SACRED HEART COLLEGE (AUTONOMOUS)

DEPARTMENT OF CHEMISTRY

BACHELOR OF SCIENCE IN CHEMISTRY

Course plan

Academic Year 2014 - 15

Semester Two

COURSE STRUCTURE

Course Code	Title Of The Course	No. Hrs./ Week	Credits	Total Hrs./Sem
U2CCENG3	CRITICAL THINKING, ACADEMIC WRITING AND PRESENTATION	5	4	90
U2CCENG4	MUSINGS ON VITAL ISSUES	4	3	72
U2CCHIN2A	TRANSLATION, COMMUNUCATION SKILLS AND APPLIED GRAMMAR	4	4	72
U2CCFRN2A	FRENCH LANGUAGE AND COMMUNICATION SKILLS II	4	4	72
U2CCSAN2A	COMMUNICATION SKILLS IN SANSKRIT LANGUAGE	4	4	72
U2CCMAL2A	KAVITHA	4	4	72
U2CRCHE02	THEORETICAL AND INORGANIC CHEMISTRY II	2	2	36
U2CPPHY2	ELECTRIC AND MAGNETIC PHENOMENA, THERMODYNAMICS AND SOLID STATE PHYSICS	2	2	36
U2CPMAT02	INTEGRAL CALCULUS AND MATRICES	4	3	60

COURSE PLAN

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

COURSE OBJECTIVES
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.
Develops appropriate and impressive writing styles for various contexts
Write and correct structural imperfections and edit what they have written.
Develops capacity for making academic presentations effectively and impressively
Synthesize information from various written sources and present them in the form of summaries.
Write original literary creations in different genres as directed, with/without using prompts.

SESSION	TOPIC	LEARNING RESOURCES	REMARKS
	MODULE I		
1	Introduction to Critical Thinking	Lecture/PPT	
2	Introduction to Critical Thinking	Lecture/PPT	
3	Introduction to Critical Thinking	Lecture/PPT	
4	Introduction to Critical Thinking	Lecture/PPT	
5	Reasoning and Arguments	Activities/ Discussion	
6	Reasoning and Arguments	Activities/ Discussion	
7	Reasoning and Arguments	Activities/ Discussion	
8	Reasoning and Arguments	Activities/ Discussion	
9	Reasoning and Arguments	Activities/ Discussion	
10	Reasoning and Arguments	Activities/ Discussion	
11	Deductive and Inductive Arguments	Course book	
12	Deductive and Inductive Arguments	Course book	

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

47	Interview Skills		
48	Interview Skills	Course book	
49	Interview Skills	Course book	
50	Group Discussion		
52	Group Discussion	Course book	
53	Accuracy in Academic writing	Course book	
54	Accuracy in Academic writing	Course book	
55	Accuracy in Academic writing		
56	Articles and Determiners	Course book	
57	Articles and Determiners	Course book	
58	Nouns and Pronouns		
59	Subject-verb agreement	Lecture	
60	Phrasal verbs	Lecture	
61	Modals		
62	Tenses	Course book	
63	Tenses	Course book	
64	Tenses		
65	Conditional clauses	Course book	
66	Relative Pronouns	Course book	
67	Passive Voices		
	INTERNAL ASSESSMENT TEST 2		
68	Conjunctions	Lecture	
69	Embedded questions	Course book	
70	Embedded questions	Course book	
71	Punctuations and Abbreviations		
72	Soft skills for academic presentations	Course book	
73	Effective communication skills	Course book	
74	Flip Charts, OHP, Power point presentation	Group Presentations	
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)
1	4/1/2015	Writing Tasks- Different Types of Letters

GROUP ASSIGNMENTS/ACTIVITES – Details & Guidelines

	Date of completion	Topic of Assignment & Nature of assignment (Individual/Group – Written/Presentation – Graded or Non-graded etc)
1	2/02/2015	Brochure design
2	15/1/15	Model Slide Presentation

COURSE PLAN

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

COURSE OBJECTIVES
Appreciate inspirational literatures of various literary genres across cultures
Critically engage with literary texts written in different languages and later translated into English
Critically engage with biographical sketch of the authors and familiarize their personality, oeuvre and style.
Develop a creative and insightful perspective towards life
Apply the unfathomable power of literatures in their writings and creative endeavors.

SESSION	TOPIC	LEARNING RESOURCES	VALUE ADDITIONS	REMARKS
	MODULE I –GLOBALIZATION AND ITS CONSEQUENCES			
1	Fritjof Capra : “The Dark Side of Growth”	PPT/Lecture	video	
2	Fritjof Capra : “The Dark Side of Growth”	PPT/Lecture	video	
3	Fritjof Capra : “The Dark Side of Growth”	Lecture		
4	Joseph Stiglitz : “Globalization”	lecture		
5	Joseph Stiglitz : “Globalization”	PPT/Lecture	video	
6	Joseph Stiglitz : “Globalization”	PPT/Lecture		
7	D H Lawrence : “Money Madness”	Lecture		
8	S Joseph : “For the Dispossessed”	Lecture		
9	S Joseph : “For the Dispossessed”	PPT/Lecture	video	
10	S Joseph : “For the Dispossessed”	PPT/Lecture		
11	Vandana Shiva : “The Social Costs of Economic Globalization”	Lecture		

12	Vandana Shiva : “The Social Costs of Economic Globalization”	Lecture		
13	Vandana Shiva : “The Social Costs of Economic Globalization”	PPT/Lecture	video	
14	Jagannath Prasad Das : “Kalahandi”	PPT/Lecture		
15	Jagannath Prasad Das : “Kalahandi”	Lecture		
16	Jagannath Prasad Das : “Kalahandi”	Lecture		
17	Leah Levin : “Universal Declaration of Human Rights”	PPT/Lecture	video	
18	Leah Levin : “Universal Declaration of Human Rights”	PPT/Lecture		
19	Leah Levin : “Universal Declaration of Human Rights”	Lecture		
20	Nani A Palkivala : “Human Rights and Legal Responsibilities”	PPT/Lecture	video	
21	Nani A Palkivala : “Human Rights and Legal Responsibilities”	Lecture		
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		
27	Kalpana Jain : “Stigma, Shame and Silence”	Lecture	video	
28	Kalpana Jain : “Stigma, Shame and Silence”	Lecture		
29	Wole Soyinka : “Telephone Conversation”	Lecture		
30	Wole Soyinka : “Telephone Conversation”	PPT/Lecture		
31	Richard Wright : “Twelve Million Black Voices”	Lecture	video	
32	Richard Wright : “Twelve Million Black Voices”	Lecture		
33	Richard Wright : “Twelve Million Black Voices”	Lecture		
34	Aruna Roy : “Tune in to the Voice of the Deprived”	PPT/Lecture		
35	Aruna Roy : “Tune in to the Voice of the Deprived”	Lecture	video	
36	Aruna Roy : “Tune in to the Voice of the Deprived”	Lecture		
37	Johannes V. Jensen : “Lost Forests”	Lecture		
38	Johannes V. Jensen : “Lost Forests”	PPT/Lecture		
39	Johannes V. Jensen : “Lost Forests”	Lecture	video	
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		
47	Taslima Nasrin : “At the Back of Progress”			
48	Taslima Nasrin : “At the Back of Progress”			
49	Judy Brady : “Why I Want a Wife”	Lecture	Video	
50	Judy Brady : “Why I Want a Wife”	Lecture, discussion		
51	Judy Brady : “Why I Want a Wife”	Lecture, discussion		
52	J B Priestley : “Mother’s Day”	Lecture, discussion		
53	J B Priestley : “Mother’s Day”	Lecture		
54	J B Priestley : “Mother’s Day”	Discussion	Video	
55	J B Priestley : “Mother’s Day”	Lecture		
56	Amartya Sen : “More Than 100 Million Women are Missing	Lecture		
57	Amartya Sen : “More Than 100 Million Women are Missing	Presentation		
58	Amartya Sen : “More Than 100 Million Women are Missing	Presentation		
59	Amartya Sen : “More Than 100 Million Women are Missing	Presentation		
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)
1	2/2/2015	Presentations
2	28/1/2015	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	12/1/2015	Group Discussions
2	20/1/2015	Performances

References

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

COURSE PLAN

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

COURSE OBJECTIVES
Recognize and get introduced to the minor genres such as essay to develop their social and moral sense in life.
Define grammatical structure of Hindi language and analyse the problems, challenges of communication in Hindi.
Use Hindi language for effective communication in different fields like administration, office proceedings, insurance etc.
To understand translation as a linguistic, communicative and cultural activity.
Acquire skills of correspondence, drafting official and scientific documents in the fields of administration, media and business.

SESSION	TOPIC	LEARNING RESOURCES	VALUE ADDITIONS	REMARKS
MODULE I				
1	Importance of Grammar in Language learning.	Lecture/Discussion		
2	Part I Vyakaran	Lecture/Discussion		
3	Part I Vyakaran	Lecture/PPT		
4	Part I Vyakaran	Lecture	Exercise	
5	Importance of Translation	Lecture/PPT		
6	Translation	Lecture/PPT		
7	Translation	Lecture	Exercise	
8	Exercise -Translation	Interaction	Exercise	
9	Importance of Letter writing	Lecture/PPT		
10	Part II Patra Lekhan	Lecture/Discussion		
11	Ache Patra Ki Visheshtayen	Lecture/PPT		
12	Importance of Hindi Essays	Interaction	Discussion	

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

51	Nibandh 7, Exercise	Lectutre/Discussion	Exercise	
52	Part II Patra Lekhan, Adhikarik Patra	Lecture/PPT		
53	Part II Patra Lekhan, Adhikarik Patra	Lecture/ Discussion		
54	Exercise –Translation	Lecture		
55	Exercise –Translation	Lecture/Discussion		
56	Nibandh 8	Lecture		
57	Nibandh 8,Exercise	Lecture/ Discussion		
58	Exercise –Translation	Lecture		
59	Exercise Oriented Grammar	Lecture/PPT		
60	Exercise Oriented Grammar	Lecture	Exercise	
61	Part II Patra Lekhan, Shikayati Patra	Lecture/Discussion		
62	Nibandh 9	Lecture		
63	Nibandh 9,Exercise	Lecture/ Discussion		
64	Exercise – Translation	Lecture		
65	Part II Patra Lekhan , Karyalayi Patra	Lecture/PPT		
66	Nibandh 10	Lecture		
67	Nibandh 10,Exercise	Lecture/Discussion		
68	Seminar	Presentation by students		
69	Seminar	Presentation by students		
70	Revision	Interaction		
71	Revision	Interaction		
72	Evaluation of the course			

GROUP ASSIGNMENTS/ACTIVITES – Details & Guidelines

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

References

- Hindi vyakaran by Kamta Prasad Guru , Prabhat Prakashan

Web resource references:

- epustakalay.com
- www.hindikunj.com

COURSE PLAN

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

COURSE OBJECTIVES
To understand the basic concepts of French language including grammar, vocabulary and sentence structure
To understand the basic communication skills necessary for living in France and French speaking countries.
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
To understand the mannerisms, culture and tradition of France and Francophone countries and compare it to one's own country and develop co-cultural feeling
To understand and appreciate the history of France and Francophone countries and compare it to one's own country
To understand the special features of France including gastronomy, social institutions, policis, the present French scenario and compare it to one's own country

SESSION	TOPIC	LEARNING RESOURCES	VALUE ADDITIONS	REMARKS
MODULE I				
1	Introducing French Basics	Role play, games		
2	French Basics	Lecture		
3	Pronominal verbs	Games, music		
4	Pronominal verbs practice	Games		
5	Sentence contruction using pronominal verbs	Games		
6	Sentence construction	Games		
7	Sentence construction	Games		
8	Grammar- present tense	Role play		
9	Communicative skills	Lecture		
10	Communicative skills	Role Play		
11	Communicative skills	Role Play		
12	Narrate a day	Discussions ICT		
13	Narrate a day	Discussions		

MODULE II				
14	Interrogative adjectifs	Game		
15	Interrogative adjectifs	Lecture		
16	Demonstrative adjectives	Game		
17.	Demonstrative Adjectives	Lecture		
18.	Sentence construction	Games		
19	Sentence construction	Games		
20	civilisation	discussion		
21	Vocabulary building	games		
22	Vocabulary Building	Games		
23	Buying a product, French products	Lecture/Discussion		
24	Buying a product	Role play		
25	Buying a product	Role play		
26	Revision			
27	Revision			
28	revision			
29	CIA I			
MODULE III				
30	Food vocabulary	PPT/Lecture		
31	Food vocabulary	Games		
32	Intercultural studies	Discussions		
33	Sentence construction	Role play		
34	Sentence Construction	Games		
35	Articles partitifs	music		
36	Sentence construction(negative form)	games		
37	Future proche	Lecture		
38	Future proche	Lecture		
39	Giving and taking order	Role play		
40	Ordering at a restaurant	Role play		
41	Vocabulary building	Games, music		
42	Vocabulary building	Games, Music		
43	civilisation	PPT/Discussion		
44	Civilisation	Discussion		
CIA II				
MODULE IV				
45	Past tense (avoir)	Lecture		
46	Past tense(etre)	Lecture		
47	Past tense (pronominal)	Lecture		
48	Sentence formation	Games		
49	Sentence formation	Games		
50	Describe a past event	Lecture		
51	Narrate your day in the past	communication		

52	Diary writing	assignment		
53	Vocabulary building	games		
54	Part time jobs, vocabulary	Lecture		
55	Part time jobs-ads	Role plays		
56	Exploring part time jobs	Role play		
57	Putting up an ad and responsing to an ad on part-time job	Lecture/Seminar/Discussion		
58	Putting up an ad and responsing to an ad on part-time job	Role play		
59	French culture	Discussion		
60	French Culture	Discussion		
61	French culture	Discussion		
62	French culture	Discussion		
63	DELF PREPARATION			
64	DELF PREPARATION			
65	DELF PREPARATION			
66	DELF PREPARATION			
67	DELF PREPARATION			
68	DELF PREPARATION			
69	DELF PREPARATION			
70	DELF PREPARATION			
71	DELF PREPARATION			
72	DELF PREPARATION			

INDIVIDUAL ASSIGNMENTS/SEMINAR – Details & Guidelines

	Date of completion	Topic of Assignment & Nature of assignment (Individual/Group – Written/Presentation – Graded or Non-graded etc)
1	By February	Presentation on gastronomy of each region
2		roleplays

References

Version Originale, site web

COURSE PLAN

PROGRAMME	BACHELOR OF SCIENCE IN CHEMISTRY	SEMESTER	2
COURSE CODE AND TITLE	U2CCSAN2A: COMMUNICATION SKILLS IN SANSKRIT	CREDIT	4
HOURS/WEEK	4	HOURS/SEM	72
FACULTY NAME	Mr. Mathew Jose		

COURSE OBJECTIVES
Developing the basic knowledge in Sanskrit
Students develop the communication skills in sanskrit
Students familiarize the figures of speech and their usage
Students get an awareness about aesthetic values
Students get an awareness about Indian classical poetic tradition
To understand moral values through Drama
Students develop writing skills in Sanskrit
Students get awareness about Verbal forms

SESSION	TOPIC	LEARNING RESOURCES	VALUE ADDITIONS	REMARKS
MODULE I				
1	Introducing Vibhakthi	Lecture		
2	Prathama vibhakthi	Discussion		
3	Dvitheeya vibhakthi	Lecture		
4	Thritheeya vibhakthi	Lecture	e-resource	
5	Chathurthi vibhakthi	Lecture		

6	Panchami vibhakthi	Chalk n talk		
7	Shashti vibhakthi	Lecture		
8	Sapthami vibhakthi	Chalk n talk		
9	Sambhodhanaprathama	Lecture		
10	Akarantha pulinga bala shabha	Lecture		
11	Aakarantha sthreelinga Latha shabdha	Discussion		
12	Ekarantha pulinga Kavi shabdha	Discussion		
13	Ukarantha pulinga Guru shabdha	PPT/Lecture		
14	Revision			
MODULE II				
15	Structure of sentence- Present tense	PPT/Lecture		
16	Prathama purusha ekavachaam	Chalk n talk		
17	Prathama purusha dvivachaam	Lecture		
18	Prathama purusha bahuvachaam	Lecture		
19	Madhyama purusha ekavachaam	Lecture		
20	Madhyam purusha dvivachaam	Game		
21	Madhyam purusha bahuvachaam	Game		
22	Uthamapurusha ekavachaam	PPT/Lecture		
23	Uthamapurusha dvivachaam	PPT/Lecture		
24	Uthamapurusha bahuvachaam	Lecture		
25	Past tense- Prathamapurusha	Lecture		
26	CIA-1			
27	Past tense -Madhyamapurusha	Lecture		
28	Past tense - Uthamapurusha	Chalk n talk		

29	Future tense - Prathamapurusha	Chalk n talk		
30	Future tense - Madhyamapurusha	Discussion		
31	Future tense - Uthamapurusha	Discussion		
32	Sentence making in Sanskrit-Active voice	Lecture		
33	Sentence making in Sanskrit –Passive voice	Lecture		
34	Revision			
35	Revision			
MODULE III				
36	Introduction Meghadootha	Lecture		
37	Explaining Khandakavyam	Lecture		
38	Yaksha -curse	PPT/Lecture		
39	Yaksha's meeting with cloud	PPT/Lecture		
40	Requesting to cloud	PPT/Lecture		
41	Praising cloud	Lecture		
42	Yaksha directing cloud	Lecture		
43	Meeting with Balaka bird	Chalk n talk		
44	Departure	Discussion		
45	Rajahamsa	Roleplay		
46	Explaining Mountain	Discussion		
47	Directing to Megha	PPT/Lecture		
48	Revision			
49	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	Debate	
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			
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	By February	Kalidasa's Mahakavyas
2		Sanskrit Drama

GROUP ASSIGNMENTS/ACTIVITES – Details & Guidelines

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

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.Samskritavyakaranapravesika, Pandit L Anantharama Sastri

7.Balabodhini, Rajarshi Sree Rama Varma, Publication Divison, Govt.Sanskrit College, Trippunittura

COURSE PLAN

PROGRAMME	**B.Sc CHEMISTRY**	SEMESTER	2
COURSE CODE & TITLE	U2CCMAL2A കവിത	CREDITS	4
HOURS/WEEK	4	HOURS/SEM	72
FACULTY NAME	**FR. XAVIER C S**		

COURSE OBJECTIVES
കവിത എന്ന സാഹിത്യരൂപത്തെക്കുറിച്ച് മെച്ചപ്പെട്ട ധാരണ ഉണ്ടാക്കുക
ഭാഷാപഠനം സാഹിത്യാനുഭവത്തിലൂടെ ആവിഷ്ക്കരിക്കുക
വായനാഭിരുചി വർദ്ധിപ്പിക്കുക
സാഹിത്യ പരിചയം ഉണ്ടാക്കുക
വ്യാവഹാരിക തലത്തിൽ മാതൃഭാഷാപ്രയോഗിക്കുവാനുള്ള കഴിവ് നേടുക
ഭാഷാപഠനത്തിലൂടെ ആശയവിനിമയശേഷി വർദ്ധിപ്പിക്കുക

Session	Topic	Learning Resources	Teaching Method	Remarks
Module I				
1	മലയാളസാഹിത്യം സാമാന്യാവലോകനം	സാഹിത്യചരിത്രങ്ങൾ	Lecturing	
2	മലയാളകവിതയുടെ ചരിത്രം-1	സാഹിത്യചരിത്രങ്ങൾ	Lecturing	
3	മലയാളകവിതയുടെ ചരിത്രം-2	സാഹിത്യചരിത്രങ്ങൾ	Discussion	
4	ചങ്ങമ്പുഴയുടെ രചനാലോകം	കവിതാ പഠനങ്ങൾ പഠനങ്ങൾ	Lecturing	
5	മനസ്വിനി	Text	Reading	
6	മനസ്വിനി	Text	Group Discussion	
7	സൂര്യകാന്തി	കവിതാ പഠനങ്ങൾ പഠനങ്ങൾ	Lecturing	
8	സൂര്യകാന്തി	Text	Reading	
9	ഗോപികാദണ്ഡകം	Text	Group Discussion	
10	ഗോപികാദണ്ഡകം	കവിതാ പഠനങ്ങൾ പഠനങ്ങൾ	Lecturing	
11	ഗോപികാദണ്ഡകം	Text	Reading	
12	വിരാമം	Text	Group Discussion	
13	വിരാമം	കവിതാ പഠനങ്ങൾ	Lecturing	
14	വിരാമം	Text	Reading	

15	പുതിയമാഷന്മാർ	Text	Group Discussion	
16	പുതിയമാഷന്മാർ	Text	Group Discussion	
17	പഠിച്ച കവിതകൾ ഒരു അവലോകനം	Text	Group Discussion	
Module II				
18	ആധുനിക മലയാളകവിതയുടെ സ്വഭാവങ്ങൾ	കവിതാ പഠനങ്ങൾ	Lecturing	
19	യുഗളപ്രസാദൻ	Text	Reading	
20	യുഗളപ്രസാദൻ	Text	Group Discussion	
21	ആത്മഹത്യ ചെയ്ത കർഷകൻ വെള്ളത്തെക്കുറിച്ച് സംസാരിക്കുന്നു	Text	Lecturing	
22	ആത്മഹത്യ ചെയ്ത കർഷകൻ വെള്ളത്തെക്കുറിച്ച് സംസാരിക്കുന്നു	Text	Reading	
23	ആത്മഹത്യ ചെയ്ത കർഷകൻ വെള്ളത്തെക്കുറിച്ച് സംസാരിക്കുന്നു	Text	Group Discussion	
24	കളകൾ	കവിതാ പഠനങ്ങൾ	Lecturing	
25	കളകൾ	Text	Reading	
26	പറക്കം	Text	Group Discussion	
27	പറക്കം	കവിതാ പഠനങ്ങൾ	Lecturing	
28	കീരി	Text	Reading	
29	കീരി	Text	Group Discussion	
30	പഠിച്ച കവിതകൾ ഒരു അവലോകനം	Text	Group Discussion	
31	Internal Assessment 1	Text		
32	Question paper discussion	Text	Group Discussion	
Module III				
33	മലയാള - നൂതന പ്രവണതകൾ	കവിതാ പഠനങ്ങൾ	Lecturing	
34	കാക്ക	Text	Reading	
35	കാക്ക	Text	Group Discussion	
36	മോഹൻദാസും ഗാന്ധിയും നാഥുറാം ഗോഡ്സെയും	കവിതാ പഠനങ്ങൾ	Lecturing	
37	മോഹൻദാസും ഗാന്ധിയും നാഥുറാം ഗോഡ്സെയും	Text	Reading	
38	നാറാണത്ത് പാറ	Text	Group Discussion	
39	നാറാണത്ത് പാറ	കവിതാ പഠനങ്ങൾ	Lecturing	
40	യശോധാരയെന്നവൾ	Text	Reading	

41	യശോധാരയെന്നവൾ	Text	Group Discussion	
42	മാമ്പഴപ്പാത	കവിതാ പഠനങ്ങൾ	Lecturing	
43	മാമ്പഴപ്പാത	Text	Reading	
44	മാമ്പഴപ്പാത	Text	Group Discussion	
45	പഠിച്ച കവിതകൾ ഒരു അവലോകനം	Text	Group Discussion	
Module- IV				
46	മലയാള - നൂതന പ്രവണതകൾ	കവിതാ പഠനങ്ങൾ	Lecturing	
47	ചിന്താഗ്നി	Text	Group Discussion	
48	ചിന്താഗ്നി	Text	Lecturing	
49	ആ പശുകുട്ടിയുടെ മരണം	Text	Group Discussion	
50	ആ പശുകുട്ടിയുടെ മരണം	കവിതാ പഠനങ്ങൾ	Lecturing	
51	തേൾക്കുടം	Text	Lecturing	
52	തേൾക്കുടം	Text	Group Discussion	
53	കൗസല്യ	Text	Group Discussion	
54	കൗസല്യ	Text	Group Discussion	
55	കൗസല്യ	Text	Group Discussion	
56	എന്തു ശുത്തി ഏതു ശുത്തി	Text	Group Discussion	
57	എന്തു ശുത്തി ഏതു ശുത്തി	Text	Group Discussion	
58	സമകാലീക മലയാള കവിത	കവിതാ പഠനങ്ങൾ	Group Discussion	
59	സമകാലീക മലയാള കവിത	Text	Group Discussion	
60	സമകാലീക മലയാള കവിത	Text	Group Discussion	
61	പഠിച്ച കവിതകൾ ഒരു അവലോകനം	കവിതാ പഠനങ്ങൾ	Group Discussion	
62	പഠിച്ച കവിതകൾ ഒരു അവലോകനം	Text	Group Discussion	
	Internal Assessment 2			
63	Question paper discussion	Text	Group Discussion	
64	പഠിച്ച കവിതകൾ ഒരു അവലോകനം	കവിതാ പഠനങ്ങൾ	Group Discussion	
65	പഠിച്ച കവിതകൾ ഒരു അവലോകനം	കവിതാ പഠനങ്ങൾ	Group Discussion	
66	സംവാദം-	Text	Group Discussion	
67	സെമിനാർ	Text	Presentation	
68	സെമിനാർ	Text	Presentation	
69	സെമിനാർ	Text	Presentation	
70	സെമിനാർ	Text	Presentation	
71	സെമിനാർ	Text	Presentation	
72	Evaluation of the course	Text	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 February	മലയാളത്തിലെ തെരെഞ്ഞെടുത്ത കവികളുടെ വിവരണങ്ങൾ
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
2		പാഠഭാഗങ്ങളുടെ അവതരണം

Reference :

1. സമ്പൂർണ മലയാള സാഹിത്യചരിത്രം – എഡിറ്റർ :പന്മന രാമചന്ദ്രൻ നായർ

2. മലയാള കവിതാസാഹിത്യ ചരിത്രം - ഡോ .എം .ലീലാവതി

COURSE PLAN

PROGRAMME	**BACHELOR OF SCIENCE IN CHEMISTRY**	**SEMESTER**	**2**
COURSE CODE AND TITLE	**U2CRCHE02: THEORETICAL AND INORGANIC CHEMISTRY II**	**CREDIT**	**2**
HOURS/WEEK	**2**	**HOURS/SEM**	**36**
FACULTY NAME	**DR. GRACE THOMAS (GT) AND DR. JORPHIN JOSEPH (JRJ)**		

COURSE OBJECTIVES
To understand the basics of periodicity in the properties of the elements, chemical bonding, nuclear chemistry and different analytical techniques
To apply valence bond and molecular orbital theories to explain the bonding characteristics of different chemical systems**.**
To interpret the properties such as dipole moment, bond length, magnetic behaviour and bond energy of molecular systems in the light of VB or MO theory.
To explore and reflect about the wide range of possibilities and applications of nuclear reactions and radio activity.
To apply gravimetric analysis and different separation/purification techniques effectively in laboratory scale.

SESSION	**TOPIC**	**LEARNING RESOURCES**	**VALUE ADDITIONS**	**REMARKS**
Module 1 - Elements and Periodic Properties (4h) (JRJ)				
1	Modern periodic law – Long form periodic table. Periodicity in properties: Atomic and ionic radii	Conventional Teaching	video	
2	Ionization enthalpy - Electron affinity (electron gain enthalpy) – Electronegativity. Electronegativity scales: Pauling and Mullikan scales	Conventional Teaching		
3	Effective nuclear charge – Slater rule and its applications	Conventional Teaching		
4	Revision-Periodicity in properties and its consequences		quiz	
Module 2 - Chemical Bonding – I (9h) (JRJ)				
5	Introduction – Type of bonds – Octet rule and its limitations.	Conventional Teaching		
6	*Ionic Bond:* Factors favoring the formation of ionic bonds - Lattice energy of ionic compounds - Born-Lande equation (derivation not expected)	Conventional Teaching		

	Solvation enthalpy and solubility of ionic compounds			
7	Born-Haber cycle and its applications –Properties of ionic compounds - Polarisation of ions – Fajan'srules and its applications.	Conventional Teaching		
8	*Covalent Bond:* Lewis theory. Valence Bond Theory. Co ordinate bond	Conventional Teaching		
9	Hybridization: Definition and characteristics VSEPR theory: Postulates	Conventional Teaching		
10	Applications – Shapes of molecules- sp ($BeCl_2$, C_2H_2), sp^2 (BF_3, C_2H_4), sp^3 (CH_4, CCl_4, NH_3,H_2O, NH_4^+, H_3O^+ and SO_4^{2-})	Conventional Teaching	quiz	
11	sp^3d (PCl_5), sp^3d^2 (SF_6) and sp^3d^3 (IF_7) and SF_4, ClF_3, XeF_2, IF_5, XeF_4, IF_7 and XeF_6	Conventional Teaching	quiz	
12	Limitations of VBT. Properties of covalent compounds. Polarity of covalent bond – Percentage of ionic character –Dipole moment and molecular structure.	Conventional Teaching		
13	Problems		quiz	
Module 3 - Chemical Bonding – II (9h) (FJ)				
14	MO Theory ➢ Linear combination of atomic orbitals ➢ Formation of molecular orbitals ➢ Bonding and antibonding molecular orbitals ➢ Stability of molecules based on bond order ➢ Relation between bond order and bond length	Conventional Teaching		
15	MO diagram of homo nuclear system ➢ H_2, He_2, Li_2, Be_2, B_2, C_2, N_2, O_2, F_2 ➢ Magnetic behaviour of these homo nuclear systems	Conventional Teaching	quiz	
16	MO diagram of heteronuclear system ➢ CO and NO ➢ Magnetic behaviour pf these homo nuclear systems ➢ Comparison of bond length, magnetic behaviour and bond energy of O_2, O_2^+, O_2^{2+}, O_2^- and O_2^{2-}	Conventional Teaching		
17	Resonance structures of ➢ borate, carbonate and nitrate ions	Conventional Teaching		

	➢ Comparison of bond energy.	ASSIGNMENT I		
18	Comparison of VB and MO theories.	Conventional Teaching		
19	Metallic Bond ➢ Free electron theory ➢ valence bond theory	Conventional Teaching ICT		
20	Band theory Explanation of metallic properties based on these theories.	Conventional Teaching	Q & A session	
21	Intermolecular Forces ➢ Induction forces and dispersion forces	Conventional Teaching		
22	Hydrogen bond Intra and inter molecular hydrogen bonds, Effect on physical properties	Conventional Teaching		
Module 4 - Nuclear Chemistry (9h) (FJ)				
23	Introduction to nuclear chemistry Structure of nucleus ➢ Nuclear particles, nuclear forces, nuclear size, nuclear density	Conventional Teaching		
24	Stability of nucleus ➢ binding energy ➢ magic numbers ➢ packing fraction ➢ n/p ratio. Nuclear Models	Conventional Teaching		
25	Natural Radioactivity ➢ modes of decay, decay constant ➢ half-life period, average life	Conventional Teaching		
26	Radioactive Equilibrium Geiger-Nuttal rule, units of radioactivity, radiation dosage	Conventional Teaching		
27	Nuclear Reactions ➢ induced by charged projectiles, neutrons and γ rays	Conventional Teaching	Q & A session	
28	Fission reactions Fusion reactions	Conventional Teaching		
29	Preparation of transuranic elements	Conventional Teaching		
30	Chain Reactions, Stellar energy	Conventional Teaching ICT		

31	Problems	Conventional Teaching		
Module 5 - Analytical Chemistry II (5h) (JRJ)				
32	Gravimetric analysis: Systematic steps in gravimetric analysis. Illustrations using iron and barium estimation.	Conventional Teaching		
33	Separation and purification techniques – Filtration, Crystallization and precipitation – Fractional distillation, Solvent extraction.	Conventional Teaching ASSIGNMENT II	Q & A session	
34	Concept of solubility product as applied in group separation of cations – problems.	Conventional Teaching		
35	Chromatography - Classification of methods elementary study of adsorption, paper, thin layer, column, ion exchange chromatography	Conventional Teaching		
36	Gas chromatographic methods. HPLC	Conventional Teaching		

INDIVIDUAL ASSIGNMENTS/SEMINAR – Details & Guidelines

	Date Of Completion	**Topic Of Assignment & Nature Of Assignment (Individual/Group – Written/Presentation – Graded Or Non-Graded Etc)**
1	04/01/2015	Shapes of Molecules
2	28/01/2015	Problems based on Nuclear Chemistry

GROUP ASSIGNMENTS/ACTIVITES – Details & Guidelines

	Date of completion	**Topic of Assignment & Nature of assignment (Individual/Group – Written/Presentation – Graded or Non-graded etc)**
1	02/03/2015	Chromatographic techniques

REFERENCES

1. B.R. Puri, L.R. Sharma and K.C. Kalia, *Principles of Inorganic Chemistry*, 31st Edition, Milestone Publishers and Distributors, New Delhi, 2013.
2. Satya Prakash, *Advanced Inorganic Chemistry, Volume 1,* 5th Edition, S. Chand and Sons, NewDelhi, 2012.
3. Manas Chanda, *Atomic Structure and Chemical Bonding*, 4th Edition, Tata McGraw Hill
4. Vogel's Textbook of Quantitative Chemical Analysis 6th edn*,* Pearsons Education Ltd
5. R. D. Day, A. L. Underwood, Quantitative analysis,6th Edn.,Prentice Hallof India Pvt. Ltd
6. H. J. Arnikar, Essentials of Nuclear Chemistry,New Age
7. R. Gopalan, Elements of Nuclear Chemistry, Vikas Publ. House.
8. B.R. Puri, L.R. Sharma and K.C. Kalia, *Principles of Inorganic Chemistry*, 31st Edition, Milestone Publishers and Distributors, New Delhi, 2013.

COURSE PLAN

PROGRAMME	**BACHELOR OF SCIENCE IN CHEMISTRY**	**SEMESTER**	**2**
COURSE CODE AND TITLE	**U2CPPHY2: ELECTRIC AND MAGNETIC PHENOMENA, THERMODYNAMICS AND SOLID STATE PHYSICS**	**CREDIT**	**2**
THEORY HOURS/WEEK	**2**	**HOURS/SEM**	**36**

COURSE OBJECTIVES
To understand the concepts of electric phenomena
To understand the concepts of magnetic phenomena
To understand the concepts of thermodynamics
To understand the concepts of solid state physics

SESSION	TOPIC	LEARNING RESOURCES	VALUE ADDITIONS	REMARKS
1	Introduction to dielectrics	Lecture	Q & A Session	
2	Polar and non polar dielectrics	Lecture		
3	Polarization	Lecture		
4	Gauss law in dielectrics	Lecture		
5	Permittivity	Lecture		
6	Dielectric displacement vector	Lecture		
7	Dielectric constant susceptibility and ferroelectricity	Lecture		
8	Introduction	Lecture		
9	Magnetization in materials	Lecture	Q & A Session	
10	Linear and nonlinear materials	Lecture		
11	Magnetism, types	Lecture		
12	Hysteresis	Lecture		
13	Ferromagnetic domains	Lecture		
14	Antiferromagnetism, ferrimagnetism	Lecture		
15	Review, problem solving	Lecture		
16	Solids, crystalline and amorphous	Lecture	Q & A Session	

17	Lattice, basis, unit cell	Lecture		
18	Lattice parameters	Lecture		
19	Crystal systems	Lecture		
20	Crystal planes and directions	Lecture		
21	Miller indices, SC structure	Lecture		
22	Fcc, bcc, hcp structures	Lecture		
23	Packing fraction, NaCl structure	Lecture		
24	Crystal diffraction, Bragg's law	Lecture		
25	Review	Lecture		
26	Thermodynamic systems- thermodynamic equilibrium	Lecture	Q & A Session	
27	Thermodynamic processes- isothermal process- adiabatic process	Lecture		
28	Zeroth law of thermodynamics	Lecture		
29	First law of thermodynamics	Lecture		
30	Heat engine	Lecture		
31	Heat engine	Lecture + Video		
32	The Carnot engine	Lecture + PPT	Q & A Session	
33	The Carnot engine + Problem solving	Lecture + Group Activity		
34	Refrigerator concept of entropy	Lecture		
35	Second law of thermodynamics	Lecture		
36	Third law of thermodynamics and Maxwell's thermodynamic relations	Lecture		

REFERENCES

1. Thermodynamics- Zemansky and Dittmann (Tata McGraw-Hill)

2. Heat and Thermodynamics- Brijlal and Subrahmanyam (S. Chand &Co)

3. Solid State Physics

COURSE PLAN

PROGRAMME	**BACHELOR OF SCIENCE IN CHEMISTRY**	**SEMESTER**	**2**
COURSE CODE AND TITLE	**U2CPMAT02 : INTEGRAL CALCULUS AND MATRICES**	**CREDIT**	**3**
HOURS/WEEK	**4**	**HOURS/SEM**	**60**
FACULTY NAME	**MR. SANIL JOSE**		

COURSE OBJECTIVES
To understand definite integrals and The fundamental theorem of Calculus
To determine the area and volume of surfaces in space.
To understand the concepts of Double Integrals
To apply the concepts of multiple integrals to find the area and volume of regions in space
To understand the concepts of matrices
To apply the concepts of matrices to solve system of linear equations and characteristic roots

SESSIONS	**TOPIC**	**LEARNING RESOURCES**	**VALUE ADDITIONS**	**REMARKS**
1	Introductory Session	Discussion	Q & A Session	
2	A quick review of indefinite integral as anti derivative.	Lecture, Group Discussion, Problem Solving		
3	A quick review of indefinite integral as anti derivative.	Lecture, Group Discussion, Problem Solving		
4	The Definite integral.	Lecture, Group Discussion, Problem Solving		
5	The Definite integral.	Lecture, Group Discussion, Problem Solving		
6	The Definite integral.	Lecture, Group Discussion, Problem Solving	Q & A Session	

7	The Definite integral.	Lecture, Group Discussion, Problem Solving		
8	Fundamental theorem of Calculus	Lecture, Group Discussion, Problem Solving		
9	Fundamental theorem of Calculus	Lecture, Group Discussion, Problem Solving		
10	Fundamental theorem of Calculus	Lecture, Group Discussion, Problem Solving	Q & A Session	
11	Fundamental theorem of Calculus	Lecture, Group Discussion, Problem Solving		
12	Fundamental theorem of Calculus	Lecture, Group Discussion, Problem Solving		
13	Substitution and area between curves	Lecture, Group Discussion, Problem Solving		
14	Substitution and area between curves	Lecture, Group Discussion, Problem Solving		
15	Substitution and area between curves	Lecture, Group Discussion, Problem Solving		
16	Substitution and area between curves	Lecture, Group Discussion, Problem Solving		
17	Volumes by slicing and rotation about an axis (disc method only)	Lecture, Group Discussion, Problem Solving		
18	Volumes by slicing and rotation about an axis (disc method only)	Lecture, Group Discussion, Problem Solving		
19	Volumes by slicing and rotation about an axis (disc method only)	Lecture, Group Discussion, Problem Solving		
20	Volumes by slicing and rotation about an axis (disc method only)	Lecture, Group Discussion, Problem Solving		

21	Volumes by slicing and rotation about an axis (disc method only)	Lecture, Group Discussion, Problem Solving	Quiz	
22	Areas of surfaces of revolution and the theorem of Pappus (excluding theorem of Pappus)	Lecture, Group Discussion, Problem Solving		
23	Areas of surfaces of revolution and the theorem of Pappus (excluding theorem of Pappus)	Lecture, Group Discussion, Problem Solving		
24	Areas of surfaces of revolution and the theorem of Pappus (excluding theorem of Pappus)	Lecture, Group Discussion, Problem Solving	Q & A Session	
25	Areas of surfaces of revolution and the theorem of Pappus (excluding theorem of Pappus)	Lecture, Group Discussion, Problem Solving		
26	Double Integrals	Lecture, Group Discussion, Problem Solving		
27	Double Integrals	Lecture, Group Discussion, Problem Solving	Quiz	
28	Area of bounded region in plane only	Lecture, Group Discussion, Problem Solving		
29	Area of bounded region in plane only	Lecture, Group Discussion, Problem Solving		
30	Area of bounded region in plane only	Lecture, Group Discussion, Problem Solving		
31	Area of bounded region in plane only	Lecture, Group Discussion, Problem Solving		

32	Double Integrals in Polar form,	Lecture, Group Discussion, Problem Solving		
33	Double Integrals in Polar form,	Lecture, Group Discussion, Problem Solving		
34	Double Integrals in Polar form,	Introduction		
35	Triple integrals in rectangular co-ordinates	Lecture, Group Discussion, Problem Solving		
36	Triple integrals in rectangular co-ordinates	Lecture, Group Discussion, Problem Solving		
37	Volume of a region in space	Lecture, Group Discussion, Problem Solving		
38	Volume of a region in space	Lecture, Group Discussion, Problem Solving		
39	Volume of a region in space	Lecture, Group Discussion, Problem Solving	Q & A Session	
40	Rank of a Matrix	Lecture, Group Discussion, Problem Solving		
41	Non-Singular and Singular matrices	Lecture, Group Discussion, Problem Solving		
42	Elementary Transformations	Lecture, Group Discussion, Problem Solving		
43	Elementary Transformations	Lecture, Group Discussion, Problem Solving		
44	Inverse of an elementary Transformations	Lecture, Group Discussion, Problem Solving		
45	Equivalent matrices,	Lecture, Group Discussion, Problem Solving		

46	Row Canonical form	Lecture, Group Discussion, Problem Solving		
47	Row Canonical form	Lecture, Group Discussion, Problem Solving		
48	Normal form	Lecture, Group Discussion, Problem Solving		
49	Normal form	Lecture, Group Discussion, Problem Solving		
50	System of non homogeneous	Lecture, Group Discussion, Problem Solving		
51	Solution using matrices	Lecture, Group Discussion, Problem Solving		
52	Solution using matrices	Lecture, Group Discussion, Problem Solving		
53	Cramer's rule	Lecture, Group Discussion, Problem Solving		
54	Cramer's rule	Lecture, Group Discussion, Problem Solving		
55	System of homogeneous equations	Lecture, Group Discussion, Problem Solving		
56	Characteristic equation of a matrix; Characteristic roots and characteristic vectors	Lecture, Group Discussion, Problem Solving		
57	Cayley-Hamilton theorem and simple applications	Lecture, Group Discussion, Problem Solving		
58	Cayley-Hamilton theorem and simple applications	Lecture, Group Discussion, Problem Solving		
59	Revision			
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)
1	4/1/2015	INTEGRATION PROBLEMS
2	28/1/2015	PROBLEMS IN MATRICES

GROUP ASSIGNMENTS/ACTIVITES – Details & Guidelines

	Date of completion	Topic of Assignment & Nature of assignment (Individual/Group – Written/Presentation – Graded or Non-graded etc)
1	2/2/2015	PROBLEMS IN MULTILPLE INTEGRATION

REFERENCES

- George B. Thomas, Jr: Thomas' Calculus Eleventh Edition, Pearson, 2008.
- Frank Ayres Jr: Matrices, Schaum's Outline Series, TMH Edition.
- Shanti Narayan, P .K . Mittal : Integral Calculus (S. Chand & Company)
- Shanthi Narayanan & P.K. Mittal, A Text Book of Matrices, S. Chand.
- David W. Lewis - Matrix Theory (Allied)