

SACRED HEART COLLEGE (AUTONOMOUS)

Department of Physics

BACHELOR OF PHYSICS

Course plan

Academic Year 2018-19

Semester 2

SACRED HEART COLLEGE (AUTONOMOUS)

Department of English

COMMON COURSE ENGLISH**COURSE PLAN 2018-19**

PROGRAMME	PHYSICS	SEMESTER	2
COURSE CODE & TITLE	15U2CCENG3: CRITICAL THINKING, ACADEMIC WRITING AND PRESENTATION	CREDIT	4
HOURS/WEEK	5	HOURS/SEM	72
FACULTY NAME	TOM C. THOMAS		

	Programme Outcome
PO 1	Critical Thinking: Take informed actions after identifying the assumptions that frame our thinking and actions, checking out the degree to which these assumptions are accurate and valid, and looking at our ideas and decisions (intellectual, organizational, and personal) from different perspectives.
PO 2	Effective Communication: Speak, read, write and listen clearly in person and through electronic media in English and in one Indian language, and make meaning of the word by connecting people, ideas, books, media and technology.
PO 3	Effective Citizenship: Demonstrate empathetic social concern and equity centered national development, and the ability to act an informed awareness of issues and participate in civic life through volunteering.
PO 4	Environment and Sustainability: Understand the issues of environmental contexts and sustainable development.
PO5	Ethics: Recognise different value systems including your own, understand the moral dimensions of your decisions, and accept responsibility for them.
PO 6	Global Perspective: Understand the economic, social and ecological connections that link the world's nations and people.

BACHELOR OF SCIENCE [PHYSICS]

PROGRAM SPECIFIC OUTCOMES	
PSO 1	Comprehend the core concepts of Physics
PSO 2	Acquire analytical and logical skills for higher Education.
PSO 3	Excel in Experimental and Theoretical Physics.
PSO 4	Take up jobs in allied fields.
PSO 5	Excel in competitive exams.

	COURSE OUTCOMES	PO	PSO
CO 1	Comprehends fundamental concepts of critical reasoning and develops the capacity to read and respond critically, drawing conclusions, generalizing, differentiating fact from opinion and creating their own arguments.	1,2,5	2,4,5,6
CO 2	Develops appropriate and impressive writing styles for various contexts	1,2,6	1,2,,4
CO 3	Write and correct structural imperfections and edit what they have written.	1,2,5	1,3,
CO 4	Develops capacity for making academic presentations effectively and impressively	1,2,5	2,4,6
CO 5	Synthesize information from various written sources and present them in the form of summaries.	1,2,6	2,3,4,5
CO6	Write original literary creations in different genres as directed, with/without using prompts.	2,3,4,6	1,3,5

CO - PO/PSO Mapping												
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO 1	1	3	0	0	1	1	0	3	0	2	3	2
CO 2	3	3	1	0	2	2	2	3	1	2	0	0
CO 3	2	3	0	0	1	0	3	1	3	1	0	1
CO 4	3	2	0	0	1	0	0	3	0	2	0	2
CO 5	2	0	0	0	0	1	1	3	3	2	2	2
CO 6	3	3	2	1	2	2	0	0	3	3	2	1

Weight Indicators: 0 - No Mapping strength, 1 - Low, 2 - Medium, 3 - High

SESSION	TOPIC	LEARNING RESOURCES	COURSE OUTCOME
	MODULE I		
1	Introduction to Critical Thinking	Lecture/PPT	CO 1,2
2	Introduction to Critical Thinking	Lecture/PPT	CO 1,2
3	Introduction to Critical Thinking	Lecture/PPT	CO 1,2
4	Introduction to Critical Thinking	Lecture/PPT	CO 1,2
5	Reasoning and Arguments	Activities/ Discussion	CO 1,2
6	Reasoning and Arguments	Activities/ Discussion	CO 1,2
7	Reasoning and Arguments	Activities/ Discussion	CO 1,2
8	Reasoning and Arguments	Activities/ Discussion	CO 1,2,6
9	Reasoning and Arguments	Activities/ Discussion	CO 1,2,6

10	Reasoning and Arguments	Activities/ Discussion	CO 1,2,6
11	Deductive and Inductive Arguments	Course book	CO 1, 2
12	Deductive and Inductive Arguments	Course book	CO 1
13	Deductive and Inductive Arguments	Course book	CO 1
14	Deductive and Inductive Arguments	Course book	CO 1
15	Deductive and Inductive Arguments	Course book	
16	Fallacies		
17	Fallacies	Course book	CO 1,2
18	Inferential Comprehension	Group Activities	CO 1,2
19	Inferential Comprehension	Group Activities	CO 1,2
20	Inferential Comprehension	Group Activities	CO 2,3
21	Inferential Comprehension	Course book	CO 2,3
22	Inferential Comprehension	Group Activities	CO 2,3
23	Inferential Comprehension	Group Activities	
24	Critical Thinking and Academic Writing	Group Activities	CO 2,3
25	Critical Thinking and Academic Writing	Group Activities	CO 2,3
26	Critical Thinking and Academic Writing	Group Activities	CO 2,3
	INTERNAL ASSESSMENT TEST 1		
27	Writing Models	Presentation	CO 3,4,5
28	Writing Models	Course book	CO 3,4,5
29	Writing Models		
30	Writing Models	Course book	CO 3,4,5
31	Writing Models	Course book	CO 3,4,5
32	Writing Letters		
33	Writing Letters	Course book	CO 3,4,5
34	Writing Letters	Course book	CO 3,4,5
35	Writing Letters		
36	Writing a Letter to the Editor	Course book	CO 3,4
37	Writing a Letter to the Editor	Course book	CO 3,4
38	Writing a Letter to the Editor		CO 3,4,5
39	Writing a Letter to the Editor	Course book	CO 2,3
40	Letter to the Editor	Course book	CO 2,3
41	Letter to the Editor	Course book	CO 3,4,5
42	Resume Writing		CO 3,4,5
	MODULE III		
43	Covering Letter	Lecture	CO 3,4,5
44	Covering Letter	Lecture	CO 3,4,5
45	Emails	Course book	CO 3,4,5
46	Emails	Course book	CO 3,4,5

47	Interview Skills		
48	Interview Skills	Course book	CO 3,4,
49	Interview Skills	Course book	CO 4,5
50	Group Discussion		
52	Group Discussion	Course book	CO 4,5
53	Accuracy in Academic writing	Course book	CO 4,5
54	Accuracy in Academic writing	Course book	CO 4,5
55	Accuracy in Academic writing		CO 4,5
56	Articles and Determiners	Course book	CO 4,5
57	Articles and Determiners	Course book	CO 4,5
58	Nouns and Pronouns		
59	Subject-verb agreement	Lecture	CO 4,5
60	Phrasal verbs	Lecture	CO 5
61	Modals		
62	Tenses	Course book	CO 3,5
63	Tenses	Course book	CO 3,5
64	Tenses		
65	Conditional clauses	Course book	CO 3,5
66	Relative Pronouns	Course book	CO 3,5
67	Passive Voices		
INTERNAL ASSESSMENT TEST 2			
68	Conjunctions	Lecture	CO 3,5
69	Embedded questions	Course book	CO 3,5
70	Embedded questions	Course book	CO 3,5
71	Punctuations and Abbreviations		CO 3,5
72	Soft skills for academic presentations	Course book	CO 3,5
73	Effective communication skills	Course book	CO 3,5
74	Flip Charts, OHP, Power point presentation	Group Presentations	CO 3,5
75	Clarity and brevity in presentation	Group Presentations	
76	Interaction and persuasion	Group Presentations	
77	Interview skills	Group Presentations	
78	Interview skills	Group Presentations	
79	Interview skills	Group Presentations	
80	Group Discussion	Group Presentations	
81	Group Discussion	Group Presentations	
82	Group Discussion	Group Presentations	
83	Group Discussion	Group	

		Presentations	
84	Group Discussion	Group Presentations	
85	Group Discussion	Group Presentations	
86	Review Session 1		
87	Review Session 1		
88	Review Session 2		
89	Review Session 3		
90	Review Session 4		

INDIVIDUAL ASSIGNMENTS/SEMINAR – Details & Guidelines

	Date of completion	Topic of Assignment & Nature of assignment (Individual/Group – Written/Presentation – Graded or Non-graded etc)	Course Outcome
1	4/1/2019	Writing Tasks- Different Types of Letters	CO 2
2	28/02/2019		CO 3

GROUP ASSIGNMENTS/ACTIVITES – Details & Guidelines

	Date of completion	Topic of Assignment & Nature of assignment (Individual/Group – Written/Presentation – Graded or Non-graded etc)	Course Outcome
1	2/02/2019	Brochure design	CO 5
2	15/1/19	Model Slide Presentation	CO 5

COURSE PLAN: 2018-19

PROGRAMME	UG COMMON COURSE	SEMESTER	2
COURSE CODE AND TITLE	15U2CCENG4: MUSINGS ON VITAL ISSUES	CREDIT	2
HOURS/WEEK	4	HOURS/SEM	72
FACULTY NAME	K M Johnson, Bijo Mathew		

Programme Outcome

	Programme Outcome
PO 1	Critical Thinking: Take informed actions after identifying the assumptions that frame our thinking and actions, checking out the degree to which these assumptions are accurate and valid, and looking at our ideas and decisions (intellectual, organizational, and personal) from different perspectives.
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PO 4	Environment and Sustainability: Understand the issues of environmental contexts and sustainable development.
PO5	Ethics: Recognize different value systems including your own, understand the moral dimensions of your decisions, and accept responsibility for them.
PO 6	Global Perspective: Understand the economic, social and ecological connections that link the world's nations and people.
PROGRAMME SPECIFIC OUTCOMES	
PSO 1	Comprehend the core concepts of Physics.
PSO 2	Acquire analytical and logical skills for higher Education.
PSO 3	Excel in Experimental and Theoretical Physics.
PSO 4	Take up jobs in allied fields.
PSO 5	Excel in competitive exams.

COURSE OUTCOMES

	COURSE OUTCOMES	PO/ PSO	CL
CO 1	Appreciate inspirational literatures of various literary genres across cultures	PO1,PO2,	U
CO 2	Critically engage with literary texts written in different languages and later translated into English	PO1, PO2, PSO2	An
CO 3	Critically engage with biographical sketch of the authors and familiarize their personality, oeuvre and style.	PO1, PO2, PO3,	An
CO 4	Develop a creative and insightful perspective towards life	PO1, PO2, PO3,PO4,PO5	A
CO 5	Apply the unfathomable power of literatures in their writings and creative endeavors.	PO1, PO2, PO5,	A

CL* Cognitive Level

R- Remember

U- Understand

A- Apply

An- Analyze

E- Evaluate

Cr- Create

CO - PO/PSO Mapping

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PSO 1	PSO 2	PSO 3	PSO 4	PSO5	PSO6
CO 1	2	2	2	1	0	1	0	2	0	0	0	0
CO 2	2	1	3	0	1	3	0	1	0	0	0	0
CO 3	3	1	0	2	2	2	0	2	0	0	0	0
CO 4	1	1	3	3	1	3	0	2	0	0	0	0
CO 5	2	2	2	1	3	2	0	1	0	0	0	0

Mapping Strength

0- No Mapping strength

1- Low

2- Medium

3- High

SESSION	TOPIC	LEARNING RESOURCES	VALUE ADDITIONS	COURSE OUTCOME
MODULE I –GLOBALIZATION AND ITS CONSEQUENCES				
1	Fritjof Capra : “The Dark Side of Growth”	PPT/Lecture	video	CO 1
2	Fritjof Capra : “The Dark Side of Growth”	PPT/Lecture	video	CO 1,2
3	Fritjof Capra : “The Dark Side of Growth”	Lecture		CO 1,6
4	Joseph Stiglitz : “Globalization”	lecture		
5	Joseph Stiglitz : “Globalization”	PPT/Lecture	video	CO 1
6	Joseph Stiglitz : “Globalization”	PPT/Lecture		CO 1
7	D H Lawrence : “Money Madness”	Lecture		CO 1,6
8	S Joseph : “For the Dispossessed”	Lecture		
9	S Joseph : “For the Dispossessed”	PPT/Lecture	video	CO 1
10	S Joseph : “For the Dispossessed”	PPT/Lecture		CO 1
11	Vandana Shiva : “The Social Costs of Economic Globalization”	Lecture		CO 1,6
12	Vandana Shiva : “The Social Costs of Economic Globalization”	Lecture		
13	Vandana Shiva : “The Social Costs of Economic Globalization”	PPT/Lecture	video	CO 1
14	Jagannath Prasad Das : “Kalahandi”	PPT/Lecture		CO 1,3
15	Jagannath Prasad Das : “Kalahandi”	Lecture		
16	Jagannath Prasad Das : “Kalahandi”	Lecture		CO 1,6
17	Leah Levin : “Universal Declaration of Human Rights”	PPT/Lecture	video	CO 1
18	Leah Levin : “Universal Declaration of Human Rights”	PPT/Lecture		CO 1
19	Leah Levin : “Universal Declaration of Human Rights”	Lecture		CO 1,6
20	Nani A Palkivala : “Human Rights and Legal Responsibilities”	PPT/Lecture	video	CO 1
21	Nani A Palkivala : “Human Rights and Legal Responsibilities”	Lecture		CO 1,6
22	Nani A Palkivala : “Human Rights and Legal Responsibilities”	Lecture		
23	Martin Luther King : “I Have a Dream”	Lecture		
24	Martin Luther King : “I Have a Dream”	Discussion		
25	Martin Luther King : “I Have a Dream” CIA – I			
MODULE II- HUMAN RIGHTS				
26	Kalpana Jain : “Stigma, Shame and Silence”	PPT/Lecture		CO 2, 3
27	Kalpana Jain : “Stigma, Shame and Silence”	Lecture	video	CO 2
28	Kalpana Jain : “Stigma, Shame and Silence”	Lecture		CO 2,6
29	Wole Soyinka : “Telephone Conversation”	Lecture		
30	Wole Soyinka : “Telephone Conversation”	PPT/Lecture		CO 2,3
31	Richard Wright : “Twelve Million Black Voices”	Lecture	video	CO 2
32	Richard Wright : “Twelve Million Black Voices”	Lecture		CO 2,6

33	Richard Wright : "Twelve Million Black Voices"	Lecture		
34	Aruna Roy : "Tune in to the Voice of the Deprived"	PPT/Lecture		CO 2,3
35	Aruna Roy : "Tune in to the Voice of the Deprived"	Lecture	video	CO 2
36	Aruna Roy : "Tune in to the Voice of the Deprived"	Lecture		CO 2,6
37	Johannes V. Jensen : "Lost Forests"	Lecture		
38	Johannes V. Jensen : "Lost Forests"	PPT/Lecture		CO 2,3
39	Johannes V. Jensen : "Lost Forests"	Lecture	video	CO 2,6
40	Omprakash Valmiki : "Joothan"	Lecture		
41	Omprakash Valmiki : "Joothan"	Discussion		
42	Omprakash Valmiki : "Joothan"	Presentation		
	MODULE –III Gender Question			
43	Jamaica Kincaid : "Girl"	Presentation		
44	Jamaica Kincaid : "Girl"	Presentation		
	MODULE III- GENDER QUESTION			
45	Jamaica Kincaid : "Girl"	Lecture	Video	
46	Taslima Nasrin : "At the Back of Progress"	Discussion		CO1, CO6
47	Taslima Nasrin : "At the Back of Progress"			CO1
48	Taslima Nasrin : "At the Back of Progress"			CO 3, 1
49	Judy Brady : "Why I Want a Wife"	Lecture	Video	CO 3,5
50	Judy Brady : "Why I Want a Wife"	Lecture, discussion		CO 3,6
51	Judy Brady : "Why I Want a Wife"	Lecture, discussion		CO 3,1
52	J B Priestley : "Mother's Day"	Lecture, discussion		CO 4,5
53	J B Priestley : "Mother's Day"	Lecture		CO 4,6
54	J B Priestley : "Mother's Day"	Discussion	Video	
55	J B Priestley : "Mother's Day"	Lecture		CO 4,1
56	Amartya Sen : "More Than 100 Million Women are Missing"	Lecture		CO 4,5
57	Amartya Sen : "More Than 100 Million Women are Missing"	Presentation		CO 4,6
58	Amartya Sen : "More Than 100 Million Women are Missing"	Presentation		CO 3, 1
59	Amartya Sen : "More Than 100 Million Women are Missing"	Presentation		CO 3, 1
60	Revision			
61	Revision			
62	Revision			
63	Revision			
64	Revision			
65	Revision			
66	Revision			
67	Revision			

68	Revision			
69	Revision			
70	Revision			
	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)	Course Outcome
1	2/8/2018	Presentations	CO 2
2	28/8/2018	Role Plays	CO 3

GROUP ASSIGNMENTS/ACTIVITIES – Details & Guidelines

	Date of completion	Topic of Assignment & Nature of assignment (Individual/Group – Written/Presentation – Graded or Non-graded etc)	Course Outcome
1	12/9/2018	Group Discussions	CO 5
2	20/9/2018	Performances	CO 4

References

Dr P J George Ed. Musings on Vital Issues. Orient Blackswan and Mahatma Gandhi University.

COURSE PLAN

PROGRAMME	BACHELOR OF SCIENCE – PHYSICS	SEMESTER	2
COURSE CODE AND TITLE	15U2CCHIN2A - TRANSLATION, CORRESPONDENCE, ESSAYS AND APPLIED GRAMMAR (SEM II)	CREDIT	4
HOURS/WEEK	4	HOURS/SEM	72
FACULTY NAME	Dr. MINIPRIYA R, SYAMLAL M. S		

Programme Outcome

Programme Outcome	
PO 1	Critical Thinking: Take informed actions after identifying the assumptions that frame our thinking and actions, checking out the degree to which these assumptions are accurate and valid, and looking at our ideas and decisions (intellectual, organizational, and personal) from different perspectives.
PO 2	Effective Communication: Speak, read, write and listen clearly in person and through electronic media in English and in one Indian language, and make meaning of the word by connecting people, ideas, books, media and technology.
PO 3	Effective Citizenship: Demonstrate empathetic social concern and equity centered national development, and the ability to act an informed awareness of issues and participate in civic life through volunteering.
PO 4	Environment and Sustainability: Understand the issues of environmental contexts and sustainable development.
PO5	Ethics: Recognize different value systems including your own, understand the moral dimensions of your decisions, and accept responsibility for them.
PO 6	Global Perspective: Understand the economic, social and ecological connections that link the world's nations and people.

BACHELOR OF SCIENCE – PHYSICS

PROGRAM SPECIFIC OUTCOMES	
PSO 1	Comprehend the core concepts of Physic.
PSO 2	Acquire analytical and logical skills for higher Education
PSO 3	Excel in Experimental and Theoretical Physics
PSO 4	Take up jobs in allied fields
PSO5	Excel in competitive exams.

	COURSE OUTCOMES	PO/ PSO	CL
CO 1	Recognize and get introduced to the minor genres such as essay to develop their social and moral sense in life.	PO1,PO2, PO 3,PO4 ,PO6	U,Cr
CO 2	Define grammatical structure of Hindi language and analyse the problems, challenges of communication in Hindi.	PO2, PO6, PSO 2	U
CO 3	Use Hindi language for effective communication in different fields like administration, office proceedings, insurance etc.	PO1, PO2, PO6,PSO 2 PSO 4	A
CO 4	Understand translation as a linguistic, communicative and cultural activity.	PO2, PO5, PO6, PSO 4	U
CO 5	Acquire skills of correspondence, drafting official and scientific documents in the fields of administration, media and business.	PO1, PO2, PO6, PSO 4, PSO 5	A

CL* Cognitive Level

R- Remember

U- Understand

B- Apply

An- Analyze

E- Evaluate

Cr- Create

CO - PO/PSO Mapping

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PSO1	PSO2	PSO3	PSO 4	PSO5
CO 1	2	2	1	2		1		1			
CO 2		2				2		1			
CO 3	2	2				2		2		1	
CO 4		2			1	2				2	
CO 5	2	2				1				2	1

Mapping Strength

0. No Mapping strength
1. Low
2. Medium
3. High

SESSION	TOPIC	LEARNING RESOURCES	VALUE ADDITIONS	COURSE OUTCOME
MODULE I				
1	Importance of Grammar in Language learning.	Lecture/Discussion		CO 2
2	Part I Vyakaran	Lecture/Discussion		CO 2
3	Part I Vyakaran	Lecture/PPT		CO 2

4	Part I Vyakaran	Lecture	Exercise	CO 2
5	Importance of Translation	Lecture/PPT		CO 4
6	Translation	Lecture/PPT		CO 4
7	Translation	Lecture	Exercise	CO 4
8	Exercise -Translation	Interaction	Exercise	CO 4
9	Importance of Letter writing	Lecture/PPT		CO 5
10	Part II Patra Lekhan	Lecture/Discussion		CO 5
11	Ache Patra Ki Visheshtayen	Lecture/PPT		CO 5
12	Importance of Hindi Essays	Interaction	Discussion	CO 1
13	Patron Ke Prakar	Lecture		CO 5
14	Nibandh Ke Prakar	Lecture		CO 1
15	Nibandh Ke Prakar	Lecture/PPT	Exercise	CO 2
16	Part I Vyakaran	Lecture		CO 2
17	Part I Vyakaran	Interaction	Exercise	CO 2
18	Exercise -Translation	Lecture		CO 4
19	Revision	Discussion		CO 4
20	Patron Ke Prakar	Lecture		CO 5
21	Nibandh Ke Ang	Lecture		CO 1
22	Nibandh Lekhan Sambandhi Avashyak Batein	Lecture/Discussion		CO 1
23	Nibandh1,2	Lecture/PPT		CO 1
24	CIA – I (1Hour Exam)			
MODULE II				
25	Exercise Oriented Grammar	Lecture		CO 2
26	Exercise Oriented Grammar	Lecture/Discussion	Exercise	CO 2
27	Exercise Oriented Grammar	Lecture/ Discussion	Exercise	CO 2
28	Part II Patra Lekhan, Parivarik Patra	Lecture/PPT		CO 5
29	Part II Patra Lekhan, Parivarik Patra	Interaction		CO 5
30	Exercise –Translation	Lecture		CO 4
31	Exercise –Translation	Lecture/Discussion		CO 4
32	Revision	Interaction		CO 4
33	Exercise Oriented Grammar	Lecture		CO 2
34	Exercise Oriented Grammar	Lecture/ Discussion	Exercise	CO 2
35	Part II Patra Lekhan , Nimantran Patra	Lecture/PPT		CO 5
36	Nibandh 3	Lecture		CO 1
37	Nibandh 3,Exercise	Lecture/ Discussion		CO 1
38	Exercise –Translation	Lecture		CO 4
39	Exercise –Translation	Lecture/ Discussion		CO 4
40	Part II Patra Lekhan, Vyavasayik Patra	Lecture/PPT		CO 5
41	Nibandh 4	Lecture		CO 1
42	Nibandh 4,Exercise	Lecture/Discussion	Exercise	CO 1
43	Nibandh 5	Lecture/Discussion		CO 1
44	Nibandh 6	Lecture		CO 1
45	Nibandh 6,Exercise	Lecture/ Discussion	Exercise	CO 1
46	Revision	Interaction		CO 1
47	CIA – II (2 Hours Exam)			
MODULE III				

48	Exercise Oriented Grammar	Lecture/PPT		CO2
49	Exercise Oriented Grammar	Lecture	Exercise	CO2
50	Nibandh 7	Lecture		CO 1
51	Nibandh 7, Exercise	Lecture/Discussion	Exercise	CO 1

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

52	Part II Patra Lekhan, Adhikarik Patra	Lecture/PPT		CO 5
53	Part II Patra Lekhan, Adhikarik Patra	Lecture/ Discussion		CO 5
54	Exercise –Translation	Lecture		CO 4
55	Exercise –Translation	Lecture/Discussion		CO 4
56	Nibandh 8	Lecture		CO 1
57	Nibandh 8,Exercise	Lecture/ Discussion		CO 1
58	Exercise –Translation	Lecture		CO 4
59	Exercise Oriented Grammar	Lecture/PPT		CO2
60	Exercise Oriented Grammar	Lecture	Exercise	CO2
61	Part II Patra Lekhan, Shikayati Patra	Lecture/Discussion		CO 5
62	Nibandh 9	Lecture		CO 1
63	Nibandh 9,Exercise	Lecture/ Discussion		CO 1
64	Exercise – Translation	Lecture		CO 4
65	Part II Patra Lekhan , Karyalayi Patra	Lecture/PPT		CO 5
66	Nibandh 10	Lecture		CO 1
67	Nibandh 10,Exercise	Lecture/Discussion		CO 1
68	Seminar	Presentation by students		CO 2
69	Seminar	Presentation by students		CO 2
70	Revision	Interaction		
71	Revision	Interaction		
72	Evaluation of the course			

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

GROUP ASSIGNMENTS/ACTIVITIES – Details & Guidelines

SL NO	Date of completion	Topic of Assignment & Nature of assignment (Individual/Group – Written/Presentation – Graded or Non-graded etc)	Course Outcome
1	January	Exercise activity based on Patra lekhan (Group Discussion)	CO 5
2	January	Translation of a passage from English to Hindi.(Group Activity)	CO 4

References

- Hindi vyakaran by Kamta Prasad Guru , Prabhat Prakashan

Web resource references:

- epustakalay.com
- www.hindikunj.com

COURSE PLAN

PROGRAMME	PHYSICS	SEMESTER	2
COURSE CODE AND TITLE	15U2CCFRN2A - FRENCH LANGUAGE AND COMMUNICATION SKILLS II	CREDIT	4
HOURS/WEEK	4	HOURS/SEM	72

Programme Outcome

Programme Outcome	
PO 1	Critical Thinking: Take informed actions after identifying the assumptions that frame our thinking and actions, checking out the degree to which these assumptions are accurate and valid, and looking at our ideas and decisions (intellectual, organizational, and personal) from different perspectives.
PO 2	Effective Communication: Speak, read, write and listen clearly in person and through electronic media in English and in one Indian language, and make meaning of the word by connecting people, ideas, books, media and technology.
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BACHELOR OF SCIENCE - PHYSICS

PROGRAM SPECIFIC OUTCOMES	
PSO 1	Comprehend the core concepts of Physics.

PSO 2	Acquire analytical and logical skills for Higher Education.
PSO 3	Excel in Experimental and Theoretical Physics.
PSO 4	Take up jobs in allied fields.
PSO5	Excel in competitive exams.

	COURSE OUTCOMES	PO/ PSO	CL
CO 1	Understand the basic concepts of French language including grammar, vocabulary and sentence structure	PO1,PO2, PO6, PSO4,PSO5	U
CO 2	Understand the basic communication skills necessary for living in France and French speaking countries.	PO1, PO5,PO6, PO2,PSO4,PSO5	U
CO 3	Describe oneself and ones surroundings using a repertory of words and expressions in a simple and structured grammatical manner.	PO1, PO4, PO6,PSO4,PSO5	A
CO 4	Develop business communication skills	PO2, PO4,PO5, PO6,PSO4,PSO5	A
CO 5	Express an issue of concern including topics like environmental, social or health issues, enumerate its causes and consequences and suggest solutions	PO1,PO2,PO3,PO5,PO6,PSO4,PSO5	A
CO 6	Understand the mannerisms, culture and tradition of France and Francophone countries and compare it to one's own country and develop co-cultural feeling	PO6,PO2,PSO4,PSO5	U
CO 7	Understand and appreciate the history of France and Francophone countries and compare it to one's own country	PO2,PO6,PSO4,PSO5	U
CO 8	Understand the special features of France including gastronomy, social institutions, politics, the present French scenario and compare it to one's own country	PO1,PO2,PO5,PO6,PSO4,PSO5	U

CL* Cognitive Level

CL* Cognitive Level

R- Remember

U- Understand

A- Apply

An- Analyze

E- Evaluate
Cr- Create

CO - PO/PSO Mapping

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PSO 1	PSO 2	PSO 3	PSO 4	PSO5
CO 1	2	2				2				3	3
CO 2	2	2			2	2				3	3
CO 3	2			2		2				3	3
CO 4		2		2	2	2				3	3
CO 5	2	2	2		2	2				3	3
CO6		2				2				3	3
CO7		2				2				3	3
CO8	2	2			2	2	1			3	3

Mapping Strength

- 0. No Mapping strength
- 1- Low
- 2- Medium
- 3- High

SESSI ON	TOPIC	LEARNING RESOURCES	VALUE ADDITIONS	COURSE OUTCOME
MODULE I				
1	Introducing French Basics	Role play, games		CO 1,2,3
2	French Basics	Lecture		CO 1,2,3
3	Pronominal verbs	Games, music		CO 1,2,3
4	Pronominal verbs practice	Games		CO 1,2,3
5	Sentence construction using pronominal verbs	Games		CO 1,2,3
6	Sentence construction	Games		CO 1,2,3
7	Sentence construction	Games		CO 1,2,3

8	Grammar- present tense	Role play		CO 1,2,3
9	Communicative skills	Lecture		CO 1,2,3
10	Communicative skills	Role Play		CO 1,2,3
11	Communicative skills	Role Play		CO 1,2,3
12	Narrate a day	Discussions ICT		CO 6,7,8
13	Narrate a day	Discussions		CO 6,7,8
MODULE II				
14	Interrogative adjectifs	Game		CO 2,3
15	Interrogative adjectifs	Lecture		CO2,3
16	Demonstrative adjectives	Game		CO2,3
17.	Demonstrative Adjectives	Lecture		CO 2,3
18.	Sentence construction	Games		CO 2,3
19	Sentence construction	Games		CO2,3
20	civilisation	discussion		CO 2,3
21	Vocabulary building	games		CO 2,3
22	Vocabulary Building	Games		CO2,3
23	Buying a product, French products	Lecture/Discussion		CO 5,6,7,8
24	Buying a product	Role play		CO 5,6,7,8
25	Buying a product	Role play		CO5,6,7,8
26	Revision			
27	Revision			
28	revision			
29	CIA I			
MODULE III				
30	Food vocabulary	PPT/Lecture		CO 1,2,3
31	Food vocabulary	Games		CO 1,2,3

32	Intercultural studies	Discussions		CO 5,6,7,8
33	Sentence construction	Role play		CO 1,2,3
34	Sentence Construction	Games		CO 1,2,3
35	Articles partitifs	music		CO 3
36	Sentence construction(negative form)	games		CO 3
37	Future proche	Lecture		CO 3
38	Future proche	Lecture		CO 3
39	Giving and taking order	Role play		CO1,2,3
40	Ordering at a restaurant	Role play		CO 1,2,3
41	Vocabulary building	Games, music		CO 1,2,3
42	Vocabulary building	Games, Music		O 1,2,3
43	civilisation	PPT/Discussion		CO 5,6,7,8
44	Civilisation	Discussion		CO 5,6,7,8
CIA II				
MODULE IV				
45	Past tense (avoir)	Lecture		CO2,3
46	Past tense(etre)	Lecture		CO 2,3
47	Past tense (pronominal)	Lecture		CO2,3
48	Sentence formation	Games		CO2,3
49	Sentence formation	Games		CO2,3
50	Describe a past event	Lecture		CO 1,2,3
51	Narrate your day in the past	communication		CO1,2,3
52	Diary writing	assignment		CO5,6,7
53	Vocabulary building	games		CO 1,2,3
54	Part time jobs, vocabulary	Lecture		CO 1,2,3
55	Part time jobs-ads	Role plays		CO1,2,3

56	Exploring part time jobs	Role play		CO5,6,7,8
57	Putting up an ad and responding to an ad on part-time job	Lecture/Seminar/Discussion		CO 5,6,7,8
58	Putting up an ad and responding to an ad on part-time job	Role play		CO5,6,7,8
59	French culture	Discussion		CO5,6,7,8
60	French Culture	Discussion		CO5,6,7,8
61	French culture	Discussion		CO5,6,7,8
62	French culture	Discussion		CO5,6,7,8
63	DELFPREPARATION			
64	DELFPREPARATION			
65	DELFPREPARATION			
66	DELFPREPARATION			
67	DELFPREPARATION			
68	DELFPREPARATION			
69	DELFPREPARATION			
70	DELFPREPARATION			
71	DELFPREPARATION			
72	DELFPREPARATION			

INDIVIDUAL ASSIGNMENTS/SEMINAR – Details & Guidelines

	Date of completion	Topic of Assignment & Nature of assignment (Individual/Group – Written/Presentation – Graded or Non-graded etc)	Course Outcome
1	By February	Presentation on gastronomy of each region	CO 2,3,6,8
2		roleplays	CO 123456

References

Version Originale, site web

COURSE PLAN

PROGRAMME	BACHELOR OF SCIENCE,PHYSICS	SEMESTER	2
COURSE CODE AND TITLE	15U2CCSAN2A: COMMUNICATION SKILLS IN SANSKRIT	CREDIT	4
HOURS/WEEK	4	HOURS/SEM	72
FACULTY NAME	Dr.VIJAYARAJAN K.U		

Programme Outcome

Programme Outcome	
PO 1	Critical Thinking: Take informed actions after identifying the assumptions that frame our thinking and actions, checking out the degree to which these assumptions are accurate and valid, and looking at our ideas and decisions (intellectual, organizational, and personal) from different perspectives.
PO 2	Effective Communication: Speak, read, write and listen clearly in person and through electronic media in English and in one Indian language, and make meaning of the word by connecting people, ideas, books, media and technology.
PO 3	Effective Citizenship: Demonstrate empathetic social concern and equity centered national development, and the ability to act an informed awareness of issues and participate in civic life through volunteering.
PO 4	Environment and Sustainability: Understand the issues of environmental contexts and sustainable development.
PO5	Ethics: Recognize different value systems including your own, understand the moral dimensions of your decisions, and accept responsibility for them.
PO 6	Global Perspective: Understand the economic, social and ecological connections that link the world's nations and people.

BACHELOR OF SCIENCE - PHYSICS

PROGRAM SPECIFIC OUTCOMES	
PSO 1	Comprehend the core concepts of Physics.
PSO 2	Acquire analytical and logical skills for Higher Education.
PSO 3	Excel in Experimental and Theoretical Physics.
PSO 4	Take up jobs in allied fields.

PSO5	Excel in competitive exams.
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	COURSE OUTCOMES	PO/ PSO	CL
CO 1	Developing the basic knowledge in Sanskrit	PO1,PO2, PO6, PSO2	U
CO 2	Students develop the communication skills in sanskrit	PO1, PO5,PO6,PO2,PSO2	U
CO 3	Students familiarize the figures of speech and their usage	PO1, PO4, PO6,PSO2	A
CO 4	Students get an awareness about aesthetic values	PO2, PO4,PO5, PO6,PSO2	A
CO 5	Students get an awareness about Indian classical poetic tradition	PO1,PO2,PO3,PO5,PO6,PSO2	A
CO 6	Understand moral values through Drama	PO6,PO2,PSO2	U
CO 7	Students develop writing skills in Sanskrit	PO2,PO6,PSO2	U
CO 8	Students get awareness about Verbal forms	PO1,PO2,PO5,PO6,PSO2	U

CL* Cognitive Level

CL* Cognitive Level

R- Remember

U- Understand

A- Apply

An- Analyze

E- Evaluate

Cr- Create

CO -PO/PSO Mapping

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PSO 1	PSO 2	PSO 3	PSO 4
CO 1	2	2				2		1		
CO 2	3	3			2	2		2		
CO 3	2			2				1		
CO 4		2		3	2	2		1	2	
CO 5	2	2	2		2	3		1		

CO6		2				3		1		
CO7		2				2		2		
CO8	2				2	2		1	2	

Mapping Strength

- 0. No Mapping strength
- 1- Low
- 2- Medium
- 3- High

SESSION	TOPIC	LEARNING RESOURCES	VALUE ADDITIONS	COURSE OUTCOME
MODULE I				
1	Introducing Vibhakthi	Lecture		CO 1,2
2	Prathama vibhakthi	Discussion		CO 1,2
3	Dvitheeya vibhakthi	Lecture		CO 1,2
4	Thritheeya vibhakthi	Lecture	e-resource	CO 1,2
5	Chathurthi vibhakthi	Lecture		CO 1,2
6	Panchami vibhakthi	Chalk n talk		CO 1,2
7	Shashti vibhakthi	Lecture		CO 1,2
8	Sapthami vibhakthi	Chalk n talk		CO 1,2
9	Sambhodhanaprathama	Lecture		CO 1,2
10	Akarantha pulinga bala shabha	Lecture		CO 1,2
11	Aakarantha sthreeelinga Latha shabdha	Discussion		CO 1,2
12	Ekarantha pulinga Kavi shabdha	Discussion		CO 1,2

13	Ukarantha pulinga Guru shabdha	PPT/Lecture		CO 1,2
14	Revision			
MODULE II				
15	Structure of sentence- Present tense	PPT/Lecture		CO 7,8
16	Prathama purusha ekavachaam	Chalk n talk		CO 7,8
17	Prathama purusha divivachaam	Lecture		CO 2,7,8
18	Prathama purusha bahuvachaam	Lecture		CO 2,7,8
19	Madhyama purusha ekavachaam	Lecture		CO 2,7,8
20	Madhyam purusha divivachaam	Game		CO 3,7,8
21	Madhyam purusha bahuvachaam	Game		CO 3,7,8
22	Uthamapurusha ekavachaam	PPT/Lecture		CO 3,7,8
23	Uthamapurusha divivachaam	PPT/Lecture		CO 3,7,8
24	Uthamapurusha bahuvachaam	Lecture		CO 3,7,8
25	Past tense- Prathamapurusha	Lecture		CO 3,7,8
26	CIA-1			
27	Past tense -Madhyamapurusha	Lecture		CO 3,5,7,8
28	Past tense - Uthamapurusha	Chalk n talk		CO 3,5,7,8
29	Future tense - Prathamapurusha	Chalk n talk		CO 3,5,7,8
30	Future tense - Madhyamapurusha	Discussion		CO3,5,7,8
31	Future tense - Uthamapurusha	Discussion		CO 3,5,7,8
32	Sentence making in Sanskrit-Active voice	Lecture		CO 7,8
33	Sentence making in Sanskrit –Passive voice	Lecture		CO 7,8
34	Revision			
35	Revision			
MODULE III				

36	Introduction Meghadootha	Lecture		CO 3,6,7
37	Explaining Khandakavyam	Lecture		CO 3,6,7
38	Yaksha -curse	PPT/Lecture		CO 3,6,7
39	Yaksha's meeting with cloud	PPT/Lecture		CO 3,6,7
40	Requesting to cloud	PPT/Lecture		CO 3,6,7
41	Praising cloud	Lecture		CO 3,6,7
42	Yaksha directing cloud	Lecture		CO 3,6,7
43	Meeting with Balaka bird	Chalk n talk		CO 3,6,7
44	Departure	Discussion		CO 3,6,7
45	Rajahamsa	Roleplay		CO 3,6,7
46	Explaining Mountain	Discussion		CO 3,6,7
47	Directing to Megha	PPT/Lecture		CO 4,7
48	Revision			
49	Revision			
MODULE IV				
50	Introduction Mrichakatika drama	PPT/Lecture		CO 3,6,8
51	Charudatha	PPT/Lecture	Video	CO 3,6,8
52	Vasanthasena	PPT/Lecture		CO 3,6,8
53	Vasanthasena's visiting	PPT/Lecture		CO 3,6,8
54	Rajasyala Samsthanaka	Lecture		CO 3,6,8
55	Vasanthasena 's meeting with Charudatha	Lecture	Debate	CO 3,6,8
56	Matithreya's conversation with Radanika	PPT/Lecture		CO 3,6,8
57	Rohasena	PPT/Lecture		CO 3,6,8
58	Dvitheeyanka	PPT/Lecture		CO 3,6,8
59	Gambling incident	PPT/Lecture		CO 3,6,8

60	Catching Gambler	PPT/Lecture		CO 3,6,8
61	Escaping	PPT/Lecture		CO 3,6,8
CIA - II				
62	Vasanthasena's talk with her servant			CO 3,6,7
63	thritheeyanka	Lecture		CO 3,6,8
64	Rebhila's music discussion	Lecture	Group discussion	CO 3,4,8
65	Sharvilaka –the thief	Lecture		CO 3,4,8
66	Taking gold from Maithreya	PPT/Lecture		CO 3,4,8
67	Charudatha talk with Maithreya	PPT/Lecture		CO 3,4,8
68	Dootha's talking	PPT/Lecture		CO 3,4,8
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)	Course Outcome
1	By	Kalidasa's Mahakavyas	CO 6,8
2	February	Sanskrit Drama	CO 6

GROUP ASSIGNMENTS/ACTIVITIES – Details & Guidelines

	Date of completion	Topic of Assignment & Nature of assignment (Individual/Group – Written/Presentation – Graded or Non-graded etc)	Course Outcome
1	By February	Bhasa's dramas	CO 6
2		Khandakavyas in Sanskrit	CO 4,8

References

- 1.Meghadhoota of Kalidasa (Poorva-Megha; 1-20 Slokas)
- 2.Mrichakatika-kathasamgraha, (Chapters 1, 2&3), by Prof. P.C. Vasudevan Elayat
- 3.Siddharupam, Vidyarambham Press, Alappuzha
- 4.Sabdamanjari, Chowkhamba Sanskrit Series office, Varanasi
- 5.Dhaturupamanjari, Chowkhamba Sanskrit Series office, Varanasi
- 6.Sanskritavyakaranapraivesika, Pandit L Anantharama Sastri
- 7.Balabodhini, Rajarshi Sree Rama Varma, Publication Divison, Govt.Sanskrit College, Trippunittura

COURSE PLAN

PROGRAMME	B.Sc PHYSICS	SEMESTER	2
COURSE CODE & TITLE	15U2CCMAL2A ക്രമിത	CREDITS	4
HOURS/WEEK	4	HOURS/SEM	72
FACULTY NAME	VISHNU RAJ P, Dr. JUSTINA K AUGUSTINE		

Programme Outcome	
At the end of the programme, the student should be able to:	
PO1	Critical Thinking: Take informed actions after identifying the assumptions that frame our thinking and actions, checking out the degree to which these assumptions are accurate and valid, and looking at our ideas and decisions (intellectual, organizational, and personal) from different perspectives
PO2	Effective Communication: Speak, read, write and listen clearly in person and through electronic media in English and in one Indian language, and make meaning of the word by connecting people, ideas, books, media and technology
PO3	Effective Citizenship: Demonstrate empathetic social concern and equity centered national development, and the ability to act an informed awareness of issues and participate in civic life through volunteering
PO4	Environment and Sustainability: Understand the issues of environmental contexts and sustainable development.
PO5	Environment and Sustainability: Understand the issues of environmental contexts and sustainable development
PO6	Global Perspective: Understand the economic, social and ecological connections that link the world's nations and people

BACHELOR OF PHYSICS

PROGRAM SPECIFIC OUTCOMES	
PSO 1	Comprehend the core concepts of Physics
PSO 2	Acquire analytical and logical skills for higher Education.

PSO 3	Excel in Experimental and Theoretical Physics.
PSO 4	Take up jobs in allied fields.
PSO 5	Excel in competitive exams.

CO No	COURSE OUTCOMES	CL	PSO	PO
1	കവിത എന്ന സാഹിത്യരൂപത്തെക്കുറിച്ച് മെച്ചപ്പെട്ട ധാരണ ഉണ്ടാക്കുക	Un	2,4	1,3
2	ഭാഷാപഠനം സാഹിത്യാനുഭവത്തിലൂടെ ആവിഷ്കരിക്കുക	Re	2,4	2,3
3	വായനാഭിരുചി വർദ്ധിപ്പിക്കുക	Ap	2,4	3,4
4	സാഹിത്യ പരിചയം ഉണ്ടാക്കുക	Un	2,4	1,2,3
5	വ്യാവഹാരിക തലത്തിൽ മാതൃഭാഷാപ്രയോഗിക്കുവാനുള്ള കഴിവ് നേടുക	Ap	2,4	1,3,5
6	ഭാഷാപഠനത്തിലൂടെ ആശയവിനിമയശേഷി വർദ്ധിപ്പിക്കുക	Cr	2,4	1,2,6

CO - PO/PSO Mapping												
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO 1	1	0	1	0	2	2	0	1	0	1	0	0
CO 2	0	2	2	2	2	2	0	2	0	1	0	0
CO 3	0	0	2	1	0	0	0	2	0	1	0	0
CO 4	1	1	3	0	0	0	0	2	0	1	0	0
CO5	1	0	2	0	2	0	0	2	0	1	0	0
CO6	1	2	0	0	0	1	0	2	0	1	0	0

Mapping Strength: 0-No Mapping strength, 1- Low, 2-Medium, 3-High

COURSE PLAN

Sessio n	Topic	Learning Resources	Teaching Method	Course Outcome
Module I				
1	മലയാളസാഹിത്യം സാമാന്യാവലോകനം	സാഹിത്യച രിത്രങ്ങൾ	Lecturing	1,2,3,4
2	മലയാളകവിതയുടെ ചരിത്രം-1	സാഹിത്യച രിത്രങ്ങൾ	Lecturing	1,2,3,4
3	മലയാളകവിതയുടെ ചരിത്രം-2	സാഹിത്യച രിത്രങ്ങൾ	Discussion	1,2,3,4,6
4	ചങ്ങമ്പുഴയുടെ രചനാലോകം	കവിതാ പഠനങ്ങൾ പഠനങ്ങൾ	Lecturing	2,3,4
5	മനസിനി	Text	Reading	1,2,3,4,5,6
6	മനസിനി	Text	Group Discussion	1,2,3,4,5,6
7	സൂര്യകാന്തി	കവിതാ പഠനങ്ങൾ പഠനങ്ങൾ	Lecturing	2,3,4
8	സൂര്യകാന്തി	Text	Reading	1,2,3,4,5,6
9	ഗോപികാദണ്ഡകം	Text	Group Discussion	1,2,3,4,5,6
10	ഗോപികാദണ്ഡകം	കവിതാ പഠനങ്ങൾ പഠനങ്ങൾ	Lecturing	2,3,4
11	ഗോപികാദണ്ഡകം	Text	Reading	1,2,3,4,5,6
12	വിരാമം	Text	Group Discussion	1,2,3,4,5,6
13	വിരാമം	കവിതാ പഠനങ്ങൾ	Lecturing	2,3,4
14	വിരാമം	Text	Reading	1,2,3,4,5,6
15	പുതിയമാഷന്മാർ	Text	Group Discussion	1,2,3,4,5,6
16	പുതിയമാഷന്മാർ	Text	Group Discussion	1,2,3,4,5,6
17	പഠിച്ച കവിതകൾ ഒരു അവലോകനം	Text	Group Discussion	1,2,3,4
Module II				
18	ആധുനിക മലയാളകവിതയുടെ സ്വഭാവങ്ങൾ	കവിതാ പഠനങ്ങൾ	Lecturing	2,3,4
19	യുഗളപ്രസാദൻ	Text	Reading	1,2,3,4,5,6
20	യുഗളപ്രസാദൻ	Text	Group Discussion	1,2,3,4,5,6
21	ആത്മഹത്യ ചെയ്ത കർഷകൻ വെള്ളത്തെക്കുറിച്ച് സംസാരിക്കുന്നു	Text	Lecturing	2,3,4
22	ആത്മഹത്യ ചെയ്ത കർഷകൻ	Text	Reading	1,2,3,4,5,6

	വെള്ളത്തെക്കുറിച്ച് സംസാരിക്കുന്നു			
23	ആത്മഹത്യ ചെയ്ത കർഷകൻ വെള്ളത്തെക്കുറിച്ച് സംസാരിക്കുന്നു	Text	Group Discussion	1,2,3,4,5,6
24	കളുകൾ	കവിതാ പഠനങ്ങൾ	Lecturing	2,3,4
25	കളുകൾ	Text	Reading	1,2,3,4,5,6
26	പറക്കം	Text	Group Discussion	1,2,3,4,5,6
27	പറക്കം	കവിതാ പഠനങ്ങൾ	Lecturing	2,3,4
28	കീരി	Text	Reading	1,2,3,4,5,6
29	കീരി	Text	Group Discussion	1,2,3,4,5,6
30	പഠിച്ച കവിതകൾ ഒരു അവലോകനം	Text	Group Discussion	1,2,3,4
31	Internal Assessment 1	Text		
32	Question paper discussion	Text	Group Discussion	1,2,3,4,5,6
Module III				
33	മലയാള - നൂതന പ്രവണതകൾ	കവിതാ പഠനങ്ങൾ	Lecturing	2,3,4
34	കാക്ക	Text	Reading	1,2,3,4,5,6
35	കാക്ക	Text	Group Discussion	1,2,3,4,5,6
36	മോഹൻദാസും ഗാന്ധിയും നാമുറാം ഗോഡ്സെയും	കവിതാ പഠനങ്ങൾ	Lecturing	2,3,4
37	മോഹൻദാസും ഗാന്ധിയും നാമുറാം ഗോഡ്സെയും	Text	Reading	1,2,3,4,5,6
38	നാനാണത്ത് പാറ	Text	Group Discussion	1,2,3,4,5,6
39	നാനാണത്ത് പാറ	കവിതാ പഠനങ്ങൾ	Lecturing	2,3,4
40	യശോധാരയെന്നവൾ	Text	Reading	1,2,3,4,5,6
41	യശോധാരയെന്നവൾ	Text	Group Discussion	1,2,3,4,5,6
42	മാമ്പഴപ്പാത	കവിതാ പഠനങ്ങൾ	Lecturing	2,3,4
43	മാമ്പഴപ്പാത	Text	Reading	1,2,3,4,5,6
44	മാമ്പഴപ്പാത	Text	Group Discussion	1,2,3,4,5,6
45	പഠിച്ച കവിതകൾ ഒരു അവലോകനം	Text	Group Discussion	1,2,3,4
Module- IV				
46	മലയാള - നൂതന പ്രവണതകൾ	കവിതാ പഠനങ്ങൾ	Lecturing	1,2,3,4
47	ചിന്താഗ്നി	Text	Group Discussion	1,2,3,4
48	ചിന്താഗ്നി	Text	Lecturing	1,2,3,4
49	ആ പശുക്കുട്ടിയുടെ	Text	Group Discussion	1,2,3,4

	മരണം			
50	ആ പശുകുട്ടിയുടെ മരണം	കവിതാ പഠനങ്ങൾ	Lecturing	1,2,3,4
51	തേൾക്കുടം	Text	Lecturing	1,2,3,4
52	തേൾക്കുടം	Text	Group Discussion	1,2,3,4,6
53	കൗസല്യ	Text	Group Discussion	1,2,3,4,6
54	കൗസല്യ	Text	Group Discussion	1,2,3,4,6
55	കൗസല്യ	Text	Group Discussion	1,2,3,4,6
56	എന്തു ശുത്തി ഏതു ശുത്തി	Text	Group Discussion	1,2,3,4,6
57	എന്തു ശുത്തി ഏതു ശുത്തി	Text	Group Discussion	1,2,3,4,6
58	സമകാലിക മലയാള കവിത	കവിതാ പഠനങ്ങൾ	Group Discussion	1,2,3,4,6
59	സമകാലിക മലയാള കവിത	Text	Group Discussion	1,2,3,4,6
60	സമകാലിക മലയാള കവിത	Text	Group Discussion	1,2,3,4,6
61	പഠിച്ച കവിതകൾ ഒരു അവലോകനം	കവിതാ പഠനങ്ങൾ	Group Discussion	1,2,3,4,6
62	പഠിച്ച കവിതകൾ ഒരു അവലോകനം	Text	Group Discussion	1,2,3,4,6
	Internal Assessment 2			
63	Question paper discussion	Text	Group Discussion	1,2,3,4,6
64	പഠിച്ച കവിതകൾ ഒരു അവലോകനം	കവിതാ പഠനങ്ങൾ	Group Discussion	1,2,3,4,6
65	പഠിച്ച കവിതകൾ ഒരു അവലോകനം	കവിതാ പഠനങ്ങൾ	Group Discussion	1,2,3,4,6
66	സംവാദം-	Text	Group Discussion	1,2,3,4,6
67	സെമിനാർ	Text	Presentation	1,2,3,4,6
68	സെമിനാർ	Text	Presentation	1,2,3,4,6
69	സെമിനാർ	Text	Presentation	1,2,3,4,6
70	സെമിനാർ	Text	Presentation	1,2,3,4,6
71	സെമിനാർ	Text	Presentation	1,2,3,4,6
72	Evaluation of the course	Text	Group Discussion	1,2,3,4,5,6

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	മലയാളത്തിലെ തെരഞ്ഞെടുത്ത കവികളുടെ വിവരങ്ങൾ
2		സിലബസിൽ പഠിക്കാൻ ഇല്ലാത്ത കവിതകളുടെ ആസ്വാദനം

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	1,2,3,4
2		പാഠഭാഗങ്ങളുടെ അവതരണം	1,2,3,4,5

Referance :

1. സമ്പൂർണ്ണ മലയാള സാഹിത്യ ചരിത്രം – എഡിറ്റർ :പന്മന രാമചന്ദ്രൻ നായർ
2. മലയാള കവിതാസാഹിത്യ ചരിത്രം - ഡോ .എം .ലീലാവതി

COURSE PLAN (COURSE 7)

PROGRAMME	BACHELOR OF PHYSICS	SEMESTER	2
COURSE CODE AND TITLE	15U2CRPHY02 Mechanics and Properties of Matter	CREDIT	2+(1Practical)
Theory HOURS/WEEK	2	HOURS/SEM	36
FACULTY NAME	Dr. Sumod S.G and Dr. Siby Mathew		

	COURSE OUTCOMES	PO/ PSO	CL
CO 1	Understand superposition of waves.	PO1, PSO1	U
CO 2	Analyse the theory of oscillation.	PO1, PSO1	U
CO 3	Define the basic concepts of angular velocity- angular acceleration- angular momentum.	PO1, PSO1	U/An
CO 4	State parallel and perpendicular axes theorems.	PO1, PSO1	U/An

CL* Cognitive Level

CO - PO/PSO Mapping

	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3						3				
CO2	3						3				
CO3	3						3				
CO4	3						3				

Mapping Strength: 0-No mapping 1-Low 2-Medium 3-High

SESSION	TOPIC	LEARNING RESOURCES	COURSE OUTCOME
MODULE I			
1	Introduction , Velocity- acceleration- force – acceleration due to gravity-weightlessness,	Lect	CO1
2	compound pendulum (symmetric and unsymmetric) radius of gyration- kater's pendulum - centripetal acceleration and force- centrifugal force	Lect + Group Activity	CO1
3	Angular velocity- angular acceleration- angular	Lect	CO1

	momentum- conservation-		
4	torque moment of inertia-	Lect	CO1
5	Parallel and perpendicular axes theorem -	Lect	CO2
6	Problem Solving Session	Lect+PPT	CO2
7	calculation of moment of inertia-	Lect	CO2
8	rod, ring, MI	Lect	CO 3
9	Problems with rod, ring, MI	Lect	CO 3
10	calculation of moment of inertia- rod, ring, MI	Lect	CO 4
11	disc, cylinder, Sphere MI	Lect	CO 4
MODULE III			
12	Molecular theory of surface tension- surface energy- excess pressure in a liquid	Lect + Group Activity	CO 4
13	Drop transverse waves on the surface of a liquid- effect of gravity-	Lect	CO 4
14	effect of surface tension- factors affecting surface tension-	Lect	CO 4
15	Applications of ST	Lect	CO 4
16	Streamline and turbulent flow-Viscosity	Lect+ppt	CO 4
17	Critical Velocity	Lect+activity	CO 4
18	Derivation of Piseuille's Formula	Lect	CO 4
19	Stoke's Formulae, Lubricants	Lect+discussion	CO 3
20	Stress- strain- Hooke's law- ratio- -	Lect	CO 4
21	elastic module- Poisson's	Lect	CO 2
22	bending of Beams bending moment	Lect+ppt	CO 4
23	bending of Beams bending moment	Lect	CO 1
24	Young's modulus (cantilever-mirror and telescope)- microscope)	Lect+discussion	CO 4
25	Young's modulus (cantilever-mirror and telescope)- microscope)	Lect	CO 2
26	Young's modulus (uniform and non uniform bending-	Lect+discussion	CO 4
27	torsional oscillations rigidity modulus- static torsion(mirror and telescope)-	Lect	CO 4
28	I section girder.	Lect	CO 2
29	Molecular theory of surface tension- surface energy- -	Lect+ppt	CO 4
30	excess pressure in a liquid Drop transverse waves on the surface of a liquid	Lect	CO 3
31		Lect+discussion	CO 4
32	factors affecting surface tension- applications.	Lect	CO 2
33	Streamline and turbulent flow- critical velocity-	Lect	CO 1

34	derivation of Poiseuille's Formula	Lect+ppt	CO 4
35	derivation of Poiseuille's Formula	Lect	CO 2
36	Stoke's formula- Lubricants	Lect+discussion	CO 4

INDIVIDUAL ASSIGNMENTS/SEMINAR – Details & Guidelines

	Date of completion	Topic of Assignment & Nature of assignment (Individual/Group – Written/Presentation – Graded or Non-graded etc)	Course Outcome
1	20/12/2018	Problems associated with MI	CO 1
2	20/1/2019	Applications of Surface Tension	CO2

GROUP ASSIGNMENTS– Details & Guidelines

	Date of completion	Topic of Assignment & Nature of assignment (Individual/Group – Written/Presentation – Graded or Non-graded etc)	Course Outcome
1	Class activity in Feb 2019	Scope of Properties of matter in practical applications (Group Discussion)	CO 3

References

1. Fundamentals of Physics - Halliday and Resnik (John Wiley)
2. Principles of Mechanics - John. L. Synge and Byron A Griffith (Mc- Graw Hill)
3. Advanced Physics - Materials and Mechanics - Tom Duncan (John Murray London)
4. Mechanics - D.S.Mathur (S.Chand)
5. Classical Mechanics - Goldstein
6. Classical Mechanics - K. SankaraRao (Prentice. Hall of India- N.Delhi)
7. Text Book of Sound - Brijlal and Subramaniam (S.Chand)
8. Refresher Course in Physics - Vol1- C.L.Arora
9. Vibration, Waves and Acoustics - D.Chattopadhyay (Books and Allied Pvt Ltd)
10. Properties of Matter - Brijlal and Subramaniam (S.Chand)
11. Properties of Matter - -D.S.Mathur (S.Chand)
12. Mechanics- H.S.Hans and S.P.Puri. (Tata McGraw-Hill)
13. Properties of Matter- Brijlal and N. Subrahmanyam (S. Chand and Co.)
14. Mechanics- J.C. Upadhyaya (Ram Prasad and Sons)

COURSE PLAN (COURSE 8)

PROGRAMME	COMPLEMENTARY CHEMISTRY FOR BACHELOR OF SCIENCE IN PHYSICS	SEMESTER	2
COURSE CODE AND TITLE	15U2CPCHE2: BASIC ORGANIC CHEMISTRY	CREDIT	2
HOURS/WEEK	2	HOURS/SEM	36
FACULTY NAME	Dr. Ramakrishnan S and Dr. Ragi A S		

	COURSE OUTCOMES	PO/ PSO	CL
CO 1	<i>Understand the basics of organic chemistry.</i>	PO 1, PSO 1	U
CO 2	<i>Understand various purification techniques like solvent extraction, distillation and crystallization.</i>	PO 1, PSO 1	U
CO 3	<i>Develop an idea on stereochemistry of organic compounds</i>	PO 1, PSO 1	U
CO 4	<i>Explain the basics of organic reaction mechanism.</i>	PO 1, PSO 1	U
CO 5	<i>Discuss the classification and synthesis of polymers.</i>	PO 6, PSO 2	U
CO 6	<i>Discuss the hazards of synthetic polymers/ plastics.</i>	PO 6, PSO 2	U
CO 7	<i>Understand the concept of biodegradable alternatives for plastics.</i>	PO 6, PSO 2	U

CL* Cognitive Level

CO - PO/PSO Mapping

	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3						3				
CO2	3						3				
CO3	3						3				
CO4	3						3				
CO5						2		2			
CO6						2		2			
CO7						2		2			

Mapping Strength: 0-No mapping 1-Low 2-Medium 3-High

SESSION	TOPIC	LEARNING RESOURCES	VALUE ADDITIONS	COURSE OUTCOME
MODULE I : Purification of Organic Compounds : Dr. Ragi A S(3h)				
1	Purification techniques: Recrystallisation, sublimation.	Chalk & Board	Q & A Session	CO 2
2	General principles of distillation, fractional distillation, distillation under reduced pressure	Chalk & Board		CO 2
3	Solvent extraction	Chalk & Board		CO 2
MODULE II: Stereochemistry of Organic Compounds: Dr. Ramakrishnan S(11h)				

4	Geometrical isomerism- <i>cis</i> and <i>trans</i> configuration, 2-butene, maleic and fumaric acid,	Chalk & Board		CO 3
5	Determination of configuration of cis-trans isomers, E and Z configuration.	Chalk & Board		CO 3
6	Optical isomerism- D and L configuration. Optical activity,	Chalk & Board	quiz	CO 3
7	Chirality, Stereogenic Centre	Chalk & Board		CO 3
8	Enantiomers and diastereomers	Chalk & Board		CO 3
9	Optical isomerism in lactic acid and tartaric acid	Chalk & Board	quiz	CO 3
10	Racemisation	Chalk & Board		CO 3
11	Conformation- Newman projection, Saw-horse projection	Chalk & Board		CO 3
12	Conformations of Ethane	Chalk & Board		CO 3
13	n - butane	Chalk & Board		CO 3
14	Cyclohexane.	Chalk & Board		CO 3
MODULE III: Mechanisms of Organic Reactions: Dr.Ragi A.S (15h)				
15	Hybridization and shape of molecules - sp^3 , sp^2 and sp , (ethane, ethene, ethyne)	Chalk & Board	quiz	CO 4
16	Types of reagents - electrophiles, nucleophiles.	Chalk & Board		CO 4
17	Types of electron displacement in organic molecules	Chalk & Board		CO 4
18	Explanation of the strength of carboxylic and halogen substituted acids,	Chalk & Board		CO 4
19	Basic strength of primary, secondary and tertiary amines.	Chalk & Board	Q & A Session	CO 4
20	Types of bond fission- homolytic and heterolytic fission.	Chalk & Board		CO 4
21	Reactive intermediates-carbocations-Their formation and stability.	Chalk & Board		CO 4
22	Substitution reactions: Nucleophilic substitution of alkyl halides- S_N1 and S_N2 mechanisms. Factors affecting rate of Substitution reaction of alkyl halide. Nature of alkyl halide, Effect of solvent. Stereochemistry of S_N1 and S_N2 reactions.	Chalk & Board		CO 4
23	Electrophilic substitution in benzene-reaction mechanism. Halogenation, Nitration and Sulphonation	Chalk & Board		CO 4
24	Addition reactions: electrophilic addition. Addition of Bromine and Hydrogen halides to ethane, propene and ethyne-the Markwonikoff's rule, Peroxide effect.	Chalk & Board		CO 4
25	Reactive intermediates- free radicals. Their formation and stability.	Chalk & Board		CO 4

26	Substitution reactions: Nucleophilic substitution of alkyl halides- SN1 and SN2 mechanisms. Factors affecting rate of Substitution reaction of alkyl halide. Nature of alkyl halide, Effect of solvent. Stereochemistry of SN1 and SN2 reactions.	Chalk & Board		CO 4
27	Electrophilic substitution in benzene-reaction mechanism. Halogenation, Nitration and Sulphonation	Chalk & Board		CO 4
28	Addition reactions: electrophilic addition. Addition of Bromine and Hydrogen halides to ethane, propene and ethyne-the Markwonikoff's rule, Peroxide effect.	Chalk & Board		CO 4
29	Elimination reactions: E1 and E2 mechanisms. Saytzeff and Hofmann elimination	Chalk & Board		CO 4
MODULE IV: Natural and Synthetic Polymers: Dr.Ramakrishnan S (7h)				
30	Classification of polymers: Natural, synthetic; linear, cross-linked and network; plastics, elastomers, fibres; homopolymers and copolymers.	Chalk & Board	Quiz	CO 5
31	Polymerization reactions, Addition Polymerization,	Chalk & Board		CO 5
32	Condensation polymerization,	Chalk & Board		CO 5
33	Polyethene, polypropylene, PVC, phenol-formaldehyde resins, polyamides (nylons) and polyester.	Chalk & Board		CO 5
34	Natural rubber: structure, vulcanization.	Chalk & Board		CO 5
35	Synthetic rubbers- SBR, nitrile rubber, neoprene.	Chalk & Board		CO 5
36	Biodegradable polymers, environmental hazards caused by polymers, Health problem due to burning plastics.	Chalk & Board		CO 6 and CO 7

INDIVIDUAL ASSIGNMENTS/SEMINAR – Details & Guidelines

	Date of completion	Topic of Assignment & Nature of assignment (Individual/Group – Written/Presentation – Graded or Non-graded etc)	Course Outcome
1	04/12/2018	Conformations	CO 2
2	28/01/2019	SN1 and SN2 reactions	CO 4

GROUP ASSIGNMENTS/ACTIVITES – Details & Guidelines

	Date of completion	Topic of Assignment & Nature of assignment (Individual/Group – Written/Presentation – Graded or Non-graded etc)	Course Outcome
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1	02/02/2019	Biodegradable Polymers	CO 7
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References

1. I. L. Finar, Organic Chemistry, Vol. I, 6th edn. Pearson.
2. S. M. Mukherji, S. P Singh, R. P Kapoor, Organic Chemistry, Vol.1, New Age International (P) Ltd, 2006
3. P.S Kalsi, Stereochemistry Conformation and Mechanism, New Age International Publishers, 2004
4. Peter Sykes, A Guide Book to Mechanism in Organic Chemistry, 6th edn. Orient Longman, 1988
5. S. M. Mukherji, S.P Singh, Reaction Mechanism in Organic Chemistry, Macmillan, 3rd Edn., 2003
6. V. R. Gowariker, Polymer Science, Wiley Eastern.
7. K.S Tewari, N K Vishnoi, Text book of Organic Chemistry, Vikas Publishing House Pvt. Ltd. 2007.

COURSE PLAN (COURSE 9)

PROGRAMME	BACHELOR OF MATHEMATICS	SEMESTER	2
COURSE CODE AND TITLE	15U2CPMAT 02 : INTEGRAL CALCULUS AND MATRICES	CREDIT	.3
HOURS/WEEK	4	HOURS/SEM	60
FACULTY NAME	SANIL JOSE		

	COURSE OUTCOMES	PO/ PSO	CL
CO 1	Understand definite integrals and The fundamental theorem of Calculus	PSO2	U
CO 2	Determine the area and volume of surfaces in space .	PSO2	A
CO 3	Understand the concepts of Double Integrals	PSO2	U
CO 4	Apply the concepts of multiple integrals to find the area and volume of regions in space	PSO2 , PSO 4	Ap
CO 5	Understand the concepts of matrices	PO1, PSO2	U
CO 6	Apply the concepts of matrices to solve system of linear equations and characteristic roots	PO1, PSO2	AP

CL* Cognitive Level

CO - PO/PSO Mapping

	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4	PSO5
CO1								3			
CO2								3			
CO3								3			
CO4								3		2	
CO5	2							3			
CO6	2							3			

Mapping Strength: 0-No mapping 1-Low 2-Medium 3-High

Sessions	Topic	Method	VALUE ADDITIONS	COURSE OUTCOME
1	Introductory Session			
2	A quick review of indefinite integral as anti derivative.	Lecture, Discussion, Solving Group Problem		CO 1
3	A quick review of indefinite integral as anti derivative.	Lecture, Discussion, Solving Group Problem		CO 1
4	The Definite integral.	Lecture, Discussion, Solving Group Problem		CO 1
5	The Definite integral.	Lecture, Discussion, Solving Group Problem		CO 1
6	The Definite integral.	Lecture, Discussion, Solving Group Problem		CO 1
7	The Definite integral.	Lecture, Discussion, Solving Group Problem		CO 1

8	The fundamental theorem of Calculus	Lecture, Discussion, Solving	Group Problem	CO 1
9	The fundamental theorem of Calculus	Lecture, Discussion, Solving	Group Problem	CO 1
10	The fundamental theorem of Calculus	Lecture, Discussion, Solving	Group Problem	CO 1
11	The fundamental theorem of Calculus	Lecture, Discussion, Solving	Group Problem	CO 1
12	The fundamental theorem of Calculus	Lecture, Discussion, Solving	Group Problem	CO 1
13	Substitution and area between curves	Lecture, Discussion, Solving	Group Problem	CO 2
14	Substitution and area between curves	Lecture, Discussion, Solving	Group Problem	CO 2
15	Substitution and area between curves	Lecture, Discussion, Solving	Group Problem	CO 2
16	Substitution and area between curves	Lecture, Discussion, Solving	Group Problem	CO 2

		Solving		
17	Volumes by slicing and rotation about an axis (disc method only)	Lecture, Discussion, Solving	Group Problem	CO 2
18	Volumes by slicing and rotation about an axis (disc method only)	Lecture, Discussion, Solving	Group Problem	CO 2
19	Volumes by slicing and rotation about an axis (disc method only)	Lecture, Discussion, Solving	Group Problem	CO 2
20	Volumes by slicing and rotation about an axis (disc method only)	Lecture, Discussion, Solving	Group Problem	CO 2
21	Volumes by slicing and rotation about an axis (disc method only)	Lecture, Discussion, Solving	Group Problem	CO 2
22	Areas of surfaces of revolution and the theorem of Pappus (excluding theorem of Pappus)	Lecture, Discussion, Solving	Group Problem	CO 2
23	Areas of surfaces of revolution and the theorem of Pappus (excluding theorem of Pappus)	Lecture, Discussion, Solving	Group Problem	CO 2
24	Areas of surfaces of revolution and the theorem of Pappus (excluding theorem of Pappus)	Lecture, Discussion, Solving	Group Problem	CO 2

25	Areas of surfaces of revolution and the theorem of Pappus (excluding theorem of Pappus)	Lecture, Discussion, Solving	Group Problem		CO 2
26	Double Integrals	Lecture, Discussion, Solving	Group Problem		CO 3
27	Double Integrals	Lecture, Discussion, Solving	Group Problem		CO 3
28	Area of bounded region in plane only	Lecture, Discussion, Solving	Group Problem		CO 3
29	Area of bounded region in plane only	Lecture, Discussion, Solving	Group Problem		CO 3
30	Area of bounded region in plane only	Lecture, Discussion, Solving	Group Problem		CO 3
31	Area of bounded region in plane only	Lecture, Discussion, Solving	Group Problem		CO 3
32	Double Integrals in Polar form,	Lecture, Discussion, Solving	Group Problem		CO 3
33	Double Integrals in Polar form,	Lecture, Discussion, Solving	Group Problem		CO 3

34	Double Integrals in Polar form,	Introduction		CO 3
35	Triple integrals in rectangular co-ordinates	Lecture, Discussion, Solving	Group Problem	CO 4
36	Triple integrals in rectangular co-ordinates	Lecture, Discussion, Solving	Group Problem	CO 4
37	Volume of a region in space	Lecture, Discussion, Solving	Group Problem	CO 4
38	Volume of a region in space	Lecture, Discussion, Solving	Group Problem	CO 4
39	Volume of a region in space	Lecture, Discussion, Solving	Group Problem	CO 4
40	Rank of a Matrix	Lecture, Discussion, Solving	Group Problem	CO 5
41	Non-Singular and Singular matrices	Lecture, Discussion, Solving	Group Problem	CO 5
42	Elementary Transformations	Lecture, Discussion, Solving	Group Problem	CO 5

43	Elementary Transformations	Lecture, Discussion, Solving	Group Problem		CO 5
44	Inverse of an elementary Transformations	Lecture, Discussion, Solving	Group Problem		CO 5
45	Equivalent matrices,	Lecture, Discussion, Solving	Group Problem		CO 5
46	Row Canonical form	Lecture, Discussion, Solving	Group Problem		CO 5
47	Row Canonical form	Lecture, Discussion, Solving	Group Problem		CO 5
48	Normal form	Lecture, Discussion, Solving	Group Problem		CO 5
49	Normal form	Lecture, Discussion, Solving	Group Problem		CO 5
50	System of non homogeneous	Lecture, Discussion, Solving	Group Problem		CO 6
51	Solution using matrices	Lecture, Discussion, Solving	Group Problem		CO 6
52	Solution using matrices	Lecture, Discussion, Solving	Group Problem		CO 6
53	Cramer's rule	Lecture, Discussion, Solving	Group Problem		CO 6
54	Cramer's rule	Lecture, Discussion, Solving	Group Problem		CO 6

		Solving		
55	System of homogeneous equations	Lecture, Discussion, Solving	Group Problem	CO 6
56	Characteristic equation of a matrix; Characteristic roots and characteristic vectors	Lecture, Discussion, Solving	Group Problem	CO 6
57	Cayley-Hamilton theorem and simple applications	Lecture, Discussion, Solving	Group Problem	CO 6
58	Cayley-Hamilton theorem and simple applications	Lecture, Discussion, Solving	Group Problem	CO 6
59	Revision			CO 6
60	Revision			

INDIVIDUAL ASSIGNMENTS/SEMINAR – Details & Guidelines

	Date of completion	Topic of Assignment & Nature of assignment (Individual/Group – Written/Presentation – Graded or Non-graded etc)	Course Outcome
1	4/1/2019	INTEGRATION PROBLEMS	CO 1, CO 2
2	28/1/2019	PROBLEMS IN MATRICES	CO 5, CO 6

GROUP ASSIGNMENTS/ACTIVITIES – Details & Guidelines

	Date of completion	Topic of Assignment & Nature of assignment (Individual/Group – Written/Presentation – Graded or Non-graded etc)	Course Outcome
1	2/2/2019	PROBLEMS IN MULTIPLE INTEGRATION	CO 3, CO 4

Text Books

1. George B. Thomas, Jr: Thomas' Calculus Eleventh Edition, Pearson, 2008.
2. Frank Ayres Jr : Matrices, Schaum's Outline Series, TMH Edition.

Reference Books :

1. Shanti Narayan , P .K . Mittal :Integral Calculus (S. Chand & Company)
2. Shanthi Narayanan & P.K. Mittal, A Text Book of Matrices, S. Chand.
3. David W. Lewis - Matrix Theory (Allied)

