SACRED HEART COLLEGE (AUTONOMOUS)

Department of Physics

BSc Physics

Course plan

Academic Year 2018-19

Semester 1

	PROGRAMME OUTCOMES
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.
PO 5	**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.

PROGRAM SPECIFIC OUTCOMES	
PSO 1	Understand concepts relating to properties of matter, thermodynamics, classical mechanics, relativity and energy and environmental physics, incorporating the contributions of relevant physicists in these fields.
PSO 2	Apply and analyse the concepts of electricity, magnetism, electrodynamics, optics, spectroscopy and optoelectronics; with special emphasis on the contributions by eminent scientists in these fields.
PSO 3	Apply and analyse the concepts of semiconductor physics, digital electronics and computational physics; with special emphasis on the contributions by eminent scientists in these fields.
PSO 4	Apply and analyse the concepts of statistical mechanics, quantum mechanics, nuclear physics, particle physics, astrophysics, error analysis, superconductivity and condensed matter physics; with special emphasis on the contributions by eminent scientists in these fields.

COURSE STRUCTURE

COURSE CODE	TITLE OF THE COURSE	NO. HRS./WEEK	CREDITS	TOTAL HRS./SEM
U1CCENG1	COMMUNICATION SKILLS IN ENGLISH	5	4	90
U1CCENG2	Reading Literature in English	4	3	72
U1CCHIN1A	PROSE AND DRAMA	4	4	72
U1CCMAL1A	□□□□	4	3	72

U1CCFRN1A	FRENCH LANGUAGE AND COMMUNICATION SKILLS I	4	3	72
U1CCSAN1A	Drama Poetry and Alankara	4	3	72
U1CRPHY01	Methodology in Physics	2	2	36
U1CPCHE1	GENERAL CHEMISTRY	2	2	36
U1CPMAT01	DIFFERENTIAL CALCULUS AND TRIGONOMETRY	2	2	36

COURSE PLAN (COURSE 1)

PROGRAMME	**BA English**	**SEMESTER**	**1**
COURSE CODE AND TITLE	**15U1CCENG1: COMMUNICATION SKILLS IN ENGLISH**	**CREDIT**	**3+1**
HOURS/WEEK	**5**	**HOURS/SEM**	**90**
FACULTY NAME			

COURSE OUTCOMES

CO1	Understand the mechanics of English language and comprehend the plain meaning of simple narrations, announcements and instructions.
CO2	Make inferences about the implications of statements from stress and tone recognise the various registers of speech.
CO3	Listen to formal presentations and prepare lecture notes using the appropriate format.
CO4	Use English language for a variety of speaking contexts including conversations, presentations, speeches, discussions and negotiations.
CO5	Critically evaluate presentations, narrations, speeches and analyse and evaluate their content and respond to them appropriately.
CO6	Creatively respond to one's surroundings in the form of dramatic works, poetry, narrations, and songs, and perform them before an audience.
CO7	Understand the mechanics of English language and comprehend the plain meaning of simple narrations, announcements and instructions.

SESSIONS	**TOPIC**	**METHOD**	**COS**	**REMARKS/ REFERENCE**
1	Introduction to Communication Skills	Lecture	CO1,	
2	Phonetics: Introduction	PPT presentation	CO5,CO6,	
3	Unit 1 – Write as you speak	Audio	CO3, CO4,	

		presentation & Exercises		
4	Unit 2 – Dip in Deep Sea	Audio presentation & Exercises	CO1, CO3,	
5	Unit 3 – Many Mad Men	Audio presentation & Exercises	CO3, CO4,	
6	Unit 4 – A Cot Caught in a Cart	Audio presentation & Exercises	CO1,CO3,	
7	Unit 5 – Look for Good Food	Audio presentation & Exercises	CO3, CO2,	
8	Unit 6 – Bad Luck, Early Worm and Unit	Audio presentation & Exercises	CO5, CO7	
9	Unit 7 - Again and Again	Audio presentation & Exercises	CO2, CO4	
10	Unit 8 – A China Clay Toy	Audio presentation & Exercises	CO1, CO3	
11	Unit 9 – Holy Cow	Audio presentation & Exercises	CO6,CO7	
12	Unit 10 – Here, There, Everywhere	Audio presentation & Exercises	CO6,CO7	
13	IAT – 1			
14	Discussion on the test paper	Discussion	CO4, CO6	
15	Unit 11 – Bzzing Bees & Hissing Snakes Unit 12 – Pleasure Ships on the sea	Audio presentation & Exercises	CO6, CO7	
16	Unit 13 – A Fine Vine Unit 14 – Thanks Brother!	Audio presentation & Exercises	CO1, CO3	
17	Unit 15 – Jane's Chain Unit 16 – A Smiling King	Audio presentation &	CO2, CO3	

		Exercises		
18	Unit 17 – Betty's Bitter Butter Unit 18 – Have Your Way	Audio presentation & Exercises	CO1, CO3	
19	Unit 19 – Right Road, Light Road Revision	Audio presentation & Exercises Drill Exercises	CO1, CO3	
20	Revision Exercises	Drill Exercises	CO5,CO7	
21	Unit 20 - Pronunciation: Syllables	Lecture Session	CO2, CO6	
22	Unit 21 - Word stress 1	Audio presentation & Exercises	CO2, CO6	
23	Unit 22 - Word stress 2	Audio presentation & Exercises	CO6, CO7	
24	Unit 22 - Stress and Parts of Speech	Audio presentation & Exercises	CO4, CO5	
25	Unit 23 - Sentence Stress	Audio presentation & Exercises	CO5, CO7	
26	Holiday – SreeNarayana guru samadhi			
27	Holiday - Bakrid			
28	IAT – 2			
29	Performance Analysis _ IAT 2	Discussion	, CO5, CO7	
30	Unit 24 – Weak forms & Strong Forms Unit 25 – Contracted forms	Audio presentation & Exercises	CO2, CO3,	
31	Unit 26 – Intonation	Audio presentation & Exercises	CO1, CO7	
32	Unit 27 – Different accents	Lecture and Drill	CO2, CO3,	
33	Influence of Mother tongue	Lecture and Drill	CO2, CO4	

ASSIGNMENTS

No.	Date	Topic of Assignment & Nature of assignment (Individual/ Group – Written/ Presentation – Graded or Non-graded etc)	Course Outcome
1	Mid of semester	Write a note on your bus trip the college & present it before the class.	CO6
2	Mid of semester	Write a descriptive note on the sights and sounds of the college canteen + presentation before the class	CO5, CO6
3	Mid of semester	Write an interesting conversation you listened to recently and present it before the class with your partner.	CO4, CO5
4	Mid of semester	Identify a passage from any textbook or magazine, underline a pair of consonant sounds and read the same in the class giving special emphasis to the pair of sounds chosen	CO2
5	Mid of semester	Write a description of the Lakeview ground	CO6
6	Mid of semester	Describe the college auditorium	CO6
7	Mid of semester	Describe the sights and sounds in the portico of the college on any given day	CO6, CO5
8	Mid of semester	Describe the aquarium in the portico	CO7
9	Mid of semester	Narrate your experiences of any day on the campus	CO5

REFERENCES

V.Sasikumar, P Kiranmai Dutt and Geetha Rajeevan, Communication Skills in English. Cambridge University Press and Mahatma Gandhi University.

FURTHER READING

Sl.No	Title	Author	Publisher & Year
1	A Course in Listening and Speaking I & II	Sasikumar V.,Kiranmai Dutt and Geetha Rajeevan	New Delhi: CUP, 2007
2	Study Listening: A Course in Listening to Lectures and Note-taking	Tony Lynch	New Delhi: CUP, 2008
3	Study Speaking: A Course in Spoken English for Academic Purposes	Anderson, Kenneth, Joan Maclean and Tony Lynch	New Delhi: CUP, 2008
4	Study Reading: A Course in Reading Skills for Academic Purposes	Glendinning, Eric H. and Beverly Holmstrom	New Delhi: CUP, 2008

5	Communication Studies	Sky Massan	Palgrave Macmillan
6	Effective Communication for Arts and Humanities Students	Joan Van Emden and Lucinda Becker	Palgrave Macmillan

COURSE 2

PROGRAMME	**BSc**	**SEMESTER**	**1**
COURSE CODE AND TITLE	**15U1CCENG2: Reading Literature in English**	**CREDIT**	**3**
HOURS/WEEK	**4**	**HOURS/SEM**	**72**
FACULTY NAME			

COURSE OUTCOME

CO1:	Explain the nuances of English Language through literature.
CO2:	Compare the Varied parameters of English language.
CO3:	Discover comprehensive ability.
CO4:	Connect the efficiency of the students with realities of life.
CO5:	Evaluate the beauty of literary expression.

Sessions	Topic	Method	Course Outcome
1	Introducing the text book	Group Discussion	CO3
2	Bores E V Lucas	Lecture	CO2, CO3
3	Bores E V Lucas	Lecture	CO2, CO3
4	A Glory has Departed-Jawaharlal Nehru	Presentation by students, Listening to the speech made by Nehru.	CO1, CO3
5	A Glory has Departed-Jawaharlal Nehru	Individual presentations	CO1, CO4
6	Tryst with Destiny- Amartya Sen	Lecture, Discussion	CO1, CO4
7	Tryst with Destiny- Amartya Sen	Correction of notes	CO1
8	How to Escape from Intellectual Rubbish-Bertrand Russel	Lecture	CO3
9	How to Escape from Intellectual Rubbish-Bertrand Russel	Lecture	CO3
10	Sonnet XXX-William Shakespeare	Discussion on sonnets, its structure, themes	CO5, CO3
11	Ode to a Nightingale-John Keats	Discussion on romantic poetry	CO5
12	Ode to a Nightingale- John Keats	Discussion, Lecture	CO5

13	Mending Wall- Robert Frost	Lecture, Discussion on relationships, barriers	CO3
14	Mending Wall- Robert Frost	Seminar presentations	CO1, CO4
15	First Internal Examination	Written Examination	
16	The Bicycle- David Malouf	Lecture, discussion	CO3, CO1
17	Distribution of answer sheets	Discussion	CO3
18	Poor Girl- Maya Angelou	Presentation by the students- discussion on gender discrimination	CO1, CO4
19	The Mask- Kamala Suraiya	Presentation by the students	CO4
20	Goodbye party for Miss Pushpa T S- Nissim Ezekiel	Presentation by the students	CO4, CO1
21	Once Upon a Time-Gabriel Okara	Discussion on relationships, African culture	CO1, CO4
22	The Lottery Ticket- Anton Pavlovich Chekhov	Role play	CO1, CO4
23	The Lottery Ticket- Anton Pavlovich Chekhov	Presentation based on select topics	CO3, CO1
24	Retrieved Reformation- O. Henry	Lecture, story reading, Discussion on O Henry endings	CO3, CO4
25	Retrieved Reformation- O. Henry	Discussion	CO3
26	A Shadow- R K Narayan	Reading- discussion –presentation by the students	CO1, CO3
27	A Shadow- R K Narayan	Discussion of questions and answers	CO4
28	Correction of notebooks	Discussion	CO4
29	A Devoted Son- Anita Deasi	Lecture	CO3
30	A Devoted Son- Anita Deasi	Discussion based on questions	CO1,CO4
31	Two Gentlemen of Verona- A J Cronin	Presentation by students	CO4
32	Refund- Fritz Karinthy	Role play- discussion on educational system	CO5
33	Refund- Fritz Karinthy	Role play- discussion on educational system	CO5
34	Lord Byron’s Love Letter- Tennesse Williams	Presentation by the students	CO3
35	Lord Byron’s Love Letter- Tennesse Williams	Presentation by the students	CO3, CO1
36	The Monkey’s Paw- W.W Jacob	Presentation by the students	CO1, CO3
37	The Monkey’s Paw- W.W Jacob	Presentation by the students	CO1
38	Second Internal Examination	Written Examination	
39	Revision		CO4
40	Revision		CO3

ASSIGNMENT

	Date of submission/completion	Topic of Assignment& Nature of assignment (Individual/Group – Written/Presentation – Graded or Non-graded etc)	Weightage
1		Review of a book, article	5marks

REFERENCE

- Dr. Leesa Sadasivan Ed. Reading Literature in English. Foundation Books and Mahatma Gandhi University.

COURSE3

PROGRAMME	**ADDITIONAL LANGUAGE – HINDI**	**SEMESTER**	**1**
COURSE CODE AND TITLE	**U1CCHIN1A- PROSE AND DRAMA**	**CREDIT**	**4**
HOURS/WEEK	**4**	**HOURS/SEM**	**72**
FACULTY NAME	**DR.MINIPRIYA R (ASST.PROFESSOR) SYAMLAL M S (ASST.PROFESSOR)**		

COURSE OUTCOMES:

	COURSE OUTCOMES	PO/ PSO	CL
CO 1	Understand the Ancient Indian culture through Hindi Prose.		U, An
CO 2	Understand various trends in Hindi Prose.		U, An
CO 3	Understand the Socio – Cultural changes in literature.		U
CO 4	Understand the various trends in Hindi Drama.		U, An
CO 5	Understand Drama and develop communication skills, performance skills.		U, A

CL* Cognitive Level

Sessions	Date	Topic	Learning Resources	Course Outcomes
MODULE I				
1		Introductory Session	Lecturing	CO 1
2		Sahitya Ki Mahatta: Introduction About The Author	Oral/Descriptive	CO 1
3		Sahitya Ki Mahatta: Introduction About The Author	Oral/Descriptive	CO 2
4		Sahitya Ki Mahatta: Introduction About The Author	Reading/Lecturing	CO 2
5		Madhavi,Introduction About The Author	Reading/Lecturing	CO 1
6		Madhavi ,Act-1 Scene -1	Oral/Descriptive	CO 4
7		Madhavi ,Act-1 Scene -1	Conversation	CO 4
8		Madhavi ,Act-1 Scene -1	Discussion	CO 5
9		Himalay: Introduction About The Author	Oral/Descriptive	CO 1
10		Himalay: Introduction About The Author	Oral/Descriptive	CO 2
11		Himalay: Introduction About The Author	Reading/Lecturing	CO 2
12		Madhavi ,Act-1 Scene -2	Reading/Lecturing	CO 4
13		Madhavi ,Act-1 Scene -2	Oral/Descriptive	CO 4
14		Madhavi ,Act-1 Scene -3	Conversation	CO 5
15		Madhavi ,Act-1 Scene -3	Discussion	CO 5
16		Madhavi ,Act-1 Scene -3	Conversation	CO 4

17		Madhavi ,Act-1 Scene -3	Discussion	CO 5
18		Neta Nahin,Nagarik Chahiye Introduction About The Author	Oral/Descriptive	CO 1
19		Neta Nahin,Nagarik Chahiye	Oral/Descriptive	CO 2
20		Introduction About The Author	Reading/Lecturing	CO 2
MODULE II				
21		Madhavi ,Act-2 Scene -1	Oral/Descriptive	CO 4
22		Madhavi ,Act-2 Scene -1	Conversation	CO 5
23		CIA – I	1 Hour descriptive Answers only	
24		Samashti Aur Vyakti Introduction About The Author	Oral/Descriptive	CO 1
25		Samashti Aur Vyakti Introduction About The Author	Oral/Descriptive	CO 2
26		Samashti Aur Vyakti Introduction About The Author	Reading/Lecturing	CO 2
27		Samashti Aur Vyakti Introduction About The Author	Discussion	CO 3
28		Madhavi ,Act-2 Scene -2	Oral/Descriptive	CO 4
29		Madhavi ,Act-2 Scene -2	Oral/Descriptive	CO 4
30		Madhavi ,Act-2 Scene -2	Reading/Lecturing	CO 5
31		Madhavi ,Act-2 Scene -2	Conversation	CO 4

32		Madhavi ,Act-2 Scene -2	Discussion	CO 5
33		Madhavi ,Act-2 Scene -3	Oral/Descriptive	CO 4
34		Madhavi ,Act-2 Scene -3	Reading/Lecturing	CO 1
35		Madhavi ,Act-2 Scene -3	Conversation	CO 4
36		Madhavi ,Act-2 Scene -4	Oral/Descriptive	CO 1
37		Madhavi ,Act-2 Scene -4	Reading/Lecturing	CO 4
38		Madhavi ,Act-2 Scene -4	Conversation	CO 4
39		Madhavi ,Act-3 Scene -1	Oral/Descriptive	CO 4
40		Madhavi ,Act-3 Scene -1	Reading/Lecturing	CO 5
41		Madhavi ,Act-3 Scene -1	Reading/Lecturing	CO 4
42		Madhavi ,Act-3 Scene -1	Discussion	CO 5
43		Stri Jo Mahaj Twacha Hai Introduction About The Author	Oral/Descriptive	CO 1 , CO 2
44		Stri Jo Mahaj Twacha Hai	Oral/Descriptive	CO 2
45		Introduction About The Author	Reading/Lecturing	CO 3
46		Stri Jo Mahaj Twacha Hai	Reading/Lecturing	CO 3
47		Introduction About The Author	Discussion	CO 2
48		Madhavi ,Act-3 Scene -2	Oral/Descriptive	CO 1
49		Madhavi ,Act-3 Scene -2	Reading/Lecturing	CO 4
50		Madhavi ,Act-3 Scene -2	Reading/Lecturing	CO 4
MODULE III				
51		Madhavi ,Act-3 Scene -2	Discussion	CO 5
52		Madhavi ,Act-3 Scene -3	Oral/Descriptive	CO 1

53		Madhavi ,Act-3 Scene -3	Reading/Lecturing	CO 4
54		Madhavi ,Act-3 Scene -3	Reading/Lecturing	CO 5
55		Madhavi ,Act-3 Scene -3	Discussion	CO 5
56		Total Summary of the Drama	Oral/Descriptive	CO 4
57		Revision		
58		Revision		
59		Revision		
60		Revision		
61		CIA – II	2 HOURS	
62		Revision		
63		Revision		
64		Revision		
65		Revision		
66		Discussion on CIA II		
67		Seminar	Presentation of Paper	CO 1
68		Seminar	Presentation of Paper	CO 3
69		Seminar	Presentation of Paper	CO 4
70		Seminar	Presentation of Paper	CO 5
71		Seminar	Presentation of Paper	CO 2
72		Evaluation of the Course		

ASSIGNMENTS

	Date of submission/completion	**Topic of Assignment & Nature of assignment (Individual/Group – Written/Presentation – Graded or Non-graded etc.)**	**Marks**	**Corse Outcomes**

1	Assignment(December)	Review of a lesson based on the text book and reference-Writing(Individual)	5	CO 4
2	Seminar (January-February)	Presentation on a given topic based on the text book and reference –Oral (Individual)	5	CO 2

REFERENCES

- Hindi Natak,Bachan Singh,Rajkamal Prakashan,New Delhi.
- Adhunik Sahitya ki pravruthiyaan,Namvar Sigh,Lokbhrarati Prakashan,New Delhi.

COUSRSE 4

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Title of the course	□□□□□□□
Semester in which the course is to be taught	**ONE**
No. of credits	**4**
No. of contact hours	**72**
Name of the professor	□□□□ □□.□□□.□□□□□□□ ,□□□□□□□□□□□□□ .

COURSE OUCTCOMES

CO1. □□□□□□□□□□□□□□□□□□□□□□□ □□□□□□□□□□□ □□□□□□□□□□□□□.

CO2. □□□□□□□□□□□□ □□□□□□□□□□□□□□□□□□□□ □□□□ □□□□□□□□□□□□□□□□ □□□□□□□□□□□□□.

CO3. □□□□□□□□□□□□□□□ □□□□□□□□□□□□□□ □□□□□□□□□□□ □□□□□□□□□ □□□□□□□□ □□□□□□□

CO4. □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□.

Sessions	Topic	Method	Remarks/ Reference
1	Introductory Session	Lecturing	CO1,CO2,CO3,
2	□□□□□□□□□□□□ □□□□□□□□□□□□- □□□□ □□□□□□	Lecturing	CO3,CO4
3	□□□□□□□□□□, □□□□□□□□□□□□	Group Discussion	CO1,CO3,CO4
4	□□□□□□□□□□□□□ □□□□ □□□□□□□□□□□□□□□□□□□	Lecturing	CO1,CO3,CO4
5	1 □□□□□ 3 □□□□ □□□□□□□□□□□□ □□□□□□□□□□□□□□□□□	Group Discussion	CO1,CO2,CO3,
6	4 □□□□□ 8 □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□ □□□□	Group Discussion	CO1,CO3,CO4
7	□□□□□□□□□□□□□□□□□□□□□□□□□□□□□ □□□□□□□□□□□□□□□□□□□□□□□□□□□□ □□□□□□□□□□□□□□□□□□□□□□□□□□□□□ □□□□□□	Seminar	CO1,CO2,CO3,
8	9 □□□□□ 12 □□□□ □□□□□□□□□□□□ □□□□□□□□□□□□□□□□□	Lecturing	CO1,CO3,CO4
9	13 □□□□□15 □□□□ □□□□□□□□□□□□ □□□□□□□□□□□□□□□□□	Lecturing	CO1,CO2,CO3,
10	□□□□□□□□□□ □□□□□□□□□□□□ ,□□□□□□□□, □□□□□□□ □□□□□□□ □□□□□□□□□□□□ .□□□□□□□□□□□□ □□□□□□□□□□ .	discussion	CO1,CO3,CO4
11	□□□□□□□□□□□□□□□□□□□□□□□□□□□□ ,□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□ □□□□□□□□□□□□□ .	Lecturing	CO1,CO3,CO4
12	□.□□.□□□□□□ □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□ ,□□□□□□□□□□□□ □□□□□□□□□ □□□□□□□□□	discussion	Module I Finished
13	CIA –I	1 hr; descriptive	CO1,CO3,CO4

		answers only	
14	□□□□□□□□□□ □□□□ □□ □□□□□□□□□□□□□□□□□	Independent Reading/Lecturing	CO1,CO2,CO3,
15	□□□□□□□□□□	Independent Reading/Lecturing	CO1,CO3,CO4
16	□□□□□□□□	Group Discussion	CO3,CO4
17	□□□□□ □□□□□□□□□□□□ □□□□ □□□□□□□□	Lecturing	CO1,CO2,CO3,
18	□□□□□□□□	Class Discussion	CO1,CO3,CO4
19	□□□□□□□□□□□□ □□□□□□□□□□□□□□□□	Debate	CO3,CO4
20	□□□□□□□□□□ □□□□□□□□□□□□□□□ □□□□□□□□□	Lecturing	CO1,CO2,CO3,
21	□□□□□□□□□□□□□□□ □□□□□□□□□□□□□□□□□□□□□□□□□□ □□	Lecturing	CO3,CO4
22	□□□□□□□□□ □□□□□□□□□□□	discussion	Module II Finished
23	CIA –II	exam	CO3,CO4
24	Discussin of question paper	Questioning	CO3,CO4
25	□□□□□□□□□□□□□□□□□□□□□□	Group Discussion	CO1,CO3,CO4
26	□□□□□□□□□□□□□□□□□□□□□□□□□□□□ □□□□□□□□□□□	discussion	CO3,CO4
27	□□□□□□□□□□□□□□□□□□□□□□□□□□□	Independent Reading/Lecturing	CO1,CO2,CO3,
28	□□□□□□□□□	discussion	CO3,CO4
29	□□.□□□□□□□□□□□□□□□□□□□□□□□□ □□□□□□□□□□	Lecturing	CO2,CO3
30	□□□□□□□□□□□□□□□□	discussion	CO3,CO4

31	□□□□□□□□□□□□□□□□□□□□-□□□□□□	Lecturing	CO1,CO2,CO3,
32	□□□□□–□□□□□□□□	Independent Reading/Lecturing	CO1,CO3,CO4
			CO2,CO3
33	□□□□□□□□□□□□□□	Lecturing	CO1,CO3,CO4
34	□□□□□□□□□□□□□□□□	discussion	CO2,CO3
35	□□□□□□□□□□□□– □□□□□□□□□□□□□□□□□□□□□□□□□□□□ □□□□□□□□□□	Seminar	CO2,CO3
36	□□□□□□□□□□□□– □□□□□□□□□□□□□□□□□□□□□□□□□□□□ □□□□□□□□□□	Seminar	CO1,CO2,CO3,
37	□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□ □□□□□□□□□□□□□□□□□□.	Lecturing	CO2,CO3
38	□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□ □□□□□□.	Independent Reading/Lecturing	CO1,CO2,CO3,
39	□□□□□□□□□	Group Discussion	CO1,CO2,CO3,
40	□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□ □□□□□□□□□□□□□□□□□□□□	Lecturing	CO3,CO4
41	□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□ □□□□□□□□□	Lecturing	CO3,CO4
42	□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□ □□□□□□□□□□□□□□	Lecturing/ Discussion	CO3,CO4
43	□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□ □□□□□□□□□□□	Lecturing/ Discussion	CO1,CO2,CO3,
44	□□.□□□ .□□□□□□□□□□□□□□□□□□□□□□□□□□□□ □□□□□□□□□□□	Lecturing/ Discussion	CO3,CO4
45	□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□ □□□□□□□□□□□□□□□□□□	Lecturing/ Discussion/ Reading	CO3,CO4
46	□□□□□□□□□	Group Discussion	CO1,CO3,CO4

47	□□□□□□□□□□□□□□□□□□□□□□□□ □□□□□□□□	Lecturing	CO2,CO3
48	□□□□□□□□	Group Discussion	CO1,CO3,CO4
49	□□□□□□□□□□□□□□□□□□□□□□□□□ □□□□□□□□□□.	Lecturing/ Discussion	CO1,CO2,CO3,
50	Seminar presentations- Novel		CO3,CO4
51	Seminar presentations- Novel		CO3,CO4
52	Seminar presentations- Novel		CO3,CO4
53	Seminar presentations- Novel		CO3,CO4
54	Seminar presentations of short story		CO1,CO2,CO3,
55	Seminar presentations of short story		CO3,CO4
56	Seminar presentations of short story		CO3,CO4
57	Seminar presentations of short story		CO3,CO4
58	Revision		CO3,CO4
59	Revision		CO1,CO2,CO3,
60	Previous Question paper discussion	Discussion	
61	CIA II	2 HOURS	CO3,CO4
62	□□□□□□□□□□□□□□□□□□□□□□	Group discussion	CO2,CO3
63	□□□□□□□□□□□□□□□□□□□□□□□□□ □□□□□□□□□□□□□□□□□□□□□□□□□	Reading	CO3,CO4
64	□□□□□□□□□□□□□□□□□□□□□□□□ □□□□□□□□□□□□□□□□.	Lecturing/ group discussion	CO1,CO2,CO3,
65	Discussion on the CIA		CO3,CO4
66	Revision		CO1,CO2,CO3,

67	Revision		CO3,CO4
68	Revision		CO3,CO4
69	Revision		CO1,CO2,CO3,
70	Evaluation of the Course		CO3,CO4

ASSIGNMENTS

	Date of submission/completion	Topic of Assignment & Nature of assignment (Individual/Group – Written/Presentation – Graded or Non-graded etc)	Weighttage/ cos
1	Mid Semester	□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□	CO3,CO4
2	Mid Semester	□□ □□□□□□□□□ □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□	CO3,CO4

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ADDITIONAL READING LIST

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COURSE 6			
PROGRAMME		SEMESTER	3
COURSE CODE AND TITLE	19U1CCFRN1A - FRENCH LANGUAGE AND COMMUNICATION SKILLS I	CREDIT	4
HOURS/SEM	72Hrs		
FACULTY NAME	Dr.SHOBA LIZA JOHN		

COURSE OUTCOMES (COs)	
1	Understand the basic concepts of French language including grammar, vocabulary and sentence structure.
2	Understand the basic communication skills necessary for living in France and French speaking countries.
3	Describe oneself and ones surroundings using a repertory of words and expressions in a simple and structured grammatical manner.
4	Develop business communication skills
5	Express an issue of concern including topics like environmental, social or health issues, enumerate its causes and consequences and suggest solutions
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
7	Understand and appreciate the history of France and Francophone countries and compare it to one's own country
8	Understand the special features of France including gastronomy, social institutions, policies, the present French scenario and compare it to one's own country

MODULE I

Sl. No	Session	Topic	Method of Teaching	Value Additions	CO	PO/PSO	Cognitive Leve(CL)	Knowledge Category (KC)
	01-Jan	Introducing French	role play, games. Applying	french basic communic	1,2, 3		U	**C**

		Basics	to	ation				
	2	French basics	chalk n talk	Introducing oneself	1,2,3		U	**C**
	3	french basics	games, music		1,2,3		U	**C**
	4	numbers, verbes, greetings	role play		1,2,3		U	**C**
	5	useful sentences in French	chalk n talk		1,2,3		A	**C**
	6	French culture	Discussion, ICT		6,7,8		An	**C**
MODULE II								
	7	introducing a third person	game		2,3		A	**C**
	8	ER verbs	chalk n talk, game		2,3		U	**C**
	9	grammar articles	role play, listening		2,3		U	**C**

	10	Professio n	chalk n talk		2,3		U	**C**
	11	French culture- french names and professio n	roleplay		5,6, 7,8		U	**C**
	12	explaing the objective of learning French	Discussio n, ICT		5,6, 7,8		An	**C**

COURSE PLAN(COURSE 6)			
PROGRAMME	**I BA/ BSC**	**SEMESTER**	**I**
COURSE CODE AND TITLE	**19U1CCSAN1A DRAMA POETRY AND ALANKARA**	**CREDIT**	**4**
HOURS/SEM	**90**		
FACULTY NAME	**DR.VIJAYARAJAN.K.U**		
COURSE OUTCOMES (COs)			
1	Through Kalidsa's kumasambava an awareness of Sanskrit literature as a poetic		

	tradition
2	Students can understand the poetic style with special reference to classical literature
3	Students get an awareness about Indian classical poetic tradition
4	Students familiarize the figures of speech and their usage
5	Students get an awareness about ascthetic values
6	Understand moral values through Drama
7	Understand the tools to beutify the literature through Alankara
8	Students identify the richness of Indian Literature

MODULE I

Session	Topic	Method of Teaching	Value Additions	CO	PO /PSO	CL	KC
1	Introductory session	Lecturing		1,2,8		U	C
2	About Kalidasa	Lecturing		1,2,5,8		U	C
3	Kumarasambava	chalk n talk		1,2,4,8		R	C
4	Brahmacharipravesha	role play		4,2,3		An,C	C
5	Welcoming Brahmachari	Lecturing		2,4		An,C	C
6	Brahmachari's	role play		4,3,2		An,C	C

	conversation						
7	Shivaninda	Discussion		8,2,1		C,U	C
8	Criticising Parvathy	Lecturing		3,4,1		U,C	C
9	Introduction of Bhasa	Lecturing		4,2		U	C
10	About Karnabhara	Lecturing		4,2		U	C
11	Nandisloka	Lecturing		2,3		An,C	C
13	Entering karna to War	chalk n talk		3,5		U	C
14	Karna's talk with Shalyaraja	Discussion		3,4		An,C	C
15	Parashurama's course	role play		4,5,8		AP,An	C
16	Indra's conversation with Karna	Oral,Description		2,4,6		U	C
17	giving Kavacha and Kundalas	Lecturing		3,2		U	C
18	Intoduction of Kuvalayananda	Lecturing		7,8		U	C
19	Upamalankara	Discussion		7,8		U,AP,An	C
20	vyathireka alankara	chalk n talk		7,8		U,AP,An	C
21	Deepaka	Discussion		4,5,8		U,AP,A	C

						n	
22	Ullekha	Lecturing		3,4,5		U,AP,An	C
23	Drishtantha	Lecturing		4,5,8		U,ap,An	C
24	Character sketch of Karna	Discussion		3,4,8		U	C
25	Character sketch of Shalyaraja	Lecturing		4,5,8		U	C
26	character sketch of Brahmachari	Lecturing		1,2,3		U	C
27	character sketch of Parvathy	Oral,Description		1,2,3		U, An	C
28	critical study of kumarasambava	Lecturing		1,2,3		U	C
29	critical study of Karnabhara	Lecturing		4,5,6		U	C
30	Revision						

ASSIGNMENTS AND SEMINARS

Sl No	Module	Topic	Nature of Assignment		Alignment with POs, PSOs and COs
1	1	A study of Panchamahakavya	project		

2	2	Kumarasambava	project	
3	3	Kalidasa-India's great Poet	project	
4	4	The importance of Alankara in Sanskrit Literature	project	
5	5	The greatness of Karna	project	

TEXTBOOKS AND REFERENCES	
1	Kumarasambava of Kalidasa
2	Karnabharam of Bhasa
3	Kuvalayananda of Appayadeekshita

COURSE PLAN (COURSE 7)

PROGRAMME	**BACHELOR OF PHYSICS**	**SEMESTER**	**1**
COURSE CODE AND TITLE	**15U1CRPHY01- METHODOLOGY IN PHYSICS**	**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 the development of physics in the last century and new scientific concepts from various scientist.	PO1, PSO1	U
CO 2	Understand Number systems and its significance.	PO1, PSO1	U
CO 3	Apply vector algebra in Physics.	PO1, PSO1	U/An
CO 4	Apply basic measurement techniques in Physics and	PO1, PSO1	U/An

	experimental data.		

CL* Cognitive Level

SESSION	TOPIC	LEARNING RESOURCES	COURSE OUTCOME
	MODULE I		
1	Introductory Session- Scope of Physics and general guidelines	Lecture	CO1
2	Bridging role of the present syllabus	Lecture/PPT	CO1
3	Ancient perspectives on the universe -	Lecture / Group Activity	CO1
4	Geocentric model of Ptolemy – Copernican revolution	Lecture	CO1
5	Galileo, and his emphasis on experiments and observations. Kepler's laws. Newton and the deterministic universe	Lecture	CO1
6	Maxwell and the unification of electricity, magnetism and optics.	Lecture	CO1
7	Planck's hypothesis of quantum. Quantum mechanics. Einstein and his theories of relativity	Lecture	CO1
8	Contributions by S. N. Bose, M. N. Saha, C. V. Raman and S. Chandrasekhar.	Lecture	CO2
9	Emergence of modern physics and technology - Semiconductor revolution - nanotechnology.	Lecture/PPT	CO2
10	Contemporary worldview - the expanding universe – fundamental particles and the unification of all forces of nature.	Lecture	CO2
11	Physics, and its relation to other branches of Science. Hypotheses; theories and	Group Activity	CO2
12	Laws in science- verification (proving),	Lecture	CO 3
13	corroboration and falsification (disproving), Revision of scientific theories and laws Significance of Peer Review. Publications and patents.	Lecture	CO 3
	MODULE II		
14	Measurement of time – water clocks	Lecture	CO 4
15	sun dials-Discussion pendulum clocks – digital clocks – atomic clocks.	Lecture	CO 4
16	Length measurement – rulers – standard metre – micrometers – screw Gauges	Lecture / Group Activity	CO 4
17	Travelling microscope – laser range finder- sonar – GPS.	Lecture	CO 4
18	mass energy relation and Problem solving and revision	Lecture	CO 4

19	Propagation of errors	Lecture, ppt	CO 3
20	uncertainties of measurement	Lecture	CO 4
21	importance of estimating errors	Lecture, discussion	CO 4
22	dominant errors	Lecture	CO 3
23	random errors	Lecture	CO 4
24	systematic errors	Lecture, ppt	CO 3
25	rejection of spurious measurements	Lecture	CO 4
26	Estimating and reporting errors	Lecture	CO 1
27	errors with reading scales	Lecture, ppt	CO 4
28	errors of digital instruments	Lecture	CO 1
29	Basic ideas - number of significant digits –	Lecture	CO 4
30	absolute and relative errors -–	Lecture, discussion	CO 2
31	standard deviation	Lecture	CO 2
32	error bars and graphical representation.	Lecture	CO 4
33	sum and differences	Lecture, problem solving	CO 3
34	products and quotients	Lecture	CO 4
35	multiplying by constants – powers	Lecture, problem solving	CO 3
36	Calibrationneed for calibration -methods of calibration.	Lecture, ppt	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	History of Clocks	CO 1
2	20/1/2019	Development of science :Contribution of scientists	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 activityin Feb 2019	Scientific methods related problem solving (Group Discussion)	CO 3

REFERENCES

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- Collins H. and T. Pinch. The Golem: What Everyone Should Know About
- Science.,CambridgeUniv Press, 1993.
- Hewitt, Paul G, Suzanne Lyons, John A. Suchocki& Jennifer Yeh, Conceptual
- Integrated Science, Addison-Wesley, 2007
- Newton RG. The Truth of Science : New Delhi, 2nd edition
- Bass, Joel, E and et.al. Methods for Teaching Science as Inquiry, Allyn &
- Bacon,2009
- http://www.howstuffworks.com/
- John R. Taylor. An Introduction to Error Analysis: The Study of Uncertainties
- in Physical Measurements, Univ. Science Books

COURSE PLAN (COURSE 8)

PROGRAMME	**COMPLEMENTARY CHEMISTRY FOR BACHELOR OF SCIENCE IN PHYSICS**	**SEMESTER**	**1**
COURSE CODE AND TITLE	**15U1CPCHE1: GENERAL 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	Describe different models of atomic structure.	PO 1, PSO 1	U
CO 2	Define acids and bases and explain the concept of equilibrium.	PO 2, PSO 3	U
CO 3	Understand the concept of solubility and its applications in various fields.	PO 3, PSO 1	U
CO 4	Explain the fundamentals of nuclear chemistry.	PO 4 and PO 5, PSO 1, PSO 2	U
CO 5	Generate a basic idea on applications of nuclear energy in various fields and the possible hazards.	PO 6, PSO 1	U
CO 6	Explain the fundamentals of analytical chemistry.	PO 5, PSO 4	U
CO 7	Understand the basics of thermodynamics.	PO 1, PSO 1	U

CL* Cognitive Level

SESSION	TOPIC	LEARNING RESOURCES	VALUE ADDITIONS	COURSE OUTCOME
MODULE I : Atomic Structure : Dr. Ramakrishnan S (9h)				
1	Introduction: Atoms, Planck's quantum Theory, Photoelectric effect	Chalk & Board	video	CO 1
2	Postulates of bohr's theory, Energy levels in atom	Chalk & Board		CO 1
3	origin of hydrogen spectrum	Chalk & Board		CO 1
4	Sommerfeld's extension of Bohr's Theory	Chalk & Board		CO 1
5	Shortcomings of Bohr Theory	Chalk & Board		CO 1
6	Dual nature of matter and radiation. Derivation of de Broglie equation	Chalk & Board		CO 1
7	Wave nature of electron and quantisation of angular momentum, Heisenberg's uncertainty principle	Chalk & Board		CO 1
8	Concept of orbital, Quantum numbers, shapes of orbitals	Chalk & Board		CO 1
9	Electronic configuration of atoms - Aufbau principle, Hund's rule of maximum multiplicity, Pauli's exclusion principle	Chalk & Board		CO 1
MODULE II: Concept of Equilibrium: Dr. Ramakrishnan S (8h)				
10	Acids and bases	Chalk & Board		CO 2
11	Theories of acids and bases	Chalk & Board		CO 2
12	Ionic product of water, introductory idea of pH, pOH.	Chalk & Board	quiz	CO 2
13	Strengths of acids and bases, Ka and Kb, pKa and pKb	Chalk & Board		CO 2
14	Buffer solution, Henderson equation	Chalk & Board		CO 2
15	Hydrolysis of salt, solubility	Chalk & Board		CO 2
16	Solubility product, application	Chalk & Board		CO 3
17	Common ion effect, application.	Chalk & Board		CO 3
MODULE III: Nuclear Chemistry : Dr.Ragi A.S (6h)				
18	Stability of Nucleus	Chalk & Board		CO 4
19	Natural radioactivity, induced radioactivity	Chalk &	quiz	CO 4

		Board		
20	Fertile and fissile isotopes, units of radioactivity.	Chalk & Board		CO 4
21	Nuclear Reactions: fission and fusion, chain reactions	Chalk & Board		CO 4
22	Disposal of nuclear wastes	Chalk & Board		CO 5
23	Applications of radioactivity	Chalk & Board		CO 5
MODULE IV: Analytical Chemistry- Basic Principles: Dr.Ragi A.S (5h)				
24	Concentration terms- molality, molarity, normality, weight percentage, ppm, and millimoles.	Chalk & Board		CO 6
25	Titrimetric method of analysis: General principle, types of titrations, requirements for titrimetric analysis.	Chalk & Board		CO 6
26	Primary and secondary standards, criteria for primary standards	Chalk & Board		CO 6
27	Preparation of standard solutions, standardization of solutions	Chalk & Board		CO 7
28	Problems	Chalk & Board	Quiz	CO 7
MODULE V: Laws of Thermodynamics : Dr.Ragi A.S (8h)				
29	System and Surrounding and First Law of Thermodynamics	Chalk & Board		CO 7
30	Second law of Thermodynamics: free energy, Entropy and Spontaneity, Statement of second law based on entropy	Chalk & Board		CO 7
31	Entropy change in Phase transitions	Chalk & Board		CO 7
32	entropy of fusion, entropy of vaporization, entropy of sublimation	Chalk & Board		CO 7
33	The concept of Gibbs's free energy- Physical significance of free energy, conditions for equilibrium & spontaneity based on ΔG values.	Chalk & Board		CO 7
34	Effect of temperature on spontaneity of Reaction.	Chalk & Board		CO 7
35	Third law of thermodynamics	Chalk & Board		CO 7
36	Problems based on Laws of Thermodynamics	Chalk & Board	Quiz	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	04/08/2018	Applications of solubility product	CO 3
2	28/10/2018	Effect of temperature on spontaneity of Reaction.	CO 7

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	02/11/2018	Concentration terms	CO 6

REFERENCES

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- C. N. R. Rao, University General Chemistry, Macmillan.
- R. A. Day Junior, A.L. Underwood, Quantitative Analysis, 5th edn. Prentice Hall of India Pvt. Ltd. New Delhi, 1988.
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- B. R. Puri, L. R. Sharma, Kalia, Principles of Inorganic Chemistry, 31st edn. Milstone (2010).
- ManasChanda, Atomic Structure and Molecular Spectroscopy.
- 7. Vogel's Text Book of Quantitative Chemical Analysis, J. Mendham, R. C. Denney, J.D. Barnes, M. Thomas, 6th edn. Pearson Education (2003).

COURSE 9

PROGRAMME	**BSC. MATHEMATICS**	**SEMESTER**	**1**
COURSE CODE AND TITLE	**U1CPMAT01: DIFFERENTIAL CALCULUS AND TRIGONOMETRY**	**CREDIT**	**3**
HOURS/WEEK	**4**	**HOURS/SEM**	**60**
FACULTY NAME	**SANIL JOSE**		

	COURSE OUTCOMES	PO/ PSO	CL
CO 1	Understand limits, derivatives of a functions and its applications.	PO1, PSO2	U
CO 2	Determine whether a given function is increasing or decreasing.	PO1, PSO2	A
CO 3	Apply the concepts of maxima and minima of a function to real world problems	PO1, PSO2	U
CO 4	Understand the concepts of derivative of functions of more than one variable	PO1/ PSO2	Ap
CO 5	Understand the concepts of Trigonometric functions, their properties and summation of trigonometric series	PO1, PSO2	U

CL* Cognitive Level

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Sessions	Topic	LEARNING RESOURCES	VALUE ADDITIONS	COURSE OUTCOME
1	Introductory Session	Lecture		CO 1
2	Rates of change and limits	Lecture		CO 1
3	Calculating limits using the limit laws	Lecture, Problem Solving		CO 1
4	Calculating limits using the limit laws	Lecture, Problem Solving		CO 1
5	The precise definition of a limit	Lecture,		CO 1
6	The precise definition of a limit	Lecture Problem Solving		CO 1
7	One sided limits and limits at infinity	Lecture, Problem Solving		CO 1
8	Derivative of a function	Lecture, Problem Solving		CO 1
9	Derivative of a function	Lecture, Problem Solving		CO 1
10	Differentiation rules	Lecture, Problem Solving		CO 1
11	Differentiation rules	Lecture, Problem Solving		CO 1
12	The derivative as a rate of change	Lecture		CO 1
13	The derivative as a rate of change	Lecture, Problem Solving		CO 1
14	Derivatives of trigonometric functions	Lecture, Problem Solving		CO 1
15	The chain rule and parametric equations	Lecture, Problem Solving		CO 1
16	The chain rule and parametric equations	Lecture, Problem Solving		CO 1
17	Implicit Differentiation.	Lecture, Problem Solving		CO 1
18	Implicit Differentiation.	Lecture, Problem Solving		CO 1

19	Test			
20	Extreme values of functions	Lecture, Problem Solving		CO 2
21	Extreme values of functions	Lecture, Problem Solving		CO2
22	The Mean Value Theorem	Lecture, Problem Solving		CO 3
23	The Mean Value Theorem	Lecture, Problem Solving		CO 3
24	Monotonic functions	Lecture, Problem Solving		CO 2
25	Monotonic functions	Lecture, Problem Solving		CO2
26	First derivative test.	Lecture, Problem Solving		CO 2
27	First derivative test.	Lecture, Problem Solving		CO2
28	First derivative test.	Lecture, Problem Solving		CO 2
29	Test			CO2
30	Functions of several variables	Lecture, Problem Solving		CO 4
31	Partial derivatives	Lecture, Problem Solving		CO 4
32	Partial derivatives	Lecture, Problem Solving		CO 4
33	Partial derivatives	Lecture, Problem Solving		CO 4
34	Partial derivatives	Introduction		CO 4
35	The Chain Rule	Lecture, Problem Solving		CO 4
36	The Chain Rule	Lecture, Problem Solving		CO 4
37	The Chain Rule	Lecture, Problem Solving		CO 4
38	The Chain Rule	Lecture, Problem Solving		CO 4
39	Test			CO 4
40	Expansions of sin $n\theta$	Lecture, Problem Solving		CO 5
41	Expansions of cos$n\theta$,	Lecture, Problem Solving		CO 5
42	Expansions of tan $n\theta$	Lecture, Problem		CO 5

		Solving		
43	Expansions of sin ^{n}	Lecture, Problem Solving		CO 5
44	Expansions of $\cos^{n}\theta$,	Lecture, Problem Solving		CO 5
45	Expansions of $\sin^{n}\theta \cos^{m}\theta$	Lecture, Problem Solving		CO 5
46	Circular and hyperbolic functions	Lecture, Problem Solving		CO 5
47	Circular and hyperbolic functions	Lecture, Problem Solving		CO 5
48	Inverse circular and hyperbolic function	Lecture, Problem Solving		CO 5
49	Inverse circular and hyperbolic function	Lecture, Problem Solving		CO 5
50	Inverse circular and hyperbolic function	Lecture, Problem Solving		CO 5
51	Separation into real and imaginary parts	Lecture, Problem Solving		CO 5
52	Separation into real and imaginary parts	Lecture, Problem Solving		CO 5
53	Separation into real and imaginary parts	Lecture, Problem Solving		CO 5
54	Summation of infinite series based on C + iSmethod	Lecture, Problem Solving		CO 5
55	Summation of infinite series based on C + is method	Lecture, Problem Solving		CO 5
56	Summation of infinite series based on C + is method	Lecture, Problem Solving		CO 5
57	Summation of infinite series based on C + is method	Lecture, Problem Solving		CO 5
58	Summation of infinite series based on C + is method	Lecture, Problem Solving		CO 5
59	Application	Lecture, Problem Solving		CO 5
59	Revision	Lecture, Problem Solving		CO 5
60	Revision	Lecture, Problem Solving		

INDIVIDUAL ASSIGNMENTS/SEMINAR – DETAILS & GUIDELINES

	Date of completion	**Topic of Assignment & Nature of assignment (Individual/Group – Written/Presentation – Graded or**	**Couse Outcome**

		Non-graded etc.)	
1	4/1/2019	PROBLEMS IN DIFFERENTIATION	CO 1, CO 2
2	28/1/2019	PROBLEMS IN TRIGONOMETRY	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.)	Couse Outcome
1	2/2/2019	PROBLEMS IN PARTIAL DIFFERENTIAL EQUATIONS	CO 3
2			

TEXT BOOKS: -

- George B. Thomas, Jr: Thomas' Calculus Eleventh Edition, Pearson, 2008.
- S.L. Loney – Plane Trigonometry Part – II, AITBS Publishers India, 2009.

REFERENCE BOOKS:

- Shanti Narayan : Differential Calculus (S Chand)
- George B. Thomas Jr. and Ross L. Finney : Calculus, LPE, Ninth edition, Pearson Education.
- S.S. Sastry, Engineering Mathematics, Volume 1, 4 th Edition PHI.
- Muray R Spiegel, Advanced Calculus, Schaum's Outline series.