SACRED HEART COLLEGE (AUTONOMOUS)

Department of Physics

BACHELOR OF SCIENCE IN PHYSICS

Course plan

Academic Year 2017 - 18

Semester 3

SACRED HEART COLLEGE (AUTONOMOUS)

Department of Physics

COURSE PLAN

PROGRAMME	UG COMMON COURSE 3-Physics	SEMESTER	3
COURSE CODE AND TITLE	15U3CCENG5: REFLECTIONS ON INDIAN POLITY, SECULARISM AND SUSTAINABLE ENVIRONMENT	CREDIT	4
HOURS/WEEK	5	HOURS/SEM	90
FACULTY NAMES	Shijo Varghese, Joseph Kusumalayam		

COURSE OBJECTIVES
Communicate effectively in English.
Understand the vital aspects of Indian polity viz. democracy, federalism and secularism.
Respond critically to the questions of sustainable development
Assimilate and creatively respond to Gandhian thoughts
Compare and contrast scholarly texts (both content and style
Critique the challenges and opportunities that citizens are bound to encounter.

SESSION	TOPIC	LEARNING RESOURCES	VALUE ADDITIONS	REMARKS
MODULE I -INDIAN POLITY				
1	The Preamble of the Constitution	Lecture		
2	The Preamble of the Constitution	PPT/Lecture		
3	The Preamble of the Constitution	PPT/Lecture		
4	On the Constitution of India	lecture		
5	Rajendra Prasad : “Let Posterity Judge”	PPT/Lecture	video	

6	Rajendra Prasad : “Let Posterity Judge”	PPT/Lecture	PPT	
7	Rajendra Prasad : “Let Posterity Judge”	Lecture		
8	Rajendra Prasad : “Let Posterity Judge”	Lecture		
9	Rajendra Prasad : “Let Posterity Judge”	PPT/Lecture	video	
10	Rajendra Prasad : “Let Posterity Judge”	PPT/Lecture		
11	Sebastian : “Exciting Views”	Discussion		
12	Sebastian : “Exciting Views”	Discussion		
13	Amulal Hingorani : “Brother Abdul Rahman”	Seminar Presentations	PPT	
14	Amulal Hingorani : “Brother Abdul Rahman”	Seminar Presentations	PPT	
15	Amulal Hingorani : “Brother Abdul Rahman”	Seminar Presentations	PPT	
MODULE II				
16	Vallathol : “My Master”	Discussion		
17	Vallathol : “My Master”	Discussion		
18	Louis Fischer : “Gandhi and Western World”	Seminar Presentations	PPT	
19	Louis Fischer : “Gandhi and Western World”	Seminar Presentations	PPT	
20	Louis Fischer : “Gandhi and Western World”	Seminar Presentations	PPT	
21	Louis Fischer : “Gandhi and Western World”	Seminar Presentations	PPT	
22	Raja Rao : “The Cow of the Barricades”	Lecture		

23	Raja Rao : “The Cow of the Barricades”	Lecture		
24	Raja Rao : “The Cow of the Barricades”	Discussion		
25	M.K.Gandhi : “Round Table Conference Speech”	Lecture	Text	
26	M.K.Gandhi : “Round Table Conference Speech”	PPT/Lecture		
27	M.K.Gandhi : “Round Table Conference Speech”	Lecture		
28	M.K.Gandhi : “Round Table Conference Speech”	Lecture		
29	C E M Joad : “The Gandhian Way”	Lecture		
30	C E M Joad : “The Gandhian Way”	PPT/Lecture	PPT	
31	C E M Joad : “The Gandhian Way”	Lecture		
MODULE III				
32	Mohinder Sing Sarna : “Smaller Gandhis”	Lecture	Text	
33	Mohinder Sing Sarna : “Smaller Gandhis”	Lecture		
34	Mohinder Sing Sarna : “Smaller Gandhis”	PPT/Lecture	PPT	
35	Mohinder Sing Sarna : “Smaller Gandhis”	Lecture	video	
36	Kumar Vikal : “Can you Make Out”	Seminar	PPT	
37	Kumar Vikal : “Can you Make Out”	Seminar	PPT	
38	Shashi Tharoor : “The Idea of India: India’s Mosaic of Multiplicities”	Seminar	PPT	
39	Shashi Tharoor : “The Idea of India: India’s Mosaic of Multiplicities”	Seminar	PPT	
40	Shashi Tharoor : “The Idea of India: India’s Mosaic of Multiplicities”	Seminar	PPT	
41	Roots	PPT/Lecture		
42	Roots	Lecture	video	
43	Roots	Lecture		
44	Roots	Lecture		
45	Roots	Lecture	Quiz	

46	Padma Sachdev : “Smoke”	Discussion	PPT	
47	Padma Sachdev : “Smoke”	Discussion	Essay	
48	Padma Sachdev : “Smoke”	Discussion		
	MODULE IV			
49	Seminar	Presentation		
	MODULE III- PRAXIS OF GANDHIAN THOUGHT			
50	Fritjof Capra : “Deep Ecology”	Lecture	Video	
51	Fritjof Capra : “Deep Ecology”	Discussion		
52	Fritjof Capra : “Deep Ecology”	Discussion		
53	A K Ramanujan : “Ecology”	Seminar	PPT	
54	A K Ramanujan : “Ecology”	Seminar	PPT	
55	A K Ramanujan : “Ecology”	Seminar	PPT	
56	Sujatha Bhatt : “The First Meeting”	Lecture, discussion		
57	Sujatha Bhatt : “The First Meeting”	Discussion		
58	Ramachandra Guha : “A Gandhian in Garhwal”	Lecture	Notes	
59	Ramachandra Guha : “A Gandhian in Garhwal”	Discussion		
60	Ramachandra Guha : “A Gandhian in Garhwal”	Lecture		
61	Ramachandra Guha : “A Gandhian in Garhwal”	Lecture		
62	Jack London : “The Law of Life”	Seminar	PPT	
63	Jack London : “The Law of Life”	Seminar	PPT	
64	Jack London : “The Law of Life”	Seminar	PPT	
65	Jack London : “The Law of Life”	Seminar	PPT	
66	Elizabeth Bishop : “The Fish”	Discussion	Text	
67	Elizabeth Bishop : “The Fish”	Discussion	Text	
68	Chief Seattle : “The End of Living and the Beginning of Survival”	Presentation	PPT	

69	Chief Seattle : "The End of Living and the Beginning of Survival"	Presentation	PPT	
70	Chief Seattle : "The End of Living and the Beginning of Survival"	PPT/Lecture	PPT	
71	Deep Ecology	Lecture	video	
72	Deep Ecology	Lecture		
73	Robinson Jeffers : "The Last Conservative"	PPT/Lecture	Notes	
74	Robinson Jeffers : "The Last Conservative"	PPT		
75	Review			
76	Review			
77	Review			
78	Review			
79	Review			
80	Seminar Presentation	PPT		
81	Seminar Presentation	PPT		
82	CIA 2			

INDIVIDUAL ASSIGNMENTS/SEMINAR – Details & Guidelines

	Date of completion	Topic of Assignment & Nature of assignment (Individual/Group – Written/Presentation – Graded or Non-graded etc)
1	2/8/2017	Presentations
2	28/8/2017	Role Plays

GROUP ASSIGNMENTS/ACTIVITES – Details & Guidelines

	Date of completion	Topic of Assignment & Nature of assignment (Individual/Group – Written/Presentation – Graded or Non-graded etc)
1	12/9/2017	Group Discussions
2	20/9/2017	Performances

References

Dr B Keralavarma Ed. Understanding India: An Anthology on Indian Polity, Secularism and Sustainable Environment. Macmillan and Mahatma Gandhi University.

COURSE PLAN 2

PROGRAMME	BACHELOR OF SCIENCE – PHYSICS	SEMESTER	3
COURSE CODE AND TITLE	15U3CCHIN3A – POETRY AND FICTION	CREDIT	4
HOURS/WEEK	5	HOURS/SEM	90
FACULTY NAME	Dr. MINIPRIYA R, SYAMLAL M. S		

COURSE OBJECTIVES
Describe the various aspects of Hindi poetry in context of socio-cultural and political condition of that period.
Student will be able to recognise the social significance of a literary work in any language.
Develop creative thinking capacity through literature.
Acquire ability to read, appreciate and analyze Novel independently
Develop knowledge of literary forms in Hindi Short story and effective reading skills.

SESSION	TOPIC	LEARNING RESOURCES	VALUE ADDITIONS	REMARKS
MODULE I				
1	General Introduction about the history of Hindi Poetry and Stories	Lecture/PPT		
2	Kabirdas	Lecture/PPT		
3	Kabirdas	Lecture/PPT		
4	General Introduction about the history of Hindi Novel and introducing the prescribed textbook.	Lecture/PPT		
5	Introduction of the author Rajendra Awasthi	Lecture/ PPT		
6	Kabirdas	Lecture/Discussion	Seminar	
7	Akeli Awaz (Novel)	Lecture		
8	Sarojsmruthi, Introduction of the	Lecture/ PPT		

	author			
9	Sarojsmruthi	Lecture/Discussion		
10	Akeli Awaz (Novel)	Lecture		
11	Akeli Awaz (Novel)	Lecture		
12	Sarojsmruthi	Lecture/Discussion		
13	Sarojsmruthi	Lecture/Discussion	Seminar	
14	Akeli Awaz (Novel)	Lecture		
15	Akeli Awaz (Novel)	Lecture/Discussion		
16	Aansuom Ki Holi, Introduction of the author	Lecture/ PPT		
17	Aansuom Ki Holi	Lecture/ PPT		
18	Akeli Awaz (Novel)	Lecture		
19	Akeli Awaz (Novel)	Lecture		
20	Aansuom Ki Holi	Interaction	Seminar	
21	Akeli Awaz (Novel)	Lecture		
22	Aansuom Ki Holi	Lecture/PPT		
23	Aansuom Ki Holi	Lecture/PPT		
24	Akeli Awaz (Novel)	Lecture		
25	Akeli Awaz (Novel)	Lecture		
26	Nach,Introduction of the author	Lecture/PPT		
27	Nach	Lecture/PPT		
28	Akeli Awaz (Novel)	Lecture/Discussion		
29	Nach	Lecture/Discussion		
30	Nach	Interaction	Seminar	
31	Revision	Lecture		
32	**CIA I (I Hr Exam)**			
MODULE II				
33	Tulsidas	Lecture/PPT		
34	Tulsidas	Lecture		
35	Akeli Awaz (Novel)	Lecture		
36	Akeli Awaz (Novel)	Lecture		
37	Tulsidas	Lecture/ Discussion	Seminar	
38	Khamosh Dhadkaneim, Introduction of the author	Lecture/PPT		
39	Akeli Awaz (Novel)	Lecture		
40	Akeli Awaz (Novel)	Interaction		
41	Khamosh Dhadkaneim	Interaction	Seminar	
42	Akeli Awaz (Novel)	Lecture/Discussion		
43	Khamosh Dhadkaneim	Lecture/PPT		
44	Khamosh Dhadkaneim	Lecture		
45	Akeli Awaz (Novel)	Lecture		
46	Akeli Awaz (Novel)	Interaction		
47	Rani Maa Ka Chabootara, Introduction of the author	Lecture		

48	Rani Maa Ka Chabootara	Lecture		
49	Akeli Awaz (Novel)	Lecture		
50	Akeli Awaz (Novel)	Lecture		
51	Rani Maa Ka Chabootara	Discussion	Seminar	
52	Akeli Awaz (Novel)	Lecture		
53	Akeli Awaz (Novel)	Lecture		
54	Rani Maa Ka Chabootara	Lecture/ Discussion		
55	Sthriyam, Introduction of the author	Lecture/PPT		
56	Akeli Awaz (Novel)	Lecture		
57	Sthriyam	Lecture		
58	Sthriyam	Lecture/ Discussion		
59	Sthriyam	Discussion	Seminar	
60	Revision	Interaction		
61	Revision	Interaction		
62	**CIA II (2 Hrs Exam)**			
	MODULE II			
63	Meerabai	Lecture/PPT		
64	Meerabai	Lecture		
65	Akeli Awaz (Novel)	Lecture		
66	Akeli Awaz (Novel)	Lecture		
67	Meerabai	Lecture/Discussion	Seminar	
68	Akeli Awaz (Novel)	Lecture/Discussion		
69	Meerabai	Interaction	Seminar	
70	Akeli Awaz (Novel)	Lecture		
71	Akeli Awaz (Novel)	Lecture/Discussion		
72	Prem Patra, Introduction of the Author	Lecture/PPT		
73	Prem Patra	Lecture/Discussion	Seminar	
74	Akeli Awaz (Novel)	Lecture		
75	Prem Patra	Lecture		
76	Prem Patra	Lecture/ Discussion	Seminar	
77	Aparadh, Introduction of the Author	Lecture/PPT		
78	Revision	Interaction		
79	Revision	Interaction		
80	Aparadh	Lecture		
81	Aparadh	Lecture	Seminar	
82	Aparadh	Lecture/Discussion		
83	Akeli Awaz (Novel)	Lecture/Discussion	Seminar	
84	Aparadh	Lecture		
85	Aparadh	Lecture		
86	Seminar	Discussion	Seminar	
87	Seminar	Discussion		
88	Revision	Interaction		

89	Revision	Interaction		
90	Evaluation of the course			

INDIVIDUAL ASSIGNMENTS/SEMINAR – Details & Guidelines (B.Sc. PHYSICS)

SL NO	Date of completion	Topic of Assignment & Nature of assignment (Individual/Group – Written/Presentation – Graded or Non-graded etc)
1	Assignment (October)	Review of a lesson based on the textbook 2 and reference, Writing (Individual)
2	Seminar (October)	Presentation on a given topic based on the text book I and reference – oral (Individual)

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	September	Exercise activity based on Novel (Group Discussion).
2	September	Review a Poem from the textbook 1 and reference, Writing (Group Activity).

References

- Nayi Said Ki Kavita , Ganesh Pandey ,Vani Prakashan, New Delhi .
- Hindi Upanyas Naya Path ,Hemant Kukreti , Vani Prakashan, New Delhi .

Web resource references:

- epustakalay.com
- www.hindikunj.com

COURSE PLAN

PROGRAMME	BSC PHYSICS	SEMESTER	3
COURSE CODE AND TITLE	15U3CCFRN3A – AN ADVANCED COURSE IN FRENCH I	CREDIT	4
HOURS/WEEK	5	HOURS/SEM	90

COURSE OBJECTIVES
Understand the basic concepts of French language including grammar, vocabulary and sentence structure
Understand the basic communication skills necessary for living in France and French speaking countries.
Describe oneself and ones surroundings using a repertory of words and expressions in a simple and structured grammatical manner.
Develop business communication skills
Express an issue of concern including topics like environmental, social or health issues, enumerate its causes and consequences and suggest solutions
Understand the mannerisms, culture and tradition of France and Francophone countries and compare it to one's own country and develop co-cultural feeling
Understand and appreciate the history of France and Francophone countries and compare it to one's own country
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		
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		
9	Unit 1 – Le passé compose	Chalk and talk		
10	Past tense	lecture		
11	Past tense –narrate an event	Communication skills		
12	Past tense –narrate an event	Oral		
13	Past tense –narrate an event	Oral		
14	Narrate the life of a person	Communication Skills		
15	Narrate a positive/Negative event	Communication Skills		

16.	To learn the entire life	Role play		
17.	One's opinion on learning the entire life	Role Play		
18.	Interview on learning the entire life	Role Play		
19.	Sharing experiences on learning during old age	Debate/Discussion		
20	Reading Comprehension	Understanding Skills		
21.	Reading Comprehension	Understanding Skills		
22.	Reading Comprehension	Understanding Skills		
23.	Vocabulary building	Games		
24	Communicative skills- emotions	Chalk and talk, oral		
25	Emotions of a teacher	Expression oral		
26.	Emotion of a student in a language class	Discussion		
27	Expressions related to emotions	Vocabulary building games		
28	Language network	Discussions ICT		
29	French culture – EU Rights	Discussions, comparison		
30	Class test of Unit 1			
	MODULE II			
31	Describe one's house	Game		
32	Describe one's Furniture	Lecture		
33	Grammar-prepositions	Lecture		
34	Making Sentences	Games, Role plays		
35	Describe your friend's house	discussion		
36	Vocabulary Building	Games		
37	Pronoun Y, Locate things	Chalk and talk		
38	Sentence Construction	Games		
39	Type of lodging	Roleplay, listening exercice		
40	Preferences on type of lodging	Roleplay		
41	Comparison, describe one's favourite place	Chalk and Talk, role play		
42	Compare 2 cities/countries	Debate		
43	Vocabulary Building	Games		
44	Country or country side - debate	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	Describe a natural product	PPT/Lecture		
55	Describe an Indian Product	PPT/Lecture		

56	Positives and negatives of a product	PPT/Lecture		
57	Advertise a product	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		
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	Adventure sports in India	Discussion		
71	Sport which you like	Discussion		
CIA II				
MODULE IV				
72	Past tense- imparfait	Chalk and talk		
73	Sentence construction using imparfait	Role play		
74	Narrate an event using imparfait	Role play		
75	Describing something	Discussion		
76	Vocabulary Building	Games, Music		
77	French movie	Audio visual		
78	French Movie	Audio Visual		
79	Describe a past event-may 68	Chalk n talk/Reading Comprehension		
80	Describe an event in your country	Discussion		
81	Describe an historical event/incident	Discussion		
82	Describe an historical event/incident	Discussion		
83	Talk about an event in the past	Discussion		
84	Describing a place, childhood event	Roleplay		
85	Narrate a positive childhood event	Roleplay		
86	Conversation on a past happening	Role play		
87	Narrate a negative happening	Role play		
88	A historical event which you like	Speaking practice		
89	French Culture- peaceful demonstrations	discussion		
90	Peaceful demo in India(your country)	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 October	Preparing a guide for French tourists on basic communication skills in French and Malayalam
2		roleplays

References

Version Originale, site web

COURSE PLAN

PROGRAMME	BACHELOR OF SCIENCE,PHYSICS	SEMESTER	3
COURSE CODE AND TITLE	15U3CCSAN3A: TRANSLATION AND COMMUNICATION	CREDIT	4
HOURS/WEEK	5	HOURS/SEM	90
FACULTY NAME	MR. MATHEW JOSE		

COURSE OBJECTIVES
Learning the art of translation
Understanding translation as a Linguistic activity
Understanding translation as a cultural ,economic and profssional activity
familiarising the technology of Translation
Understand moral values through Drama
Inculcating students with reading and communication skills in Sanskrit
Understand the tools to beautify the literature through Drama and Translation
Students identify the richness of Indian Literature

SESSION	TOPIC	LEARNING RESOURCES	VALUE ADDITIONS	REMARKS
MODULE I				
1	Introducing Translation	Lecture		
2	History of translation	Discussion		
3	History of Bible translation	Lecture		
4	History of Arabic translation	Lecture		
5	History of Indian translation	Lecture		
6	Qualities of translator	Chalk n talk		
7	Tools of Translation	Lecture		
8	Glossaries, Dictionaries	Chalk n talk		
9	News paper style	Lecture		
10	Theories of translation	Lecture		
11	Applied linguestics	Discussion		
12	Morphology	Discussion		
13	Syntax	PPT/Lecture		
14	Revision			
MODULE II				
15	Source language	PPT/Lecture		
16	Target language	Chalk n talk		
17	Transliteration	Lecture		
18	Word to word translation	Lecture		
19	Faithful translation	Lecture		
20	Recreation	Game		
21	Unit of translation	Game		
22	Sentence as the unit	PPT/Lecture		

23	Paragraph as the unit	PPT/Lecture		
24	Science related translation	Lecture		
25	Cultural importance in translation	Lecture		
	CIA-1			
26	Poem translation	Lecture		
27	Prose translation	Chalk n talk		
28	Idioms and proverbs	Chalk n talk		
29	Translation in Modern age	Discussion		
30	Limitations of translation	Discussion		
31	Translation of person's name	Lecture		
32	Revision			
	MODULE III			
33	Introduction Abhijnanashakunthalam	Lecture		
34	Prathamanga	Lecture		
35	Dushyantha's hunting	Lecture		
36	Dushyanthas meeting with Shakunthala	Lecture		
37	Shakunthala's history	PPT/Lecture		
38	Dvitheeyanga- Samagamam	PPT/Lecture		
39	Dushyantha's talk with Mandavya	PPT/Lecture		
40	Sages meeting with Dushyantha	Lecture		
41	Mandhavya going to palace	Lecture		
42	Thritheeyangam	Chalk n talk		
43	Dushyantha 's talk with shakunthala	Discussion		
44	Durvasa's visiting and curse	Roleplay		
45	Chathurthanga	Discussion		
46	Shakunthala's departure from Ashrama	PPT/Lecture		

47	Kannva's advice to Shakunthala	PPT/ Lecture		
48	Revision			
MODULE IV				
50	Introduction Mrichakatika drama	PPT/Lecture		
51	Charudatha	PPT/Lecture	Video	
52	Vasanthasena	PPT/Lecture		
53	Vasanthasena's visiting	PPT/Lecture		
54	Rajasyala Samsthanaka	Lecture		
55	Vasanthasena 's meeting with Charudatha	Lecture		
56	Matithreya's conversation with Radanika	PPT/Lecture		
57	Rohasena	PPT/Lecture		
58	Dvitheeyanka	PPT/Lecture		
59	Gambling incident	PPT/Lecture		
60	Catching Gambler	PPT/Lecture		
61	Escaping	PPT/Lecture		
CIA - II				
62	Vasanthasena's talk with her servant	Chalk n talk		
63	thritheeyanka	Lecture		
64	Rebhila's music discussion	Lecture	Group discussion	
65	Sharvilaka –the thief	Lecture		
66	Taking gold from Maithreya	PPT/Lecture		
67	Charudatha talk with Maithreya	PPT/Lecture		
68	Dootha's talking	PPT/Lecture		
69	Revision			

70	Revision			
71	Revision			
72	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	13/08/2017	Kalidasa's Dramas
2	21/08/2017	Shakunthal in Mahabharatha

GROUP ASSIGNMENTS/ACTIVITES – Details & Guidelines

	Date of completion	Topic of Assignment & Nature of assignment (Individual/Group – Written/Presentation – Graded or Non-graded etc)
1	09/09/2017	The modern possibilities for Translation
2	24/09/2017	Shakunthalam and Medias

References

Vivarttanattinte Bhasasatrabhoomika, Prabodhacandran V.R., Kerala Bhasha Instituite, Trivandrum, 1986, pp. 38-39

Vivarttanam, A group of authors, Kerala Bhasha Instituite, 1990, Chapter, 3&Preface of N.V. Krishna Warrier, pp. 3-7.

Sakunthalaprakashika, Prof. M.V. Gopalakrishnan

Mricchakatikakathasamgrham, Prof. P.C. Vasudevan Elayat

COURSE PLAN

PROGRAMME	**B.Sc PHYSICS**	SEMESTER	3
COURSE CODE & TITLE	15U3CCMAL3A അരങ്ങും പൊരുളും	CREDITS	4
HOURS/WEEK	5	HOURS/SEM	90

COURSE OBJECTIVES
കഥകളി , നാടകം ,സിനിമ തുടങ്ങിയ ദൃശ്യകലകളെക്കുറിച്ച് മനസ്സിലാക്കുക.
ഭാഷാപഠനം സാഹിത്യാനുഭവത്തിലൂടെ ആവിഷ്ക്കരിക്കുക
കേരളത്തിലെ കലാരൂപങ്ങളെക്കുറിച്ച് മനസിലാക്കുക .
സാഹിത്യ പരിചയം ഉണ്ടാക്കുക
വ്യാവഹാരിക തലത്തിൽ മാതൃഭാഷാപ്രയോഗിക്കുവാനുള്ള കഴിവ് നേടുക
ഭാഷാപഠനത്തിലൂടെ ആശയവിനിമയശേഷി വർദ്ധിപ്പിക്കുക

Session	Topic	Learning Resources	Teaching Method	Remarks
Module I				
1	ദൃശ്യകലാ സാഹിത്യം സാമാന്യാവലോകനം,	സാഹിത്യചരിത്രങ്ങൾ	Lecturing	
2	ദൃശ്യകലാ സാഹിത്യം സാമാന്യാവലോകനം-നാടകം	സാഹിത്യചരിത്രങ്ങൾ	Lecturing	
3	ദൃശ്യകലാ സാഹിത്യം സാമാന്യാവലോകനം-നാടകം	സാഹിത്യചരിത്രങ്ങൾ	Discussion	
4	മലയാളശാകുന്തളം(നാടകം)	Text	Lecturing	
5	മലയാളശാകുന്തളം(നാടകം) ആമുഖം	Text	Reading	
6	മലയാളശാകുന്തളം(നാടകം)	Text	Group Discussion	
7	അങ്കം ഒന്ന്- ആമുഖം	Text	Lecturing	
8	അങ്കം ഒന്ന്- ആമുഖം	Text	Reading	
9	അങ്കം ഒന്ന്	Text	Group Discussion	
10	അങ്കം രണ്ട് ആമുഖം	Text	Lecturing	
11	അങ്കം രണ്ട് ആമുഖം	Text	Reading	
12	അങ്കം രണ്ട്	Text	Group Discussion	
13	അങ്കം -	Text	Lecturing	
14	അങ്കം രണ്ട്	Text	Reading	

15	അങ്കം മൂന്ന്	Text	Group Discussion	
16	അങ്കം മൂന്ന്	Text	Group Discussion	
17	അങ്കം മൂന്ന്	Text	Group Discussion	
18	അങ്കം നാല്	Text	Lecturing	
19	അങ്കം നാല്	Text	Reading	
20	അങ്കം നാല്	Text	Group Discussion	
21	അങ്കം നാല്	Text	Lecturing	
22	അങ്കം നാല്	Text	Reading	
23	അങ്കം നാല്	Text	Group Discussion	
		Module II		
24	നളചരിതം രണ്ടാംദിവസം (ആട്ടക്കഥ)	Text	Lecturing	
25	നളചരിതം രണ്ടാംദിവസം (ആട്ടക്കഥ)	Text	Group Discussion	
26	രംഗം അഞ്ച്	Text	Lecturing	
27	രംഗം അഞ്ച്	Text	Reading	
28	രംഗം ആറ്	Text	Group Discussion	
29	രംഗം ആറ്	Text	Group Discussion	
30	Internal Assessment 1	Text		
31	Question paper discussion	Text	Group Discussion	
32	രംഗം ആറ്	Text	Lecturing	
33	രംഗം ഏഴ്	Text	Reading	
34	രംഗം ഏഴ്	Text	Group Discussion	
35	രംഗം എട്ട്	Text	Lecturing	
36	രംഗം എട്ട്	Text	Reading	
37	രംഗം ഒൻപത്	Text	Group Discussion	
38	രംഗം ഒൻപത്		Lecturing	
39	രംഗം പത്ത്	Text	Reading	
40	രംഗം പത്ത്	Text	Group Discussion	
41	നളചരിതം - ഒരു അവലോകനം	Text	Lecturing	
42	നളചരിതം - ഒരു അവലോകനം	Text	Reading	
		Module III		
43	മലയാളനാടകചരിത്രം - അവലോകനം	സാഹിത്യചരിത്രങ്ങൾ	Lecturing	
44	മലയാളനാടകചരിത്രം - അവലോകനം	സാഹിത്യചരിത്രങ്ങൾ	Group Discussion	
45	മലയാള നാടകത്തിലെ - നൂതന പ്രവണതകൾ	സാഹിത്യചരിത്രങ്ങൾ	Lecturing	
46	ഒരു മാധ്യവേനൽ പ്രണയരാവ്-ആമുഖം	Text	Group Discussion	
47	ഒരു മാധ്യവേനൽ പ്രണയരാവ്-ആമുഖം	Text	Lecturing	
48	നാടകവിശകലനം	Text	Lecturing	
49	നാടകവിശകലനം	Text	Group Discussion	
50	നാടകവിശകലനം	Text	Group Discussion	
51	നാടകാവതരണം	Text	Performance	
52	നാടകാവതരണം	Text	Performance	
53	നാടകവിശകലനം	Text	Group Discussion	

54	നാടകവിശകലനം	Text	Group Discussion	
55	നാടകാവതരണം	Text	Performance	
56	നാടകാവതരണം	Text	Performance	
57	നാടകാവതരണം	Text	Performance	
58	നാടകവിശകലനം	Text	Group Discussion	
59	നാടകാവതരണം	Text	Performance	
60	നാടകാവതരണം	Text	Performance	
61	നാടകാവതരണം	Text	Performance	
62	നാടകവിശകലനം	Text	Group Discussion	
63	സംവാദം	Text	Group Discussion	
		Module IV		
64	സിനിമയുടെ ചരിത്രം	Text	Group Discussion	
65	വാക്കും ദൃശ്യവും	Text	Presentation	
66	അധ്യായം 1	Text	Presentation	
67	അധ്യായം2	Text	Presentation	
68	ചെമ്മീൻ	Text	Presentation	
69	സിനിമ പ്രദർശനം	Film	Screening	
70	സിനിമ പ്രദർശനം	Film	Screening	
71	സിനിമ വിശകലനം	Text	Group Discussion	
72	സിനിമ വിശകലനം	Text	Group Discussion	
73	വിധേയൻ	Text	Group Discussion	
74	സിനിമ പ്രദർശനം	Film	Screening	
75	സിനിമ പ്രദർശനം	Film	Screening	
76	സിനിമ വിശകലനം	Text	Group Discussion	
77	പഥേർ പാഞ്ചലി	Text	Group Discussion	
78	പഥേർ പാഞ്ചലി	Text	Group Discussion	
79	സിനിമ പ്രദർശനം	Film	Screening	
80	സിനിമ പ്രദർശനം	Film	Screening	
81	സിനിമ പ്രദർശനം	Text	Presentation	
82	സിനിമ വിശകലനം	Text	Group Discussion	
83	സിനിമ വിശകലനം	Text	Group Discussion	
84	സിനിമസംവാദം	Text	Group Discussion	
87	സിനിമസംവാദം	Text	Group Discussion	
85	സെമിനാർ	Text	Presentation	
86	സെമിനാർ	Text	Presentation	
87	സെമിനാർ	Text	Presentation	
88	സെമിനാർ	Text	Presentation	
89	Revision	Text	Presentation	
90	Evaluvation of the course	Interaction	Group Discussion	

ASSIGNMENTS

Sl no	**Date of submission/completion**	**Topic of Assignment & Nature of assignment (Individual/Group – Written/Presentation – Graded or Non-graded etc)**
1	By October	അനുരൂപണസിനിമയുടെ സവിശേഷതകൾ
2		കേരളത്തിലെ ദൃശ്യകലാപാരമ്പര്യം

SEMINAR

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

Referance :

1.നാടകദർശനം -ജി .ശങ്കരപ്പിള്ള

2.സിനിമയുടെ ലോകം - അടൂർ ഗോപാലകൃഷ്ണൻ

COURSE PLAN

PROGRAMME	BACHELOR OF SCIENCE (PHYSICS)	SEMESTER	3
COURSE CODE AND TITLE	15U3CRPHY03: OPTICS, LASERS AND FIBER OPTICS	CREDIT	3
HOURS/WEEK	3	HOURS/SEM	54
FACULTY NAME	MATHEW GEORGE, SIBY MATHEW, ALEX SHINU SCARIA		

Course Objectives

Analyze the important and fascinating areas of interference with many experiments associated with it.
Apply concepts of Fraunhofer and Fresnel diffraction and analyse wavelengths of a light source using grating.
Understand basics of polarisation and techniques for production and detection of polarised light.
Understand basic physics of lasers and optical fibers.

Session	Topic	Method	Remarks
	Module I - Interference (13 hours)		
1	Review of basic ideas of interference- Coherent waves	Lecture / Discussion	
2	Optical path and phase change	Lecture / Discussion	
3	superposition of waves-theory of interference-intensity distribution.	Lecture / Discussion	
4	Young's double slit experiment-	Lecture / Discussion	
5	Coherence-Conditions for interference.	Lecture / Discussion	
6	Thin films-plane parallel film-	Lecture / Discussion	
7	Interference due to reflected light-conditions for brightness and darkness-	Lecture / Discussion	
8	interference due to transmitted light-Haidinger fringes	Lecture / Discussion	

9	interference in wedge shaped film-colours in thin films-	Lecture / Discussion	
10	Newton's rings-theory	Lecture / Discussion	
11	Newton's rings-applications.	Lecture / Discussion	
12	Michelson interferometer-construction-	Lecture / Discussion	
13	working and (just mention the) applications.	Lecture / Discussion	
	Module II - Diffraction (10 hours)		
14	Fresnel Diffraction–Huygens-Fresnel theory –	Lecture / Discussion	
15	zone plate –Difference between zone plate and convex lens.	Lecture / Discussion	
16	Comparison between interference and diffraction –	Lecture / Discussion	
17	diffraction pattern due to a straight edge-	Lecture / Discussion	
18	single silt.	Lecture / Discussion	
19	Fraunhoffer diffraction at a single slit-	Lecture / Discussion	
20	Fraunhoffer diffraction- double slit-	Lecture / Discussion	
21	Fraunhoffer diffraction- N slits-	Lecture / Discussion	
22	Theory of plane transmission grating.	Lecture / Discussion	
23	Dispersive power and resolving power of grating.	Lecture / Discussion	
	Polarization (12hours)		
24	Concept of polarization –plane of polarization-	Lecture / Discussion	
25	Types of polarized light-production of plane polarized light by reflection	Lecture / Discussion	
26	production of plane polarized light by refraction. Malu's law	Lecture / Discussion	
27	Polarization by double refraction - calcite crystal.	Lecture / Discussion	
28	Anisotropic crystals - optic axis	Lecture / Discussion	
29	Double refraction - Huygens explanation of double	Lecture / Discussion	

	refraction		
30	Retarders - Quarter wave plate	Lecture / Discussion	
31	Retarders - Half wave plate	Lecture / Discussion	
32	Production and detection of plane polarized light	Lecture / Discussion	
33	Production and detection of elliptically polarized light and	Lecture / Discussion	
34	Production and detection of circularly polarized light	Lecture / Discussion	
35	Optical Activity-specific rotation.	Lecture / Discussion	
	Module III - Laser (10 hours)		
36	Absorption- spontaneous emission and stimulated emission-	Lecture / Discussion	
37	Einstein relations-	Lecture / Discussion	
38	Population inversion- Active medium	Lecture / Discussion	
39	Pumping- different pumping methods-	Lecture / Discussion	
40	Resonators –plane mirror and confocal resonators	Lecture / Discussion	
41	Metastable state- Three level and Four level Laser systems.	Lecture / Discussion	
42	Ruby Laser-	Lecture / Discussion	
43	He-Ne laser-	Lecture / Discussion	
44	Semiconductor Laser-	Lecture / Discussion	
45	Laser beam Characteristics- coherence.	Lecture / Discussion	
46	Applications of Laser- Holography (qualitative study only).	Lecture / Discussion	
	Fiber Optics (9 hours)		
47	Propagation of light in a fiber -	Lecture / Discussion	
48	acceptance angle-	Lecture / Discussion	
49	numerical aperture- V-number-	Lecture / Discussion	

50	single mode and multimode	Lecture / Discussion	
51	step index fiber –graded index fiber-	Lecture / Discussion	
52	Fibers, attenuation-	Lecture / Discussion	
53	application of fiber-optical fiber communication –	Lecture / Discussion	
54	Fibers, advantages.	Lecture / Discussion	

References

1. Optics by N.Subramanayam- Brijlal- M.N.Avadhanulu
2. Semiconductor physics and optoelectronics-V.Rajendran- J.Hemaletha and M.S.M.Gibson

COURSE PLAN

PROGRAMME	BACHELOR OF PHYSICS	SEMESTER	3
COURSE CODE AND TITLE	15U3CPCHE3.1- ADVANCED PHYSICAL CHEMISTRY – I	CREDIT	3
HOURS/WEEK	3	HOURS/SEM	54
FACULTY NAME	*DR. K B JOSE, Dr. IGNATIOUS ABRAHAM, DR. ABI T G*		

COURSE OBJECTIVES
Know the basics of nanomaterials and nanotechnology.
Understand symmetry and point groups of simple molecules.
Describe the properties of solid state and liquid state
Define phases and explain the phase diagram of one- and two-component systems.
Explain the theories of adsorption

SESSION	TOPIC	LEARNING RESOURCES	VALUE ADDITIONS	REMARKS
MODULE I				
1.	Introduction to nanoscience-Moore's law	Conventional Lecture - Chalk & Board		
2.	Properties of nanomaterials	Conventional Lecture - Chalk & Board		
3.	Synthesis of nanomaterials-reduction method-precipitation method-sol gel method	Conventional Lecture - Chalk & Board		
4.	Green synthesis of nanosilver and nanogold-	Conventional Lecture - Chalk & Board		
5.	Properties and applications of nanomaterials	ICT		
6.	Nanocomposites	Conventional Lecture - Chalk & Board		
7.	Nanomedicine	Conventional Lecture - Chalk & Board		
8.	Properties of nanomaterials	Conventional Lecture - Chalk & Board		
MODULE II				
9.	Symmetry elements and symmetry operation	Conventional Lecture - Chalk & Board		
10.	Centre of symmetry, plane of symmetry	Conventional Lecture - Chalk & Board		
11.	Proper and improper axes of symmetry	Conventional Lecture - Chalk &		

		Board		
12.	Identity, molecular point groups	Conventional Lecture - Chalk & Board		
13.	Schoeniflies symbol and determination of point groups of simple molecule- H_2O	Conventional Lecture - Chalk & Board	discussion	
14.	Point groups of simple molecule NH_3, BF_3	Conventional Lecture - Chalk & Board	discussion	
15.	Point groups of simple molecule CO, HCl	Conventional Lecture - Chalk & Board	discussion	
16.	Point groups of simple molecule C_2H_2,	Conventional Lecture - Chalk & Board	discussion	
17.	Point groups of simple molecule Benzene, NO_3^-, PCl_5	Conventional Lecture - Chalk & Board	discussion	
MODULE III				
18.	Classification: amorphous, crystalline – differences	Conventional Lecture - Chalk & Board		
19.	Lattice ,lattice energy (general idea)	Conventional Lecture - Chalk & Board		
20.	Unit cell, examples of simple cubic	Conventional Lecture - Chalk & Board		
21.	bcc and fcc lattices	Conventional Lecture - Chalk & Board		
22.	Calculation of number of molecules in a unit cell.	Conventional Lecture - Chalk &	seminar	

		Board		
23.	Weiss and Miller indices, crystal systems	Conventional Lecture - Chalk & Board		
24.	Bravais lattices, X-ray diffraction – Bragg's equation	Conventional Lecture - Chalk & Board		
25.	structure determination of NaCl by X-ray diffraction	Conventional Lecture - Chalk & Board		
26.	Theories of Solid: metallic bond	Conventional Lecture - Chalk & Board		
27.	Band theory, conductors	Conventional Lecture - Chalk & Board		
28.	Semiconductors and insulators	Conventional Lecture - Chalk & Board		
29.	Mention of super conductors	Conventional Lecture - Chalk & Board	seminar	
30.	Defects in solids-stoichiometric	Conventional Lecture - Chalk & Board		
31.	Non-stoichiometric defects and consequences	Conventional Lecture - Chalk & Board		
32.	Magnetic Properties: classification	Conventional Lecture - Chalk & Board		
33.	Diamagnetic, paramagnetic	Conventional Lecture - Chalk & Board		

34.	Antiferromagnetic, ferro and ferrimagnetic	Conventional Lecture - Chalk & Board		
35.	Permanent and temporary magnets	Conventional Lecture - Chalk & Board		
MODULE IV				
36.	Intermolecular forces liquids compared with gases and solids	Conventional Lecture - Chalk & Board		
37.	Viscosity, surface tension	Conventional Lecture - Chalk & Board		
38.	Liquid crystals – the intermediate phase between solid and normal liquid phases	Conventional Lecture - Chalk & Board	discussion	
39.	Thermographic behavior, classification	Conventional Lecture - Chalk & Board		
40.	Structure of nematic and cholesteric phases.	Conventional Lecture - Chalk & Board		
MODULE V				
41.	Adsorption – types of adsorption of gases by solids	Conventional Lecture - Chalk & Board		
42.	Factors influencing adsorption	Conventional Lecture - Chalk & Board		
43.	Freundlich adsorption isotherm – Langmuir adsorption isotherm	Conventional Lecture - Chalk & Board		
44.	Colloids: preparation, properties – optical and electrical	Conventional Lecture - Chalk &	seminar	

		Board		
45.	Electric double layer, coagulation, electrophoresis, electro osmosis, Surfactants, micelle, applications of colloids	Conventional Lecture - Chalk & Board		
MODULE VI				
46.	The phase rule, definition	Conventional Lecture - Chalk & Board		
47.	Equilibrium between phases, one component system – water system	Conventional Lecture - Chalk & Board		
48.	Sulphur system	Conventional Lecture - Chalk & Board		
49.	Distribution law, partition coefficient	Conventional Lecture - Chalk & Board		
50.	Applications- Study of association or dissociation	Conventional Lecture - Chalk & Board	discussion	
51.	Principle of extraction. Distribution indicators.	Conventional Lecture - Chalk & Board		
52.	Revision	Conventional Lecture - Chalk & Board	discussion	

INDIVIDUAL ASSIGNMENTS/SEMINAR – Details & Guidelines

	Date of completion	Topic of Assignment & Nature of assignment (Individual/Group – Written/Presentation – Graded or Non-graded etc.)
	11/7/2017	Properties and applications of nanomaterials

GROUP ASSIGNMENTS/ACTIVITES – Details & Guidelines

	Date of completion	Topic of Assignment & Nature of assignment (Individual/Group – Written/Presentation – Graded or Non-graded etc)
	10/8/2017	Symmetry of different molecules

References

1. B. R. Puri, L. R. Sharma, M. S. Pathania, Elements of Physical Chemistry, 40th edn. Vishal Pub. Co. Jalandhar (2003)
2. Ashcroft / Mermin, Solid State Physics, Thomson Publishers
3. J. Tareen and T. Kutty, A basic course in Crystallography, University Press.

SACRED HEART COLLEGE (AUTONOMOUS)

COURSE PLAN

PROGRAMME	COMPLEMENTARY MATHEMATICS FOR BACHELOR OF SCIENCE	SEMESTER	3
COURSE CODE AND TITLE	15U3CPMAT03- Differential Equations, Matrices and Trigonometry	CREDIT	4
HOURS/WEEK	5	HOURS/SEM	90
FACULTY NAME	DIDIMOS K. V.		

Course Objectives
Understand the methods of solving important types of first order ordinary differential equations.
Understand the origin of first order p.d.e's and their solution.
Understand different types of matrices and rank of a matrix
Apply the concept of matrices in solving system of linear equations
Find the Eigen values and Eigen vectors of a given matrix
Understand the applications of Cayley Hamilton theorem
Understand trigonometric functions, their expansions and summation of infinite series using the C+iS method

SESSION	TOPIC	LEARNING RESOURCES	VALUE ADDITIONS	REMARKS
MODULE I				
1	Separable Equations	Lecture/Problem solving		
2	Problem	Lecture/Problem solving		
3	Reducible to separable equations	Lecture/Problem solving		
4	Problem	Lecture/Problem solving		
5	Homogeneous Equations	Lecture/Problem solving		

6	Problem	Lecture/Problem solving		
7	Problem	Lecture/Problem solving		
8	Homogeneous Equations	Lecture/Problem solving		,
9	Homogeneous Equations	Lecture/Problem solving		,
10	Problem	Lecture/Problem solving		,
11	Problem	Lecture/Problem solving		,
12	Linear Differential equations	Lecture/Problem solving		,
13	Bernoulli's equation	Lecture/Problem solving		,
14	Problem	Lecture/Problem solving		
15	Exact Differential equations	Lecture/Problem solving		
16	integrating factors	Lecture/Problem solving		
17	integrating factors	Lecture/Problem solving		
18	Problem	Problem solving		
MODULE II				
19	Formation of partial differential equations	Lecture/Problem solving		
20	Formation of partial differential equations	Lecture/Problem solving		
21	problems	Lecture/Problem solving		
22	Formation of partial differential equations	Lecture/Problem solving		
23	problems	Lecture/Problem solving		
24	Formation of partial differential equations	Lecture/Problem solving		
25	problems	Lecture/Problem solving		
26	Solution by Direct integration	Lecture/Problem solving		
27	problems	Lecture/Problem solving		
28	problems	Lecture/Problem solving		
29	Lagrange's method	Lecture/Problem solving		
30	problems	Lecture/Problem solving		
31	problems	Lecture/Problem solving		
32	problems	Lecture/Problem solving		
33	Lagrange's method	Lecture/Problem solving		
34	problems	Lecture/Problem solving		
35	problems	Lecture/Problem solving		
36	problems	Lecture/Problem solving		
37	Lagrange's method	Lecture/Problem solving		

38	problems	Lecture/Problem solving		
39	problems	Lecture/Problem solving		
MODULE III				
40	Transpose of Matrices	Lecture		
41	Problems	Lecture/Problem solving		
42	Problems	Lecture/Problem solving		
43	Problems	Lecture/Problem solving		
44	Symmetric and skew symmetric matrices	Lecture/Problem solving		
45	problems	Lecture/Problem solving		
CIA-I				
46	Singular and non-singular matrices.	Lecture/Problem solving		
47	problems	Lecture/Problem solving		
48	problems	Lecture/Problem solving		
49	Elementary transformations	Lecture/Problem solving		
50	Inverse of a matrix	Lecture/Problem solving		
51	problems	Lecture/Problem solving		
52	Rank of a matrix	Lecture/Problem solving		
53	problems	Lecture/Problem solving		
54	Solution of system of linear equations	Lecture/Problem solving		
55	problems	Lecture/Problem solving		
56	problems	Lecture/Problem solving		
57	Characteristic equation	Lecture/Problem solving		
58	problems	Lecture/Problem solving		
59	problems	Lecture/Problem solving		
60	problems	Lecture/Problem solving		
61	Eigen values	Lecture/Problem solving		
62	problems	Lecture/Problem solving		
63	problems	Lecture/Problem solving		
64	Cayley Hamilton theorem	Lecture/Problem solving		
65	problems	Lecture/Problem solving		
66	problems	Lecture/Problem solving		
67	Cayley Hamilton theorem	Lecture/Problem solving		
68	problems	Lecture/Problem solving		
Module-IV				
69	Expansions of sin nx	Lecture/Problem solving		
70	Expansions of sin	Lecture/Problem solving		
71	problems	Lecture/Problem solving		
72	cos nx	Lecture/Problem solving		
73	problems	Lecture/Problem solving		

74	problems	Lecture/Problem solving		
75	problems	Lecture/Problem solving		
76	Tan nx	Lecture/Problem solving		
77	problems	Lecture/Problem solving		
78	problems	Lecture/Problem solving		
79	$sin^n\theta$, $cos^n\theta$	Lecture/Problem solving		
80	problems	Lecture/Problem solving		
81	problems	Lecture/Problem solving		
82	problems	Lecture/Problem solving		
CIA - II				
83	$sin^n\theta cos^n\theta$	Lecture/Problem solving		
84	problems	Lecture/Problem solving		
85	problems	Lecture/Problem solving		
86	Circular and hyperbolic functions	Problem solving		
87	Inverse circular and hyperbolic function.	Lecture/Problem solving		
88	Separation into real and imaginary parts.	Lecture/Problem solving		
89	Summation of infinite series based on C + iS method	Lecture/Problem solving		
90	problems	Lecture/Problem solving		

INDIVIDUAL ASSIGNMENTS/SEMINAR – Details & Guidelines

	Date of completion	Topic of Assignment & Nature of assignment (Individual/Group – Written/Presentation – Graded or Non-graded etc)
1	12/8/2017	Linear Differential equations
2	1/10/2017	Cayley Hamilton theorem

GROUP ASSIGNMENTS/ACTIVITES – Details & Guidelines

	Date of completion	Topic of Assignment & Nature of assignment (Individual/Group – Written/Presentation – Graded or Non-graded etc)
1	31/7/2017	Expansions of sin nx
2	13/9/2017	Circular and hyperbolic functions

Textbook:

1) Ordinary and Partial Differential Equations with Laplace transforms, Fourier series and applications, by V Sundarapandian., McGraw Hill Publications

2) A text book of Engineering Mathematics,by N.P Bali, Manish Goyal , Lakshmi publications, Eight edition

3) Plane Trigonometry by S. L Loney

References

1) Matrices, Schaum's Outline Series, Tata McGraw Hill Publications

2) Differential Equations, by Shepley L Ross, Wiley.

3) Differential Equations, with applications and Historical notes, by G.F. Simmons and S.G.Krantz, Tata McGraw Hill Publications

4) Elements of Partial Differential Equations, by Ian Sneddon, Tata McGraw Hill Publications