller,"MemoryofInternationalTrade". , 2016
2	Harberller,"Memoryof InternationalTrade". , 2018
Related Online Contents	
1	https://www.youtube.com/watch?v=geSIitRfvmg
2	https://www.youtube.com/watch?v=QxoEEI9oXMg
3	https://www.youtube.com/watch?v=hsFmZigDufc
4	https://www.youtube.com/watch?v=UAqSL5YE26c
Course Designed By:	

Mapping with Programme Outcomes					
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**
CO1	M	M	S	S	S
CO2	S	S	S	M	L
CO3	S	M	S	M	M
CO4	M	S	S	M	L
CO5	S	M	L	S	M

*S-Strong; M-Medium; L-Low

Course code		INDIRECT TAX LAWS	L	T	P	C
Core/Elective/Supportive		CORE	4			4
Pre-requisite		To acquire the ability to analyze and interpret the provisions of the goods andservices tax law and recommend solutions to practical problems	Syllabus Version		2020 - 21	

Course Objectives:

1. To understand the features and importance of GST
2. To understand the techniques of computation GST
3. To develop an understanding of the customs laws and acquire the ability toanalyze and interpret the provisions of such laws.
4. To develop an understanding of the basic concepts of foreign trade policy tothe extent relevant to indirect tax laws, and acquire the ability to analyse suchconcepts.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the working knowledge of principles and provisions of GST	K2
2	Examine the Role of customs in international trade.	K3
3	Explain the Customs clearance procedure for home consumption.	K3
4	Evaluate the principles of Customs Law.	K4

K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 - Create

Unit:1	**GST**	18- hours

Indirect tax: Features- advantages- disadvantages. Differences between direct and Indirect tax. Meaning- GST: Features- advantages- disadvantages- Rationale for GST; Structure of GST (SGST, CGST, UTGST & IGST); GST Council, GST Network, State Compensation Mechanism, Registration -Constitutional aspects- Levy and collection of CGST and IGST – Application of CGST/IGST law; Concept of supply including composite and mixed supplies, inter-State-supply, intra-State supply, supplies in territorial waters; Charge of taxincluding reverse charge; Exemption from tax; Composition levy- Place of supply- Time and Value of supply-Input tax credit.

Unit:2	**Computation of GST liability**	18- hours

Computation of GST liability- Procedures under GST including registration, tax invoice, credit and debit notes, electronic way bill, accounts and records, returns, payment of taxincluding tax deduction at source and tax collection at source, refund, jobwork- Liability to pay in certain cases- Administration of GST; Assessment and Audit-Inspection, Search, Seizure and Arrest. Taxable event- "Supply"ofGoodsandServices;PlaceofSupply:Withinstate,Interstate, Import and Export; Time of supply; Valuation for GST- Valuation rules, taxability of reimbursement of expenses; Exemption from GST: Small supplies and Composition Scheme; Classification of Goods and Services: Composite and Mixed Supplies.

Unit:3	**Customs Law as contained in the Customs Act, 1962 and the Customs Tariff Act, 1975**	18- hours

Introduction to customs law including Constitutional aspects-) Levy of and exemptions from customs duties – provisions relating to application of customs law, taxable event, charge of customs duty, exceptions to levy of customs duty, exemption from custom duty- Types of customs duties-

Classification and valuation of imported and export goods- Officers of Customs; Appointment of customs ports, airports etc.- Import and Export Procedures including special procedures relating to baggage, goods imported or exported by post, stores- Provisions relating to coastal goods and vessels carrying coastal goods- Warehousing-Drawback-Demand and Recovery- Refund- Provisions relating to prohibited goods, notified goods, specified goods, illegal importation/exportation of goods- Searches, seizure and arrest; Offences; Penalties; Confiscation and Prosecution-Appeals and Revision; Advance Rulings; Settlement Commission		
Unit:4	**Foreign Trade Policy to the extent relevant to the indirect tax laws**	18- hours
Introduction to FTP – legislation governing FTP, salient features of anFTP, administration of FTP, contents of FTP and other related provisions- Basic concepts relating to import and export- Basic concepts relating to export promotion schemes provided under FTP		
Unit:5	Relevant Case Studies from the above Context	90 hours
	Total Lecture hours	

Text Book(s)	
1	Gupta, S.S. , GST- How to meet your obligations (April 2017), Taxmann Publications
2	H.C. Mehrotra, Prof. V.P. Agarwal, G.S.T. Goods and Services Tax and Customs Duty Sahitya Bhawan Publications, 2019.
3	Taxmann'sGSTBooks2019 -20
Reference Books	
1	Indirect taxes law &practices :v.s. datey, 2014
2	Indirect taxation :dinakarpagare&v.Balachandran, 2011
Related Online Contents	
1	https://www.youtube.com/watch?v=_tpXa20mVx0
2	https://www.youtube.com/watch?v=yNKlC_CuIHA
3	https://www.youtube.com/watch?v=PueI6RP701c
4	https://www.youtube.com/watch?v=HnQBauxf3qA
Course Designed By:	

Mapping with Programme Outcomes					
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**
CO1	S	M	S	L	S
CO2	S	S	S	M	S
CO3	M	M	S	M	M
CO4	M	S	L	M	S
CO5	S	M	L	S	M

*S-Strong; M-Medium; L-Low


Fourth
Semester

Course code		STRATEGIC MANAGEMENT	L	T	P	C
Core/Elective/Supportive		CORE	4	-	-	4
Pre-requisite		Basic understanding about management and it functions.	Syllabus Version		2020 - 21	

Course Objectives:

1. To develop an idea about Strategic Management concepts and techniques.
2. To enrich the knowledge of the students with general and competitive business environment.
3. To help the students to learn the process of strategic decision making,
4. To taught implementation and evaluation of corporate policies

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Have thorough knowledge about Strategic management	K1
2	Know the ideas about SWOT Analysis-TOWS Matrix.	K5
3	Enhance the knowledge about the business environment.	K4
4	Acquire the knowledge about various Business Strategy.	K2
5	Evaluate Balanced score card.	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Introductions	18- hours

Corporate Strategic Planning - Mission - Vision of the firm - Development, maintenance and the role of leader - Hierarchy levels of planning - Strategic planning process- Strategic management Practice in India. Competitive advantages and its implication on Indian Business.

Unit:2	Environment Analysis & Internal Analysis	18- hours

Environment Analysis & Internal Analysis of Firm: General environment scanning, competitive & environment analysis - to identify opportunities& threat - Assessing internal environment through functional approach and value chain -identifying critical success factors - to identify the strength & weakness - SWOT – Core Competence - Stockholders' expectations, Scenario-planning - industry analysis.

Unit:3	Strategy Formation Generic strategies	18- hours

Strategy Formation Generic strategies - Grand strategies - Strategies of leading Indian companies - The role of diversification - limits - means and forms. Strategic management for small organizations, nonprofits organizations and large multi product and multiple market organisations.

Unit:4	Tools of Strategy Planning	18- hours

Tools of Strategy Planning and evaluation :Competitive cost dynamics - experience curve - BCG approach - cash flow implication -IA-BSmatrix - A.D.Littles Life-cycle approach to strategic planning - Business portfolio balancing -Assessment of economic contribution of strategy - Strategic funds programming. Strategy implication &Control : Various approaches to implementation of strategy - Matching organisation structure with strategy - 7S model - Strategic control process - Du Pont's control model and other Quantitative and Qualitative tools - Balanced score card - M.Porter's approach for Globalisation - Future of Strategic Management.

Unit:5	Case studies	**18- hours**
Case studies		
	Total Lecture hours	**90- hours**

Text Book(s)	
1	Pearce & Robinson, Strategic Management, All Indian Travellors N D, 2011
2	A.C.Hax and NS, Strategic Management: An Integrative Perspective, Majifu Prentice Hall, 2013
3	Michael Porter, Competitive strategies, 2015
Reference Books	
1	JohnAPearceIIandRichardBRobinson,—StrategicManagement:Formulat ion, Implementation and Control, 9th Edition, TMH, 2007
2	Samul C. Certo and J.Paul Peter, Strategic Management, Second Edn. Concepts & Application, McGraw Hill, 2008
Related Online Contents	
1	https://www.youtube.com/watch?v=uY_ywciZUnM
2	1.www.icai.org / strategic management
3	2.www.icsi.edu / strategic management
4	3.www.rjspm.com / strategic management
Course Designed By:	

Mapping with Programme Outcomes

COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**
CO1	M	M	S	M	S
CO2	S	S	S	M	S
CO3	S	S	S	L	M
CO4	M	S	L	M	S
CO5	S	S	M	S	L

*S-Strong; M-Medium; L-Low

Course code		INTERNATIONAL ECONOMICS	L	T	P	C
Core/Elective/Supportive		CORE	4			4
Pre-requisite		Basic understanding in economics terminologies	Syllabus Version		2020 - 21	

Course Objectives:

1.To familiarize the international trade and international trade theories.
2. Tounderstand the Balance of payment and its importance
3.To acquire knowledge about unilateral, bilateral and multilateral trade.
4. To assess the impact of Foreign Economic Policies in Indian economy.
5. To understand International liquidity and impact of Devaluation.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Acquire the knowledge about international trade and international trade theories.	K1
2	Understand the meaning of balance of payment and its impact on Indian economy.	K2
3	Have thorough knowledge about unilateral, bilateral and multilateral trade.	K3
4	Analyze the impact of Foreign Economic Policies in Indian economy.	K4
5	Examine the various International liquidity and impact of Devaluation	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	**Introductions**	**18- hours**

Economic growth and International trade – Features of International Transactions – International Trade Theories – Comparative cost Theory – Opportunity Cost Theory – H.O theory - International Trade Equilibrium

Unit:2	**Gains from international trade**	**18- hours**

Gains from international trade – Terms of trade – Technical progress and Trade – Balance of Trade – Balance of Payments and Indian perspective – Economic effects and Trade restrictions – Bilateralism – OPEC & other international cartels.

Unit:3	**International Movements**	**18- hours**

International Movements - Meaning – Goods, Services, Unilateral transfers & capitals, Current account – Export and Import of merchandise and services – Role of International Movements. International Investments - Nature, Character, Policies and results. International Payments - Meaning, Financing International Transactions, Regional Monetary Systems: Blocks, Areas & Zones – Rates of exchange.

Unit:4	**Foreign Economic Policies**	**18- hours**

Foreign Economic Policies: Systems, Concepts, Characters and methods of formulation – Euro – Dollar Market – International liquidity – Devaluation – International Lending and the World debt crisis. International Economic Development & Co-operation – Development of under developed countries – UnitedNation' s Financial Programs – Economic Union and Communities.

Unit:5	**Case Studies**	
Case Studies (Based on the above units)		
	Total Lecture hours	**90- hours**
Text Book(s)		
1	International Economics :Kindlebergers	
2	International Economics : Paul R. Krugman	
Reference Books		
1	Managerial Economics :D.Gopalakrishnan	
2	Managerial Economics :B.M.Wali&Kalkundrikar	
3	Managerial Economics : S. Sankaran	
Related Online Contents		
1	https://youtu.be/n47SQ64MhYw	
2	https://www.yourarticlelibrary.com/notes/national-income-definition-concepts-and-methods-of-measuring-national-income/30801	
3	www.icai.org	
Course Designed By:		

Mapping with Programme Outcomes					
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**
CO1	M	M	S	M	S
CO2	S	S	S	M	S
CO3	S	S	S	L	M
CO4	M	S	L	M	S
CO5	M	S	M	S	L

*S-Strong; M-Medium; L-Low

Course code		COMPUTER LAB (TALLY)	L	T	P	C
Core/Elective/Supportive		Core			4	4
Pre-requisite		Basic accounting knowledge in tally	Syllabus Version		2020 - 21	

Course Objectives:

1. To understand the application of tally both in theoretical and practical aspects.
2. To prepare final accounts of companies.
3. To handle inventories and cost.
4. To understand about the voucher entries.
5. To acquire knowledge in Fundamentals of Computerized Accounting

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the concepts of tally	K2
2	Apply the knowledge on creation of company	K3
3	Analyze the creation of vouchers	K4
4	Evaluate the inventory and cost	K5
5	Able to prepare final accounts	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

CREATING A COMPANY

1) Create a Company with all relevant details including GST options

Creating Ledger

2. Create the ledgers under appropriate predefined groups

Cash a/c Computer sales a/c
Buildings a/c Machinery a/c
Furniture a/c Commission received a/c
Printer purchase a/c Commission paid a/c
Rent received a/c Salary a/c
Rent paid a/c Indian bank a/c
Wages a/c Sales returns a/c
Capital a/c Depreciation a/c
Purchase returns a/c
John & Co. a/c (purchased goods from this company)
Ram agency a/c (sold goods to this company)

3. Create vouchers and view profit and loss a/c and balance sheet for the following:

Hindustan Ltd. started the business on 01-04-….

1. Contributed capital by cash Rs 2, 00,000
1. Cash deposited in Indian bank Rs 50,000
2. Credit purchases from Krishna traders Rs. 20000 invoice no 12
3. Credit purchases from PRAVIN traders Rs 20,000 invoice no 12
4. Credit purchase from KRISHNA traders Rs 20000 invoice no 14

5. Credit purchase from PRAVIN traders Rs 20,000 invoice no 44
6. Returned goods to KRISHNA traders Rs 5000 invoice no 12
7. Returned goods to PRAVIN traders Rs 5000 invoice no 44
8. Credit sales to RAVI & Co Rs 50,000 inv no 1
9. Credit sales to KUMAR & Co Rs 50,000 inv no 2
10. Cash sales Rs 20,000 inv no 3
11. Credit sales to RAVI & Co Rs 50,000 inv no 2
12. Credit sales to RAVI & Co Rs 50000 inv no 5
13. Goods returned by RAVI & Co Rs 5000 inv no 1
14. Goods returned by KUMAR & Co Rs 5000 inv no 1
15. Payment made by cheque to KRISHNA TRADERS Rs 30,000 ch no 505580
16. Payment made by cheque to PRAVIN TRADERS Rs 30,000 ch no 505592
17. Received cheque from: Ravi& Co and kumar& Co 75,000 each.

Payments made by cash

1. Paid to petty cash by cash Rs.1000
2. Furniture purchased Rs.20000
3. Salaries paid Rs. 10000
4. Rent Rs.4000
5. Electricity charges Rs.3000
6. Telephone charges Rs.3500
7. Cash purchases Rs.5000

Payments made by petty cash

8. Conveyance Rs.150
9. Postage Rs.100
10. Stationeries Rs.200
11. Staff welfare Rs.100
12. Stationeries purchased from sriram& co 1500 on credit
13. Depreciation on furniture 10%

4. Emerald & Co., started a business of home appliances from 1-4_….

1-4 received cash for capital 5,00,000

7-4 credit purchases from LG Limited invoice no 123

Ovan	100nos	at Rs 800
Mixies	100nos	at Rs 1000
DVD player	100nos	at Rs 1500
Fridge	100nos	at Rs 2000

10-4 credit Sales to AMN invoice no 1:

Ovan	70nos	at Rs 1000
Mixies	70nos	at Rs 1500
DVD player	70nos	at Rs 2000
Fridge	70nos	at Rs 2500

+CGST & SGST

10-4 Cash Sales invoice no 2:

Ovan	10nos	at Rs 1000
Mixies	10nos	at Rs 1500
DVD player	10nos	at Rs 2000
Fridge	10nos	at Rs 2500

+ CGST & SGST ON TOTAL SALES
CASH discount 5%
15-4 Paid cheque to LG limited Rs 2, 00,000
15-4 Received cheque from AMN& co Rs 3, 00,000
Payment made by cash
Paid to petty cash Rs 2000, Furniture Rs 15,000, Salaries Rs 10,000
Wages Rs 7,000, Carriage inward Rs 1500,
25-04 Payment made by petty cash
Conveyance Rs 200, Postage Rs 150, Stationeries Rs 150, Staff Welfare Rs 200
30-4 Journal depreciate 10% on furniture:
Prepare Trading Profit and Loss Account and B/s

5. From the Balances of Ms. Kavitha, Prepare Trading And Profit And Loss A/C And Balance Sheet For
The Year Ending ----

Stock 9,300	Misc income 200
Repairs 310	Purchases 15,450
Machinery 12,670	Purchase return 440
Furniture 1330	Sales return 120
Office expenses 750	Sundry creditors 12,370
Trading expenses 310	Advertisement 500
Land and buildings 15,400	Cash in hand 160
Bank charges 50	Cash at bank 5870
Capital 24,500	Sales 20,560
Loan 5,000	Sundry expenses150
Closing stock 7580	Insurance 500
	Traveling expenses 200

INVENTORY VALUATION

6. From the Information given below create unit of measurement, stock groups and stock items Find the stock summary:
Stock groups: 1. Magazine 2. Baby drinks 3. Cool drinks 4.dailynews paper 5. Hot drinks 6. Stationeries 7. Vegetables
Stock items:

Item	Qty	Rate	Units
Boost	25	80	nos
Sports star	20	15	nos
Potato	260	30	kgs
Star dust	20	25	nos
The Hindu	50	3.25	nos
Tomato	150	15	kgs
Fanta	10	25	lit
Dinamalar	40	2,50	nos
Coco	55	120	nos
Horlicks	60	70	nos
India today	10	10	nos
Lactogin	10	100	nos

MAINTAIN BILLWISE DETAILS

7. Create bill wise details from the following
1. Ravi commenced business with a capital of Rs 2,00,000
2. Purchased goods from kumar& Co Rs.15, 000 Paid in three instalments within 5 days gap
3. Purchased goods for cash Rs.8000
4. Sold goods to Ratna& co Rs. 20,000 amount to be paid in two instalment
5. Sold goods for cash for Rs .5000
6. Received cash from ratna& co Rs. 75000
7. Paid to kumar& co Rs. 7500
8. Sold goods for cash Rs.5000

CONSOLIDATION OF ACCOUNTS

8. Bharath Agencies, A Wholesaler Gives The Following Information:
Opening balances:
Capital: 20,00,000 cash at bank: 10,00,000
Cash in hand: 5,00,000 furniture: 5,00,000
Bharath agencies are dealing in stationeries. The selling prices are as follows;
Pen Rs 35 per dozen pencil Rs. 30 per dozen
Ink pens Rs 140 per dozen
The following transactions take on a particular date:
1. Purchased 100 dozens of pens from Ravana bros. @ Rs.25 per dozen for cash
2. Purchased 200 dozens of pencils from Gughan bros.@ Rs.21.50 per dozen for credit less discount of Rs 100
3. Sold 10 dozens of pens to Dharma bros. For cash
4. Sold 10 dozens of pens to Bema bros for credit
5. Sold 50 dozens of pencils to Arjuna bros.
6. purchased from Ravana bros 50 dozens of ink pens @ Rs.120 and by cheque.

Prepare following statements using Ex-accounting packages:
•Storesledger,Tradingaccount,Incomestatement,Balancesheet
•AccountsummaryIgnoredates

FOREIGN GAINS/LOSS

9. Calculate
01.01.2005 Purchased goods from U.K supplier 1000 £
02.01.2005 Sold goods to U.S buyer 1500
03.01.2005 Cash received from U.S buyer 1500
(Selling rate rs.46/$)
04.02.2005 Paid cash to U.K supplier 1000
(Selling rate rs 53/ £)

10. MEMO VOUCHER

An advance amount paid Rs 1500 given to sales executive for traveling. The actual expenses for traveling expenses for the sales is Rs 500

11. CHEQUE PRINTING

Print a cheque: Company name on cheque: Wipro India Ltd.: name of the bank Indusind bank. Width 168, height 76, starting location 116, distance from top 23.

12. RATIO ANALYSIS

Enter the following details comment upon the short-term solvency position of the company:
Working capital Rs 20560492
Cash 14500 Bank 18500
Debtors 518260
Creditors 429337
Sales 515252
Purchases 433310
Stock 125982
Netprofit…?

13. INTEREST CALCULATIONS

Cash deposited in Scotia bank Rs 1,00,000
Sold goods to ganeshRs 25,000
31-12- cash deposited at Scotia bank Rs 50,000
Sold goods to ganesh 50,000
Interest parameters rate 14% per 365 days year

14. Calculate Interest

Cash deposited in SBI 1, 00,000 Rs
1-12 purchased goods from suppliers Rs 20,000
Deposited in SBI Rs.50, 000
Purchased goods from suppliers Rs 40,000
Interest parameters rate 16% per 365 days year

15. Display the interest calculations for the period 1-4 to 31-12

Opening balance
Ram & Co Rs 25,000
Krishna traders Rs 20,000
Interest parameters rate 12% per 365 days year
Interest parameters rate 12% and 16% for sundry creditors per 365 days year
Purchased goods from Krishna for 25,000(credit period 45 days)
Sold goods to Ram for Rs. 50,000(credit period 30 days)
Paid to Krishna the amount plus interest
Received from Ram plus interest

16. Create stock items, stock groups, sales categories, god owns, units of measure.

Stock	Category	Group	Go down	Unit of measure	Std cost	Sell Price	Op. Qty	Total Value
Inter Celeron	Processor	Celeron	Mumbai	Nos	15000	20000	**2**	30000
Intel Premium III	Processor		Chennai	Nos	20000	25000	**3**	60000
Tally Silver	Accounting	Tally	Chennai	Nos	20000	22500	**5**	100000
Tally gold	Accounting	Tally	Chennai	Nos	42000	45000	**5**	210000
								400000

17. **Using the above exercise create various vouchers including VAT calculation for the**

following :

9/4/2006	Intel Pentium III (3 Nos) @ 25,000 delivered to Vijay & CO, from Madras Go down.
10/4/2006	10 Nos of Intel Celeron @ 15000 per unit received from Jayaram and Co, and sent to Madras Go down.
12/4/2006	2Nos of Intel Premium III received from Vijay & CO, as it was not in a working position.
13/4/2006	2Nos of Intel Celeron returned to Jayaram& Co from Madras Go down.
14/4/2006	Physical Stock verification shows Shortage of 1 No Intel Pentium III.

18. Create the following Inventory vouchers with data from any cost accounting book.

a. Purchase order b. sales order
c. Rejection out d.rejection in
e. Stock journal f. delivery note
g. Receipt note h. physical stock

19 In addition to the above mentioned lab exercises work out a problem from any advanced accountancy book with a minimum of 20 transactions and generate the tally reports in full.

	Total Lecture hours	**90 Hours**

Books for Study

1	V.Sundarmoorthy,"Tally 9 Volume I & II , Genesis –VBSE Pvt.Ltd. , 2012

Books for References

1	A.K.Nandhini&K.K.Nandhini,"ImplementingTallyERP9",BPBPublications , 2019

Related Online Contents

1	https://youtu.be/a-Ms3JNqy8g
2	https://youtu.be/w7II_j2bvtI
3	https://youtu.be/Db07hAYIsLs
4	https://www.youtube.com/watch?v=XCszfm-6nBY

Course Designed By:

Mapping with Programme Outcomes

COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**
CO1	S	S	S	S	M
CO2	L	M	S	S	S
CO3	M	S	S	S	S
CO4	S	M	S	M	L
CO5	M	S	S	S	S

*S-Strong; M-Medium; L-Low

Course code		INTERNATIONAL BUSINESS RELATIONS	L	T	P	C
Core/Elective/Supportive		CORE	4			4
Pre-requisite		Basic understanding about business relationship	Syllabus Version		2020 - 21	

Course Objectives:

1. Tobecome familiar with the concepts of International relations and its elements.
2. Tounderstand the relationship between International relations and International Politics.
3. To make them to understand about the nature and content of international law.
4. Toknow the evolution of international organization and regional grouping.
5. To assess the impact of Foreign Economic Policies in Indian economy.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Acquire the knowledge about the concept of International relations and its elements.	K1
2	Understand the role of International relations and International Politics in Indian economy.	K2
3	Expert knowledge about nature and content of international law.	K3
4	Examine the evolution of international organization and regional grouping.	K4
5	Analyze the impact of Foreign Economic Policies in Indian economy.	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Introductions	18 hours

Concept of International relations-origin and growth of International Relations-Elements of IRI- Is international relations a discipline? -Scope of international relations and International Politics - foreign policy-values of foreign policy-its approaches objectives of nation' s foreign policy-Determinants of foreign policy - internal factors-external factors

Unit:2	International law	18 hours

The nature and content of international law- the codification of international law. The balance of power- its nature-definition-characteristics-role-historical significance-devices for maintaining the balance of power – collective security and balance of power-balance of power today-collective security and peaceful settlement.

Unit:3	Evolution of international organization	18 hours

Evolution of international organization and regional grouping for the development of international relations-role of regional grouping-EU—ASEAN-NAFTA-SAARC-ARAB LEAGUE- WORLD BODIES -UN and WTO- Economic Group- G8,G-15- G-77.

Unit:4	Foreign policy	18- hours

Foreign policy of India-Nehru's foreign policy-its distinctive features- non-alignment foreign policy since 1962-Indo-Soviet relations- relations with China and Great BritainIndo-U.S relations-Indo-Pakistan relations- Disarmament efforts by India – India's neighborhood relations.

Unit:5	**Case Studies**	**18- hours**
Case Studies (Based on the above units) Note: Question paper shall cover 100% Theory		
	Total Lecture hours	**90 hours**
Text Book(s)		
1	International relations : Palmer &Parkins, 2015	
2	International relations : Urmila Sharma and S.R. Sharma, 2014	
3	International relations : N. Jayapalan, 2013	
Reference Books		
1	International relations : L.N. Srivastva, 2011	
Related Online Contents		
1	https://www.youtube.com/watch?v=NVCDnUZqLzU	
2	https://www.youtube.com/watch?v=ZCJXp8K0Les	
3	https://www.youtube.com/watch?v=cyUpDfxsbxk	
Course Designed By:		

Mapping with Programme Outcomes					
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**
CO1	S	M	S	S	M
CO2	L	M	S	M	S
CO3	M	S	S	M	S
CO4	S	M	S	M	L
CO5	M	M	S	S	S

*S-Strong; M-Medium; L-Low

Course code		INDUSTRIAL LAW	L	T	P	C
Core/Elective/Supportive		CORE	4			4
Pre-requisite		Basic understanding about business regulatory organization and their practice.	Syllabus Version		2020 - 21	

Course Objectives:

1. To acquire updated knowledge and develop understanding of the regulatory framework for business
2. To gain expert knowledge about various Industrial Acts.
3. Tobe aware on the opportunities available in various legal compliances so as to enable them employable.
4. Toimpartthe knowledge about current practice of industrial law.
5. To gain knowledge on pf.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand updated regulatory framework followed by the companies.	K1&K2
2	Examine various type of industrial act and its functions.	K3
3	Analyze various opportunities available in various legal compliances so as to enable them employable.	K4&K5
4	Create knowledge about current practice of industrial law	K6
5	Awareness about payment of gratuity act	

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Introductions	18- hours

Factories Act 1948 – Provisions relating to health, Safety, Welfare – Employment of Child and young men – Audit workers – Women workers – The Child Labour (Prohibition and Regulation) Act 1986 – Child Labour Rules 1988.

Unit:2	Trade Unions Act	18- hours

Trade Unions Act 1926 – Definition – Registration – Rights and Privileges – Cancellation of registration - Political fund – Industrial Disputes Act 1947 – Provisions relating to strike, lockout, retrenchment, Layoff and closure – Machinery to solve disputes.

Unit:3	Payment of Bonus Act	18- hours

Payment of Bonus Act 1965 – Meaning of Gross Profit – Computation of available and allocable surplus – Eligibility for bonus – Minimum and Maximum bonus – Exemption – Applicability of the act – Payment of wages Act 1936 – permissible deductions – Time and Mode of payment – Minimum wages Act 1948 – The Tamilnadu Payment of subsistence Allowance Act 1981.

Unit:4	Social security Legislation	18- hours

Social security Legislation – Employees State Insurance Act 1948 – Definition – Medical Board – Purpose for which funds can be spent – Benefits – Employees provident Funds and miscellaneous Provisions Act 1952 – Scope – Object – Application of the Act – Definition – Employees PF Scheme – Employees Family pension scheme and Fund – Workmen's compensation Act 1923 – Employer's liability and Non -liability – Ways open to workmen for claiming compensation – Disability – Partial – Permanent – Total disablement – Accusation – Diseases.

Unit:5	PAYMENT OF GRATUITY ACT	18- hours
PAYMENT OF GRATUITY ACT, 1972: Applicability and Non-Applicability of the Act; Definitions: Appropriate Government, Complete year of service, Employee, Employer, Continuous Service, Factory, Family, Major port, Mine, Oilfield, Plantation, Port, Prescribed, Railway Company, Retirement, Superannuation, Wages; Payment of Gratuity; Forfeiture of Gratuity; Employer's Duty to Determine and Pay Gratuity; Nomination; Recovery of Gratuity; Penalties.– Environmental Protection Act – The Industrial Employment (Standing order) Act 1946.		
	Total Lecture hours	**90- hours**

Text Book(s)	
1	Industrial Law – N.D.Kapoor, 2015
2	Factory Laws applicable to Tamilnadu - S.Vaidyanathan, Madras Book Agency. , 2012
3	. Industrial Law - S.MShukla and R.N.Saxena, 2014
Reference Books	
1	Business and Industrial law - P.P.S.Gogna, 2011
2	The Child labour (Protection & Regulation) - Madras Book Agency Act 1986
3	The Tamil Nadu Payment of Subsistence - Madras Book Agency Athourance Act 1981
4	The Environment (Protection) Act 1986 -Professional Book Publishers, 2018
5	Lab our Industrial Laws -P.K. Padhi, 2017
Related Online Contents	
1	https://www.youtube.com/watch?v=6snzm5cfCBw
2	https://www.youtube.com/watch?v=1HaIGN7lflo
3	https://www.youtube.com/watch?v=m1tmK2DQwj8
4	https://www.youtube.com/watch?v=BWYh5hosin4
Course Designed By:	

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	M	M	M	L
CO2	S	M	S	M	S
CO3	M	S	S	M	S
CO4	S	M	S	M	S
CO5	M	M	L	S	L

*S-Strong; M-Medium; L-Low

Elective Papers

Course code		DOMESTIC LOGISTICS	L	T	P	C
Core/Elective/Supportive		Elective	3			3
Pre-requisite		Basics understanding about the features of Logistics.	Syllabus Version		2020 - 21	

Course Objectives:

1. Tobe familiar with type of vehicles and vehicle body.
2. To understand main type of costing system.
3. To develop vehicle routing & solving scheduling issues.
4. To impart knowledge in planning and fleet management
5. To create awareness in advice planning and documentation.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Recall different type of vehicles and vehicle body.	K1
2	Expert indifferent type of costing system in domestic logistic.	K4
3	Gather knowledge in driver licensing	K2
4	Gained knowledge in documentation	K2
3	Impart knowledge about vehicle routing & solving scheduling issues.	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Introduction	18 hours

Vehicle Selection-Types of vehicles – types of operations – load types and characteristics – main types of vehicle body - Implications of vehicle selection – vehicle acquisition.

Unit:2	Freight transport	18 hours

Reasons for road freight transport vehicle costing – Main types of costing systems – vehicle standing costs – vehicle running costs – overhead costs – costing the total transport operation – whole life costing – vehicle cost comparisons – zero-based budget.

Unit:3	Legislation	18 hours

Legislation- Operator licensing – Driver licensing – Driver's Hours regulations – Road transport directive – tachographs - vehicle dimensions.

Unit:4	Planning	18 hours

Need for Planning – fleet management – main types of road freight transport – transport resource requirements – vehicle routing & scheduling issues – data requirements – computer routing & scheduling – information system applications – GPS – RFID

Unit:5	Advices – Planning	18 hours

Advices – Planning – FTL – LTL – Documentation – Road Receipts / Truck Receipts / Way Bills (RR / LR) - Consignment note CMR (EU & Canada) – Booking – Invoicing & Information Flow - Long Haul – Coordination with terminals – Exceptional Loads (Project cargo).

Unit:6	Contemporary Issues	

Online assignment , Group Discussion and seminar

	Total Lecture hours	90 hours

Text Book(s)	
1	Logistics of facility location and allocation / Dileep R. Sule (Marcel Dekker), 2018
2	Logistics & supply chain management / Martin Christopher (Prentice Hall Financial Times) , 2017
3	The management of business logistics / John J. Coyle, Edward J. Bardi, C. John Langley (West Publishing Company) , 2015
Reference Books	
1	Manufacturing operations and supply chain management : the LEAN approach / [edited by] David Taylor and David Brunt (Thomson Learning) , 2013
2	Operations and process management : principles and practice for strategic impact / Nigel Slack (Financial Times Prentice Hall) , 2017
3	Logistics and Distribution Management: Alan Rushton, Phil Croucher, Peter Baker (CILT) , 2018
Related Online Contents	
1	https://www.youtube.com/watch?v=QJnsv84Vq4A
2	https://www.youtube.com/watch?v=e6zu3TAzSPA
3	https://www.youtube.com/watch?v=TwFXQbxLU3s
Course Designed By:	

Mapping with Programme Outcomes					
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**
CO1	M	M	S	S	S
CO2	S	S	S	M	S
CO3	S	M	S	S	M
CO4	M	S	M	M	L
CO5	S	M	L	S	M

*S-Strong; M-Medium; L-Low

Course code		CHARTERING AND SHIP BROKING	L	T	P	C
Core/Elective/Supportive		Elective	3			3
Pre-requisite		Basic understanding about the functions of brokers.	Syllabus Version		2020 - 21	

Course Objectives:

1. To know the nature, principles and terminology of Chartering
2. To understand the role of brokers and their functions.
3. To explore various type of charters.
4. To learn about Freight and hire calculations.
5. To impart knowledge on individual rights, responsibilities and liabilities

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Recollect the nature, principles and terminology of Chartering	K1
2	Acquire the knowledge about the importance of brokers in chartering and their functions.	K2
3	Examine various type of charters.	K5
4	Evaluate Freight and hire calculations	K4
5	Analyse Individual rights, responsibilities and liabilities	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Introductions	18 hours

Principles of Chartering-Introduction to Chartering – Chartering Terminology – Role of Broker – Types and Functions - forms and activities – Charter Parties

Unit:2	Types of Charter	18 hours

Types of Charter - Voyage Ships –Vessel Descriptions - Vessel requirements - tramp chartering services - Passenger Ship Chartering – Cargoes - Freight Markets - Liner Operations – Tanker Charter - tanker trades - International Tanker Chartering Market

Unit:3	Purchase and Registration	18 hours

Purchase and Registration of Vessels - Exemptions and immunities - trading limits - drydocking - protective clauses -stevedore damage

Unit:4	Freight and hire calculations	18 hours

Freight and hire calculations – Voyage Estimation – Checks – Cargo Capacity – Time estimation in Port– Lay time Calculations - Vessel Negotiations – Statement of Facts – Time Count - Demurrage and Dispatches - Classification Societies – Spares and Black lists – Delivery Methods – Auctions

Unit:5	Contracts	18 hours

Contracts - Individual rights, responsibilities and liabilities - Clauses in time charters - Bill of lading-Chartering Market Practice - Ethical requirements - lien clause – Disputes - General Arbitrations.

Unit:6	Contemporary Issues	

Online assignment , Group dissuasion and seminar		
	Total Lecture hours	**90 hours**
Text Book(s)		
1	The economics of tramp shipping / (by) B.N. Metaxas. (Athlone Press) , 2014	
2	Shipbroking and Chartering Practice: Seventh Edition (Business of Shipping) by Lars Gorton (Lloyd's List) , 2018	
3	Shipbroking and Chartering Practice, 6th Edition Gorton, Ihre, Sandervarn and Hillenius, 2017	
Reference Books		
1	Tanker Chartering (Shipping Business Series) by Philip Wood (Witherby& Co Ltd) , 2016	
2	Ocean Freights and Chartering by Cyril Frederick Hardy Cufley (Adlard Coles Nautical) , 2017	
3	Tanker Chartering 2010-2011 by Institute of Chartered Shipbrokers (Witherby Seamanship International Ltd) , 2010	
Related Online Contents		
1	https://www.youtube.com/watch?v=CHQB2hjkBuk&t=4s	
2	https://www.youtube.com/watch?v=jqL641cQr-c	
3	https://www.youtube.com/watch?v=qfPbdOYye9M	
Course Designed By:		

Mapping with Programme Outcomes					
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**
CO1	S	M	S	S	M
CO2	M	S	L	M	S
CO3	S	M	S	S	S
CO4	S	S	M	M	L
CO5	M	S	S	S	M

*S-Strong; M-Medium; L-Low

Course code		INTERNATIONAL SHIPPING AND LOGISTICS	L	T	P	C
Core/Elective/Supportive		Elective	3			3
Pre-requisite		Basic understanding about contract and elements of contract.	Syllabus Version		2020 - 21	

Course Objectives:

The main objectives of this course are to:

1. Understand the nature of Indian contract act and its types.
2. Understand the importance of consideration in valid contract.
3. Identify the difference between valid, void and voidable contract.
4. Create knowledge on Regulations relating to cargoes, dangerous and Hazardous cargoes.
5. Learn documentation procedure.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Recollect the nature of Indian contract act and its types.	K1
2	Acquire the knowledge about role of consideration in valid contract.	K2
3	Explain the difference between valid, void and voidable con	K4
4	Gain knowledge in Regulations relating to cargoes, dangerous and Hazardous cargoes	K1
5	Explain documentation procedure.	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Introductions	18- hours

Indian Contract Act – Meaning and Definition of Contract – Essential Elements – Types of Contracts – Offer and Acceptance – Consideration – Capacity of Parties – Flaw in Consent – Void and Illegal Agreements – Performance and discharge of Contracts – Remedies for Breach of contract – Quasi contracts – Bailment and Pledge and Law of Agency- The Customs Act,

Unit:2	Regional Laws	18- hours

Regional Laws-The Carriage of Goods by Sea Act (COGSA), and related laws rules and regulations. Marine Insurance related laws, Labour Laws

Unit:3	International Regulations	18- hours

International Regulations for Vessels-International Agencies -regulations relating to ship construction - ship maintenance - ship navigation - ship breaking - pollution caused by ship's effluents

Unit:4	Regulations relating to cargoes	18- hours

Regulations relating to cargoes, dangerous and Hazardous cargoes, and packaging of cargoes, Live cargo - Hague - Visby Rules – Hamburg Rules – Hague protocol to Warsaw Convention 1955, International carriage of goods by Road (CMR), 1956 - Institute Cargo Clauses (A,B,C) – General Conditions of Marine Insurance on Goods (GCMI 1988)

Unit:5	**Quotations**	**18- hours**
Quotations – Orders – Regulations - Credits – Invoicing – Filing – Archiving - Understanding Terms in Logistics –Freight forwarding contracts – General conditions of freight forwarding – Conditions of Contract - Documents - (Air Way Bill (AWB), Bill of Lading (B/L)) - Contract of transportation – Contracts with customers		
Unit:6	**Contemporary Issues**	
Online assignment , Group dissuasion and seminar		
	Total Lecture hours	**90- hours**

Text Book(s)	
1	Legal Principles in Shipping Business 2010-2011 by Institute of Chartered Shipbrokers (Witherby Seamanship International Ltd)
2	Shipping Law by Simon Baughen (Routledge-Cavendish)
3	Maritime Security and the Law of the Sea by Natalie Klein (Oxford University Press)
Reference Books	
1	Marine Cargo Claims (International shipping laws) by William Tetley (Intl Shipping Pubns)
2	Shipping Finance, 3rd Edition by Stephenson Harwood (Euromoney Institutional Investor)
3	N D Kapoor – Elements of Mercantile Law – sultan chand& Sons
Related Online Contents	
1	https://www.youtube.com/watch?v=96sDOLuCfRQ
2	https://www.youtube.com/watch?v=iJysPxww184
3	https://www.youtube.com/watch?v=uuBMnOP0nDM
Course Designed By:	

Mapping with Programme Outcomes					
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**
CO1	L	M	S	S	M
CO2	M	S	L	M	S
CO3	S	M	S	S	S
CO4	S	S	S	M	M
CO5	S	L	S	S	M

*S-Strong; M-Medium; L-Low

Course code		AIRLINE MARKETING AND STRATEGIC AIRLINE ALLIANCE	L	T	P	C
Core/Elective/Supportive		Elective	3			3
Pre-requisite		Basic understanding about airline transport services	Syllabus Version		2020 - 21	

Course Objectives:

1. Know the market for Air transport Service.
2. Understand stages in the application of Marketing Principles of Airline Management.
3. Explore the theory of product analysis and its application to the Airline Industry.
4. Measuring the performance impact of alliance.
5. Performance evaluation in air line business.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the market for Air transport Service.	K2
2	Examine various stages in the application of Marketing Principles of Airline Management	K3
3	Evaluate the theory of product analysis and its application to the Airline Industry.	K5
4	Measure the performance impact of alliance	K5
5	Examine Performance of air line business.	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Unit:1	Introductions	18 hours

Market For Air transport Service-Definition-Marketing Mix- stages in the application of Marketing Principles of Airline Management – successful Airlines –Air Freight Market – market segmentation – concept- segmentation variables in the air passenger market-customer requirements- Marketing Strategy: PESTE analysis : political factors – economic factors – social factors – technological factors – environmental factors – introduction of Airline Business and Marketing Strategies – Porters Five Forces and their application to the Airline Industry – strategic families – differentiation airlines – the future – focus strategies – Airline Business and marketing strategies – common mistakes

Unit:2	Product Analysis	18 hours

Product Analysis-What is product- theory of product analysis and its application to the Airline Industry – fleet and schedules – related product features – customer service – related product features – controlling product quality – introduction of Pricing and revenue management – building blocks in airline pricing policy – uniform and differential pricing – the structures of air freight pricing-Distribution Of Product And Brand Relationship-Distribution channel strategies – The Travel Agency Distribution system – Global Distribution System (GDS) – Distribution Channels in the Air Freight market – Brands and Commodities – Brand –Building in the Airline Industry – Brand Strategies

Unit:3	Promotion Marketing	18 hours

Promotion Marketing-Fundamentals of relationship marketing – components of a relationship

marketing strategy – frequent flyer programmers –the anatomy of a sale – sales planning – marketing communication techniques – airline advertising – selling in the air freight market – glossary of aviation terms and marketing terms.		
Unit:4	**Glimpse at Alliancing**	**18 hours**
A Historical glimpse at Alliancing objectives-Reasons for Airlines building AlliancesObjectives of Alliances- Introduction- Marketing-driven objectives for alliances-Turbulence in marketing channels-Changes to airline marketing-Determinates of alliance image-Benefit challenges and cost of alliance brand association-Marketing and information. Performance measurement in airlines- Measuring the performance impact of alliance-Time continuum in performance assessment-Traffic and revenue enhancement-Cost-Productivity-Profitability.		
Unit:5	**Airline business**	**18 hours**
Introduction- Success drivers in airline business- Premises and objectives – Finding suitable partners – governance structure- degree of integration and trust- Organization„s commitment - Ensuring flow of information- Performance evaluation-Managing cultural differences- In conclusion. Scenarios for the future- The internal dynamics of alliancing- a look into the future of airline alliance groups.		
Unit:6	**Contemporary Issues**	
Online assignment , Group dissuasion and seminar		
	Total Lecture hours	**90 hours**

Text Book(s)	
1	Airline Marketing and Management-Stephen Shaw – Ashgate Publishing Limited, 2017
2	Managing Strategic Airline Alliances-Birgit Kleymann&HannuSeristo- Ashsgate Publishing Limited, 2015
Reference Books	
1	Marketing Management – Philip Kotler-Pearson Education, 2019
2	Marketing Management –Ramaswamy&Namakumari –MacMillan, 2010
3	Global Marketing Management –Warren J.Keegan –P.H.I, 2003
Related Online Contents	
1	https://www.youtube.com/watch?v=0yrd0ACXyVg
2	https://www.youtube.com/watch?v=KxGb1O3Lt7w
3	https://www.youtube.com/watch?v=On49t9uTZUA
Course Designed By:	

Mapping with Programme Outcomes					
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**
CO1	L	M	S	S	M
CO2	M	S	L	M	S
CO3	M	M	S	S	S
CO4	S	S	M	M	L
CO5	M	L	S	M	M

*S-Strong; M-Medium; L-Low

Course code		FINANCIAL MARKETS AND INSTITUTIONS	L	T	P	C
Core/Elective/Supportive		ELECTIVE	3			4
Pre-requisite		Basic knowledge on financial market and Institutions	Syllabus Version		2020-21	

Course Objectives:

The main objectives of this course are to enable the students to

1. Understand the overview of Indian financial system and securities exchange board of India.
2. Acquire knowledge in banking, small savings, provident funds, unit trust of India and mutual funds.
3. Be aware on the non banking financial intermediaries and non bank statutory financial organizations.
4. Explain investment information and credit rating agency of India Limited.
5. Defining basic concepts related to financial institutions, money market institutions, and Investment Information and Credit Rating Agency of India Limited.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Describe Indian Financial System and securities exchange board of India.	K1&K2
2	Classify Small Savings, Provident Funds, Unit Trust of India and Mutual Funds.	K2
3	Explore activities of non-financial banking	K4
4	Assessing about various investment information and credit rating agency	K5
5	Identifying about various financial institutions and related to its working and functions	K3

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	Introduction	18 hours

Financial Markets – An Overview – Money Market – Call Money Market – Commercial Paper Market – Commercial Bill Market – Certificate of Deposit (CD) Market – Treasury Bill Market – Government or Gilt-edged Securities Market.

Unit:2	Capital Market	18 hours

Capital Market–An Overview – Capital Market Instruments – Capital Market Reforms – New Issue Market(NIM) – Dept Market – Foreign Exchange Market – Derivatives Market.

Unit:3	Financial Services Institutions	18 hours

Financial Services Institutions – Clearing corporation of India Limited (CCIL) – Credit Rating and Information Services of India Limited (CRISIL) – Discount and Finance House of India Limited (DFHIL).

Unit:4	**Investment Agency**	**18- hours**
Investment Information and Credit Rating Agency of India Limited (ICRA) – Over the Counter Exchange of India (OTCEI) – National Securities Depository Limited (NSDL) – Securities Trading Corporation of India Limited (STCI).		
Unit:5	**Financial Institutions**	**16 hours**
Financial Institutions – Money Market Institutions – Capital Market Institutions – National Housing Bank–Functions and working – Export-Import(EXIM) Bank of India – NABARD.		
Unit:6	**Contemporary Issue**	**2 hours**
Online assignment and online seminar		
	Total Lecture hours	**90 hours**

Books for Study	
1	Financial Institutions and Markets, L.M.Bhole, Tata McGraw – Hill Publishing Co.,Ltd.2017
2	Financial Instruments and Services, Nalini Prava Tripathy, Prentice Hall of India. 2016
3	Financial Markets and Institutions, S. Gurusamy, Vijay Nicole Imprints (P) Ltd., 2018
Books for References	
1	Financial Services: M.Y.Khan, Tata Mc Graw-Hill Publishing Co., Ltd. 2016
2	Financial Services: Dr.D.JosephAnbarasu& Others, Sultan Chand & Sons. 2015
Related Online Contents	
1	https://youtu.be/pY3WeLwGT4s
2	https://youtu.be/MsPgw4FodgE
Course Designed By:	

Mapping with Programme Outcomes					
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**
CO1	S	M	M	S	S
CO2	S	S	M	S	M
CO3	M	S	S	S	M
CO4	S	S	S	M	S
CO5	M	S	S	M	S

*S-Strong; M-Medium; L-Low

Course code		INDIAN STOCK EXCHANGES	L	T	P	C
Core/Elective/Supportive		ELECTIVE	4			4
Pre-requisite		Basic knowledge on Indian stock exchange	Syllabus Version		2020-21	

Course Objectives:

The main objectives of this course are to enable the students to

1. Understand the overview of Indian Financial System and securities exchange board of India.
2. Acquire knowledge in banking, Small Savings, Provident Funds, Unit Trust of India and Mutual Funds.
3. Be aware on different platforms for trading of securities of various companies.
4. Taught about E-commerce Act and Internet Stock Trading.
5. Summarize about various concepts related internet stock trading features and SEBI functions.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Describe Indian stock exchanges and securities exchange board of India.	K1&K2
2	Classify and regulate the trading transactions with proper rules and regulations.	K2
3	Explore activities of the investors of stock exchange	K4
4	Determining the securities contracts regulation act and important provisions related to SEBI functions workings.	K5
5	Examining various basic concepts of internet stock trading features	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	Introduction	18 hours

Stock Exchange-Meaning and Functions – World's Stock Exchanges – Indian Stock Exchanges-Origin and Growth - Organisation Structure-Mode of Organisation-Membership-Stock Exchange Traders – Stock Exchange Trading-Jobbers Vs. Brokers-Stock Exchange Dealings Trading of Securities.

Unit:2	Stock Exchange Regulatory Framework	18 hours

Stock Exchange Regulatory Framework-Under the SEBI Act, BSCC Act, Defence of India Rule, Capital Issues Control Act 1947, Securities Contract Act 1956, Securities Contracts Rules 1957 – Profile of Indian Stock Exchanges-BSE,NSE, etc., - Restructuring Indian Stock Exchanges-Demutualization.

Unit:3	Listing	18 hours

Listing-Meaning, Characteristics, Steps, Legal provisions, Benefits, Consequences of Non-Listing – Delisting – Insider Trading – Speculation- Speculation Vs. Gambling-Investors Vs Speculators – Investor Protection.

Unit:4	**Securities Contracts**	**18- hours**
The Securities Contracts (Regulation) Act, 1956-Important provisions – SEBI-Functions and working.		
Unit:5	**Internet Stock Trading**	**16 hours**
Internet Stock Trading-Meaning and features-Current Scenario-Regulating Internet Stock Trading-IPOs on the Internet-e-IPO – E-commerce Act and Internet Stock Trading – Stock Index Futures.		
Unit:6	**Contemporary Issue**	**2 hours**
Online assignment and online seminar		
	Total Lecture hours	**90 hours**

Books for Study	
1	Financial Services and Markets: Dr.S.Gurusamy, Vijay Nicole Imprints (P) Ltd, 2017
2	Financial Services: M.Y.Khan, Tata Mc Graw-Hill Publishing Company Limited. 2016
3	Financial Services: Dr.D.JosephAnbarasu& Others, Sultan Chand & Sons.2015
Books for References	
1	. Financial Institutions and Markets, L.M.Bhole, Tata McGraw – Hill Publishing Company Limited. 2016
2	Financial Institutions and Markets – Gorden and Nataraj, 2019
3	
Related Online Contents	
1	www.udemy.com
2	https://youtu.be/-MveJRIDdgU
3	www.nscindia.com
Course Designed By:	

Mapping with Programme Outcomes					
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**
CO1	M	S	S	M	S
CO2	M	S	S	M	M
CO3	S	S	M	M	S
CO4	M	M	S	S	M
CO5	M	M	S	S	M

*S-Strong; M-Medium; L-Low

Course code		FUTURES AND OPTIONS	L	T	P	C
Core/Elective/Supportive		ELECTIVE	4			4
Pre-requisite		Basic knowledge on Derivate market	Syllabus Version		2020-21	

Course Objectives:

The main objectives of this course are to enable the students to:

1. Provide delegates with a good understanding of how the futures and options markets work, together with the functions of the clearing house.
2. Understand and valuate the basic derivatives and their applications in the financial risk management and investment.
3. Learn the theoretical underpinnings and the practical applications in real world of derivative securities.
4. Learn the theoretical underpinnings and the practical applications in real world of derivative securities.
5. Defining various types of pay off for buyer and identifying commodity markets

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Evaluating the concepts and market mechanics of different types of financial derivatives	K1&K2
2	Analyze how financial derivatives are valued, based on the no-arbitrage and risk-neutral valuation approaches	K4
3	Evaluate the instruments that can be used to implement risk management strategies.	K5
4	Discovering various pay off for buyer of futures and other options like hedging and speculation.	K4
5	Identifying the evolution of commodity markets and exchanges in India.	K3

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	Introduction	18 hours

Introduction to Derivatives – Definition of derivatives products – participants in derivatives market, economic forever of derivatives market.

Unit:2	Index Derivatives	18 hours

Index Derivatives – Index number – economic significance of index movements – types of Indices – desirable attributes of an index – Derivatives in Nifty and Sensex.

Unit:3	Forward contracts	18 hours

Forward contracts - Limitations of forward markets – futures – Distinction between Future and Forward contracts – Futures terminitory options – Options terminitory , Call options and Put option.

Unit:4	**Pay off for Buyer**	**18 hours**
Pay off for buyer (long futures) of futures – pay off for seller (short futures) of futures – Hedging, speculation and arbitrage – Options pay off – pay off profit for buyer of call options – pay off profit for writer of call options. Hedging and speculation in options.		
Unit:5	**Commodity Markets**	**16 hours**
Evolution of Commodity Markets – Commodity markets in India – NewyorkMercentile Exchange-London Metal Exchange , Chicago Board of Trades –Tokyo Commodity Exchange, Chicago Mercantile Exchange.		
Unit:6	**Contemporary Issue**	**2 hours**
Online assignment and online seminar		
	Total Lecture hours	**90 hours**

Books for Study	
1	Financial Services and Markets :Dr.S.Gurusamy, Vijay Nicole Imprints (P) Ltd, 2016
2	Financial Services :M.Y.Khan, Tata Mc Graw-Hill Publishing Company Limited. 2017
3	Financial Services :Dr.D.JosephAnbarasu& Others, Sultan Chand & Sons. 2018
Books for References	
1	The Financial and Analysis of Capital : A.J. Merrett, Allen Ykes projects 2016
2	Financial Management : P.V. Kulkarni & B.G. Sathya Prasad 2019
3	Financial Management : M.Y. Khan & P.K. Jain 2018
Related Online Contents	
1	www.udemy.com
2	https://youtu.be/-MveJRIDdgU
3	www.nscindia.com
Course Designed By:	

Mapping with Programme Outcomes					
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**
CO1	M	S	S	M	M
CO2	S	S	M	M	M
CO3	M	S	S	M	S
CO4	M	M	S	S	M
CO5	M	S	S	S	S

*S-Strong; M-Medium; L-Low

Course code		FUNDAMENTAL AND TECHNICAL ANALYSIS	L	T	P	C
Core/Elective/Supportive		ELECTIVE	4			4
Pre-requisite		Basic knowledge on Derivate market	Syllabus Version		2020-21	

Course Objectives:

The main objectives of this course are to enable the students to

1. Discovering various concepts based on investments and security analysis.
2. Define technical analysis and contrast it with fundamental analysis.
3. Explain the logic behind technical analysis and company analysis.
4. Discuss the basic tools used by technical analysts.
5. Explaining the concepts based on moving averages, charts and its related functions.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Examining various concepts related to investment and approaches to security valuation.	K4
2	outline the theoretical contexts of the fundamental and technical analysis	K2
3	summarize work on the basic tools used by technical analysts	K5
4	determining the various theory and technical analysis related meaning	K5
5	evaluate securities by measuring the intrinsic value of stock	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	Introduction	18 hours

Investment - meaning – importance – security analysis – risk and return – various approaches to security valuation.

Unit:2	Fundamentals analysis	18 hours

Fundamentals analysis – meaning – Market analysis – Indices of NSE and BSE

Unit:3	Industry analysis	18 hours

Industry analysis – meaning – methods - Company analysis – meaning – methods.

Unit:4	Technical analysis	18 hours

Technical analysis – meaning – Dow Theory – Elliot Wave Theory

Unit:5	Moving Averages	16 hours

Moving Averages – Charts – MACD -relative strengths.

Unit:6	**Contemporary Issue**	**2 hours**
Online assignment and online seminar		
	Total Lecture hours	**90 hours**

Books for Study	
1	Investment analysis and portfolio management :Reily. 2016
2	Portfolio management : S.K. Baura. 2013
3	Modern portfolio theory and investment analysis : Elton and Gurbar. 2018
Books for References	
1	Securities analysis and portfolio management : Fischer and Jordan 2018
2	Investment :Jack Clark Francis & Richard w.Taylor. 2015
3	Investment management :V.K.Bhalla. 2016
Related Online Contents	
1	www.tradingcompus.in
2	Learn.tradimo.com
3	www.mooclist.com
Course Designed By:	

Mapping with Programme Outcomes					
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**
CO1	S	S	S	M	M
CO2	M	M	S	M	M
CO3	M	S	S	M	S
CO4	M	M	S	S	M
CO5	S	S	M	S	M

*S-Strong; M-Medium; L-Low

Course code		PRINCIPLES OF INTERNATIONAL TRADE	L	T	P	C
Core/Elective/Supportive		ELECTIVE	4			4
Pre-requisite		Basic knowledge on International trade	Syllabus Version		2020-21	

Course Objectives:

The main objectives of this course are to enable the students to

1. Be familiar with the process of international and domestic trade procedures.
2. Form a base of policy framework in International Trading with special emphasis on India.
3. Appraise themofthedocumentationproceduresanditssanctityinIntl'Business.
4. To know more about international investments and factors affecting international investments
5. Summarize Multinational Corporation and about the Globalizations

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Remember the major models of international trade and be able to distinguish between them in terms of their assumptions and economic implications	K2
2	Apply the principle of comparative advantage and its formal expression and interpretation within different theoretical models	K3
3	Simplify form the theory of international trade as well as international trade policy and to demonstrate the relevance of the theory	K6
4	Discussing about various international investments and its limitations, factors affected by investment Indian companies	K6
5	Summarize concepts based on Multinational Corporation and about the Globalizations	K2

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	Introduction	18 hours

The global Economy – Perspective on the theory of International Trade – The importance of International trade – Counter Trade – Forms of Counter Trade – Reasons for Growth of Counter Trade – Global Trade and Developing Countries.

Unit:2	International commodity Agreements	18 hours

International commodity Agreements – Quota agreements, Buffer stock Agreements – Carts – State Trading – Bilateral and Multilateral contracts. Gains from Trade – Terms of Trade – Factors influencing the terms of trade.

Unit:3	Tariff	18 hours

Tariff – Meaning – Tariffs, Taxes and Distortions – Imports Tariffs and Export Taxes – Export Subsidies – Arguments for free Trade – Arguments for protection – Demerits of protection – Trade barriers.

Unit:4	International Investments	18 hours
International Investments – Types of Foreign Investment – significance of Foreign Investments – Limitations and Dangerous of Foreign Capital – Factors affecting International Investment – Foreign Investment by Indian companies.		
Unit:5	**Multinational Corporation**	**16 hours**
Multinational Corporation – Definition and Meaning – Importance of MNCS – benefits of MNCs – Criticism – Globalizations – Meaning – stages – Essential conditions for Globalization – Implications and Importance of Globalization – Benefits – Obstacles to Globalization in India – Factors favoring Globalization.		
Unit:6	**Contemporary Issue**	**2 hours**
Online assignment and online seminar		
	Total Lecture hours	**90 hours**

Books for Study	
1	International Trade – Theory and Evidence – By James R.Markusen, James R.Melvin, William H.Kaempfer& Keith E.Maskus. 2017
2	International Trade and Export Management – Francis Cherunilam 2015
Books for References	
1	International Business – Francis Cherunilam 2016
2	International Business – P. Natarajan 2019
3	
Related Online Contents	
1	http://epgp.inflibnet.ac.in.ahl.php?csrno=438 paper no and title P11. International business environment module number and title :MI.Globalization Module Tag: BSE_P11_M1
Course Designed By:	

Mapping with Programme Outcomes					
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**
CO1	M	S	S	M	S
CO2	S	S	M	M	S
CO3	M	S	S	M	M
CO4	M	S	S	M	S
CO5	S	S	M	M	S

*S-Strong; M-Medium; L-Low

Course code		EXPORT AND IMPORT PROCEDURE	L	T	P	C
Core/Elective/Supportive		ELECTIVE	4			4
Pre-requisite		Basic knowledge on EXIM	Syllabus Version		2020-21	

Course Objectives:

The main objectives of this course are to enable the students to

1. Learn the export and import trade procedure
2. know the functions of export and import promotion council
3. Learn the role of export and import consultancy like excise procedures
4. Give an understanding about the export and import warehousing laws and their regulations
5. Learn the custom practice while importing and documentation related to rules and regulations

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Recall the export and import licensing procedure	K1
2	Understand the functions of export and import promotion council	K2
3	Analyse the knowledge about customs procedure	K4
4	Evaluate the trading procedure	K5
5	Apply the export and import procedure for the given project	K3

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	Introduction	18 hours

Exports – Recent measures to boost Country's Exports – Rules for successful exporting – Preliminaries for starting export business – Deemed exports and its benefits – Finance for Exports.

Unit:2	Categories of exporters	18 hours

Different Categories of exporters - Registration of Exports – Appointing Overseas agents – Obtaining an export license – Arranging finance for exports – Packing goods for exports – Marketing goods for export.

Unit:3	Excise procedure	18 hours

Excise procedure – Insuring goods against Marine risks – Preparing export documents – Institutional support for Exports – Compulsory quality control and pre-shipment Inspection – Labeling – Shipping and customs clearance of goods.

Unit:4	Import Trade law in India	18 hours

Import Trade law in India – Preliminaries for starting Import Business – Registration of Importers – arranging finance for Import – Arranging letter of Credit for Imports – Balance of

Payments – Liberalization of Imports.		
Unit:5	**Retirement of Import Documents**	**16 hours**
Retirement of Import Documents and RBI"s directives for making payment for Imports – Customs clearance of Imported Goods and payments of customs Duty – Imports under special schemes.		
Unit:6	**Contemporary Issue**	**2 hours**
Online assignment and online seminar		
	Total Lecture hours	**90 hours**

Books for Study	
1	How to Export and How to Import – Nabhipublications 2017
2	Export management – P.K. Khurana 2018
3	Export Management – T.A.S. Balagobal 2019
Books for References	
1	A Guide on Export Policy, Procedure and Documentation – M.I.Mahajan – Snow white publications 2015
Related Online Contents	
1	https://youtu.be/O0zs6CH-IPc
2	https://youtu.be/RyiWM0s_7K0
3	https://youtu.be/gjP0mI7pkgk
Course Designed By:	

Mapping with Programme Outcomes					
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**
CO1	M	S	S	M	M
CO2	M	S	S	S	M
CO3	M	M	S	S	S
CO4	S	S	M	S	S
CO5	S	M	S	S	M

*S-Strong; M-Medium; L-Low

Course code		INSTITUTIONS FACILITATING INTERNATIONAL TRADE	L	T	P	C
Core/Elective/Supportive		ELECTIVE	4			4
Pre-requisite		Basic knowledge on international trade	Syllabus Version		2020-21	

Course Objectives:

The main objectives of this course are to enable the students to

1. Reduce global poverty and improve people's living conditions and standards through facilitating internal trade institutions
2. Provide information about export promotion in India and related to its agencies.
3. Support sustainable economic, social and institutional development on international trade
4. Promote regional cooperation and integration on facilitating the international trade.
5. Assessing various International Monetary Fund and International Development Fund and its features.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Demonstrate the role and significance of foreign trade and its markets with its impact on various sectors in the economy.	K3& K6
2	Understand the conditions of financial markets and its impact in facilitating the international trade	K4
3	Identifying the awareness on the changes in the composition as well as direction of foreign trade after international trade and know the causes and effects of deficits in the balance of payments in facilitating institutions.	K3
4	Examine international monetary fund and concepts its principles	K4
5	Identifying various concepts based on international development association and features	K3

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	Export promotion in India	18 hours

Export promotion in India-Department of Commerce- Functional divisions- Advisory bodies Commodity organizations-Export promotion councils (EPCs)- Commodity Boards- Autonomous bodies- Service Institutions and organizations-Government trading organizations-State trading corporations- Major STC"s in India - State export –Promotion agencies- Impediments in export promotion.

Unit:2	Role of RBI in export finance	18 hours

Role of RBI in export finance –Role of commercial banks-Small Industrial Development Bank of India (SIDBI) - Objectives-Schemes-Export and Import bank of India (EXIM) - Objectives-Functions-Export Credit Guarantee Corporation of India (ECGC) – Functions – Special functions of ECGC.

Unit:3	WTO	18 hours

World Trade Organization – GATT – Objectives-Evolution of WTO-Functions- Principles of WTO- Organization structure- WTO agreements-GATS-TRIMS-TRIPS-Objectives of IPRS benefits- Limitations-Procedure of dispute settlement –WTO and anti dumping measures Evaluation of WTO- drawbacks/Criticisms.		
Unit:4	**IMF**	**18 hours**
International Monetary Fund (IMF)-Objectives- Organization and management- Resources Financing facilities- Conditions on borrowers- Special drawing rights-World Bank-Purpose Organization structure- Guiding principle- Leading programs.		
Unit:5	**IDA**	**16 hours**
International Development Association (IDA)-Objectives-Memberships – Loan assistance International Financial Corporation (IFC)- Objectives-Main features- Asian Development Bank(ADB)- Objectives-UNCTAD-Functions-Basic principles- International trade centre.		
Unit:6	**Contemporary Issue**	**2 hours**
Online assignment and online seminar		
	Total Lecture hours	**90 hours**

Books for Study	
1	International Business (Text & cases) : Francis cherunilam. 2016
2	International Marketing : Rakesh Mohan Joshi. 2015
3	International Business (Text & cases) : P. Sudha Rao 2016
Books for References	
1	International Business Environment : Francis cherunilam.2016
2	Export Marketing :Achaya and Jain. 2013
3	Export Marketing : B.S. Rathir& J.S. Rathir 2018
Related Online Contents	
1	NPTEL
2	SWAMYAM /MOOCs
Course Designed By:	

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	M	S	S	M	M
CO2	S	S	M	M	M
CO3	S	S	S	M	S
CO4	S	S	M	M	S
CO5	S	M	M	S	M

*S-Strong; M-Medium; L-Low

Course code		INDIA'S INTERNATIONAL TRADE	L	T	P	C
Core/Elective/Supportive		ELECTIVE	4			4
Pre-requisite		Basic knowledge on export market	Syllabus Version		2020-21	

Course Objectives:

The main objectives of this course are to enable the students to

1. Understand the international trade environment, strategies and management.
2. Apply concepts, principles and theories to international trade situations.
3. Be aware on the different thinking and viewpoints of diverse cultures.
4. Knowing more about import and export laws related to regulations.
5. Providing information about the global trades towards developing countries facing problems

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Identify the basic difference between inter-regional and international trade	K2 & K6
2	Apply the legal framework in the real life businesses related to foreign trade regulations in India.	K3
3	Evaluate India's international trade performance about its objectives and principles.	K5
4	Identifying various concepts related to imports related to law of protection their rights	K3
5	Discovering more about global trades and developing countries and major problems faced by sectors.	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit:1	Development of Foreign Trade Policy	18 hours

Development of Foreign Trade Policy- Indians Foreign Trade since 1951- EXIM policy 1992-1997- Objectives –Features; 1997-2002 policy- Salient features; EXIM policy 2002-2007 - Features; Foreign Trade Policy 2004-2009 - Salient features.

Unit:2	Legal frame work of India's foreign trade	18 hours

Legal frame work of India's foreign trade –Foreign trade (Development and regulation) Act, 1992 – Foreign Trade Regulation Rules, 1993- Foreign Trade (Exemption from application of rules in certain cases) Order 1993 – Exchange control regulation in India.

Unit:3	India's export trade	18 hours

India's export trade – Historical prospective - Trends – Composition of export trade – Direction of exports of principal products – Export of services – Export promotion – Objectives – Promotion measures – EOUs, EPZs and SEZs.

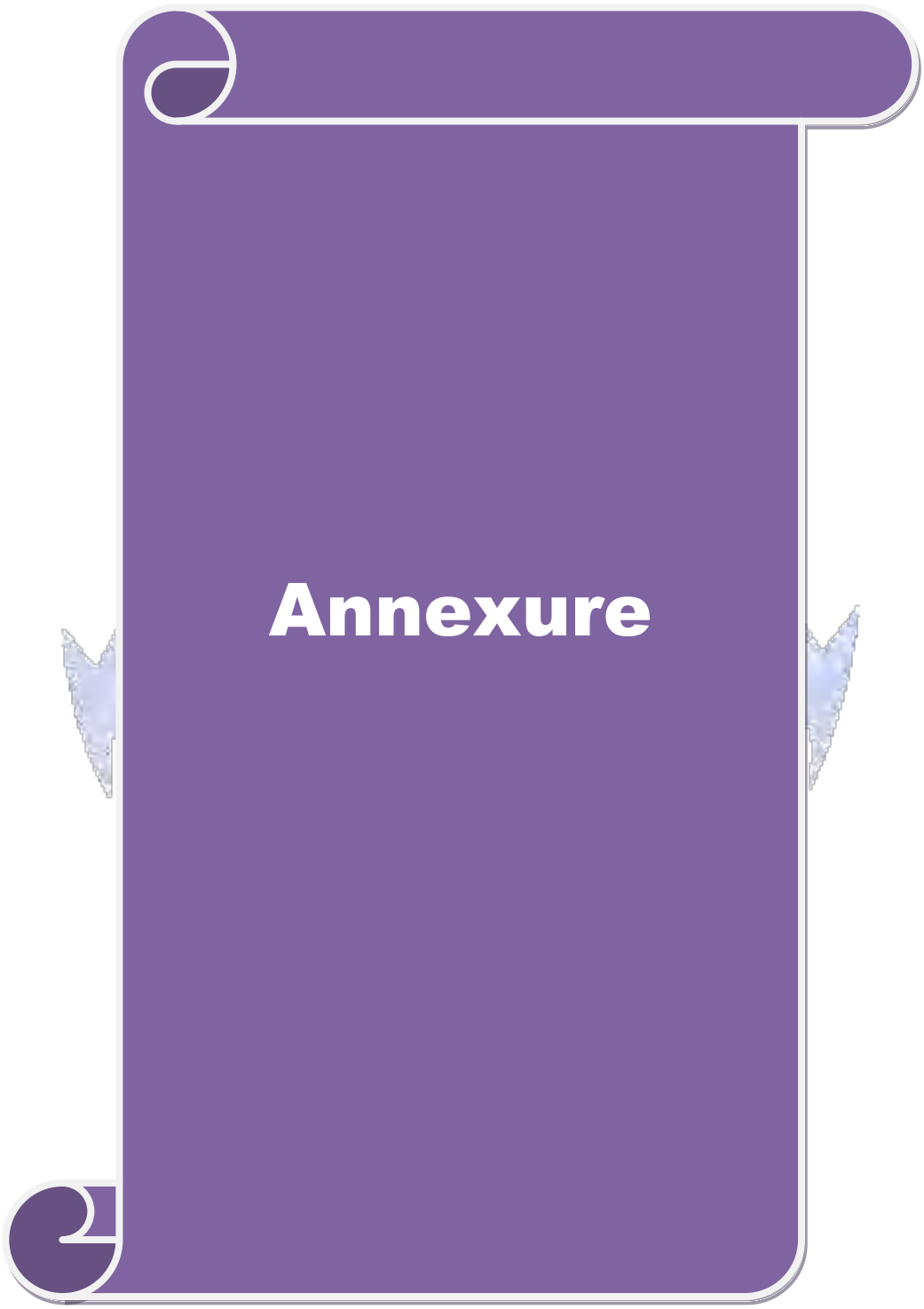
Unit:4	**Imports**	**18- hours**
Imports- Technology import contract- Technology policy and environment – selection and transfer issues – Law of protection of intellectual Property rights, Patents and Trade marks		
Unit:5	**Global trade and developing countries**	**16 hours**
Global trade and developing countries – Highlights of Indian's trade performances - Determinants of Export and Import – Major problems of India's export sector – Impact of recent changes in foreign trade policy.		
Unit:6	**Contemporary Issue**	**2 hours**
Online assignment and online seminar		
	Total Lecture hours	**90 hours**

Books for Study	
1	International Trade and Export Management - Francis cherunilam. 2015
2	Export Management - T.A.S Balagopal 3. International Trade - M.L. Varma 2016
Books for References	
1	Global Marketing Management : Keegan 2018
Related Online Contents	
1	e-PG Pathshala : (Commerce : P.07, M.33)
2	NPTEL : https: //onlinecourses.nptel.ac.in
Course Designed By:	

Mapping with Programme Outcomes					
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**
CO1	M	S	S	M	M
CO2	S	S	M	S	M
CO3	S	S	S	M	S
CO4	M	M	S	S	M
CO5	S	M	M	S	S

*S-Strong; M-Medium; L-Low

Course Designed By :- Dr.A.SELVARAJ
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Annexure

BHARATHIAR UNIVERSITY

(A State University, Accredited with "A" Grade by NAAC and

13th Rank among Indian Universities by MHRD-NIRF)

Coimbatore - 641 046

TAMIL NADU

INDIA

M.Com (International Business)

Program Code:

Affiliated Colleges' Syllabus

(With effect from 2020 - 21 - 2021)

ELIGIBILITY FOR ADMISSION TO THE COURSE

"A Graduate in Commerce, B.Com.(Computer Applications), B.Com.(Information Technology), B.Com.(Professional Accounting), B.Com. (Finance), B.Com. (Banking and Insurance), B.Com.(International Business), B.Com.(Accounting & Taxation), B.Com.(Cost & Management Accounting), B.Com.(E-Com), B.Com.(Financial System), B.Com.(Foreign Trade), BBA, BBM, BBA. (CA), BBM. (CA), B.Com. (Corporate Secretaryship with CA), BCS, BCS. (CA), B.Com. Co-operation"

DURATION OF THE COURSE

The course shall extend over a period of two years comprising four Semesters, with two Semesters per year.

COURSE OF STUDY AND SCHEME OF EXAMINATION

The course of study and scheme of examination for the M.Com (International Business) course shall consist of the following:

		Credits					
	ONLINE COURSE						
	*Offered by Swayam	2					
	VALUE ADDED COURSE						
1.	Soft Skill Development						
2.	Application of Software Packages for Research						
	CERTIFICATE COURSE						
1.	Entrepreneurship Development						
2.	Personnel Management and Industrial Relations						

#Electives: List of Group of Elective Papers:

(Colleges can **choose** any **one of the Group Papers** as **Electives)**

1. GROUP-A

1. Domestic Logistics
2. Chartering and Ship Broking
3. International Shipping and Logistics
4. Airline Marketing and Strategic Airline Alliance

2. GROUP-B

1. Financial Markets and Institutions
2. Indian Stock Exchanges
3. Futures and Options
4. Fundamental and Technical Analysis

3. GROUP-C

1. Principles of International Trade
2. Export and Import Procedure
3. Institutions Facilitating International Trade
4. India's International Trade

* In the core subjects, Number of Papers both theory and practical are included wherever applicable. Existing number of papers to be offered. However, the total credit and marks for core subjects remains the same as stated above. @ Includes 25 / 40% continuous internal assessment marks for theory and practical papers respectively. * As the course is highly practical oriented a Industrial visit to any port (Ocean and Air)/ ICD have to be seen in the second semester and a in house visit to any Export / Import organization in the third semester.

III Semester:

1. Industrial/ Institutional Training is to be made compulsory. The Student should take it up during the II Semester holidays and submit a report in the III Semester.

2. It carries 50 marks with 2 credits. Breakup for 50 marks (Only Internals)
Report 40 marks, Viva-voce 10 marks (Department level under the chairmanship of HOD)
3. Institution to be visited :

Banks, Insurance Companies, trading, manufacturing and service organizations, auditor office and other financial institutions.4. Duration of the visit: minimum of 21 days 5. Marks for the industrial training out of 50 should be sent to the University along with the III Semester Internal marks.

IV Semester:

1. Project Work and Viva-voce examination will be optional for the colleges. They can either opt for project or 2 theory papers in the IV semester which are given as below:

1. International Business Relations 2. Industrial Law

a. If Project is opted by the college 200 marks with 8 credits will be awarded. The break-up of marks will be as follows: Project work 160 marks(80%) and Viva Voce exam 40 marks(20%). External Examiners will be appointed by the University for conducting the viva-voce exam along with the concerned internal examiner. Monthly review of the project work has to be conducted by the guide along with the head of the department for a systematic progress of the work.

b. If the theory papers are opted instead of project work, the marks and credits will be given as other ore papers i.e., CIA - 25 marks and semester exam-75 marks.

M.Sc. Costume Design and Fashion

Syllabus

AFFILIATED COLLEGES

Program Code: 36A

2020 – 2021 onwards

BHARATHIAR UNIVERSITY

(A State University, Accredited with "A" Grade by NAAC,
Ranked 13th among Indian Universities by MHRD-NIRF,
World Ranking : Times - 801-1000, Shanghai - 901-1000, URAP - 982)

Coimbatore - 641 046, Tamil Nadu, India

Program Educational Objectives (PEOs)	
The **M. Sc. Costume Design and Fashion** program describe accomplishments that graduates are expected to attain within five to seven years after graduation	
PEO1	Students can get Employment opportunity directly related to Fashion designer, Retail buyer manager, Retail Stylist, Textile designer, Visual merchandiser.
PEO2	After the completion of the course student may work as a freelancer designer.
PEO3	Models pose for artists, photographers, and other clients to help advertise a variety of products,
PEO4	To introduce the students for advance knowledge in the field of designing.
PEO5	To help students develop the skills needed in conducting a research in their specialization.
PEO7	To equip the students with fashion skills in the field of selection and techniques in the costume field.
PEO8	To enable the students to acquire knowledge about how to design garment and develop different styles
PEO9	Equipped with Entrepreneurial skill to start their own venture

Program Specific Outcomes (PSOs)	
After the successful completion of MSc Costume Design and Fashion program, the students are expected to	
PSO1	Develop an in-depth understanding of the Designing profession, process through course work
PSO2	Demonstrate an advanced knowledge of skills in all areas including sketching, draping, printing.
PSO3	Become proficient in a specific concentration
PSO4	To expose students to the impact of ever changing trends in designing field
PSO5	Adapt their artistic abilities to support their future design careers.
PSO6	Develop a systematic, critical approach to problem solving at all levels of the design process.
PSO7	Articulate design ideas verbally, visually, and digitally.

Program Outcomes (POs)	
On successful completion of the M. Sc. Costume Design and Fashion program, the student will be able to:	
PO1	Create or select fabrics/ garment / home textiles /ornaments/ accessories collection with a better understanding on elements and principles of design, color harmonies, fashion cycle, fashion forecasting
PO2	Design sketches, draft patterns, and construct garments/ home textiles / ornaments / accessories manually or using computers
PO3	Communicate their ideas on garment/ home textiles /ornaments/ accessories collections effectively through fashion sketches, portfolio presentation to the buyers and the consumers done manually or in CAD
PO4	Understand the structure and properties of fabrics and develop garments/ home textiles /ornaments/ accessories according to the requirement
PO5	Develop new fabric designs with weaves, knits, dyes, prints, finishes, embroidery, smocking and other embellishments
PO6	Establish and maintain production standards, quality control, costing and finance of the apparel and textile industry as merchandising / quality controller / entrepreneur.
PO7	Relate to policies, strategies and methods in apparel and textile manufacturing for the product development, marketing, sales and other activities
PO8	Understand and assess societal, environmental, health. safety, legal and cultural issues prevailing in the field of textiles and fashion
PO9	Identify research problems, obtain relevant data, interpret, and report findings
P10	Design and create ornaments and Accessories and decide on the make up and hairstyle to suit the garment meant for the ramp or photoshoot

BHARATHIAR UNIVERSITY: COIMBATORE 641 046
M. Sc. Costume Design and Fashion Curriculum
(For the students admitted during the academic year 2020 – 21 onwards)

Course Code	Title of the Course	Credits	Hours		Maximum Marks		
			Theory	Practical	CIA	ESE	Total
FIRST SEMESTER							
13A	Core Paper I - Technical Textiles	4	4	-	25	75	100
13B	Core Paper II - Costumes of the World	4	4	-	25	75	100
13P	Core Practical I - Fashion Illustration	4	-	6	40	60	100
13Q	Core Practical II - Draping for Fashion Design	4	-	6	40	60	100
13R	Core Practical III - Ornaments and Accessories	4	-	6	40	60	100
1EA	Fashion Business and Communication	4	4	-	25	75	100
1EB	Protective Clothing						
1EC	Apparel Entrepreneurship						
	Total	**24**	**12**	**18**	**195**	**405**	**600**
SECOND SEMESTER							
23A	Core Paper III - Research Methodology and Statistics	4	5	-	25	75	100
23B	Core Paper IV - Export Trade and Documentation	4	4	-	25	75	100
23P	Core Practical IV - Design Art and Painting	4	-	5	40	60	100
23Q	Core Practical V - CAD in Fashion Designing	4	-	6	40	60	100
23R	Core Practical VI - Advanced Garment Construction	4	-	6	40	60	100
2EA	Brand Management	4	4	-	25	75	100
2EB	Functional Apparels and Clothing						
2EC	Supply Chain Management						
	Total	**24**	**13**	**17**	**195**	**405**	**600**
THIRD SEMESTER							
33A	Core Paper V - Apparel Quality Standards	4	4	-	25	75	100
33B	Core Paper VI - Textile Testing	4	4	-	25	75	100
33P	Core Practical VII - Textile Testing Practical	3	-	4	30	45	75
33Q	Core Practical VIII - CAD in Pattern Making	4	-	6	40	60	100
33R	Core Practical IX - Design with Prints	4	-	6	40	60	100
3EA	Apparel production and planning	4	4	-	25	75	100

3EB	Intimate Apparels						
3EC	Clothing Science						
	Project Work / Thesis**	-	-	2	-	-	-
	Total	**23**	**12**	**18**	**185**	**390**	**575**
FOURTH SEMESTER							
43A	Core Paper VII - Indian Textile Industry	4	4	-	25	75	100
43P	Core Practical X - Design Collection	3	-	4	30	45	75
4EP	Beauty Care Practical	4	-	6	40	60	100
4EQ	Fashion Photography Practical						
4ER	Home Furnishing Practical						
47V	Project Viva Voce	8	-	16	-	-	200*
	Total	**19**	**4**	**26**	**95**	**180**	**475**
	Grand Total	**90**	**41**	**79**	**670**	**1380**	**2250**
ONLINE COURSES**							
	SWAYAM / MOOC / NPTEL COURSES						
	VALUE ADDED COURSES / JOB ORIENTED COURSES**						


First
Semester

Course code	13A	TECHNICAL TEXTILES	L	T	P	C
Core			4	-	-	4
Pre-requisite		Basic knowledge in Textile Science	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are to:

1. Acquire knowledge in technical textile.
2. Develop an understanding of fiber in technical textile.
3. Become familiar with various usage of technical textile.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the characteristics of technical textiles its types	K2
2	Discover the properties of Technical textiles and its types	K3
3	Interpret the area of applications of types of technical textiles	K3
4	Recognize the underlying concepts	K1
5	Apply the concepts in creation of garments	K3

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit 1	Classification of Technical Textiles	12 hours

Introduction, definition and scope of technical textiles, developments in fibers-natural fibres, polyamide, polyester, viscose rayon, polyolefin, high performance fibers and glass and ceramics, classification and application of technical textiles.

Unit 2	Mobile Tech and Sport Tech	12 hours

Mobile Tech – definition and areas of application (road vehicles, aircraft, marine), visible components - upholstery, seat belt, airbags and carpets; concealed components - tyre cords, hoses, belts, air bags, air and fuel filters, noise and vibration dampening and body panel reinforcement.
Sport Tech – definition and scope, properties of sports tech textiles, areas of application, moisture management. special fibers used.

Unit 3	Agro Tech and Pack Tech	12 hours

Agro Tech – definition and scope, general property requirement of Agro textiles, fibers used for Agro textiles, areas of application.
Pack Tech – definition and scope, types of products - polyolefin woven sacks, FIBC, leno bags, wrapping fabric, Jute sacks, teabags, soft luggage products.

Unit 4	Geo Tech and Medi Tech	12 hours

Geo Tech – definition and scope, Fibers used and its properties, Areas of application
Med Tech-fibres used-commodity and specialty fibers: non implantable materials-wound care and bandages, extracorporeal devices: implantable materials-sutures, soft tissue implants, orthopedic implants, cardiovascular implants and healthcare and hygiene products.

Unit 5	Smart Textiles	10 hours

Smart textiles-components, classification-active smart, passive smart and very smart textiles and Intelligent textiles-phase change materials, shape memory polymers, chromic and conductive materials, and its applications. Clothing for extreme climatic conditions - wearable technology for snow clothing, high altitude clothing. Electromagnetic radiation protective clothing. Textiles-for survival-short term survival and long-term survival.

Unit 6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars - webinars		
	Total Lecture hours	**60 hours**

Text Books	
1	Handbook of Technical Textiles Volume I- Edited by A R Horrocks and S C Anand, Wood head publishing Ltd, England, 2016.
2	Handbook of Technical Textiles- Edited by A R Horrocks and S C Anand, Wood Head publishing Ltd, England, 2000.
3	Handbook of Technical Textiles, Volume 2: Technical Textile Applications – Edited by A. Richard Horrocks and Subhash C. Anand, Wood Head publishing Ltd, England, 2016.
Reference Books	
1	Technical Textile Yarns, Industrial and Medical Applications, Edited by R Alagirusamy and A Das, Wood Head publishing Ltd, 2010
2	High Performance Technical Textiles, Edited by Roshan Paul, John Wiley and Sons, 2019
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://www.textilemates.com
2	https://www.technical-textiles.net
3	http://ficci.in/spdocument/20811/1-Technotex-2016-Knowledge-Paper.pdf
4	file:///C:/Users/rshee/OneDrive/Documents/BOS%20-CDF/M%20Sc%20Syllabus/Technical%20Textiles/9781119325017_High_Performance_Technical_Textiles_2f69.pdf
5	file:///C:/Users/rshee/Downloads/14_chapter%202.pdf
Course Designed By: Dr R Sheela John and Dr S Jayapriya	

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	P10
CO1	M	S	S	S	M	M	L	M	M	L
CO2	S	S	S	S	M	M	M	M	M	L
CO3	M	S	S	S	S	S	S	S	M	L
CO4	S	S	S	S	M	M	S	M	L	L
CO5	S	S	S	S	M	M	M	M	L	L

*S-Strong; M-Medium; L-Low

Course code	13B	COSTUMES OF THE WORLD	L	T	P	C
Core			4	-	-	4
Pre-requisite		Familiar with garment styles and accessories	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are to:

1. Study the costumes of the world.
2. Trace the development of costumes through the ages.
3. Familiarize with the styles and special features in costume from ancient world till 20th century.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Outline to the styles worn during the ancient till the 19th century.	K4
2	Identify the costumes to its nationality.	K1
3	Appreciate the diverse cultures and the nuances.	K5
4	Explain the costumes of various costumes across the globe	K2
5	Apply the knowledge in the collections they design in the future	K3

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit 1	Costumes of American Countries	12 hours

American Countries -Inuit and Aleut, American Indians of the southwest, Plains and northwest, Amish costumes, Guatemala, Mexico, Colombia, Peru and Bolivia, Chile and Brazil.

Unit 2	Costumes of European Countries	12 hours

European Countries –Russia, Italy, Norway, Sweden, Denmark, Scotland, Germany, Spain, Belgium, Hungary, Poland and Ukraine.

Unit 3	Costumes of Middle and Far Eastern Countries	12 hours

Middle and Far Eastern Countries - Turkey and Iran, Costumes of Arab Peninsula, China, Japan, Korea, Sri Lanka, Pakistan, Nepal, Vietnam, Myanmar, Thailand and Philippines.

Unit 4	Costumes of African Countries	12 hours

African Countries—Egypt, Nigeria, Lybia, Ethiopia, Kenya, Uganda, Tanzania, Botswana, Zimbabwe, Nigeria and Cameroon.

Unit 5	English French and American Costumes	10 hours

Costume of ancient -Egypt, Greece, Rome. African Tribal Costumes.
English costumes: English Costume during 15th-17th centuries.
French costumes: French Costumes during renaissance 16th -18th centuries.
American costumes: American costumes from 18th to 20th centuries.

Unit 6	Contemporary Issues	2 hours

Expert lectures, online seminars - webinars

	Total Lecture hours	60 hours

Text Books

1	Historic Costume, Chas A, 'Bernard and Co, Illinois, 1961

2	Costume through the Ages, Laver, James Simon and Schuster, New York, 1968
3	A History of Fashion and Costume - Paige Weber, Bailey Publishing Associates Ltd, 2005
Reference Books	
1	A History of Fashion and Costume, Volume I, The Ancient World – Jane Bingham, Bailey Publishing Associates Ltd (2005)
2	Costumes of Indian and Pakistan, Das S N, D B TaraporevaIa Sons & Co, Bombay, 1958
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://study.com/academy/lesson/traditional-clothing-around-the-world.html
2	https://www.european-girls.com/category/european-traditional-clothes
3	https://en.wikipedia.org/wiki/Folk_costume
Course Designed By: Mrs Catharine Francis and Dr S Jayapriya	

Mapping with Programme Outcomes										
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**P10**
CO1	M	S	M	L	L	L	L	L	S	M
CO2	L	S	S	M	L	L	L	S	M	M
CO3	M	S	S	M	M	L	L	M	L	M
CO4	L	L	S	S	M	L	L	L	M	M
CO5	S	S	S	S	S	M	M	S	S	M

*S-Strong; M-Medium; L-Low

Course code	**13P**	**FASHION ILLUSTRATION**	**L**	**T**	**P**	**C**
Core - Practical			**-**	**-**	**4**	**4**
Pre-requisite		**Basic skills in fashion drawing and rendering**	**Syllabus**		**2020-**	

		Version	2021

Course Objectives:

The main objectives of this course are to:

1. Illustrate sketches for costumes across the globe.
2. Improve their drawing skills by redrawing the garment designs from the photograph.
3. Design garment collection for fashion show, summer and winter collection.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Apply the knowledge of world costumes in sketching	K3
2	Illustrate costumes from countries across the world	K4
3	Illustrate ancient costumes of Egypt, Greece and Rome	K4
4	Redraw garment designs from the photograph	K6
5	Discover the details of the costumes	K3

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Prepare Illustrations for the Following Costumes (any 4 designs for men and Women)	**40 hours**

- Costumes of America
- Costumes of Europe
- Costumes of Africa
- Costumes of Middle and Far Eastern countries
- Costumes of Asia
- Costumes of Egypt
- Costumes of Greece
- Costumes of Rome

Prepare Illustration for the Following Costumes of India - Female and Male	**30 hours**

- Tamilnadu
- Karnataka
- Kerala
- Andhra Pradesh
- Uttar Pradesh
- West Bengal
- Rajasthan
- Jammu and Kashmir
- Gujarat

Redraw the garment designs from Photographs along with the background (2 each)	**18 hours**

- Men Garments
- Women Garments
- Children Garments

Unit 6	**Contemporary Issues**	**2 hours**

Expert lectures, online seminars - webinars

Total Lecture hours	**90 hours**

Text Books

1	Fashion Sketchbook, Fourth Edition – Bina Abling, Fairchild Publications, 2000
2	Fashion Design Illustration Women – Patrick John Ireland, Om Books International, 2005
Reference Books	
1	Professional Fashion Illustration – Julian Seaman, B T Batsford, London, 1995
2	Ilustration Fashion – Katherine McKelvey and Janine Munslow, Blackwell Science Ltd, 1997
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://www.arts.ac.uk/study-at-ual/short-courses/stories/how-to-make-fashion-drawing-and-illustration-templates
2	https://www.youtube.com/watch?v=_uUNMHFSsBk
3	https://www.youtube.com/watch?v=WBlm7TikyLI
Course Designed By: Dr R Sheela John and Mrs Kokilavani	

Mapping with Programme Outcomes										
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**P10**
CO1	S	S	S	S	S	L	M	M	L	M
CO2	S	S	S	S	M	M	M	M	L	M
CO3	S	S	S	S	M	M	M	M	M	M
CO4	M	S	S	L	L	L	L	L	L	M
CO5	S	S	S	S	S	S	M	M	M	M

*S-Strong; M-Medium; L-Low

Course code	13Q	DRAPING FOR FASHION DESIGN	L	T	P	C
Core- Practical			-	-	4	4
Pre-requisite		Basic knowledge and skill in draping technique	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are to:

1. Impart knowledge on preparing patterns through draping technique.
2. Practice the skills of pattern making with different garment styles.
3. Design garment collection for fashion show, summer and winter collection.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Develop patterns using draping method	K6
2	Apply draping technique to create various garment components	K3
3	Create draped patterns for children and women garments	K6
4	Select suitable fabrics for draping	K6
5	Appraise and use the draping pattern making method to create innovative styles	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Draft Patterns for the Following Components of Garment — **28 hours**

- Basic Bodice – Front and Back, Basic Skirt
- Variations in Pleats, Dart, Tucks and Gathers (two types in each)
- Neckline variations (any 2)
- Armhole variations (any 2)
- Waistline variations. (any 2)
- Skirt - Flared skirt, Gore skirt, Pleated skirt, Hip yoke skirt, and the princess waist. (any 2)
- Collars - Mandarin Collar, Band Collar, Convertible collar and Peterpan collar, (any 2)
- Yokes -Hip yoke, Shirt Yoke, and Midriff Yoke. (any 2)

Draft and Construct the Following Garment for a Girl Child — **30 hours**

- Yoke frock
- Middi and top
- Create style of your own

Draft and Construct the Following for a Female — **30 hours**

- Full gown
- Salwar kameez
- Long skirt and tops
- Create style of your own

Unit 6 — **Contemporary Issues** — **2 hours**

Expert lectures, online seminars - webinars

Total Lecture hours — **90 hours**

Text Books

1. Draping for Fashion Design, Hilde Jaffe, Nurie Relis, Pearson Prentice Hall, 2012

2	Dress Design - Draping and Flat Pattern, Marion S. Hillhouse, Evelyn A. Mansfield, Hill House 1948
3	The Theory of Fashion Design, Brockman, Magritha, John Wiley Sons, New York, 2011
Reference Books	
1	Design through Draping, Sheldon, Marhta, Burgess Publishing Company, 1967
2	Modern Pattern Design: The Complete Guide to the Creation of Patterns as a Means of Designing Smart Wearing Apparel, Pepin and Harriet, Published by Funk & Wagnalls company, 1942
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	http://www.studiofaro.com/well-suited/my-drape-pattern-making-method
2	https://www.universityoffashion.com/disciplines/draping/
3	https://www.threadsmagazine.com/2013/11/04/video-how-to-drape-a-skirt
Course Designed By: Dr R Sheela John and Mrs Kokilavani	

Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**P10**
CO1	S	S	M	M	L	M	L	M	L	L
CO2	S	S	S	S	S	M	L	M	L	L
CO3	S	S	S	S	L	M	S	M	M	L
CO4	S	L	L	S	S	M	M	M	L	L
CO5	L	S	L	M	M	M	L	M	L	L

*S-Strong; M-Medium; L-Low

Course code	13R	ORNAMENTS AND ACCESSORIES	L	T	P	C
Core- Practical			-	-	4	4
Pre-requisite		Familiar with types of ornaments and accessories	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are to:

1. To create and develop ornaments and accessories.
2. To design ornaments and accessories for various occasion.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Develop new accessories with fabrics	K6
2	Understand new techniques of creating ornaments.	K2
3	Discover new ideas of creating ornaments and accessories.	K3
4	Create a complete set of ornaments for bridal and other special dress	K6
5	Organize items need for creating accessories and ornaments efficiently	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Create the Following Accessories with Fabric. (2 each) — **30 hours**

- Handbag / cellphone pouch
- Slipper or shoe
- Belt
- File/ Diaries / Office notebooks
- Mask and Gloves

Create the following ornaments. (3 each) — **30 hours**

- Ornaments for Hair
- Ornaments for Ear
- Ornaments for Neck
- Ornaments for Hand
- Ornaments for Hip
- Ornaments for Finger
- Ornaments for legs

Create set of ornaments to suit a dress. — **28 hours**

- Set of Bridal ornaments
- Set of ornaments for any special garments (like fashion show, dance costume etc)

Record Notebook – Fix photographs of the items created and explain the details of materials used and the method of construction

Contemporary Issues — **2 hours**

Expert lectures, online seminars – webinars

Total Lecture hours — **90 hours**

Text Books

1	Jewellery Making, A Complete Course for Beginners, Jinks McGrath, Apple Press, 2007
2	The Workbench Guide to Jewellery Techniques, Anastasia Young, Thames and Hudson, 2010
Reference Book	
1	The Bag Making Bible: The Complete Creative Guide to Sewing Your Own Bags - Lisa Lam, Amy Butler, Published by David & Charles, 2010
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://www.youtube.com/watch?v=pdwJZZSUjfs
2	https://www.youtube.com/watch?v=4jNCJm3j0ec
3	https://www.youtube.com/watch?v=RehISbeKeMo
4	https://www.youtube.com/watch?v=bpjpvxos200
5	https://www.youtube.com/watch?v=7OTfnxojulM
Course Designed By: Dr R Sheela John and Mrs Kokilavani	

Mapping with Programme Outcomes										
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**P10**
CO1	S	S	S	S	M	L	L	M	M	S
CO2	S	S	S	S	M	M	L	M	L	S
CO3	S	S	S	S	M	M	L	M	L	S
CO4	S	S	S	S	S	S	S	S	M	S
CO5	M	L	L	L	M	M	L	S	M	S

*S-Strong; M-Medium; L-Low

Course code	**1EA**	**FASHION BUSINESS AND**	**L**	**T**	**P**	**C**

Elective	COMMUNICATION	4	-	-	4
Pre-requisite	Knowledge on structure and functioning of fashion industry	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are to:

1. Gain a clear understanding of merchandise and merchandising system
2. Enhance business through effective communication
3. Work towards sustainable fashion

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the merchandise management and its functions	K2
2	Plan efficient merchandising systems	K5
3	Apply the concept of sustainable fashion in business	K3
4	Analyze effective ways of communicating to the stakeholders	K4
5	Appraise the business policies and strategies	K4

K1 – Remember; **K2** – Understand; **K3** – Apply; **K4** – Analyze; **K5** – Evaluate; **K6** – Create

Unit 1	Merchandise Management	12 hours

Merchandise Management**:** Introduction to developing and Implementing Merchandise Plans, Financial Management, Operations Management and Supply chain management.
Behavioral Theory of the fashion Industry
Types of Merchandising – Export House – manufacturer Exporter-Merchant exporter – Buying House – Buying Agency –Types of Buying agency. Functions of merchandiser in an Export house, buying house and buying agency

Unit 2	Merchandising System	12 hours

Merchandising System: Planning – developmental presentation – merchandise Planning fundamental-overview of line process – traditional line planning – forecast based merchandise planning. Merchandising perspective on pricing and profits. Merchandising budget – components of merchandising budget. Merchandiser's role – Pre buying activity, in-house production and post production.
Mission of Shopping – Meeting Shoppers Mission – Big Shopping – Small Shopping, Store and Multi Brand Store.

Unit 3	Sustainable Fashion	12 hours

Sustainable Fashion – Definition and importance. Terminologies related to sustainable fashion – Sustainable clothing, Eco design, Eco label, Eco Fashion, Green washing, Zero waste design, Green consumer, Eco fashion designer. Sustainable textiles – definition and importance, Corporate Social Responsibility in the textile and clothing sector, Environmental Management Systems

Unit 4	Fashion and Communication Process	12 hours

Fashion and Communication Process – AIDA model. Need for communication
Business letters – Need, functions and types. Parts of a letter.
Email correspondence – components of email, Import-export correspondence – export correspondence letter, import of machineries letter, Letter of Credit, order confirmation.

Unit 5	Visual Communication	10 hours

Visual Communication: Fashion photography, window display and multimedia

Role of Magazine in Fashion Industry, Magazine Content and Styling, Script, Editing, Proof Reading, Photoshoot. Fashion Magazine Analysis and Report. Designing of own fashion magazines/ Designing of own fashion brochures by the students/designing a look book/designing a line planning.		
Unit 6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**60 hours**

Text Books	
1	How to Produce Successful Advertising, Farbey, A.D, Kogan Page India Pvt. Ltd.
2	Advertising, Jethwaney J.N, Phoenix Publishing House Pvt. Ltd, 1999.
3	Strategies for Technical Communication, Roundy, N. and Mair, D, Little Brown and Company, Boston, Toranto, 1985.
Reference Books	
1	Merchandising of Fashion Products, Doris H Kincade, 2011.
2	Fashion Marketing, third edition, Mike Easey, Wiley Blackwell Publishing, 2009.
3	Fashion, From Concept to Consumer, Gini Stephens Frings, Prentice Hall Publications, 1994.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://owl.purdue.edu/owl/subject_specific_writing/professional_technical_writing/basic_business_letters/index.html
2	https://previiew.com/home/journal/the-possible-importance-of-fashion-photography.html#:~:text=Without%20question%2C%20photography%20plays%20a,publishing%2C%20rather%20than%20fashion%20itself.
3	https://www.fibre2fashion.com/industry-article/6134/role-of-media#:~:text=Fashion%20magazines%20like%20Femina%20have,different%20brands%20and%20fashion%20trends.&text=It%20has%20helped%20in%20creating,expected%20to%20be%20worth%20Rs.
Course Designed By: Dr R Sheela John and Mrs K Catharine Francis	

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	P10
CO1	M	S	S	M	M	M	M	M	L	M
CO2	M	M	M	M	L	S	S	S	M	M
CO3	S	S	S	M	S	S	S	S	S	L
CO4	M	M	S	L	L	S	S	S	S	L
CO5	S	S	S	S	S	S	S	S	S	L

*S-Strong; M-Medium; L-Low

Course code	**1EB**	**PROTECTIVE CLOTHING**	**L**	**T**	**P**	**C**
Elective			**4**	**-**	**-**	**4**
Pre-requisite		**Knowledge on types of fibers, yarns and fabric.**	**Syllabus Version**		**2020-2021**	

Course Objectives:

The main objectives of this course are to:

1. Select suitable fibers, yarns, fabrics and finishes for protective clothing
2. Understand the dynamics of protective clothing
3. Gain knowledge on the methods of evaluating the protective garments

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the meaning and uses of protective clothing	K2
2	Appraise suitable fibers, yarns, fabrics and finishes for protective clothing	K4
3	Understand the methods of creating suitable fabrics for protective clothing	K2
4	Plan protective clothing to suit the needs of the wearer	K2
5	Develop protective clothing	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit 1	**Fibers, Yarns and Fabrics for Protective Garments**	**12 hours**

Fibers, yarns and fabrics for protective garments-Selection of fibers -suitability and properties of high performance fibers for various protective clothing, chemical composition and physical structure, characteristics and working of various fibers according to different end uses like thermal protection, ballistic protection, anti-microbial protection, Protection against cold. Yarn and fabric (knitted, woven and Non-woven) parameters, their methods of production, effect of structure on their performance; use of composite materials in yarn and fabric formation used for protective end uses.

Unit 2	**Chemical Finishes for Protective Garments**	**12 hours**

Chemical finishes for protective garments-Use of coated fabrics – different types of finishes like fire retardant finishes, for different textile materials, water repellent finishes, anti-microbial finishes; chemical finishes against radiation and chemicals – method of application of those finishes; machines and techniques used for such applications; protective finishes for health care garments.

Unit 3	**Protective Garments in Other Applications**	**12 hours**

Protective garments in other applications- Protective fabrics used in the medical field and in hygiene; military combat clothing; protective fabrics against biological and chemical warfare; textiles for high visibility.

Unit 4	**Garment Construction**	**12 hours**

Garment construction - method of construction of garments according to various protective end uses like protection against cold, heat, chemical, ballistic protection etc.; use of different fabric Type - knitted, woven, and Non-woven; coated / laminated in protective applications different places; use of inter lining and composites.

Unit 5	**Evaluation of Protective Fabrics**	**10 hours**

Evaluation of protective fabrics - desirable properties of protective textiles, method of testing for thermal protective performance, water, cold, abrasion and wear resistance; evaluation of resistance in to mildew, ageing, sunlight, chemical, electrostatic and electrical resistivity, impact properties; ASTM standards for protective garments.

Unit 6	**Contemporary Issues**	**2 hours**

Expert lectures, online seminars – webinars		
	Total Lecture hours	**60 hours**
Text Books		
1	Wellington Sears Handbook of Industrial textiles, Adanur S, Technomic Publishing Co Inc,1995.	
2	Protective Clothing, Pushpa Bajaj and Sengupta A.K, The Textile Institute, 1992.	
Reference Book		
1	Handbook of Technical Textiles, Horrocks A.R. and Anand S.C, Woodhead Publishing Limited, Cambridge, UK, 2000.	
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]		
1	https://www.encyclopedia.com/fashion/encyclopedias-almanacs-transcripts-and-maps/protective-clothing	
2	https://study.com/academy/lesson/types-of-personal-protective-equipment.html	
Course Designed By: Dr R Sheela John and Mrs K Catharine Francis		

Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**P10**
CO1	S	S	S	S	S	S	S	S	S	L
CO2	S	S	S	S	S	M	M	M	M	L
CO3	S	S	S	S	S	L	L	L	S	L
CO4	S	M	M	S	M	M	M	M	M	L
CO5	S	S	S	S	S	S	S	S	S	L

*S-Strong; M-Medium; L-Low

Course code	**1EC**	**APPAREL ENTREPRENEURSHIP**	**L**	**T**	**P**	**C**
Elective			**4**	**-**	**-**	**4**
Pre-requisite		**Familiar with various sectors of garment industry**	**Syllabus Version**		**2020-2021**	
Course Objectives:						
The main objectives of this course are to: 1. Provide knowledge on entrepreneurs, types and their functions						

2. Gain insights on the business enterprise
3. Gain knowledge on financing and government policies that aid entreprenuership

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the quality, types and the significant role of an entrepreneur	K2
2	Analyze the market potential for the startup of a small business enterprise	K4
3	Plan to avail government support through various schemes for finance	K4
4	Gain confidence and motivation to be an entrepreneur	K6
5	Solve problems, if any and frame suitable strategies to overcome it	K3

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit 1	**Types of Entrepreneurs**	**12 hours**

Entrepreneur – Types of Entrepreneurs – Difference between Entrepreneur and Intrapreneur – Entrepreneurship in Economic Growth, Factors Affecting Entrepreneurial Growth.

Unit 2	**Entrepreneurship Development Programs**	**12 hours**

Motivation-Major Motives Influencing an Entrepreneur – Achievement Motivation Training, self rating, Business Game, Thematic Apperception Test – Stress management, Entrepreneurship Development Programs – Need, Objectives.

Unit 3	**Small Enterprises and Market Research**	**12 hours**

Small Enterprises – Definition, Classification – Characteristics, Ownership Structures – Project Formulation – Steps involved in setting up a Business – identifying, selecting a Good Business opportunity, Market Survey and Research, Techno Economic Feasibility Assessment – Preparation of Preliminary Project Reports – Project Appraisal – Sources of Information – Classification of Needs and Agencies.

Unit 4	**Financing and Accounting**	**12 hours**

Financing and accounting- Need – Sources of Finance, Term Loans, Capital Structure, Financial Institution, management of working Capital, Costing, Break Even Analysis, Network Analysis Techniques of PERT/CPM –Taxation – Income Tax, Excise Duty – Sales Tax.

Unit 5	**Support to Entrepreneurs**	**10 hours**

Support to entrepreneurs -Sickness in small Business – Concept, Magnitude, causes and consequences, Corrective Measures – Government Policy for Small Scale Enterprises – Growth Strategies in small industry– Expansion, Diversification, Joint Venture, Merger and Sub Contracting.

Unit 6	**Contemporary Issues**	**2 hours**

Expert lectures, online seminars - webinars

	Total Lecture hours	**60 hours**

Text Books

1	Entrepreneurial Development, S.S.Khanka, S.Chand & Co. Ltd. Ram Nagar New Delhi, 1999.
2	Enterprenuership – Theory, process and practices, 6th edition, Kuratko & Hodgetts, Thomson learning, 2003

Reference Books	
1	Entrepreneurship, 5th Edition, Hisrich R D and Peters M P, Tata McGraw-Hill, 2002.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://businessjargons.com/types-of-entrepreneurs.html
2	https://www.businessmanagementideas.com/entrepreneurship-2/entrepreneurship-development-programme/21011
3	https://startuptalky.com/list-of-government-initiatives-for-startups/#:~:text=NewGen%20Innovation%20and%20Entrepreneurship%20Development,and%20Technology%2C%20Government%20of%20India.
Course Designed By: Dr R Sheela John and Mrs K Catharine Francis	

Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**P10**
CO1	L	L	S	S	S	S	S	S	L	M
CO2	S	S	S	S	S	S	S	S	S	L
CO3	M	M	M	L	L	L	L	L	L	L
CO4	S	S	S	S	S	S	S	S	S	M
CO5	M	M	M	M	M	S	S	S	S	L

*S-Strong; M-Medium; L-Low



Course code	23A	RESEARCH METHODOLOGY AND STATISTICS	L	T	P	C
Core			4	-	-	4
Pre-requisite		Basic knowledge in science and mathematics	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are to:

1. Impart knowledge on the methods and techniques of research.
2. Describe the statistical methods in research.
3. Develop a research plan of their own.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the significance of research process	K3
2	Discover a research problem	K1
3	Prepare a research design and sample design	K6
4	Develop an appropriate method of data collection	K6
5	Test the hypothesis using suitable statistical method	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit 1	Research Methodology – An Introduction	13 hours

Meaning and Objectives of Research - Types of Research - Significance of Research - Research Process, Criteria of a good research.

Research Problem – Definition, selecting a problem and technique involved in a research problem.

Unit 2	Research Design and Sampling Design	15 hours

Research Design - Meaning, Features of a good design, Important concepts related to research design, Different research designs, Basic principles of experimental designs. Important experimental designs. Developing a Research Plan.

Sampling Design -Population and sample Steps in sampling design, criteria for selecting a sampling procedure, characteristics of a good sample design, different types of sample designs

Unit 3	Scaling Techniques and Data Collection	15 hours

Measurement and Scaling Techniques: measurement scales, tests of sound measurement, meaning of scaling, developing a likert scale

Methods of Data collection: Collection of primary data - observation, interview, Collection of data through questionnaire and schedule. Collection of secondary data

Unit 4	Data Processing and Report Writing	15 hours

Data processing and analysis: Processing operations-editing, coding, classification, and tabulation

Interpretation and Report writing – Meaning of interpretation, techniques, and precautions in interpretation; significance of report writing, steps in writing report, layout of research report, mechanics of research report

Unit 5	Statistics in Research	15 hours

Statistics in research - measures of central tendency, dispersion, asymmetry and relationship Co-relation Tests of Hypothesis – Meaning of hypothesis, Basic concepts concerning testing of hypothesis, procedure for hypothesis testing, tests of hypothesis – important parametric tests and non-parametric tests		
Unit 6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**75 hours**

Text Books

1	Research Methodology, Methods and Techniques - C R Kothari, New Age International, Delhi, 2012
2	Introduction to Research in Education - Ary, Hort Reinhart, 1982
3	An Introduction to Statistical Methods - S P Gupta, Vikas Publishing House, New Delhi, 2004

Reference Books

1	Research in Education - Best J N, Prentice Hall, Delhi, 1979
2	Practical Statistics for the Textile Industry: Part I, G A V Leaf C Text FTI, Published by The Textile Institute, 1984
3	Introduction to Probability and Statistics, Milton J S. and Arnold J C, Tata Mc Graw Hill, New Delhi, 4th Edition, 3rd Reprint, 2008

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://shodhganga.inflibnet.ac.in/handle/10603/7465
2	https://shodhganga.inflibnet.ac.in/handle/10603/6679?offset=20
3	http://ijrm.humanjournals.com/wp-content/uploads/2019/02/8.Vivek-Puri.pdf
4	https://www.researchgate.net/publication/334519601_Modern_Trends_in_Research_Methodology

Course Designed By: Dr R Sheela John and Dr S Jayapriya

Mapping with Programme Outcomes

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	P10
CO1	M	L	L	M	M	L	M	M	M	L
CO2	M	M	L	M	S	S	M	S	S	L
CO3	L	L	L	S	S	M	M	S	S	L
CO4	M	L	S	S	S	S	M	L	S	L
CO5	L	L	L	L	L	M	M	S	S	L

*S-Strong; M-Medium; L-Low

Course code	23B	EXPORT TRADE AND DOCUMENTATION	L	T	P	C
Core			4	-	-	4
Pre-requisite		Aware of the functions of garment export unit	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are to:

1. To acquire knowledge in international trade.
2. To develop an understanding of export procedure.
3. To become familiar with various documents in international trade.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the significance of International trade and the documents needed for trade	K2
2	Interpret of the payment methods, its advantages, and implications	K3
3	Analyse export financing and insurance	K4
4	Recall the theories related to international trade	K1
5	Relate to the national and international associations that supports international trade	K3

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit 1	International Trade	12 hours

International trade: International trade of apparels globally and India – Advantages and challenges; WTO agreement on textiles and clothing.
Export process process; Quality and Pre shipment Inspections
Export Documentation - commercial documents and regulatory documents

Unit 2	Export Promotional Activities of AEPC	10 hours

Methods of Payments – Cash in advance; Letter of Credit – and its types; Open account.
INCO Terms – purpose and scope; 'E' term - EXW; 'F' term – FAC, FOS, FOB; 'C' term – CFR, CIF, CPT, CIP;'D'term – DAF, DEQ, DES, DDU, DDP

Unit 3	Export Financing and Insurance	12 hours

Export Financing: Pre-Shipment Finance, Post Shipment finance. Role of EXIM bank in financing
Risk and Insurance policies under ECGC – standard policy, turnover policy, small exporters policy, special schemes, Exchange rate fluctuation risks
Customs and international trade; Customs clearance – for export cargo;

Unit 4	Export Finance and Export Policies of the Government.	12 hours

India'sForeignTradepolicy – highlights of policy 2015-2020
Theories of International trade - Adam Smith's Theory, David Ricardo's Theory, Haberler's Theory, Heckscher-Ohlin Theory

Unit 5	Recent Developments in Foreign Trade	12 hours

Indian Associations that support exports - Clothing Manufacturers Association of India; Garment Exporters and Manufacturers Association, Apparel Export Promotion Council
Trade Associations that support international trade - World Trade Organization (WTO); International Organization for Standardization (ISO); United Nations Conference on Trade and

Development (UNCTAD); International Trade Centre; World Customs Organization (WCO); World Fair Trade Organization		
Unit 6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars - webinars		
	Total Lecture Hours	**60 hours**

Text Books	
1	International Trade and Export Management, Francis Cherunilam, Himalaya Publishing house New Delhi, 2008
2	Foreign Trade, Jeevanandam.C, Sultan Chand & Sons, New Delhi, 2005
Reference Books	
1	Export Import Procedures - Documentation And Logistics, C.Rama Gopal, New Age International (P) Limited, 2006
2	World Trade Report 2016, Authored by World Tourism Organization and Published by World Trade Organization, 2016
3	Garment - Export Industry of India, Prashant P. Deshpande, APH Publishing Corporation, 2009
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://clothingindustry.blogspot.com/2019/06/export-documentation-exporting-garment.html
2	https://commerce.gov.in/writereaddata/publications/wto-aug.pdf
3	http://www.eximguru.com/exim/indian-customs/customs-manual/procedure-for-clearance-of-imported-and-export-goods.aspx
4	https://www.gema.co.in/profile
Course Designed By: Dr R Sheela John and Dr S Jayapriya	

Mapping with Programme Outcomes										
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**P10**
CO1	L	L	M	L	L	M	S	S	L	L
CO2	L	L	M	L	L	S	S	S	M	L
CO3	L	L	M	L	L	M	S	S	M	L
CO4	L	L	L	L	L	M	S	S	M	L
CO5	L	L	L	L	L	M	S	S	L	L

*S-Strong; M-Medium; L-Low

Course code	23P	DESIGN ART AND PAINTING	L	T	P	C
Core - Practical			-	-	4	4
Pre-requisite		Knowledge on drawing and painting techniques	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are to:

1. Teach the characteristics of selected World art.
2. Teach the nuances of Indian Painting
3. Guide the students to recreate it in the garment styles

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Develop World art forms in paper	K6
2	Redraw the Indian paintings	K5
3	Understand the nuances of art forms and paintings	K3
4	Analyse the design details	K4
5	Recreate the art and painting designs in garment styles	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Sketch the following World Art forms and design the same in a garment (part of the design or full, with or without modification) — **35 hours**

(with pencils, pens, acrylics, oil paints, watercolors, inks or any other medium)

- Baroque
- Impressionism
- Cubism
- Surrealism
- Futurism
- Rococo

Draw sketches of the Indian Paintings and Design the same in a garment. (Part of the design or full, with or without modification) — **38 hours**

(with pencils, pens, acrylics, oil paints, watercolors, inks or any other medium)

- Rajput painting
- Mysore painting
- Tanjore painting
- Kalamkari painting
- Warli painting
- Gond painting
- Mural painting

Contemporary Issues — **2 hours**

Expert lectures, online seminars - webinars

Total Lecture hours — **75 hours**

Text Books

1	South Indian Paintings, C. Sivaramamurti, Publisher: National Museum, 1968.
2	The Royal Art of Tanjore Paintings, Smita Shirole Yadav and Padma Raghavan, Published

	by English Edition, 2010.
3	Art book- "Gond Art" a Mindful Colouring Book Paperback – Trupti Kumbhare, Deepali Patwadkar, 2018.
Reference Books	
1	Indian Painting: The Great Mural Tradition Hardcover, Mira Seth, Publisher: Harry N. Abrams, 2006
2	Warli Painting: Step-by-step Instruction and Designs, Amrita Gupta, Create Space Independent Publishing Platform, 2016
3	Kalamkari and Traditional Design Heritage of India, Shakuntala Ramani, Publisher: Wisdom Tree, 2007
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://www.art.com/shop/art-styles/?RFID=855405&RD=true
2	https://en.wikipedia.org/wiki/Impressionism#:~:text=Impressionism%20is%20a%2019th%2Dcentury,of%20movement%20as%20a%20crucial
3	https://medium.com/popuppainting/the-10-traits-of-impressionism-2a2c045795c7
4	https://magazine.artland.com/art-movement-futurism/#:~:text=What%20are%20the%20characteristics%20of,%2C%20energy%2C%20vitality%20and%20change.
5	https://en.wikipedia.org/wiki/Rococo
6	https://magazine.artland.com/art-movement-futurism/#:~:text=What%20are%20the%20characteristics%20of,%2C%20energy%2C%20vitality%20and%20change.
Course Designed By: Dr R Sheela John and Dr K Sangeetha	

Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**P10**
CO1	L	S	S	S	S	M	L	L	L	L
CO2	M	S	S	M	M	M	M	L	L	L
CO3	S	S	S	M	M	M	M	M	M	L
CO4	M	S	S	S	S	M	M	M	L	L
CO5	S	S	S	S	S	M	M	M	S	L

*S-Strong; M-Medium; L-Low

Course code	23Q	CAD IN FASHION DESIGNING	L	T	P	C
Core - Practical			-	-	4	4
Pre-requisite		Possess knowledge and skill in creating fashion sketches in computer	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are to:

1. Teach the characteristics of selected World art.
2. Teach the nuances of Indian Painting
3. Guide the students to recreate it in the garment styles

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Creating designs in computers	K6
2	Illustrate garment designs faster	K4
3	Apply the fabric textures in garment sketches using computers	K3
4	Create unique collections for various themes and inspirations	K6
5	Create professional designs for business	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Create the Following using Computers (4 designs each) — **88 hours**

- Design a collection with an inspiration for Screen print
- Design a collection with an inspiration for Batik
- Design a collection with an inspiration for Tie and dye
- Design a collection with an inspiration for Block print
- Design a collection with an inspiration for Checked/striped fabric
- Designacollectionfor(bride/bridegroom/bride'smaid/flowergirl/family)
- Design a collection for casual wear for Men / Women / Child
- Design a collection for party wear for Men / Women / Child
- Design a winter collection for Men / Women / Child
- Design a summer collection for Men / Women / Child
- Design a creative unique collection of your own

Contemporary Issues — **2 hours**

Expert lectures, online seminars - webinars

Total Lecture hours — **90 hours**

Text Books

1	CorelDRAW X5. Clothing Design and Practical Tutorial (with CD-ROM 1) - Weng Xiao Chuan , Published by Science Press, 2011.
2	FashionDesigner′sHandbookforAdobeIllustrator – Marianne Centner, Frances Vereker , Wiley Publishers, 2007.
3	Adobe Illustrator for Fashion Design (Myfashionkit) - Susan Lazea, Pearson Publishers, 2011.
4	Fashion and Textile Design with Photoshop and Illustrator - Professional Creative Practice, Robert Hume, Publisher: Bloomsbury Academic, 2020.

Reference Books

1	CorelDRAW, Photoshop fashion design (with CD-ROM 1) - Yu Hai Ping, 1991.

2	Fashion Design-- CorelDRAW Fashion Style Design Case (1CD) - Yu Rui Shi Jue, Posts and Telecom Press, 2011.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://www.whowhatwear.com/best-fashion-design-software
2	https://www.coreldraw.com/en/pages/items/17700700.html
3	https://www.youtube.com/watch?v=LMZPbT1msR0
4	https://www.youtube.com/watch?v=w_NR1eaBmY0
Course Designed By: Dr R Sheela John and Dr K Sangeetha	

Mapping with Programme Outcomes										
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**P10**
CO1	M	S	S	M	M	M	M	L	L	S
CO2	M	S	S	M	M	L	M	L	L	S
CO3	S	S	S	S	S	M	M	M	L	L
CO4	S	S	S	S	S	M	M	M	L	S
CO5	S	S	S	S	S	S	S	S	L	S

*S-Strong; M-Medium; L-Low

Course code	23R	ADVANCED GARMENT CONSTRUCTION	L	T	P	C
Core - Practical			-	-	4	4
Pre-requisite		Knowledge and skill in pattern making and tailoring techniques	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are to:

1. Develop an understanding of special needs of an individual
2. Create garment styles with special features to suit the need
3. Create custom made garments

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the special needs of the wearer	K2
2	Design garment styles for people with special needs	K6
3	Create special garments to suit the personal needs of the wearer	K6
4	Select fabrics and accessories to suit the garment style and the needs of an individual	K5
5	Create custom made garments for special people like pregnant, women, physically challenged people and patients	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Design, Draft and Construct Garments for the Following — **88 hours**

Uniforms

- Industry Workers / Police / Fireman / Marine Engineers
- School /College Uniform
- Sports Uniform (for any sport)
- Uniform Air hostess / Nurses/ Receptionist

Need Based Garments

- Garment for an Adaptive person (old age person).
- Maternity wear Garments / Garment for a Nursing mother.
- Physically challenged people / Bed ridden / Orthopedic patients

Creative Garments

- Multifunctional Clothing / Convertible Garments
- Reversible Garments
- Creative and innovative garment of your own

Method of Pattern Making - Draping or Drafting method

Contemporary Issues — **2 hours**

Expert lectures, online seminars - webinars

Total Lecture hours — **90 hours**

Text Books

1	Dressmaking: The Complete Step by Step Guide to Making Your Own Clothes, Alison

	Smith, DK Publishing, 2012.
2	Tailoring Basics, Teach Yourself Dress Design, Cutting, and Sewing (Color), Nadia Fahim El-hewie, CreateSpace Independent Publishing Platform, 2012.
Reference Book	
1	The Beginner's Guide to Dressmaking, Wendy Ward, David & Charles Publishers, 2014.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	http://textilefocus.com/maternity-clothing-comprehensive-review/
2	https://www.verywellfamily.com/breastfeeding-clothes-what-to-wear-431571
3	https://www.thebalancecareers.com/manufacturing-dress-code-4051113#:~:text=Clean%20and%20Neat%20Manufacturing%20Business%20Attire&text=They%20wear%20clothing%20typical%20for%20any%20manufacturing%20work%20environment.&text=The%20goal%20in%20an%20industrial,for%20business%2Dcasual%2Ddress.
4	https://www.youtube.com/watch?v=Y-K6r27Ddlk
5	https://en.wikipedia.org/wiki/Adaptive_clothing#:~:text=Adaptive%20clothing%20is%20specialised%20clothing,of%20disability%20to%20dress%20independently.
Course Designed By: Dr R Sheela John and Dr K Sangeetha	

Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**P10**
CO1	S	S	S	S	S	S	L	S	S	M
CO2	S	S	S	S	S	M	M	M	L	M
CO3	S	S	S	S	S	S	M	S	M	M
CO4	S	L	S	S	S	L	L	M	M	M
CO5	S	S	S	S	S	S	M	S	S	M

*S-Strong; M-Medium; L-Low

Course code	**2EA**	**BRAND MANAGEMENT**	**L**	**T**	**P**	**C**
Elective			**4**	**-**	**-**	**4**
Pre-requisite		**Knowledge on marketing functions**	**Syllabus**		**2020-**	

		Version	**2021**

Course Objectives:

The main objectives of this course are to:

1. Create awareness on brand identity
2. Gain better understanding on brand building strategies
3. Get the attention of the consumer by establishing brands

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Plan products with a brand identity	K4
2	Understand the significance role of brand identity	K2
3	Develop strategies to establish and maintain brand	K6
4	Prepare effective branding strategies	K3
5	Devise methods of establishing a brand in the minds of the consumer	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit 1	**Product Development and Sales**	**12 hours**

Product – definition, types; product line, product mix; new product development; estimating market and sales potential, sales forecasting

Unit 2	**Brand, Its Identity**	**12 hours**

Brand – definition, evolution, importance; product vs brand; branding – meaning, creation, challenges; brand designing – understanding consumer, competition and components, brand identity - brand naming, logos, image, characters, slogans and promise , Tools to maintain brand identity, Illustrations for Brand identity from apparel industry.

Unit 3	**Brand Building**	**12 hours**

Brand Building: brand insistence model; Brand Advertising – definition, objectives, modes, economic and ethics; Nontraditional marketing approach in Advertising. Brand- Association, Categories and Management Challenges. Branding in the Age of Information and Internet.
Effective Brand Name. Brand equity measurement systems; legal laws in brand management; Brand protection, Global branding.

Unit 4	**Branding Strategies**	**12 hours**

Branding strategies; Brand attributes and loyalty, brand extension, brand revitalization, brand repositioning, brand recall, brand harvesting and brand imitation.

Unit 5	**Brand and Consumer Buying Process**	**10 hours**

Brand and Consumer Buying Process; Consumer search for Brand Information; Issues associated with Effective Brand Name. Brand equity measurement systems; legal laws in brand management; Brand protection, Global branding

Unit 6	**Contemporary Issues**	**2 hours**

Expert lectures, online seminars - webinars

	Total Lecture hours	**60 hours**

Text Books

1	Branding, Brad Van Auken, Jaico Publishing House, Mumbai, India, 2010.
2	Brand Management, MahimSagar, Deepali Singh, Agrawal DP, Achintya Gupta, Ane Books India Pvt. Ltd., India, 2009**.**

Reference Book	
1	HarshVVerma,“ BrandManagement”,ExcelBooks,NewDelhi,India,2004
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://library.fontbonne.edu/c.php?g=167770&p=1102324#:~:text=In%20the%20fashion%20industry%20branding,to%20which%20it%20is%20linked.
2	http://www.brandquarterly.com/wp-content/uploads/2016/04/FashionReport.pdf
3	https://www.fibre2fashion.com/industry-article/3768/brand-building-in-the-apparel-industry
Course Designed By: Dr R Sheela John and Mrs K Catharine Francis	

Mapping with Programme Outcomes										
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**P10**
CO1	M	S	S	M	M	M	M	M	L	S
CO2	M	M	M	M	L	S	S	S	M	S
CO3	S	S	S	M	S	S	S	S	S	S
CO4	M	M	S	L	L	S	S	S	S	S
CO5	S	S	S	S	S	S	S	S	S	S

*S-Strong; M-Medium; L-Low

Course code	**2EB**	**FUNCTIONAL APPARELS AND CLOTHING**	**L**	**T**	**P**	**C**
Elective			**4**	**-**	**-**	**4**
Pre-requisite		**Basic knowledge on finishes applied to fabrics**	**Syllabus Version**		**2020-2021**	
Course Objectives:						

The main objectives of this course are to:

1. Acquire knowledge on the meaning and significance of functional clothing
2. Gain insights on the suitable fabrics and methods for creating functional clothing
3. Gain knowledge on the methods of evaluating the protective garments

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Identify suitable fiber, yarn and fabric for protective materials.	K1
2	Understand the finishes applied on the functional clothing items	K2
3	Analyse the requirements of functional clothing	K4
4	Relate to the methods of tests on fabrics used	K2
5	Design functional clothing items	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit 1	**Requirements of Protective Materials**	**12 hours**

Characteristic requirements of Protective fiber, yarn and fabric for flame proof, heat resistant, ballistic resistance, electrical conduction, bacterial protection, radiation protection and radiation contamination protection

Unit 2	**Chemical Finishes**	**12 hours**

Chemical Finishes-Mechanism, Chemistry, Materials and methods - Flame retardant, Liquid repellent, Antistatic, Antibacterial, UV protection and mite protection finishes.

Unit 3	**Functional Fabrics**	**12 hours**

Functional fabrics used in the medical field and in hygiene; military combat clothing; protective fabrics against biological and chemical warfare; textiles for high visibility

Unit 4	**Protective Garment Construction**	**12 hours**

Protective Garment construction - method of construction of garments according to various protective end uses; use of accessories for protective garment

Unit 5	**Standards and Tests for Protective Fabric**	**10 hours**

Standards and test method for protective fabric performance - Flame retardant finishes, Liquid repellent finishes, Antistatic, Liquid repellent, antibacterial, UV protection, mite protection; Materials and methods. Manikins – Thermal manikins, segmented thermal manikins, evaporative resistance measurement- moisture permeability index, skin model, Concept of dynamic

Unit 6	**Contemporary Issues**	**2 hours**

Expert lectures, online seminars – webinars

	Total Lecture hours	**60 hours**

Text Books

1	Wellington Sears Handbook of Industrial textiles, Adanur S, Technomic Publishing Co Inc,1995.
2	Protective Clothing, Pushpa Bajaj and Sengupta A.K, The Textile Institute, 1992.

Reference Book

1	Handbook of Technical Textiles, Horrocks A.R. and Anand S.C, Woodhead Publishing

	Limited, Cambridge, UK, 2000
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://clothingindustry.blogspot.com/2017/12/functional-clothing.html
2	https://www.technicaltextile.net/articles/functional-textiles-and-apparels-3292
3	http://14.139.47.15/handle/123456789/13225
Course Designed By: Dr R Sheela John and Mrs K Catharine Francis	

Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**P10**
CO1	S	M	M	M	M	L	L	S	S	L
CO2	S	M	M	S	S	S	L	M	L	L
CO3	M	S	S	M	M	S	M	S	M	L
CO4	L	L	L	L	L	S	S	S	S	L
CO5	S	S	S	S	S	S	S	S	S	L

*S-Strong; M-Medium; L-Low

Course code	**2EC**	**SUPPLY CHAIN MANAGEMENT**	**L**	**T**	**P**	**C**
Elective			**4**	**-**	**-**	**4**
Pre-requisite		**Knowledge on retail industry and its functions**	**Syllabus Version**		**2020-2021**	

Course Objectives:

The main objectives of this course are to:

1. Impart knowledge on the scope and importance of supply chain management
2. Gain insights on the role of distribution, transportation, and supplier in supply chain

3. Gain better understanding on the significance of IT in the supply chain

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the scope and importance of supply chain management	K2
2	Appraise the distribution, transportation and supplier in the supply chain	K4
3	Relate to the indispensable role played by the IT in customer relationship	K5
4	Apply the concepts and Improve the channels of distribution	K4
5	Develop sustainable fashion by adopting sustainable concepts at all levels	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit 1	**Supply Chain Management, Scope and Importance**	**12 hours**

Role of Logistics and Supply chain Management: Scope and Importance- Evolution of Supply Chain -Decision Phases in Supply Chain - Competitive and Supply chain Strategies – Drivers of Supply Chain Performance and Obstacles.

Unit 2	**Distribution in Supply Chain**	**12 hours**

Role of Distribution in Supply Chain – Factors influencing Distribution network design – Design options for Distribution Network Distribution Network in Practice-Role of network Design in Supply Chain – Framework for network Decisions.

Unit 3	**Transportation in Supply Chain**	**12 hours**

Role of transportation in supply chain – factors affecting transportations decision – Design option for transportation network – Tailored transportation – Routing and scheduling in transportation.

Unit 4	**Sourcing Supply Chain Supplier**	**12 hours**

Role of sourcing supply chain supplier selection assessment and contracts- Design collaboration -sourcing planning and analysis - supply chain co-ordination - Bull whip effect – Effect of lack of co-ordination in supply chain and obstacles – Building strategic partnerships and trust within a supply chain.

Unit 5	**IT in Supply Chain**	**10 hours**

The role IT in supply chain- The supply chain IT frame work Customer Relationship Management – Internal supply chain management – supplier relationship management – future of IT in supply chain – E-Business in supply chain.

Unit 6	**Contemporary Issues**	**2 hours**

Expert lectures, online seminars - webinars

Total Lecture hours	**60 hours**

Text Books

1	Supply Chain Management, Strategy, Planning, and operation, Sunil Chopra, Peter Meindl and Kalra, Pearson Education, 2010.
2	Modeling the Supply Chain, Jeremy F.Shapiro, Thomson Duxbury, 2002.

Reference Book

1	Quantitative models in Operations and Supply Chain Management, Srinivasan G.S, PHI, 2010

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://www.ibm.com/topics/supply-chain-management
2	https://www.tutorialspoint.com/supply_chain_management/supply_chain_management_it_role.htm
Course Designed By: Dr R Sheela John and Mrs K Catharine Francis	

Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**P10**
CO1	L	L	S	L	L	S	S	S	M	L
CO2	L	L	M	L	S	S	S	S	L	L
CO3	L	L	M	L	L	M	M	M	L	L
CO4	L	L	L	L	L	M	S	S	M	L
CO5	S	S	S	S	S	S	S	S	S	L

*S-Strong; M-Medium; L-Low



Course code	33A	APPAREL QUALITY STANDARDS	L	T	P	C
Core			4	-	-	4
Pre-requisite		Knowledge on process sequence in garment manufacturing units	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are to:

1. Development of quality specifications for manufacturing.
2. Identification of critical inspections points for Quality Assurance.
3. Analysis of relationship between quality specification requirements, time of performance, quality assurance, supervisory responsibility and cost

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Devise the quality control measures needed in the apparel industry	K4
2	Appraise the inspection techniques in apparel industry.	K5
3	Plan quality control program for the industry	K4
4	Reframe quality related activities in Apparel industry.	K5
5	Develop measurements of conformance to specification to maintain the quality of the product.	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit 1	Quality Terms and Standardizing Garments	12 hours

Introduction to quality and, importance. Standards-introduction, benefits, levels and sources of standards, Selection of inspectors.

Standards in garment construction, seams, seam finishes, darts, dart equivalents, underlining, interfacing, interlinings, linings, inseam pockets, applied pockets, slashed pockets, bindings, facings, inset bands, rib-stretch bands, collars, sleeves, sleeve finishes- cuffs and plackets, waistline edge casings, internal waistline treatments, button and decorative snap closures, buttonholes, zippered closures, hems and hems treatments.

Unit 2	Quality Control Inspection	12 hours

Raw materials – Fabric inspection systems- 4 point, 10 point system, Sewing threads-construction and sewability. Trims inspection- zippers waist band, buttons, Interlining.

In process inspection - spreading, cutting, sewing quality parameter and types of defects occurring, assembly defects.

Final inspection- finishing defects, no inspection, 100% inspection, spot checking, and arbitrary sampling.

Unit 3	Quality Standards for Fit and Specifications	12 hours

Standards for fit- Standard measurement techniques and its importance in fit. How to measure Garments, Minimum ease for each part, Standard measurement for hemline for various garments, collar, button stand, buttonholes, piping, facings. Trims testing-Possible defects- zippers, buttons. Specifications -Importance of Specs and its role in maintaining quality, Process of spec sheet development; Concept of Tolerances - Maximum, minimum, zero tolerance.

Unit 4	System of Quality Management	12 hours

System of Quality Management: Concept of Quality Assurance, Establishing quality Management Team, Methods of Assuring Quality-preproduction, production and postproduction. Cost and benefit of Quality programmes. Seven tools of Quality Control.

Apparel Quality: Quality features, Price, perceived quality mode and application. Quality indicator-Fabric, Finding and trims.		
Unit 5	**Government Regulation on Labelling and Eco Specifications**	**10 hours**
Government Regulation and labeling: Communicating to Consumers-Regulation on Apparel labeling, apparel safety, Apparel industry business practices and Voluntary label information, Quality costs and customer returns. Sensitizing dye stuffs: allergic dyes, carcinogenic amines, red-listed as per Eco specifications, Eco management of textile and apparel industry, Global Scenario, Eco mark &Environment friendly textiles. Eco specification and restrictions in apparels and textiles.		
Unit 6	**Contemporary Issues**	**2 hours**
Expert lectures, online seminars – webinars		
	Total Lecture hours	**60 hours**

Text Books	
1	Quality Management Handbook for the Apparel Industry - Pradip V. Mehta, Published by New Age International Publishers, 2012.
2	Handbook of Textile Testing and Quality Control - Grover, Published by Wiley Eastern, 1988.
3	Handbook of Managing Apparel Production and Quality – B Purushothama, Woodhead Publishing , 1994.
Reference Books	
1	An Introduction to Quality Control for the Apparel Industry: 36 (Quality and Reliability) – Pradip V. Mehta, CRC Press, 1992.
2	Physical Testing and Quality Control, Vol No. 1/2/3 textile Institute, 1993.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://textilelearner.blogspot.com/2011/08/quality-control-system-in-garments_2589.html
2	https://fashion2apparel.blogspot.com/2017/02/quality-control-apparel-industry.html
3	https://clothingindustry.blogspot.com/2017/12/quality-assurance-process-apparel.html
Course Designed By: Dr R Sheela John and Dr K Sangeetha	

Mapping with Programme Outcomes										
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**P10**
CO1	L	L	L	M	M	S	S	S	M	L
CO2	L	L	L	L	L	S	S	S	M	L
CO3	L	L	L	L	L	S	S	S	M	L
CO4	M	M	S	S	M	S	S	S	M	L
CO5	S	S	S	S	S	S	M	S	S	L

*S-Strong; M-Medium; L-Low

Course code	33B	TEXTILE TESTING	L	T	P	C
Core			4	-	-	4
Pre-requisite		Knowledge on fiber, yarn and fabric	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are to:

1. Gain knowledge on the fiber, yarn and physical tests
2. Gain knowledge on the procedures to be followed in various testing equipment
3. Know about the concepts and principles followed in testing various parameters

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Describe the terms related to testing	K1
2	Understand the concepts and principles underling the tests and the its equipment	K2
3	Apply the knowledge and conduct the tests	K3
4	Appraise the quality of the fiber, yarn and fabric	K4
5	Test the fiber, yarn and fabrics	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit 1	Introduction to Textile Testing	12 hours

Introduction to testing - terminology of testing - selection of samples for testing. Standard R H and temperature for testing - measurement of moisture regain conditioning oven - Shirley moisture meter.

Unit 2	Fiber Testing	12 hours

Fiber testing

- Cotton fiber length - Baer Sorter
- Fineness - Air flow principle instruments, Sheffield micronaire
- Maturity - Caustic Soda swelling
- Strength - Pressley bundle strength tester, Stelometer strength tester
- Determination of trash and lint in cotton - Shirley trash analyzer

Unit 3	Yarn Testing	12 hours

Yam Testing

- Yam numbering system - conversion of count from one system to another
- Instruments for count determination - quadrant balance, Beesley balance
- Yam strength testing - Principles of CRT, CRL, CRE – Single and Lea strength tester,
- Yam twist - Direction of twist, twist multipliers, Twist testers - tension type, ATIRA direct type tester
- Yam evenness - classification of variation, methods of measuring evenness – black board, ASTM Standards, Uster evenness tester, Uster hairiness tester ,Standards, Yam faults, classifications,
- Yam hairiness and crimp testing

Unit 4	Fabric Testing	12 hours

Fabric testing

- Fabric Particulars –length, width, crimp, weight, cover factor
- Fabric Strength - fabric tensile strength tester, tearing strength tester, hydraulic bursting

strength tester

- Fabric Abrasion - resistance, handle, serviceability, assessment, Martindale abrasion tester
- Fabric Pilling - I C I Pill box tester
- Fabric drape -Measurement, Drape meter
- Fabric Stiffness - Shirley stiffness tester
- Fabric crease resistance and crease recovery measurements
- Fabric permeability - Shirley air permeability tester, fabric water permeability tester, Bundersmann tester

Unit 5	**Tests for Colour Fastness, Whiteness Index and Tailorability**	**10 hours**

Fastness in Textiles - Crocking, perspiration, sunlight, laundering, pressing and dry-cleaning aspects, whiteness index, matching cabinets, Computer color matching and computerized fabric inspection system. Tailorability of woven and knitted fabrics.

Unit 6	**Contemporary Issues**	**2 hours**

Expert lectures, online seminars - webinars

	Total Lecture hours	**60 hours**

Text Books

1	Principles of textile Testing- An Introduction to Physical Methods of Testing Textile Fibres, Yarns, and Fabrics, Booth J E, Butterworths, 1986.
2	Technology of textile properties, Marjorie A Taylor, Forbes publications Ltd, London, 1972.
3	Physical Testing of Textiles, B P Saville, Published by Elsevier Science, 1999.
4	Textile Testing, Jewel and Jewel Raul, Publisher: APH Publishing Corporation, 2005.

Reference Book

1	Textile Testing, Angappan P and Gopalakrishnan R, SSM Institute of textile technology, Komarapalayam, 1991.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://textilelearner.blogspot.com/2012/02/fiber-fineness-is-measured-by-airflow.html#:~:text=Fiber%20fineness%3A,terms%20of%20average%20linear%20density.
2	https://textilecourse.blogspot.com/2018/03/yarn-evenness-testing-uster.html
3	https://textilestudycenter.com/fabric-tensile-strength-test/

Course Designed By: Dr R Sheela John and Mrs K Catharine Francis

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	P10
CO1	L	L	L	S	M	S	M	M	M	L
CO2	L	L	S	M	M	S	M	M	S	L
CO3	L	M	L	M	S	S	L	M	M	L
CO4	L	L	M	S	S	S	S	S	S	L
CO5	L	L	M	S	S	S	S	S	S	L

*S-Strong; M-Medium; L-Low

Course code	33P	TEXTILE TESTING	L	T	P	C
Core - Practical			-	-	3	3
Pre-requisite		Knowledge on fiber, yarn and fabric	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are to:

1. Gain knowledge on the fiber, yarn and physical tests
2. Gain knowledge on the procedures to be followed in various testing equipment
3. Know about the concepts and principles followed in testing various parameters

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the concepts and principles underling the tests and its equipment	K2
2	Test the fiber, yarn and fabrics	K6
3	Establish results from the readings obtained from the tests performed	K4
4	Appraise the quality of the fiber, yarn and fabric	K6
5	Apply the knowledge and conduct the tests during research activities	K3

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Evaluate the Given sample with the Following tests — **58 hours**

1. Determination of Tensile Strength of the given Fabric
2. Determination of Stiffness of the given Fabric
3. Determination of Abrasion Resistance of the given Fabric
4. Determination of Crease Recovery of the given Fabric
5. Determination of Drape of the given Fabric
6. Determination of Bursting Strength of the given Fabric
7. Determination of Color Fastness of the given Fabric by Crock meter.
8. Determination of Color Fastness of the given Fabric by Perspirometer
9. Determination of Color Fastness of the given Fabric by Laundrometer
10. Determination of Shrinkage of the given Fabric

Unit 6	Contemporary Issues	2 hours

Expert lectures, online seminars – webinars

Total Lecture hours — **60 hours**

Text Books

1	Principles of textile Testing- An Introduction to Physical Methods of Testing Textile Fibres, Yarns, and Fabrics, Booth J E, Butterworths, 1986.
2	Technology of textile properties, Marjorie A Taylor, Forbes publications Ltd, London, 1972.
3	Physical Testing of Textiles, B P Saville, Elsevier Science, 1999.
4	Textile Testing, Jewel and Jewel Raul, APH Publishing Corporation, 2005

Reference Book	
1	Textile Testing, Angappan P and Gopalakrishnan R, SSM Institute of textile technology, Komarapalayam, 1991
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://www.testextextile.com/what-is-fabric-drape-and-how-does-it-run/#:~:text=There%20are%20two%20methods%20to,plate%20due%20to%20its%20gravity.
2	https://www.youtube.com/watch?v=RgO4U68sWoQ
3	https://textilestudycenter.com/fabric-tensile-strength-test/
Course Designed By: Dr R Sheela John and Mrs K Catharine Francis	

Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**P10**
CO1	L	L	L	S	M	S	M	M	M	L
CO2	L	L	S	M	M	S	M	M	S	L
CO3	L	M	L	M	S	S	L	M	M	L
CO4	L	L	M	S	S	S	S	S	S	L
CO5	L	L	M	S	S	S	S	S	S	L

*S-Strong; M-Medium; L-Low

Course code	33Q	CAD IN PATTERN MAKING	L	T	P	C
Core - Practical			-	-	4	4
Pre-requisite		Knowledge in drafting patterns for children, woman and men garments	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are to:

1. Draft patterns for various garment styles in computer
2. Grade patterns for various garment styles in computer
3. Prepare Marker Plan for various garment styles in computer

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Develop patterns for children, women and men garment styles in computer	K6
2	Create graded patterns and marker plan with pattern making software	K6
3	Create perfect patterns and thereby bring out good fit in garments	K6
4	Evaluate the pattern and marker efficiency with the garment collection	K6
5	Integrate the CAD patterns into the computerized cutting machine	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Draft Patterns, Grade Patterns and Prepare a marker plan for the following Children's Wear — **30 hours**

- Yoke frock
- Baba suit
- Summer frock
- Skirt and tops

Draft Patterns, Grade Patterns and Prepare a marker plan for the following Women's Wear — **30 hours**

- Salwar and Kameez
- Blouse Tops
- Nightie
- Princess line dress

Draft Patterns, Grade Patterns and Prepare a marker plan for the following Men's Wear — **28 hours**

- Kurta and Pyjama
- Full sleeve
- T-Shirt and Bermudas
- Pleated trouser
- Bell bottom.

Unit 6	Contemporary Issues	2 hours
Expert lectures, online seminars – webinars		
	Total Lecture hours	90 hours

Text Books	
1	Pattern Cutting for Clothing Using Cad: How To Use Lectra Modaris Pattern Cutting Software, Stott M, Woodhead Publishing Ltd, 2012.
2	Pattern Cutting and Making Up Revised Edition, Shoben M M , CBS Publishers and Distributors, 2000.
Reference Books	
1	Patternmaking and Grading Using Gerber's AccuMark Pattern Design Software - Michele Lininger, Pearson Publishers, 2014.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://www.youtube.com/watch?v=gTQu9moyaEQ
2	https://tukatech.com/tukaapm/
3	https://www.youtube.com/watch?v=A6BsL7m_33A
Course Designed By: Dr R Sheela John and Dr S Jayapriya	

Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**P10**
CO1	M	S	S	L	L	M	L	L	L	S
CO2	M	S	S	L	L	M	M	L	L	L
CO3	S	S	S	S	L	S	S	L	L	L
CO4	L	S	M	L	L	S	S	L	L	L
CO5	L	S	S	L	L	S	S	L	L	L

*S-Strong; M-Medium; L-Low

Course code	33R	DESIGN WITH PRINTS	L	T	P	C

Core - Practical		**-**	**-**	**4**	**4**
Pre-requisite	**Possess knowledge on printing and dyes and dyeing methods**	**Syllabus Version**		**2020-2021**	

The main objectives of this course are to:

1. Develop new patterns and prints
2. Create interesting fabric prints
3. Bring out unique printed collections

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Design garment styles for various prints	K6
2	Create printed designs using various printing methods	K6
3	Draft and construct patterns from the printed fabrics	K6
4	Discover new designs with combining two methods of printing	K3
5	Apply embellishments and add value to the printed garments	K3

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Design and Construct a Garment with Following Methods of Printing	**88 hours**

- Fabric Painting - Chest Print / Border Print / All over Print
- Block Printing – Border Print / All over print
- Tie and Dye – Single / Multi colour
- Batik Printing – Single / Multi colour
- Screen Printing – Chest Print / Border Print / All over Print
- Combination of any 2 printing methods in a garment (2 No)
- Print a garment of your choice and embellish the same (with embroidery/ beads/ stones/ glass works / any other)

Note : Atleast one male and one child garment should be created
For Examination - Prepare the Printed sample and present the garment silhouette in the form of Illustration

Unit 6	**Contemporary Issues**	**2 hours**

Expert lectures, online seminars - webinars

Total Lecture hours	**90 hours**

Text Books

1	Batik and Tie Dye Techniques, Nancy Belfer, Dover Publications, 2012.
2	Tie-Dyeing, Batik & Fabric Printing – Elizabeth French, Stephanie Schrapel, Rigby Instant Books, 1972.

Reference Books

1	Printing on Fabric: Techniques with Screens, Stencils, Inks, and Dyes, Jen Swearington, 2013.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://www.youtube.com/watch?v=VGzlDZ-_nZg
2	https://www.youtube.com/watch?v=xJzJXSvT1tw
3	https://www.youtube.com/watch?v=1vuFjpkz3Hc
4	https://www.youtube.com/watch?v=XCw-KJYTlOw

Course Designed By: Dr R Sheela John and Dr S Jayapriya

Mapping with Programme Outcomes										
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**P10**
CO1	S	S	S	S	S	M	M	M	M	L
CO2	M	M	S	S	M	M	M	M	L	L
CO3	S	S	S	S	S	M	M	M	L	L
CO4	S	M	M	S	S	M	M	M	S	L
CO5	M	S	S	L	S	M	L	M	L	L

*S-Strong; M-Medium; L-Low

Course code	**3EA**	**APPAREL PRODUCTION AND PLANNING**	**L**	**T**	**P**	**C**
Elective			**4**	**-**	**-**	**4**
Pre-requisite		**Basic knowledge on the process sequence of apparel manufacturing industry**	**Syllabus Version**		**2020-2021**	

Course Objectives:

The main objectives of this course are to:

1. Create a better understanding on improving productivity
2. Gain in depth knowledge on work study and method study
3. Gain a clear perspective of production management

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the significance of productivity and production management	K2
2	Apply ergonomics in the apparel industry	K3
3	Evaluate the production with work study and method study	K5
4	Interpret work measurement procedure and techniques	K2
5	Appraise the productivity in a workplace	K5

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit 1	**Productivity, Meaning, Measurement and Importance**	**12 hours**

Productivity: Meaning, measurement and importance; productivity and standard of living; factors affecting productivity; improving productivity; determination of total time of a job; reducing ineffective time. Introduction of Industrial Engineering - Application of Ergonomics in apparel industry.

Unit 2	**Production management**	**12 hours**

Production management: Stages of Product Development, Function of production control, Productivity Concept, Human resource management, inventory management, Equipment management and Plant modernization. Scope of manufacturing activity, Coordinating departmental activities.

Unit 3	**Work Study**	**12 hours**

Work Study: Meaning, importance and procedure; human factor in the application of work study. Working conditions and environment; pre-requisites for work study

Unit 4	**Method Study**	**12 hours**

Method Study: Selection of jobs, record, examination and development, movements of workers in the working area; evaluate, define, install and maintain; method study in the apparel industry.

Unit 5	**Work Measurement**	**10 hours**

Work Measurement: Purpose, uses, procedure and techniques; work sampling; time study; equipment, selecting and timing the job; rating and standard time; pre-determined time standards and standard data; uses of standard data. Materials Handling and Storage, Flexible Manufacturing Systems, Operation Time Analysis

Unit 6	**Contemporary Issues**	**2 hours**

Expert lectures, online seminars – webinars

	Total Lecture hours	**60 hours**

Text Books

1. Introduction to Clothing Production Management, A.J. Chuter, Blackwell Scientific Publications, 1995
2. The Technology of Clothing Manufacture, Barbara Latham and Harold Carr, Blackwell Scientific Publications, 1988

Reference Book	
1	Apparel Manufacturing Handbook, Jacob Solinger, Van Nostrand Reinhold Company, 1980.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://textilelearner.blogspot.com/2013/04/concepts-of-production-and-productivity.html
2	https://textilelearner.blogspot.com/2013/07/what-is-work-study-work-study-in.html
3	https://fashion2apparel.blogspot.com/2017/08/work-measurement-garment-industry.html
Course Designed By: Dr R Sheela John and Mrs K Catharine Francis	

Mapping with Programme Outcomes										
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**P10**
CO1	M	S	S	S	S	S	S	M	L	L
CO2	S	S	S	S	S	M	S	S	M	L
CO3	M	M	L	L	L	S	S	S	S	L
CO4	L	M	M	L	L	S	S	S	S	L
CO5	M	M	S	M	M	S	S	S	S	L

*S-Strong; M-Medium; L-Low

Course code	3EB	INTIMATE APPARELS	L	T	P	C
Elective			4	-	-	4
Pre-requisite		Basic knowledge on categories of clothing	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are to:

1. Acquire knowledge on the intimate apparel and its types
2. Gain insights on the pattern making and sewing techniques suitable for intimate apparels
3. Gain knowledge on the suitable fabrics and essential accessories

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the types of intimate apparels	K2
2	Prepare design analysis with the knowledge gained	K3
3	Relate to the method of creating patterns	K3
4	Select suitable accessories for intimate apparel	K2
5	Appraise suitable methods of construction	K4

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit 1	Definition and classification of intimate apparels	**12 hours**

Intimate apparels – Definition, classification, materials-fiber, fabric and accessories; physical and physiological requirements of intimate apparels

Unit 2	**Intimate Apparels -Design Analysis,**	**12 hours**

Designanalysis,measurements,patterndraftingofmen'sintimateapparel – Long johns, tank top, boy shorts, knickers, bikini underwear, thong, boxer briefs, boxer shorts and jock strap.

Unit 3	**Pattern Drafting of Women's Intimate Apparel**	**12 hours**

Designanalysis,measurements,patterndraftingofwomen'sintimateapparel – waist petticoats, Panties, camisoles, tube top, shape wear, bikini and bra.

Unit 4	**Intimate Apparel Accessories**	**12 hours**

Intimate apparel accessories - Bra wire, hook and eye tape, ring and slider, buckle, plastic bone, elastics and sewing threads

Unit 5	**Sewing of Intimate Apparels**	**10 hours**

Sewing of intimate apparels - seams, stitches, machines; lamination; moulding and welding Technique.

Unit 6	**Contemporary Issues**	**2 hours**

Expert lectures, online seminars - webinars

	Total Lecture hours	**60 hours**

Text Book

1. AnnHaggar,"PatternCuttingforLingerie,BeachWearandLeisureWear",BlackWell Science Limited, France, 2001

Reference Book	
1	Innovations and Technology of Womens Intimate Apparel, W.Yu, J. Fan, S.C. Harlock, S.P, Wood head Publishing Limited, England 2006
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://en.wikipedia.org/wiki/Lingerie
2	https://www.intechopen.com/books/textile-manufacturing-processes/innovation-in-the-comfort-of-intimate-apparel
3	https://www.textileebook.com/2019/05/advances-in-womens-intimate-apparel.html
Course Designed By: Dr R Sheela John and Mrs K Catharine Francis	

Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**P10**
CO1	S	S	S	S	S	S	S	S	S	L
CO2	S	S	S	S	S	L	L	M	M	L
CO3	M	S	M	M	M	L	L	M	M	L
CO4	S	S	S	S	M	S	M	L	M	L
CO5	L	S	S	S	S	S	S	S	M	L

*S-Strong; M-Medium; L-Low

Course code	3EC	CLOTHING SCIENCE	L	T	P	C
Elective			4	-	-	4
Pre-requisite		Basic knowledge on the properties of various fibers, yarns and fabric structures	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are to:

1. Learn about the characteristics of the fabric responsible related to comfort properties
2. Understand the underlying comfort properties
3. Apply the same while designing garment collections

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the meaning and significance of comfort	K2
2	Correlate to the property of the fabric with the comfort of the wearer.	K4
3	Analyse the comfort with various perspectives,	K4
4	Apply the knowledge gained in designing garments in future	K3
5	Create garments to suit the comfort level of the wearer	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit 1	Comfort, Definition and Types	12 hours

Comfort – types and definition; human clothing system, comfort perception and preferences techniques - Mechanical Stimuli and thermal stimuli.

Unit 2	Thermo Physiological Comfort	12 hours

Thermo physiological comfort – thermoregulatory Mechanisms of the Human Body, role of clothing on thermal regulations

Unit 3	Heat and Moisture Transfer	12 hours

Heat and moisture transfer – moistureexchange,wearer'stemperaturer egulations, effect of physical properties of fibres, behavior of different types of fabrics

Unit 4	Psychological Comfort	12 hours

Psychological comfort; neuro physiological comfort - basis of Sensory Perceptions, measurement

Unit 5	Tactile and Mechanical Properties	10 hours

Fabric tactile and mechanical properties - fabric prickliness, itchiness, stiffness, softness, Smoothness, roughness, and scratchiness. Predictability of clothing comfort performance

Unit 6	Contemporary Issues	2 hours

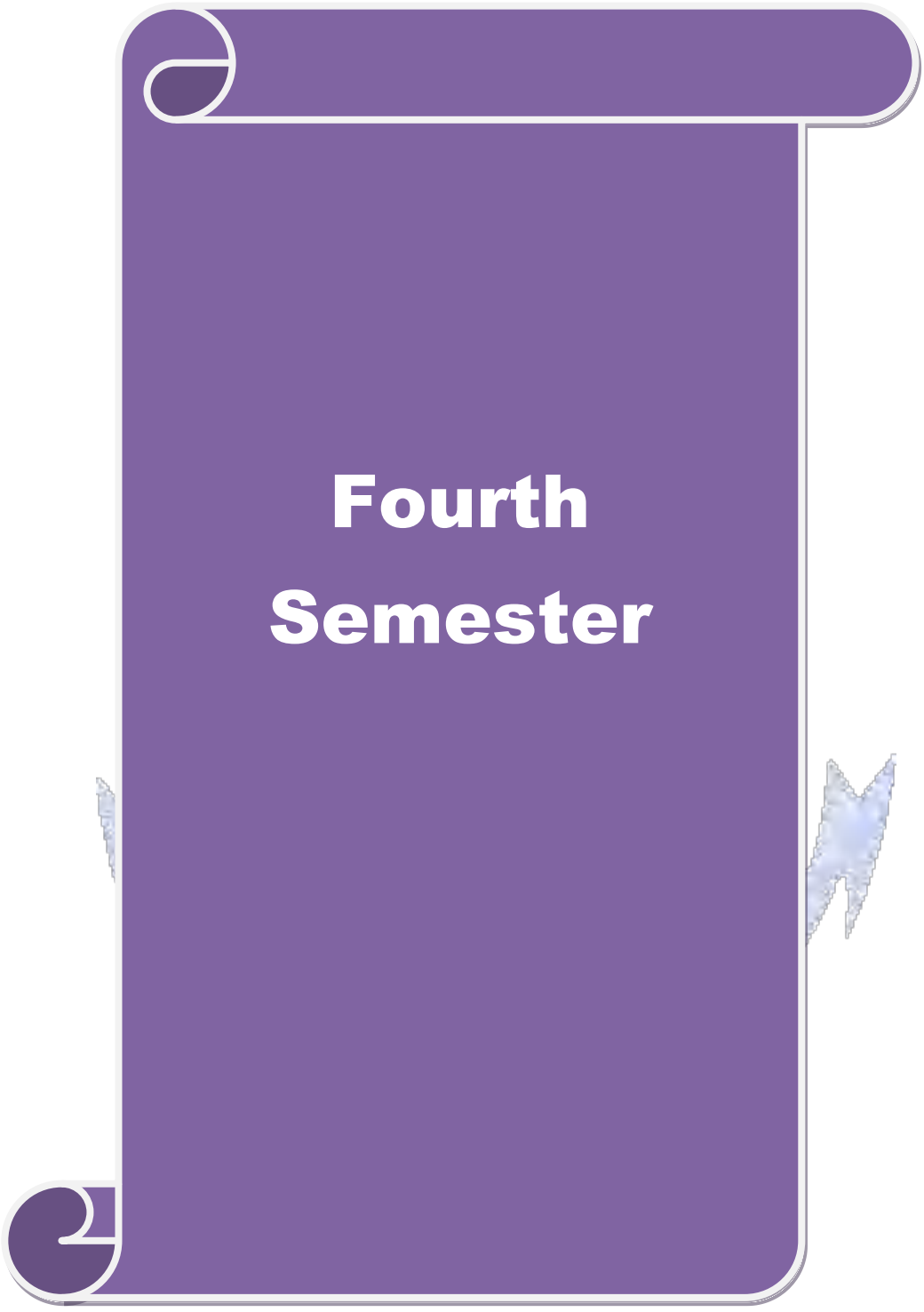
Expert lectures, online seminars – webinars

	Total Lecture hours	60 hours

Text Books	
1	Effect of Mechanical and Physical Properties on Fabric Hand, Hassan M. Behery, Wood head Publishing Ltd, 2005
2	The Science of Clothing Comfort. Y. Li. Pages 1-135 | Published online: 29 Nov 2010. Pages 1-135. Published online: 29 Nov 2010
Reference Book	
1	Clothing, Textile and Human Performance, R.M.Laing, G.G. Sleivert, Textile Progress, Volume 32, 2002
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://www.sciencedirect.com/topics/engineering/clothing-comfort
2	https://juniperpublishers.com/jojms/pdf/JOJMS.MS.ID.555662.pdf
3	https://dergipark.org.tr/tr/download/article-file/186436
Course Designed By: Dr R Sheela John and Mrs K Catharine Francis	

Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**P10**
CO1	M	M	M	M	M	L	L	L	M	L
CO2	S	S	S	S	M	S	M	S	S	L
CO3	S	S	S	M	S	S	S	S	S	L
CO4	S	S	S	S	S	S	S	S	S	L
CO5	S	S	S	S	S	S	S	S	S	L

*S-Strong; M-Medium; L-Low


Fourth
Semester

Course code	43A	INDIAN TEXTILE INDUSTRY	L	T	P	C
Core			4	-	-	4
Pre-requisite		Knowledge on manufacturing of various textiles	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are to:

1. Trace the origin of the textile industry in India
2. Understand the growth of the industry over the years
3. Gain knowledge on new technologies in the industry

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the evolution and growth of textile industry	K2
2	Relate the growth of the industry through five-year plans	K3
3	Discover the significance of textile industry nationally and globally	K3
4	Appraise recent technological development in textile industry.	K4
5	Articulate the origin, growth and development of textile industries in India	K3

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Unit 1	Overview of the Indian Textiles Industry.	12 hours

Overview of the textiles industry -Origin, Growth and Development of Indian Textile Industry - Cotton, Wool, Silk, Rayon, Man-Made Textiles, Readymade garments.

Unit 2	Five Year Plans and Organizations of Textile Industry	12 hours

Five-year plans for the textile Industry - Recent plan and previous 5 Five year plans, Organizations related to the Textile and clothing Industry. Concept of GATT, MFA, WTO, ATC and Globalization.

Unit 3	Overview of Global and Indian Textile Industry	12 hours

Overview of global and Indian textile industry -Nature, size, structure and trade of various sectors of the industry - Evolution and Growth – Employment prospects-supporting institutions and organizations-Trade promotion services (AEPC, CMAI,PEXCIL)- Handloom and Handicrafts Development Corporation, Silk Board, KVIC,CCIC, NIFT, IIT, NID -Textile research associations- Textile Committee. Export Promotion Councils of India.

Unit 4	Major Segments of the Textile Industry	12 hours

Major segments of the Textile Industry -Organized textile sector- Decentralized sector-Handloom and powerloom sector- Cotton and man-made filament yarn industry-Woolen textile industry-Sericulture-Other fibers.

Unit 5	Recent Technological Development in Textile Industry	10 hours

Recent technological development in spinning, weaving knitting, and non-woven industry - Significance and uses.
Recent technological development in allied industry like dyeing, printing, and finishing industry.

Unit 6	Contemporary Issues	2 hours

Expert lectures, online seminars – webinars

	Total Lecture hours	**60 hours**

Text Books	
1	The Textile Industry in India: Changing Trends and Employment Challenges - Bindu Oberoi, 2017.
2	Indian Textile Industry: State Policy, Liberalization and Growth - Shuji Uchikawa Oxford University Press, 2017
3	The Indian Textile and Clothing Industry: An Economic Analysis - Mausumi Kar, Published by Springer India, 2015
Reference Books	
1	Textiles-Fiber to fabric, Bernard P Corbman, 6th edition, McGraw Hill Book Co, Singapore,1983.
2	Fabric forming systems, Peter Schwartz, Trevor Rhodes, Mansour Mohammed, Noyes' Publications, New Jersey, USA, 1996.
3	Fabric Care, Normia D'Souza, New Age International Pvt Ltd, New Delhi Journals
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://www.fibre2fashion.com/industry-article/543/indian-textile-industry#:~:text=HISTORY%20OF%20TEXTILE%20INDUSTRY&text=The%20traditional%20textile%20industry%20of,gloster%20near%20Calcutta%20in%201818.
2	http://texmin.nic.in/sites/default/files/strategic_plan_2012_2017.pdf
3	https://www.indiatoday.in/education-today/gk-current-affairs/story/textile-industry-in-india-latest-facts-figures-government-schemes-1353406-2018-10-01#:~:text=The%20size%20of%20India's%20textile,cent%20between%202009%20and%202023.&text=India%20is%20the%20second%20largest,billion%2C%20marginally%20close%20to%20China.
Course Designed By: Dr R Sheela John and Dr S Jayapriya	

Mapping with Programme Outcomes										
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**P10**
CO1	L	M	M	L	M	M	S	S	S	L
CO2	L	L	L	L	M	M	M	M	L	L
CO3	L	L	L	M	M	M	S	S	S	L
CO4	M	S	S	L	L	M	S	S	M	L
CO5	L	L	L	S	M	M	L	L	L	L

*S-Strong; M-Medium; L-Low

Course code	43P	DESIGN COLLECTION	L	T	P	C
Core - Practical			-	-	3	3
Pre-requisite		Knowledge on garments and home textiles	Syllabus Version		2020-2021	

Course Objectives:

The main objectives of this course are to:

1. Gain a clear understanding of range planning
2. Enhance designing skills
3. Gain more confidence in presenting the collection

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Design collection for garments, Jewellery and accessories	K6
2	Plan fabrics and garments for large gatherings like wedding	K3
3	Analyse various themes and inspirations	K4
4	Understand the various factors influencing a design collection	K2
5	Create portfolio presentation for any collections	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Garment Design Collection with Theme and Inspiration — **30 hours**

Design a collection / range for the following (4 to 6 garments each)

- Casual wear
- Party wear
- For a Season (any)
- For a Festival (any)

Jewellery and Accessories Collection with Theme and Inspiration — **13 hours**

- Design ornaments for the head, ear, neck, hand, finger, waist and any other special items like masks, kerchiefs and so on (2 collection)
- Design handbags, purse, cellphone pouch and travel bag (2 collection)

Design a Collection for a Wedding / Birthday Party or any Function (any 2) — **15 hours**

Note:
Design collections can be done in computers or by hand
Present all the collections as Portfolio with a minimum of 4 boards each

Unit 6	Contemporary Issues	2 hours

Expert lectures, online seminars – webinars

	Total Lecture hours	60 hours

Text Books

1	Portfolio Presentation for Fashion Designers, Linda Tain, Fairchild Publishers (1998)
2	Fashion Design Drawing and Presentation, Patrick John Ireland, B T Batsford Ltd, 2006
3	Creative Fashion Presentation, Polly Guerin, Fairchild Publishers, 1987

Reference Books	
1	New Encyclopedia of Fashion Details, Patrick John Ireland, Publisher: Pavilion Books, 2008
2	Check and Stripe: A Design-Source Book 2, Kyoto Shoin Company Ltd. 1992
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://issuu.com/theodoracucu/docs/portfolio_internship_ba
2	https://successfulfashiondesigner.com/fashion-portfolio/fashion-portfolio-checklist/
Course Designed By: Dr R Sheela John and Mrs K Catharine Francis	

Mapping with Programme Outcomes										
Cos	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**P10**
CO1	S	S	S	S	S	L	L	M	L	M
CO2	S	S	S	S	S	S	M	S	L	S
CO3	S	S	S	S	S	L	L	L	L	S
CO4	S	S	S	S	S	M	L	L	L	S
CO5	M	M	S	M	M	M	L	L	L	S

*S-Strong; M-Medium; L-Low

Course code	**4EP**	**BEAUTY CARE**	**L**	**T**	**P**	**C**

Elective – Practical		**-**	**-**	**4**	**4**
Pre-requisite	**Basic knowledge on health, hygiene, and beauty**	**Syllabus Version**		**2020-2021**	

Course Objectives:

The main objectives of this course are to:

1. Impart knowledge on beauty care
2. Enable oneself to help maintain personal care
3. Enhance their beauty through make up, hair styles and skin care

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand and Maintain personal beauty and hygiene	K2
2	Create new hair styles	K6
3	Analyse the beauty products and their care	K4
4	Present oneself with confidence and beauty	K2
5	Apply the knowledge in fashion shows	K3

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

1. Basics Treatments	**20 hours**

Threading
Manicure
Pedicure
Mehandi application on hands

2. Face Make up and Treatments	**35 hours**

Bleaching for normal skin
Facial –Normal skin
Basic Make up
Bridal Make up

3. Hair Styles and Treatments	**33 hours**

Basic Hair styles (any 5)
Special Hair styles (any 2)
Basic hair cuts
Dandruff treatment
Dye application for hair

Contemporary Issues	**2 hours**

Expert lectures, online seminars - webinars

Total Lecture hours	**90 hours**

Text Books

1	Green Beauty Recipes: Easy Homemade Recipes to Make Your Own Natural and Organic Skincare, Hair Care, and Body Care Products, Julie Gabriel, Petite Marie Limited, 2010
2	Beauty: The Ultimate Cosmetic Makeover Guide. Book 1: Face and Skin by Elizabeth M Reed, Published by Quillpen Pty Ltd, 2015

Reference Book

1	Skin Deep by Bee Shapiro. Published by Harry N Abrams, 2017

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://www.youtube.com/watch?v=9xpUtH7S9tI
2	https://www.bebeautiful.in/all-things-skin/everyday/steps-to-do-facial-at-home
3	https://www.marieclaire.com/beauty/hair/how-to/g2614/10-easy-quick-hairstyles-in-10-seconds/
Course Designed By: Dr R Sheela John and Dr S Jayapriya	

Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**P10**
CO1	L	L	S	L	L	M	L	L	L	S
CO2	L	L	M	L	L	L	L	L	L	S
CO3	L	L	L	L	L	L	L	L	L	S
CO4	L	L	S	L	L	L	L	M	L	S
CO5	S	S	S	S	S	S	S	S	S	S

*S-Strong; M-Medium; L-Low

Course code	**4EQ**	**FASHION PHOTOGRAPHY**	**L**	**T**	**P**	**C**
Elective – Practical			**-**	**-**	**4**	**4**
Pre-requisite		**Aware of the significance of presentation of garments through digital medias**	**Syllabus Version**		**2020-2021**	

Course Objectives:

The main objectives of this course are to:

1. Acquire photography skills
2. Gain insights on the nuances of videography
3. Gain knowledge on the media planning

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Understand the parts and functions of a camera	K2
2	Develop professional photographs using varied techniques and methods of photo shoot	K6
3	Analyse the video capturing and editing methods	K4
4	Discover the intricacies of media planning	K3
5	Create fashion photographs and videos and present the same effectively in medias	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Shoot the Following Photographs in Different Perspectives and Backgrounds (10 each)	**30 hours**

- Product photography
- Modelling photography
- Indoor and Outdoor photography

Demonstrate the Following	**30 hours**

- Video Capturing and editing
- Video and audio mixing
- Add Film making.

Create the Following in the Computers	**28 hours**

- Brand Name and Logo design
- Image editing and special effect
- Design packing for the brand
- Logo Animation
- Product Animation
- Web designing
- Story Board

	Contemporary Issues	**2 hours**

Expert lectures, online seminars – webinars

Total Lecture hours	**90 hours**

Text Books

1	Fashion Photography: A Complete guide to the Tools and Techniques of the Trade, Bruce Smith, Amphoto Books, 2008.
2	Writing for Visual Media, Anthony Friedmann, 2010.

Reference Books

1	A Different Vision on Fashion Photography, Thierry-Maxime Lorit, 2016.

2	Mics, Cameras, Symbolic Action: Audio-Visual Rhetoric for Writing Teachers, Scott K. Halberitter, 2012
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://fashionphotographersmumbai.com/blog/2019/06/07/types-fashion-photography/
2	https://www.digilanguages.ie/visual-media-and-multimedia-literacy-what-is-it
Course Designed By: Dr R Sheela John and Mrs K Catharine Francis	

Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**P10**
CO1	L	L	L	S	L	L	L	L	L	S
CO2	L	M	M	S	L	L	L	S	L	S
CO3	L	L	S	L	L	L	L	S	L	S
CO4	L	L	S	M	M	S	M	S	M	S
CO5	M	M	S	S	M	S	S	S	L	S

*S-Strong; M-Medium; L-Low

Course code	**4ER**	**HOME FURNISHING**	**L**	**T**	**P**	**C**
Elective – Practical			**-**	**-**	**4**	**4**
Pre-requisite		**Knowledge on types of home textiles**	**Syllabus Version**		**2020-2021**	
Course Objectives:						
The main objectives of this course are to: 1. Learn the types of Home furnishing products						

2. Design products with suitable fabrics
3. Create home furnishing products related with suitable techniques

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	Create bedlinens, table linen, kitchen linen, window dressings	K6
2	Modify the ambience of the room for good	K5
3	Develophometextilecollectionfordifferentagegroupsandspecialpeople'sneeds	K6
4	Develop home textile collection according to the needs of adaptive people and patients	K6
5	Select fabrics and accessories to suit the need and item	K3

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Design and Construct the Following Items	**40 hours**

- Bed linens – Bed spreads with pillow covers, Quilts, bed covers
- Table linens – Tablecloth, Runner and Place mats
- Kitchen linens – Apron, Pot holder, Breadbasket, Mittens
- Window Dressings – Curtain and draperies (2 types each)
- Wall-hanging, door-hanging, door mats (2 types each)

Design and Construct the Home Furnishing Items for the Following	**48 hours**

- Guest room.
- Bedding for newborn baby.
- Children'sroom(boysorgirls).
- Tosuitanindividual'stasteordesire(MaleorFemale).

Unit 6	**Contemporary Issues**	**2 hours**

Expert lectures, online seminars – webinars

	Total Lecture hours	**90 hours**

Text Books

1	Home Comforts-The Arts and Science of keeping home, Cheryl Mendelson, published by Scriber, New York, 2005
2	Cushions and Pillows- Professional Skills –Made Easy, Hamlyn Octopus, Octopus publishing group, New York, 2001
3	The ultimate sewing Book 200 sewing ideas for you and your home, Magi Mc McCormick Gordon, Collins and Brown, London, 2002

Reference Books	
1	Design and make curtains by Heather Luke, published by New Holland publishers, London,1999
2	Art and craft of fabric decoration-Juliet Bawden, published in London, 1994
3	Cornucopia of cushions, Susie Johns, published by Apple Press, London, 1997
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://www.homestratosphere.com/types-curtains/
2	https://bettersleep.org/mattress-education/mattress-accessories/pillow-types/
3	https://textilecourse.blogspot.com/2018/06/types-classification-home-textiles.html
Course Designed By: Dr R Sheela John and Mrs K Catharine Francis	

Mapping with Programme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**P10**
CO1	S	S	S	S	S	M	M	M	L	L
CO2	M	M	M	M	M	M	M	S	L	L
CO3	S	S	S	S	M	S	S	S	M	L
CO4	S	S	S	S	S	M	M	S	L	L
CO5	S	S	S	S	S	M	L	L	L	L

*S-Strong; M-Medium; L-Low

CERTIFICATE COURSE

JOB ORIENTED CERTIFICATE COURSE

VISUAL MERCHANDISER	
Name of the Department	Costume Design and Fashion
Inter / Intra Department Course	Inter/Intra Department Course
Duration of the Course	60 hours
Eligibility	12th Standard
Number of Candidates to be Admitted	25 to 30
Mode of the Course	Regular
Collaboration with Company (if Yes, Full Address of the Company Address, Name of the Contact Person, Phone, e-mail etc.)	------
Registration Procedure	By contacting the department through email or in person.

Job Opportunities: Visual Merchandiser in Retail outlets and Boutiques

The Objectives of the Course are:

The main objectives of this course are to:

1	Acquire knowledge on Visual Merchandising techniques.
2	Understand the different types of display.
3	Understand the trends in display.
4	Design and Develop innovative displays
5	Analyse the displays in national and international branded retail outlets.

Course Content	Lecture and Field Visits	
Module 1	Introduction to Visual merchandising and elements of displays and store layouts – Theory	**4 hours**
Module 2	Field visit - Study of store layouts – visit to any 10 retail outlets	**8 hours**
Module 3	Reporting and discussion of types of layouts– Theory	**3 hours**
Module 4	Learn about window displays – routine, special occasions, seasons and festivals	**4 hours**
	Field visit - Study of window displays – visit any 10 outlets	**8 hours**
Module 5	Reporting and discussion on types of window displays– Theory	**3 hours**
Module 6	Learn about interior, exterior and point of purchase displays– Theory	**3 hours**
Module 7	Field visit – study of interior, exterior and point of purchase displays	**8 hours**
Module 8	Reporting and discussion - interior, exterior and point of purchase displays	**3 hours**
Module 9	Analyse interior / Exterior display after a detailed analysis of national and international brands – Collection of literature from books, magazines and websites – Assignment	**8 hours**
Module 10	Create / Present a Visual display	**8 hours**

Text Books

1	Visual Merchandising for Fashion, Sarah Bailey and Jonathan Baker, Bloomsberry Publishing, 2014.

2	Visual Merchandising and Display, 6th Edition, Martin M Pegler, Fairchild books, UK, 2011.
Reference Books	
1	New Trends in Visual Merchandising – Retail Display that Encourage Buying, Judy Shepard, Harper Design Publishers, 2013
2	The Business of Fashion Inside Outside, 7th Edition,KittyDickerson,Pearson'sPublishing, 2003
Related Online Contents	
1	https://fashion2apparel.blogspot.com/2017/02/types-roles-visual-merchandiser.html
2	https://retailnext.net/en/blog/visual-merchandising-essentials-for-fashion-retailers/
3	http://textilefocus.com/visual-merchandising-and-its-significance-in-retailing/
4	https://retailbugs.com/types-display-visual-merchandising-2/
	Course Designed By: Dr R Sheela John

JOB ORIENTED CERTIFICATE COURSE

EXPORT MERCHANDISING	
Name of the Department	Costume Design and Fashion
Inter / Intra Department Course	Inter/Intra Department Course
Duration of the Course	60 hours
Eligibility	12th Standard
Number of Candidates to be Admitted	25
Mode of the Course	Regular
Collaboration with Company (if Yes, Full Address of the Company Address , Name of the Contact Person, Phone, e-mail etc.)	-
Registration Procedure	By contacting the department through email or in person.

Job Opportunities: Merchandiser in a garment export unit

The Objectives of the Course are:

The main objectives of this course are to:

1	Understanding co-ordination, follow up and facilitation functions of a merchandiser in an export house.
2	learn the process sequence in execution of order
3	Significance in quality assurance
4	Gain practical insights through internship training

Course Content	Lecture and Internship	
Module 1	Role of merchandiser in apparel export industry	**5 hours**
Module 2	Sampling and scheduling	**5 hours**
Module 3	Different departments involved in the unit	**5 hours**
Module 4	Process of order Execution,	**5 hours**
Module 5	Sourcing - BOM, Export license, Export documentation	**5 hours**
Module 6	Quality assurance	**5 hours**
Module 7	International Trade Practices, Procedures and Management.	**5 hours**
Module 8	Internship (3 days)	**18 hours**
Module 9	Internship- Submission of Report	**5 hours**
Module 10	Presentation of Report and discussion/ evaluation	**2 hours**

Text Books

1	Apparel Merchandising, Robin Mathew, Enclave Publishers, 2008
2	Merchandise Buying and Management, John Donnellan, Fairchild Books 2013

Reference Book

1	Fashion Marketing, by Mike Easey, Wiley black well publications, 2009

Related Online Contents

1	https://www.fibre2fashion.com/industry-article/4469/garment-merchandising-and-export-procedures

2	http://textilemerchandising.com/merchandising-procedure-export-order/
3	https://textilelearner.blogspot.com/2012/05/flow-chart-of-merchandising-working.html
	Course Designed By: Mrs.S.Kokilavani

JOB ORIENTED CERTIFICATE COURSE

ADVANCED TECH PACK DESIGNING	
Name of the Department	Costume Design and Fashion
Inter / Intra Department Course	Inter/Intra Department Course
Duration of the Course	60 hours
Eligibility	Graduates in the field of Fashion and Textiles
Number of Candidates to be Admitted	25
Mode of the Course	Regular
Collaboration with Company (if Yes, Full Address of the Company Address, Name of the Contact Person, Phone, e-mail etc.)	Students have to identify a suitable fashion house for field work
Registration Procedure	By contacting the department through email or in person.

Job Opportunities: Fashion Designer, Tech Pack Designer in apparel industry, Freelancer.

The Objectives of the Course are:

The main objectives of this course are to:

1	To be able to work as technical fashion designer
2	To be able to create tech pack
3	Analyse tech pack details
4	Understand and implement the color separation process.
5	To coordinate with the customer / buyer effectively

Course Content	Practical classes followed by internship	
Module 1	Cover page and measurement specifications	**4 hours**
Module 2	Technical drawing and rendering	**8 hours**
Module 3	Pattern and construction details	**4 hours**
Module 4	Apparel artwork design	**6 hours**
Module 5	Branding design	**8 hours**
Module 6	Internship (Students have to take visit and submit detailed report and with tech pack)	**30 hours**

Text Books

1	Technical Sourcebook for Designers, Jaeil Lee, Camile Steen, Fairchild Books, New York, 2009.
2	The Apparel Design and Production Hand Book, Fashiondex Incorporation, Fairchild Books, New York, 1999.

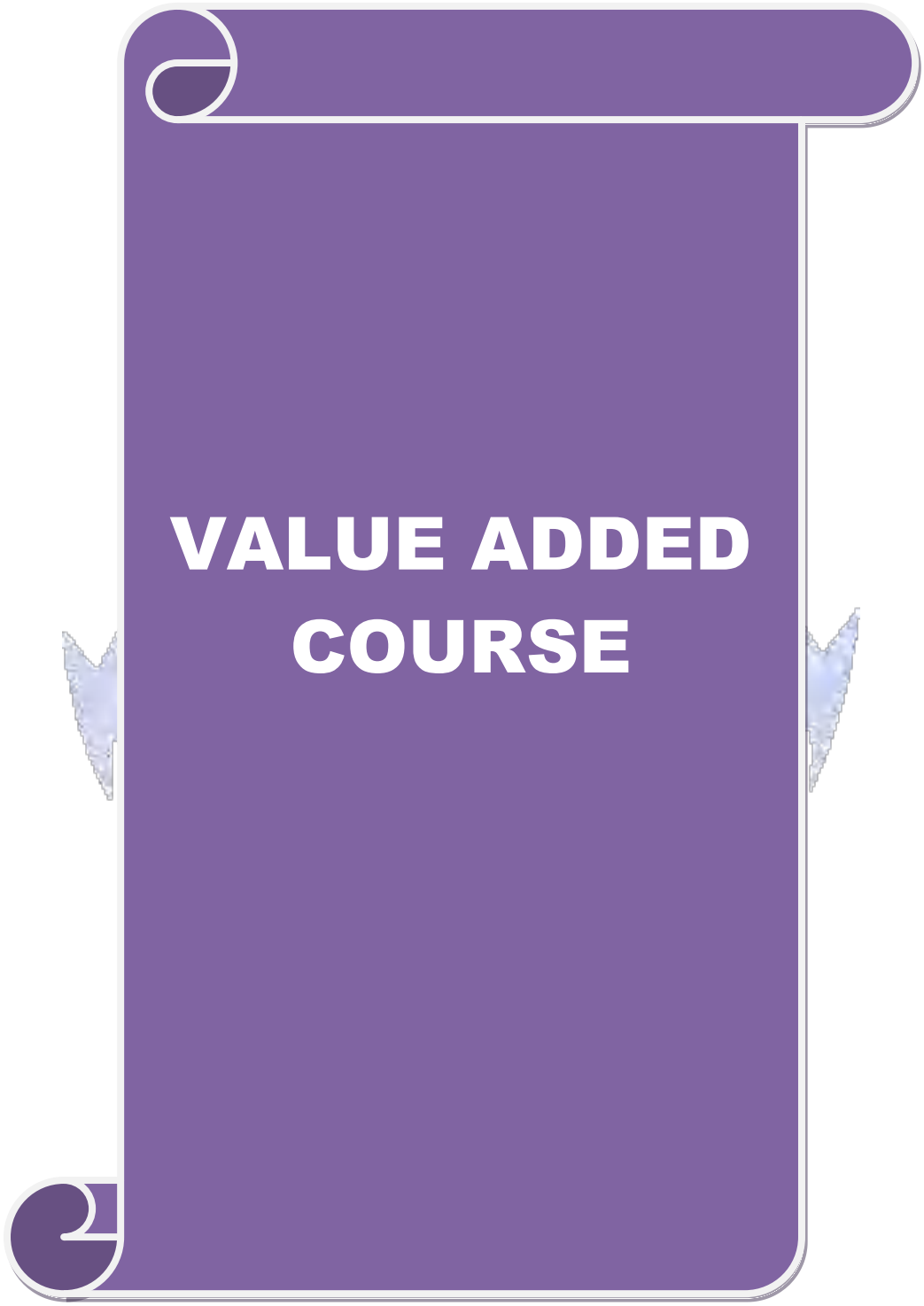
Reference Books

1	Garment Manufacturing: Process, Practices and Technology, Prasanta Sarkar, 2015.

Related Online Contents

1	https://techpacker.com/blog/design/what-is-a-techpack/
2	https://www.thaisonspgarment.com/FAQ/what-is-a-garment-tech-pack.html
3	https://thefashionbusinesscoach.com/blog/whatisatechpack

Course Designed By: Ms. Arundhati Ghoshal


VALUE ADDED
COURSE

VALUE ADDED COURSE

PATCH WORK TECHNIQUES	
Name of the Department	Costume Design and Fashion
Inter / Intra Department Course	Inter / Intra Department Course
Duration of the Course	40 hours
Eligibility	12th Standard with basic tailoring skills
Number of Candidates to be Admitted	25 to 35
Registration Procedure	By contacting the department through email or in person.

Job Opportunities:

1. Freelance designer – Home textiles and garments with patchwork and quilts.
2. Entrepreneur – Create patch work garments and home textiles and market the same

The objectives of the Course are:

The main objectives of this course are to:

1	To learn methods of creating patch work
2	Apply the patch work techniques in Home textiles
3	Create Home textiles and garments with patchwork.

Course Content	Lecture / Practical

Module 1	Learn the types of patch work (theory)	**2 hours**
Module 2	Create samples for patchwork (Practical)	**4 hours**
Module 3	Learn the types of Home textiles (Theory)	**2 hours**
Module 4	Design and construct a wall hanger / Runner / Placemats with Patch work (Practical)	**2 hours**
Module 5	Design and construct a bedlinen/ table linen with Patch work (Practical)	**4 hours**
Module 6	Learn different styles of children and women garment (Theory)	**2 hours**
Module 7	Design and construct a child garment with patch work (Practical)	**3 hours**
Module 8	Design and construct a women garment with patch work (Practical)	**4 hours**
Module 9	Field visit – Visit shops (Home textiles and garments) to familiarize with latest trends in fabrics and styles	**3 hours**
Module 10	Design a collection of home textiles and garments with a theme / inspiration and present the same as Portfolio (Practical)	**4 hours**
	Total Hours	**30 Hours**

Text Books

1	Patchwork Quilting: A Maker's Guide, by Victoria Albert Museum, Published by Thames Hudson, 2018
2	Crazy Patchwork, Janet Haigh, Published by McGraw-Hill Companies, 1988

Reference Books

1	Anything Book Fabric: Patch Work, Random House, Published by Random House, Inc, 1991
2	Strip Patch-Work, Valerie Campbell-Harding, Published by Dover Publications, 1988

	Related Online Contents
1	https://www.fibre2fashion.com/industry-article/4153/fashion-with-pieces-of-cloth-patchwork
2	https://sewguide.com/types-of-quilts/
	Course Designed By: Dr R Sheela John

VALUE ADDED COURSE

RESIST PRINTING	
Name of the Department	Costume Design and Fashion
Inter / Intra Department Course	Inter / Intra Department Course
Duration of the Course	40 hours
Eligibility	12th Standard
Number of Candidates to be Admitted	20-25
Registration Procedure	By contacting the department through email or in person.

Job Opportunities:

1. Entrepreneur – Create products using Batik and tie dye and market the same

The objectives of the Course are:

The main objectives of this course are to:

1	To understand the process and techniques involved in Resist printing
2	Apply the Resist printing techniques on fabrics
3	Create wall hangings, home textiles / dress materials using batik and tie dye.

Course Content Lecture / Practical

Module 1	Learn the tools and techniques of batik printing (Theory)	**2 hours**
Module 2	Create samples for batik printing (Practical)	**4 hours**
Module 3	Learn the tools and techniques of Tie and Dye (Theory)	**2 hours**
Module 4	Create samples for Tie and dye (Practical)	**3 hours**
Module 5	Design and print a wall hanging/ dress material using Batik-Single colour (Practical)	**3 hours**
Module 6	Design and print a wall hanging/ dress material using Batik-Double colour (Practical)	**3 hours**
Module 7	Design and dye a shawl using tie and dye (Practical)	**3 hours**
Module 8	Design and dye a home furnishing article using tie and dye (Practical)	**2 hours**
Module 9	Design and dye a sari or a dress material using Tie and dye (Practical)	**5 hours**
Module 10	Field visit – Visit tie and dye or batik printing units to familiarize with industrial techniques of resist printing	**3 hours**
	Total Hours	**30 Hours**

Text Books

1	Batik and tie dye techniques, Nancy Belfer, Courier corporation, 1992

Reference Book

1	Batik, Tie Dyeing, Stenciling, Silk Screen, Block Printing: The Hand Decoration of Fabrics, Francis.J.Kafka , Dover publications,1973

Related Online Contents	
1	https://www.simplicol.de/en/batik-basics-master
2	http://eacharya.inflibnet.ac.in/data-server/eacharya-documents/53e0c6cbe413016f234436ed_INFIEP_8/112/ET/unit-3%20Lesson%207.pdf
3	http://eacharya.inflibnet.ac.in/data-server/eacharya-documents/53e0c6cbe413016f234436ed_INFIEP_8/115/ET/unit-4%20Lesson%2010.pdf
	Course Designed By: Dr.S.Karpagam Chinnammal

VALUE ADDED COURSE

FASHION JEWELRY		
Name of the Department	Costume Design and Fashion	
Inter / Intra Department Course	Inter / Intra Department Course	
Duration of the Course	40 hours	
Eligibility	12th Standard	
Number of Candidates to be Admitted	25 to 35	
Registration Procedure	By contacting the department through email or in person.	
Job Opportunities:		
• Freelance designer – Create Jewelry Designs • Entrepreneur – Create Various Jewelry and market the same		
The objectives of the Course are:		
The main objectives of this course are to:		
1	To learn techniques of creating jewelry	
2	Apply the techniques to create ear rings, chains/ necklace and bracelet / bangles	
3	Create Fashion Jewelry Set	
Course Content	Practical with Record and Final Presentation	
Module 1	Learn the technique of creating jewelry with quilling paper (Theory)	**2 hours**
Module 2	Create earrings, chains/necklace, and bracelet/ bangle with quilling paper	**4 hours**
Module 3	Learn the technique of creating jewelry with silk thread (Theory)	**2 hours**
Module 4	Create earrings, chains/ necklace, and bracelet/ bangle with silk thread	**4 hours**
Module 5	Learn the techniques of creating jewelry with beads (Theory)	**2 hours**
Module 6	Create earrings, chains/ necklace, and bracelet/ bangle with bead	**4 hours**
Module 7	Learn the techniques of creating jewelry with terracotta (Theory)	**2 hours**
Module 8	Create earrings, chains/ necklace, and bracelet/ bangle with terracotta	**4 hours**
Module 9	Learn new innovative techniques of creating jewelry (Theory)	**2 hours**
Module 10	Create earrings, chains/ necklace, and bracelet/ bangle with new innovative technique	**4 hours**
	Final Presentation – Take photographs of the jewelry created and submit the same in the form of an album	
	Total Hours	**30 Hours**
Text Books		
1	Designing Jewelry with Glass Beads, Stephanie Sersich, Published by Interweave Press, 2008	
2	The Encyclopedia of Jewelry-Making Techniques, Jinks McGrath. Published by Running Press Adult, 1995	

Reference Book	
1	Earrings, Earrings, Earrings!, Barb Sprunger, Published by House of White Birches, 2009
2	Wild Jewellery, Sarah Drew, Published by Jacqui Small, 2012
Related Online Contents	
1	https://www.halsteadbead.com/articles/handmade-jewelry-types-and-techniques
2	https://www.fusionbeads.com/techniques
3	https://www.youtube.com/watch?v=4jNCJm3j0ec&t=18s
	Course Designed By: Dr R Sheela John

VALUE ADDED COURSE

FASHION JOURNALISM	
Name of the Department	Costume Design and Fashion
Inter / Intra Department Course	Inter / Intra Department Course
Duration of the Course	40 hours
Eligibility	Graduates in the field of fashion and textiles
Number of Candidates to be Admitted	25
Collaboration with Company (if Yes, Full Address of the Company Address, Name of the Contact Person, Phone, e-mail etc.)	Students have to identify a suitable studio/retail house or individual fashion stylist for field work
Registration Procedure	By contacting the department through email or in person.

Job Opportunities: Fashion Designer, Fashion Journalist, Fashion Stylist.

The objectives of the Course are:

The main objectives of this course are to:

1	To be able to work as a freelance designer
2	To be able to work in a design studio as a designer with different fashion media
3	To be able to work as a fashion journalist in Indian or International fashion world
4	To be able to work as a fashion stylist
5	To be able to groom customers

Course Content	Lecture / Practical / Project / Internship	
Module 1	Introduction to fashion journalism, concepts & elements, scope of fashion journalism	**2 hours**
Module 2	Fashion content writing and editing	**2 hours**
Module 3	Fashion journalism media and its roles	**2 hours**
Module 4	Introduction and concept of fashion styling with changing cultural and fashion trends	**2 hours**
Module 5	Various styling and grooming presentation	**2 hours**
Module 6	Internship (Students will take an in-depth visit and training to fashion studios / fashion house, individual fashion stylist and after completion, they will be submitting a report, magazine on contemporary trends and styling)	**20 hours**
	Total Marks	**30 Marks**

Text Books

1	Fashion Journalism: History, Theory and Practice, Dr. Sanda Miller, Peter McNeil, Bloomsburry Academic, New York, 2018.
2	Fashion Journalism, Julie Bradford, Routledge Publishing, New York, 2019.

Reference Book

1	The History of Fashion Journalism, Kate Nelson Best, Bloomsburry Academic, New York, 2017.

	Related Online Contents
1	https://en.wikipedia.org/wiki/Fashion_journalism
2	https://www.encyclopedia.com/fashion/encyclopedias-almanacs-transcripts-and-maps/fashion-journalism
3	https://en.wikipedia.org/wiki/Modern_Fashion_Journalism#:~:text=Fashion%20Journalism%20consists%20of%20several,events%2C%20such%20as%20fashion%20week.
	Course Designed By: Ms. Arundhati Ghoshal


ONLINE
COURSES

ONLINE COURSES

SWAYAM/ MOOCS/ NPTEL

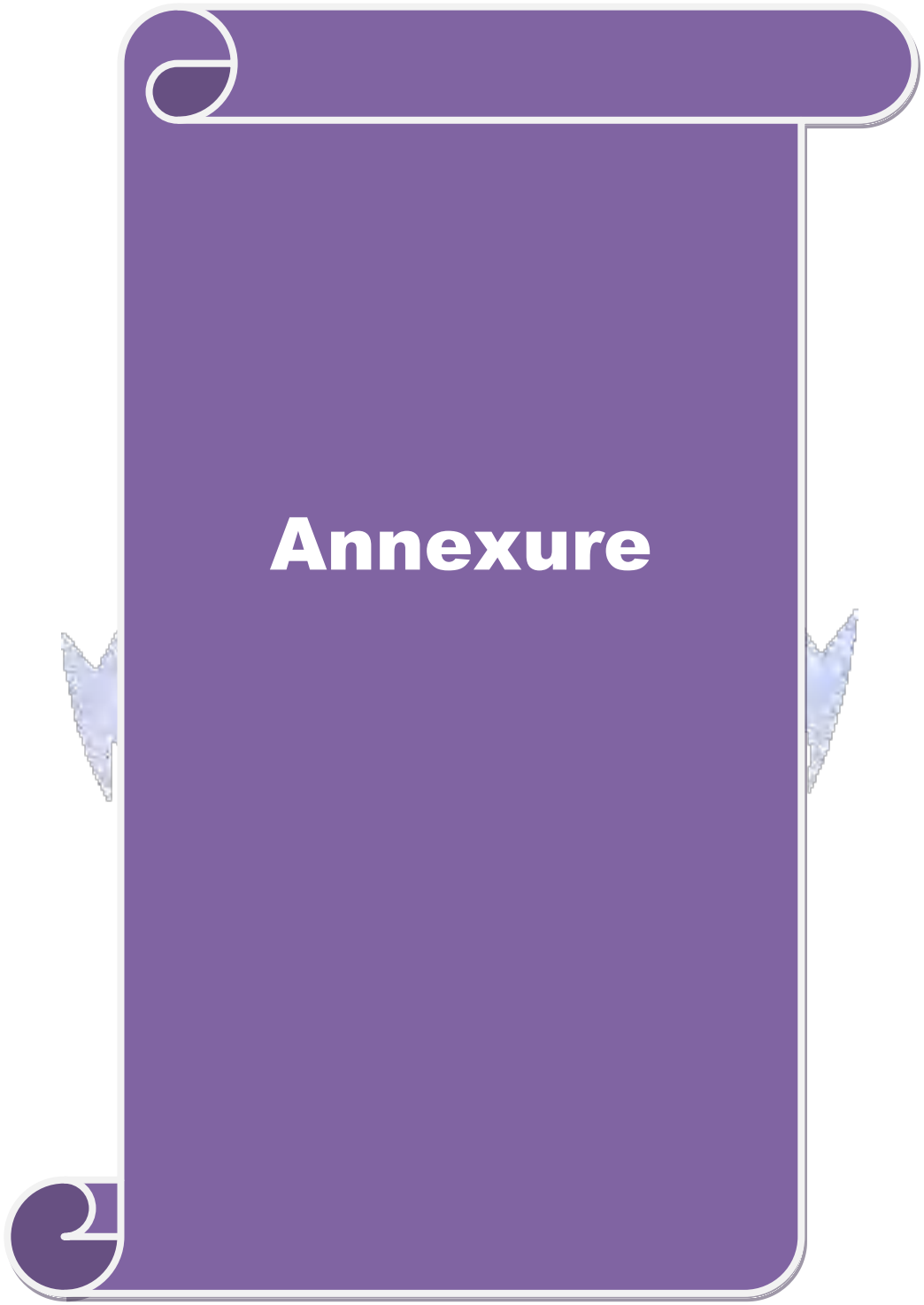
LIST OF PRESCRIBED COURSES

SNo	Course Name	SME Name	Institute	Course Duration	Timeline	URL
1.	Elements of Visual Representation	By Prof. Shatarupa Thakurta Roy	IIT Kanpur	8 weeks	14 Sep to 06 Nov 2020	https://onlinecourses.nptel.ac.in/noc20_hs81/preview
2.	Technical Textiles	Prof. Apurba Das	IITD	12 Weeks	Sep 14 to Dec 4 2020	https://onlinecourses.nptel.ac.in/noc20_te06/preview
3.	Science of Clothing Comfort	Prof. Apurba Das	IITD	12 Weeks	Sep 14 to Dec 4 2020	https://onlinecourses.nptel.ac.in/noc20_te07/preview
4.	Science and Technology of Weft and Warp Knitting	Prof. Bipin kumar	IITD	12 Weeks	Sep 14 to Dec 4 2020	https://onlinecourses.nptel.ac.in/noc20_te08/preview
5.	Textile Finishing	Prof. Kushal Sen	IITD	12 Weeks	Sep 14 to Dec 4 2020	https://onlinecourses.nptel.ac.in/noc20_te09/preview
6.	Principles of Combing, Roving preparation & Ring spinning	Prof. R. Chattopadhyay	IITD	12 Weeks	Sep 14 to Dec 4 2020	https://onlinecourses.nptel.ac.in/noc20_te10/preview
7.	Yarn manufacture I: Principle of Carding and Drawing	Prof. R. Chattopadhyay	IITD	8 Weeks	Sep 14 to Nov 6 2020	https://onlinecourses.nptel.ac.in/noc20_te11/preview
8.	Functional and Conceptual Design	Prof.Asokan T	IIT Madras	12 weeks	Jul-Oct 2020	https://onlinecourses.nptel.ac.in/noc20_de10/preview
9.	Academic Writing	Dr Ajay Semalty	HNB Garhwal University	15 weeks	Jul-Nov 2020	https://onlinecourses.swayam2.ac.in/cec20_ge29/preview
10.	Consumer Psychology	Prof. Naveen Kashyap	IIT Guwahati	8 weeks	14 Sep-6Nov 2020	https://onlinecourses.nptel.ac.in/noc19_hs64/preview

SNo	Course Name	SME Name	Institute	Course Duration	Timeline	URL
11.	Developing Soft Skills and Personality	Prof. T. Ravichandran	IIT Kanpur	8 weeks	14 Sep-6Nov 2020	https://onlinecourses.nptel.ac.in/noc19_hs32/preview#:~:text=The%20course%20aims%20to%20cause,in%20one's%20life%20and%20career.
12.	Consumer Buying Behaviour	Prof. Ashish Hathi	L.N. Welingkar Institute of Management Development & Research	8 weeks	14 Sep-6Nov 2020	https://onlinecourses.swayam2.ac.in/imb20_mg20/preview
13.	Research Ethics	Shri Manoj Kumar K	Central University of Himachal Pradesh	15 weeks	13 Jul-25 Oct 2020	https://onlinecourses.swayam2.ac.in/ugc19_ge04/preview
14.	Customer Relationship Management	Prof. Swagato Chatterjee	IIT Kharagpur	8 weeks	14 Sep- 6 Nov 2020	https://onlinecourses.swayam2.ac.in/imb19_mg10/preview
15.	Development Research Methods	Prof. Rajshree Bedamatta	IIT Guwahati	8 weeks	14 Sep- 6 Nov 2020	https://onlinecourses.nptel.ac.in/noc19_hs59/preview
16.	Entrepreneurship and IP strategy	Prof. Gouri Gargate	IIT Kharagpur	8 weeks	14 Sep- 6 Nov 2020	https://onlinecourses.nptel.ac.in/noc20_hs66/preview
17.	Computer Fundamentals	Prof. Sanjay Tanwani	Devi Ahilya Viswavidyalaya, Indore	12 weeks	18 Jun – 31 Oct 2020	https://onlinecourses.swayam2.ac.in/cec19_cs06/preview
18.	Introduction to Retail Management	Ashis Mishra	Indian Institute of Management Bangalore	6 weeks	15 May-14 Dec 2020	https://onlinecourses.swayam2.ac.in/imb19_mg02/preview

SNo	Course Name	SME Name	Institute	Course Duration	Timeline	URL
19.	Management of Human Resources	Dr. Nayantara Padhi	Indira Gandhi National Open University	16 weeks	15 Aug -	https://onlinecourses.swayam2.ac.in/nou20_mg02/preview#:~:text=Human%20Resource%20Management%20links%20people,HRM%20concepts%2C%20techniques%20and%20issues.
20.	Production Management	Dr. Ashish Agarwal	Indira Gandhi National Open University	16 weeks	15 Jul – 31 Oct 2020	https://onlinecourses.swayam2.ac.in/nou20_cs07/preview
21.	Rapid Manufacturing	Prof. J. Ramkumar, Prof. Amandeep Singh	IIT Kanpur	12 weeks	14 Sep – 4 Dec 2020	https://onlinecourses.nptel.ac.in/noc20_me50/preview#:~:text=In%20the%20contemporary%20dynamic%20manufacturing,their%20skills%20in%20advanced%20technologies.
22.	Science and Technology of Weft and Warp Knitting	Prof. Bipin kumar	IIT Delhi	12 weeks	14 Sep – 4 Dec 2020	https://onlinecourses.nptel.ac.in/noc19_te10/preview#:~:text=This%20is%20a%20definitive%20course,%2C%20engineering%2C%20technology%20and%20design.
23.	Science of Clothing Comfort	Prof. Apurba Das	IIT Delhi	12 weeks	14 Sep – 4 Dec 2020	https://www.classcentral.com/course/swayam-science-of-clothing-comfort-14283#:~:text=A%20basic%20understanding%20of%20comfort,with%20textile%20and%20garment%20industries.

SNo	Course Name	SME Name	Institute	Course Duration	Timeline	URL
24.	Stress Management	Prof. Rajlakshmi Guha	IIT Kharagpur	4 weeks	14 Sep-9 Oct 2020	https://onlinecourses.nptel.ac.in/noc20_ge18/preview
25.	The Essence of Leadership: Explorations from Literature	Dr. S Manikutty	The Indian Institute of Management, Bangalore	8 weeks	27 Jul-14 Dec	https://onlinecourses.swayam2.ac.in/imb20_mg26/preview#:~:text=The%20course%20consists%20of%20interpreting,for%20leadership%20and%20effective%20management.&text=As%20you%20learn%20more%20about,about%20yourself%20as%20a%20leader.


Annexure

M. Sc. COSTUME DESIGN AND FASHION

Syllabus

(With effect from 2020-2021)

Program Code :

DEPARTMENT OF COSTUME DESIGN AND FASHION
Bharathiar University
(A State University, Accredited with "A" Grade by NAAC and
13th Rank among Indian Universities by MHRD-NIRF)
Coimbatore 641 046, INDIA

***Project Work :**

In the 3rd Semester - Topic to be finalized and experimental study should be done
In the 4th Semester – Evaluation (testing), Statistical analysis and Report Writing

Project report – 160 (80%); Viva-voce –40 (20%)
Guide - 2 hours per week

*****Project guidelines for Project Report – 200 marks is as follows:

Review Meeting 1	Review Meeting 2	Review Meeting 3	Project Report	Total
40	40	40	40	160

Number of Pages for the Book is 80 to 100
Minimum number of book reference is 30 and Journal reference is 30.

ONLINE COURSES**
Students may opt for the above courses and gain additional credits upon the completion of course in the respective colleges and submission of certificates to the Bharathiar University
Additional Credits will be included in the Mark sheets

ELECTIVE PAPERS with effect from 2020-2021
(Colleges can choose any one of the Group papers as electives)

	SEMESTER I	SEMESTER II	SEMESTER III	SEMESTER IV
GROUP A	Fashion Business and Communication	Brand Management	Apparel production and planning	Beauty Care Practical
GROUP B	Protective Clothing	Functional Apparels and Clothing	Intimate Apparels	Fashion Photography Practical
GROUP C	Apparel Entrepreneurship	Supply Chain Management	Clothing Science	Home Furnishing Practical

Job Oriented Certificate Courses

Title of the Course	Credits	Instructional Hours		Internal Marks		
		Theory	Practical/ Field Work	A1	A2	Total
Visual Merchandiser	4	20	40	50	50	100
Export Merchandising	4	25	35	50	50	100
Advanced Tech Pack Designing	4	20	40	50	50	100

Value Added Courses

Title of the Course	Credits	Instructional Hours		Internal Marks		
		Theory	Practical/ Field Work	A1	A2	Total
Patch Work Techniques	2	6	24	25	25	50

Resist Printing	2	4	26	25	25	50
Fashion Jewelry	2	10	20	25	25	50
Fashion Journalism	2	10	20	25	25	50

A1 – Assessment 1

A2 - Assessment 2

Students may opt for the above Job Oriented and Value added courses and gain additional credits upon the completion of course in the respective colleges and submission of certificates to the Bharathiar University.

SYLLABUS ALLOCATION

CHIKKANNA GOVERNMET ARTS COLLEGE –TIRUPPUR 641 602
DEPARTMENT OF PHYSICS –JUNE TO NOV. 2020

SUBJECT ALLOTMENT

CLASS	TITLE OF SUBJECT	I UNIT	II UNIT	III UNIT	IV UNIT	V UNIT
I B Sc	Mechanics, properties of matter and sound (13A)	VSN	VSN	VSN	X	X
	Core Practical-I (23P)	PPK ,JWC				
	Foundation Course					
II B Sc	Optics (33A)	PPK	KBR	PPK	KBR	PPK,KBR
	Diploma-Instrumentation I (3ZA)	VSN	VSN	X	X	X
	Core Practical –II (43P)	VSN,RB				
	Foundation Course (3DE)					
III B Sc	Mathematical Physics (53A)	HMP	HMP	X	X	X
	Electronics (53B)	VG	VG	VSN	VSN	VG, VSN
	Solid State Physics (53C)	JWC	JWC	JWC	SSS	SSS
	Electricity and Magnetism(53D)	PPK	PPK	RB	RB	PPK,RB
	Programming Concept C and C++	VSK	VSK	X	X	VSK
	Diploma- Instrumentation III (5ZC)	KBR	KBR	X	X	X
	Core –Practical III Electronics	VSK,SSS				
	Core-Practical IV Digital electronics & Microprocessors	HMP, KBR				
	ASO Practical C and C++	KBR,VSN				
ALLIED SUBJECT	Allied Physics (for I B Sc Chemistry)	VSN	JWC	SSS	X	VSN JWC SSS
	Allied Physics Practical (for I B Sc Chemistry)	VSN,PPK ,VG , RB				
	Allied Physics (for II B ScMaths)	VSN	JWC	SSS	X	VSN JWC SSS
	Allied Physics Practical (for II B Sc Maths)	VG,RB				
I M Sc	Paper-I Classical Mechanics	VSK	VSK	VSK	KBR	KBR
	Paper-II Mathematical Physics	JWC	JWC	JWC	JWC	RB
	Paper-III Quantum Mechanics	HMP	VG	VG	VG	VG
	Paper-IV Advanced Computational Physics	X	X	KBR	KBR	KBR
	Elective-I Physics Non- conventional Energy Resource	RB	RB	RB	SSS	SSS
	Practical –I General Physics	KBR ,HMP				
	Practical –II Electronics	VG, RB				
II M Sc	Paper VIII Experimental Technique and Data Analysis	PPK	PPK	PPK	VSN	VSN
	Paper-IX Nuclear & Particle Physics	VSK	VSK	VSK	SSS	SSS
	Paper-X Spectroscopy	VG	VG	VG	X	X
	Paper-XI Communication Electronics	PPK	PPK	PPK	RB	RB
	Elective-III Laser Physics & Nonlinear Optics	KBR	KBR	KBR	KBR	KBR
	Practical –III General Physics	JWC,PPK				
	Practical –IV Special Electronics	VSK,SSS				

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SSS –Dr. R. SHAKTHI SUDAR SARAVANAN
VSK – V. SENTHIL KUMAR
JWC –Mr.J.WILLIAM CHARLES
RB – Dr. R.BALAN
PPK – Dr..P.PEULA KUMARI
KBR –Dr. K.B. RAJESH
VSN – Dr.V.SENTHILNATHAN

CHIKKANNA GOVERNMET ARTS COLLEGE –TIRUPPUR 641 602
DEPARTMENT OF PHYSICS –Dec 2020 to May 2021
SUBJECT ALLOTMENT

CLASS	TITLE OF SUBJECT	Faculties allotted		I UNIT	II UNIT	III UNIT	IV UNIT	V UNIT
I B Sc	Core II – Heat and Thermo Dynamics	PPK	SSS	PPK	PPK	SSS	SSS	XXX
	Core Practical-I (23P)	PPK	JWC	PPK ,JWC				
	Professional English	-	-	-				
	Foundation Course	-	-	-				
II B Sc	Core IV – Atomic Physics and Spectroscopy	SSS	RB	RB	RB	SSS	SSS	XXX
	Skill based Subject - Instrumentation II	VS	XXX	VS	VS	VS	XXX	XXX
	Core Practical –II (43P)	RB	VS	RB&VS				
	Foundation Course (3DE)	-	-					
III B Sc	Core IX – Quantum Mechanics and Relativity	KBR	JWC	JWC	JWC	JWC	KBR	KBR
	Core X - Nuclear Physics	PPK	VS	PPK	PPK	VS	VS	VS
	Elective –II Digital and Microprocessor	HMP	KBR	HMP	HMP	KBR	KBR	XXX
	Elective –III Object Oriented Programming with C++	HMP	VSK	HMP	HMP	VSK	VSK	XXX
	Skill based Subjects Practical	VSN	XXX	VS, XXX				
	Core –Practical III Electronics	VSK	SSS	VSK,SSS				
	Core-Practical IV Digital electronics & Microprocessors	HMP	KBR	HMP, KBR				
	ASO Practical C and C++	KBR	XXX	KBR, XXX				
ALLIED SUBJECT	Allied Physics (for I B Sc Chemistry)	JWC, VS	SSS, XXX	VSN	JWC	SSS	XXX	VSN JWC SSS XXX
	Allied Physics Practical (for I B Sc Chemistry)	PPK, VG	VS	VSN, SSS, PPK, VG				
	Allied Physics (for II B ScMaths)	JWC, VS	SSS, XXX	VSN	JWC	SSS	XXX	VSN JWC SSS XXX
	Allied Physics Practical (for II B ScMaths)	VG	RB	VG,RB				
I M Sc	Paper - V Quantum Mechanics-I	VG	XXX	VG	VG	VG	HMP	XXX
	Paper -VI Mathematical Physics- II	KBR	JWC	KBR	KBR	JWC	JWC	JWC
	Paper -VII Atomic and Molecular Spectroscopy	VSK	VS	VSK	VSK	VS	VS	XXX
	Elective-I Atmospheric Physics	HMP	RB	HMP	HMP	RB	RB	RB
	Practical –I General Physics	KBR	HMP	KBR ,HMP				
	Practical –II Electronics	VG	RB	VG, RB				
II M Sc	Paper -XII Nuclear & Particle Physics	VSK	SSS	SSS	SSS	VSK	VSK	KBR
	Paper -XIII Communication Electronics	PPK	KBR	PPK	PPK	KBR	KBR	XXX
	Paper -XIV Laser & NLO	KBR	XXX	KBR	KBR	KBR	KBR	XXX
	Practical –III Advanced Physics	PPK	JWC	JWC,PPK				
	Practical –IV Special Electronics	SSS	VSK	VSK,SSS				
	Project	All faculties		All faculties are involved 4 students avg per faculty				

Dr. Haresh M. Pandya HMP
Mrs. V. A. Vijayageetha VG
Dr. V. Senthilnathan VS
Mr. V. Senthilkumar VSK
Mr. J. William Charles JWC
Dr. R. Balan RB
Dr. P. Peulakumari PPK
Dr. K. B. Rajesh KBR
Dr. R. Sakthi Sudar Saravanan SSS

CHIKKANNA GOVERNMET ARTS COLLEGE –TIRUPPUR 641 602
DEPARTMENT OF PHYSICS –JUNE TO NOV. 2020

SUBJECT ALLOTMENT

CLASS	TITLE OF SUBJECT	I UNIT	II UNIT	III UNIT	IV UNIT	V UNIT
I B Sc	Mechanics, properties of matter and sound (13A)	VSN	VSN	VSN	X	X
	Core Practical-I (23P)	PPK ,JWC				
	Foundation Course					
II B Sc	Optics (33A)	PPK	KBR	PPK	KBR	PPK,KBR
	Diploma-Instrumentation I (3ZA)	VSN	VSN	X	X	X
	Core Practical –II (43P)	VSN,RB				
	Foundation Course (3DE)					
III B Sc	Mathematical Physics (53A)	HMP	HMP	X	X	X
	Electronics (53B)	VG	VG	VSN	VSN	VG, VSN
	Solid State Physics (53C)	JWC	JWC	JWC	SSS	SSS
	Electricity and Magnetism(53D)	PPK	PPK	RB	RB	PPK,RB
	Programming Concept C and C++	VSK	VSK	X	X	VSK
	Diploma- Instrumentation III (5ZC)	KBR	KBR	X	X	X
	Core –Practical III Electronics	VSK,SSS				
	Core-Practical IV Digital electronics & Microprocessors	HMP, KBR				
	ASO Practical C and C++	KBR,VSN				
ALLIED SUBJECT	Allied Physics (for I B Sc Chemistry)	VSN	JWC	SSS	X	VSN JWC SSS
	Allied Physics Practical (for I B Sc Chemistry)	VSN,PPK ,VG , RB				
	Allied Physics (for II B ScMaths)	VSN	JWC	SSS	X	VSN JWC SSS
	Allied Physics Practical (for II B Sc Maths)	VG,RB				
I M Sc	Paper-I Classical Mechanics	VSK	VSK	VSK	KBR	KBR
	Paper-II Mathematical Physics	JWC	JWC	JWC	JWC	RB
	Paper-III Quantum Mechanics	HMP	VG	VG	VG	VG
	Paper-IV Advanced Computational Physics	X	X	KBR	KBR	KBR
	Elective-I Physics Non- conventional Energy Resource	RB	RB	RB	SSS	SSS
	Practical –I General Physics	KBR ,HMP				
	Practical –II Electronics	VG, RB				
II M Sc	Paper VIII Experimental Technique and Data Analysis	PPK	PPK	PPK	VSN	VSN
	Paper-IX Nuclear & Particle Physics	VSK	VSK	VSK	SSS	SSS
	Paper-X Spectroscopy	VG	VG	VG	X	X
	Paper-XI Communication Electronics	PPK	PPK	PPK	RB	RB
	Elective-III Laser Physics & Nonlinear Optics	KBR	KBR	KBR	KBR	KBR
	Practical –III General Physics	JWC,PPK				
	Practical –IV Special Electronics	VSK,SSS				

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RB – Dr. R.BALAN
PPK – Dr..P.PEULA KUMARI
KBR –Dr. K.B. RAJESH
VSN – Dr.V.SENTHILNATHAN

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CHIKKANNA GOVERNMET ARTS COLLEGE –TIRUPPUR 641 602
DEPARTMENT OF PHYSICS –Dec 2020 to May 2021
SUBJECT ALLOTMENT

CLASS	TITLE OF SUBJECT	Faculties allotted		I UNIT	II UNIT	III UNIT	IV UNIT	V UNIT
I B Sc	Core II – Heat and Thermo Dynamics	PPK	SSS	PPK	PPK	SSS	SSS	XXX
	Core Practical-I (23P)	PPK	JWC	PPK ,JWC				
	Professional English	-	-	-				
	Foundation Course	-	-	-				
II B Sc	Core IV – Atomic Physics and Spectroscopy	SSS	RB	RB	RB	SSS	SSS	XXX
	Skill based Subject - Instrumentation II	VS	XXX	VS	VS	VS	XXX	XXX
	Core Practical –II (43P)	RB	VS	RB&VS				
	Foundation Course (3DE)	-	-					
III B Sc	Core IX – Quantum Mechanics and Relativity	KBR	JWC	JWC	JWC	JWC	KBR	KBR
	Core X - Nuclear Physics	PPK	VS	PPK	PPK	VS	VS	VS
	Elective –II Digital and Microprocessor	HMP	KBR	HMP	HMP	KBR	KBR	XXX
	Elective –III Object Oriented Programming with C++	HMP	VSK	HMP	HMP	VSK	VSK	XXX
	Skill based Subjects Practical	VSN	XXX	VS, XXX				
	Core –Practical III Electronics	VSK	SSS	VSK,SSS				
	Core-Practical IV Digital electronics & Microprocessors	HMP	KBR	HMP, KBR				
	ASO Practical C and C++	KBR	XXX	KBR, XXX				
ALLIED SUBJECT	Allied Physics (for I B Sc Chemistry)	JWC, VS	SSS, XXX	VSN	JWC	SSS	XXX	VSN JWC SSS XXX
	Allied Physics Practical (for I B Sc Chemistry)	PPK, VG	VS	VSN, SSS, PPK, VG				
	Allied Physics (for II B ScMaths)	JWC, VS	SSS, XXX	VSN	JWC	SSS	XXX	VSN JWC SSS XXX
	Allied Physics Practical (for II B ScMaths)	VG	RB	VG,RB				
I M Sc	Paper - V Quantum Mechanics-I	VG	XXX	VG	VG	VG	HMP	XXX
	Paper -VI Mathematical Physics- II	KBR	JWC	KBR	KBR	JWC	JWC	JWC
	Paper -VII Atomic and Molecular Spectroscopy	VSK	VS	VSK	VSK	VS	VS	XXX
	Elective-I Atmospheric Physics	HMP	RB	HMP	HMP	RB	RB	RB
	Practical –I General Physics	KBR	HMP	KBR ,HMP				
	Practical –II Electronics	VG	RB	VG, RB				
II M Sc	Paper -XII Nuclear & Particle Physics	VSK	SSS	SSS	SSS	VSK	VSK	KBR
	Paper -XIII Communication Electronics	PPK	KBR	PPK	PPK	KBR	KBR	XXX
	Paper -XIV Laser & NLO	KBR	XXX	KBR	KBR	KBR	KBR	XXX
	Practical –III Advanced Physics	PPK	JWC	JWC,PPK				
	Practical –IV Special Electronics	SSS	VSK	VSK,SSS				
	Project	All faculties		All faculties are involved 4 students avg per faculty				

Dr. Haresh M. Pandya HMP
Mr. V. Senthilkumar VSK
Dr. P. Peulakumari PPK
Mrs. V. A. Vijayageetha VG
Mr. J. William Charles JWC
Dr. K. B. Rajesh KBR
Dr. V. Senthilnathan VS
Dr. R. Balan RB
Dr. R. Sakthi Sudar Saravanan SSS

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CHIKKANNA GOVERNMENT ARTS COLLEGE -TIRUPUR-641602
DEPARTMENT OF COSTUME DESIGN AND FASHION
SYLLABUS & SUBJUCT ALLOCATION- ODD SEMESTER -2020-21
B.Sc.CDF I, III & V

S.NO	CLASS	PAPER	UNIT DETAILS	STAFF
1	I B.Sc	Basics of Garment construction	Unit I-Parts and functions of a single needle machine, essential tools,Body measurement-importance, Method of taking measurements	PCJ
2			Unit II-Pattern Making – Types, Drafting, Draping and Commercial Patterns,Methods of transferring pattern	PCJ
3			Unit III-Sleeves, set-in-sleeves,Modified armhole,Sleeve and bodice combined	PCJ
4			Unit IV-Collars,Yokes -Definitions, Types,	PCJ
5			Unit V-Pattern alteration,Pattern layout,Pattern grading-– Importance,Priniciples	PCJ
6	I B.Sc	Basics of Garment construction practical	Exercise I- Seams,Seam Finishes ,Hems ,Darts, Tucks, Neckline Finishes	NU
7			Exercise II- Plackets, Fasteners , Pocket,Skirt ,Sleeve,Collar,Simple Yoke	NU
8	I B.Sc	Fashion Sketching practical	Exercisel-Illustrate the Following Children's Garments-Bib,Jabla with knicker, Baba suit , Frocks	IJ
9			Exercise II-Illustrate the Following Women's Garments-Skirts ,Ladies tops ,Salwar ,Kameez ,Maxi/ Gown ,Dungarees	IJ
10			ExerciseIII-Illustrate the Following Men's Garments-T-Shirts ,Shirts ,Pants, Kurta ,Pyjama	IJ
11			Exercise IV-Illustrate the Following in Different Perspectives-Eyes,Ears, Nose,Lips,Hairstyles,Arms ,Legs	IJ
12	I B.Sc		Exercise V-Illustrate the Face of a Female and Male as Given Below -Front view ,Three quarter turned view ,Profile view (side view)	IJ

S.NO	CLASS	PAPER	UNIT DETAILS	STAFF
13	II B.Sc	Costumes and textiles of India	Unit I-Beginning and growth of Costume, Ancient costume,Costumes of India- pre and post indepandence era.	SK
14			Unit II-Dyed and printed textiles of India, Woven textiles of India	SK
15			Unit III-Traditional Costume of different States of India	SK
16			Unit IV-Indian Jewellery,Tribal jewellery	SK
17			Unit V-Traditional embroideries of India	SK

18	II B.Sc	Fashion designing	Unit I-Terms related to the fashion industry	SKC
19			Unit II-Design-definition and types,Elements of design, Principles of design	SKC
20			Unit III-Colour, Colour theories,Dimensions of colour,Standard colour harmonies,Colour in principles of design	SKC
21			Unit IV-Designing dresses for unusual figures	SKC
22			Unit V-Fashion accessories, trimmings and decoration,Wardrobe planning,Designing dresses for different occasions	SKC
23	II B.Sc	Fashion Designing Practical	Unit I-Prepare the following Charts- Prang colour chart, Value Chart, Intensity Chart	SKC
24			Unit II-Elements of Design- Line, Colour, Texture, Shape or form,Size	SKC
25			Unit III-Principles of Design-Balance in dress,Harmony in dress, Emphasis in dress, Proportion in dress, Rhytham in dress	SKC
26			Unit IV-Colour harmony in dress design-Monochromatic colour harmony, Analogous, Complimentary,Double complementary, Split complementary,Triad	SKC
27			Unit V-Designing dresses for figure irregularities	SKC
28	II B.Sc	Fiber to Fabric	Unit I-Classification of fibres,Primary and secondary characteristics of textiles fibers	PCJ
29			Unit II-Manufacturing process, properties and uses of natural fibres	PCJ
30			Unit III-Spinining- Definition, Classification,Yarn classification	PCJ
31			Unit IV-Weaving mechanism, parts of a loom,Classification of looms, Shulttle less looms	PCJ
32			Unit V-Non- woven	PCJ
33	II B.Sc	Fiber to Fabric Practical	Unit I-Fibers Idendifed Cotton,Silk,Wool,Nylon,Polyester,Lilen,Rayon, Jute-Microscopic method,Flame test,Chemical test	PCJ
34			Unit II-Yarn count-Wrap reel, Beesleys balance	PCJ
35			Unit III-Twist of the yarn,Weight of the fabric	PCJ
36			Unit IV-Fabric counr-Reveling method,Pick Glass method,Loop length	PCJ
37			Unit V-Colour fastness, Shrinkage, Absorbency	PCJ
38	II B.Sc	Fashion business and clothing psychology	Unit I-Factors influencing fashion changes,Understanding Fashion designer,Indian Fashion designers,World fashion centers	PCJ
39			Unit II-Fashion evolution -Fashion cycles,Length of cycles , consumer groups in fashion cycles,Adoption of Fashion,Fashion forecasting ,Role of forecasting agencies	PCJ

40	II B.Sc		Unit III-Elements of Visual Merchandising-Types of Display,Elements of display,Merchandising presentation ,Components of display,	PCJ
41			Unit IV-Store Management in Merchandising ,Store Layout, Store Design ,Merchandise Presentation Strategies	PCJ
42			Unit V-Applications of Visual Merchandising,Trade show & Fair, Fashion show, planning, budgeting, location, timings	PCJ
43	II B.Sc	Basic draping Practical	Unit I-Introduction to draping and dress forms	IJ
44			Unit II- Draping basic Front and Back bodice	IJ
45			Unit III-Draping basic Skirts	IJ
46			Unit IV-Draping Yokes,Shirt yoke and Midriff yoke	IJ
47			Unit V-Draping Collars-Peter pan,Mandarin and Shirt Collar	IJ

S.NO	CLASS	PAPER	UNIT DETAILS	STAFF
48	III B.Sc	Computer in the garment industry	Unit I-Classification of computers,Types of storage devices (primary and secondary)	IJ
49			Unit II-Role of computers in fashion industry	IJ
50			Unit III-CAD in designing,Textile designing,Garment designing	IJ
51			Unit IV-CAD in pattern making and grading	IJ
52			Unit V-Computer application in fabric defect checking,Computerized sewing machines	IJ
53	III B.Sc	Textile finishing	Unit I-Production sequence of textile fabrics,Finishes - Classification -Importance of finishes	SK
54			Unit II-Mechanical finishes,Aesthetic finishes,Drape,Texture ,	SK
55			Unit III-Functional finishes ,Types,Methods and applications	SK
56			Unit IV-Special purpose finishes,Types,Methods and applications	SK
57			Unit V-Recent trends in finishing ,Environmental pollution during chemical processing of	SK
58	III B.Sc	Mens apparel practical	Exercise I-S.B.Vest,. Bermudas	IJ
59			Exercise II-Slack shirt,Pleated trousers	IJ
60			Exercise III-Nehru kurtha ,Pyjama	IJ
61			Exercise IV-T-Shirt	IJ
62	III B.Sc	Computer aided design	Unit I-Motifs / small designs,Children's Garments	PCJ
63			Unit II-Women's Garments	PCJ
64			Unit III-men's Garments	PCJ
65			Unit IV-Create logos & label for branded companies	PCJ
66			Unit V-Create design for Hand bag, Hat and Footwear	PCJ

67	III B.Sc	Apparel marketing and merchandising	Unit I-Classification of Marketing,Fashion industry and new product development,Pricing	IJ
68			Unit II-Fashion sales promotional programme and Adverdising for apparel marketing,	IJ
69			Unit III-Merchendising-Introduction, Meaning-Apparel Merchandising,Types of merchandiser	IJ
70			Unit IV-Process flow in apparel industry – Buyer sourcing & communication,Samples-Types	IJ
71			Unit V-Inspection and its types ,Importance Approvals , Types of approvals ,Document Formets	IJ
72	III B.Sc	Textile printing practical	Exercise I-. Preparation of sample for printing-Cotton,Polyester,Silk, Preparation of printing paste	SKC
73			Exercise II-Create Design with Block printing,Create Design with Stencil printing	SKC
74			Exercise III-Tie and Dye Designs with any three methods ,	SKC
75			Exercise IV-Batik printing with any three methods	SKC
76			Exercise V-Print a Design using Screen printing methods	SKC
77	III B.Sc	Textile printing	Unit I-Introduction to printing ,preparation of fabric for printing,preparation of printing paste	IJ
78			Unit II-Direct printing: Block printing , Stencil printing,Roller Printing	IJ
79			Unit III-Screen printing,Discharge printing,	IJ
80			Unit IV-Resist printing:Batik printing wax used, Tie and dye	IJ
81			Unit V-Other printing methods,Fixation and after treatment	IJ

SKC	Dr.S.Karpagam Chinnammal
PCJ	Dr.P.C.Jeminarani
IJ	Dr.I.Jayalakshmi
SK	Mrs. S.Kokilavani
NU	Ms.Umamaheswari

CHIKKANNA GOVERNMENT ARTS COLLEGE -TIRUPUR-641602
DEPARTMENT OF COSTUME DESIGN AND FASHION
SYLLABUS & SUBJUCT ALLOCATION- EVEN SEMESTER -2020-21
M.Sc.CDF II & IV

S.NO	CLASS	PAPER	UNIT DETAILS	STAFF
1	I M.Sc	Research Methodology and Statistics	Unit I-Meaning and Objectives of Research - Types of Research,Research Problem – Definition	PCJ
2			Unit II-Research Design - Meaning, Features of a good design,Developing a Research Plan,Sampling Design -Population and sample Steps in sampling design	PCJ
3			Unit III-Measurement and Scaling Techniques,Methods of Data collection	PCJ
4			Unit IV-Data processing and analysis,Interpretation and Report writing	PCJ
5			Unit V-Statistics in research,Tests of Hypothesis	PCJ
6	I M.Sc	Export trade and Documentation	Unit I-International trade,Export process,Export Documentation	IJ
7			Unit II-Methods of Payments- Cash in advance,Letter of Credit	IJ
8			Unit III-Export Financing,Risk and Insurance policies under ECGC	IJ
9			Unit IV-India's Foreign Trade policy,Theories of International trade,Heckscher-Ohlin Theory	IJ
10			Unit V-Indian Associations that support exports,Trade Associations that support international trade	IJ
11	I M.Sc	Design Art and Painting	Exercise I-Sketch the following World Art forms and design the same in a garment-Baroque,Impressionism,Cubism,Surrealism,Futurism,Rococo	SKC
12			Exercise II-Draw sketches of the Indian Paintings and Design the same in a garment-Rajput painting,Mysore painting,Tanjore painting,Kalamkari painting,Warli painting,Gond painting, Mural painting	SKC

13		CAD in Fashion Designing Practical	Exercise I-Design a collection with an inspiration for Screen print ,Batik.Tie and Dye, Block print,Checked/Striped fabric	PCJ
14			Exercise II-Design a collection for (bride/ bridegroom/ bride's maid/ flower girl/ family)	PCJ
15	I M.Sc		Exercise III-Design a collection for casual wear,Party wear for Men / Women / Child	PCJ
16			Exercise IV-Design a winter &Summer collection for Men / Women / Child	PCJ
17			Exercise V-Design a creative unique collection of your own	PCJ
18		Advanced Garment Construction Practical	Exercise I-Uniforms-Industry Workers / Police / Fireman / Marine Engineers,School /College Uniform,Sports Uniform (for any sport), Uniform Air hostess / Nurses/ Receptionist	PCJ
19	I M.Sc		Exercise II-Need Based Garments-Garment for an Adaptive person (old age person), Maternity wear Garments / Garment for a Nursing mother, Physically challenged people / Bed ridden / Orthopedic patients	PCJ
20			Exercise III-Creative Garments,Multifunctional Clothing / Convertible Garments,Reversible Garments, Creative and innovative garment of your own	PCJ
21		Supply Chain Management	Unit I-Role of Logistics and Supply chain Management, Scope and Importance	IJ
22			Unit II-Role of Distribution in Supply Chain	IJ
23	I M.Sc		Unit III-Role of transportation in supply chain	IJ
24			Unit IV-Role of sourcing supply chain supplier selection assessment and contracts	IJ
25			Unit V-The role IT in supply chain	IJ

S.NO	CLASS	PAPER	UNIT DETAILS	STAFF
26	II M.Sc	Technical Textiles	Unit I-Introduction, definition and scope of technical textiles	IJ
27			Unit II-Mobile Tech - definition and areas of application,Sport Tech- definition and scope	IJ
28			Unit III-Agro Tech,Pack Tech - definition and scope	IJ
29			Unit IV-Geo Tech -definition and scope,Med Tech-fibres used-commodity and specialty fibers	IJ
30			Unit V-Smart textiles-components, classification-active smart,Intelligent textiles	IJ
31	II M.Sc	Home Furnishing Practicals	Exercise I-Design and Construct-Bed linens,Table linens,Curtains and draperies,Kitchen linens,Wall-hanging, door-hanging, door mats	NU
32			Exercise II-Design and Construct Home Furnishing for Guest room,Children's room (boys or girls)	NU
33			Exercise III-Design and Construct Bedding for newborn baby	NU
34			Exercise IV-Design and Construct Home Furnishing for an Individual person(Male or Female)	NU
35			Exercise V-Design and Construct Home Furnishing for an (adaptive/need based)-(Special people/Bed ridden patients)	NU
36	II M.Sc	Thesis		All Guide
37				
38				
39				
40				

SKC	Dr.S.Karpagam Chinnammal
PCJ	Dr.P.C.Jeminarani
IJ	Dr.I.Jayalakshmi
SK	Mrs. S.Kokilavani
NU	Ms.Umamaheswari

CHIKKANNA GOVERNMENT ARTS COLLEGE – TIRUPUR – 641 602

SUBJECT ALLOTTMENT – ODD/SEMSTER – 2020-21

DEPARTMENT OF COSTUME DESIGN AND FASHION

SEMESTER	SUBJECT	NO. OF HOURS	ALLOTTED TO(STAFF)
UG-I	Language-I	6	Dr.Balasubramaniam
	English-I	6	Mrs.Rani Samyuktha
	Basics of Garment construction	5	Dr.P.C.Jeminarani
	Basics of Garment construction practical	6	Ms. UmaMaheswari
	Fashion Sketching practical	5	Dr.I.Jayalakshmi
	Environmental studies	2	
	Total	30	

SEMESTER	SUBJECT	NO. OF HOURS	ALLOTTED TO(STAFF)
UG-III	Costumes and textiles of India	4	Mrs. S.Kokilavani
	Fashion designing	4	Dr.S.Karpagam
	Fashion Designing Practical	4	Dr. S.Karpagam
	Fiber to Fabric	5	Dr.P.C.Jeminarani
	Fiber to Fabric Practicals	3	Dr.P.C.Jeminarani
	Fashion business and clothing psychology	4	Dr.P.C.Jeminarani
	Basic draping Prac	4	Dr.I.Jayalakshmi
	Yoga	2	
	Total	30	

SEMESTER	SUBJECT	NO. OF HOURS	ALLOTTED TO(STAFF)
UG-V	Computer in the garment industry	4	Dr.I.Jayalakshmi
	Textile finishing	5	Mrs.S.Kokilavani
	Mens apparel practical	5	Dr.I.Jayalakshmi
	Computer aided design Practical	5	Dr.P.C.Jeminarani
	Apparel marketing and merchandising	4	Dr.I.Jayalakshmi
	Textile printing prac	3	Dr.S.Karpagam
	Textile printing	4	Dr.I.Jayalakshmi
	Total	30	

SEMESTER	SUBJECT	NO. OF HOURS	ALLOTTED TO(STAFF)
PG-I	Technical Textiles	4	Dr.I.Jayalakshmi
	Costumes of the world	4	S.K.C-III,IV UM-II,V, &I.J-I
	Fashion Illustration Practicals	6	Ms.Uma Maheswari
	Draping for fashion design Practical	6	Dr.I.Jayalakshmi
	Ornaments and Accessories Practicals	6	Dr.S.Karpagam
	Apparel Enterpreneurship	4	Dr.P.C.Jeminarani
	Total	30	

SEMESTER	SUBJECT	NO. OF HOURS	ALLOTTED TO(STAFF)
	Textile Testing	4	Mrs.S.Kokilavani
PG-III	International trade and Documentation	5	Dr.S.Karpagam
	Textile testing practical	3	Ms.Uma Maheswari
	CAD in Pattern making-Prac	5	Dr.P.C.Jeminarani
	Design and printing practicals	5	Dr.S.Karpagam
	Clothing Science	4	Dr.I.J-2 1/2 and SKC-2 1/2
	Project work and thesis	4	
	Total	30	

CHIKKANNA GOVERNMENT ARTS COLLEGE – TIRUPUR – 641 602

SUBJECT ALLOTTMENT – ODD/SEMSTER – 2020-21

DEPARTMENT OF COSTUME DESIGN AND FASHION

SEMESTER	SUBJECT	NO. OF HOURS	ALLOTTED TO(STAFF)
UG-I	Language-I	6	Dr.Balasubramaniam
	English-I	6	Mrs.Rani Samyuktha
	Basics of Garment construction	5/3	Dr.P.C.Jeminarani
	Basics of Garment construction practical	6	Ms. UmaMaheswari
	Fashion Sketching practical	5/2	Dr.I.Jayalakshmi
	Environmental studies	2	
	Total	30	

SEMESTER	SUBJECT	NO. OF HOURS	ALLOTTED TO(STAFF)
UG-III	Costumes and textiles of India	4	Mrs. S.Kokilavani
	Fashion designing	4/2	Dr.S.Karpagam
	Fashion Designing Practical	4/2	Dr. S.Karpagam
	Fiber to Fabric	5/3	Dr.P.C.Jeminarani
	Fiber to Fabric Practicals	3/2	Dr.P.C.Jeminarani
	Fashion business and clothing psychology	4/2	Dr.P.C.Jeminarani
	Basic draping Prac	4/2	Dr.I.Jayalakshmi
	Yoga	2	
	Total	30	

SEMESTER	SUBJECT	NO. OF HOURS	ALLOTTED TO(STAFF)
UG-V	Computer in the garment industry	4/2	Dr.I.Jayalakshmi
	Textile finishing	5	Mrs.S.Kokilavani
	Mens apparel practical	5/2	Dr.I.Jayalakshmi
	Computer aided design Practical	5/3	Dr.P.C.Jeminarani
	Apparel marketing and merchandising	4/2	Dr.I.Jayalakshmi
	Textile printing prac	3/2	Dr.S.Karpagam
	Textile printing	4/2	Dr.I.Jayalakshmi
	Total	30	

SEMESTER	SUBJECT	NO. OF HOURS	ALLOTTED TO(STAFF)
PG-I	Technical Textiles	4/1	Dr.I.Jayalakshmi
	Costumes of the world	4	S.K.C-III,IV UM-II,V, &I.J-I
	Fashion Illustration Practicals	6	Ms.Uma Maheswari
	Draping for fashion design Practical	6/2	Dr.I.Jayalakshmi
	Ornaments and Accessories Practicals	6/3	Dr.S.Karpagam
	Apparel Enterpreneurship	4/2	Dr.P.C.Jeminarani
	Total	30	

SEMESTER	SUBJECT	NO. OF HOURS	ALLOTTED TO(STAFF)
PG-III	Textile Testing	4	Mrs.S.Kokilavani
	International trade and Documentation	5/3	Dr.S.Karpagam
	Textile testing practical	3	Ms.Uma Maheswari
	CAD in Pattern making-Prac	5/2	Dr.P.C.Jeminarani
	Design and printing practicals	5/2	Dr.S.Karpagam
	Clothing Science	4/2	Dr.I.J-2 1/2 and SKC-2 1/2
	Project work and thesis	4	
	Total	30	

CHIKKANNA GOVERNMET ARTS COLLEGE,TIRUPUR

Department of Computer Applications

Syllabus & Subject Allocation - Academic Year 2020-2021 - Odd Sem

Part III BCA I ,III , V Semester

S.No	Class	Paper	Unit Details	Staff
1	I BCA	Computing Fundamentals & C Programming	UNIT I: Fundamentals of Computers	SA
2			UNIT II: Overview of C	
3			UNIT III: Decision Making and Branching-Decision Making and Looping	
4			UNIT IV: User-Defined Functions	
5			UNIT V: Pointers	
6	I BCA	Digital Fundamentals & Architecture	UNIT I: Number System and Binary Codes	KKV
7			UNIT II: Combinational Logic Circuits-Sequential circuits	
8			UNIT III: Input – Output Organization- Direct Memory Access	
9			UNIT IV: Memory Organization- Virtual Memory	
10			UNIT V: CASE STUDY: Pin out diagram, Architecture	
11	I BCA	C Programming Lab	C Lab Programs - Syllabus Version	SA
12	I BCA	Foundation course - Environmental Studies	Sutru suzhal kalvi	SA
13	II BCA	Data Structues	UNIT I Introduction: Introduction of Algorithms	KKV
14			UNIT II Linked List	
15			UNIT III Trees-Graphs	
16			UNIT IV External Sorting	
17			UNIT V Internal Sorting-Files	
18	II BCA	Java Programming	UNIT-I: Fundamentals of Object-Oriented Programming-Overview of Java	CS
19			UNIT-II: Constants, Variables, Data Types - Operators and Expressions –	
20			UNIT-III: Arrays, Strings and Vectors – Interfaces: Multiple Inheritance –	
21			UNIT-IV: Managing Errors and Exceptions – Applet Programming –	
22			UNIT-V: Managing Input / Output Files in Java	
23	II BCA	Java Programming Lab	Java Programs - Syllabus Version	CS
24	II BCA	Web Programming	Unit I Introduction to Internet – World Wide Web – Browsers-Electronic	DS
25			Unit II HTML : Introduction	
26			Unit III HTML (contd) - Interactivity Tools and Multimedia	
27			Unit IV XML :XML basics	
28			Unit V XML (contd)- XML Style sheets	
29	II BCA	Yogafor Human Excellence	Unit 1 Yoga and Physical Health	CS
30			Unit 2 Art of Nurturing the life force and Mind	
31			Unit 3 Sblimation	
32			Unit 4 Human Resources Development	
33			Unit 5 Law of Nature	
34	III BCA	RDBMS & Oracle	UNIT-I: Database Concepts- Database Design- Data Modeling and	SA
35			UNIT-II: Oracle9i: Overview- Oracle Tables	
36			UNIT-III: Working with Table: Data Management and Retrieval-Functions and Grouping	
37			UNIT-IV: PL/SQL: A Programming Language-Control Structures and	
38			UNIT-V: PL/SQL Composite Data Types	
39	III BCA	VISUAL BASIC	UNIT I: Getting Started with VB6-Working with Controls	DS
40			UNIT II: Menus, Mouse events and Dialog boxes	
41			UNIT III: ODBC and Data Access Objects-ActiveX EXE and ActiveX	
42			UNIT IV: Object Linking and Embedding-File and File System Control	
43			UNIT V: Additional controls in VB	
44	III BCA	VISUALPROGRAMMING- LAB	Visual Basic and Oracle Programs - Syllabus Version	DS
45	III BCA	PHP & Scripting Languages	UNIT I: VB Script and Java Script	CS
46			UNIT II: VB Script	
47			UNIT III: Java Script	
48			UNIT IV PHP: Server side scripting Language	
49			UNIT V PHP : Functions - Classes and Objects	
50	III BCA	CASE Tools Concepts and Applications	UNIT-I Data Modeling	GMN
51			UNIT-II Approach used to solve the problem statement	
52			UNIT-III Introduction to Ubridge	
53			UNIT-IV Diagram definition tool	
54			UNIT-V Introduction to UMLyment Diagram.	

GMN - Dr.G.M.NASIRA
DS - Mrs.D.SUDHA
CS - Mrs.C.SARASWATHI

KKV - Mr.K.K.VISWANATHAN
SA - Mrs.S.ANNAPOORANI

6/8/2020
துறைத்தலைவர்,
கணினி பயன்பாட்டியல் துறை,
சிக்கண்ணா அரசு கலைக்கல்லூரி,
திருப்பூர் – 641602.

CHIKKANNA GOVERNMET ARTS COLLEGE,TIRUPUR

Department of Computer Applications

Syllabus & Subject Allocation - Academic Year 2020-2021 - Even Sem

Part III BCA II ,IV , VI Semester

S.No	Class	Paper	Unit Details	Staff
1	I BCA	C++ Programming	UNIT-I: Introduction to C++ - key concepts of Object-Oriented Programming	SA
2			UNIT-II : Classes and Objects	
3			UNIT-III Operator Overloading- Inheritance	
4			UNIT-IV: Pointers	
5			UNIT-V: Files	
6	I BCA	C++ Programming Lab	C++ Programs - Syllabus Version	SA
7	I BCA	Internet Basics Lab	Internet Basic Concepts - Syllabus Version	CS
8	I BCA	Foundation course - Human Rights	Development- Personal Development-Character Formation Towards Positive	SA
9			UNIT – II : Value Education Towards National and Global Development- National and International Values	
10			UNIT – III : Impact of Global Development on Ethics and Values	
11			UNIT - IV : Theraupatic Measures	
12			UNIT V : Human Rights	
13	II BCA	System Software and Operating System	UNIT- I: Introduction –System Software and machine architecture-Loader	KKV
14			UNIT- II: Macroprocessor- Text Editors	
15			UNIT-III: Machine dependent compiler features	CS
16			UNIT IV: Introduction to OS-Storage Management Real Storage-Virtual	
17			UNIT V: Processor Management Job and Processor Scheduling- File and	
18	II BCA	Linux & Shell Programming	UNIT I: Introduction to LINUX Operating System	DS
19			UNIT II: Managing Files and Directories	
20			UNIT III: Creating files using the vi editor	
21			UNIT IV: Securing files in LINUX	
22			UNIT V: Using Conditional Execution in Shell Scripts	
23	II BCA	Linux & Shell Programming	Shell Programs - Syllabus Version	DS
24	II BCA	Web Programming Lab	HTML Programs - Syllabus Version	CS
25	II BCA	General Awarness	Unit 1 Verbal Aptitude- Numerical Aptitude	CS
26			Unit 2 Abstract Reasoning - Tamil and other Literature	
27			Unit 3 General Science and Technology and Education - Computer	
28			Unit 4 Economics and Commerce - Social Studies	
29			Unit 5 Sports- Current Affairs	
30	III BCA	GRAPHICS AND MULTIMEDIA	UNIT-I: Output Primitives	KKV
31			UNIT-II: 2D Geometric Transformations	
32			UNIT-III: Text- Image	
33			UNIT-IV: Audio	
34			UNIT-V: Video	
35	III BCA	GRAPHICS AND MULTIMEDIA- LAB	Computer Graphics Programs and Photoshop Excercises - Syllabus Version	DS
36	III BCA	PROJRCT WORK LAB	Project work	All Staffs
37	III BCA	Computer Networks	UNIT-I: Network Hardware- Reference Models	GMN
38			UNIT-II: PHYSICAL LAYER	
39			UNIT-III: DATA-LINK LAYER- MEDIUM-ACCESS CONTROL SUB	
40			UNIT-IV: NETWORK LAYER-TRANSPORT LAYER	
41			UNIT-V: APPLICATION LAYER- NETWORK SECURITY	
42	III BCA	Software Testing	UNIT I: Software Development Life Cycle models-White-Box Testing	CS
43			UNIT II: Black-Box Testing- Integration Testing	
44			UNIT III: System and Acceptance Testing	
45			UNIT IV: Performance Testing-Regression Testing	
46			UNIT V: Test Planning, Management, Execution and Reporting- Test Metrics	
47	III BCA	CASE Tools Lab	Practice the UML Diagrams - Syllabus Version	SA

GMN - Dr.G.M.NASIRA
DS - Mrs.D.SUDHA
CS - Mrs.C.SARASWATHI

KKV - Mr.K.K.VISWANATHAN
SA - Mrs.S.ANNAPOORANI

1.2021
துறைத்தலைவர்,
கணினி பயன்பாட்டியல் துறை,
சிக்கண்ணா அரசு கலைக்கல்லூரி,
திருப்பூர் – 641602.

Chikkanna Government Arts College, Tirupur

Department of History

Syllabus & Subject Allocation 2020 - 2021

Part III & IV B.A. History II , IV & VI Semester

S.No	Class	Paper	Unit Details	Staff
1	I BA	HISTORY OF INDIA FROM 1526 A.D. TO 1707 A.D.	Unit 1 ESTABLISHMENT OF MUGHAL RULE	CG
2			Unit 2 SUR INTERLUDE AND THE REIGN OF MUGHALS	CG
3			Unit 3 DISINTEGRATION OF MUGHALS	CG
4			Unit 4 POLITY IN SOUTH	CG
5			Unit 5 SOCIETY AND CUTLTURE	CG
6	I B.A	HISTORY OF INDIA 1707 A.D. TO 1858 A.D.	Unit 1 MARATHA CONFEDERACY	PS
7			Unit 2 ADVENT OF EUROPEANS	PS
8			Unit 3 WARREN HASTINGS'S ADMINISTRATIVE REFORMS	PS
9			Unit 4 COLONIAL ADMINISTRATION - I	PS
10			Unit 5 COLONIAL ADMINISTRATION - II	PS
11	I B.A	PROFESSIONAL ENGLISH FOR ARTS & SOCIAL SCIENCES - II*	Unit 1 COMMUNICATIVE COMPETENCE	RS
12			Unit 2 PERSUASIVE COMMUNICATION	RS
13			Unit 3 DIGITAL COMPETENCE	RS
14			Unit 4 CREATIVITY AND IMAGINATION	RS
15			ACADEMIC WRITING	RS
16	I B.A	Allied I INDIAN CONSTITUTION*	Unit 1 FORMATION OF INDIAN CONSTITUTION	SS
17			Unit 2 RIGHTS AND DUTIES	SS
18			Unit 3 UNION EXECUTIVE	SS
19			Unit 4 STATE EXECUTIVE	SS
20			Unit 5 ELECTION COMMISSION OF INDIA	SS
21	I B.A	Value Education - HUMAN RIGHTS	UNIT – I : CONCEPT OF HUMAN VALUES	SS
22			UNIT – II : NATIONAL AND GLOBAL DEVELOPMENT	SS
23			UNIT – III : IMPACT OF GLOBAL DEVELOPMENT	SS
24			UNIT - IV : IMPACT OF GLOBAL DEVELOPMENT	SS
25			UNIT V : HUMAN RIGHTS	SS
26	II B.A	HISTORY OF TAMIL NADU UPTO 1336 A.D.	Unit:1 INTRODUCTION TO TAMILAGAM	PS
27			Unit:2 THE SANGAM AGE	PS
28			Unit:3 THE PALLAVAS	PS
29			Unit:4 IMPERIAL CHOLAS	PS
30			Unit:5 PANDIYA EMPIRE	PS
31	II B.A	HISTORY OF TAMILNADU FROM 1336 A.D. TO 1977 A.D.	Unit:1 VIJAYANAGARA EMPIRE	SS
32			Unit:2 TAMIL NADU UNDER THE NAYAKS	SS
33			Unit:3 NAWABS AND OTHER DYNASTIES	SS
34			Unit:4 EUROPEANS IN TAMILNADU	SS
35			Unit:5 POLITICAL ASPECTS OF TAMIL NADU	SS
36	II B.A	Allied II CONSTITUTIONAL HISTORY OF INDIA FROM 1892 A.D. TO 1950 A.D. – IV	Unit 1 MINTO - MORLEY REFORMS ACT	RS
37			Unit 2 BICAMERAL LEGISLATURE	RS
38			Unit 3 WORKING OF DYARCHY	RS
39			Unit 4 FEDERAL GOVERNMENT	RS
40			Unit 5 REPUBLIC INDIA	RS

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Department of History

Syllabus & Subject Allocation 2020 - 2021

Part III & IV B.A. History I , III & V Semester

S.No	Class	Paper	Unit Details	Staff
1	I B.A	**HISTORY OF INDIA UPTO 647 A.D.**	Unit 1 SOURCES OF STUDY	PS
2			Unit 2 RISE OF KINGDOMS AND RELIGION	PS
3			Unit 3RISE OF MAURYAN EMPIRE	PS
4			Unit 4 THE KHUSHANS AND THE GUPTA EMPIRE	PS
5			Unit 5 HARSHA'S ADMINISTRATION	PS
6	I B.A	**HISTORY OF INDIA FROM 647 A.D. TO 1526 A.D.**	Unit 1 RISE OF KINGDOMS IN NORTH INIDA	CG
7			Unit 2 TURKISH INVASION AND THE SLAVE DYNASTY	CG
8			Unit 3 KHILJIS AND TUGLAQS	CG
9			Unit 4 LODI DYNASTY	CG
10			Unit 5 SOCIETY AND CULTURE	CG
11	I B.A	**PROFESSIONAL ENGLISH FOR ARTS & SOCIAL SCIENCES - I***	Unit 1 COMMUNICATION	RS
12			Unit 2 DESCRIPTION	RS
13			Unit 3 NEGOTIATION STRATEGIES	RS
14			Unit 4 PRESENTATION SKILLS	RS
15			Unit 5 CRITICAL THINKING SKILLS	RS
16	I B.A	**Allied I PRINCIPLES OF GOVERNMENT***	Unit 1 DEFINITION OF CONSTITUTION	RS
17			Unit 2 COMPOSITION OF LEGISLATURE	RS
18			Unit 3 PARLIAMENTARY EXECUTIVE	RS
19			Unit 4 INDEPENDENT JUDICIARY	RS
20			Unit 5 RIGHTS AND DUTIES OF CITIZEN	RS
21	I B.A	**Foundation Course ENVIRONMENTAL STUDIES**	Unit 1 MULTIDISCIPLINARY NATURE OF ENVIRONMENTAL STUDIES	SS
22			Unit 2 NATURAL RESOURCES	SS
23			Unit 3 ECOSYSTEMS	SS
24			Unit 4 BIODIVERSITY AND ITS CONSERVATION	SS
25			Unit 5 ENVIRONMENTAL POLLUTION	SS
26	II B.A	**HISTORY OF INDIA 1858 A.D. TO 1947 A.D.**	Unit 1 BRITISH PARAMOUNTCY	CG
27			Unit 2 BIRTH OF INDIAN NATIONAL CONGRESS	CG
28			Unit 3 GANDHIAN ERA	CG
29			Unit 4 TOWARDS INDEPENDENCE	CG
30			Unit 5 FREEDOM FIGHTERS	CG
31	II B.A	**HISTORY OF INDIA FROM 1947 A.D. TO 2000 A.D.**	Unit 1 INDIA ON THE EVE OF INDEPENDENCE	PS
32			Unit 2 NEHRUVIAN ERA	PS
33			Unit 3 INDIA AFTER NEHRU	PS
34			Unit 4 IMPACT OF EMERGENCY	PS
35			Unit 5 NEW ECONOMIC POLICY	PS
36	II B.A	**Allied III CONSTITUTIONAL HISTORY OF INDIA FROM 1773A.D. TO 1892A.D. - I**	Unit 1 REGULATING ACT	RS
37			Unit 2 CHARTER ACTS	RS
38			Unit 3 ORIGIN OF LEGISLATIVE ASSEMBLY	RS
39			Unit 4 QUEEN'S PROCLAMATION	RS
40			Unit 5 COUNCIL ACTS	RS

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CHIKKANNA GOVERNMENT ARTS COLLEGE – TIRUPUR – 641 602

Department of Chemistry

Syllabus & Subject Allocation 2020-21

Part III B.Sc Chemistry I , III , V Semester

S.No	Class	Paper	Unit details	Staff
1	I BSc	CHEMISTRY PAPER I	Unit 1. Periodic table-Introduction-Periodic properties- Ionisation energy,	KK
2			Unit 2.Reaction of Alkenes and Alkynes1. Nomenclature of acyclic alkane, a	SPR
3			Unit 3.Polar effects – inductive effect, mesomeric effect, electromeric effect	SPR
4			Unit 4. Liquid crystals–the concept of mesomorphic state-typical liquid cry	KK
5			Unit 5.The laws of thermodynamics, generalities and Zeroth law – kinds of	SPR, KK
6	II BSc	CHEMISTRY PAPER III	Unit.1 General methods of Extraction: Concentration – Gravity separation	NS
7			Unit 2.Chemistry of Carbonyl Compounds – I: Reaction mechanisms: Nucle	NS
8			Unit 3.Chemistry of Carbonyl Compounds – II Reaction mechanisms – Refo	NS
9			Unit 4.Malonic ester, acetoacetic ester and cyanoacetic ester-their preparat	NS
10			*Unit 5. Structure of metals and alloys-substitutional and interstitial solid sol	NS
11	II BSc	CHEMISTRY PAPER IV	Unit 1. Introduction to second law of thermodynamics – Carnot cycle – entro	PV
12			*Unit 2 General conditions of equilibrium and spontaneity - conditions of equ	PV
13			Unit 3.Adsorption and Catalysis :Adsorption – types, differences between che	PV
14			Unit 4.Chromatography : Chromatographic methods – Partition, Adsorption –	SK
15			Unit 5C program for chemistry-Structure of C program, Variables in C, C Keyw	SK
16	II BSc	CHEMISTRY OF NATURAL AND SYNTHETIC FIBRE	Unit 1.Natural Textile Fibers Natural Textile Fibers: Definition, Classification	NSG
17			Unit 2. Viscose FiberViscose Fibre: Chemical structure ,chemistry of regenara	NSG
18			Unit 3.Synthetic and Acrylic FibersSynthetic Fibers: Definition of monomers,	NSG
19			Unit 4. Nylon Fibres: Synthesis of caprolactum from aniline, adipic acid from	NSG
20			Unit 5.Reaction of Polyester FibersPolyester Fibers : Synthesis of Dimethyl Te	NSG
21	III BSc	CHEMISTRY PAPER -VI	Unit 1.Metals and Solid Solutions Structure of metals and alloys-substitution	MSU
22			Unit 2.Radioactivity and Nuclear Reactions Artificial radio activity. Artificial t	MSU
23			Unit 3.Isotopes and Their ApplicationsNature of isotopes and isobars – detec	MSU
24			Unit 4.Co-ordination ChemistryTypes of ligands , IUPAC Nomenclature, Isome	NSG
25			Unit 5.Role of SolventsThe solvents- solubility of compounds – effect of temp	NSG
26	III BSc	CHEMISTRY PAPER -VII	Unit 1.Optical activity of compounds with asymmetric carbon- racemisation -	GR
27			Unit 2.Mechanism of molecular rearrangement reactions: PinacolPinacolone,	GR
28			Unit 3.Carbohydrates: Chemistry and structure of Glucose, Fructose, Sucrose	GR
29			Unit 4.Aminoacids and proteinsAmino acids-Classiffication –Preparation and	GR
30			Unit 5.Heterocyclic compoundsChemistry of Furan, Pyrrole, Thiophene, Pyric	GR
31	III BSc	CHEMISTRY PAPER -VIII	Unit 1 Ionic Equilibria -Solubility and solubility product-determination of sol	PV
32			Unit 2 Conductivity of IonsElectrical conduction, conduction in metals and in	PV
33			Unit 3 Electrochemical cells. Electrode potentials-The standard hydrogen ele	PV
34			Unit 4 Electrode PotentialReference electrodes-Electrodes for measurement	PV
35			Unit 5 Fuel and Storage CellsFuel cells: Hydrogen- oxygen cell and hydrocarb	PV
36	III BSc	CHEMISTRY PAPER - IX	Unit 1.Analytical TechniquesBasic principles and applications of Analytical te	JB
37			Unit 2. Data AnalysisEvaluation of Analytical data: Accuracy and precision, m	SK
38			Unit 3.Statistical Tests and Significant FiguresThe F test and the T test, rejecti	JB
39			Unit 4. Quantitative Analysis and Chemical EquilibriumTheory of Quantitativ	JB
40			Unit 5.Gravimetric MethodsTheory of indicators, Theory of precipitation, Co-	JB
41	III BSc	POLYMER CHEMISTRY	Unit 1. Classification and Preparation of Polymers1. Classification Of Polymer	MSD
42			Unit 2. Types of PolymerizationDifferent Types Of Polymerization-Step Grow	JB
43			Unit 3. Properties of PolymersPrimary And Secondary Bond Forces In Polym	JB
44			Unit 4.Determination of Molecular Weight MethodsMolecular Weight Of Poly	JB
45			Unit 5.Important industrial polymers, preparation and applications of i) Poly	MSD
46	III BSc	Water & Effluent Treatment And Pollution Control	Unit 1.Sources of PollutionImpact of man on the Environment – an over view	NSG
47			Unity 2.Water Pollution and Softening MethodsWHO, ISO standards for raw v	NSG
48			Unit 3.Analysis Techniques for WaterRemoval of colour and turbitity (simple	NSG
49			Unit 4.Water Treatment MethodsEffect of effluents – General treatment proc	NSG
50			Unit 5.Analysis Techniques for PollutionModel schematic diagram for waste v	NSG

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CHIKKANNA GOVERNMENT ARTS COLLEGE – TIRUPUR – 641 602

Department of Chemistry

Syllabus & Subject Allocation 2020-21

Part III M.Sc Chemistry I , III Semester

S.No	Class	Paper	Unit details	Staff
1	I MSc	ORGANIC PAPER I	Unit 1. Aromaticity : Criteria, Non-benzenoid aromatics – annulenes, Azulenes and ferrocene	JB
2			Unit 2.Aromatic electrophilic substitution reactions: Mechanism, orientation and reactivit	JB
3			Unit 3.Aliphatic nucleophilic substitution reactions and mechanisms: SN1, SN2, SNi mecha	JB
4			Unit 4.Elimination reactions: El, E2, Ei, E1CB mechanisms, Hoffman and Sayetzeff rules, Ste	NSG
5			Unit 5.Free radical reactions: Introduction -structure, stability and geometry of free radical	NSG
6	I MSc	INORGANIC CHEMISTRY - I	Unit.1 Heterocatenation- Silicate minerals-classification-Ortho,Pyro, Cyclic, Chain, Sheet,	GR
7			Unit 2.Borazines – phosphonitrilic compounds – sulphur - nitrogen ring compounds. Meta	GR
8			Unit 3.Electrical properties of solids: Conductors and nonconductors Conductivity in pure	GR
9			Unit 4. Nuclear chemistry-the nuclues-subatomic particles and their properties –Stability c	GR
10			Unit 5. Nuclear reactions (Capture, Particle-particle, spallation, photodisintegration)- Q-value	GR
11	I MSc	PHYSICAL CHEMISTRY – I (Group Theory, Nanoscience and Computer in Chemistry)	Unit 1. Symmetry elements and symmetry operations: definition of identical and equivalent	SPR
12			Unit 2.Definition of reducible and irreducible representations-irreducible representations as	SPR
13			Unit 3.Nanoscience Definition of nanodimensional materials - Historical milestones - Proper	NSK
14			Unit 4.Nanowires and nanorods (Template assisted synthesis- Pressure, Electrochemical, PV	NSK
15			Unit 5.Introduction to computers and computation in chemistry Basic structure and function	NSK
16	I MSc	DYE CHEMISTRY	Unit 1.Colour and Constitution: Relationship of colour observed to wavelength of light absorb	MSU
17			Unit 2. Chemistry of organic intermediates used in dye manufacture. Benzene, Naphathalene	MSU
18			Unit 3.Synthesis of specifics dyes and uses Orange IV, Diamond Block F, Metanil yellow, Tartra	MSU
19			Unit 4. Synthesis, reactions and applications of xanthene dyes, 'Cyanine dyes, acridine dyes,	MSD
20			Unit 5.Pigments – Introduction - Requirements of organic pigments Types of Pigments – App	MSD
21	II MSc	ORGANIC CHEMISTRY - IIi	Unit 1.Terpenoids: Isolation and classification of terpenoids — structural elucidation and sy	PV
22			Unit 2.Steroids: Introduction — structural elucidation of cholesterol (synthesis not required	PV
23			Unit 3.Alkaloids: Introduction – isolation of alkaloids, structural elucidation and synthesis of	MSD
24			Unit 4.1. Proteins and nucleic acids: Classification and characteristics(structure) of proteins	MSD
25			Unit 5.Reactions and reagents: Reactions in organic synthesis: Oppanauer oxidation, Barbier	JB
26	II MSc	PHYSICAL CHEMISTRY — III	Unit 1.Thermodynamics and Non-ideal systems: Chemical potential and the definition offuga	SK
27			Unit 2.Third Law of Thermodynamics: Probability and third law. Need for third law. Nernsthe	SK
28			Unit 3Quantum statistics: Maxwell - Boltzmann statistics. Thermodynamic probability.Therm	SK
29			Unit 4Partition function: Partition function - definition, justification of nomenclature,microc	SK
30			Unit 5.Heat capacities of solids: Einstein's and Debye's theories of heat capacities of solids.Bc	SK
31	II MSc	PHYSICAL METHODS IN CHEMISTRY -II	Unit 1 Infrared Spectroscopy Principle of infrared spectroscopy - description of double beam	KK
32			Unit 2 Ultraviolet and Visible Spectroscopy-Electronic spectra of diatomic molecules – Laws	KK
33			Unit 3 1H NMR Spectroscopy-magnetic properties of nuclei – theory of nuclear resonance – C	NSK
34			Unit 413C NMR Spectroscopy- magnetic moment and natural abundance- broad band decou	NSK
35			Unit 5Mass Spectrometry-Theory – Instrumentation – Isotopic abundance – Determination c	KK
36	II MSc	Organic Synthetic Methodology, Oxidation and Reduction	Unit 1.Nomenclature - IUPAC nomenclature of acyclic and monocyclic compoundsNomenclat	SPR
37			Unit 2. Synthetic Methodology – Retrosynthesis – disconnection approach – synthons and sy	SPR
38			Unit 3.Oxidation – Jone's reagent, Chromyl chloride, Dioxiranes, DMSO, DMSO-Ac2O, DMSO-c	MSU
39			Unit 4. Reduction –Metal hydride reduction – typical reactions and conditions used –NaCNBH	MSU
40			Unit 5.Applications of UV, IR, 1H NMR and Mass spectral techniques to solve the structures of	SPR

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CHIKKANNA GOVERNMENT ARTS COLLEGE – TIRUPUR – 641 602

Department of Chemistry

Syllabus & Subject Allocation 2020-21

B.Sc Maths, Physics Zoology I, II Semester

S.No	Class	Paper	Unit details	Staff
1	I BSc Phy and Maths	ALLIED CHEMISTRY PAPER- I	Unit 1.Chemical Bonding 1. Molecular orbital theory, bonding, antibondin	NSK
2			Unit 2.Industrial and Dye Chemistry1. Industrial Chemistry: Synthesis,	NSK
3			Unit 3.Covalent Bonding and Stereoisomerism1. Covalent bond: Orbital	KK
4			Unit 4.1. Solutions types. Liquid in Liquid. Raoult's law. Deviation from	KK
5			Unit 5.1.Conductance- Types (definition only)- Ostwald dilution law- Kc	NSK, KK
6	I BSc Zoology	ALLIED CHEMISTRY PAPER- I	Unit 1.Chemical Bonding 1. Molecular orbital theory, bonding, antibondin	PV
7			Unit 2.Industrial and Dye Chemistry1. Industrial Chemistry: Synthesis,	PV
8			Unit 3.Covalent Bonding and Stereoisomerism1. Covalent bond: Orbital	PV
9			Unit 4.1. Solutions types. Liquid in Liquid. Raoult's law. Deviation from	MSD
10			Unit 5.1.Conductance- Types (definition only)- Ostwald dilution law- Kc	MSD
11	I BSc Phy and Maths	ALLIED CHEMISTRY PAPER- II	Unit 1. 1. Metals General methods of extraction of metals. Types of ores. M	NSK
12			Unit 2.1. Aromatic compounds: Electrophilic substitution in benzene- Me	NSK
13			Unit 31. Amino Acids: Classification, preparation and properties, prepara	KK
14			Unit 4.Energetics: Definition of first law thermodynamics. Types of sytem	KK
15			Unit 51.EMF theory of oxidation and reduction Nomenculature of cell Dat	NSK, KK
16	I BSc Zoology	ALLIED CHEMISTRY PAPER- II	Unit 1.1. Metals General methods of extraction of metals. Types of ores. M	PV
17			Unit 2.1. Aromatic compounds: Electrophilic substitution in benzene- Me	PV
18			Unit 3.1. Amino Acids: Classification, preparation and properties, prepara	MSD
19			Unit 4Energetics: Definition of first law thermodynamics. Types of sytem	MSD
20			Unit 5.1.EMF theory of oxidation and reduction Nomenculature of cell Da	PV

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CHIKKANNA GOVERNMENT ARTS COLLEGE – TIRUPUR – 641 602

Department of Chemistry

Syllabus & Subject Allocation 2021

Part III B.Sc Chemistry II , IV, VI Semester

S.No	Class	Paper	Unit details	Staff
1	I BSc	CHEMISTRY PAPER II	Unit 1. Volumetric Analysis and Redox ReactionsPrinciples of Volumetric Analys	NS
2			Unit 2.Boron and Silicates Chemistry of Boron family – Group discussion – Elect	SPR
3			Unit 3.Electrophilic and Nucleophilic SubstitutionStructure of benzene-Aromatic	SPR
4			Unit 4. ThermodynamicsRelation between E and H, CP and Cv. The heat of reacti	NS
5			Unit 5.Solid State Chemistry: Crystalline and amorphous solids, crystal systems,	SPR
6	II BSc	CHEMISTRY PAPER V	Unit.1 Occurrence, extraction, properties and uses of Zirconium, Vanadium, Mo	PV
7			Unit 2.Monohydric phenols - preparation & properties –Reaction of monohydric	PV
8			Unit 3.Amines- Preparation and properties of aliphatic and aromatic primary, se	PV
9			*Unit 4.Phase rule and phase equilibria –the equilibrium condition. Stability of p	JB
10			*Unit 5. Solutions: ideal and non-ideal – Raoult's law- Positive and negative deviati	JB
11	II BSc	TECHNOLOGY OF DYEING OF NATURAL FIBRES	Unit 1. Theory of Colour, chromophore, auxochrome, chromogen. Primary and Sec	NS
12			Unit 2.Reactive dyes – properties, Cold Brand, Hot Brand, Vinyl sulphone dyes, LS c	NS
13			Unit 3.Naphthols and Fast Bases: properties and application – Diazotisation and co	NS
14			Unit 4 Types of Vat dyes. Details of vatting, dyeing, oxidation and soaping. Applicat	NS
15			Unit 5.Brief study – solubilised vat dyes – properties – advantages and disadvantag	NS
16	III BSc	CHEMISTRY PAPER X	Unit 1.Spectroscopy absorption spectra – fundamental concepts electromagnetic S	GR
17			Unit 2. Theories of IR spectra-simple harmonic oscillator model-An harmonic oscil	GR
18			Unit 3.NMR SPECTRASCOPY: Principles, instrumentation (Block diagram) – chem	KK
19			Unit 4. Terpenoids and VitaminsTerpenoids: Introduction – Classification – Genera	GR
20			Unit 5.Alkaloids and HormonesAlkaloids: Introduction – Classification and Genera	KK
21	III BSc	CHEMISTRY PAPER XI	Unit 1.Electrical properties of molecules: Molar polarization, Orientation polarizat	MSU
22			Unit 2.Magnetic properties of molecules; Meaning of the terms magnetic susceptib	MSU
23			Unit 3.Order and Molecularity of Reactions Empirical laws and experimental aspec	NSG
24			Unit 4.Kinetics of Reaction Experimental techniques involved in following kinetics	NSG
25			Unit 5.Photochemical Reactions Thermal chain reaction H2/Br2 reaction. Kinetics	NSG
26	III BSc	DYE CHEMISTRY	Unit 1.Chemistry and Theory of ColoursColour and constitution-Relationship of co	JB
27			Unit 2.Classification of Dyes-chemical classification-classification according to thei	JB
28			Unit 3.Synthesis, reactions and applications of Di and Triphenyl methane dyes-pht	SPR
29			Unit 4.Synthesis and Applications of Dyes - IIAzine, Oxazine and Triazine Dyes.Syn	SPR
30			Unit 5.Pigments-requirements of a pigment: Typical Organic and Inorganic pigmer	JB
31	III BSc	ENVIRONMENTAL CHEMISTRY	Unit 1 Chemistry of Environment and Atmosphere1. Concept and scope of environ	JB
32			Unit 2 Cycles of EnvironmentBiological cycles & their significance-Gaseous and sec	JB
33			Unit 3 Water Pollution and Treatment1. Water pollution: Hydrological cycle –aqua	JB
34			Unit 4 . Air pollution: Air pollutants-primary pollutants-sources of carbon monoxi	JB
35			Unit 5 Thermal and Electromagnetic PollutionAir pollution: Air pollutants-primar	JB

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CHIKKANNA GOVERNMENT ARTS COLLEGE – TIRUPUR – 641 602

Department of Chemistry

Syllabus & Subject Allocation 2021

Part III M.Sc Chemistry II , IV Semester

S.No	Class	Paper	Unit details	Staff
1	I MSc	ORGANIC PAPER II	Unit 1. Molecular rearrangements: Introduction - Wagner - Meerwein rearrangements, Neber rearran	JB
2			Unit 2.Concerted reactions: Conservation of orbital symmetry – Woodward-Hoffman rules. Electro	SPR
3			Unit 3.1. Organic photochemistry: Introductory theory of light absorption, photophysical processes	JB
4			Unit 4.1. Additon reactions : Electrophilic and nucleophilic. Addition to double and triple bonds —	JB
5			Unit 5.Stereoisomerism – Configurational & conformational isomerism: 1. Introduction, definition &	SPR
6	I MSc	PHYSICAL CHEMISTRY -II	Unit.1.Success of quantum theory and the Failure of classical mechanics in explaining blackbody ra	NSK
7			Unit 2.1. Particle in a one—dimensional box. Quantization of energy. Normalization of wave functi	NSK
8			Unit 3.1. Schrodinger equation for the H-atom (or H-like species) separation of variables (solving of	NSK
9			Unit 4. Nano scale characterisation: Fundamentals of Nano-device measurements. Traditional surfa	SK
10			Unit 5. Applications of nano materials: Biological applications- Polymeric nanomaterials for drug deliv	SK
11	I MSc	PHYSICAL METHODS IN CHEMISTRY	Unit 1. Chromatography – Principles, theory, instrumentation and applications in chemical analysis of	PV
12			Unit 2.Solid state and Chemical Crystallography – Diffraction methods – X-ray , neutron and electron	PV
13			Unit 3.Circular dichroism and optical rotatory dispersion-basic principles-basic principles of O.R.D. an	MSD
14			Unit 4.Thermal analysis – Thermogravimetric Analysis (TGA), Differential Thermal Analysis (DTA) and	MSD
15			Unit 5.Mossbauer Spectroscopy - principles – Spectrometer – Isomer shift – Quadruple interaction –	MSD
16	I MSc	WATER POLLUTION AND INDUSTRIAL EFFLUENTS TREATMENT	Unit 1.Characteristics of water – Introduction – sources of water – Hardness of water - Units of hardn	MSU
17			Unit 2. Water Pollution: Introduction – Definition of water pollution – water Pollutants – physical and	NSG
18			Unit 3.SComplete physico chemical Examination of water: collection of samples – colour – odour Turb	NSG
19			Unit 4. Industrial Effluents: Pulp and paper industries Cotton Processing – Cane sugar industry - Distill	NSG
20			Unit 5.Treatment of Industrial Effluents : Primary Treatment: Screening – Sedimentation – Equalizatio	NSG
21	II MSc	INORGANIC CHEMISTRY – II	Unit 1.Crystal field theory – spectrochemical series – molecular orbital theory –comparison of MOT a	NSG
22			Unit 2.Term symbols for the 3d-block elements and their ions – Orgel diagram (d3 and d5 only) – Tan	NSG
23			Unit 3.d-Block metal carbonyls – General preparation, properties structure and Spectroscopic propert	GR
24			Unit 4.Cyclopentadienyl complex-Ferrocene – synthesis, structure and reactions (Acetylation, aminon	GR
25			Unit 5The Inorganic composition of cells- Sodium and potassium transport- Cytochromes (electron tra	GR
26	II MSc	PHYSICAL CHEMISTRY — III	Unit 1.Theories of reaction rates: Arrhenius theory. Hard - sphere collision theory of gas – phase react	NS
27			Unit 2.1. Reactions in solution: Comparison between gas-phase and solution reactions. The influence	NS
28			Unit 3.1. Homogeneous catalysis: Specific and general acid - base catalysis. Bronsted catalysis law. Ha	NS
29			Unit 41. Interionic attraction theory: Debye – Huckel – Onsager equation. Falkenhagen effect.Wien ef	NS
30			Unit 5.1. Polarography: Current – voltage relationships. The dropping mercury electrode.Diffusion cur	NS
31	II MSc	POLYMER TECHNOLOGY	*Unit 1 Polymerization process: Bulk polymerization, solution polymerization, suspension polymeriza	KK
32			*Unit 2 Polymer degradation: Types of degradation – chain-end and random, thermal degradation, m	KK
33			*Unit 3 Fabrication process – One-dimensional processes: coatings and adhesives – Two-dimensional	MSU
34			*Unit 4 Fibre technology: Production of natural and synthetic fibres: Regenerated cellulose, nylon 6, r	MSU
35			Unit 5 Elastomer technology:Natural rubber, synthetic rubbers - SBR, butyl rubber, nitrile rubber, uret	MSU
36	II MSc	Industrial Chemistry	Unit 1.Fuels: Introduction – what is a fuel? – calorific value – classification of fuelsproperties of fuels -	MSD
37			Unit 2. Rubber: Importance of rubber – Coagulation of rubber – Draw backs of raw rubber – Rubber f	MSD
38			Unit 3.Glass: Introduction – physical and chemical properties of glass –Raw materials – methods of m	MSD
39			Unit 4. Paints and pigments; Pigments: Introduction – Requirements of a pigment Typical inorganic pi	SK
40			Unit 5.Fertilizers: Plant nutrients – Fertilizers type – Essential requirements – Fertility of the soil – PH.	SK

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CHIKKANNA GOVERNMENT ARTS COLLEGE – TIRUPUR – 641 602

Department of Chemistry

Syllabus & Subject Allocation 2020-21

Part III B.Sc Chemistry I , III , V Semester

S.No	Class	Paper	Unit details	Staff
1	I BSc	CHEMISTRY PAPER I	Unit 1. Periodic table-Introduction-Periodic properties- Ionisation energy,	KK
2			Unit 2.Reaction of Alkenes and Alkynes1. Nomenclature of acyclic alkane, a	SPR
3			Unit 3.Polar effects – inductive effect, mesomeric effect, electromeric effect	SPR
4			Unit 4. Liquid crystals–the concept of mesomorphic state-typical liquid cry	KK
5			Unit 5.The laws of thermodynamics, generalities and Zeroth law – kinds of	SPR, KK
6	II BSc	CHEMISTRY PAPER III	Unit.1 General methods of Extraction: Concentration – Gravity separation	NS
7			Unit 2.Chemistry of Carbonyl Compounds – I: Reaction mechanisms: Nucle	NS
8			Unit 3.Chemistry of Carbonyl Compounds – II Reaction mechanisms – Refo	NS
9			Unit 4.Malonic ester, acetoacetic ester and cyanoacetic ester-their preparat	NS
10			*Unit 5. Structure of metals and alloys-substitutional and interstitial solid sol	NS
11	II BSc	CHEMISTRY PAPER IV	Unit 1. Introduction to second law of thermodynamics – Carnot cycle – entro	PV
12			*Unit 2 General conditions of equilibrium and spontaneity - conditions of equ	PV
13			Unit 3.Adsorption and Catalysis :Adsorption – types, differences between che	PV
14			Unit 4.Chromatography : Chromatographic methods – Partition, Adsorption –	SK
15			Unit 5C program for chemistry-Structure of C program, Variables in C, C Keyw	SK
16	II BSc	CHEMISTRY OF NATURAL AND SYNTHETIC FIBRE	Unit 1.Natural Textile Fibers Natural Textile Fibers: Definition, Classification	NSG
17			Unit 2. Viscose FiberViscose Fibre: Chemical structure ,chemistry of regenara	NSG
18			Unit 3.Synthetic and Acrylic FibersSynthetic Fibers: Definition of monomers,	NSG
19			Unit 4. Nylon Fibres: Synthesis of caprolactum from aniline, adipic acid from	NSG
20			Unit 5.Reaction of Polyester FibersPolyester Fibers : Synthesis of Dimethyl Te	NSG
21	III BSc	CHEMISTRY PAPER -VI	Unit 1.Metals and Solid Solutions Structure of metals and alloys-substitution	MSU
22			Unit 2.Radioactivity and Nuclear Reactions Artificial radio activity. Artificial t	MSU
23			Unit 3.Isotopes and Their ApplicationsNature of isotopes and isobars – detec	MSU
24			Unit 4.Co-ordination ChemistryTypes of ligands , IUPAC Nomenclature, Isome	NSG
25			Unit 5.Role of SolventsThe solvents- solubility of compounds – effect of temp	NSG
26	III BSc	CHEMISTRY PAPER -VII	Unit 1.Optical activity of compounds with asymmetric carbon- racemisation -	GR
27			Unit 2.Mechanism of molecular rearrangement reactions: PinacolPinacolone,	GR
28			Unit 3.Carbohydrates: Chemistry and structure of Glucose, Fructose, Sucrose	GR
29			Unit 4.Aminoacids and proteinsAmino acids-Classiffication –Preparation and	GR
30			Unit 5.Heterocyclic compoundsChemistry of Furan, Pyrrole, Thiophene, Pyric	GR
31	III BSc	CHEMISTRY PAPER -VIII	Unit 1 Ionic Equilibria -Solubility and solubility product-determination of sol	PV
32			Unit 2 Conductivity of IonsElectrical conduction, conduction in metals and in	PV
33			Unit 3 Electrochemical cells. Electrode potentials-The standard hydrogen ele	PV
34			Unit 4 Electrode PotentialReference electrodes-Electrodes for measurement	PV
35			Unit 5 Fuel and Storage CellsFuel cells: Hydrogen- oxygen cell and hydrocarb	PV
36	III BSc	CHEMISTRY PAPER - IX	Unit 1.Analytical TechniquesBasic principles and applications of Analytical te	JB
37			Unit 2. Data AnalysisEvaluation of Analytical data: Accuracy and precision, m	SK
38			Unit 3.Statistical Tests and Significant FiguresThe F test and the T test, rejecti	JB
39			Unit 4. Quantitative Analysis and Chemical EquilibriumTheory of Quantitativ	JB
40			Unit 5.Gravimetric MethodsTheory of indicators, Theory of precipitation, Co-	JB
41	III BSc	POLYMER CHEMISTRY	Unit 1. Classification and Preparation of Polymers1. Classification Of Polymer	MSD
42			Unit 2. Types of PolymerizationDifferent Types Of Polymerization-Step Grow	JB
43			Unit 3. Properties of PolymersPrimary And Secondary Bond Forces In Polym	JB
44			Unit 4.Determination of Molecular Weight MethodsMolecular Weight Of Poly	JB
45			Unit 5.Important industrial polymers, preparation and applications of i) Poly	MSD
46	III BSc	Water & Effluent Treatment And Pollution Control	Unit 1.Sources of PollutionImpact of man on the Environment – an over view	NSG
47			Unity 2.Water Pollution and Softening MethodsWHO, ISO standards for raw v	NSG
48			Unit 3.Analysis Techniques for WaterRemoval of colour and turbitity (simple	NSG
49			Unit 4.Water Treatment MethodsEffect of effluents – General treatment proc	NSG
50			Unit 5.Analysis Techniques for PollutionModel schematic diagram for waste v	NSG

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CHIKKANNA GOVERNMENT ARTS COLLEGE – TIRUPUR – 641 602

Department of Chemistry

Syllabus & Subject Allocation 2020-21

Part III M.Sc Chemistry I , III Semester

S.No	Class	Paper	Unit details	Staff
1	I MSc	ORGANIC PAPER I	Unit 1. Aromaticity : Criteria, Non-benzenoid aromatics – annulenes, Azulenes and ferrocene	JB
2			Unit 2.Aromatic electrophilic substitution reactions: Mechanism, orientation and reactivit	JB
3			Unit 3.Aliphatic nucleophilic substitution reactions and mechanisms: SN1, SN2, SNi mecha	JB
4			Unit 4.Elimination reactions: El, E2, Ei, E1CB mechanisms, Hoffman and Sayetzeff rules, Ste	NSG
5			Unit 5.Free radical reactions: Introduction -structure, stability and geometry of free radical	NSG
6	I MSc	INORGANIC CHEMISTRY - I	Unit.1 Heterocatenation- Silicate minerals-classification-Ortho,Pyro, Cyclic, Chain, Sheet,	GR
7			Unit 2.Borazines – phosphonitrilic compounds – sulphur - nitrogen ring compounds. Meta	GR
8			Unit 3.Electrical properties of solids: Conductors and nonconductors Conductivity in pure	GR
9			Unit 4. Nuclear chemistry-the nuclues-subatomic particles and their properties –Stability c	GR
10			Unit 5. Nuclear reactions (Capture, Particle-particle, spallation, photodisintegration)- Q-value	GR
11	I MSc	PHYSICAL CHEMISTRY – I (Group Theory, Nanoscience and Computer in Chemistry)	Unit 1. Symmetry elements and symmetry operations: definition of identical and equivalent	SPR
12			Unit 2.Definition of reducible and irreducible representations-irreducible representations as	SPR
13			Unit 3.Nanoscience Definition of nanodimensional materials - Historical milestones - Proper	NSK
14			Unit 4.Nanowires and nanorods (Template assisted synthesis- Pressure, Electrochemical, PV	NSK
15			Unit 5.Introduction to computers and computation in chemistry Basic structure and function	NSK
16	I MSc	DYE CHEMISTRY	Unit 1.Colour and Constitution: Relationship of colour observed to wavelength of light absorb	MSU
17			Unit 2. Chemistry of organic intermediates used in dye manufacture. Benzene, Naphathalene	MSU
18			Unit 3.Synthesis of specifics dyes and uses Orange IV, Diamond Block F, Metanil yellow, Tartra	MSU
19			Unit 4. Synthesis, reactions and applications of xanthene dyes, 'Cyanine dyes, acridine dyes,	MSD
20			Unit 5.Pigments – Introduction - Requirements of organic pigments Types of Pigments – App	MSD
21	II MSc	ORGANIC CHEMISTRY - IIi	Unit 1.Terpenoids: Isolation and classification of terpenoids — structural elucidation and sy	PV
22			Unit 2.Steroids: Introduction — structural elucidation of cholesterol (synthesis not required	PV
23			Unit 3.Alkaloids: Introduction – isolation of alkaloids, structural elucidation and synthesis of	MSD
24			Unit 4.1. Proteins and nucleic acids: Classification and characteristics(structure) of proteins	MSD
25			Unit 5.Reactions and reagents: Reactions in organic synthesis: Oppanauer oxidation, Barbier	JB
26	II MSc	PHYSICAL CHEMISTRY — III	Unit 1.Thermodynamics and Non-ideal systems: Chemical potential and the definition offuga	SK
27			Unit 2.Third Law of Thermodynamics: Probability and third law. Need for third law. Nernsthe	SK
28			Unit 3Quantum statistics: Maxwell - Boltzmann statistics. Thermodynamic probability.Therm	SK
29			Unit 4Partition function: Partition function - definition, justification of nomenclature,microc	SK
30			Unit 5.Heat capacities of solids: Einstein's and Debye's theories of heat capacities of solids.Bc	SK
31	II MSc	PHYSICAL METHODS IN CHEMISTRY -II	Unit 1 Infrared Spectroscopy Principle of infrared spectroscopy - description of double beam	KK
32			Unit 2 Ultraviolet and Visible Spectroscopy-Electronic spectra of diatomic molecules – Laws	KK
33			Unit 3 1H NMR Spectroscopy-magnetic properties of nuclei – theory of nuclear resonance – C	NSK
34			Unit 413C NMR Spectroscopy- magnetic moment and natural abundance- broad band decou	NSK
35			Unit 5Mass Spectrometry-Theory – Instrumentation – Isotopic abundance – Determination c	KK
36	II MSc	Organic Synthetic Methodology, Oxidation and Reduction	Unit 1.Nomenclature - IUPAC nomenclature of acyclic and monocyclic compoundsNomenclat	SPR
37			Unit 2. Synthetic Methodology – Retrosynthesis – disconnection approach – synthons and sy	SPR
38			Unit 3.Oxidation – Jone's reagent, Chromyl chloride, Dioxiranes, DMSO, DMSO-Ac2O, DMSO-c	MSU
39			Unit 4. Reduction –Metal hydride reduction – typical reactions and conditions used –NaCNBH	MSU
40			Unit 5.Applications of UV, IR, 1H NMR and Mass spectral techniques to solve the structures of	SPR

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CHIKKANNA GOVERNMENT ARTS COLLEGE – TIRUPUR – 641 602

Department of Chemistry

Syllabus & Subject Allocation 2020-21

B.Sc Maths, Physics Zoology I, II Semester

S.No	Class	Paper	Unit details	Staff
1	I BSc Phy and Maths	ALLIED CHEMISTRY PAPER- I	Unit 1.Chemical Bonding 1. Molecular orbital theory, bonding, antibondin	NSK
2			Unit 2.Industrial and Dye Chemistry1. Industrial Chemistry: Synthesis,	NSK
3			Unit 3.Covalent Bonding and Stereoisomerism1. Covalent bond: Orbital	KK
4			Unit 4.1. Solutions types. Liquid in Liquid. Raoult's law. Deviation from	KK
5			Unit 5.1.Conductance- Types (definition only)- Ostwald dilution law- Kc	NSK, KK
6	I BSc Zoology	ALLIED CHEMISTRY PAPER- I	Unit 1.Chemical Bonding 1. Molecular orbital theory, bonding, antibondin	PV
7			Unit 2.Industrial and Dye Chemistry1. Industrial Chemistry: Synthesis,	PV
8			Unit 3.Covalent Bonding and Stereoisomerism1. Covalent bond: Orbital	PV
9			Unit 4.1. Solutions types. Liquid in Liquid. Raoult's law. Deviation from	MSD
10			Unit 5.1.Conductance- Types (definition only)- Ostwald dilution law- Kc	MSD
11	I BSc Phy and Maths	ALLIED CHEMISTRY PAPER- II	Unit 1. 1. Metals General methods of extraction of metals. Types of ores. M	NSK
12			Unit 2.1. Aromatic compounds: Electrophilic substitution in benzene- Me	NSK
13			Unit 31. Amino Acids: Classification, preparation and properties, prepara	KK
14			Unit 4.Energetics: Definition of first law thermodynamics. Types of sytem	KK
15			Unit 51.EMF theory of oxidation and reduction Nomenculature of cell Dat	NSK, KK
16	I BSc Zoology	ALLIED CHEMISTRY PAPER- II	Unit 1.1. Metals General methods of extraction of metals. Types of ores. M	PV
17			Unit 2.1. Aromatic compounds: Electrophilic substitution in benzene- Me	PV
18			Unit 3.1. Amino Acids: Classification, preparation and properties, prepara	MSD
19			Unit 4Energetics: Definition of first law thermodynamics. Types of sytem	MSD
20			Unit 5.1.EMF theory of oxidation and reduction Nomenculature of cell Da	PV

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Department of Chemistry

Syllabus & Subject Allocation 2021

Part III B.Sc Chemistry II , IV, VI Semester

S.No	Class	Paper	Unit details	Staff
1	I BSc	CHEMISTRY PAPER II	Unit 1. Volumetric Analysis and Redox ReactionsPrinciples of Volumetric Analys	NS
2			Unit 2.Boron and Silicates Chemistry of Boron family – Group discussion – Elect	SPR
3			Unit 3.Electrophilic and Nucleophilic SubstitutionStructure of benzene-Aromatic	SPR
4			Unit 4. ThermodynamicsRelation between E and H, CP and Cv. The heat of reacti	NS
5			Unit 5.Solid State Chemistry: Crystalline and amorphous solids, crystal systems,	SPR
6	II BSc	CHEMISTRY PAPER V	Unit.1 Occurrence, extraction, properties and uses of Zirconium, Vanadium, Mo	PV
7			Unit 2.Monohydric phenols - preparation & properties –Reaction of monohydric	PV
8			Unit 3.Amines- Preparation and properties of aliphatic and aromatic primary, se	PV
9			*Unit 4.Phase rule and phase equilibria –the equilibrium condition. Stability of p	JB
10			*Unit 5. Solutions: ideal and non-ideal – Raoult's law- Positive and negative deviati	JB
11	II BSc	TECHNOLOGY OF DYEING OF NATURAL FIBRES	Unit 1. Theory of Colour, chromophore, auxochrome, chromogen. Primary and Sec	NS
12			Unit 2.Reactive dyes – properties, Cold Brand, Hot Brand, Vinyl sulphone dyes, LS c	NS
13			Unit 3.Naphthols and Fast Bases: properties and application – Diazotisation and co	NS
14			Unit 4 Types of Vat dyes. Details of vatting, dyeing, oxidation and soaping. Applicat	NS
15			Unit 5.Brief study – solubilised vat dyes – properties – advantages and disadvantag	NS
16	III BSc	CHEMISTRY PAPER X	Unit 1.Spectroscopy absorption spectra – fundamental concepts electromagnetic S	GR
17			Unit 2. Theories of IR spectra-simple harmonic oscillator model-An harmonic oscil	GR
18			Unit 3.NMR SPECTRASCOPY: Principles, instrumentation (Block diagram) – chem	KK
19			Unit 4. Terpenoids and VitaminsTerpenoids: Introduction – Classification – Genera	GR
20			Unit 5.Alkaloids and HormonesAlkaloids: Introduction – Classification and Genera	KK
21	III BSc	CHEMISTRY PAPER XI	Unit 1.Electrical properties of molecules: Molar polarization, Orientation polarizat	MSU
22			Unit 2.Magnetic properties of molecules; Meaning of the terms magnetic susceptib	MSU
23			Unit 3.Order and Molecularity of Reactions Empirical laws and experimental aspec	NSG
24			Unit 4.Kinetics of Reaction Experimental techniques involved in following kinetics	NSG
25			Unit 5.Photochemical Reactions Thermal chain reaction H2/Br2 reaction. Kinetics	NSG
26	III BSc	DYE CHEMISTRY	Unit 1.Chemistry and Theory of ColoursColour and constitution-Relationship of co	JB
27			Unit 2.Classification of Dyes-chemical classification-classification according to thei	JB
28			Unit 3.Synthesis, reactions and applications of Di and Triphenyl methane dyes-pht	SPR
29			Unit 4.Synthesis and Applications of Dyes - IIAzine, Oxazine and Triazine Dyes.Syn	SPR
30			Unit 5.Pigments-requirements of a pigment: Typical Organic and Inorganic pigmer	JB
31	III BSc	ENVIRONMENTAL CHEMISTRY	Unit 1 Chemistry of Environment and Atmosphere1. Concept and scope of environ	JB
32			Unit 2 Cycles of EnvironmentBiological cycles & their significance-Gaseous and sec	JB
33			Unit 3 Water Pollution and Treatment1. Water pollution: Hydrological cycle –aqua	JB
34			Unit 4 . Air pollution: Air pollutants-primary pollutants-sources of carbon monoxi	JB
35			Unit 5 Thermal and Electromagnetic PollutionAir pollution: Air pollutants-primar	JB

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Department of Chemistry

Syllabus & Subject Allocation 2021

Part III M.Sc Chemistry II , IV Semester

S.No	Class	Paper	Unit details	Staff
1	I MSc	ORGANIC PAPER II	Unit 1. Molecular rearrangements: Introduction - Wagner - Meerwein rearrangements, Neber rearran	JB
2			Unit 2.Concerted reactions: Conservation of orbital symmetry – Woodward-Hoffman rules. Electro	SPR
3			Unit 3.1. Organic photochemistry: Introductory theory of light absorption, photophysical processes	JB
4			Unit 4.1. Additon reactions : Electrophilic and nucleophilic. Addition to double and triple bonds —	JB
5			Unit 5.Stereoisomerism – Configurational & conformational isomerism: 1. Introduction, definition &	SPR
6	I MSc	PHYSICAL CHEMISTRY -II	Unit.1.Success of quantum theory and the Failure of classical mechanics in explaining blackbody ra	NSK
7			Unit 2.1. Particle in a one—dimensional box. Quantization of energy. Normalization of wave functi	NSK
8			Unit 3.1. Schrodinger equation for the H-atom (or H-like species) separation of variables (solving of	NSK
9			Unit 4. Nano scale characterisation: Fundamentals of Nano-device measurements. Traditional surfa	SK
10			Unit 5. Applications of nano materials: Biological applications- Polymeric nanomaterials for drug deliv	SK
11	I MSc	PHYSICAL METHODS IN CHEMISTRY	Unit 1. Chromatography – Principles, theory, instrumentation and applications in chemical analysis of	PV
12			Unit 2.Solid state and Chemical Crystallography – Diffraction methods – X-ray , neutron and electron	PV
13			Unit 3.Circular dichroism and optical rotatory dispersion-basic principles-basic principles of O.R.D. an	MSD
14			Unit 4.Thermal analysis – Thermogravimetric Analysis (TGA), Differential Thermal Analysis (DTA) and	MSD
15			Unit 5.Mossbauer Spectroscopy - principles – Spectrometer – Isomer shift – Quadruple interaction –	MSD
16	I MSc	WATER POLLUTION AND INDUSTRIAL EFFLUENTS TREATMENT	Unit 1.Characteristics of water – Introduction – sources of water – Hardness of water - Units of hardn	MSU
17			Unit 2. Water Pollution: Introduction – Definition of water pollution – water Pollutants – physical and	NSG
18			Unit 3.SComplete physico chemical Examination of water: collection of samples – colour – odour Turb	NSG
19			Unit 4. Industrial Effluents: Pulp and paper industries Cotton Processing – Cane sugar industry - Distill	NSG
20			Unit 5.Treatment of Industrial Effluents : Primary Treatment: Screening – Sedimentation – Equalizatio	NSG
21	II MSc	INORGANIC CHEMISTRY – II	Unit 1.Crystal field theory – spectrochemical series – molecular orbital theory –comparison of MOT a	NSG
22			Unit 2.Term symbols for the 3d-block elements and their ions – Orgel diagram (d3 and d5 only) – Tan	NSG
23			Unit 3.d-Block metal carbonyls – General preparation, properties structure and Spectroscopic propert	GR
24			Unit 4.Cyclopentadienyl complex-Ferrocene – synthesis, structure and reactions (Acetylation, aminon	GR
25			Unit 5The Inorganic composition of cells- Sodium and potassium transport- Cytochromes (electron tra	GR
26	II MSc	PHYSICAL CHEMISTRY — III	Unit 1.Theories of reaction rates: Arrhenius theory. Hard - sphere collision theory of gas – phase react	NS
27			Unit 2.1. Reactions in solution: Comparison between gas-phase and solution reactions. The influence	NS
28			Unit 3.1. Homogeneous catalysis: Specific and general acid - base catalysis. Bronsted catalysis law. Ha	NS
29			Unit 41. Interionic attraction theory: Debye – Huckel – Onsager equation. Falkenhagen effect.Wien ef	NS
30			Unit 5.1. Polarography: Current – voltage relationships. The dropping mercury electrode.Diffusion cur	NS
31	II MSc	POLYMER TECHNOLOGY	*Unit 1 Polymerization process: Bulk polymerization, solution polymerization, suspension polymeriza	KK
32			*Unit 2 Polymer degradation: Types of degradation – chain-end and random, thermal degradation, m	KK
33			*Unit 3 Fabrication process – One-dimensional processes: coatings and adhesives – Two-dimensional	MSU
34			*Unit 4 Fibre technology: Production of natural and synthetic fibres: Regenerated cellulose, nylon 6, r	MSU
35			Unit 5 Elastomer technology:Natural rubber, synthetic rubbers - SBR, butyl rubber, nitrile rubber, uret	MSU
36	II MSc	Industrial Chemistry	Unit 1.Fuels: Introduction – what is a fuel? – calorific value – classification of fuelsproperties of fuels -	MSD
37			Unit 2. Rubber: Importance of rubber – Coagulation of rubber – Draw backs of raw rubber – Rubber f	MSD
38			Unit 3.Glass: Introduction – physical and chemical properties of glass –Raw materials – methods of m	MSD
39			Unit 4. Paints and pigments; Pigments: Introduction – Requirements of a pigment Typical inorganic pi	SK
40			Unit 5.Fertilizers: Plant nutrients – Fertilizers type – Essential requirements – Fertility of the soil – PH.	SK

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Chikkanna Government Arts College,Tirupur-2

Department of Tamil

Syllabus & Subject Allocation

Part III B.A. Tamil II ,IV , VI Semester

2020-2021

S.No	Class	Paper	Unit Details	Staff
1	I BA	**Nanool- Ezhuthu**	Unit 1 Paayiram- Pothuppaayiram- sirappu paayiram - Noolinathu varalaaru Aasiriyanathu Varalaaru- Paadam sollinathu varalaaru - Maanakkanathu Varalaru- Paadam keattalin varalaaru Ezhuththiyal En-peyar-murai-pirappu-uruvam- muthanilai-iruthinilai-itainilai mayakkam-poli	R.M
			Unit 2 Pathaviyal - patham- pakuthi- itainilai-vadamoziyaakkam	
			Unit 3 Uyireetru punariyal punarchi- pothupunarchi-uyireetru sirapu punarchi- uyireetru mun vallinam-ookara eetru sirappu vithi- eakaara, oakaara eetru sirappu vithi-Aikaara eetru sirappu vithi	
			Unit 4 Meyyeetru punariyal - meyyeetrin mun uyir-meyyeetrin mun mey- Nakara nakara eeru- makara eeru-yakara rakara zhakara eeru- lakara Lakara eeru- vakara eeru- varumozhi tha Nakara thiribu- puranadai	
			Unit 5 Urubu punariyal - saariyai-pothu saariyaikal urubu punarchikku sirappu vithi-puranadai	
2	I B.A	**Kaniporiyum Inaiyamum**	Unit 1 Kanipori arimugam	A.K.P
			Unit 2 Kanipori Iyangum Nerimurai	
			Unit 3 Kanipori Mozhi	
			Unit 4 Inaiyam Arimugam	
			Unit 5 Minnanjal- valaithala pathivukal	
3	I B.A	**Allied I Tamil Ilakkiya Varalaaru II**	Unit 1 Ilakkana noolkal- uraiyaasiriyarkal- Nattupura Ilakkiyangal	N.B
			Unit 2 Isai thamizh- urainadai- pulavarkal	
			Unit 3 Thamiz arignarkal- marabukavithai - puthukavithai	
			Unit 4 Sirukathai- Novel- Naadagam	
			Unit 5 Eezhathu Ilakkiyangal -Ilakkiya Iyakkangal	
4	I B.A	**Foundation course - Human Rights**	UNIT – I : Concept of Human Values, Value Education Towards Personal Development- Personal Development-Character Formation Towards Positive Personality	K.S
			UNIT – II : Value Education Towards National and Global Development-National and International Values	
			UNIT – III : Impact of Global Development on Ethics and Values	
			UNIT - IV : Theraupatic Measures	
			UNIT V : Human Rights	

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5	II B.A	**Yapparungala kaarigai Thandiyalangaaram**	Unit 1 Uruppiyal-Kuri-Nedil-Aavi-Maruviya moovinam-Aaytham-Uyirmey- Kurukiya moovuyir-Alabedai-seyyuliyal Ezhuthu-Asai-Seer-Adi-Thalai-Thodai	K.S
			Unit 2 Aasiriya pa- Venba- Vanji pa -	
			Unit 3 Kalipa- Marutpaa-	
			Unit 4 Thandiyalangaaram Thodarnilai seyyul suthram 6,7 mattum-Perungaappiyam-perungaappiya ilakkanaththirku puranadai-Kaapiyam-Kaapiyangalukor ilakkanam mattum	
			Unit 5 Vetrumai ani- oruporul vetrumai-iruporul vetrumai-uyarchi vetrumai-iruporul vetrumai samam mattum	
6	II B.A	**Nattupuraviyal**	Unit 1 Pothupakuthi Nattupuraviyal-Nattupurapadalkal-Nattupurakathaikal	A.K.P
			Unit 2 Sirapu pakuthi- Nattupura kathaipaadalkal-Pazhamozhikal- Vitukathaikal	
			Unit 3 Sirapu pakuthi- Nattupura kalaikal-Naattupura Isai- Naattupura kaivinaiporutkal-Naatupura vilaiyaattukal-Natupura theyvangal- Naatupura thiruvizhaakkal- Naatupura Nambikkaikal	
			Unit 4 Kala aayvu murai-- Naatupura Ilakkiyamum Ezhuththilakkiyamum- Naatupuraviyal Aayvu koatpaatukal-Naatupuraviyalum piraviyalum	
			Unit 5 Naatupuraviyal kaattum samuthaayam-Nattupuraviyalin varalaaru- Indhiya Naattupuraviyalin varalaaru- Thamizhaga Naattupuraviyalin varalaaru	
7	II B.A	**Allied II Thamizhaga Varalaarum Panbaadum II**	Unit 1 Chozha perarasu Thoatram- valarchi- veezhchi	N.B
			Unit 2 Chozhar kaalaththu samuthaayam	
			Unit 3 Paandiyar Yeatramum Veezhchiyum	
			Unit 4 Thamizhagaththil 13aam nootraandu muthal 18aam nootraandu varaiyaana samooga nilai	
			Unit 5 Airoppiyar varugai muthal indru varai	
8	II B.A	**Thiran padippu II - Mozhi payirchikal**	Unit 1 Nirutharkurikalai yeatra idangalil iduthal- kal vikuthiyai ezhuthum murai, thokai sorkalai ezhuthum murai, porulukku amaithiyaana sorkal	S.K
			Unit 2 Sorkalai payanpatuththum murai- varuthal-poathal- azhaiththal- tharuthal- koduththal- oor-oru - oru karuththai pala thodarkalil veliyituthal	
			Unit 3 Kaditham varaithal- uraiyaadal-katturai-vaakkiya amaippu- paththi amaippu- surukki varaithal- perukki varaithal	
			Unit 4 Ezhuththupayirchikalai thiruththuthal-thiruththuvathu patriya sila kurippukal-padaippaatralukku vazhi koluthal	
			Unit 5 Urainadai karpiththal- Ilakkanam payitruvathan nokkangal-payitrum murai	

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9	II B.A	**General Awarness**	Unit 1 Verbal Aptitude- Numerical Aptitude Unit 2 Abstract Reasoning - Tamil and other Literature Unit 3 General Science and Technology and Education - Computer Unit 4 Economics and Commerce - Social Studies Unit 5 Sports- Current Affairs	R.S
10	III B.A	**Sanga Ilakkiyam Agam**	Unit 1 Aganaanooru 8,12,35,66,108 (5) Paadalkal Unit 2 Kurunthokai 44,72,79,131,251,260,262,263,275,277 (10) Paadalkal Unit 3 Aingurunooru Vellaanguruku paththu - Marutharavu paththu Unit 4 Kalaiththokai 5,43,103,119 (4) Paadalkal Unit 5 Natrinai 56,120,149,155,210,213,246 (7) Paadalkal	R.S
11	III B.A	**Sanga Ilakkiyam Puram**	Unit 1 Puranaanooru 72,73,74,75,173,182,185,188,189,190 (10)Paadalkal Unit 2 Pathitrupaththu 5 aam paththu (muthal 5 Padalkal) Unit 3 Paripaadal - sevvel 5 aam paadal, vaiyai 16 aam paadal Unit 4 Thirukkural Ozhibiyal muthal 5 Adhikaarangal Unit 5 Paththupaattu - Malaibadu kadaam	R.I
12	III B.A	**Thamizh Mozhi varalaaru**	Unit 1 Thotruvaai Unit 2 Pazhangaalathamizh Unit 3 Idaikkaalathamizh Unit 4 Tharkaala thamizh-piramozhikalappu- Unit 5 Thamizh sorporul maatram- Thamizh thodariyal-	P.K K.S
13	III B.A	**Koilkalaikal**	Unit 1 sangakaalakalai-kattidakalai-oviyakalai-sirpakalai- Unit 2 Thamizhnaattu kovilkal-mannar eduppiththa kovilkal-Deviyar eduppiththa kovilkal-kovilkalin vakai- Unit 3 Thamizhaga kovilkalin varalaaru-pallavar kaal Unit 4 Thamizhnaatu chozhar-Rajasimma pallavan Unit 5 Thamizhnaatu sirpangal-sudhai uruvangal-	R.M
14	III B.A	**Sutrulaviyal**	Unit 1 Sutrula oru vilakkam- ulaganaadukalil sutrula Unit 2 Pannaattu palavakaikai payanikal -sutrula Unit 3 Sutrulaviyal- porulathara vilaivukal-sutrula kazhagangal- sutrula vanikasandhai Unit 4 Pyanamugavarkal-vazhikaattikal Unit 5 palveru pokuvarathukal-thamizh ilakkiyaththil payana noolkal	N.B
			Unit 1 Marabukavithai-pudhukavithai punaithal-venba ezhuthuthal-paakkalai urakka vaasiththal-thaalaattu-kuzhandhai-vidukathai-themmaangu-ammaanai-kummi-kolaattappatalkal therndheduththu arithal	

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15	III B.A	**Thiran padippu 4 Ilakkiyam**	Unit 2 Seyyul nalam paaraattal-monai-edhukai-eaibu-karuththu,vadivam patri thiranaaythal-kotukkappata seyyulin karuththinai arithal	K.S
			Unit 3 Seyyul Naadagam-urainadai naadagam-oranga naadagam-Bharathi-Bharathidasan kavimani padaipukalil yeathunum onrai therndheduththu vaasiththal-sondhamaaga padaiputhiranai valarththal-ezhuthuthal	
			Unit 4 Seythithaal amaippum katturaikalum-kalluuri aandarikkai-vilaiyaattu,sanga arikkaikal thayaariththal-vaara,maatha ithazhkalil vaasiththalum ezhuthuthalum,kaditha ilakkiyam-Annaavin kadithangal,kaditham ezhuthuthal-payanakatturaikal-aanmiga katturaikal ezhuthuthal	
			Unit 5 Vinnappam ezhuthum murai-aangilaththil ulla vanigam,arasu saarbu aluvalaka kadithaththai thamizhil mozhipeyarththal-piramozhi kurippaaka thelugu,kannada,malaiyaalam aakiya dravida mozhikalin thamizh mozhipeyarppu ilakkiyangal,kavithai,sirukathai therndheduththu vaasiththal	

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Chikkanna Government Arts College,Tirupur-2

Department of Tamil

Syllabus & Subject Allocation

Part III B.A. Tamil I ,III , V Semester

2020-2021

S.No	Class	Paper	Unit Details	Staff
1	I B.A	Tharkala Ilakiyam	Unit 1 Bharathiyar kavithaikal-kannanpaattu-kannan en thozhan, thaai, thandhai, sevagan	R.M
			Unit 2 Bharathidasan Purachikavi	
			Unit 3 Kannadasan Thaipaavai	
			Unit 4 Sirpi - Kannadi siragulla Paravai	
			Unit 5 Elampirai - Muthal Manuci	
2	I B.A	Urainadai ilakkiyam	Unit 1 Mu.Varadharasanaar Penmai Vaazhga	K.S
			Unit 2 Vaa.se. Kuzhandhaisamy Bharathiyin Ariviyal Paarvai	
			Unit 3 Subrabharathi maniyan Suzhal Aram	
			Unit 4 Novel - Geethaari. S. Tamilselvi	
			Unit 5 Nadagam Saabam-Vimochanam Mu.Ramasamy	
3	I B.A	Allied I Thamizh Ilakkiya Varalaaru I	Unit 1 i-sangakaalam-Thamizhin thonmai -Tholkaappiyam-	R.S
			Unit 2 - Paththupattu - Silappathigaram - Manimehalai	
			Unit 3 Sanga Maruviya Kalam - PathinenkezhIkkanakku Noolgal	
			Unit 4 Kaaraikkaal Ammaiyar Noolgal - Thirumanthiram - Muththolaairam	
			Unit 5 Pallavar Kaalam - Bhakthi Ilakkiyam - Saiva Ilakkiyam - Vainava Ilakkiyam	
4	I B.A	Foundation Course	Sutru suzhal kalvi	
5	II B.A	Nannuul - sol	Unit 1 Peyariyal	K.S
			Unit 2 Vinaiyiyal	
			Unit 3 Itaiyiyal	
			Unit 4 Uriyiyal	
			Unit 5 Pothuviyal	
6	II B.A	Bhakthi Ilakkiyangalum Sitrilakkiyangalum	Unit 1 Dhevaram Thirugnana sambandhar Thodudaiya seviyan, Thirunavukarasar kuutraayinavaaru , Sundarar Piththa piraisuudi Padhigangal	A.K.P
			Unit 2 Madhurakavi Aazhvaar kanni nun siruthaambu, Perumaal Thirumozhi, 5 Aam thirumozhi Tharuthuyaram Thadaayel	
			Unit 3 Gunangudi Masthaan saagibu Manonmani kanni 1-20, Rakuman kanni 1-20 (40kannikal)	P.K
			Unit 4 Kalingaththu parani Kalam paatiyathu 545 muthal 585 mudiya ulla paadalkal	
			Unit 5 Thirukutraalakuravanji Andhara Thundhubi ena thodangum paatal muthal Manruthanil enra paadal varai	
			Unit 1 Thamizhaga varalaatrirkaana atippadai aathaarangal - Thamizhagaththin iyarkai amaippu- Varalaatru kaalaththirku mundhaiya Thamizhagam	

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7	II B.A	Allied II Thmizhaga varalaarum Panbaadum I	Unit 2 Sindhuveli Akazhvaaraaychi-Pandai thamizhar ayalnaattu thodarbukal	N.B
			Unit 3 Thamizh valarththa sangam- Sanga Ilakkiyam-Pandaithamizhar vaazhkkai	
			Unit 4 Kalappirarkal- Pallavarkal	
			Unit 5 Thamizhagaththil 4 muthal 9 aam Nuutraandu varai	
8	II B.A	Thiran padippu I Thamizh Payitrum murai - Nokkam	Unit 1 Manadhil ullavatrai veliyital- Ilakkiya vadivam uruvathal- Ilakkiyam porulunarthal-Paattum urainadaiyum-sanga ilakkiya vadivamum kattamaippum- Naveena Ilakkiyangalin vadivamum kattamaippum	S.K
			Unit 2 Mozhi enbathu enna?- Thaaymozhi-Karuththuthelivu-Sindhanai aatral- aayvu manappanmai-Panbadu- karpanaiththiran-murugiyal unarvu-Padaippaatral	
			Unit 3 Kettal thiran- pesuthal thiran-padiththal thiran-Ezhuthuthal thiran- mozhiyum sindhanaiyum	
			Unit 4 Seyyul katralil ozhungu-ozhukkaththai arithal-ethukai,monai,iyaibu,muran unarndhu inbural-Kurikol vaazhkkaiyai kataippitiththal-Sollaatchiththiranai valarththal- pulavarin ullakkitakkaiyai arithal-manithaneyam-manithaurimai-nbu-paasam-Natpu-Thondu-parivu-Iyarkai, potral aakiya unarvukalai valarththal-Nattuppatru, mozhippatru valarththal-ulakaththodu otti vaazhak katral-kalai kalaikkaakave matrum vaazhkkaikkaakve ena arithal	
			Unit 5 sirukathai ezhuthuthal payirchi-kavithai ezhuthuthal payirsi-karuththiyal-varalaaru-thanvaralaaru-varunanai-ariviyal,samukaviyal katturai ezuthuthal payirchi	
9	II B.A	Yogafor Human Excellence	Unit 1 Yoga and Physical Health	
			Unit 2 Art of Nurturing the life force and Mind	
			Unit 3 Sblimation	
			Unit 4 Human Resources Development	
			Unit 5 Law of Nature	
10	III B.A	Purapporul venbaamaalai, Nambiyagap porul	Unit 1 Vetchi, Karandhai	R.M
			Unit 2 Thumbai, vaagai	
			Unit 3 Paadaan	
			Unit 4 Kalaviyal kalavin iyalbu-kaatchi-aiyam-thunivu-kuripparithal-kalavirkuriya kilavikal	A.K.P
			Unit 5 Karpiyal -karpin ilakkanam-karpirku uriya kilaviththokai	
11	III B.A	Kaappiyangal	Unit 1 Silappathikaaram-vazhakkuraikaathai	R.S
			Unit 2 Manimeekalai muthal 5 kaathaikal	
			Unit 3 Periyapuraanam-ilaiyaankudi maara naayanaar	
			Unit 4 Seevaka sinthaamani Naamagal ilambakam muthal	
			Unit 5 Thembaavani- Naattuppadalam	

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12	III B.A	Ilakkiya thiranaayvu	Unit 1 Mathippurai-Thiranaaivu - aaraychi- Unit 2 Moolapaadam-Uraimarabu- kalviyaalar-Azhagiyal Unit 3 Samuugaviyal-oppilakkiyam- palkalaikazhaga Unit 4 Pin naveenaththuvam Unit 5 Penniyam- Daliththiyathiranaayvukal	P.K
13	III B.A	Pothu Mozhiyiyal	Unit 1 Mozhiyum mozhoyiyalum- oliyiyal-oli uruppukalum Unit 2 Uruban-urubankalai kantarithal-naida kuurum Unit 3 Thamizhil vinai sorkal Unit 4 Anmaiyuruppu- maatrilakkana kotpaadu- Unit 5 Pechu mozhi-mozhikal kadan vaanguthal-	A.K.P K.S
14	III B.A	Idhazhiyal	Unit 1Makkal thodarpu saathanangal oor arimugam-ithazhkalin varalaaru -James, Agastashiki,Bakingkaam,Rajaram mohanrai aakiyorinaithazhiyal panikal Unit 2 Pathirikai sattangkal-pathippurimai sattam-Ithazhkalin pathivu sattam-seythi-seythi vilakkam-seythiyin iyalpukal-seythi muulangal-seythi vakaikal-seythi niruvanangal Unit 3 Seythi aasiriyar-seythiyin ullatakkangal-seythiththaal pakkaamaippu murai-ezhuthum murai-semmaiyaakkam Unit 4 Thalaiyangangal-patangal(kelisiththirangal)-padangalin mukkiyaththuvam- nagaichuvaithunukkukal-Achupadi thiruthhuthal-achuppizhai thiruththak kurikal Unit 5 Nirubar thakuthi -kadamai-seythi sekarippathil yerpatum idarpatukal-seythi sekarikkum thiran-petti eduththal	R.I
15	III B.A	Thiran Padippu Ilakkanam	Unit 1 Thamizhil ilakkana noolkal- Agaththiyam-Tholkaappiyam-Nanool-Veerasozhiyam-Neminaatham-Thandiyalangaaram-Yaaparungalak kaarigai- Unit 2 Agap porul- muthal,karu,urip porulkal-Purapporul-Panniru thinaikal -Agaththinai-Kaikilai,perundhinai utpata yeazhu vagaigalum-agathurai,puraththura- vilakkangal Unit 3 Ani ilakkanam-uvamai-eduththukattu uvamai ani-uruvaga ani-yeagadesa uruvaga ani-sorporulpinvarunilai ani-tharkuripeatra ani-mayakka ani-ilporuluvamai ani-veatrumai ani-pirithumozhithal ani-niral nirai ani-vanjapukazhchi ani Unit 4 Pavukkuriya adiyum osaiyum-venba ilakkanamum vakaikalum-aasiriyap pa ilakkanamum vakaikalum-kalip pa ilakkanamum vakaikalum-vanjip pa ilakkanamum Unit 5 Kalisollaakkam-kadan vaangiya sorkal-puthiya sorkalum thodar mozhikalum-aangilap pazhamozhikal,marabu thodarkal thamizhil mozhipeyarththal-marabu thodarkalum maanuda vaazkkaiyum arithal	P.K

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Chikkanna Government Arts College,Tirupur-2

Department of Tamil

Syllabus & Subject Allocation

M.A. Tamil I Semester

2020-2021

S.No	Class	Paper	Unit Details	Staff
1	I MA	Ikkaal Ilakkiyam	Unit 1 Marabu kavithai 1.Bharathiyar Kavithaikal- Suya saridhai-kanavu 49 paadalkal 2. Bharathidasan- Thamizhiyakkam-Vaanikar- Kudumbaththaar- Koilaar- Vizha Natathuvor- Manavar Enum thalaippil amaindha paatalkal	R.I
			Unit 2 Pudhu kavithai Abdul Rahman Piththan- Sirpi Oru Kiramaththu Nadhi	
			Unit 3 Naadagam Pe. Sundharam Pillai Manonmaniyam	
			Unit 4 Sirukathaiyum Puthinamum 1.Orunaal kazhindhathu -kaalachuvadu padhippagam- 2.M. Nataraajan Kunnam Shapna Padhippagam	K.S
			Unit 5 Urainadai Maa.Ramalingam Peraasiriya peroli	
2	I MA	Ilakkanam Thol-Ezhuththu	Unit 1 Noonmarabu-Mozhimarabu	P.K
			Unit 2 Pirappiyal-Punariyal	
			Unit 3 Thokaimarabu-Urubiyal	
			Unit 4 Uyir mayangiyal- Pulli mayangiyal	
			Unit 5 Kutriyalugara punariyal	
3	I MA	Kongunattiyal	Unit 1 Kongu naattu ellai-varalaatru chaandrukal-iyarkai amaippu-Naadu-Utpirivukal-irattar-gangar-pallavar aatchi	N.B
			Unit 2 Kongu chozhar aatchi-Kongu pandiyar atchi-gangar atchi-Vijayanagar atchi-naayakkar atchi- ik kaala kattaththil arasiyal thotram-paraval-samooga porulaathaaranilai	
			Unit 3 Kongunaattil aangileyar atchi- viduthalai poraatta varalaaru-Kongu naattu viduthalaip poraatta veerarkal-viduthalaikkup pin thozhil valarchi- kalvi-	
			Unit 4 Kongunaattu samaya varalaaru-Saivam,Vainavam,Samanam valarndha varalaaru-Kongunaattu koilkal amaippu-sirpasirappukal-Oviya sirappukal-kal,maram uloga sirpangal-Suduman	
			Unit 5 Kongunaattu pulavrkalum ilakkiyangalum-avatrin sirapukal-sanga kaalapulavarkal-adiyaarkku nallaar-Bavanandhiyar-kongu velir-Namakkal kavignar-thalapuranangal-sitrilakkiyangal-kongu naattup pura ilakkiyangal-annanmar swamy kathai muthaliyana	

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4	I MA	Bhakthi Ilakkiyam	Unit 1 1.Vandarangapunal enath thodangum Thiruthonipurap pathigam sambandhar Devaram 2.Idar kedumaaru enath thodangum Thiruvaarur pathikam ,Vedhiyaa enath thodangum Thiruvalavay pathigam Appar Dhevaaram 3.Nondha onsudare enath thodangum Thirukachimel thali pathigam Sundarar Dhevaaram 4. Aasaip paththu-Thiruvaasagam Manicka vasagar	A.K.P
			Unit 2 1.Mannuperum pugazh 2.Varanamaayiram 3.Karuppuram naarumoo..enum moondru pathigangal Andal paadiyavai 4.Thirukurundhaandagam Thirumangaiyaazhvaar	
			Unit 3 1.Thirunaaraiyur Vinaayagar Irattaimani maalai(pathinoraandhirumurai) Nambiyaandaar nabikal-2.Thirup pukazh madurai thala paadalkal 11 Arunagirinaathar	
			Unit 4 Thayumanavar padalkal parabarak kani muthal 50 kannikal 2. Thiruvarutpaa paangimaar kanniyum vennilaakanniyum (49kannikal) vallalaar	R.M
			Unit 5 Abirami Andhaathi muthal 50 paadalkal	
5	I MA	Elec. 1 Naatupuraviyal	Unit 1 Naatupuraviyal-palveru arignarkalin karuthukal-	S.K
			Unit 2 Naatupuraviyal aayvu kotpaadukal-varalaatru nilaviyal-varalaatru meetturuvaakkam-Latchiyam-seyalthiran-Ulaviyal aayvu-Amaippiyal- Vaymozhi vaypadu-kalapu panbaadu-Naatupura panbaadu-Makkal panbaadu-Arai ulakam-Soozhnila- kotpaadukal-Naattupuraviyalum piraviyalum	
			Unit 3 Naatupura kalaikal-Therk kuuthu-Bommalaattam-villuppaattu-Karagam,Kaavadi-poikkaal kudhirai-kummi-mayilaattam-silambaatam-Kaniyaan aattam-Naatupura kaivinaikalaikal-Naatupura theyvangal-vazhipaadukal-Thiruvizhaakkal-Vilaiyaattukal	
			Unit 4 Naattupura ilakkiyangal-Naatupurak kathaikal-Kathaippadalkal-Naatuppurap paadalkal-pazhamozhikal-Vidukathaikal-puraanangal-makkatpeyraayvu-Uurpeyaraayvu	
			Unit 5 Naattupura maruththuvam-vilakkam- vakaikal-aangila maruththuvamum naattupura maruththuvamum verubaadu-Tharpothaiya iyarkai maruththuvaththin mukkiyaththuvam	

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Chikkanna Government Arts College,Tirupur-2

Department of Tamil

Syllabus & Subject Allocation

M.A. Tamil II Semester

2020-2021

S.No	Class	Paper	Unit Details	Staff
1	I MA	Ara Ilakkiyam	Unit 1 Thirukural Iraimaatchi-kutrangadithal-sengonmai-kodungonmai- veruvandha seyyaamai-uukamudaimai-idukkanazhiyaamai-vinai thuuymai-naadu-kallunnaamai 10 adhikaarangal	R.I
			Unit 2 Nalladiyar - Nallinam serthal, natpaaraithal, Koodanatpu, Maanam - 4 Athikaarangal	
			Unit 3 Naanmanikadigai - 1. Ellarga, 2. Thiruokkum, 3. Kandraamai Vendum, 4. ennaamai Vendin, 5. Manaikkupaal, 6. Anchaamai anchuga, 7. Nattram	
			Unit 4 Aasarkkovai Mozhuvathum	
			Unit 5 Nanneri Muzhuvathum- Karpanikalnjiyam sivaprakasha swamigal	
2	I MA	Thol- Sol	Unit 1 Kilaviyaakkam	P.K
			Unit 2 Vetrumaiyiyal-Vetrumai mayangiyal	
			Unit 3 Vilimarabu- peyariyal	
			Unit 4 Vinaiyiyal-Idaiyiyal	
			Unit 5 Uriyiyal-Yechaviyal	
3	I MA	Sitrilakkiyangal	Unit 1 Thamizh vidu thuuthu	K.S
			Unit 2 Cheraman Perumaal Nayanaar Thirukayilaaya gnana ula (11 aam thirumurai)	
			Unit 3 Thavathiru kandhasaamy swamikal Thiruperur Pachchai Nayagi Amman Pillai thamizh Ovvoru paruvaththilum muthal 5 paadalkal	
			Unit 4 Santhalingar pathittrupathanthaathi - Thiruperunthiru Santhalinga Ramasamy Adigalaar - Peraathina Veliyedu	
			Unit 5 Mukkudarpallu	
4	I MA	Sirappu Ilakiyam Silappadhikaaram	Unit 1. Pugaarkaandam - 1 muthal 6 kaathaikal	R.S
			Unit 2. Pugaarkaandam, Maduraikaandam 7 muthal 12 kaathaikal	
			Unit 3 . Madurai kaandam 13 muthal 18 kaathaikal	
			Unit 4 . Madurai kaandam 19 muthal 24 kaathaikal	
			Unit 5 . Vanjikaandam Muzhuvathum	
		Atral saar Padippu II Indhiya mozhikalin varalaaru	Unit 1 Inraiya indhiya mozhikal-ulakamozhikal-Indho airoppiya mozhikal-Indho iraniya mozhikal-Ariyarkalin varukaikku munnar indhiya- Indho aariya mozhi aayvu	
			Unit 2 Indho Ariya mozhikal-Pazhaiya Indho ariya mozhikaalam-Vedhakaal mozhiyum sevviyal samarkirutha mozhi nilaiyum-samarkirutha mozhi-sevviyal samarkirutham-samarkirutha ilakkanam	

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5	I MA		Unit 3 Samrkirutha mozhiyamaippu kaalam-Maththiya Indhiya aariya mozhikkaalam-Kaalapakupu- piraagirutha ilakkanangal-Pirakirutha mozhinilai-Indhiya pazhaiya ezhuththu murai-Puthiya indho ariya Mozhikal	N.B
			Unit 4 Dravida mozhikal-Dravidam enum sol-Dravida nagarigam-Dravida mozhikalin pazhaimai-Dravida ina mozhikalum pira mozhikalum-Dravidarkal yaar?	
			Unit 5 Dravida mozhi ilakkiyangal-Dravida mozhi kalvettukal-Dravida mozhi ilakkanangal	

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CHIKANNA GOVERNMENT ARTS COLLEGE TIRUPUR
DEPARTMENT OF MANAGEMENT STUDIES
SUBJECT ABSTRACT & ALLOCATION 2020-2021 ODD SEMESTER

CLASS	NAME OF THE SUBJECT	UNIT WISE ALLOCATION	NAME OF THE TEACHER
I BBA	PRINCIPLES OF MANAGEMENT	UNIT I Funtions of Management	Dr.A .JELINCE DHINAKAR
		UNIT II Planning	
		UNIT III Organizing	
		UNIT IV Directing	
		UNIT V Controlling	
		UNIT VI Contemporary Issues	
I BBA	BASICS OF BUSINESS & BUSINESS ENVIRONMENT	UNIT I Introduction to Business	PROF .PRIYANKA
		UNIT II Business and Economic	
		UNIT III Business Services	
		UNIT IV Business Environment and	
		UNIT V Impacts of LPG	
		UNIT VI Contemporary Issues	
I BBA	MATHEMATICS FOR MANAGEMENT- I	UNIT I Matrices	Dr THENMOZHI
		UNIT II Set theory and Matrices	
		UNIT III Statistical Methods	
		UNIT IV Measures of Variation	
		UNIT V Analysis of Time Series	
		UNIT VI Contemporary Issues	
II BBA	FINANCIAL ACCOUNTING	UNIT I Accounting Fundamentals	Dr.M.VIJAYACHITRA
		UNIT II Preparation of Journal,	
		UNIT III Bank Reconciliation	
		UNIT IV Preparation of Final	
		UNIT V Preparation of Final	
		UNIT VI Contemporary Issues	
II BBA	PRODUCTION AND MATERIALS MANAGEMENT	UNIT I Production Management	PROF K.PRIYANKA
		UNIT II Materials Handling and	
		UNIT III Materials Management	
		UNIT IV Inventory control	
		UNIT V Quality control and ISO	
		UNIT VI Contemporary Issues	
II BBA	MARKETING MANAGEMENT	UNIT I Introduction to Marketing	Dr.A .JELINCE DHINAKAR
		UNIT II Consumer buying behavior	
		UNIT III Product concepts	
		UNIT IV Pricing Concepts	
		UNIT V Market segmentation	
		UNIT VI Contemporary Issues	
		UNIT I Law of Contract	

II BBA	BUSINESS LAW	UNIT II Consideration in law	Dr.M.VIJAYACHITRA
		UNIT III Agreement and sale	
		UNIT IV Sales Contract	
		UNIT V Contract of agency	
		UNIT VI Contemporary Issues	
II BBA	PC SOFTWARE (MS-OFFICE) – PRACTICAL	UNIT I MS Word	Dr S VIJAYACHITRA
		UNIT II MS- PowerPoint	
		UNIT III MS-Excel	
		UNIT IV MS-Access	
		UNIT V Contemporary Issues	
III BBA	COMMUNICATION SKILLS II	UNIT I Listening	Dr.A .JELINCE DHINAKAR
		UNIT II Listening to audio and video	
		UNIT III Verbal and non-verbal	
		UNIT IV Speech	
		UNIT V Meeting	
		UNIT VI Contemporary Issues	
III BBA	COST AND MANAGEMENT ACCOUNTING	UNIT I Introduction to Cost	Dr.M.VIJAYACHITRA
		UNIT II Cost sheet and Stores	
		UNIT III Financial statement	
		UNIT IV Fund flow and cash flow	
		UNIT V Marginal Costing and	
		UNIT VI Contemporary Issues	
III BBA	RESEARCH METHODS FOR MANAGEMENT	UNIT 1 Introduction to Research	PROF K. PRIYANKA
		UNIT II Sampling and Scaling	
		UNIT III Data Collection and	
		UNITV IV Processing and Analyzing	
		UNIT V Interpretation and report	
		UNIT VI Contemporary Issues	
III BBA	ADVERTISING AND SALES PROMOTION	UNIT I Introduction to Advertising	Dr.A .JELINCE DHINAKAR
		UNIT II Advertising agencies	
		UNIT III Advertising layout	
		UNIT IV Sales force Management	
		UNIT V Sales promotion	
		UNIT VI Contemporary Issues	
III BBA	BUSINESS CORRESPENDENCE	UNIT I Individual Communication	Dr.A .JELINCE DHINAKAR
		UNIT II Trade Letters	
		UNIT III Report writing	
		UNIT IV Correspondence of a	
		UNIT V General Correspondence	
		UNIT VI Contemporary Issues	
III BBA	MODERN OFFICE	UNIT I Office Management and	PROF. PRIYANKA
		UNIT II Office Environment &	
		UNIT III Office correspondence &	

III BBA	MANAGEMENT	UNIT IV Office systems &	PROF .PRIYANKA
		UNIT V Office Personnel relations	
		UNIT VI Contemporary Issues	
III BBA	CAMPUS TO CORPORATE	UNIT I Organisational Culture	Dr.A .JELINCE DHINAKAR
		UNIT II Business etiquette and	
		UNIT III Building aptitude skills	
		UNIT IV Verbal ability	
		UNIT V Logical ability	
		UNIT VI Contemporary Issues	

S NO	STAFF NAME	SIGNATURE
1	Dr M VIJAYACHITRA	
2	Dr.A .JELINCE DHINAKAR	
3	K PRIYANKA	

CHIKANNA GOVERNMENT ARTS COLLEGE TIRUPUR
DEPARTMENT OF MANAGEMENT STUDIES
SUBJECT ABSTRACT & ALLOCATION 2020-2021 EVEN SEMESTER

CLASS	NAME OF THE SUBJECT	UNIT WISE ALLOCATION	NAME OF THE FACULTY
I BBA	ORGANIZATIONAL BEHAVIOUR	UNIT I organisational psychology	Dr M VIJAYACHITRA
		UNIT II Perception	
		UNIT III Job satisfaction	
		UNIT IV Group dynamics	
		UNIT V Leadership And Counselling	
		UNIT VI Contemporary Issues	
I BBA	ECONOMICS FOR EXECUTIVES	UNIT I Demand Analysis	PROF K.PRIYANKA
		UNIT II BEP Analysis	
		UNIT III Market structure	
		UNIT IV Economic theories	
		UNIT V Government and Business	
		UNIT VI Contemporary Issues	
I BBA	QUANTITATIVE TECHNIQUES FOR MANAGEMENT	UNIT I Introduction to operation research	Dr SEKAR
		UNIT II Transportation and Assignment	
		UNIT III Game Theory	
		UNIT IV Network Analysis	
		UNIT V Replacement Theory	
		UNIT VI Contemporary Issues	
II BBA	HUMAN RESOURCE MANAGEMENT	UNIT I Concept of Human Resource	Dr A JELINCE DHINAKAR
		UNIT II Human Resource Planning	
		UNIT III Recruitment and Selection	
		UNIT IV Training and development	
		UNIT V Career Planning & Development	
		UNIT VI Contemporary Issues	
II BBA	FIANACIAL MANAGEMENT	UNIT I Finance Functions	Dr S VIJAYACHITRA
		UNIT II Investment and Financing	
		UNIT III Capital Structure theory	
		UNIT IV Dividend decisions	
		UNIT V Working capital management	
		UNIT VI Contemporary Issues	
II BBA	TALLY	UNIT I Introduction	Dr S VIJAYACHITRA
		UNIT II Stock Groups	
		UNIT III Groups	
		UNIT IV Reports	
		UNIT V Service Tax	
		UNIT VI Contemporary Issues	
II BBA	COMMUNICATION	UNIT I Reading	Dr A JELINCE DHINAKAR
		UNIT II Written documents	
		UNIT III Writing	

II BBA	SKILLS II	UNIT IV Business Communication	Dr A JELINCE DHINAKAR
		UNIT V Publications	
		UNIT VI Contemporary Issues	
II BBA	MANAGEMENT INFORMATION SYSTEM	UNIT I Introduction to Information	PROF K.PRIYANKA
		UNIT II MIS Function	
		UNIT III Computer Hardware &	
		UNIT IV Input devices & Output devices	
		UNIT V Telecommunication revolution	
		UNIT VI Contemporary Issues	
II BBA	TAXATION LAW AND PRACTICE	UNIT I Direct Taxes	Dr VIJAYACHITRA
		UNIT II Computation of income	
		UNIT III Income tax Authorities	
		UNIT IV Indirect taxes	
		UNIT V Procedural Compliance	
		UNIT VI Contemporary Issues	
III BBA	ENTREPRENEURSHIP AND SMALL BUSINESS MANAGEMENT	UNIT I Concept of Entrepreneurship	Dr A JELINCE DHINAKAR
		UNIT II Policy and institutional ECO	
		UNIT III Business Plan	
		UNIT IV Project Implementation	
		UNIT V Entrepreneurial Finance	
		UNIT VI Contemporary Issues	
III BBA	INVEST EMENT MANAGEMENT	UNIT I Fundamental Concept of	PROF K.PRIYANKA
		UNIT II Instruments of Investment	
		UNIT III Secondary market	
		UNIT IV Investment analysis	
		UNIT V Investment theories	
		UNIT VI Contemporary Issues	
III BBA	SERVICE MARKETING	UNIT I services & services sector	Dr A JELINCE DHINAKAR
		UNIT II Service marketing system	
		UNIT III Service quality	
		UNIT IV Services from sectoral	
		UNIT V Marketing the Financial Services	
		UNIT VI Contemporary Issues	
III BBA	INSURANCE PRINCIPLES AND PRACTICE	UNIT I Concepts of Risk in insurance &	Dr S VIJAYACHITRA
		UNIT II Life Insurance	
		UNIT III General Insurance	
		UNIT IV Fire and marine Insurance Claim	
		UNIT V Miscellaneous Insurance	
		UNIT VI Contemporary Issues	
III BBA	SOFT SKILLS FOR BUSINESS	UNIT I Emotional Intelligence	Dr.A .JELINCE DHINAKAR
		UNIT II Team Spirit and Growth	
		UNIT III Openness to Feedback	
		UNIT IV Adaptability	
		UNIT V Work Ethics	

		UNIT VI Contemporary Issues	

S NO	STAFF NAME	SIGNATURE
1	Dr M VIJAYACHITRA	
2	Dr.A .JELINCE DHINAKAR	
3	K PRIYANKA	

Chikkanna Government Arts College, Tirupur

Department of International Business

Part III B.Com (IB) I , III , V Semester (2020 - 2021)

S.No	Class	Paper	Unit Details	Staff
1	**I B.Com (IB)**	**Principles of Accountancy**	Unit 1 Fundamentals of book keeping	V.Manimekalai
			Unit 2 Final accoounts of sole trader with adjeustments	
			Unit 3 Bill of exchange- accomadation bills	
			Unit 4 Acconting for consignments and joint ventures	
			Unit 5 Bank reconciliation statement - Accounts of professtionals	
2	**I B.Com (IB)**	**Buisness organization and office management**	Unit 1 Nature and scope of business	V.Manimekalai
			Unit 2 Location of business - Sources of finance	
			Unit 3 Stock exchange	
			Unit 4 Office - Its functioning and significance	
			Unit 5 Office machines and equipments	
3	**I B.Com(IB)**	**Allied Paper-I World economics resources**	Unit 1 Resources - Concepts and importants in development	G.Chandrasekaran
			Unit 2 Geographical environment - Human environment	
			Unit 3 Natural regions -Agriculture and allied resources	
			Unit 4 Energy resources and mineral resources	
			Unit 5 Manufacuring industries	
4	**I B.Com(IB)**	**Foundation Course Environmental**	Sutru suzhal kalvi	V.Manimekalai
1	**II B.Com (IB)**	**Higher financial accounting**	Unit 1 Admission of a partner	V.Manimekalai
			Unit 2 Retirement of partner	
			Unit 3 Dissolution - Piece meal distribution	
			Unit 4 Insolvency of indiduals and firms	
			Unit 5 Voyage acconts - Human resource accounting	
2	**II B.Com (IB)**	**Commercial law**	Unit 1 Law - meaningand objects Mercantile law - Meaning - Sources of contract	C.Malleshwaran
			Unit 2 Capacity to contract - free consent ,performance of contract - discharge of conract - remedies for breach of contrac	
			Unit 3 Contract of agency	
			Unit 4 Contract of indemnity and guarantee	
			Unit 5 Law of sale of goods	
3	**II B.Com (IB)**	**Mathematics for Business**	Unit 1 Set theory	B.Thenmozhi
			Unit 2 Matrix	
			Unit 3 Variable, constant and functions	
			Unit 4 Elementary integral calculus	
			Unit 5 Linear programming problem	
4	**II B.Com (IB)**	**Business application software I**	Unit 1 Microsoft word, basics - creating documents	G.Chandrasekaran
			Unit 2 Creating templates, creating tables	
			Unit 3 Mail merge - Creating the main documents	
			Unit 4 Microsoft excel	
			Unit 5 Spread sheet overview	
5	**II B.Com (IB)**	**Banking and foreign exchange**	Unit 1 Definition of Banker and costumer - general relationship	C.Malleshwaran
			Unit 2 Opening of new document	
			Unit 3 Negotiable instruments meaning, characteristics, types	
			Unit 4 Foreign exchange market - features	
			Unit 5 Exchange management by banks	

S.No	Class	Paper	Unit Details	Staff
6	**II B.Com (IB)**	**Yogafor Human Excellence**	Unit 1 Yoga and Physical Health	V.Manimekalai
			Unit 2 Art of Nurturing the life force and Mind	
			Unit 3 Sblimation	
			Unit 4 Human Resources Development	
			Unit 5 Law of Nature	
1	**III B.Com (IB)**	**Corporate accounting II**	Unit 1 Accounting for merges and amalgamation	V.Manimekalai
			Unit 2 Holding company accounts	
			Unit 3 Banking company accounts	
			Unit 4 Insurance company accounts	
			Unit 5 Accounting standards	
2	**III B.Com (IB)**	**Cost accoounting**	Unit 1 Definition, meaning - preparation of cost sheet	B.Girija
			Unit 2 Material control	
			Unit 3 Labour costinng	
			Unit 4 Process costing	
			Unit 5 Operating costing	
3	**III B.Com (IB)**	**Income tax law and practice**	Unit 1 Income tax act - definition of income	B.Girija
			Unit 2 Heads of income	
			Unit 3 Profits and gains of business	
			Unit 4 Capital gains	
			Unit 5 Assesment of indiduals	
4	**III B.Com (IB)**	**Business application software II**	Unit 1 Microsoft powerpoint - Basics	G.Chandrasekaran
			Unit 2 Working with powerpoint	
			Unit 3 Microsoft access, data base overview	
			Unit 4 Creating a table	
			Unit 5 Filtering and quering tables	
5	**III B.Com (IB)**	**Brand management**	Unit 1 Basic understanding of brands	V.Manimekalai
			Unit 2 Brands association	
			Unit 3 Brand impact, impact on buyers, competitors	
			Unit 4 Brand rejunuvination	
			Unit 5 Brand strategies	

Chikkanna Government Arts College, Tiruppur

Department of International Business

Syllabus & Subject Allocation (2020 - 2021)

Part III - B.Com IB - II, IV, VI Semester

S.No	Class	Paper	Unit Details	Staff
1	**I B.Com (IB)**	**Financial accounting**	Unit 1 Accoounting for depreciation	V.Manimekalai
			Unit 2 Investiments accounnts - royalty	
			Unit 3 Single entry system	
			Unit 4 Departmental acconts	
			Unit 5 Higher purchase and instalment system	
2	**I B.Com (IB)**	**Principles of marketing**	Unit 1 Marketing - definition - importants	G.Chandrasekaran
			Unit 2 Marketing functions	
			Unit 3 Consumer behaviour	
			Unit 4 Marmeting mix	
			Unit 5 Marketing and government	
3	**I B.Com (IB)**	**Internationl trade procedure and documention**	Unit 1 International market research	G.Chandrasekaran
			Unit 2 Export and Import policy and procedures	
			Unit 3 Pre requisite	
			Unit 4 Exchange control regulations	
			Unit 5 Exports documents	
4	**I B.Com (IB)**	**Foundation course - Human Rights**	UNIT – I : Concept of Human Values, Value Education	R.Poongodi
			UNIT – II : Value Education Towards National and	
			UNIT – III : Impact of Global Development on Ethics	
			UNIT - IV : Theraupatic Measures	
			UNIT V : Human Rights	

S.No	Class	Paper	Unit Details	Staff
1	**II B.Com (IB)**	**Corporate accounting I**	Unit 1 Issue of shares	V.Manimekalai
			Unit 2 Redemption of prefernce shares	
			Unit 3 Final accounts of companies	
			Unit 4 Valuation of goodwill and shares	
			Unit 5 Liquitation of companies	
2	**II B.Com (IB)**	**Logistics management**	Unit 1 International marketting logistics - meaning -	G.Chandrasekaran
			Unit 2 Internationl transpory sysstems	
			Unit 3 Containerization	
			Unit 4 Inaternational freight principles	
			Unit 5 Air shipments	
3	**II B.Com (IB)**	**Business taxation**	Unit 1 Federal finance - Principles -federal under the	V.Manimekalai
			Unit 2 Sales tax - meaning - need - effect	
			Unit 3 Central sale tax act 1956 - meaning and scope	
			Unit 4 Central excise duty - concept - meaning -	
			Unit 5 Costume duty - cocept - types	
4	**II B.Com (IB)**	**International marketting management**	Unit 1 Product and pricing strategy	C.Malleshwaran
			Unit 2 Pricing strategy	
			Unit 3 Promotion strategy	
			Unit 4 Distribution strategy	
			Unit 5 Retailing and whole saling	

S.No	Class	Paper	Unit Details	Staff
1	**II B.Com (IB)**	**Statistics for business**	Unit 1 Meanng definiton of strategistics	Nagaraj / Mary Shanthi
			Unit 2 Measures of dispersion	
			Unit 3 Correlation, regression	
			Unit 4 Time series	
			Unit 5 Interpolation	
2	**II B.Com (IB)**	**Executive business communication**	Unit 1 Business communication, meaning - imortance	R.Poongodi
			Unit 2 Trade enquiries	
			Unit 3 Banking correspondance	
			Unit 4 Company secritarial correspondance	
			Unit 5 Applicationn letters	
3	**II B.Com (IB)**	**General Awarness**	Unit 1 Verbal Aptitude- Numerical Aptitude	R.Poongodi
			Unit 2 Abstract Reasoning - Tamil and other Literature	
			Unit 3 General Science and Technology and Education -	
			Unit 4 Economics and Commerce - Social Studies	
			Unit 5 Sports- Current Affairs	
4	**II B.Com (IB)**	**Skill based subject I, Computer application practial I (MS WORD and MS EXCEL)**		R.Poongodi

S.No	Class	Paper	Unit Details	Staff
1	III B.Com (IB)	**Management accounting**	Unit 1 Management acconting - meaninng - objectives	B.Girija
			Unit 2 Ratio analysises	
			Unit 3 Working capital	
			Unit 4 Marginal costing	
			Unit 5 Budgetig and budgetory control	
2	III B.Com (IB)	**Principles of auditing**	Unit 1 Auditing - Orgin -defintio	C.Malleshwaran
			Unit 2 Internal control	
			Unit 3 Verification and valuation of assets and liabilites	
			Unit 4 Audit of joint stock companies	
			Unit 5 Investigtion - objeectives of investigation	
3	III B.Com (IB)	**Internationl business strategy**	Unit 1 World of international business	C.Malleshwaran
			Unit 2 Environmental of internationl business	
			Unit 3 International business strategy	
			Unit 4 International business strategies in action	
			Unit 5 International business horizons	
4	III B.Com (IB)	**Supply chain management**	Unit 1 Supply chain mannagement - global optimization -	G.Chandrasekaran
			Unit 2 Supply chain itegrates	
			Unit 3 Strategic alliances	
			Unit 4 Procurement and outsourcing	
			Unit 5 Dimension of customer value	
5	III B.Com (IB)	**Garment Merchandizing**	Unit 1 Fundamental of merchantizing	C.Malleshwaran
			Unit 2 Planning and controlling and control tools	
			Unit 3 Introduction to standardisation and quality conrol	
			Unit 4 Sourcing strategies	
			Unit 5 Fashion visual merchantizing	
6	III B.Com (IB)	**Skill based subject IV, Computer application practial IV (MS POWER POINT and MS ACCESS and TALLY)**	Unit 1	R.Poongodi
			Unit 2	
			Unit 3	
			Unit 4	
			Unit 5	

CHIKKANNA GOVT. ARTS COLLEGE, TIRUPUR

Department of International Business

Syllabus & Subject Allocation (2020 - 2021)

M.Com IB I, III Semester

S.No	Class	Paper	Unit Details	Staff
1	I M.Com (IB)	Global business environment	Unit 1 Environmental adjustment needs	G.Chandrasekaran
2			Unit 2 The national physical endownment	
3			Unit 3 Cultural environment	
4			Unit 4 Legal environmentt	
5			Unit 5 Fundamentals of environmental protection and	
6	I M.Com (IB)	International marketting management	Unit 1 International marketting - definition - special	G.Chandrasekaran
7			Unit 2 Managing marketting	
8			Unit 3 International marketting decisions	
9			Unit 4 Managing direct and online marketting	
10			Unit 5 Case studies based on the units	
11	I M.Com (IB)	Managerial economics	Unit 1 Natural and scope of managerial economics	C.Malleshwaran
12			Unit 2 Demand analysis	
13			Unit 3 Cost and productionn analysises	
14			Unit 4 Pricing and output decision in different market	
15			Unit 5 Businesss cycle, national income	
16	I M.Com (IB)	Financial accouunts	Unit 1. Accounting for depreciation	B.Girija
17			Unit 2. Higher purhase and instalment systems	
18			Unit 3 .Departmental accounts	
19			Unit 4 .Single entry system	
20			Unit 5 . Insolvency accounts	
21	I M.Com (IB)	Domestics logistics	Unit 1 Vehicle selection	C.Malleshwaran
22			Unit 2 Reasion for road freight transport	
23			Unit 3 Legislation	
24			Unit 4 Need for planning	
25			Unit 5 Advises - Planning - FTL -LTL	
26	II M.Com (IB)	Business research methods	Unit 1 Business research - meaning - scope and	G.Chandrasekaran
27			Unit 2 Sampling - methods and techniques - data	
28			Unit 3 Measurement and scaling techniques - data	
29			Unit 4 Measures of central tendancy	
30			Unit 5 Test of significance	
31	II M.Com (IB)	International financial management	Unit 1 International financial manaagement - meaning -	V.Manimekalai
32			Unit 2 International monetary and financial	
33			Unit 3 Exchange rate theories	
34			Unit 4 International development association	
35			Unit 5 c	

S.No	Class	Paper	Unit Details	Staff
36	II M.Com (IB)	Export Import finance	Unit 1 Introduction to export finance, terms of	G.Chandrasekaran
37			Unit 2 Pre shipment finance	
38			Unit 3 Introduction of import finance	
39			Unit 4 Long term finance	
40			Unit 5 Case studies based on the above units	
41	II M.Com (IB)	International shipping legislation	Unit 1 Indian contract act	C.Malleshwaran
42			Unit 2 Regional loss	
43			Unit 3 International regulations for vessels	
44			Unit 4 Regulation relating to cargos, dangerous and	
45			Unit 5 Quotations - orders - regulations - crdits	
46	II M.Com (IB)	Custom law and procedures	Unit 1 Central exercise	B.Girija
47			Unit 2 Customs procedures	
48			Unit 3 Customs clearance procedures	
49			Unit 4 Central sale tax	
50			Unit 5 Case studies based on the above units	

Chikkanna Government Arts College, Tirupur

Department of International Business

Syllabus & Subject Allocation (2020 - 2021)

M.Com IB II, IV Semester

S.No	Class	Paper	Unit Details	Staff
1	I M.Com (IB)	International trade procedure	Unit 1: 1. International trade - internal and international trade	G.Chandrasekaran
2			Unit 2 : Registred exporters	
3			Unit 3 : Import trade control	
4			Unit 4 .Warehousinng in connection witth import	
5			Unit 5 : Case studies based above units	
6	I M.Com (IB)	Logistics and supplychain management	Unit 1 Logistics managemennt, origin and definition	V.Manimekalai
7			Unit 2 Types of inventory control	
8			Unit 3 Supply chain management, introduction and development	
9			Unit 4 Roll of a manager In supply chain	
10			Unit 5 Aligning the supply chain with business stratgies	
11	I M.Com (IB)	Foreign exchange management	Unit 1 Foreign exchange - administration - transactions	C.Malleshwaran
12			Unit 2 Foreign exchange market	
13			Unit 3 Foreign exchange risk and exposure	
14			Unit 4 Interbank deals	
15			Unit 5 Case studies based above units	
16	I M.Com (IB)	Cost and managemennt accounting	Unit 1 Cost accounting - meaning, definition and scope - material costing	B.Girija
17			Unit 2 Labour and overhead costing	
18			Unit 3 Management accountinng - meaning - objectives - financial statemetn	
19			Unit 4 Fund flow and cash flow analysises	
20			Unit 5 Budgeting and budgetory control	
21	I M.Com (IB)	Chartering and ship broking	Uniit 1 Principles of chatering	V.Manimekalai
22			Unit 2 Types of chater	
23			Unit 3 Purchase and registration of vessels	
24			Unit 4 Freight and hire calculations	
25			Unit 5 Contracts	
26	I M.Com (IB)	Computer applications (MS OFFICE and INTERNET-PRACTICAL I)	Unit 1	R.Poongodi
27			Unit 2	
28			Unit 3	
29			Unit 4	
30			Unit 5	

S.No	Class	Paper	Unit Details	Staff
31	II M.Com (IB)	Strategic management	Unit 1 Corporate strategic planning - vision - vision of the firm	G.Chandrasekaran
32			Unit 2 Environment analysis and internal analysis of firm	
33			Unit 3 Strategy formation generic strategics	
34			Unit 4 Tools of strategy planning and evoluation	
35			Unit 5 Case studies	
36	II M.Com (IB)	International economics	Unit 1 Economic growth and international trade	C.Malleshwaran
37			Unit 2 Gains from international trade	
38			Unit 3 International movements	
39			Unit 4 Forign economic policies	
40			Unit 5 Case studies	
41	II M.Com (IB)	Computer lab (TALLY)	Unit 1	R.Poongodi
42			Unit 2	
43			Unit 3	
44			Unit 4	
45			Unit 5	
46	II M.Com (IB)	Airline marketting and strategic airline alliance	Unit 1 Market for air transport services	V.Manimekalai
47			Unit 2 Product analysises	
48			Unit 3 Promotion marketing	
49			Unit 4 A historical glimpse at alliancing objectives	
50			Unit 5 Success drivers in airline business	

Chikkanna Government Arts College, Tirupur
Department of ZOOLOGY
Syllabus & Subject Allocation
B.Sc. ZOOLOGY I ,III,V Semester, 2020 - 2021

S.No	Class	Paper	Unit Details	Staff
1		**Course code 13A ANIMAL DIVERSITY - NONCHORDATA**	Unit:1 CLASSIFICATION AND PROTISTA 17 hours Concept of five kingdom classification of life. Introduction to Protista and Animal kingdom – Systems of Classification and Nomenclature - levels of organization - Types of symmetry. General characters of Protista and Classification withexamples. Type study: Paramecium. General Topics: Parasitic Protozoa, Life cycle of Plasmodium, Locomotion and Nutrition in Protozoa	MR
			Unit:2 PORIFERA AND COELENTERATA 17 Hours Characters and classification (up to class) of Porifera and Coelenterate with examples. Salient features of Ctenophora. Type study:Leucosolenia, Obelia Colony. General Topics: Canal system in sponge, Polymorphism in Coelenterate, Diversity (Types) of corals and structure of coral polyp, Coral reefs.	MR
			Unit:3 PLATYHELMINTHES, ASCHELMENTHIES AND ANNELIDA 18 Hours Characters and classification (up to class) of Platyhelminthes, Aschelmenthiesand Annelida withexamples. Type study: Taenia, Ascaris, Megascolex. General Topics: Coelom, Coelomoducts and Metamerism, Parasitic adaptations in Helminthes and Annelids, Filter feeding in Polychaetes.	MR
			Unit:4 ARTHROPODA 18 Hours Characters and classification (up to class) of Arthropoda with examples. Brief descriptions of Limulus (living fossil), Sacculina (Parasitic castration), Copepods, Scorpion, Spider, Peripatus (Affinities), Millipeds and Centipeds. Type study: Cockroach and Prawn, General Topics: Crustacean larvae.	MR
			Unit:5 MOLLUSCA, ECHINODERMATA AND HEMICHORDATA. 18 Hours Characters and classification (up to class) of Mollusca and Echinodermata with examples. Characters of Hemichordata. Brief descriptions of Fresh water Mussel, Chiton, Sepia, Starfish, Sea cucumber and Balanoglossus Type study: Pila, Starfish (External Features and Water Vascular system) General Topics: Larval forms of Mollusca, Torsion and De-torsion in Mollusca, Economically important Mollusca, Echinoderm larva, Evolutionary affinities of Hemichordate.	MR
			Unit:6 CONTEMPORARY ISSUES 2 Hours Expert lectures, Online Seminars - Webinars and Field Visits.	

2		**Course code 23P CORE PRACTICAL - I**	MAJOR PRACTICAL Prawn / Cockroach / Earthworm/ Fish (Any two) Digestive System and Nervous system. Micrometry measurement of given Protozoan /Micro arthropod / Any sample. MINOR PRACTICAL 1.Prawn/ Cockroach/Mosquito (Any two): Mounting of Appendages / Mouth parts Earth worm: Mounting of body setae 2.Fish: Mounting of Scales 3. Motility of Paramecium – Hanging drop method. SPOTTERS 1.Classify Giving Reasons: Paramecium, Obelia, Liver Fluke, Ascaris, Pila, Star Fish, Balanoglossus, Any Fish, Tree Frog, Snake, King Fisher And Bat. 2.Draw Labeled Sketches: Trochophore, Any Echinoderm Larvae. 3.Biological Significance: Paramecium –Conjugation, Malaria Parasite, Gemmules, Limulus, Hippo Campus, Nautilus. Axolotl Larva, 4.Relate Structure And Function: Spicules Of Sponges, Scolex Of Tapeworm, Nereis Parapodium, Carapace And Plastron, Electric Organ – Narcine. 5.Descriptive Notes: Hydra, Physalia, Rotifer, Sea Cucumber, Chiton, Placoid Scales, Chameleon, Quill Feather. VISITANDSUBMISSIONOF REPORT 1. To any nearby area of biodiversity significance (Report should be included in record). 2. Photo Album of invertebrates and Vertebrates with identification and classification (Evaluation of report should be based on field effort, diversity of photos, classification and identification. Costly presentation of photos albums should compulsorily be discouraged, as the objective of this is to make students familiar with fauna)	SSS & MD
			SYLLABUS Unit 1 : Multidisciplinary nature of environmental studies Definition, scope and importance (2 lectures) Need for public awareness.	MD

	I UG		Unit 2 : Natural Resources :Renewable and non-renewable resources : Natural resources and associated problems. a) Forest resources : Use and over-exploitation, deforestation, case studies. Timber extraction, mining, dams and their effects on forest and tribal people. b) Water resources : Use and over-utilization of surface and ground water, floods, drought, conflicts over water, dams-benefits and problems. c) Mineral resources : Use and exploitation, environmental effects of extracting and using mineral resources, case studies. d) Food resources : World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, case studies. e) Energy resources : Growing energy needs, renewable and non renewable energy sources, use of alternate energy sources. Case studies. f) Land resources : Land as a resource, land degradation, man induced landslides, soil erosion and desertification. • Role of an individual in conservation of natural resources. • Equitable use of resoureces for sustainable lifestyles. (8 lectures)	MD
3			Unit 3 : Ecosystems • Concept of an ecosystem. IV • Structure and function of an ecosystem. • Producers, consumers and decomposers. • Energy flow in the ecosystem. • Ecological succession. • Food chains, food webs and ecological pyramids. • Introduction, types, characteristic features, structure and function of the following ecosystem :- a. Forest ecosystem b. Grassland ecosystem c. Desert ecosystem d. Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries) (6 lectures)	MD

		ENVIRONMENTAL STUDIES	Unit 4 : Biodiversity and its conservation • Introduction – Definition : genetic, species and ecosystem diversity. • Biogeographical classification of India • Value of biodiversity : consumptive use, productive use, social, ethical, aesthetic and option values • Biodiversity at global, National and local levels. • Inida as a mega-diversity nation • Hot-sports of biodiversity. • Threats to biodiversity : habitat loss, poaching of wildlife, man-wildlife conflicts. • Endangered and endemic species of India • Conservation of biodiversity : In-situ and Ex-situ conservation of biodiversity. (8 lectures)	MD
			Unit 5 : Environmental Pollution Definition • Cause, effects and control measures of :- a. Air pollution b. Water pollution c. Soil pollution d. Marine pollution e. Noise pollution f. Thermal pollution g. Nuclear hazards • Solid waste Management : Causes, effects and control measures of urban and industrial wastes. • Role of an individual in prevention of pollution. • Pollution case studies. • Diaster management : floods, earthquake, cyclone and landslides. (8 lectures)	
			Unit 6 : Social Issues and the Environment • From Unsustainable to Sustainable development • Urban problems related to energy • Water conservation, rain water harvesting, watershed management • Resettlement and rahabilitation of people; its problems and concerns. Case Studies • Environmental ethics : Issues and possible solutions. • Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust. Case Studies. • Wasteland reclamation. • Consumerism and waste products. • Environment Protection Act. • Air (Prevention and Control of Pollution) Act. • Water (Prevention and control of Pollution) Act • Wildlife Protection Act • Forest Conservation Act • Issues involved in enforcement of environmental legislation.	MM

			Unit 7 : Human Population and the Environment • Population growth, variation among nations. • Population explosion – Family Welfare Programme. VII • Environment and human health. • Human Rights. • Value Education. • HIV/AIDS. • Women and Child Welfare. • Role of Information Technology in Environment and human health. • Case Studies. (6 lectures)	MM
			Unit 8 : Field work • Visit to a local area to document environmental assetsriver/ forest/grassland/hill/mountain • Visit to a local polluted site-Urban/Rural/Industrial/Agricultural • Study of common plants, insects, birds. • Study of simple ecosystems-pond, river, hill slopes, etc. (Field work Equal to 5 lecture hours)	MM
		Core Course III: Comparative Anatomy of Vertebrates	Unit I Digestive & Respiratory System Comparative account of Digestive system of shark, frog, pigeon and rabbit – Ruminant stomach and function. Gills of fishes – Pharyngeal derivatives – Swim Bladder - Comparative account of Lungs and air ducts in Vertebrates.	MD
			Unit II Nervous System Comparative account on structure of Brain, Cranial and spinal nerves of Shark, Frog and Rabbit. Sense organs of vertebrates.	MD
			Unit III Skeletal System Regions of Vertebral column - Structure of typical vertebrae - Types of vertebrae – Ribs and sternum. Comparison of Skull, Pelvic, pectoral girdle and limbs of Shark, Frog and Rabbit. Account of skull of Reptiles. Exoskeleton of Vertebrates (Scales, Feathers, hairs etc.).	MD
			Unit IV Circulation & Musculature Aorta and aortic arches – Comparative account of heart, arterial system and venous system in shark, frog, Calotes, pigeon and rabbit. Brief account of appendicular musculature – Electric organs in fish.	MD
			Unit V Urogenital System Comparison of Pronephros – Mesonephros and Metanephros with examples. Comparison of Urogenital system of frog, Pigeon and rabbit.	MD
			Major Estimation of dissolved oxygen of river, pond, sewage and industrial effluent. Estimation of salinity & PH and its relation to temperature. Estimation of free Carbon-di-oxide of water samples. Estimation of Carbonate & Bicarbonates. Demonstration of Vertebrate (Frog / Rat) dissection using Multimedia – Digestive, Brain, 5th Cranial, 10th Cranial, Urinogenital System (Wherever possible digital dissections recommended).	

6	II UG	**Core Practical II**	Minor Estimation of pH of given water Samples Estimation of Temperature of Given Water Samples Mounting of Zooplankton (from local water body) Identification of Zoogeographical realms from the world Map & Describe the specific fauna Visit to any Polluted / Pond Ecosystem and submission of a study report with Photos.	AM
			Spotters A. Identify the given Vertebrae / Skull - Fish, Frog, Calotes, Pigeon, Rat B. Identify the Fore/Hind Limb: - Fish, Frog, Calotes, Pigeon, Rat C. Comment of Animal Relation Ship: Sacculina on Crab /Hermit Crab & Sea Anemone. D. Ecological Adaptation: Chameleon, Balanus, Chaetopterus, Anabas E. Comment on the Evolutionary Significance; Fossil, Limulus, Analogous organs, Homologous organs	
		Skill Based I: Sericulture.	Unit I Mulberry cultivation Brief outline of History of Sericulture - Scope & opportunities in Sericulture – Types of Silk - Organic Silk - Vanya Silk. Mulberry cultivation: Nursery – Planting –irrigation – Pruning – harvesting.	
			Unit II Silk worms Morphology of Silk worm –Types of Silkworm –Silk glands - Life cycle of Silkworm – Brief out line of non-mulberry sericulture & its potential.	
			Unit III Rearing Silkworm rearing –outdoor & indoor rearing – Rearing houses – Hatching – incubation –Feeding Silkworms - protection & rearing – rearing appliances – Mounting & harvesting.	
			Unit IV Diseases Hygiene conditions in silk production – Diseases of silk worm – Prevention – Fungal infection to Cocoon. Disease of Mulberry trees & Prevention.	
			Unit V Processing Silk fiber formation – Properties of cocoon filament – Pre reeling process – Cocoon boiling. Reeling technology – re-reeling technology – raw silk industry – byproducts of Silk industries.	
7		**YOGA FOR HUMAN EXCELLENCE**	Unit I - Yoga and PhYsical Health 1.1 Physicat Stnrcture - Three bodies - Five limitations 1.2 Simplified physicatE xercises- Hand Exercises- Leg Exercises- Breathing Exercises- Eye Exercises- Kapalapathi 1.3 MatrarasanasL -2 -Massages- Acu-puncture- Rela:ration oJ 1.4 Yogasanas-@ - Padmasana-V ajrasanas- Chakrasanas (Side)- Viruchasanas- Yoga muthra- Patchimothasana-s U strasanas- Vakkarasanas-i Salabasanas	SSS
			Unit II - Art of Nurturing the life force and Mind 2.1 Maintaining the youthfulness- Postponingth e ageingp rocess 2.2 Sex and Spirituality - Significance of sexual vital fluid - Married life - Chastity 2.3 Tenstageso f Mind 2.4 Mental frequency - Methods for concentration	

			Unit m - Sublimation 3.1 Purposea nd PhilosoPhYo f life 3.2 Intospection - Analysis of Thought 3.3 Moralization of Desires 3.4 Neutralization of Anger	
			Unit W - Human Resources I)evelopment 4.1 Eradication of worries 4.2 Benefits of Blessings 4.3. Greatnesso f FriendshiP 4.4 Individual Peace and World Peace	
			Unit V- Law of Nature 5.t Unified force - Cause and Effect system 5'2 Purity of Thought and Deed and Genetic centre 5:3 Love and Compassion 5.4 Culhral Education - Five fold Culture	
8		**Course V:Cell Biology & Biochemistry.**	Unit I Introductory Cytology Cell theory - Prokaryotic and Eukaryotic cells. Cytological techniques: Fixation– Sectioning & Staining. Principles & Resolving power of compound microscope, Confocal microscope and electron microscope. Cell Junctions - Ultrastructure and functions of plasma membrane.	SSS
			Unit II Cell Organelles Nucleus & Nucleolus. DNA structure and function - DNA Replication - Chromatin – Nucleosome. Chromosomes: – Structure, types, giant chromosomes. Ultrastructure and functions of Endoplasmic reticulum, Golgi body & Ribosomes.	SSS
			Unit III Metabolism & Cell cycle Ultrastructure and functions of Lysosomes, centrosomes, Mitochondria. Glycolysis and Krebs cycle. Electron transport chain and formation of ATP. Cell cycle - Mitosis, Meiosis -regulation. Apotosis& Cancer (brief outlines).	SSS
			Unit IV Protein Synthesis Types & role of RNA- Structure of t-RNA. Ultra structure, function and types of ribosome. Properties of Genetic code - Detailed study of Protein synthesis – Polysome – differences in eukaryotes – Short outline of post transcriptional modifications.	SSS
			Unit V Biochemistry Structure and Classification of Carbohydrates, Protein and lipids. Enzymes: - mechanism of action – classification and factors influencing enzyme action. Glycogenesis –Glycogenolysis, Gluconeogenesis and HMP shunt. Beta oxidation of fats.	SSS
			Unit I Classification Characters and basic classification of Kingdom Monera and Fungi. Systematic position of Virus – classification - Structure of bacteriophage & HIV. Viroids and Prions. Ultra structure of E. coli.- - bacterial cell wall. General structure of fungi.	AMK
			Unit II Bacterial culture Bacterial growth and growth curve – factors influencing bacterial growth. Types of Culture medium – Culture of Bacteria – Sterilisation - Medium – techniques. Maintenance – Characteristics of colonies – staining of bacteria – Bio fermenters and it role in mass culture.	AMK

9		**Course VI:Micro-Biology.**	Unit III Food & Agriculture Control of Microbes. Preservation of Milk. Food Spoilage: Botulism – Staphylococcal –Salmonellosis. Culture of Yeast & economic importance. Microbial Nitrogen fixation - Rhizobium – Azotobacter – Azospirillum - BGA Biofertiliser – VAM fungi – Mycorrhiza.	AMK
			Unit IV Industrial Microbiology Role of microbes in Industry –Stages – types and methods of Fermentation. Products of fermentation industry – Ethanol - Citric acid - enzymes Antibiotics –food & dairy products. Basics concepts of Probiotics	AMK
			Unit V Medical Microbiology Causative organism, transmission & preventive measures of Cholera, Typhoid, Tuberculosis, Leprosy, Syphilis, AIDS, Chicken pox Hepatitis-B, Polio, Rabies, swine flu – Chikungunya& Dengue.	AMK
10		**Course VII:Genetics & Immunology.**	Unit I Importance of drosophila in genetics – Culture methods - sex identification – common mutations. Mendelian Laws of Inheritance & Non mendalian inheritance (Incomplete dominance – Co-dominance – Polygenic inheritance – Epistasis –Lethal genes). Crossing over – Linkage in drosophila.	AM
			Unit II Recombination in bacteria: – Transformation – Conjugation – F factor -Sexduction –Transduction –Generalised&Specialised - Plasmids. Chromosome variation (Ploidy) - Euploidy – Aneuploidy – Gene Balancing – Gynandromorphs – Barr bodies – Chromosomal abberations- Non disjunction - Klinefelter, Turner & Down syndrome.	AM
			Unit III Gene Mutations – Types of Mutations – Physical & Chemical mutagens – DNA repair. Sickle cell anemia – Alkaptonuria – Phenyl ketonuria – albinism. Operon concept-Lac &trp operons (outlines)	AM
			Unit IV Cells of immune system - Types of Immunity – Innate and acquired - Antigens - Structure, function and types of a antibodies. B and T cell epitopes, haptens, adjuvants. - Antigen-antibody reactions - T-Cell and B-Cell activation - Monoclonal antibodies.	AM
			Unit IV Basic concepts of major histocompatibility complex. - Basic properties and functions of Cytokines, Interferons and complement proteins - Humoral and Cell mediated immunity. Types of hyper sensitivity. Concepts of autoimmunity and immunodeficiency - Vaccines.	AM
			Unit I Bimolecular Interactions Valence of carbon - Polar & non polar molecules – Covalent, ionic & Co-ordinate bonds. Hydrogen bonding - weak interactions, ester linkage, electrostatic, Disulphide& peptide bonds - Van-der Waals forces. Isomerism & optical activity.	MVR

11		**Skill Based III: Biophysics & Instrumentation.**	Unit II Solutions Hydrophiles&hydrophobes - Acid-Base concept, Molarity, Molality & Normality, Ampholyte, pH &pKa value -.Redox potential – Principles of diffusion & Osmosis – Hypo, hyper and isotonic solutions..	MVR
			Unit III Thermodynamics First & Second laws of thermodynamics, Biological applications of enthalpy, free energy, activation energy, unavailable energy and entropy, Thermodynamics of passive and active transport - high energy phosphate bond - Electron-transport chain.	MVR
			Unit IV Instrumentation Principles Principles of light microscopy & Electron microscopy - pH meter – Centrifugation –Chromarography – Electrophoresis - Colorimeter & Spectrophotometer – ECG – interpretation of electrocardiograph.	MVR
			Unit V Signaling & Kinetics Enzyme action: Michaelis-Menton equation - Vmax - Km - Line Weaver Burk plot. Action potential – refractory period – synaptic potential. Excitation & conduction of heart beat. Radio-labeling & Tracer techniques.	MVR
12	III UG	**Core Practical III: Cell Biology & Biochemistry, Animal Physiology & Developmental Biology.)**	Major - Squash Preparation of Onion root tip – stages of Mitosis Estimation of RBC & WBC in human Blood (Not for colleges offering CLT) Oxygen consumption of fresh water fish Identification of given biochemical sample –Monosacchride, Polysacchride, Aminoacid, Protien, Lipid. Analysis of excretory products- Ammonia, urea and uric acid Minor - Study of opercular movement of a fish at 10 degree increase and Q10. Activity of Salivary Amylase (Qualitative). Preparation of Haemin crystals Estimation of Hemoglobin	JJ & MM
			Spotters: 1. Giant Chromosome (Demonstration of Polytene chromosome preparation) 2. Meiosis sub stages in Prophase I. (Demonstration suggested with Pollen of any Liliacea) 3. Kymograph (Demonstration of Muscle twitch with PowerPoint) 4. T.S of Pituitary, Thyroid, Adrenal, Ovary and testis 5. Sperm of Man 6. Egg of Frog 7. Blastula of Frog 8. Gastrula of Frog 9. Development of Chick 18, 24, 48, 72hr 10. Placenta of Sheep, Rabbit	

13		**Core Practical IV: Microbiology, Genetics, Immunology & Biotechnology.**	Major Practical - Isolation of DNA from any fruit/tissue. Preparation of Culture Media – Liquid & Solid Enumeration of microbesin soil Gram staining. Thin layer chromatography of any Biological sample (Optional). Estimation of activity of Protease & Amylase. Minor - Quality of Milk – MBR test. Mounting of given fungi. Antigen – Antibody reaction – ABO blood group Sterilization of the Culture Medium in Autoclave / pressure cooker Estimation of sugar in given wine sample. Determination of Motility of Microbe – Hanging drop (Do not use curd as Lactobacillus is not motile)	AMK
			Spotters Drosophila male and female.- Genetic importance, Giant Chromosome, Spirullina, Yeast, Penicillin, Antibiotic sensitivity test, Thymus gland, Autoclave/ Pressure Cooker, Electrophoresis unit, Culture media –Plate, Slant & Broth, Azolla, WIDAL kit , VDRL kit , Mushroom seeds, Bio-pesticide (BT/Fungi), Biofertiliser (Nitosomonas/ Rhizobium /Phosphobacter) Visit to an industry or lab of Biotechnology or Microbiological importance. Report should be submitted in the Practical	
14		**Skill based IV:Skill based Practical**	Major 1. Preparation of Chromate solution at various 5 concentration, measure the OD to verify Beer Lambert law. 2. Prepare isotonic, hypotonic and hypertonic solution and put a drop of blood and observe under the microscope. 3. Measure the length of given leaf (or any other of choice) samples (minimum 20 samples) and calculation of mean, median, mode and Standard Deviation. 4. Given is two groups of samples A & B. A contain 10 leaves (or any other of choice) of a locality and B from other species or locality. Measure the length and check do the samples differ significantly using students “t”.	MVR
			Minor 1. Preparation of Buffer (acetate/ phosphate/ citrate/ borate)of given pH. 2. Identification, sorting and percentage calculation of different types of cocoons. 3. Based on the given values calculate the Correlation coefficient. 4. Based on the given values calculate the regressionequation based on a variable.	
			Spotter Mulberry leaf, Silk worm moth, Different instars of larvae, Cocoon,Fungal Parasite of Silk Worm, light microscope, pH Meter, Centrifuge, Chromatograph, Colorimeter. Report Visitto Silk farms or commercial silkworm rearing houses or in house training in college.	
			Unit I Introduction, definition and causes for insect assuming pest status Classification of pest Types of damage caused by pests Importance of pest control Pest survaivilance and forecasting and pest outbreak.	JJ

15		**Elective IB :PEST AND THEIR CONTROL I**	Unit II General characters, bionomics and control measures of following agricultural pests Pests of paddy: 1. Tryporyzaincertulus (Lepidoptera) 3. Orseoliaoryzae (Diptera) 2. Hieroglyphusbanian (Orthoptera) 4. Dicladisarmigera (Coleoptera) Pests of Wheat: 1. Anaphothripssudanensis (Thysonoptera) 2.Odentodermis obesis (Isoptera) 3. Mythimana separate (Lepidoptera).	JJ
			UnitIII General characters, Bionomics and control measures of following agricultural pests Pests of sugarcane: 1 Chiloinfuscatellus (Lepidoptera) 2. Pyrillaperpusilla (Hemiptera) 3. Aleurolovusbarodensis (Hemiptera) 4. Scirphophaganivella (Lepidoptera) Pests of cotton: 1. Pectinophoragossypiella (Lepidoptera) 2. Aphudsgossypii (Hemiptera) 3. Eariasvitella(Lepidoptera) 4. Dysdercuscingulatus (Hemiptera).	JJ
			Unit IV General characters, Bionomics and control measures of following agricultural pests.Pests of cereals: 1.Chilopartellus (Lepidoptera) 2. Antherigonasoccata (Diptera). Pests of Pulses: 1.Helicoverpaarmigera (Lepidoptera) 2. Melanogromyza obtuse (Diptera) Pests of vegetables: 1.Leucinodesorbonalis (Lepidoptera) 2. Pierisbrassicae (Lepidoptera) Pests of fruits: 1.Papilio demolues (Lepidoptera) 2. Daccuscucurbitae (Diptera).	JJ
			UnitV General characters, Bionomics and control measures of pests Stored grain pests: 1.Triboliumcastraneum (Coleoptera) 2.Sitophillus oryzae (Coleoptera) 3.Tricoderma granarium (Coleoptera). House hold pests: 1. Bed bug, 2. House fly, 3. Human louse, 4. Cockroach and 5. Mosquitoes.	JJ
		Elective IIA:Pathology & Clinical Laboratory Technology I	Unit I Basic laboratory principles: Organization of clinical laboratory - Safety measures - Chemical, fire & Electrical - Lab Technician Duties and Responsibilities - Professionalism & Ethics in laboratory workers, Modern Laboratory set up - Clinic borne infection and personnel hygiene.	MR
			Unit IIBasic Laboratory Equipments: Light Microscope – Incubator - Hot Air Oven – Autoclave - Laminar Air flow Chamber - Water Bath -- Centrifuge –Haemocytometer - Albuminometer -Urinometerhaemoglobinometer - Microtome - Glassware –Description of Glassware, its use, handling and care.	MR
			Unit III Preparation of Reagents: Buffer and pH - Preparation of Normal, Per cent and Molar solutions - Physiological saline, Clinical Laboratory records- -Quality control: Accuracy, Precision, and Reference values, use of chemicals and their interactions, danger signs, production techniques, and disposal methods.	MR

			Unit IV Basic Clinical Chemistry: Collection of blood – Anticoagulants - Separation of Serum and Plasma - Blood cell count & differential count – Estimation of Haemoglobin (Sahlis&Cyanmethemoglobin) - Clotting time -bleetting time – ESR – PCV – Blood smear & staining for observation parasites.	MR
			UnitV Automation in Clinical Laboratory: Semi & Fully Autoanlaysers – ELIZA – Use of PCR – HaematologyAnalysers – Cell counters – HPLC analysis for Haemoglobin fractions.	MR
		Elective IIA - Practical:Pathology & Clinical Laboratory Technology	Major Practical 2. Total count of RBC. 3. Total count of WBC. 4. Differential count of Blood 5. Microscopic identification of pus or cast cells and qualitatively check for the presence of blood in Urine 6. Smear the given bacteria with Gram's staining and interpret the result.	MR & AMK
			Minor Practical 1. Estimation of Haemoglobin by Sahlis Method. 2. Estimation of Bleeding & Clotting time 3. Estimation of specific gravity& Albumin in Urine. 4. Semi-quantitative estimation of glucose in urine. 5. Qualitatively detect the presence of bile salts&Urobilinogen in urine.	
			Spotters Malarial parasite, Filarial parasite,Tape Worm, ESR, Autoclave, Microtome, Coomb's test, Spermatozoa, Incubator, Water bath, Centrifuge. Report Report of visit/ training to a clinical lab of nearby locality.	

AM - DR. MARGARAT A, MR- DR. M RABEETH, AMK- DR.A MOHANKUMAR,
JJ- DR. J JAGATHESWARI, SSS - DR. S SUMATHI, MVR - DR. M V RADHAKRISHNAN,
MM- Mr. M MUSTHAQ, MD- Mr. M DEEPAK

Chikkanna Government Arts College, Tirupur
Department of zoology
Syllabus & Subject Allocation
M.Sc., Zoology II IV Semester 2019-2020

S.No	Class	Paper	Unit Details	Staff
1	I PG	PAPER - V - BIOPHYSICS AND BIOSTATISTICS	Unit I Bioelectricity Membrane, Resting and action potential. Ionic distribution and membrane potential, recording of action potential. Radiation Electromagnetic radiation. Laws of light absorption - Beer Lamberts law, Biological applications of X-rays, Infra-red rays, and Ultra violet rays.	MD
			Unit –II Bioenergetics Laws of thermodynamics, concept of free energy, oxidation reduction (redox) reactions. Energy coupling reactions, energy rich compounds, ATP cycle, standard free energy and negative entropy changes in living systems, enzyme catalysis.	MD
			Unit – III Biological data Source, Collection – Classification – Tabulation, Diagrammatic representation. Frequency curves, Frequency Polygon, Ogive. Measurements and variables Central tendency - Arithmetic mean, Median and Mode Dispersions, Deviations, Co–efficient of variance. Standard Deviations and standard Error.	AM
			Unit IV Test of Samples Sampling, distribution of samples and sampling errors. Chi – square test, Student —t‖ test, ANOVA one way and two way.	AM
			Unit V Correlation – types, methods - Karl Pearson's co-efficient Regression–types and significance - calculation of regression co–efficient Probability- Definition, Types, Additional and Multiplication theorems.	AM
2		PAPER – VI: BIOCHEMISTRY	Unit: I Structure of atoms, molecules and chemical bonds. Principles of biophysical chemistry (pH, buffer, reaction kinetics, thermodynamics, colligative properties).	MVR
			Unit: II Stabilizing interactions (Van der Waals, electrostatic, hydrogen bonding, hydrophobic interaction, etc.). Composition, nature of bonds/linkages, structure of biomolecules (carbohydrates, lipids, proteins, nucleic acids and vitamins).	MVR
			Unit: III Bioenergetics, glycolysis, oxidative phosphorylation, coupled reaction, group transfer, biological energy transducers. Principles of catalysis, classification of enzymes and enzyme kinetics, enzyme regulation, inhibitors of enzymes - mechanism of enzyme catalysis, isozymes	MVR

			Unit: IV Conformation of proteins (Ramachandran plot, primary, secondary, tertiary and quaternary structures, domains, motif and folds). Conformation of nucleic acids (helix (A, B, Z), t-RNA, micro-RNA).	MVR
			Unit: V Stability of proteins and nucleic acids: Metabolism of amino acids, carbohydrates, lipids, nucleotides and vitamins.	MVR
3		PAPER - VII: CELL AND MOLECULAR BIOLOGY	Unit: I Introduction – experimental systems in Cell Biology Biomembranes - Molecular composition and arrangement functional consequences - Transport across cell membrane- Diffusion, active transport and pumps and uniports, symports and antiport - Membrane potential - Co-transport by symports or antiporters - Transport across epithelia	MD
			Unit: II Cytoskeleton Microfilaments and microtubules-structure and dynamics - Microtubulus and mitosis - Cell movements-intracellular transport, role and kinesin and dynein, signal transduction mechanisms Cilia and flagella - Cell-cell signalling - Cell surface receptors - Second messenger system - MAP kinase pathways - Signalling from plasma membrane to nucleus	MD
			Unit: III Cell - cell adhesion and Communication Ca++ dependent homophilic cell-cell ahension - Ca++ independent homophilic cell-cell ahension - Gap junctions and connexions - Cell matrix adhesion – Integrins – Collagen - Non-collagrn components - Cell cycle - cyclines and cyclin dependent kinases - Regulation of CDK- cycline activity	MD
			Unit: IV Genome organization Hierarchy in organization - Chromosomal organization of coding and non-coding DNA – Regulation of gene expression - Mobile DNA - Morphological and functional elements of eukaryotic chromosomes - Genetic analysis in Cell Biology	MD
			Unit: V Intracellular protein traffic Protein synthesis on free and bound polysomes - Uptake into ER - Membrane proteins, Golgi sorting, post-translational modifications - Biogenesis of mitochondria, and nuclei - Trafficking mechanisms - Biology of cancer - Biology of aging - Apoptosis-definition, mechanism and significance	MD

4		PAPER –VIII: DEVELOPMENTAL BIOLOGY	Unit: I Basic concepts of development: Potency, commitment, specification, induction, competence, determination and differentiation; morphogenetic gradients; cell fate and cell lineages; stem cells; genomic equivalence and the cytoplasmic determinants; imprinting; mutants and transgenics in analysis of development	MM
			Unit: II Gametogenesis, fertilization and early development: Production of gametes, cell surface molecules in sperm-egg recognition in animals; zygote formation, cleavage, blastula formation, embryonic fields, gastrulation and formation of germ layers in animals; embryogenesis, establishment of symmetry.	MM
			Unit: III Morphogenesis and organogenesis in animals: Cell aggregation and differentiation in Dictyostelium; axes and pattern formation in Drosophila, amphibia and chick; organogenesis – vulva formation in Caenorhabditis elegans, eye lens induction, limb development and regeneration in vertebrates; differentiation of neurons, post embryonic development- larval formation, metamorphosis; environmental regulation of normal development; sex determination.	MM
			Unit: IV Neoteny: Occurrence and significance – Regeneration: Regenerative capacity in the Animal Kingdom – Factors influencing regeneration – Stimulation and Suppression – Polarity and Gradients – Development of immune system in vertebrates.	MM
			Unit: V Programmed cell death, aging and senescence Asexual reproduction - Assisted Reproductive Technology (ART) – Male infertility – Sperm abnormalities – Superovulation – IVF, ICSI, GIFT – Screening of genetic disorders.	MM
			1STRUCTURE AND FUNCTIONS OF INVERTEBRATA1. Comparative study of system: Invertebrata (any two animals) Appendages, external morphology, digestive system, nervous system and reproductive system. 2. Culture of earthworm in laboratory to identify the stages. 3. Culture and identification of morphology of Drosophila	

5		Practical I STRUCTURE AND FUNCTION OF INVERTEBRATES, COMPARATIVE ANATOMY OF CHORDATES AND ANIMAL BIODIVERSITY & ORGANIZATION	Comparative study of system: chordate (any two animals) External morphology, digestive and reproductive system. 2. Identification of Beck and feet in different birds (any locally available birds) Photography of Beck and feet. 3. Comparative study of scales of any preserved fish Cycloid, ctenoid, placoid and ganoid scales. 4. Comparative study of different types of chordate bones (any four animals) Skull, fore limb, hind limb. 5. Morphological modification of limb in fish, amphibia, reptiles, birds and mammals	JJ
			3 Animal biodiversity and organization 1. Plankton identification of from fresh/marine water (5 slides preparation). 2. Quantitative estimation of plankton using haemocytometer.	
			4.Spotters (Non-chordate and chordate) (each any five specimens) 1. Biological importance 2. Medical importance 3. Beneficial pests 4. Evolutionary significance 5. Economic importance Field study and field trip – Zoological visit, biodiversity area	
			5.Submission at the time of Practical Examination 1. Plankton: 5 slides 2. Report on the Field study and Field trip 2. Bonafide Record	
6		PRACTICAL – II ENVIRONMENTAL BIOLOGY, BIOPHYSICS &	I. ANALYSIS OF WATER Determination of: 1. pH 2. Total dissolved solids 3. Turbidity / light penetration 4. CO2 and O2 5. Hardness (Temporary and permanent) 6. Calcium and Magnesium 7. BOD and COD (Demonstration only) All the above parameters in a. Pond/pool water b. Canal/River water c. Sewage water	AM
			1. Soil Moisture 2. Chlorides 3. Sulphates 4. Nitrates 5. Total Phosphates 6. Total organic matter All the above parameters in a. Clayey soil, b. Sandy soil, c.Garden soil / Red soil	
			III. BIOLOGICAL ANALYSIS (SPOTTERS) 1. Qualitative analysis of organisms (Pollution indicator): (any Ten)	

		BIOSTATISTICS	IV BIOPHYSICS:1. Preparation of buffers (acetate, phosphate, citrate, borate buffers) 2. Determination of pH titration curve of proteins and calculate the pI values 3. Determination of Glucose content of a given sample. (Calorimeter method)	
			V BIOSTATISTICS: 1. Construction of (a) Frequency polygon (b) Histograms from the Data given (The basic data may be from any material available around) 2.Calculation of (a) Standard deviation (b) Correlation and (c) Student's test from the given data FIELD TRIPS 1. Visit to – Drinking water treatment plant; Industrial effluent treatment plant; Pollution control lab. Submission at the time of Practical Examination 1. Report on the Field study and Field trips 2. Bonafide Record	
7		PRACTICAL – III BIOCHEMISTRY, CELL & MOLECULAR BIOLOGY AND DEVELOPMENTAL BIOLOGY	1.BIOCHEMISTRY 1. Quantitative and quantitative estimation of Carbohydrates, Proteins and Lipids from the given .samples. Preparation of Haemin crystals. Quantitative estimation of Haemoglobin.	SSS
			2 Separation of plasma, Serum and cells from blood. Colorimetric estimation of glucose from blood Estimation of cholesterol in the blood Estimation of alkaline and acid phosphatases	
			3. CELL AND MOLECULAR BIOLOGY 1. Mounting of Polytene chromosome from the salivary gland of a Chironomus larva. 2. Squash preparation of onion root tip to study the stages of Mitosis.	
			4. Isolation of DNA and RNA from an animal tissue (Demonstration only) Study of different cells from the vertebrate animal (Brain, Liver, Gonad, Kidney and Muscle)	
			5.DEVELOPMENTAL BIOLOGY: 1.Regeneration study in Tadpole/Earth-worm 2. Study the life cycle of Drosophila melanogaster. 3. Patterning of the adult wing and Drosophila and demonstration of the effect of cell death on the pattering of the adult wing. 4. Effect of Thyroxin on the growth of tadpoles (Demonstration only) 6. Study of Embryonic developmental stages (Frog and Chick) Blastoderm mounting of chick embryo using vital stains	

8	II PG	PAPER - X1: GENETICS	Unit: I Basic concepts of Genetics Mendelian principles: Dominance, segregation, independent assortment. Concept of gene: Allele, multiple alleles, pseudoallele, complementation tests Extensions of Mendelian principles: Co-dominance, incomplete dominance, gene interactions, pleiotropy, genomic imprinting, penetrance and expressivity, phenocopy, linkage and crossing over, sex linkage, sex limited and sex influenced characters	MVR
			Unit: II Gene mapping methods: Linkage maps, tetrad analysis, mapping with molecular markers, mapping by using somatic cell hybrids, DNA foot printing. Extra chromosomal inheritance: Inheritance of Mitochondrial genes, maternal inheritance	MVR
			Unit: III Microbial genetics: Methods of genetic transfers – transformation, conjugation, transduction and sexduction, mapping genes by interrupted mating, fine structure analysis of genes. Human genetics: Pedigree analysis, lod score for linkage testing, karyotypes, genetic disorders - Human Genome Project. Quantitative genetics: Polygenic inheritance, heritability and its measurements, QTL mapping	MVR
			Unit: IV Mutation: Types, causes and detection, mutant types – lethal, conditional, biochemical, loss of function, gain of function, germinal verses somatic mutants, insertional mutagenesis. Structural and numerical alterations of chromosomes: Deletion, duplication, inversion, translocation, ploidy and their genetic implications. Recombination: Homologous and non-homologous recombination including transposition. Population Genetics: Genetic equilibrium – distinguishing forces – natural selection – mutation and genetic drift.	MVR
			Unit: V Molecular Genetics – Structure of gene – genetic code – gene regulation – genome analysis – functional genomics – RNA processing – Transcription: factors and regulation – Translation: control and regulation. Molecular population genetics: Patterns of change in nucleotide and amino acid sequences.	MVR
9		PAPER - XII: EVOLUTION	Unit: I Emergence of evolutionary theories Lamarck – Darwin – Concepts – evolutionary synthesis – evolutionary time scale – eras – periods – epoch. Human evolution: Stages of primate evolution including Homo. Behavioral Evolution: Altruism and evolution – Group selection and kin selection.	MM
			Unit: II Molecular Evolution Role of gene in evolution - Evolution of gene families, Molecular drive - Assessment of molecular variation Origin of higher categories Phylogenetic gradualism and punctuated equilibrium - Major trends in the origin of higher categories - Micro- and Macro-evolution – speciation.	MM
			Unit: III Molecular phylogenetics Construction of phylogenetic trees - Phylogenetic inference –Distance methods, parsimony methods, maximum likelihood method - Immunological techniques -	MM

			Unit: IV Amino acid sequences and phylogeny - Nucleic acid phylogeny-DNA-DNA hybridizations, Restriction Enzyme sites, Nucleotide sequence comparisons and homologies - Molecular clocks	MM
			Unit: V Population genetics and ecology Metapopulations - Monitoring natural populations - Why small populations become extinct? - Loss of genetic variations - Conservation of genetic resources in diverse taxa – Artificial evolution (in vitro).	MM
10		ELECTIVE PAPER - I: ENTOMOLOGY - II	UNIT I Interaction of Insects Social Insects: Caste differentiation and social behaviour of Termite, Honey Bee and Ant Insect – Plant interaction Insect vector – Host relationship Bionomics and control measures a. Locusta migratoria – Polyphagus grasshopper b. Odentotermis obesus– Polyphagus termite c. Heliothis armigera – Polyphagus moth d. Spodoptera litura – Polyphagus caterpillar e. Oryctus rhynocerus – Coconut beetle	SSS
			UNIT II Biology and Control measures of Insect pests Economic crops – Cotton and Sugarcane Stored grains – Paddy, Wheat and Flour Insect control methods Cultural, physical, mechanical, biological and chemical control methods Integrated pest management	SSS
			UNIT III Insect Vectors Systematics, biology and control measures of insect vectors of human diseases Flies – Anopheles sp, Culex sp and Aedes sp. and Musca domestica Roaches and bugs – Periplanita americana and Cimex indicus Insects of Commercial Importance Honey Bee – Types and the differences in nest building, production of honey Silk Moth – Types and the differences in life cycles and production of silk Lac Insect – Indian type only	SSS
			UNIT IV Insect Toxicology Principles and Scope Chemistry and mode of action of the Insecticides Inorganic compounds: Arsenic and fluorine compounds Organic compounds: Organochloride, organophosphorus and carbamates, Botanical Insecticides	SSS
			UNIT V Insects and Modern chemicals Growth regulatory compounds Microbial insecticides Pheromones and pest control Insecticides Formulation and appliances Mechanism of Insecticide resistance – Genetical, Physiological and Biochemical.	SSS
			UNIT I Microscopy – Interference microscope, Fluorescence microscope, Phase contrast microscope, Electron microscope (TEM & SEM). Centrifugation – Principle and applications, types. pH meter. Spectrophotometry - visible and UV spectrophotometry. Atomic Absorption Spectrophotometer. Chromatographic techniques – Principle and applications of chromatography, types of chromatography. Electrophoresis – Principle and applications	AMK

11		ELECTIVE PAPER – II B BIO-INSTRUMENTATION & BIOLOGICAL TECHNIQUES AND BIOTECHNOLOGY AND GENETIC ENGINEERING	UNIT II Southern blotting, Western Blotting, DNA finger printing techniques. Hybridoma technology – production and applications of monoclonal antibodies. Geiger Muller counter- principles and applications. Liquid Scintillation counter-principle and applications. Applications of radio isotopes in biological sciences. Autoradiography. Applications of Flow cytometry, Cell separation and culture techniques.	AMK
			UNIT III Gene Transfer Methods and Transgenic Organisms Gene Transfer Methods in Animals – Transgenic animals. Somatic cell hybridization – mechanism and applications. Recombinant DNA Technology Recombinant DNA – PCR, Restriction enzymes for cloning – Techniques used in recombinant DNA technology – Cloning vectors for rDNA – Construction of chimeric DNA – Molecular probes – Construction and screening of genomic libraries.	AMK
			Unit IV Isolation, Syntheses and Sequencing of Genes Isolation of genes – using DNA and RNA Probes; Gene therapy - types of gene therapy. Industrial Biotechnology Fermentation - Designing of Bioreactors – stages of fermentation and fermentation products – conversion of waste into biogas – conversion of waste into ethanol.	AMK
			Unit V Environmental biotechnology Biotechnological methods of pollution control- biological treatment of waste water - biotechnology for solid waste treatment - microbial bioremediation of polluted environment – aerobic and anaerobic treatment - bioleaching and biomining for recovery of resources – compost making	AMK
		PRACTICAL - IV	1. Determination of the rate of activity of salivary amylase (Human saliva). i) Ptyalin activity in relation to temperature and calculation of Q10. ii) Ptyalin activity in relation to pH and calculation of Q10. 2. Recording of diastolic and systolic pressure during, standing, sitting & lying posture	
			2. Biological responses of animals to various osmotic concentrations and their effects i) Change in weight of Earthworm in heteroosmotic media ii) Pattern of osmotic responses of crab in heterosmotic media iii) Active uptake of Na+ and Cl- of a fish from the environmental water and change in salinity. Determination of the specific gravity of the blood of a vertebrate animal-by copper sulphate method.	

12		COMPARATIVE ANIMAL PHYSIOLOGY AND IMMUNOLOGY	3.Effect of temperature on the opercular movement of fish and calculation of Q10. 6. Determination of the median threshold concentration of sucrose for housefly population. Effect of drugs on the heartbeat of cockroach (Result with graphical representation corresponding to different concentration and time intervals expected) Determination of the rate of ammonia and urea excretion in fish. Determination of the haemoglobin content in fish blood.	MVR
			4.IMMUNOLOGY: 12 hours 1. Study of Antigen and Antibody reaction through the study of Blood grouping. 2. Study of Rh factor through the study of Bloo	
			5.Widal Test Western blotting (Demonstration only)ELISA (Demonstration only) Separation of lymphocytes from whole blood	
13		PRACTICAL - V GENETICS AND EVOLUTION	1.GENETICSGenetic characteristics of a class room sample. i) Dermatoglyphic patterns (Finger print), ii) Ear lobe, iii) Rolling of tongue, iv) Mid digital hairs, v) Widow's peak, vi) Inward bending of little finger.	AM
			2.Study of morphology of Drosophila melanogaster Culture of Drosophila melanogaster Identification of sex and mutant characters Drosophila melanogaster Demonstration of dosage compensation in Drosophila males and females.	
			3. Preparation of genital plate of Drosophila melanogaster Estimation of allelic Frequency based on ABO Blood Group. Identification of Rh factor in blood groups Preparation of buccal smear to show squamous epithelial cells.	
			4. Study of Barr body using buccal smear of volunteers Study of stages of mitosis and meiotic chromosomes of grasshopper by observation of permanent slides and calculation of chiasma frequency	
			5.Evolutionary significances: Fossils of each any five from non-chordate and chord .Analogous and homologous organs of vertebrate animals (Frog, Calotes, Pigeon and Rabbit) 3. Mimicry and colouration of animals	
			1. Identification of insects a. Key to each order b. One insect for each order (South Indian insects only)	

14		ELECTIVE I PRACTICAL - ENTOMOLOGY	2. Dissection – Digestive system, Nervous system and Reproductive system (Any two) Cockroach Gryllotalpa Nepa Cybister Silk moth	MR
			3. Mounting – Mouthparts, Salivary gland and Sting apparatus. (Any two) Honey bee Cockroach	
			4a. Qualitative study of haemocyte in the haemolymph of cockroach 4b. Qualitative study of lipids, carbohydrates and proteins in the haemolymph of cockroach. 4c. Identification of Insect pests of the following (3 major pests in each) i. Paddy ii. Cotton iii. Sugarcane iv. Vegetables v. Storage products	
			5. Submission – Insects (only photographic album/chart) 6. Spotters a. Systematics b. Pests c. Medical importance d. Veterinary importance e. Economic importance f. Insect whole mounts – 10 slides Record – A complete record of the works done during the practical hours of the year should be submitted with bonafide certificate.	
15		ELECTIVE II- MICROBIOLOGY, BIOINSTRUMENTATION & BIOLOGICAL TECHNIQUES AND BIOTECHNOLOGY & GENETIC ENGINEERING	I. BIOINSTRUMENTATION & BIOLOGICAL TECHNIQUES: 12 hours 1. Separation technique of amino acids using paper chromatography. 2. Separation of Proteins on gel electrophoresis	AMK
			II. Study on the Principles of the Instruments and their uses. 1. pH Meter 2. Colorimeter 3. Spectrophotometer 4. Electrophoresis apparatus 5. Microtome	
			III. BIOTECHNOLOGY & GENETIC ENGINEERING	
			IV 1. Fermenter Design and Working Principle 2. Organic acid Production -- Citric acid (solid state or submerged). 3. Production and assay of extra cellular enzyme – Protease—submerged. 4. Wine Production.	
			V. Antibacterial sensitivity test. Isolation and estimation of DNA & RNA Preparation of tissue culture medium Preparation of single cell suspension from spleen and thymus, Cell counting and viability Immobilisation of cells (Bacteria/Yeast) by entrapme	

AM - DR. MARGARAT A, MR- DR. M RABEETH, AMK- DR.A MOHANKUMAR, SSS - DR. S SUMATHI, JJ - DR. J JAGATHEESWARI, MVR - DR. M V RADHAKRISHNAN, MM- Mr. M MUSTHAQ, MD- DR. M DEEPAK,

Chikkanna Government Arts College, Tirupur
Department of ZOOLOGY
Syllabus & Subject Allocation
M.Sc. ZOOLOGY I ,III Semester, 2020 - 2021

S.No	Class	Paper	Unit Details	Staff
1		**Course code 13A STRUCTURE AND FUNCTIONS OF INVERTEBRATES**	Unit:1 PRINCIPLES OF ANIMAL TAXONOMY -- hours Species concept; International code of zoological nomenclature - Taxonomic procedures. New trends in taxonomy - Animal collection, handling and preservation - Organization of coelom – Acoelomates – Pseudocoelomates - Coelomates: Protostomia and Deuterostomia.	AM
			Unit:2 LOCOMOTION,NUTRITION AND DIGESTION 21 hours Locomotion: Pseudopodia - Flagella and ciliary movement in protozoa - Hydrostatic movement in Coelenterata, Annelida and Echinodermata - Nutrition and Digestion: Patterns of feeding and digestion in lower metazoan - Filter feeding in polychaeta, Mollusca and Echinodermata.	AM
			Unit:3 RESPIRATION AND EXCRETION 21 hours Respiration: Organs of respiration: gills, lungs and trachea - Respiratory pigments - Mechanism of respiration – Excretion: Organs and products of excretion - coelom, coelomoducts, nephridia and Malphigian tubules - Mechanisms of excretion - Excretion and osmoregulation.	AM
			Unit:4 NERVOUS SYSTEM 21 hours Nervous system: Primitive nervous system: Coelenterata and Echinodermata - Advanced nervous system: Annelida, Arthropoda (crustacean and insecta) and Mollusca (cephalopoda) - Trends in neural evolution.	AM
			Unit:5 LARVAL FORMS AND MINOR PHYLA 21 hours Invertebrata larvae: Larval forms of free living invertebrates - Larval forms of parasites - Strategiesand evolutionary significance of larval forms - Minor Phyla - Organization and general characters, morphology, anatomy and affinities of Rotifera, Phoronida and Chaetognatha.	AM
			Unit:6 Contemporary Issues 2 hours Expert lectures, online seminars – webinars	
			Unit:1 PROTOCHORDATA AND CHORDATE MORPHOLOGY 21 hours Origin of Chordata: Concept of Protochordata - The nature of vertebrate morphology - Definition, scope and relation to other disciplines - Importance of the study of vertebrate morphology, Biology of Cephalochodata, Hemichordata and Urochordata.	MVR

2		**Course code 13B COMPARATIVE ANATOMY OF CHORDATES**	Unit:2 VERTEBRATE CLASSIFICATION AND INTEGUMENT 21 hours Origin and classification of vertebrates. Vertebrate integument and its derivatives - Development, general structure and functions of skin and its derivatives - Glands, scales, horns, claws, nail, hoofs, feathers and hairs.	MVR
			Unit:3 CIRCULATION AND RESPIRATION 21 hours Blood - Evolution of heart - Evolution of aortic arches and portal systems - Respiratory system - Characters of respiratory tissue - Internal and external respiration - Comparative account of respiratory organs in Vertebrate classes.	MVR
			Unit:4 SKELETAL SYSTEM AND URINOGENITAL SYSTEM 21 hours Skeletal system: Form, function, body size and skeletal elements of the body - Comparative account of jaw suspensorium, vertebral column - Limbs and girdles - Evolution of urinogenital system in different vertebrates (Pisces, Amphibians, Reptiles, Birds and Mammals).	MVR
			Unit:5 NERVOUS SYSTEM AND SENSE ORGANS 21 hours Nervous system - Comparative anatomy of the brain in relation to its functions - Comparative anatomy of spinal cord – Nerves-Cranial, Peripheral and Autonomous nervous system. Sense organs: Simple receptors - Organs of olfaction, taste and hearing - Lateral line system-Electroreception	MVR
			Unit:6 Contemporary Issues 2 hours Expert lectures, online seminars – webinars	MVR
3		**Course code 13C ANIMAL**	Unit:1 BIODIVERSITY 21 hour Biodiversity –terrestrial, marine and agro ecosystems. Hotspots – significance of Western Ghats and Indo-Burma region. Biosphere reserves in India and their prospects. Rare endemic and endangered species – IUCN Red list category – CITES	MD
			Unit:2 CONSERVATION BIOLOGY 21 hour In-situ and Ex-situ conservation Project Tiger and Elephant Human animal conflicts – Deforestation, Afforestation and Forest fire. Animal ethics – Ethical committee Discontinuation of dissection in educational institutions.	MD
			Unit:3 SYSTEMATIC ZOOLOGY 21 hour Species concept – levels of structural organization – Unicellular – Multicellular forms – Colonial. Levels of organization: Kingdom Animalia – salient features of all phylum – classification up to class for invertebrates and up to orders for vertebrates with examples	MD

3		**BIODIVERSITY AND CONSERVATION**	Unit:4 SCOPE AND IMPORTANCE OF WILDLIFE OF INDIA 21 hour Definition of wildlife: Causes of wildlife depletion. Economic importance of wildlife. Need for wildlife conservation. India - the country of mega wildlife biodiversity.	MD
			Unit:5 MODERN CONCEPTS IN WILDLIFE CONSERVATION 21 hour Wildlife Crimes: Wildlife forensics and its applications in detecting wildlife crimes. Wildlife toxicology: Types of contaminants - methods of toxicity evaluation. Bio concentration, bio accumulation and bio magnifications. Impacts of pesticides and heavy metals on amphibia, reptilia, aves and mammals. CAMP and PHVA-Analysis and reports. Environmental Impact Assessment (EIA) Methods and their role in wildlife conservation.	MD
			Unit:6 Contemporary Issues 2 hour Expert lectures, online seminars – webinars	
4	**I PG**	**Course code 13D ENVIRONMENTAL BIOLOGY**	Unit:1 THE ENVIRONMENT 21 hours The Environment: Physical environment; biotic environment; biotic and abiotic interactions. Habitat and Niche: Concept of habitat and niche; niche width and overlap; fundamental and realized niche; resource partitioning; character displacement.	MM
			Unit:2 POPULATION ECOLOGY 21 hours Population Ecology: Characteristics of a population; population growth curves; population regulation; life history strategies (r and K selection); concept of metapopulation – demes and dispersal, interdemic extinctions, age structured populations. Species Interactions: Types of interactions, interspecific competition, herbivory, carnivory, pollination, symbiosis.	MM
			Unit:3 COMMUNITY ECOLOGY 21 hours Community Ecology: Nature of communities; community structure and attributes; levels of species diversity and its measurement; edges and ecotones. Ecological Succession: Types; mechanisms; changes involved in succession; concept of climax.	MM
			Unit:4 ECOLOGY OF ECOSYSTEM 21 hours Ecology of Ecosystem: Ecosystem structure; ecosystem function; energy flow and mineral cycling (C,N,P); primary production and decomposition; structure and function of some Indian ecosystems: terrestrial (forest, grassland) and aquatic (fresh water, marine, estuarine). Biogeography: Major terrestrial biomes; theory of island biogeography; biogeographical zones of India.	MM

			Unit:5 APPLIED ECOLOGY 21 hours Applied Ecology: Environmental pollution and Bioremediation; global environmental change; biodiversity: status, monitoring and documentation; major drivers of biodiversity change;biodiversity management approaches. Conservation Biology: Principles of conservation, major approaches to management, Indian case studies on conservation/management strategy (Project Tiger, Biosphere reserves).	MM
			Unit:6 Contemporary Issues 2 hours Expert lectures, online seminars – webinars	
5		**Course code 23P STRUCTURE AND FUNCTION OF INVERTEBRATES, COMPARATIVE ANATOMY OF CHORDATES AND ANIMAL BIODIVERSITY & ORGANIZATION**	STRUCTURE AND FUNCTIONS OF INVERTEBRATA 12 hours 1. Comparative study of system: Invertebrata (any two animals) Appendages, external morphology, digestive system, nervous system and reproductive system. 2. Culture of earthworm in laboratory to identify the stages. 3. Culture and identification of morphology of Drosophila.	JJ
			COMPARATIVE ANATOMY OF CHORDATES 12 hours 1. Comparative study of system: chordate (any two animals) External morphology, digestive and reproductive system. 2. Identification of Beck and feet in different birds (any locally available birds) Photography of Beck and feet. 3. Comparative study of scales of any preserved fish Cycloid, ctenoid, placoid and ganoid scales. 4. Comparative study of different types of chordate bones (any four animals) Skull, fore limb, hind limb. 5. Morphological modification of limb in fish, amphibia, reptiles, birds and mammals.	
			ANIMAL BIODIVERSITY AND ORGANIZATION 12 hours 1. Plankton identification of from fresh/marine water (5 slides preparation). 2. Quantitative estimation of plankton using haemocytometer.	
			SPOTTERS (Non-chordate and chordate) (each any five specimens) 12 hours 1. Biological importance 2. Medical importance 3. Beneficial pests 4. Evolutionary significance 5. Economic importance	
			FIELD STUDY AND FIELD TRIP – Zoological visit, biodiversity area Submission at the time of Practical Examination 1. Plankton: 5 slides 2. Report on the Field study and Field trip 3. Bonafide Record	

6		**Course code 23Q ENVIRONMENTAL BIOLOGY, BIOPHYSICS & BIOSTATISTICS PRACTICAL - II**	I. ANALYSIS OF WATER 12 hours Determination of: 1. pH 2. Total dissolved solids 3. Turbidity / light penetration 4. CO2 and O2 5. Hardness (Temporary and permanent) 6. Calcium and Magnesium 7. BOD and COD (Demonstration only) All the above parameters in a. Pond/pool water b. Canal/River water c. Sewage water	AM
			II. ANALYSIS OF SOIL (ANY THREE) 12 hours Determination of: 1. Soil Moisture 2. Chlorides 3. Sulphates 4. Nitrates 5. Total Phosphates 6. Total organic matter All the above parameters in a. Clayey soil, b. Sandy soil, c.Garden soil / Red soil	
			III. BIOLOGICAL ANALYSIS (SPOTTERS) 12 hours 1. Qualitative analysis of organisms (Pollution indicator): (any Ten) BIOPHYSICS: 12 hours 1. Preparation of buffers (acetate, phosphate, citrate, borate buffers) 2. Determination of pH titration curve of proteins and calculate the pI values 3. Determination of Glucose content of a given sample. (Calorimeter method)	
			BIOSTATISTICS: 1. Construction of (a) Frequency polygon (b) Histograms from the Data given (The basic data may be from any material available around) 2.Calculation of (a) Standard deviation (b) Correlation and (c) Student's test from the given data.	
			FIELD TRIPS 1. Visit to – Drinking water treatment plant; Industrial effluent treatment plant; Pollution control lab.	
			Submission at the time of Practical Examination 1. Report on the Field study and Field trips 2. Bonafide Record	
			BIOCHEMISTRY 12 hours 1. Qualitative and quantitative estimation of Carbohydrates, Proteins and Lipids from the given samples. 2. Preparation of Haemin crystals. 3. Quantitative estimation of Haemoglobin. 4. Separation of plasma, Serum and cells from blood. 5. Colorimetric estimation of glucose from blood 6. Estimation of cholesterol in the blood 7. Estimation of alkaline and acid phosphatases	

7		**Course code 23R BIOCHEMISTRY, CELL & MOLECULAR BIOLOGY AND DEVELOPMENTAL BIOLOGY PRACTICAL - III**	CELL AND MOLECULAR BIOLOGY 12 hours 1. Mounting of Polytene chromosome from the salivary gland of a Chironomus larva. 2. Squash preparation of onion root tip to study the stages of Mitosis. 3. Isolation of DNA and RNA from an animal tissue (Demonstration only) 4. Study of different cells from the vertebrate animal (Brain, Liver, Gonad, Kidney and Muscle)	SSS
			DEVELOPMENTAL BIOLOGY: 12 hours 1.Regeneration study in Tadpole/Earth-worm 2. Study the life cycle of Drosophila melanogaster. 3. Patterning of the adult wing and Drosophila and demonstration of the effect of cell death on the pattering of the adult wing. 4. Effect of Thyroxin on the growth of tadpoles (Demonstration only) 5. Study of Embryonic developmental stages (Frog and Chick) 6. Blastoderm mounting of chick embryo using vital stains	
8		**PAPER – IX: COMPARATIVE ANIMAL PHYSIOLOGY**	Unit: I Adaptation - Levels of adaptation - Mechanism of adaptation - Significance of body size - Adaptation, acclimation and acclimatization - Concepts of homeostasis. Physiological adaptations of different environments – Marine - Shores and Estuaries – Freshwater - Extreme aquatic environments - Terrestrial life - Extreme terrestrial environments - Parasitic habitats. Stress Physiology - Basic concept of environmental stress and strain; concept of elastic and plastic strain; stress resistance, stress avoidance and stress tolerance.	SSS
			Unit – II Cultivation and control of microorganism – Methods of collection of sample – methods of estimation of microorganism in soil, water and air – Isolation and identification of bacteria. Methods of sterilization and disinfection – Microbial control – Physical and chemical –techniques of pure culture – Method of cultivation of bacteria – Phases of growth	MD
			Unit: III Respiratory physiology – Structures – Respiratory gases – uptake – respiratory pigments – O2 & CO2 dissociation curves – transport of respiratory gases.	JJ
			Unit: IV Excretory physiology – Excretory organs – mechanism of excretion – physiology – adaptations of excretion to environment – Excretory products: synthesis and elimination. Endocrine glands – Feedback regulation – Pituitary – gonadal axis – Role of reproductive hormones – gamete formation; fertilization; embryonic development; parturition; lactation; neuroendocrine regulation.	MVR

			Unit: V Neural and muscular physiology – Neurons – action potential – nerve impulse transmission – neurotransmitters – mechanism of neural transmission – neuro-degenerative diseases. Muscle contraction – theories – molecular mechanism of muscle contraction.	MM
9		**PAPER - X: IMMUNOLOGY**	Unit: I Innate and Acquired Immunity Phylogeny and Ontogeny of immune system - Organization and structure of lymphoid organs Cells of the immune system and their differentiation - Lymphocyte traffic - Nature of immune response	JJ
			Unit: II Nature of antigens Antigenicity and immunogenicity - Factors influencing immunogenicity - Epitopes and haptens - Super antigens - Structure and Functions of Antibodies - Classes and subclasses - Gross and fine structure - Antibody mediated effector functions - Antigen- Ab interactions in vitro and in vivo	JJ
			Unit: III Complement system: Components, control proteins and activation pathways Major Histocompatibility Complex in mouse and HLA system in human MHC haplotypes - Class I and class II molecules - Cellular distribution - Peptide binding - Expression and diversity - Disease susceptibility and MHC/HLA Organization and expression of Ig genes - Models for Ig gene structure - Multigene organization of Ig genes - DNA rearrangements and mechanisms - Generation of antibody diversity - Differential expression of Ig genes.	JJ
			Unit: IV T-cell generation, activation and differentiation Isolation, molecular components and structure of T-cell receptor complex - T-cell maturation and thymus - TH- cell activation mechanism - T- cell differentiation - Cell death and T- cell population - B- cell generation, activation and differentiation - B-cell receptors - Selection of immature self-reactive B-cells - B-cell activation and proliferation - TH-B- Cell interactions	JJ
			Unit: V Cytokines - Definition and salient functional features - Cytokine receptors - Cytokines and immune response - Cell-mediated effector functions - Cell adhesion molecules - Effectors cells and molecules - CTL and NK cells- mechanism of action - Immunological tolerance and Antiimmunity - Delayed type hypersensitivity - Hypersensitivity: Types and immunological reactions and immune response to infection agents especially intracellular parasites	JJ
			UNIT I Class Insecta Classification up to order with example for each order Identification of insects using keys Insect Collection Methods Preservation Significance	SSS

10		**ELECTIVE PAPER – I: ENTOMOLOGY – I**	UNIT II Comparative Morphology Head Thorax Abdomen Appendages Functional Morphology Mouthparts Genitalia (male, female)	SSS
			UNIT III Comparative Physiology Digestive system Respiratory system Circulatory system Excretory system Nervous system Reproductive system	SSS
			UNIT IV Integument – Structure and functions, Synthesis of chitin Moulting: Apolysis, ecdysis and sclerotisation Growth - Insect growth, Metamorphosis: types, significance and hormonal regulations	SSS
			UNIT V Insect Endocrines Endocrine Glands Hormones and Neurohormones – their functions Insect adaptations Adaptations to environmental stress Diapauses Pheromones Insect flight	SSS
11		**ELECTIVE PAPER – II A: MICROBIOLOGY**	Unit – I Introduction– Scope and History of microbiology –Classification of bacteria, fungi, yeast and virus. Structure and functions of bacteria and virus. Reproduction in bacteria – Transformation, conjugation, transduction.	AMK
			Unit – II Cultivation and control of microorganism – Methods of collection of sample – methods of estimation of microorganism in soil, water and air – Isolation and identification of bacteria. Methods of sterilization and disinfection – Microbial control – Physical and chemical –techniques of pure culture.	AMK
			Unit – III Microbial Ecology: Distribution of microorganism in soil, water and air – Environmental factors influencing the distribution of microorganism – Role of microorganisms in the cycling of nutrients – Carbon and Nitrogen cycle.	AMK
			Unit – IV Food Microbiology: Sources, types incidence of microorganism in vegetables, meats, milk and dairy products – spoilage of food, fruits, vegetables, cereals, meat, caned products – Factors influencing spoilage – Principles of food preservation.	AMK
			Unit – V Microbial Technology: Genetically modified organisms in food production – Single Cell Protein (SCP) production – Production of organic acids (acetic acid), ethanol – Antibiotics – Microbial toxins.	AMK

12		**PRACTICAL – IV (COMPARATIVE ANIMAL PHYSIOLOGY AND IMMUNOLOGY)**	Comparative Animal Physiology: (Use any two cultured species which are not in endangered list) 1. Determination of the rate of activity of salivary amylase (Human saliva). i) Ptyalin activity in relation to temperature and calculation of Q10. ii) Ptyalin activity in relation to pH and calculation of Q10. 2. Recording of diastolic and systolic pressure during, standing, sitting & lying posture. 3. Biological responses of animals to various osmotic concentrations and their effects i) Change in weight of Earthworm in heteroosmotic media ii) Pattern of osmotic responses of crab in heterosmotic media iii) Active uptake of Na+ and Cl- of a fish from the environmental water and change in salinity. 4. Determination of the specific gravity of the blood of a vertebrate animal-by copper sulphate method. 5. Effect of temperature on the opercular movement of fish and calculation of Q10. 6. Determination of the median threshold concentration of sucrose for housefly population. 7. Effect of drugs on the heartbeat of cockroach (Result with graphical representation corresponding to different concentration and time intervals expected) 8. Determination of the rate of ammonia and urea excretion in fish. 9. Determination of the haemoglobin content in fish blood.	MVR
			Immunology: 1. Study of Antigen and Antibody reaction through the study of Blood grouping. 2. Study of Rh factor through the study of Blood grouping. 3. Estimation of protein by Lowry’s method 4. Widal Test 5. Western blotting (Demonstration only) 6. ELISA (Demonstration only) 7. Separation of lymphocytes from whole blood	

13		**PRACTICAL – V (GENETICS AND EVOLUTION)**	Genetics: 1. Genetic characteristics of a class room sample. i) Dermatoglyphic patterns (Finger print), ii) Ear lobe, iii) Rolling of tongue, iv) Mid digital hairs, v) Widow's peak, vi) Inward bending of little finger. 2. Study of morphology of Drosophila melanogaster 3. Culture of Drosophila melanogaster 4. Identification of sex and mutant characters Drosophila melanogaster 5. Demonstration of dosage compensation in Drosophila males and females. 6. Preparation of genital plate of Drosophila melanogaster 7. Estimation of allelic Frequency based on ABO Blood Group. 8. Identification of Rh factor in blood groups 9. Preparation of buccal smear to show squamous epithelial cells. 10. Study of Barr body using buccal smear of volunteers 11. Study of stages of mitosis and meiotic chromosomes of grasshopper by observation of permanent slides and calculation of chiasma frequency	AM
			Evolution: 1. Evolutionary significances: Fossils of each any five from non-chordate and chordate. 2. Analogous and homologous organs of vertebrate animals (Frog, Calotes, Pigeon and Rabbit) 3. Mimicry and colouration of animals.	

14		**ELECTIVE I PRACTICAL (ENTOMOLOGY I & II) (Avoid collecting animals from Wild)**	a. Key to each order b. One insect for each order (South Indian insects only) 2. Dissection – Digestive system, Nervous system and Reproductive system (Any two) Cockroach Gryllotalpa Nepa Cybister Silk moth 3. Mounting – Mouthparts, Salivary gland and Sting apparatus (Any two) Honey bee Cockroach House fly Mosquito 4. Morphological studies of different types of antennae and legs of insects. 5. Qualitative study of haemocytes in the haemolymph of cockroach 6. Qualitative study of lipids, carbohydrates and proteins in the haemolymph of cockroach. 7. Identification of Insect pests of the following (3 major pests in each) i. Paddy ii. Cotton iii. Sugarcane iv. Vegetables v. Storage products 8. Collection and preservation of insects.	MR
			8. Spotters a. Systematics b. Pests c. Medical importance d. Veterinary importance e. Economic importance f. Insect whole mounts – 10 slides	
			Field study and visit – Visits to agricultural fields and forests for on spot study of pests and damage caused by them. Submission at the time of Practical Examination 1. Report on the Field study and Field trips 2. Bonafide Record 3. Insect photographic album/chart	

15		**ELECTIVE II PRACTICAL (MICROBIOLOGY, BIOINSTRUMENTATION & BIOLOGICAL TECHNIQUES AND BIOTECHNOLOGY & GENETIC ENGINEERING)**	Microbiology: 1. Sterilization – Principles and methods. 2. Media preparation – Liquid and Solid media, Agar deep, slant and plate. 3. Pure culture techniques – Streak plate, pour plate, spread plate. 4. Identification of Gram positive and Gram negative bacterial strains. 5. Enumeration of microorganisms using haemocytometer. 6. Water quality analysis – MPN. 7. Isolation of microorganisms from spoiled foods – Meat, milk, Cereals and Bread. 8. Milk quality – Dye reduction test. 9. Antibiotic sensitivity: oxidase test 10. Identification of symbiotic bacterioids from root nodules of leguminous plants	AMK
			Bioinstrumentation & Biological techniques: 1. Separation technique of amino acids using paper chromatography. 2. Separation of Proteins on gel electrophoresis 3. Study on the Principles of the Instruments and their uses. 1. pH Meter 2. Colorimeter 3. Spectrophotometer 4. Electrophoresis apparatus 5. Microtome	
			Biotechnology & Genetic Engineering 1. Fermenter Design and Working Principle 2. Organic acid Production -- Citric acid (solid state or submerged). 3. Production and assay of extra cellular enzyme – Protease—submerged. 4. Wine Production. 5. Antibacterial sensitivity test. 6. Isolation and estimation of DNA & RNA 7. Preparation of tissue culture medium 8. Preparation of single cell suspension from spleen and thymus. 9. Cell counting and viability 10. Immobilisation of cells (Bacteria/Yeast) by entrapment	

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Chikkanna Government Arts College, Tirupur
Department of ZOOLOGY
Syllabus & Subject Allocation
M.Sc. ZOOLOGY II ,IV Semester, 2020 - 2021

S.No	Class	Paper	Unit Details	Staff
1		**Course code 23A BIOPHYSICS AND BIOSTATISTICS**	Unit:1 BIOELECTRICITY AND RADIATION 21 hours Bioelectricity Membrane, Resting and action potential. Ionic distribution and membrane potential, recording of action potential. Radiation Electromagnetic radiation. Laws of light absorption - Beer Lamberts law, Biological applications of X-rays, Infra-red rays, and Ultra violet rays.	MD
			Unit:2 BIOENERGETICS 21 hours Laws of thermodynamics, concept of free energy, oxidation reduction (redox) reactions. Energy coupling reactions, energy rich compounds, ATP cycle, standard free energy and negative entropy changes in living systems, enzyme catalysis.	MD
			Unit:3 BIOLOGICAL DATA, MEASUREMENTS AND VARIABLES 21 hours Biological data Source, Collection – Classification – Tabulation, Diagrammatic representation. Frequency curves, Frequency Polygon, Ogive Measurements and variables Central tendency - Arithmetic mean, Median and Mode Dispersions, Deviations, Co–efficient of variance. Standard Deviations and standard Error.	AM
			Unit:4 TEST OF SAMPLES 21 hours Sampling, distribution of samples and sampling errors. Chi – square test, Student ―t‖ test, ANOVA one way and two way.	AM
			Unit:5 PROBABILITY 21 hours Correlation – types, methods - Karl Pearson's co-efficient Regression–types and significance -calculation of regression co–efficient Probability- Definition, Types, Additional and Multiplication	AM
			Unit:6 Contemporary Issues 2 hours Expert lectures, online seminars – webinars	
			Unit:1 BASIC PRINCIPLE 21 hours Structure of atoms, molecules and chemical bonds Principles of biophysical chemistry (pH, buffer, reaction kinetics, thermodynamics, colligative properties).	MVR
			Unit:2 STABILIZING INTERACTION 21 hours Stabilizing interactions (Van der Waals, electrostatic, hydrogen bonding, hydrophobic interaction, etc.). Composition, nature of bonds/linkages, structure of biomolecules (carbohydrates, lipids, proteins, nucleic acids and vitamins).	MVR

2		**Course code 23B BIOCHEMISTRY**	Unit:3 BIOENERGETICS 21 hours Bioenergetics, glycolysis, oxidative phosphorylation, coupled reaction, group transfer, biological energy transducers. Principles of catalysis, classification of enzymes and enzyme kinetics, enzyme regulation, inhibitors of enzymes - mechanism of enzyme catalysis, isozymes	MVR
			Unit:4 CONFORMATION OF PROTEINS 21 hours Conformation of proteins (Ramachandran plot, primary, secondary, tertiary and quaternary structures, domains, motif and folds). Conformation of nucleic acids (helix (A, B, Z), t-RNA, micro- RNA).	MVR
			Unit:5 METABOLISM 21 hours Stability of proteins and nucleic acids. Metabolism of amino acids, carbohydrates, lipids, nucleotides and vitamins.	MVR
			Unit:6 Contemporary Issues 2 hours Expert lectures, online seminars – webinars	
3		**Course code 23C CELL AND MOLECULAR BIOLOGY**	Unit:1 INTRODUCTION OF BIOMEMBRANE 15 hours Introduction – experimental systems in Cell Biology Biomembranes - Molecular composition and arrangement functional consequences - Transport across cell membrane- Diffusion, active transport and pumps and uniports, symports and antiport - Membrane potential - Co-transport by symports or antiporters - Transport across epithelia.	MD
			Unit:2 CYTOSKELETON 15 hours Microfilaments and microtubules-structure and dynamics - Microtubules and mitosis - Cell movements-intracellular transport, role and kinesin and dynein, signal transduction mechanisms Cilia and flagella - Cell-cell signalling - Cell surface receptors - Second messenger system - MAP kinase pathways - Signalling from plasma membrane to nucleus.	MD
			Unit:3 CELL- CELL ADHESION AND COMMUNICATION 15 hours Ca++ dependent homophilic cell-cell ahension - Ca++ independent homophilic cell-cell ahension Gap junctions and connexions - Cell matrix adhesion – Integrins – Collagen - Noncollagen components - Cell cycle - cyclins and cyclin dependent kinases - Regulation of CDKcycline activity.	MD
			Unit:4 GENOME ORGANIZATION 15 hours Hierarchy in organization - Chromosomal organization of coding and non-coding DNA – Regulation of gene expression - Mobile DNA - Morphological and functional elements of eukaryotic chromosomes - Genetic analysis in Cell Biology.	MD

			Unit:5 INTRACELLULA RPROTEIN TRAFFIC 15 hours Protein synthesis on free and bound polysomes - Uptake into ER - Membrane proteins, Golgi sorting, post-translational modifications - Biogenesis of mitochondria, and nuclei - Trafficking mechanisms - Biology of cancer - Biology of aging - Apoptosis-definition, mechanism and significance.	MD
			Unit:6 Contemporary Issues 2 hours Expert lectures, online seminars – webinars	
4	**I PG**	**Course code 23D DEVELOPMENTAL BIOLOGY**	Unit:1 BASIC CONCEPTS OF DEVELOPMENT 21 hours Potency, commitment, specification, induction, competence, determination and differentiation; morphogenetic gradients; cell fate and cell lineages; stem cells; genomic equivalence and the cytoplasmic determinants; imprinting; mutants and transgenics in analysis of development	MM
			Unit:2 GAMETOGENESIS, FERTILIZATION AND EARLY DEVELOPMENT 21 hours Production of gametes, cell surface molecules in sperm-egg recognition in animals; zygote formation, cleavage, blastula formation, embryonic fields, gastrulation and formation of germ layers in animals; embryogenesis, establishment of symmetry.	MM
			Unit:3 MORPHOGENESIS AND ORGANOGENESIS IN ANIMALS 21 hours Cell aggregation and differentiation in Dictyostelium; axes and pattern formation in Drosophila, amphibia and chick; organogenesis – vulva formation in Caenorhabditis elegans, eye lens induction, limb development and regeneration in vertebrates; differentiation of neurons, post embryonic development- larval formation, metamorphosis; environmental regulation of normal development; sex determination.	MM
			Unit:4 NEOTENY AND REGENERATION 21 hours Neoteny: Occurrence and significance – Regeneration: Regenerative capacity in the Animal Kingdom – Factors influencing regeneration – Stimulation and Suppression – Polarity and Gradients – Development of immune system in vertebrates.	MM
			Unit:5 AGING AND ASSISTED REPRODUCTIVE TECHNOLOGY 21 hours Programmed cell death, aging and senescence - Asexual reproduction - Assisted ReproductiveTechnology (ART) – Male infertility – Sperm abnormalities – Superovulation – IVF, ICSI, GIFT – Screening of genetic disorders.	MM
			Unit:6 Contemporary Issues 2 hours Expert lectures, online seminars – webinars	

5		**Course code 23P STRUCTURE AND FUNCTION OF INVERTEBRATES, COMPARATIVE ANATOMY OF CHORDATES AND ANIMAL BIODIVERSITY & ORGANIZATION PRACTICAL – I**	STRUCTURE AND FUNCTIONS OF INVERTEBRATA 12 hours 1. Comparative study of system: Invertebrata (any two animals) Appendages, external morphology, digestive system, nervous system and reproductive system. 2. Culture of earthworm in laboratory to identify the stages. 3. Culture and identification of morphology of Drosophila.	JJ
			COMPARATIVE ANATOMY OF CHORDATES 12 hours 1. Comparative study of system: chordate (any two animals) External morphology, digestive and reproductive system. 2. Identification of Beck and feet in different birds (any locally available birds) Photography of Beck and feet. 3. Comparative study of scales of any preserved fish Cycloid, ctenoid, placoid and ganoid scales. 4. Comparative study of different types of chordate bones (any four animals) Skull, fore limb, hind limb. 5. Morphological modification of limb in fish, amphibia, reptiles, birds and mammals	
			ANIMAL BIODIVERSITY AND ORGANIZATION 12 hours 1. Plankton identification of from fresh/marine water (5 slides preparation). 2. Quantitative estimation of plankton using haemocytometer. SPOTTERS (Non-chordate and chordate) (each any five specimens) 12 hours 1. Biological importance 2. Medical importance 3. Beneficial pests 4. Evolutionary significance 5. Economic importance	
			FIELD STUDY AND FIELD TRIP – Zoological visit, biodiversity area Submission at the time of Practical Examination 1. Plankton: 5 slides 2. Report on the Field study and Field trip 3. Bonafide Record	
			Determination of: 1. pH 2. Total dissolved solids 3. Turbidity / light penetration 4. CO2 and O2 5. Hardness (Temporary and permanent) 6. Calcium and Magnesium 7. BOD and COD (Demonstration only) All the above parameters in a. Pond/pool water b. Canal/River water c. Sewage water	

			Determination of: 1. Soil Moisture 2. Chlorides 3. Sulphates 4. Nitrates 5. Total Phosphates 6. Total organic matter All the above parameters in a. Clayey soil, b. Sandy soil, c.Garden soil / Red soil	
			III. BIOLOGICAL ANALYSIS (SPOTTERS) 12 hours 1. Qualitative analysis of organisms (Pollution indicator): (any Ten) BIOPHYSICS: 12 hours 1. Preparation of buffers (acetate, phosphate, citrate, borate buffers) 2. Determination of pH titration curve of proteins and calculate the pI values 3. Determination of Glucose content of a given sample. (Calorimeter method)	AM
			BIOSTATISTICS: 1. Construction of (a) Frequency polygon (b) Histograms from the Data given (The basic data may be from any material available around) 2.Calculation of (a) Standard deviation (b) Correlation and (c) Student's test from the given data. FIELD TRIPS 1. Visit to – Drinking water treatment plant; Industrial effluent treatment plant; Pollution control lab. Submission at the time of Practical Examination 1. Report on the Field study and Field trips 2. Bonafide Record	
7		**Course code 23R BIOCHEMISTRY, CELL & MOLECULAR BIOLOGY AND DEVELOPMENTAL BIOLOGY PRACTICAL - III**	BIOCHEMISTRY 12 hours 1. Qualitative and quantitative estimation of Carbohydrates, Proteins and Lipids from the given samples. 2. Preparation of Haemin crystals. 3. Quantitative estimation of Haemoglobin. 4. Separation of plasma, Serum and cells from blood. 5. Colorimetric estimation of glucose from blood 6. Estimation of cholesterol in the blood 7. Estimation of alkaline and acid phosphatases	SSS
			CELL AND MOLECULAR BIOLOGY 12 hours 1. Mounting of Polytene chromosome from the salivary gland of a Chironomus larva. 2. Squash preparation of onion root tip to study the stages of Mitosis. 3. Isolation of DNA and RNA from an animal tissue (Demonstration only) 4. Study of different cells from the vertebrate animal (Brain, Liver, Gonad, Kidney and Muscle)	

			DEVELOPMENTAL BIOLOGY: 12 hours 1.Regeneration study in Tadpole/Earth-worm 2. Study the life cycle of Drosophila melanogaster. 3. Patterning of the adult wing and Drosophila and demonstration of the effect of cell death on the pattering of the adult wing. 4. Effect of Thyroxin on the growth of tadpoles (Demonstration only) 5. Study of Embryonic developmental stages (Frog and Chick) 6. Blastoderm mounting of chick embryo using vital stains	
8		**PAPER - X1: GENETICS**	Unit: I Basic concepts of Genetics Mendelian principles: Dominance, segregation, independent assortment. Concept of gene: Allele, multiple alleles, pseudoallele, complementation tests	MVR
			Unit: II Gene mapping methods: Linkage maps, tetrad analysis, mapping with molecular markers, mapping by using somatic cell hybrids, DNA foot printing. Extra chromosomal inheritance: Inheritance of Mitochondrial genes, maternal inheritance.	MVR
			Unit: III Microbial genetics: Methods of genetic transfers – transformation, conjugation, transduction and sexduction, mapping genes by interrupted mating, fine structure analysis of genes.	MVR
			Unit: IV Mutation: Types, causes and detection, mutant types – lethal, conditional, biochemical, loss of function, gain of function, germinal verses somatic mutants, insertional mutagenesis.	MVR
			Unit: V Molecular Genetics – Structure of gene – genetic code – gene regulation – genome analysis – functional genomics – RNA processing – Transcription: factors and regulation – Translation:	MVR
			Unit: I Emergence of evolutionary theories Lamarck – Darwin – Concepts – evolutionary synthesis – evolutionary time scale – eras – periods – epoch. Human evolution: Stages of primate evolution including Homo. Behavioral Evolution: Altruism and evolution – Group selection and kin selection.	JJ

9		**PAPER - XII: EVOLUTION**	Unit: II Molecular Evolution Role of gene in evolution - Evolution of gene families, Molecular drive - Assessment of molecular variation Origin of higher categories Phylogenetic gradualism and punctuated equilibrium - Major trends in the origin of higher categories - Micro- and Macro-evolution – speciation.	JJ
			Unit: III Molecular phylogenetics Construction of phylogenetic trees - Phylogenetic inference –Distance methods, parsimony methods, maximum likelihood method - Immunological techniques -	JJ
			Unit: IV Amino acid sequences and phylogeny - Nucleic acid phylogeny-DNA-DNA hybridizations, Restriction Enzyme sites, Nucleotide sequence comparisons and homologies - Molecular clocks	JJ
			Unit: V Population genetics and ecology Metapopulations - Monitoring natural populations - Why small populations become extinct? - Loss of genetic variations - Conservation of genetic resources in diverse taxa – Artificial evolution (in vitro).	JJ
			UNIT I Interaction of Insects Social Insects: Caste differentiation and social behaviour of Termite, Honey Bee and Ant Insect – Plant interaction Insect vector – Host relationship Bionomics and control measures a. Locusta migratoria – Polyphagus grasshopper b. Odentotermis obesus– Polyphagus termite c. Heliothis armigera – Polyphagus moth d. Spodoptera litura – Polyphagus caterpillar e. Oryctus rhynocerus – Coconut beetle	SSS
			UNIT II Biology and Control measures of Insect pests Economic crops – Cotton and Sugarcane Stored grains – Paddy, Wheat and Flour Insect control methods Cultural, physical, mechanical, biological and chemical control methods Integrated pest management	SSS

10		**ELECTIVE PAPER - I: ENTOMOLOGY - II**	UNIT III Insect Vectors Systematics, biology and control measures of insect vectors of human diseases Flies – Anopheles sp, Culex sp and Aedes sp. and Musca domestica Roaches and bugs – Periplanita americana and Cimex indicus Insects of Commercial Importance	SSS
			UNIT IV Insect Toxicology Principles and Scope Chemistry and mode of action of the Insecticides Inorganic compounds: Arsenic and fluorine compounds Organic compounds: Organochloride, organophosphorus and carbamates, Botanical Insecticid	SSS
			UNIT V Insects and Modern chemicals Growth regulatory compounds Microbial insecticides Pheromones and pest control InsecticidesFormulation and appliances Mechanism of Insecticide resistance – Genetical, Physiological and Biochemical.	SSS
		ELECTIVE PAPER – II B BIOINSTRUMENTA	UNIT I Microscopy – Interference microscope, Fluorescence microscope, Phase contrast microscope, Electron microscope (TEM & SEM). Centrifugation – Principle and applications, types. pH meter. Spectrophotometry - visible and UV spectrophotometry. Atomic Absorption Spectrophotometer. Chromatographic techniques – Principle and applications of chromatography, types of chromatography. Electrophoresis – Principle and applications	AMK
			UNIT II Southern blotting, Western Blotting, DNA finger printing techniques. Hybridoma technology – production and applications of monoclonal antibodies. Geiger Muller counter- principles and applications. Liquid Scintillation counter-principle and applications. Applications of radio isotopes in biological sciences. Autoradiography. Applications of Flow cytometry, Cell separation and culture techniques.	AMK

11		**BIOINSTRUMENTATION & BIOLOGICAL TECHNIQUES AND BIOTECHNOLOGY AND GENETIC ENGINEERING**	UNIT III Gene Transfer Methods and Transgenic Organisms Gene Transfer Methods in Animals – Transgenic animals. Somatic cell hybridization – mechanism and applications. Recombinant DNA Technology Recombinant DNA – PCR, Restriction enzymes for cloning – Techniques used in recombinant DNA technology – Cloning vectors for rDNA – Construction of chimeric DNA – Molecular probes – Construction and screening of genomic libraries.	AMK
			Unit IV Isolation, Syntheses and Sequencing of Genes Isolation of genes – using DNA and RNA Probes; Gene therapy - types of gene therapy. Industrial Biotechnology Fermentation - Designing of Bioreactors – stages of fermentation and fermentation products – conversion of waste into biogas – conversion of waste into ethanol.	AMK
			Unit V Environmental biotechnology Biotechnological methods of pollution control- biological treatment of waste water - biotechnology for solid waste treatment - microbial bioremediation of polluted environment – aerobic and anaerobic treatment - bioleaching and biomining for recovery of resources – compost making	AMK
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			Evolution: 1. Evolutionary significances: Fossils of each any five from non-chordate and chordate. 2. Analogous and homologous organs of vertebrate animals (Frog, Calotes, Pigeon and Rabbit) 3. Mimicry and colouration of animals.	
			1. Identification of Insects a. Key to each order b. One insect for each order (South Indian insects only)	
			2. Dissection – Digestive system, Nervous system and Reproductive system (Any two) Cockroach Gryllotalpa Nepa Cybister Silk moth	
			3. Mounting – Mouthparts and Salivary gland in any two selected insects. Bed bug Cockroach House fly Mosquito	

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15		**ELECTIVE II PRACTICAL (MICROBIOLOGY, BIOINSTRUMENTATION & BIOLOGICAL TECHNIQUES AND BIOTECHNOLOGY & GENETIC ENGINEERING)**	Microbiology: 1. Sterilization – Principles and methods. 2. Media preparation – Liquid and Solid media, Agar deep, slant and plate. 3. Pure culture techniques – Streak plate, pour plate, spread plate. 4. Identification of Gram positive and Gram negative bacterial strains. 5. Enumeration of microorganisms using haemocytometer. 6. Water quality analysis – MPN. 7. Isolation of microorganisms from spoiled foods – Meat, milk, Cereals and Bread. 8. Milk quality – Dye reduction test. 9. Antibiotic sensitivity: oxidase test 10. Identification of symbiotic bacterioids from root nodules of leguminous plants Bioinstrumentation & Biological techniques: 1. Separation technique of amino acids using paper chromatography. 2. Separation of Proteins on gel electrophoresis 3. Study on the Principles of the Instruments and their uses. 1. pH Meter 2. Colorimeter 3. Spectrophotometer 4. Electrophoresis apparatus 5. Microtome	AMK

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Department of Economics

Syllabus & Subject Allocation 2020-2021

Part III B.A. Economics I, III, V Semester

S.No	Class	Paper	Unit Details	Staff
1	I B.A	Micro Economics-I	Unit 1 Definitions and Basic concepts	MKV
2			Unit 2 Basic laws of Economics	
3			Unit 3 Elasticity of Demand	
4			Unit 4 Factors of production	
5			Unit 5 Cost and revenue concepts	
6	I B.A	Agricultural Economics	Unit 1 Agriculture and Economic Development	SS
7			Unit 2 Productivity in Indian Agriculture	
8			Unit 3 Agricultural Price Policy	
9			Unit 4 Agricultural Credit in India	
10			Unit 5 Agricultural Marketing	
11	I B.A	Allied- Tourism	Unit 1 Tourism Concepts	MKV
12			Unit 2 Types of Tourism, Growth of modern	
13			Unit 3 Travel & Tourism	
14			Unit 4 Economic dimensions of Tourism	
15			Unit 5 Role of Communication in travel	
16-20	I B.A	Foundation Course Environmental Studies	Sutru suzhal kalvi	MKV

S.No	Class	Paper	Unit Details	Staff
1	II B.A	Macro Economics	Unit 1 Nature and Scope of Macro Economics	MKV
2			Unit 2 Classical theory of price, output &	
3			Unit 3 The consumption function	
4			Unit 4 The rate of Interest & General Equilibrium	
5			Unit 5 Macro Economics policies & objectives	
6	II B.A	Statistical Methods	Unit 1 Sources of Data	NR
7			Unit 2 Frequency Distribution	
8			Unit 3 Measures of Central Tendency	
9			Unit 4 Correlation and Regression	
10			Unit 5 Index Numbers	
11	II B.A	Allied- Business Management For Economics	Unit 1 Functions of Management	SS
12			Unit 2 Scientific Management	
13			Unit 3 Forecasting and Decision Making	
14			Unit 4 Motivation and Communication	
15			Unit 5 Leadership	
16	II B.A	Skill Based Subject- Financial Accounting	Unit 1 Accounting Concepts	
17			Unit 2 Subsidiary Books	
18			Unit 3 Final Accounts	
19			Unit 4 Single Entry System	
20			Unit 5 Accounting of Non – Trading Concerns	
21	II B.A	Yogafor Human Excellence	Unit 1 Yoga and Physical Health	
22			Unit 2 Art of Nurturing the life force and Mind	

			Unit 3 Stimulation	MRV
23			Unit 4 Human Resources Development	
24			Unit 5 Law of Nature	
25				

S No	Class	Paper	Unit Details	Staff
1			Unit 1 Evolution, scope and functions of money	
2			Unit 2 Theories of Money	
3	III B A	Monetary Economics	Unit 3 Money, Financial and Capital Market	NR
4			Unit 4 Inflation and Business Cycle	
5			Unit 5 Banking sector	
6			Unit 1 New economic reforms	
7		Indian Economic	Unit 2 Indian Agriculture	
8	III B A	Development and Policies	Unit 3 Population in India	MRV
9			Unit 4 Infrastructure and Economic Development	
10			Unit 5 Regional Economy	
11			Unit Importance of International Economics	
12			Unit 2 Theories of International Trade	
13	III B A	International Economics	Unit 3 Balance of payments	MRV
14			Unit 4 Exchange Rate	
15			Unit 5 International financial Institutions	
16			Unit 1 Basic concepts of Entrepreneurship	
17			Unit 2 Women entrepreneurs, concepts, functions	
18	III B A	Entrepreneurship Development	Unit 3 Project identification and identification	SS
19			Unit 4 Training objectives and institutional finance	
20			Unit 5 Business correspondence	
21			Unit 1 Introduction to Insurance	
22		Elective I : An	Unit 2 Classification of Insurance on the basis of	
23	III B A	Introduction to	Unit 3 Insurance Legislation	SS
24		Insurance	Unit 4 Insurance Intermediaries	
25			Unit 5 Insurance & Economic development	
26			Unit 1 Basic concepts of computer	
27		Skill Based Subject-	Unit 2 Input devices - Mouse, Touch Screens	
28	III B A	Computer System I	Unit 3 Output devices - Impact Printers	NR
29			Unit 4 Tally ERP 9 - Create New Company with	
30			Unit 5 Types of vouchers	
31	III B A	Computer System I Practical		

Chikkanna Government Arts College, Tirupur

Department of Economics

Syllabus & Subject Allocation 2020-2021

Part III B.A. Economics II , IV, VI Semester

S.No	Class	Paper	Unit Details	Staff
1	I BA	Micro Economics-II	Unit 1 Market Structure	NR
2			Unit 2 Monopoly	
3			Unit 3 Monopolistic competition	
4			Unit 4 Theories of Factor pricing	
5			Unit 5 Interest and Profit	
6	I B.A	History of Economic Doctorine	Unit 1 Ancient Economic Thought	SS
7			Unit 2 Medieval Economic Thought	
8			Unit 3 Marxian philosophy	
9			Unit 4 Theory & Economic ideas	
10			Unit 5 Recent Economic Thought	
11	I B.A	Allied:Demography	Unit 1 Population and Development	MKV
12			Unit 2 Population trends in the twentieth century	
13			Unit 3 Fertility, Nuptiality and Mortality	
14			Unit 4 Migration and urbanization- concept & types	
15			Unit 5 Population policy in India	
16	I B.A	Foundation course - Human Rights	Unit 1 Concept of Human Values, Value Education	MKV
17			Unit 2 Value Education Towards National and Global	
18			Unit 3 Impact of Global Development on Ethics and	
19			Unit 4 Theraupatic Measures	
20			Unit 5 Human Rights	

S.No	Class	Paper	Unit Details	Staff
1	II B.A	Economics of Development & Planning	Unit 1 Economic development & Growth	MKV
2			Unit 2 Strategies of economic development	
3			Unit 3 Growth Model	
4			Unit 4 Capital Formation & Economic development	
5			Unit 5 Objectives of Planning	
6	II B.A	Mathematical Economics	Unit 1 Basic Mathematical Functions	NR
7			Unit 2 Basic Economic Concepts	
8			Unit 3 Set Theory	
9			Unit 4 Matrix	
10			Unit 5 Input- Output Analysis	
11	II B.A	Allied: Computer Applications in Economics	Unit 1 Introduction of Computers	SS
12			Unit 2 Management Information Systems - Features	
13			Unit 3 Introduction to E-Commerce	
14			Unit 4 Introduction to Internet	
15			Unit 5 Database Management	
16	II B.A	Skill Based Subject: Trade Documentation	Unit 1 Avenues of International Trade	NR
17			Unit 2 Shipping procedures	
18			Unit 3 Documents relating to exports	
19			Unit 4 Export and Import Documents	
20			Unit 5 Packing Methods	

21	II B.A	NME:General Awarness	Unit 1 Verbal Aptitude- Numerical Aptitude	SS
22			Unit 2 Abstract Reasoning - Tamil and other Literature	
23			Unit 3 General Science and Technology and Education -	
24			Unit 4 Economics and Commerce - Social Studies	
25			Unit 5 Sports- Current Affairs	

S.No	Class	Paper	Unit Details	Staff
1	III B.A	Fiscal Economics	Unit 1Nature, scope and importance of Fiscal Economics	MKV
2			Unit 2 Public Revenue	
3			Unit 3 Public expenditure	
4			Unit 4 Public Debt	
5			Unit 5 Fiscal Instruments	
6	III B.A	Industrial Economics	Unit 1Factors determining the size of the firm	NR
7			Unit 2 Industrial Location	
8			Unit 3 Industrial Finance	
9			Unit 4 Industrial Policies	
10			Unit 4 Industrial Productivity	
11	III B.A	Environmental Economics	Unit 1Introduction - Economics and Environment	SS
12			Unit 2 Environmental Quality - Common Property	
13			Unit 3 Urbanization	
14			Unit 4 Environmental Policy	
15			Unit 5 Global Warming	
16	III B.A	Elective-II: Journalism	Unit 1Nature Scope and process of mass communication	NR
17			Unit 2 Journalism - History of Journalism	
18			Unit 3 Sources of news	
19			Unit 4 Editing - Edition writing - purpose of editions	
20			Unit 5 Newspaper Management	
21	III B.A	Elective-III: Financial Markets	Unit 1 Financial system in India	MKV
22			Unit 2 Money Market	
23			Unit 3 Capital Market	
24			Unit 4 New issues market & Secondatary market	
25			Unit 5 Regulation of Stock Exchange	
26	III B.A	Skill Based Subject: Computer System-II	Unit 1 MS Office Basics	NR
27			Unit 2 MS Word	
28			Unit 3 MS Excel	
29			Unit 4 MS Power Point	
30			Unit 5 MS Access	
31	III B.A	Computer System-II Practical		NR

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Chikkanna Government Arts College, Tirupur

Department of Economics

Syllabus & Subject Allocation 2020-2021

M.A. Economics I, III Semester

S.No	Class	Paper	Unit Details	Staff
1	I M.A	Advanced Micro Economics-I	Unit 1 Theories of Demand	MKV
2			Unit 2 Production Function	
3			Unit 3 Marginal Analysis	
4			Unit 4 Oligopoly Models	
5			Unit 5 Behavioral Models	
6	I M.A	Economic Development and Policies	Unit 1Measurement of Economic Development	MKV
7			Unit 2 Doctrine of balanced growth	
8			Unit 3 Human Resource Development	
9			Unit 4 Economic planning-Planning process in a mixed	
10			Unit 5 Current Economic Issues	
11	I M.A	Marketing Management	Unit 1 Marketing Management & Consumer Behaviour	SS
12			Unit 2 Marketing Mix: Concepts, components	
13			Unit 3 Promotion: Meaning of promotion mix	
14			Unit 4 Distribution: Channels of Distribution-Need,	
15			Unit 5 Competitive marketing Strategies	
16	I M.A	Econometrics	Unit 1 Scope of Econometrics	NR
17			Unit 2 Test of Significance and the Estimates	
18			Unit 3 OLS assumptions –violation of OLS assumption	
19			Unit 4 Models of Simultaneous Relationships	
20			Unit 5 Estimation of compound rate of growth	
21	I M.A	Elective I: TamilNadu Economy	Unit 1 Nature and Scope of Tamil Nadu Economy	NR
22			Unit 2 Theory of Demographic Transition	
23			Unit 3 Agriculture Development in Tamil Nadu	
24			Unit 4 Industrial Development in Tamil Nadu	
25			Unit 5 Behavioral Models	

S.No	Class	Paper	Unit Details	Staff
1	II M.A	Monetary Theory and Policies	Unit 1 Concepts – The Role Money in a Economy	MKV
2			Unit 2 Supply of Money	
3			Unit 3 Role of Central Banks - Development and	
4			Unit 4 Money Markets	
5			Unit 5 Role of Monetary Policy in Economic	
6	II M.A	Research Methodology	Unit 1 Meaning of Research – objective of Research	NR
7			Unit 2 Sources of Data	
8			Unit 3 Analysis of Data: Measures of central tendency	
9			Unit 4 Testing of hypothesis	
10			Unit 5 Presenting results: written and oral reports	
11	II M.A	Computer Application in Economics-Theory	Unit 1 Basic Components of Computer	SS
12			Unit 2 Hardware and Software	
13			Unit 3 Concepts of data record and file	
14			Unit 4 Data Process and Analysis	
15			Unit 5 Computers and Word Processing	

16	II M.A	**Environmental Economics**	Unit 1Basic Concepts of Environment Economics	SS
17			Unit 2 Environmental Pollution	
18			Unit 3 Cost - Benefit Analysis	
19			Unit 4 Demographic Effects of Environment	
20			Unit 5 The collective environmental action	
21	II M.A	**Labour Economics**	Unit 1 Concept of Labour and Labour Economics	MKV
22			Unit 2 Role and functions of Trade Union	
23			Unit 3 Industrial Disputes: Causes and Consequences	
24			Unit 4 Industrial Relations	
25			Unit 5 Labour Welfare concept,	
26	II M.A	**Financial Marketing**	Unit 1 Financial market - An overview	NR
27			Unit 2 Money Markets	
28			Unit 3 Call money market-Features-Benefits-	
29			Unit 4 Capital Markets	
30			Unit 5 Derivative Market	

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Chikkanna Government Arts College, Tirupur

Department of Economics

Syllabus & Subject Allocation 2020-2021

M.A. Economics II, IV Semester

S.No	Class	Paper	Unit Details	Staff
1	I M.A	Advanced Micro Economics-II	Unit 1THEORY OF DISTRIBUTION	MKV
2			Unit 2 WELFARE ECONOMICS	
3			Unit 3 PARTIAL AND GENERAL EQUILIBRIUM	
4			Unit 4 Individual behaviour towards risk	
5			Unit 5 Decision Making under uncertainty	
6	I M.A	Macro Economics	Unit 1 Flow of Funds in National Economy	MKV
7			Unit 2 GENERAL EQUILIBRIUM	
8			Unit 3 Consumption Function	
9			Unit 4 Investment Demand – Keynesian Approach	
10			Unit 5 Role of Expectation – Uncertainty and Economics	
11	I M.A	Agricultural Economics	Unit 1 Nature and scope of agricultural economics	SS
12			Unit 2 LAND REFORMS	
13			Unit 3 Resource use and efficiency	
14			Unit 4 Agricultural markets and marketing efficiency	
15			Unit 5 AGRICULTURAL CREDIT	
16	I M.A	Quantitative Techniques for Managerial Decision	Unit 1Set Theory: Operations on sets and Law	NR
17			Unit 2 Relations and Functions	
18			Unit 3 Derivatives and their interpretation and	
19			Unit 4 Optimisation problems involving one or two	
20			Unit 5 Matrix Algebra – Determinants and properties	
21	I M.A	Industrial Economics	Unit 1 The scope of Industrial economics	NR
22			Unit 2 Industrial location	
23			Unit 3 Industrial productivity- Measurement of	
24			Unit 4 Industrial policies- 1948 to till date	
25			Unit 5 Balanced regional development	
26	I M.A	Elective-II:Entrepreneurial Development	Unit 1Entrepreneurship – Definition, importance and	SS
27			Unit 2 Search for a business idea – sources	
28			Unit 3 Functions and role of women Entrepreneurs and	
29			Unit 4 Training and Finance : objectives of training	
30			Unit 5 Role of Central and State Government in	

S.No	Class	Paper	Unit Details	Staff
1	II M.A	Public Economics	Unit 1 Scope and Significance Public Finance	MKV
2			Unit 2 Sources of Public Revenue	
3			Unit 3 Public expenditure	
4			Unit 4 Public Debt	
5			Unit 5 Indian Fiscal policy	
6	II M.A	International Economics	Unit 1 The Basis of Trade	NR
7			Unit 2 Importance and Theories of Trade	
8			Unit 3 Exchange Rate	
9			Unit 4 Balance of trade and balance of payments	
10			Unit 5 International institutions	

11	II M.A	**Human Resource Management**	Unit 1 Basics of Human Resource Management	SS
12			Unit 2 Importance of Human Resource Planning	
13			Unit 3 Orientation & Training: Orienting the employees	
14			Unit 4 Establishing Pay plans	
15			Unit 5 Industrial relations and collective bargaining	
16	II M.A	**Elective-IV: Export Procedure**	Unit 1 Registration – ICE, Central Excise, category of	SS
17			Unit 2 CENVAT	
18			Unit 3 International Marketing Environment	
19			Unit 4 Export procedures – offers and processing	
20			Unit 5 Export and import policy	
21	II M.A	**Project Work**		MKV,NR,SS

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Chikkanna Government Arts College, Tirupur
Department of English
Part II English - Odd Semester (I, III) - 2020 -21

S.No	Class	Paper	Unit Details	Staff
1			Unit:1 1. Listening and Speaking - Introducing self and others -Listening for specific information Pronunciation (without phonetic symbols) - Essentials of pronunciation - American andBritish pronunciation 2. Reading and Writing -Reading short articles – newspaper reports / fact based articles i. Skimming and scanning ii. Diction and tone - iii. Identifying topic sentences Reading aloud: Reading an article/report - Journal (Diary) Writing 3. Study Skills - 1 a. Using dictionaries, encyclopaedias, thesaurus 4. Grammar in Context: Naming and Describing • Nouns & Pronouns •Adjectives	PMS
2	I BA	Part II English	Unit:2 - 1. LISTENING AND SPEAKING – a. Listening with a Purpose -b. Effective Listening c. Tonal Variation d. Listening for Information e. Asking for Information f. Giving Information and Writing 1. a. Strategies of Reading: Skimming and Scanning b. Types of Reading: Extensive and Intensive Reading c. Reading a prose passage d. Reading a poem e. Reading a short story 2.Paragraphs: Structure and Types a. What is a Paragraph? b. Paragraph structure c. Topic Sentence d. Unity e. Coherence f. Connections between Ideas: Using Transitional words and expressions g. Types of Paragraphs 3. Study Skills II: Using the Internet as a Resource a. Online search b. Know the keyword of India c. Refine your search d. Guidelines for using the Resources e. e-learning resources of Government f. Terms to know 4. Grammar in Context Involving Action-I a.	PMS
3			Unit:3 1. Listening and Speaking -Giving and following instructions -Asking for and giving directions -Continuing discussions with connecting ideas 2. Reading and writing -Reading feature articles (from newspapers and magazines) -Reading to identify point of view and perspective (opinion pieces, editorials etc.) -Descriptive writing – writing a short descriptive essay of two to three paragraphs. 3. Grammar in Context:-Involving Action :Verbals - Gerund, Participle, Infinitive • Modals	

4			Unit:4 - 1. Listening and Speaking- a. Giving and responding toopinions 2. Reading and writing a. Note taking b. Narrative writing – writing narrative essays of two tothree paragraphs 3. Grammar in Context: Tense • Present •Past • Future	
5			Unit:5 1. Listening and Speaking a. Participating in a Group Discussion 2. Reading and writing - Reading diagrammatic information - interpretations maps, graphs and pie charts - Writing short essays using the language of comparison and contrast 3.Grammar in Context: Voice (showing therelationship between Tense and Voice)	PMS

S.No	Class	Paper	Unit Details	Staff
1	II BA	Part II English	Unit I Poetry 1. Ulysess – Alfred Tennyson 2. O Captain! My Captain! – Walt Whitman 3. The Unknown Citizen – W.H.Auden	UK
2			Unit II Prose 1. Sweet for Angels – R.K.Narayan 2. My Lost Dollar – Stephen Leacock 3. The Loss of the Titanic – Lawrence Beesley	UK
3			Unit III Short Stories 1. Orpheus and Eurydice – Rev. G.W.Cox 2. At the Church Door – Guy De Maupassant 3. How much Land does a Man need? – Leo Tolstoy	UK
4			Unit IV Autobiography 1. My Experiments with Truth - M.K.Gandhi 2. I am Malala - Malala	UK
5			Unit V Grammar & Composition 1. Modals 2.Concord 3.Dialogue Writing 4.E-Mail 5. Report Writing	UK

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* Mrs. K. UDAYAKUMARI

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CHIKKANNA GOVERNMENT ARTS COLLEGE, TIRUPPUR
DEPARTMENT OF ENGLISH
Syllabus & Subject Allocation - 2020 - 2021 (ODD SEMESTER)
B.A. ENGLISH- I, III, V SEMESTER

S.NO	CLASS	PAPER	UNIT DETAILS	STAFF
1	I B A	CORE I PROSE I	Unit 1 The Suitor And Papa, The Sniper	KB
2			Unit 2 A Handful Of Dates, Two Gentleman Of Verona,	KB
3			Unit 3 Know When To Say It's None Of Your Business,	PMS
4			Unit 4 How To Escape From Intellectual Rubbish	PMS
5			Unit 5 A Little Bit Of What You Fancy, The Second Crucifixion	PMS
6		CORE II FICTION I	Unit 1 Jane Eyre – Charlot Bronte	AM
7			Unit 2 Kenil Worth - Sir Walter Scott	
8			Unit 3 Oliver Twist - Charles Dickens	
9			Unit 4 Far From The Madding Crowd - Thomas Hardy	
10			Unit 5 Lord Of The Flies - William Golding	
11		ALLIED PAPER I - SOCIAL HISTORY OF ENGLAND	Unit 1 The Renaissance, The Reformation	PK
12			Unit 2 The Spanish Armada, Colonization, Civil War	
13			Unit 3 Restoration In England, American War Of Indipendance	
14			Unit 4 The Agrarian Revolution, The Industrial Revolution	
15			Unit 5 The Reform Bills, The Development Of Education In Victorian Period, World War	
S.NO	**CLASS**	**PAPER**	**UNIT DETAILS**	**STAFF**
16	II BA	Prose- II	Unit I- Of studies, Of truth	SP
17			Unit 2- The Spectator Club, Sir Roger at Church	SP
18			UNIT 3- Dream Children : A Revery, Dissertation Upon Roast Pig, An Apology for Idlers	PK
19			UNIT 4 - On Good resolutions, On Doing Nothing	PK
20			UNIT 5 - Selected Snobberies, Shooting an Elephant.	PK
21		Fiction- II	UNIT 1- The Vicar of Wakefield - Oliver Goldsmith	RV
22			UNIT 2 - Silas Marner(Macmillan), by George Eliot	
23			UNIT 3 - Treasure Island – R.L.Stevenson	
24			UNIT 4 - Lord Jim – Joseph Conrad	
25			UNIT 5 - Animal Farm – George Orwell	
26		Literary Forms	Unit: 1- POETRY Chapter I- Subjective and Objective Poetry, Chapter II- Poetic Types Chapter III- Stanza Forms,	AM
27			Unit: 2 - DRAMA Chapter I: Dramatic Art Chapter II: Dramatic Types (111-133)	
28			Unit: 3 - DRAMA &PROSE Chapter III: Dramatic Devices (134-139) Prose: Chapter I: Essay (183-192)	
29			Unit: 4 - PROSE Chapter II: The Novel (193-224) Chapter III: Short story (225-229)	
30			Unit: 5 - Chapter IV: Biography and AutoBiography (230-236)	
31		Skill Based Subject I - COMMUNICATIVE ENGLISH PAPER I	UNIT 1- Reading Comprehension	PMS
32			UNIT 2 -Grammar and Usage -Nouns, Pronouns, Adjectives, Adverbs, Gerunds	
33			UNIT 3 -Organs of speech and Speech mechanism	
34			UNIT 4 -Dialogue in Different Situations Greeting, leave taking, Making requests, Expressing gratitude, apologising, Complaint	
35			UNIT 5 – Sentence completion, Paragraph Writing.	

S.NO	CLASS	PAPER	UNIT DETAILS	STAFF
36	III BA	CORE - IX - SHAKESPEARE I	Unit 1 Othello	SP
37			Unit 2 Twelfth Night	
38			Unit 3 Merchant of Venice	
39			Unit 4 Julius Caesar	
40			Unit 5 Shakespearean Theatre	
41		CORE- X - INDIAN WRITING IN ENGLISH	Unit 1 Drama-Silence the Court is in Session	RV
42			Unit 2 Ajanta and Elora, in the Monsoon? "Give as a Role Model" by Abdul Kalam	
43			Unit 3 Sweets for Angels, The White Flower - R.K.Narayan	
44			Unit 4 The Argumentative Indian by Amartya Sen,	
45			Unit 5 Novel- Kanthapura by Raja Rao	
46		CORE- XI - AMERICAN LITERATURE	Unit 1 -Poetry-Passage To India ,I Never Lost As Much But Twice, Success is Counted Sweetest,A Bird Came Down The Walk, After Apple Picking,Come in	RC
47			Unit 2 - Poetry - West - Running Brook,The Emperor of Ice cream,	
48			Unit 3 Prose - Walden -Thoreau "Where I Lived and What I Lived For", Anecdote of the Jar,Skunk Hour	
49			Unit 4 Novel- Tom Sawyer	
50			Unit 5 -Drama- Glass Menagerie	
51		CORE-XII - COMMONWEALTH LITERATURE	Unit 1 -1.Australia 2.Dying Eagle 3.Telephone Conversation	KB
52			Unit 2 Drama-Lion and the Jewel	
53			Unit 3 Prose- "India: A Wounded Civilization	
54			Unit 4 Novel- The Hungry Tide by Amitav Ghosh	
55			Unit 5 Short Story-A Cup of Tea	
56		ELECTIVE I - ENGLISH FOR COMPETITIVE EXAM	All Chapters in "English for Competitive Examinations" by R P Bhatnagar-	PMS
57		Skill Based Subject I - COMMUNICATIVE ENGLISH PAPER I	UNIT 1 - Introduction – Self , Others Invitations.	PK
58			UNIT 2 – Word accent , Intonation and Stress	
59			UNIT 3 - Transformation of sentences, Active to Passive, Questions Framing and Question Tags	
60			UNIT 4 – Welcome Address and Vote of Thanks, Accepting and declining Invitations	
61			UNIT 5 – Reading and Narrating Story – Imaginative features	

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AM- Dr.A.Murugesan, PMS - Mrs.Renuga, PK - K.Premanand

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CHIKKANNA GOVERNMENT ARTS COLLEGE, TIRUPPUR
DEPARTMENT OF ENGLISH
Syllabus & Subject Allocation - 2020 - 2021 (EVEN SEMESTER)
B.A. ENGLISH- II, IV, VI SEMESTER

S.NO	CLASS	PAPER	UNIT DETAILS	STAFF
1	I BA	CORE -3 POETRY I	Unit 1 Good Morrow - John Donne, One Day I Wrote Her Name - Edmund Spencer	AM
2			Unit 2 Sonnet 18 - William Shakespeare, The Temptation - William Wordsworth	
3			Unit 3 The Tyger - William Blake, To Sleep - William Wordsworthy	
4			Unit 4 Kubla Khan - S.T. Coleridge, Ode To The Skylark - P.B. Shelley	
5			Unit 5 Ode To The Autumn - John Keats, The Lotus Eaters - Lord Tennyson	
17		CORE -4 DRAMA -1	Unit -1 Dr.Faustus - Christopher Marlowe	SP
18			Unit -2 She Stoops To Conquer - Oliver Goldsmith	SP
19			Unit-3 The Alchemist -Ben Johnson	PMS
20			Unit -4 The Rivals - R.B. Sheridan	PMS
21			Unit – 5 Strife -John Galsworthy	PMS
22		ALLIED PAPER - HISTORY OF ENGLISH LITERATURE	Unit -1 The Age Of Chaucer, The Age Of Shakespeare -Verse -Drama -Prose	PK
23			Unit-2 The Age Of Milton, The Age Of Dryden - Verse, Drama,Prose	
24			Unit -3 The Age Of Pope - Verse,Drama,Prose, The Age Of Johnson -General Prose And Novel	
25			Unit-4 The Age Of Wordsworth - The Older Poets And The Younger Poets, The Age Of Tennyson -Verse,Prose,Novel	
26			Unit -5 The Age Of Hardy, The Present Age	

S.NO	CLASS	PAPER	UNIT DETAILS	STAFF
27	II BA	Poetry -II	UNIT 1- Dover Beach - Matthew Arnold,My Last Duchess - Robert Browning, Ulysses	RV
28			UNIT 2- The Darkling Thrush - Thomas Hardy,The Windhover - G.M.Hopkins, Sailing to Byzantium	
29			UNIT 3 - A Prayer for my Daughter - W.B.Yeats, The Burial of the Dead from the Waste Land - T.S.Eliot, Hawk Roasting	
30			UNIT 4 - The Unknown Citizen - W.H.Auden, And Death shall have no Dominion - Dylan Thomas, Strange Meeting	
31			UNIT 5 - Church Going - Philip Larkin. The Hound of the Heaven, The Tyger	
32		Drama- II	UNIT 1 - Pygmalion - G. B. Shaw	SP
33			UNIT 2 - A Doll's House - Henrik Ibsen	
34			UNIT 3 - Lady Windermere's Fan - Oscar Wilde	
35			Unit 4 - Riders to the Sea - J.M.Synge	
36			UNIT 5 - Justice - John Galsworthy	
37		Literary Criticism	UNIT 1- 1. Aristotle 2. Philip Sydney	PMS
38			UNIT 2- 1. John Dryden 2. Dr. Johnson	
39			UNIT 3 - 1. William Wordsmith 2. Coleridge	
40			UNIT 4 - 1. Mathew Arnold 2. Walter Pater	
41			UNIT 5 - 1. T.S.Eliot 2. I.A. Richards	
42		Skill Based Subject I - COMMUNICATIVE ENGLISH PAPER II	UNIT 1 – Note making , summarizing	RC
43			UNIT 2 – Kinds of Sentences – Active Passive etc , Sentence Patterns, Synonyms and Antonyms.	
44			UNIT 3 - Speech Sounds – Classification – Vowels Consonant , Diphthongs, Phonetic Symbols.	
45			UNIT 4 - Dialogue at different situations – At the Post Office , Bank , Railway Stations, Airport, Government Offices, Workshops, Doctors Clinic Market Place, Etc.	
46			UNIT 5 - Precis Writing.	

S.NO	CLASS	PAPER	UNIT DETAILS	STAFF
47	III BA	CORE-XIII - SHAKESPEARE II	Unit 1 Macbeth	SP
48			Unit 2 As You Like it	
49			Unit 3 Henry IV Part I	
50			Unit 4 Romeo and Juliet	
51			Unit 5 Shakespeare's Poetry Sonnets 1 to 5	
52		CORE-XIV - INTENSIVE STUDY OF AN AUTHOR - TAGORE	Unit 1 Novel- The Wreck	RC
53			UNIT 2 2Short Stories:1 to 4	
54			Unit 3 Short Stories:5 to 7	
55			Unit 4 Short Stories:8 to 10	
56			Unit 5 Drama: Chitra, Hungry Stones and other stories	
57		CORE-XV- Indian Literature in English Translation	Unit 1 Poetry- Gitanjali verses 1 to 30	KB
58			Unit 2 Thirukkural 1 to 20 verses	
59			Unit 3 Drama: Aurangzeb	
60			Unit 4 Novel- Chemeen	
61			Unit 5 Novel- Sangati	
62		ELECTIVE II - COMMUNICATIVE ENGLISH	All Chapters from "Developing Communication Skills" by Krishnamohan and Meera Benarji	SP
63		ELECTIVE III - STUDYING NOVELS	Unit 1 - Authors	PMS
64			Unit 2 - Characters	
65			Unit 3 - Settings	
66			Unit 4 - Plot and Story	
67			Unit 5 - Themes	
68		Skill Based Subject 4 - COMMUNICATIVE ENGLISH PAPER IV	Unit 1 – Letter Writing – Formal and Non formal , Applications	AM
69			Unit 2 – Direct and Indirect Speech	
70			Unit 3 – Stress , Intonation , rhythm in connected speech	
71			Unit 4 – Spelling errors , Spelling rules	
72			Unit 5 – Reserving tickets , Seeking admission in a College , Applying for a Post Attending the Interviews , Buying and Selling Products like Car , Flats Etc	

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Chikkanna Government Arts College
Department of English
Syllabus & Subject Allocation
M.A. ENGLISH - II, IV Semester (2020-21)

S.No	Class	Paper	Unit Details	Staff
1	I MA	British literature II	Unit 1 Poetry: Wordsworth:Tintern Abbey, Coleridge: Kubla Khan, Shelley: Ode to the west wind, Keats Ode on a Grecian urn, Oliver Goldsmith: The Deserted Village.	RC
2			Unit 2: Drama: Dryden: All for love Sheridan: The Rivals	RC
3			Unit 3: Prose: Charles Lamb: Essays-Old China, Dream Children:A Reverie, In Praise of Chimney Sweepers, Dissertation upon a Roasted pig and Jonathan swift: Gulliver's Travels I.	RC
4			Unit 4 Fiction: Scott: Kenilworth and Jane Austen: Northanger Abbey.	RC
5			Unit 5 Criticism: Wordsworth: Preface to Lyrical Ballads and Johnson: Preface to Shakespeare.	RC
6	I MA	Indian Writing in English	Unit 1 Poetry: A. K. Ramanujan: Looking for a Cousin on a Swing, Nassim Ezekiel: Poet, Lover, Bird Watcher to Vikramseth : A Little Distance	RV
7			Unit 2 Drama: Mahesh Dattani: Brief Candle, Manjula Padmanabhan: Harvest	RV
8			Unit 3 Prose: Letters from a father to his Daughter-Jawaharlal Nehru, The Dance of Shiva-AnandaCoomaraswamy	RV
9			Unit 4 Fiction: Amish Tripathy: The Secret of Nagas, Manjukapoor:Custody	RV
10			Unit 5 Criticism: G. B. Mohan Thampi: Rasa as Aesthetic Experience, M.Hiriyanna: The Main Aspects of Indian Aesthetics.	RV
11	I MA	English Literature for Competitive Exams-I	Unit 1 Literature of the Absurd to Burlesque	AM
12			Unit 2 Cannons of Literature to Dream Vision	AM
13			Unit 3 Edition to Great Chain of Being	AM
14			Unit 4 Haiku to Ivory Tower	AM
15			Unit 5 Jeremaid to Myth	AM
16	I MA	New Literatures in English	Unit 1. Poetry: Wilfred Campbell : The Winter lakes(Canada) to Allen Curnow: Time (New Zealand)	SP
17			Unit 2. Prose: Tagore: Sadhana Chapter I-III, V.S. Naipaul: Area of Darkness	SP
18			Unit 3 . Drama: Soyinka: The Road, Girish Karnad's The Hayavadhana	SP
19			Unit 4 . Fiction: Chinua Achebe : Things Fall Apart, Romesh Gunesekera's Reef	SP
20			Unit 5 . Criticism: Margaret Atwood: Ice Women v. Earth Mothers: The stone Angel and The Absent Venus, Stuart Hall: Cultural Identity and Diaspora	SP

S.No	Class	Paper	Unit Details	Staff
01	I MA	The English language II	Text Book: An Outline History of English Language by F. T. Wood Unit 1 The Origin of language and The Descent of the English Language	PK
02			Unit 2 The Old English (Anglo Saxon) Period, The Middle English Period, The Renaissance and After	PK
03			Unit 3 The Growth of Vocabulary	PK
04			Unit 4 Change of Meaning	PK
05			Unit 5 The Evolution of Standard English, Idiom and Metaphor, The Foreign Contribution	PK
06	I MA	Pulmonology and Cardiology	Unit 1: Introduction to Pathology in Pulmonology	KB
07			Unit 2 : Procedures and pharmacology in Pulmonology	KB
08			Unit 3 : Introduction to Physical Assessment in Cardiology	KB
09			Unit 4 : Pathology to pharmacology in Cardiology	KB
10			Unit 5. Seminar presentations by Students	KB
31	II MA	Introduction to Women's Studies	Unit 1 Poetry: Sylvia Plath: Lady Lazarous to Sarojini Naidu: Coromandel Fishers	RV
32			Unit 2 Prose: Maya Angelou: I know Why the Caged Bird Sings, Virginia Woolf: A Room Of One's Own	RV
33			Unit 3 Drama: Uma Parameshwaran: Sons Must Die, Lorraine Hansberry: A Raisin in the Sun	RV
34			Unit 4 Fiction: Bapsi Sidhwa: The Pakistani Bride, Gita Hariharan: Thousand Faces of Night	RV
35			Unit 5 Criticism: Elaine Showalter: Towards a Feminist Poetics	RV
36	II MA	Mass Communication and Journalism	Unit 1 INTRODUCTION TO COMMUNICATIONS Definition to Emerging trends and development in information and communication Technologies.	KB
37			Unit 2 INTRODUCTION TO JOURNALISM Role of press in India-English and Vernacular Press to Press Council and Press Regulations in India	KB
38			Unit 3 PRINT MEDIA The Making of a Newspaper to Press and Public Opinion	KB
39			Unit 4 TELEVISION AND RADIO The growth and development of TELEVISION in India to Impact of TV and Radio on Society	KB
40			Unit 5 ADVERTISEMENT Types of Advertising and advertising Media to Advertising and marketing	KB

S.No	Class	Paper	Unit Details	Staff
41	II MA	Orthopedics, Neurology, Endocrinology, Immunology, Lymphatics and Hematology, Grammar and Common Errors	Unit 1 Orthopedics	AM
42			Unit 2 Neurology	AM
43			Unit 3 Endocrinology	AM
44			Unit 4 Immunology, Lymphatic, and Hematology	AM
45			Unit 5 Punctuation Marks and Grammar.	AM

KB - Dr. K. Brindha, RV - Mrs. R. Valarmathi, RC - Dr. Ruby Christie, Dr. A. Murugesan, PK - K Premanand

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Chikkanna Government Arts College, Tirupur
Department of English
Syllabus & Subject Allocation
M.A. ENGLISH I ,III Semester (2020-21)

S.No	Class	Paper	Unit Details	Staff
1	I MA	British literature I	Unit 1 Poetry : Geoffrey Chaucer: The Prologue to the Canterbury Tales, Thomas wyatt: I Find no Peace and Farewell love, Henry Howard Earl of surrey: Love doth not Reign and Live within My Thought, The soote season	RC
2			Unit 2 Poetry: Milton's paradise lost book II, John Donne's The canonization and death be not proud, Andrew Marvell: The Garden	RC
3			Unit 3 Drama: Marlowe: Edward II, John Webster: Duchess of Malfi	RC
4			Unit 4 PROSE: Francis Bacon:Of Adversity, Of love, Of Friendship, Of Ambition and John Bunyans The Pilgrims Progress	RC
5			Unit 5 Criticism: Sydney: An Apology for Poetry and Ben Jonson : From Everyman out of His Humour.	RC
6	I MA	American literature	Unit 1 Poetry: Whitman : when lilacs last in the Dooryard Bloomed to Wallace Stevens: The Emperor of Ice Cream	RV
7			Unit 2 DRAMA: Eugene O'Neil: The Hairy Ape and Tennessee Williams:Glass Menagerie	RV
8			Unit 3 PROSE: Emerson: oversoul and Poe : The philosophy of Composition	RV
9			Unit 4 Fiction: Nathaniel Hawthrone -The Scarlet Letter, Alice walker:The color purple	RV
10			Unit 5 CRITICISM: Cleanth Brooks: The Language of Paradox and Kenneth Burke: The Poetic Process	RV
11	I MA	Shakespeare	Unit 1 Hamlet	SP
12			Unit 2 Much Ado About Nothing	SP
13			Unit 3 Richard III	SP
14			Unit 4 Tempest	SP
15			Unit 5 Shakespeare's stage and sonnets (18,33,46,76)	SP

S.No	Class	Paper	Unit Details	Staff
16	I MA	Grammar for communication	Unit 1 The Article to Adverbial use of no, not, none	PMS
17			Unit 2 Difficulties with Comparatives and Superlatives to Negative verbs	PMS
18			Unit 3 Tenses to Introductory -"There"	PMS
19			Unit 4 The infinitive to the indirect expression of imperatives	PMS
20			Unit 5 The use of correlatives to greetings and salutations.	PMS
		English language I	A text book of English Phonetics for Indian Students by Dr. T. Balasubramaniam, Macmillan Publication	
21	I MA		Unit 1 Phonetic symbols, linguistics , its components and communication	AM
22			Unit 2 Phonetics Articulation and classification of speech sounds and description of consonants.	AM
23			Unit 3 Classification and description of vowels, Phonology, the syllable, pure vowels and dipthongs of English, Consonant and consonants clusters of English	AM
24			Unit 4 Concept of General Indian English, word accent in English, Accent rhythm in Connected speech, Intonation	AM
25			Unit 5 Assimilation and Elision, practice in Phonetic Transcription.	AM

26	I MA	Basics of Medical Terminology	Unit 1 Human body basics	PMS
27			Unit 2 Medical terminology basics	PMS
28			Unit 3 Dermatology	PMS
29			Unit 4 Ophthalmology	PMS
30			Unit 5 Otorhinolaryngology	PMS

S.No	Class	Paper	Unit Details	Staff
26	II MA	British literature III	Unit 1 Poetry: Robert Browning: Rabbi ben ezra to Larkin's The witsun wedding	RC
27			Unit 2 Drama : Shaw: Ceasar and Cleopatra, Oscar wilde: Lady Windermere's fan	RC
28			Unit 3 prose : George orwell: Reflections of Gandhi to Shooting an elephant, Lyton strachey: The eminent victorians florence nightingale, Thomas carlyle: Hero as poet	RC
29			Unit 4 Fiction :Somerset maugham: The razors edge,Charlottee Bronte : Jane eyre	RC
30			Unit 5 Criticism : Wk Wimsattlr And MC Beardsley: The intentional fallacy , Cleanth Brooks: Irony as principle of structure	RC
31	II MA	English literature for competitive examinations II	Unit 1 Grammar of narratives to oral formulaic poetry	AM
32			Unit 2 Palionode to purple patch	AM
33			Unit 3 Queer theory to roman a clef	AM
34			Unit 4 Satire to synesthesia	AM
35			Unit 5 Tension to wit, Humour and the comic	AM
		Methods of Teaching English	Teaching English Approaches, Methods and Techniques by N. Krishnaswamy and Lalitha Krishnaswamy	
36	II MA		Unit 1 English in India past, present and future; the nature of human language; linguistics, psychology and English Teaching	SP
37			Unit 2 Approach, Method and Technique, Essentials of English Speech	SP
38			Unit 3 Teaching spoken English, Essential word Grammar for Teachers, Teaching of vocabulary	SP
39			Unit 4 Essentials of English Grammar and its Teaching	SP
40			Unit 5 Reading and Teaching of Reading	SP
41	II MA	LITERARY CRITICISM AND THEORY	Unit 1 Post Colonialism	PMS
42			Unit 2 Structuralism	PMS
43			Unit 3 Feminism	PMS
44			Unit 4 Cultural Materialism / New Historicism	PMS
45			Unit 5 Psychoanalysis	PMS
46	II MA	Research Methodology	Unit 1 Writing at the tertiary level , planning the assignment	RV
47			Unit 2 Planning the thesis , scholarly writing case study, format of a research paper	RV
48			Unit 3 Page and chapter format, The use of quotations , references	RV
49			Unit 4 Documentation, work cited	RV
50			Unit 5 Appedixes , Editing and evaluating the final product	RV
51	II MA	Gastroenterology, Genitourinary system, Gynecology and obstetrics	Unit 1 Gastroenterology	KB
52			Unit 2 Genitourinary system(Introduction to pathology - male reproductive system)	KB
53			Unit 3 Sexually transmitted diseases to excercises of Genitourinary system	KB
54			Unit 4 Introduction to pathology of Gynecology and obstetrics	KB
55			Unit 5 Procedures to excercises of Gynecology and obstetrics	KB

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