

SACRED HEART COLLEGE (AUTONOMOUS)

Department of Chemistry

BACHELOR OF SCIENCE IN CHEMISTRY

:

Course plan

Academic Year 2014 - 15

Semester Four

COURSE STRUCTURE

TITLE OF THE COURSE	NO. HRS./ WEEK	CREDITS	TOTAL HRS./SEM
EVOLUTION OF THE PHILOSOPHY OF SCIENCE	5	4	90
CULTURE AND CIVILIZATION OF INDIA	5	4	90
AN ADVANCED COURSE IN FRENCH II	5	4	90
HISTORICAL SURVEY OF SANSKRIT LITERATURE AND KERALA CULTURE	5	4	90
ഗദ്യം രചനാപരിചയം	5	4	72
ORGANIC CHEMISTRY - II	3	3	54
PHYSICAL OPTICS, LASER PHYSICS AND SUPERCONDUCTIVITY	3	3	54
FOURIER SERIES, PARTIAL DIFFERENTIAL EQUATIONS, NUMERICAL ANALYSIS AND ABSTRACT ALGEBRA	5	4	90

COURSE PLAN

PROGRAMME	BSC Chemistry	SEMESTER	4
COURSE TITLE	Evolution of the Philosophy of Science	CREDIT	4
HOURS/WEEK	5	HOURS/SEM	90

COURSE OBJECTIVES

To appreciate the role of science in all walks of life and the treatment of its themes in various literary formats
To engage with literary texts written in different languages and later translated into English.
To promote a new way of thinking which will encompass both science and literature
To facilitate communication between both science and literature
To apply the unfathomable power of literature and science in their writings and creative endeavors.

COURSE PLAN

Session	Topic	Learning Resources	Value Additions	Remarks
What is Science- George Orwell				
1	What is Science	Text	Lecture/interaction	
2	What is Science	Text	Discussion	
3	What is Science	Text	Reflections	
4	What is Science	Text	Discussion	
5	What is Science	Text	Quiz	
The Origin of Science-Will Durant				
6	The Origin of Science	Text	Lecture/interaction	

7	The Origin of Science	Text	Discussion	
8	The Origin of Science	Text	Reflections	
9	The Origin of Science	Text	Discussion	
10	The Origin of Science	Text	Discussion	
11	The Origin of Science	Text	Quiz	
The Scientific Outlook-C V Raman				
12	The Scientific Outlook	Text	Lecture/interaction	
13	The Scientific Outlook	Text	Discussion	
14	The Scientific Outlook	Text	Reflections	
15	The Scientific Outlook	Text	Reflections	
16	The Scientific Outlook	Text	Discussion	
17	The Scientific Outlook	Text	Discussion	
18	The Scientific Outlook	Text	Quiz	
Our Picture of the Universe – Stephen Hawking				
19	Our Picture of the Universe	Text	Lecture/interaction	
20	Our Picture of the Universe	Text	Discussion	
21	Our Picture of the Universe	Text	Reflections	
22	Our Picture of the Universe	Text	Reflections	
23	Our Picture of the Universe	Text	Discussion	
24	Our Picture of the Universe		Discussion	
Our Ancestors – Carl Sagan				
25	Our Ancestors	Text	Lecture/interaction	
26	Our Ancestors	Text	Discussion	

27	Our Ancestors	Text	Reflections	
28	Our Ancestors	Text	Reflections	
29	Our Ancestors	Text	Discussion	
30	Our Ancestors		Quiz	
Literature and Science-Aldous Huxley				
30	Literature and Science	Text	Lecture/interaction	
31	Literature and Science	Text	Discussion	
32	Literature and Science	Text	Reflections	
33	Literature and Science	Text	Reflections	
34	Literature and Science	Text	Discussion	
35	Literature and Science	Text	Discussion	
36	Literature and Science	Text	Quiz	
Literature and Ecology- William Rueckert				
37	Literature and Ecology	Text	Lecture / interaction	
38	Literature and Ecology	Text	Lecture	
39	Literature and Ecology	Text	Interaction	
40	Literature and Ecology	Text	Lecture	
41	Literature and Ecology	Text	Discussion	
42	Literature and Ecology	Text	Interaction	
43	Literature and Ecology	Text	Discussion	
44	Literature and Ecology	Text	Discussion	
45	Literature and Ecology	Text	Quiz	
Science and Society – Albert Einstein				

46	Science and Society	Text	Lecture / interaction	
47	Science and Society	Text	Lecture	
48	Science and Society	Text	Interaction	
49	Science and Society	Text	Lecture	
50	Science and Society	Text	Discussion	
51	Science and Society	Text	Interaction	
52	Science and Society	Text	Discussion	
53	Science and Society	Text	Lecture / interaction	
54	Science and Society	Text	Quiz	
A Little Bit of What You Fancy – Desmond Morris				
55	A Little Bit of What You Fancy	Text	Lecture	
56	A Little Bit of What You Fancy	Text	Analysis	
57	A Little Bit of What You Fancy	Text	Reflections	
58	A Little Bit of What You Fancy	Text	Discussions	
Unit 2: Moxon's Master – Ambrose Bierce				
59	Moxon's Master	Text	Lecture	
60	Moxon's Master	Text	Analysis	
61	Moxon's Master	Text	Reflections	
62	Moxon's Master	Text	Discussions	
63	Moxon's Master	Text	Interaction	
The Stolen Bacillus – H.G.Wells				
64	The Stolen Bacillus	Text	Lecture	
65	The Stolen Bacillus	Text	Analysis	
66	The Stolen Bacillus	Text	Reflections	

67	The Stolen Bacillus	Text	Discussions	
68	The Stolen Bacillus	Text	Quiz	
EPICAC – Kurt Vonnegut				
69	EPICAC	Text	Lecture	
70	EPICAC	Text	Analysis	
71	EPICAC	Text	Reflections	
72	EPICAC	Text	Discussions	
The Comet – JayantNarlikar				
73	The Comet	Text	Lecture	
74	The Comet	Text	PPT/Video	
75	The Comet	Text	Analysis	
76	The Comet	Text	Discussion	
The Last War – Neil Grant				
77	The Last War – Neil Grant	Text	Lecture	
78	The Last War – Neil Grant	Text	PPT/Video	
79	The Last War – Neil Grant	Text	Analysis	
80	The Last War – Neil Grant	Text	Discussion	
Cyberscripture Part 1 : Unplugged- G L Horton				
81	Cyberscripture Part 1 : Unplugged	Text	Lecture	
82	Cyberscripture Part 1 : Unplugged	Text	PPT/Video	
83	Cyberscripture Part 1 : Unplugged	Text	Analysis	
84	Cyberscripture Part 1 : Unplugged	Text	Discussion	
85	Cyberscripture Part 1 : Unplugged	Text	Lecture	
86	Cyberscripture Part 1 : Unplugged	Text	PPT/Video	
87	Cyberscripture Part 1 : Unplugged	Text	Analysis	

88	Cyberscripture Part 1 : Unplugged	Text	Discussion	
Revision				
89	Syllabus	Text	Quiz/ Interaction	
90	Syllabus	Text	Quiz / Interaction	

INDIVIDUAL ASSIGNMENTS/SEMINAR – Details & Guidelines

	Date of completion	Topic of Assignment & Nature of assignment (Individual/Group – Written/Presentation – Graded or Non-graded etc.)
1	By February	Prepare a review of any book/Article that inspired you most

References

Philosophy of Science

COURSE PLAN

PROGRAMME	BACHELOR OF SCIENCE - CHEMISTRY	SEMESTER	4
COURSE TITLE	CULTURE AND CIVILIZATION OF INDIA	CREDIT	4
HOURS/WEEK	5	HOURS/SEM	90

COURSE OBJECTIVES

To identify the socio-cultural aspects of literary works in different periods.
To recognise the social significance of a literary work in any language.
To identify the relation between society and literature and analyse the cultural changes.
To develop creative thinking capacity through Essays.
To connect the cultural trends to literary forms.

SESSION	TOPIC	LEARNING RESOURCES	VALUE ADDITIONS	REMARKS
MODULE I				
1	Sanskriti Ki Kahani Introduction About The Author	Lecture/PPT		
2	Sanskriti Ki Kahani	Lecture		
3	Sanskriti Aur Apsanskriti Introduction about the Author	Lecture/PPT		
4	Sanskriti Aur Apsanskriti	Lecture/Discussion		
5	Sanskriti Ki Kahani	Lecture		
6	Sanskriti Ki Kahani	Lecture/PPT		
7	Sanskriti Aur Apsanskriti	Lecture/Discussion		
8	Sanskriti Aur Apsanskriti	Interaction		

9	Sanskriti Ki Kahani	Lecture		
10	Sanskriti Ki Kahani	Lecture/Discussion		
11	Sanskriti Aur Apsanskriti	Lecture		
12	Sanskriti Aur Apsanskriti	Interaction	Seminar	
13	Sanskriti Ki Kahani	Lecture		
14	Sanskriti Ki Kahani	Lecture		
15	Revision	Lecture/Discussion		
16	Sanskriti Aur Apsanskriti	Interaction	Seminar	
17	Sanskriti Aur Apsanskriti	Lecture/PPT		
18	Revision	Interaction	Seminar	
19	Bharateeya Sanskriti Introduction about the Author	Lecture/PPT		
20	Bharateeya Sanskriti	Lecture		
21	Ham Sanskriti Mei Nahi Vikruti Mei Vikasit Ho Rehe Hain Introduction About The Author	Lecture/PPT		
22	Bharateeya Sanskriti	Lecture		
23	Bharateeya Sanskriti	Lecture/Discussion		
24	Ham Sanskriti Mei Nahi Vikruti Mei Vikasit Ho Rehe Hain	Lecture/PPT		
25	Bharateeya Sanskriti	Lecture		
26	Bharateeya Sanskriti	Lecture/Discussion	Seminar	
27	Revision	Lecture		
28	Revision	Lecture/Discussion		
29	Revision	Interaction		
30	CIA I (1 Hr Exam)			

	MODULE II			
31	Bharateeya Sanskruti	Lecture		
32	Ham Sanskruti Mei Nahi Vikruti Mei Vikasit Ho Rehe Hain	Lecture/Discussion		
33	Ham Sanskruti Mei Nahi Vikruti Mei Vikasit Ho Rehe Hain	Lecture		
34	Bharateeya Sanskruti	Lecture/Discussion		
35	Bharateeya Sanskruti	Lecture/Discussion		
36	Revision	Interaction		
37	Ham Sanskruti Mei Nahi Vikruti Mei Vikasit Ho Rehe Hain	Lecture		
38	Revision	Lecture/Discussion		
39	Loktantra Ek Dharma Hai Introduction About The Author	Lecture/PPT		
40	Loktantra Ek Dharma Hai	Lecture		
41	Loktantra Ek Dharma Hai	Lecture/Discussion		
42	Atankwad Aur Hum Introduction About The Author	Lecture/Discussion		
43	Atankwad Aur Hum	Lecture/Discussion		
44	Loktantra Ek Dharma Hai	Lecture		
45	Loktantra Ek Dharma Hai	Lecture/Discussion	Seminar	
46	Atankwad Aur Hum	Discussion		
47	Atankwad Aur Hum	Lecture/Discussion		
48	Atankwad Aur Hum	Lecture		
49	Loktantra Ek Dharma Hai	Lecture		
50	Loktantra Ek Dharma Hai	Lecture/Discussion		

51	Revision	Discussion		
52	Atankwad Aur Hum	Lecture		
53	Atankwad Aur Hum	Lecture/Discussion		
54	Atankwad Aur Hum	Lecture/PPT		
55	Mahanom Ka Manwantar Introduction About The Author	Lecture/Discussion		
56	Mahanom Ka Manwantar	Discussion		
57	Atankwad Aur Hum	Lecture/PPT		
58	Atankwad Aur Hum	Lecture		
59	Revision	Lecture/Discussion	Seminar	
60	Mahanom Ka Manwantar	Lecture		
61	Mahanom Ka Manwantar	Lecture/Discussion		
62	CIA II (2 Hrs Exam)			
MODULE III				
63	Keral Itihas Ke Jharokhe Se Introduction About The Author	Lecture/PPT		
64	Keral Itihas Ke Jharokhe Se	Lecture		
65	Keral Itihas Ke Jharokhe Se	Lecture/Discussion		
66	Mahanom Ka Manwantar	Lecture		
67	Mahanom Ka Manwantar	Lecture/Discussion		
68	Keral Itihas Ke Jharokhe Se	Lecture		
69	Mahanom Ka Manwantar	Lecture		
70	Samajik Kranti Ka Agradoot Sree Narayan Guru Introduction About The Author	Lecture/PPT		
71	Samajik Kranti Ka Agradoot Sree Narayan Guru	Lecture		
72	Sabhyata Ka Rahasya Introduction About The Author	Lecture/PPT		
73	Sabhyata Ka Rahasya	Lecture		
74	Sabhyata Ka Rahasya	Lecture/Discussion	Seminar	
75	Samajik Kranti Ka Agradoot Sree Narayan Guru	Lecture		

76	Samajik Kranti Ka Agradoot Sree Narayan Guru	Lecture		
77	Sabhyata Ka Rahasya	Lecture/Discussion		
78	Sabhyata Ka Rahasya	Lecture/Discussion		
79	Samajik Kranti Ka Agradoot Sree Narayan Guru	Lecture/PPT		
80	Samajik Kranti Ka Agradoot Sree Narayan Guru	Lecture/Discussion	Seminar	
81	Dalit Andolan Aur Ayyankali Introduction about the Author	Lecture		
82	Dalit Andolan Aur Ayyankali	Lecture/Discussion		
83	Dalit Andolan Aur Ayyankali	Lecture		
84	Dalit Andolan Aur Ayyankali	Lecture/Discussion		
85	Dalit Andolan Aur Ayyankali	Lecture		
86	Dalit Andolan Aur Ayyankali	Lecture/Discussion	Seminar	
87	Seminar			
88	Seminar			
89	Revision			
90	Evaluation of the course			

GROUP ASSIGNMENTS/ACTIVITES – Details & Guidelines

SL NO	Date of completion	Topic of Assignment & Nature of assignment (Individual/Group – Written/Presentation – Graded or Non-graded etc)
1	January	Analyse an essay based on the text book. (Group Discussion).
2	January	Write a general essay based on cultural studies. (Group Activity).

References

- Adhunik Sahitya Ki Pravritiyan, Dr. Namvar Singh, Lokbharati Prakashan, New Delhi .
- Sanskruti Ka Tana Bana, Dr. Abha Gupta Thakur, Vani Prakashan, New Delhi .

Web resource references:

- epustakalay.com
- www.hindikunj.com

COURSE PLAN

PROGRAMME	BSc CHEMISTRY	SEMESTER	4
COURSE TITLE	AN ADVANCED COURSE IN FRENCH II	CREDIT	4
HOURS/WEEK	5	HOURS/SEM	90

COURSE OBJECTIVES
To understand the basic concepts of French language including grammar, vocabulary and sentence structure
To understand the basic communication skills necessary for living in France and French speaking countries.
To describe oneself and ones surroundings using a repertory of words and expressions in a simple and structured grammatical manner.
To develop business communication skills
To express an issue of concern including topics like environmental, social or health issues, enumerate its causes and consequences and suggest solutions
To understand the mannerisms, culture and tradition of France and Francophone countries and compare it to one's own country and develop co-cultural feeling
To understand and appreciate the history of France and Francophone countries and compare it to one's own country
To understand the special features of France including gastronomy, social institutions, policis, the present French scenario and compare it to one's own country

SESSION	TOPIC	LEARNING RESOURCES	VALUE ADDITIONS	REMARKS
MODULE I				
1	Revision of French Basics	Role play, games	Q & A Session	
2	French Basics	Chalk n talk		
3	French Basics	Chalk and Talk		
4	French Basics	Chalk and Talk		
5	French Basics	Chalk and Talk		
6	French Basics	Chalk and Talk		
7	French Basics	Chalk and Talk		
8	French Basics	Chalk and Talk	Quiz	
9	Describe a personality	Lecture		
10	Edith Piaf	lecture		
11	Interview a personality	Communication skills		
12	Interview with Edith Piaf	Oral		
13	famous people in your country	Oral		
14	Narrate the life of a person of your choice	Communication Skills		
15	Describe a locality	Communication Skills		

16.	Describe a locality in your country	Role play		
17.	Grammar – relative pronoun	Lecture, games	Q & A Session	
18.	Sentence construction using relative pronoun	Games		
19.	Artistic movements	Debate/Discussion		
20	Reading Comprehension	Understanding Skills		
21.	Reading Comprehension	Understanding Skills		
22.	Reading Comprehension	Understanding Skills		
23.	Vocabulary building	Games		
24	Artistic movements	seminar	Quiz	
25	Artistic movements	Expression oral		
26.	Female artists French culture	Discussion		
27	Female artists in India	Discussions		
28	Female artists in India	Discussions ICT		
29	French culture –	Discussions, comparison		
30	Class test of Unit 1			
MODULE II				
31	Describe weather	Game	Q & A Session	
32	Weather forecast	Role play		
33	Weather forecast in your country	Lecture		
34	Causes and consequences of an issue	Games, Role plays		
35	Describe ways of protecting environment	discussion		
36	Vocabulary Building	Games		
37	Global warming, green house effect	Lecture		
38	Sentence Construction	Games	Quiz	
39	Grammar-futur tense	Roleplay, listening exercice		
40	Describe future food habits	Roleplay		
41	Describe future food habits	Lecture , role play		
42	Cities in transition	Debate		
43	Recycling	Games		
44	Intercultural aspect	Lecture/Discussion		
45	Revision			
46	Revision			
47	Revision			
48	Revision			
49	Revision			
50	Revision			
51	Revision			
CIA-1				
52	Discussion of CIA			

53	Vocabulary Building	Games		
MODULE III				
54	Organizing a party	PPT/Lecture	Q & A Session	
55	Writing an invitation	PPT/Lecture		
56	Positive and negative reply to an invitation	PPT/Lecture		
57	Vocabulary- body parts	PPT		
58	Vocabulary-parts of the body, expressing pain	Music, GAMES		
59	Explain problem which you face	Lecture/Role play		
60	Mail on seeking advice, describing a problem	Role play		
61	Telephonic conversation	Role play	Quiz	
62	Vocabulary Building	Games		
63	Posting on a problem which you face	Roleplay		
64	Giving advice/grammar-imperative	Chalk and talk, roleplay		
65	webdoctor	Communication skills		
66	Writing a mail and receiving response	Communication Skills		
67	French Culture -Vacation sports	PPT/Discussion		
68	Sports in India	Debate		
69	Advantages of doing sports	Debate/Discussion		
70	Famous authors- Moliere	Discussion		
71	Clown – life of a clown	Discussion		
CIA II				
MODULE IV				
72	French language in the world	Chalk and talk	Q & A Session	
73	French language in the world	Role play		
74	Information on francophone countries	Role play		
75	Describe a place, its past, its present and future	Discussion		
76	Vocabulary Building	Games, Music		
77	French movie	Audio visual		
78	French Movie	Audio Visual		
79	Francophone literature	Chalk n talk/Reading Comprehension	Quiz	
80	Francophone literature	Discussion		
81	Francophone literature	Discussion		
82	Francophone literature	Discussion		
83	Francophone literature	Discussion		
84	Revision			
85	Revision			

86	Revision			
87	Revision			
88	Revision			
89	Revision	discussion		
90	Revision	discussion		

INDIVIDUAL ASSIGNMENTS/SEMINAR – Details & Guidelines

	Date of completion	Topic of Assignment & Nature of assignment (Individual/Group – Written/Presentation – Graded or Non-graded etc)
1	By February	Writing a resume of a francophone novel and its author
2		roleplays

References

Version Originale, site web

COURSE PLAN

PROGRAMME	BACHELOR OF SCIENCE,CHEMISTRY	SEMESTER	4
COURSE TITLE	HISTORICAL SURVEY OF SANSKRIT LITERATURE AND KERALA CULTURE	CREDIT	4
HOURS/WEEK	5	HOURS/SEM	90

COURSE OBJECTIVES

To familiarize the Culture and Civilization
To understand the influence of Epic and in Indian Literature
To get an awareness about Indian classical poetic tradition
To familiarize the Mahakavyas and It's Influence
To identify the values and philosophy in Sanskrit literature
To get an awareness about Indian Philosophers and renovators in Kerala
To understand the tools to beautify the literature through Drama and Translation
To identify the richness of Indian Literature

SESSION	TOPIC	LEARNING RESOURCES	VALUE ADDITIONS	COURSE OUTCOME
MODULE I				
1	Introducing the importance of epic	Lecture	Q & A Session	
2	Valmiki's Ramayana	Discussion		
3	Ramayana story	Lecture		
4	Development of Ramayana	Lecture		
5	Seven kandas	Lecture		
6	Arguments of Prof.Jacobi	Chalk n talk		
7	Addition of two kandas	Lecture		
8	The date of ramayana	Chalk n talk		
9	Balakanda, Ayodhyakanda	Lecture		
10	Aaranyakanda, kishkindakanda	Lecture		
11	Sundarakanda, Yudhakanda	Discussion	Video	
12	Utharakanda	Discussion		
13	Influence of Ramayana in Indian literature	PPT/Lecture		
14	Mahabharatham-Introduction	PPT/ Lecture		
15	Eighteen Parvas	PPT/ Lecture		
16	The date of mahabharatham	PPT/Lecture		
17	First stage - jayam	Chalk n talk		

18	Second stage -Bharatham	Lecture		
19	Third Stage -mahabharatham	Lecture		
20	Authorship of Mahabharatham	Lecture		
21	The numbers of sloka –More than 1 lakh	Game		
22	The content of Bharatham	Game		
23	Moralities in Bharatham	PPT/Lecture		
24	Bhagavad Geetha	PPT/Lecture		
25	The influence of Bharatham in later Indian literature	Lecture		
26	Harivamsham	Lecture		
CIA-1				
27	Purusharthas	Lecture		
28	The Fifth veda	Chalk n talk		
29	Commentary on Bharatham	Chalk n talk		
30	Revision			
MODULE II				
31	Introduction -Panchamahakavyas	Lecture	Q & A Session	
32	Kumarasambava			
33	Content of Kumarasambava			
34	Raghuvamsha			
35	Content of Raghuvamsha	Lecture		
36	Kiratharjuneeyam			
37	Content of Kiratharjuneeyam	Lecture		
38	Shishupalavadham	PPT/Lecture		
39	Content of Shishupalavadham	PPT/Lecture		
40	Naishadhacharitham	PPT/Lecture		
41	Content of Naishadhacharitham	Lecture	Video	
42	The importance of mahakakavya	Lecture		
43	The authors of mahakavya	Chalk n talk		
44	Revision			
MODULE III				
45	Swapnavasavadatham	Discussion		
46	Content	PPT/Lecture		
47	Prathijnayaugandharayanam	PPT/Lecture		
48	Content	PPT/Lecture		
49	Malavikaagnimithram	PPT/Lecture		
50	Vikramorvasheeyam	PPT/Lecture		
51	Abhijnanashakunthalam	PPT/Lecture	Video	
52	Content	PPT/Lecture		
53	Venisamharam	PPT/Lecture		
54	Mrichakatikam	Lecture		

55	Uthararamacharitham	Lecture		
56	Ashcharyachudamani	PPT/Lecture		
57	Subhadradhananjayam	PPT/Lecture		
58	The Influence of Dramas	PPT/Lecture		
59	Revision			
MODULE IV				
60	Shankaracharya	Lecture		
61	Keralavarma Valiya koyi Thampuram	Lecture		
62	Poorna Saraswathy	Chalk n talk		
63	Sree Narayana guru	Lecture		
64	Chattambi Swamikal	Lecture	Group discussion	
65	A.R.Rajarajavarma	Lecture		
66	P.C.Devasya	PPT/Lecture		
67	K.N.Ezhuthachan	PPT/Lecture		
68	Dr.P.K.Narayana Pillai	PPT/Lecture		
69	Melpathoor Narayana Bhattathiri	PPT/Lecture		
70	Sukumara Kavi	Lecture		
71	I.C Chacko	Lecture		
72 - 90	Revision			

INDIVIDUAL ASSIGNMENTS/SEMINAR – Details & Guidelines

	Date of completion	Topic of Assignment & Nature of assignment (Individual/Group – Written/Presentation – Graded or Non-graded etc)
1	15/01/2015	Kerala Philosophers
2	21/01/2015	The philosophy of Bhagavad Gita

GROUP ASSIGNMENTS/ACTIVITES – Details & Guidelines

	Date of completion	Topic of Assignment & Nature of assignment (Individual/Group – Written/Presentation – Graded or Non-graded etc)
1	04/02/2015	The Influence of Epics in Indian society
2	24/02/2015	Mahakavyas and Indian literature

References

- 1.A Short History of Sanskrit Literature, T.K. Ramachandra Iyer

2.Sanskrita Sahitya Caritram, ed. K. Kunjunni Raja and M.S. Menon, Kerala Sahitya Academi, Trissur

3.Sanskrita Bhasayum Sahityavum, T.P. Balakrishnan

4.History of Sanskrit Literature, A B Keith

5.Facets of Indian Culture, P C Muralimadhavan

COURSE PLAN

PROGRAMME	B.Sc. CHEMISTRY	SEMESTER	4
COURSE TITLE	ഗദ്യം രചനാപരിചയം	CREDITS	4
HOURS/WEEK	5	HOURS/SEM	90

COURSE OBJECTIVES
ഭാഷ, എഴുത്ത്, രചനാപരിശീലനം എന്നീ ശേഷികളെ മനസ്സിലാക്കുക
ഉപന്യാസരചനാതത്വങ്ങൾ, പാദവാക്യഘടന എന്നീ ശേഷികളെ മനസ്സിലാക്കുക
സാഹിത്യനിരൂപണം, രാഷ്ട്രീയദർശനം, മാധ്യമ പഠനം എന്നിങ്ങനെ വിവിധങ്ങളായ ഗദ്യവ്യവഹാരങ്ങളുടെ മികച്ച മാതൃകകൾ പരിചയപ്പെടുത്തുക
വായനാഭിരുചി വർദ്ധിപ്പിക്കുക
വ്യാവഹാരിക തലത്തിൽ മാതൃഭാഷാപ്രയോഗിക്കുവാനുള്ള കഴിവ് നേടുക

Sessi on	Topic	Teaching method	Learning Resources	Remarks
Module I				
1	ഭാഷാചരിത്രം - ആമുഖം	Lecturing	സാഹിത്യചരിത്രങ്ങൾ	
2	ഭാഷാചരിത്രം - ആമുഖം	Lecturing	സാഹിത്യചരിത്രങ്ങൾ	
3	ക്രിയാത്മക രചന	Discussion	Text	
4	ക്രിയാത്മക രചന	Reading	Text	
5	സർഗാത്മകരചന	Demonstrating	Text	
6	സർഗാത്മകരചന	Lecturing		
7	സർഗാത്മകരചന	Discussion	Text	

8	ഭാഷാപ്രയോഗങ്ങൾ	Demonstrating	Text	
9	ഭാഷാപ്രയോഗങ്ങൾ	Reading	Text	
10	ഭാഷാപ്രയോഗങ്ങൾ	Discussion	Text	
11	വാക്യരചന	Demonstrating	സാഹിത്യചരിത്രങ്ങൾ	
12	വാക്യരചന	Discussion	Text	
13	വാക്യരചന	Discussion	Text	
14	മാനകഭാഷ	Reading	സാഹിത്യചരിത്രങ്ങൾ	
15	മാനകഭാഷ	Demonstrating	Text	
16	ഭാഷാഭേദങ്ങൾ	Discussion	Text	
17	ഭാഷാഭേദങ്ങൾ	Discussion	Text	
18	വാക്യം യുക്തിയും	Demonstrating	Text	
19	വിമർശനാത്മക ചിന്ത	lecturing	Text	
20	വിമർശനാത്മക ചിന്ത	Discussion		
21	വിമർശനാത്മക ചിന്ത	Discussion	Text	
22	സന്ധികാര്യം	lecturing	Text	
23	സന്ധികാര്യം	Discussion	Text	
24	സന്ധികാര്യം	Discussion		
25	അർത്ഥപരിണാമം		Text	
		lecturing		
26	അർത്ഥപരിണാമം		Text	
		Discussion		
27	വിവർത്തനം	lecturing	Text	
28	വിവർത്തനം	Discussion		
29	ചിഹ്നം	Lecturing	Text	
30	ചിഹ്നം	Lecturing		
31	നവപാഠങ്ങൾ	Discussion	Text	
32	ഭാഷയുടെ ഘടന		Text	
		Lecturing		
33	സ്ഥല പേരുകളുടെ രൂപമാറ്റം	Reading	Text	
34	പത്രഭാഷ	Discussion		
35	യന്ത്ര ഏഴുത്ത്	Discussion	Text	
36	ഉപന്യാസരചന	Lecturing	Text	
		Module II		
37	മഹാകവിയുടെ ശില്പശാലയിൽ	Reading	Text	
38	മഹാകവിയുടെ ശില്പശാലയിൽ	Discussion		
39	മഹാകവിയുടെ ശില്പശാലയിൽ	Discussion	Text	

40	മതനവീകരണം മതനിരപേക്ഷത	Lecturing Discussion	Text	
41	മതനവീകരണം മതനിരപേക്ഷത	Reading	Text	
42	പെൺവഴി രചനയുടെ മെയ്യും ഉയിരും	Discussion		
43	ജനനാന്തരസൗഹൃദങ്ങൾ	Discussion	Text	
44	പെൺവഴി രചനയുടെ മെയ്യും ഉയിരും	Lecturing	Text	
45	ജനനാന്തരസൗഹൃദങ്ങൾ	Lecturing	Text	
46	ജനനാന്തരസൗഹൃദങ്ങൾ	Reading	Text	
47	ജനനാന്തരസൗഹൃദങ്ങൾ	Discussion	Text	
		Module III		
48	സാവിത്രിയുടെ മൈന	Discussion	Text	
49	സാവിത്രിയുടെ മൈന	Reading Discussion	Text	
50	സാവിത്രിയുടെ മൈന	Discussion	Text	
51	നാനോടെക്നോളജി	Lecturing	Text	
52	നാനോടെക്നോളജി	Discussion	Text	
53	നാനോടെക്നോളജി	Lecturing	Text	
54	വി.ടി യുടെ വീട് ലോകം	Reading Discussion	Text	
55	വി.ടി യുടെ വീട് ലോകം	Discussion	Text	
56	വി.ടി യുടെ വീട് ലോകം	Discussion	Text	
57	നവോത്ഥാനത്തിന്റെ പാഠങ്ങൾ	Lecturing	Text	
58	നവോത്ഥാനത്തിന്റെ പാഠങ്ങൾ	Discussion		
59	നവോത്ഥാനത്തിന്റെ പാഠങ്ങൾ	Lecturing Discussion	Text	
60	കേരളഹോക്ലോർ	Reading	Text	
61	കേരളഹോക്ലോർ	Lecturing	Text	
62	കേരളഹോക്ലോർ	Discussion	Text	
63	കേരളഹോക്ലോർ	Discussion	Text	
64	കേരളഹോക്ലോർ	Reading	Text	

65	കേരളഫോക്ലോർ	Reading	Text	
66	കേരളഫോക്ലോർ	Lecturing	Text	
67	കേരളഫോക്ലോർ	Reading	Text	
68	കേരളഫോക്ലോർ	Lecturing	Text	
69	കേരളഫോക്ലോർ	Reading	Text	
70	കലയും സമൂഹവും	Discussion	Text	
71	കലയും സമൂഹവും	Discussion	Text	
72	കലയും സമൂഹവും	Discussion	Text	
73	സംവാദം	Discussion	Text	
74	സംവാദം	Discussion	Text	
75	സംവാദം	Discussion	Text	
		Module IV		
76	വർത്തമാന പത്രം വായനക്കു മുൻപുള്ള വർത്തമാനങ്ങൾ	Discussion	Text	
77	വർത്തമാന പത്രം വായനക്കു മുൻപുള്ള വർത്തമാനങ്ങൾ	Discussion	Text	
78	വർത്തമാന പത്രം വായനക്കു മുൻപുള്ള വർത്തമാനങ്ങൾ	Discussion	Text	
79	കാലാവസ്ഥാ മാറ്റവും തീരദേശ ജൈവവൈവിധ്യവും	Discussion	Text	
80	കാലാവസ്ഥാ മാറ്റവും തീരദേശ ജൈവവൈവിധ്യവും	Discussion	Text	
81	കാലാവസ്ഥാ മാറ്റവും തീരദേശ ജൈവവൈവിധ്യവും	Discussion	Text	
82	കാലാവസ്ഥാ മാറ്റവും തീരദേശ ജൈവവൈവിധ്യവും	Discussion	Text	
83	Revision	Discussion	Text	
84	സെമിനാർ	Presentation	Text	
85	സെമിനാർ	Discussion	Text	
86	സെമിനാർ	Presentation	Text	
87	സെമിനാർ	Discussion	Text	
88	സെമിനാർ	Presentation	Text	
89	സെമിനാർ	Discussion	Text	
90	Evaluation of course	Discussion	Text	

ASSIGNMENTS

Sl no	Date of submission/completion	Topic of Assignment & Nature of assignment (Individual/Group – Written/Presentation – Graded or Non-graded etc)
1	By February	ഉപന്യാസതത്വങ്ങൾ വിവരിക്കുക
2	By February	മലയാളഭാഷയും കേരളീയ സമൂഹവും

SEMINAR

	Date of submission/completion	Topic of semiar & Nature of seminar (Individual/Group – Written/Presentation – Graded or Non-graded etc)
1	By February	പാഠഭാഗങ്ങളുടെ അവതരണം
2	By February	പാഠഭാഗങ്ങളുടെ അവതരണം

Reference :

1. സമ്പൂർണ്ണ മലയാള സാഹിത്യചരിത്രം -എഡിറ്റർ :പത്മനരാമചന്ദ്രൻ നായർ
2. മലയാളത്തിന്റെ ഭാവി -കെ. സേതുരാമൻ
3. എഴുത്തിന്റെ വഴികൾ - എം .ജി . യൂണിവേഴ്സിറ്റി പ്രസിദ്ധീകരണം
- 4.ഗദ്യവിതാനം- എം .ജി . യൂണിവേഴ്സിറ്റി പ്രസിദ്ധീകരണം

COURSE PLAN

PROGRAMME	BSc Chemistry	SEMESTER	4
COURSE TITLE	Organic Chemistry - II	CREDIT	3
HOURS/WEEK	3	HOURS/SEM	54

Course Objective
<i>To review the chemistry of some selected functional groups to develop proper aptitude towards the study of organic compounds and their reactions</i>
<i>To illustrate the chemistry of alcohols, phenols, carboxylic acids, derivatives of Carboxylic acids, Sulphonic acids, carbonyl compounds, poly nuclear hydrocarbons, active methylene compounds and Grignard reagents</i>
<i>To categorize different organic reactions and analyze the mechanisms.</i>

SESSION	TOPIC	LEARNING RESOURCES	VALUE ADDITIONS	REMARKS
MODULE I - HYDROXY COMPOUNDS (8 h)				
1	Introduction to Alcohols.	PPT	video	
2	Monohydric alcohols: Classification Physical properties–hydrogen bonding	PPT/Lecture		
3	Distinction between primary,secondary and tertiary alcohols. Ascent and decent in alcohol series	PPT/Lecture		
4	Dihydric alcohols	PPT/Lecture	e-resource	
5	Oxidative cleavage – Lead tetra acetate, Periodic acid Pinacol - Pinacolone rearrangement: mechanism	PPT/Lecture		
6	Phenols – Acidity of phenols- effects of substituents – comparison of acidity with alcohols	PPT/Lecture		
7	Preparation and uses of nitrophenols, picric acid, catechol, resorcinol and quinol	Lecture		
8	Mechanisms of Reimer –Tiemann reaction, Lederer- Mannase reaction, Friesrearrangement	Lecture		
MODULE II- ETHERS AND EPOXIDES (3 h)				
9	Synthesis and Reactions of Epoxides	Lecture		
10	Cleavage of ether linkages by HI- Ziesels method of estimation of alkoxy groups	Lecture		
11	Claisen rearrangement –mechanism.	PPT/Lecture		
MODULE III- ALDEHYDES AND KETONES (14 h)				

12	Structure and reactivity of the carbonyl group - acidity of alpha hydrogen. Comparative studies of -aldehydes and ketones -	PPT/Lecture		
13	aliphatic and aromatic aldehydes - formaldehyde and acetaldehyde-	PPT/Lecture		
14	Mechanism of nucleophilic additions to carbonyl groups : Claisen and Claisen-Schmidt condensations.	PPT/Lecture		
15	Mechanism of nucleophilic additions to carbonyl groups : Benzoin condensations and Aldol condensations.	PPT/Lecture		
16	Mechanism of nucleophilic additions to carbonyl groups : Perkin and Knoevenagel condensations.	Lecture		
17	Condensation with ammonia and its derivatives.	Lecture		
18	Wittig reaction and Mannich reaction, Addition of Grignard reagents.	Lecture		
19	Oxidation and reduction of aldehydes and ketones: Baeyer-Villiger oxidation	Lecture		
20	Oxidation and reduction of aldehydes and ketones: Cannizzaro's reaction	Lecture		
21	Oxidation and reduction of aldehydes and ketones: Meerwein-Ponndorf-Verley, and Clemmensen, reductions	Lecture		
22	Oxidation and reduction of aldehydes and ketones: Wolff-Kishner, LiAlH ₄ and NaBH ₄ reductions.	Lecture		
23	Use of acetal as protecting group.	PPT/Lecture		
MODULE IV- CARBOXYLIC AND SULPHONIC ACIDS (18h)				
24	Structure of carboxylate ion- effects of substituents on acid strength of aliphatic and aromatic carboxylic acids	PPT/Lecture		
25	Ascent and descent in fatty acid series	PPT/Lecture		
26	Hell-Volhard-Zelinsky reaction -Mechanism of decarboxylation	PPT/Lecture		
27	Preparation of functional derivatives of carboxylic acids : acid chlorides	Lecture		
28	Preparation of functional derivatives of carboxylic acids : esters and anhydrides	Lecture		
29	Preparation of functional derivatives of carboxylic acids: amides	Lecture		
30	Methods of formation and chemical reactions :anthranilic acid,cinnamic acid	Lecture		
31	Methods of formation and chemical reactions :acrylic acid	Lecture		

32	Methods of formation and chemical reactions :oxalic acid	PPT/Lecture		
33	Methods of formation and chemical reactions :malonic acid	PPT/Lecture		
34	Methods of formation and chemical reactions : citric acid	PPT/Lecture		
35	Methods of formation and chemical reactions:adipic acid	PPT/Lecture		
36	Methods of formation and chemical reactions: maleic acid,	PPT/Lecture		
37	Methods of formation and chemical reactions:fumaric acid	PPT/Lecture		
38	Methods of formation and chemical reactions:coumarin.	Lecture	Quiz	
	CIA			
39	Preparation, reactions and uses: benzene sulphonic acid	PPT/Lecture		
40	Preparation, reactions and uses: benzene sulphonyl chloride	PPT/Lecture		
41	Preparation, reactions and uses: <i>ortho</i> and <i>para</i> toluene sulphonyl chlorides	PPT/Lecture		
MODULE V- CARBONIC ACID DERIVATIVES (3 h)				
42	Preparation, reactions, structure and uses: Urea and thiourea	Lecture		
43	Preparation, reactions, structure and uses: semicarbazide	PPT/Lecture		
44	Preparation and basicity of guanidine.	PPT/Lecture		
MODULE VI- GRIGNARD AND RELATED COMPOUNDS (2 h)				
45	Grignard reagents-formation, structure and synthetic applications	PPT/Lecture		
46	Alkyl lithium, Reformatsky reaction	PPT/Lecture		
MODULE VII- COMPOUNDS CONTAINING ACTIVE METHYLENE GROUPS (5 h)				
47	Synthetic uses of malonic ester.	PPT/Lecture		
48	Synthetic uses of acetoacetic ester.	PPT/Lecture		
49	Synthetic uses of cyanoacetic ester.	PPT/Lecture		
50	Keto-enol tautomerism of ethyl acetoacetate.	PPT/Lecture		
51	Alkylation of carbonyl compounds <i>via</i> enamines	PPT/Lecture		
MODULE VIII : POLY NUCLEAR HYDROCARBONS AND THEIR DERIVATIVES (3 h)				
52	Classification –reactions and structure of naphthalene	PPT/Lecture	Video	
53	Reactions and structure of anthracene and phenanthrene	Lecture		

54	Elementary idea of naphthyl amines, naphthols, naphthaquinone and anthraquinone.	PPT/Lecture		
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INDIVIDUAL ASSIGNMENTS/SEMINAR – Details & Guidelines

	Date of completion	Topic of Assignment & Nature of assignment (Individual/Group – Written/Presentation – Graded or Non-graded etc)
1	16/01/2015	IUPAC nomenclature of organic compounds (compounds like carboxylic acids, aldehydes etc will be given to them)
2	11/02/2015	Synthetic applications of active methylene compounds

GROUP ASSIGNMENTS/ACTIVITES – Details & Guidelines

	Date of completion	Topic of Assignment & Nature of assignment (Individual/Group – Written/Presentation – Graded or Non-graded etc)
1	15/2/2015	Previous IIT JAM questions (Group activity)

References

1. Peter Sykes, A Guide book to Mechanism in Organic Chemistry: 6th Edition, Pearson Education.
2. P. S. Kalsi 'Organic Reactions and their Mechanisms'' New Age International Publishers.
3. K.S. Tewari and N.K. Vishnoi 'Organic Chemistry', 3rd Edition, Vikas Publishing House.
4. M. K. Jain and S.C. Sharma 'Modern Organic Chemistry', 3rd Edition, Vishal Publishing Company Co.
5. R. T. Morrison and R. N. Boyd, 'Organic Chemistry', 6th Edition - Prentice Hall of India,
6. I. L. Finar, Organic Chemistry, 6th Edition. Vol.- I, Pearson

Web resource reference

<https://nptel.ac.in/courses/104/101/104101115/>

COURSE PLAN

PROGRAMME	COMPLEMENTARY PHYSICS FOR BSc CHEMISTRY	SEMESTER	4
COURSE TITLE	Physical Optics, Laser Physics and Superconductivity	CREDIT	3
Theory HOURS/WEEK	3	HOURS/SEM	54

COURSE OBJECTIVES

To apply the concept of wavenature of light in daily life to appreciate the science of various devices which make our life easier (Problem solving skills)

To understand the concept of polarization and applying concept to explain the use of polarization in various applications (Problem solving skills)

To understand the concept laser action and superconductivity and explore the possibility for higher level research.

SESSION	TOPIC	LEARNING RESOURCES	REMARKS
MODULE I Interference and Diffraction Dr. Pius Augustine			

1.	Interference of light- Principle of superposition	Lecture/PPT	
2.	Conditions for maximum and minimum intensities	Lecture/PPT	
3.	coherent sources	Lecture/PPT	
4.	Interference by division of wave front and division of amplitude	Lecture/PPT	
5.	Young's double slit experiment (division of wave front)	Lecture/PPT	
6.	Expression for fringe width	Lecture/PPT	
7.	Expression for fringe width	Lecture/PPT	
8.	Newton's rings by reflected light (division of amplitude)	Lecture/PPT	
9.	Measurement of wavelength of sodium light by Newton's rings	Lecture/PPT	
10.	Measurement of wavelength of sodium light by Newton's rings	Lecture/PPT	
11.	Interference in thin films	Lecture/PPT	
12.	Interference in thin films	Lecture/PPT	
13.	Introduction –Diffraction	Lecture/PPT	
14.	Difference between Interference and diffraction	Lecture/PPT	
15.	Fresnel and Fraunhofer diffraction	Lecture/PPT	
16.	Fresnel Diffraction at a straight edge	Lecture/PPT	

17.	Theory of plane transmission grating	Lecture/PPT	
18.	Theory of plane transmission grating	Lecture/PPT	
19.	Determination of wavelength (normal incidence)	Lecture/PPT	
20.	Resolving power- dispersive power	Lecture/PPT	
Module II (15 Hrs) Polarization (15 hrs) Prof. Navya S. L .			
21	Introduction- polarized and unpolarized light	Lecture/PPT	
22	Plane of vibration –plane of polarization	Lecture/PPT	
23	Polarization by reflection- Brewster’s law	Lecture/PPT	
		Lecture/PPT	
24	Polarization by refraction through pile of plates	Lecture/PPT	
25.	law of Malus	Lecture/PPT	
26.	Uni-axial and biaxial crystals – double refraction	Lecture/PPT	
27.	Principal plane- polarization by double refraction	Lecture/PPT	
28.	Principal plane- polarization by double refraction	Lecture/PPT	
29.	Polarization by selective absorption	Lecture/PPT	
30.	Polaroid	Lecture/PPT	
31.	Polarization by scattering	Lecture/PPT	
32.	Elliptically and circularly polarized light-	Lecture/PPT	
33.	Elliptically and circularly polarized light-	Lecture/PPT	
34.	Half wave and quarter wave plates	Lecture/PPT	
35.	Half wave and quarter wave plates	Lecture/PPT	
Module III (19 Hrs) Laser Physics and Superconductivity Dr. Pius Augustine			
36.	Interaction of electromagnetic radiation with matter	Lecture/PPT	
37.	stimulated Absorption spontaneous emission	Lecture/PPT	
38.	stimulated emission	Lecture/PPT	
39	Principle of laser population inversion	Lecture/PPT	
40	Einstein’s coefficients-	Lecture/PPT	
41	Types of lasers- Ruby laser	Lecture/PPT	
42	Neodymium YAG laser	Lecture/PPT	

43	He-Ne laser	Lecture/PPT	
44	Properties of laser beams	Lecture/PPT	
45	Application of laser beams	Lecture/PPT	
46	Super conducting phenomenon- Occurrence-	Lecture/PPT	
47	Super conducting phenomenon- Occurrence-	Lecture/PPT	
48	BCS theory (qualitative)	Lecture/PPT	
49	Meissner Effect	Lecture/PPT	
50	Type I and Type II superconductors	Lecture/PPT	
51	Type I and Type II superconductors	Lecture/PPT	
52	Josephson effects	Lecture/PPT	
53	High temperature superconductors	Lecture/PPT	
54	Applications of Superconductivity	Lecture/PPT	

	Topic of Assignment & Nature of assignment (Individual/Group – Written/Presentation – Graded or Non-graded etc)	
1	Seminar on Laser Physics and applications Topics can be selected by students Before first internal exam	Presentation in groups and submission of report and ppt.
2	Seminar/assignment on Superconductivity Before Second Internal Exam	Presentation in groups and submission of report and ppt.

INDIVIDUAL ASSIGNMENTS/SEMINAR – Details & Guidelines

Books for references

- 1.Introduction to Modern Physics- H.S. Mani and G.K. Mehta (Affiliated East West press Pvt. Ltd)
- 2.Concepts of Modern Physics- A. Beiser (Tata McGraw-Hill, 5th Edn.)
- 3.Modern Physics- R. Murugesan (S. Chand and Co.)
- 4.Modern Physics- G.Aruldas and P.Rajagopal (PHI Pub)
- 5.Solid State Physics- R. K. Puri and V.K. Babbar (S. Chand and Co.)

COURSE PLAN

PROGRAMME	BSc CHEMISTRY	SEMESTER	4
COURSE TITLE	FOURIER SERIES, PARTIAL DIFFERENTIAL EQUATIONS, NUMERICAL ANALYSIS AND ABSTRACT ALGEBRA	CREDIT	4
HOURS/WEEK	5	HOURS/SEM	90

COURSE OBJECTIVES

To find the Fourier series expansion of a given periodic function in a specified interval.

To solve different types of differential equations

To discuss the solution using numerical method

To understand the concepts of groups, cyclic groups, permutation groups

SESSION	TOPIC	LEARNING RESOURCES	VALUE ADDITIONS	REMARKS
MODULE I				
1	Introduction to functions	PPT	video	
2	History	PPT	video	
3	Definition and examples of Fourier series of period 2π	Lecture		
4	Examples of Fourier series of period 2π	Lecture		
5	Examples of Fourier series of period 2π	Lecture		
6	examples of Fourier series of period 2π	Lecture		
7	examples of Fourier series of period 2π	Lecture		
8	Definition and examples of Fourier series of period $2l$	Lecture		
9	Examples of Fourier series of period $2l$	Lecture		
10	Examples of Fourier series of period $2l$	Lecture		
11	Examples of Fourier series of period $2l$	Lecture		
12	Half range Fourier Series	Lecture		
13	Examples	Lecture		
14	Examples	Lecture		
MODULE II				
15	Laplace Transforms- Introduction	PPT/Lecture		
16	Historical Aspects	Lecture		
17	Definition and examples of Lapalce Transform	Lecture		
18	Properties of Laplace transform	Lecture		

19	Properties of Laplace transform	Lecture		
20	Properties of Laplace transform	Lecture		
21	Examples and Applications	Lecture		
22	Examples and Applications	Lecture		
23	Examples and Applications	Lecture		
24	Inverse Laplace transforms	Lecture		
25	Inverse Laplace transforms	Lecture		
26	CIA-1			
27	Inverse Laplace transforms- Examples	Lecture		
28	Inverse Laplace transforms - Examples	Lecture		
29	Convolution theorem	Lecture		
30	Convolution theorem	Lecture		
31	Examples	Lecture		
32	Examples	Lecture		
33	Examples	Lecture		
34	Examples	Lecture		
35	Application to differential equations	Lecture		
36	Application to differential equations	Lecture		
37	Application to differential equations	Lecture		
38	Application to differential equations	Lecture		
39	Problems	Lecture		
40	Problems	Lecture	SEMINAR	
41	Problems	Lecture	SEMINAR	
42	Problems	Lecture	SEMINAR	
43	Revision	Lecture	GD	
44	Problems	Lecture	GD	
45	Class test	Lecture		
Module III				
46	Introduction to Fourier Transform	Lecture		
47	Definition of Fourier transform	Lecture		
48	Example and properties of Fourier transform	Lecture		
49	Example and properties of Fourier transform	Lecture		
50	Example and properties of Fourier transform	Lecture		
51	Example and properties of Fourier transform	Lecture		
52	Example and properties of Fourier transform	Lecture		
53	Fourier Sine and cosine Integrals - Introduction	Lecture		
54	Fourier Sine and cosine Integrals- Examples	Lecture		

55	Fourier Sine and cosine Integrals - Examples	Lecture		
56	Complex form of Fourier Transforms	Lecture		
57	Complex form of Fourier Transforms	Lecture		
58	Complex form of Fourier Transforms	Lecture		
59	Inversion formula	Lecture		
60	Inversion formula	Lecture		
61	Revision/ GD	Lecture	GD	
MODULE IV				
62	Binary systems	Lecture		
63	Binary systems examples	Lecture		
64	Groups, Elementary properties of groups	Lecture		
65	Groups, Elementary properties of groups	Lecture		
66	Groups, Elementary properties of groups	Lecture		
67	Groups, Elementary properties of groups	Lecture		
68	Finite groups	Lecture		
69	Finite groups	Lecture		
70	Finite groups	Lecture		
CIA II				
71	Sub groups & cyclic groups	Lecture		
72	Sub groups & cyclic groups	Lecture		
73	Sub groups & cyclic groups	Lecture		
74	Lagrange's theorem	Lecture		
75	Lagrange's theorem	Lecture		
76	Permutation groups	Lecture		
77	Permutation groups	Lecture		
78	Revision	Lecture	GD	
79	Seminar /GD	Group activity	GD	
80	Seminar /GD	Group activity	GD	
81	Seminar /GD	Group activity	GD	
82	Seminar /GD	Group activity	GD	
83	Seminar /GD	Group activity	GD	
84	Seminar /GD	Group activity	GD	

85	Seminar /GD	Group activity	GD	
86	Seminar /GD	Group activity	GD	
87	Seminar /GD	Group activity	GD	
88	Seminar /GD	Group activity	GD	
89	Seminar /GD	Group activity	GD	
90	Summary of the syllabus	Lecture		

INDIVIDUAL ASSIGNMENTS/SEMINAR – Details & Guidelines

	Date of completion	Topic of Assignment & Nature of assignment (Individual/Group – Written/Presentation – Graded or Non-graded etc)
1	By January	Problems in Fourier Series
2		Problems in differential Equations

Seminar – Details & Guidelines

	Date of completion	Topic of Seminar & Nature of Seminar (Individual/Group – Written/Presentation – Graded or Non-graded etc)
1	By January	Numerical Method
2		Groups

Text Book

1. Erwin Kreyszig : Advanced Engineering Mathematics, Eighth Edition, Wiley, India.
2. Ian Sneddon – Elements of Partial Differential Equation (Tata McGraw Hill)
3. S.S .Sastry : Introductory methods of Numerical Analysis ,4th edition (Prentice Hall)
4. John B Fraleigh- A first course in Abstract Algebra(7th Edition)Pearson Education

References

- 1) Advanced Engineering Mathematics by Michael D Greenberg, Pearson Education, 2002
- 2) Advanced Engineering Mathematics by Erwin Kreyszig, Eighth edition, Wiley, India.
- 3) Higher Engineering Mathematics, by B.S. Grewal, Khanna Publishers.
- 4) A First Course in Abstract Algebra, by John B Fraleigh, Seventh edition, Pearson Education.