SACRED HEART COLLEGE (AUTONOMOUS)

DEPARTMENT OF MATHEMATICS

BACHELOR OF SCIENCE

[MATHEMATICS]

Course plan

Academic Year 2018-19

Semester 2

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**: 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 [MATHEMATICS]

PROGRAM SPECIFIC OUTCOMES	
PSO 1	Understand the basic concepts and tools of mathematical logic, Set theory, Theory of Equations and Number Theory
PSO 2	Understand the concepts of Geometry, Trigonometry, Calculus and Analysis, Abstract structures, Algebra, Methods of proofs and Differential Equations
PSO 3	Translate real world problems into mathematical problems and find its solutions
PSO 4	Understand the application of mathematics in other science, engineering and discuss Human rights and mathematics for environmental studies

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			72

		4	4	
U2CCFRN2A	FRENCH LANGUAGE AND COMMUNICATION SKILLS II	4	4	72
U2CCSAN2A	COMMUNICATION SKILLS IN SANSKRIT LANGUAGE	4	4	72
U2CCMAL2A	□□□□	4	4	72
U2CRMAT2	ANALYTIC GEOMETRY, TRIGONOMETRY AND MATRICES	4	3	72
U2CPPHY2	ELECTRIC AND MAGNETIC PHENOMENA, THERMODYNAMICS AND SPECIAL THEORY OF RELATIVITY	4	2	72
U2CRSTA2	PROBABILITY AND STATISTICS	4	3	72

COURSE PLAN

PROGRAMME	**BSC MATHEMATICS**	**SEMESTER**	**2**
COURSE CODE AND TITLE	**15U2CCENG3: CRITICAL THINKING, ACADEMIC WRITING AND PRESENTATION**	**CREDIT**	**4**
HOURS/WEEK	**5**	**HOURS/SEM**	**90**
FACULTY NAME			

COURSE OUTCOMES

CO1: 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.
CO2: Develops appropriate and impressive writing styles for various contexts.
CO3: Write and correct structural imperfections and edit what they have written.
CO4: Develops capacity for making academic presentations effectively and impressively.

Sessions	Topic	Method	Course Outcome	Remarks/Reference
1	Introduction to Critical Thinking	Lecture	CO 1	
2	Reasoning and Arguments	Discussion	CO1	
3	Deductive and Inductive Arguments	Lecture	CO1	
4	Fallacies	Lecture	CO1	
5	Inferential Comprehension	Reading Exercises	CO1	
6	Critical Thinking and Academic Writing	Lecture	CO1	
7	Critical Thinking and Academic Writing	Exercises	CO1	
8	Writing Models	Introductory Lecture	CO2	
9	Writing Letters	General Principles	CO2	
10	Writing a Letter to the Editor	Exercise - 1	CO2	
11	Letter to the Editor	Discussion on the Samples done	CO2	
12	Resume	General Guidelines	CO2	
13	Resume Writing	Writing Exercise	CO2	
14	Resume Writing	Discussion on the samples	CO2	
15	Covering Letter	General Introduction and Writing Exercise	CO2	
16	Covering Letter	Discussion on the samples	CO2	
17	Emails	General Instructions and Writing Exercise	CO2	
18	Emails	Discussion on the Samples	CO2	
19	Interview Skills	Discussion on the general principles	CO2	
20	Group Discussion	Practical sessions and Evaluation	CO2	
21	Accuracy in Academic writing	Lecture	CO3	
22	Articles and Determiners	Lecture and discussion	CO3	
23	Nouns and Pronouns	Lecture	CO3	

24	Subject-verb agreement	Lecture and discussion	CO3	
25	Phrasal verbs	Lecture	CO3	
26	Modals	Lecture	CO3	
27	Tenses	Lecture and demonstration	CO3	
28	Conditional clauses	General Instructions and Writing Exercise	CO3	
29	Relative Pronouns	Lecture and demonstration	CO3	
30	Passive Voices	Lecture and illustration	CO3	
31	Conjunctions	Lecture	CO3	
32	Embedded questions	Demonstration	CO3	
33	Punctuations and Abbreviations	General Instructions and Writing Exercise	CO3	
34	Soft skills for academic presentations	Presentation and lecture	CO4	
35	Effective communication skills	Lecture	CO4	
36	How to structure presentation	Lecture and Demonstration	CO4	
37	Flip Charts, OHP, Power point presentation	Demonstration	CO4	
38	Clarity and brevity in presentation	Lecture	CO4	
39	Interaction and persuasion	Lecture	CO4	
40	Interview skills	Face to face interaction, demonstration	CO4	
41	Group Discussion	Demonstration and Lecture	CO4	
42	Group Discussion	Demonstration and Lecture	CO4	
43	Revision	Discussion and revising the topics	CO4	

ASSIGNMENT

	Date of completion	Topic of Assignment & Nature of assignment (Individual/Group – Written/Presentation – Graded or Non-graded etc)	Couse Outcome
1		Draft a Resume for applying for the career you wish to choose	CO 2

REFERENCE

- Marilyn Anderson, Pramod K Nayar and Madhucchandra Sen. Critical Thinking, Academic Writing and Presentation Skills. Pearson Education and Mahatma Gandhi University

COURSE PLAN

PROGRAMME	BSc Mathematics	SEMESTER	2
COURSE CODE AND TITLE	15U2CCENG4 : MUSINGS ON VITAL ISSUES	CREDIT	3
HOURS/WEEK	4	HOURS/SEM	72
FACULTY NAME			

Sessions	Topic	Method	Course Outcome	Remarks/Reference
1	Introducing the text book	Group Discussion	CO1	
2	The dark side of growth	Lecture	CO1	
3	The dark side of growth	Lecture	CO1	
4	The dark side of growth	Lecture	CO1	
5	The dark side of growth	Lecture	CO1	
6	Discussing the questions	Group Presentations	CO4	
7	Money madness(D.H Lawrence)	Discussion	CO1	
8	Money madness(D.H Lawrence	Lecture, Presentation by the students	CO1	
9	For the disposed(S. Joseph)	Lecture, discussion	CO1	
10	For the disposed(S. Joseph)	Lecture, discussion	CO1	
11	First Internals			
12	The social costs of Economic Globalization	Presentation by the students	CO2	

13	The social costs of Economic Globalization	Presentation by the students	CO2	
14	The social costs of Economic Globalization	Presentation by the students	CO2	
15	Distribution of answer sheets	Discussion, correction of common mistakes	CO3	
16	The universal declaration of human rights	Discussion on the evolution of the declaration of rights- discussion on natural rights and legal rights, concept of rights in various religions.	CO3	
17	The universal declaration of human rights	Discussion, answering the questions	CO3	
18	Human Rights and Legal Responsibilities- Nani A. Palkhivala	Lecture- discussion on the concept of freedom, legal awareness, human rights violations in the society, rights of woman…	CO3	
19	Human Rights and Legal Responsibilities- Nani A. Palkhivala	Analysis of answers and presentation by the students	CO3	
20	Twelve Million Black Voices- Richard Wright	Discussion on African-American writing, Slave narratives, emancipation of blacks, Dalit writings..	CO3	
21	Twelve Million Black Voices- Richard Wright	Discussion on African-American writing, Slave narratives, emancipation of blacks, Dalit writings..Analysis of answers and presentations by the students	CO2	
22	Lost Forests- Johannes V. Jensen	Lecture on Slave narratives, African- American writing, concept of freedom, bonded labour, child labour, poverty..	CO3	
23	Lost Forests- Johannes V. Jensen	Presentation of answers by the students	CO4	
24	Why I Want a Wife- Judy Brady	Discussion on marriage, division of job, Sufferings of	CO4	

		women, equal status of women, sexual exploitation…		
25	Mother's Day- J.B. Priestly	Role play	CO4	
26	Mother's Day- J.B. Priestly	Role play	CO4	
27	REVISION			
28	REVISIN			
29	Second Internal examination			
30	Distribution of Answer Sheets	Correction of common mistakes	CO4	

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

COURSE PLAN

PROGRAMME	**ADDITIONAL LANGUAGE – HINDI**	**SEMESTER**	**2**
COURSE CODE AND TITLE	**U2CCHIN2A- TRANSLATION, COMMUNUCATION SKILLS AND APPLIED GRAMMAR**	**CREDIT**	**4**
HOURS/WEEK	**4**	**HOURS/SEM**	**72**
FACULTY NAME	**DR.MINIPRIYA R (ASST.PROFESSOR)** **SYAMLAL M S (ASST.PROFESSOR)**		

COURSE OBJECTIVES

1.To learn Hindi for effective communication in different fields like administration,media and business.

2.Understanding translation as a linguistic,cultural,economic and professional activity.
3.Familiarizing the practical grammar and analyzing the problems and challenges of effective communication in Hindi.

COURSE OUTCOMES:

	COURSE OUTCOMES	**PO/ PSO**	**CL**
CO 1	Understand Hindi language and communication.		U
CO 2	Understand the importance of correspondence in the fields of administration, media and business.		U, A An
CO 3	Understand translation as a linguistic, communicative and cultural activity.		U , A
CO 4	Understand the relevant Socio – Cultural issues and develop writing skills through conversation.		U, A
CO 5	Understand grammar and analyse the problems and challenges of communication in Hindi.		U, A

CL* Cognitive Level

Sessions	**Date**	**Topic**	**Learning Resources**	**Course Outcomes**
MODULE I				
1		Introductory Session-	Oral/descriptive	CO 1
2		Exercise oriented Grammar	Description/exercise	CO 5
3		Parts of speech	Description/exercise	CO 5
4		Noun	Description/exercise	CO 5
5		Pronoun	Description/exercise	CO 5
6		Adjectives	Description/exercise	CO 5
7		Verb	Description/exercise	CO 5

8			Reading/writing	CO 3
9			Reading /writing	CO 3
10			Reference/Library	CO 2
11			Discussion	CO 5
12		Samvad,Shabd Sangrah	Communication	CO 1
13		Sakshatkar	Communication	CO 1
14			Communication	CO 1
15			Exercise	CO 2
16			Exercise	CO 4
17			Exercise	CO 4
18			Reference/Library	CO 2
19			Presentation	CO 4,CO 2
20			Discussion	CO 3
21		CIA – I	1 Hr; Descriptive answers only	
MODULE II				
22		Conjunctions	Description/exercise	CO 5
23		Case endings	Description/exercise	CO 5
24		Auxiliary verbs	Description/exercise	CO 5
25		Tenses	Description/exercise	CO 5
26			Description/exercise	CO 5
27			Reading/writing	CO 4
28			Reading/writing	CO 4
29			Reference/Library	CO 5
30			Discussion	CO 5

31		Samvad,Shabd Sangrah	Communication	CO 1
32		Sakshatkar	Communication	CO 3
33			Communication	CO 1
34			Communication	CO 1
35			Communication	CO 3
36			Exercise	CO 4
37			Exercise	CO 4
38			Exercise	CO 4
39			Exercise	CO 4
40			Exercise	CO 1
41		Translation - Introduction	Oral/descriptive	CO 3
42		Theory	Oral/descriptive	CO 3
MODULE III				
43		Practice English to Hindi	Exercise	CO 3, CO 4
44			Exercise	CO 3, CO 4
45			Exercise	CO 3
46			Exercise	CO 4
47			Exercise	CO 3,CO 4
48		Practice Hindi to English	Exercise	CO 3
49			Exercise	CO 3
50			Exercise	CO 4
51			Exercise	CO 3,CO 4
52			Exercise	CO 3,CO 4
53		SEMINAR	Paper presentation	CO 1

54		SEMINAR	Paper presentation	CO 2
55		SEMINAR	Paper presentation	CO 3
56		SEMINAR	Paper presentation	CO 4
57		SEMINAR	Paper presentation	CO 5
58		SEMINAR	Paper presentation	CO 3
59		REVISION		
60		REVISION		
61		REVISION		
62		CIA II	2 HOURS	
63			Group Discussion	CO 1
64			Group Discussion	CO 3
65			Group Discussion	CO 2
66			Debates	CO 1
67		Discussion on the CIA		
68		REVISION		
69		REVISION		
70		REVISION		
71		REVISION		
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)	Sakshatkar based on the text book and reference – Writing-	5	CO 1

		Individual		
2	Seminar(January-February)	Paper Presentation based on the text book and reference – Oral-Individual	5	CO 5

REFERENCES

- Samvad Tatha Sanrachna –Co-publication of M.G.University.
- Bhasha Vigyan Evam Hindi Bhasha,Dr.Pandit Banne,Jawahar Pustakalaya,Uttarpradesh.
- Bhasha Vigyan Evam Hindi Bhasha,Dr.Lakshmikanth Pandey,Jawahar Pustakalaya,Uttarpradesh.

COURSE PLAN

PROGRAMME	B.SC.	SEMESTER	2
COURSE CODE AND TITLE	U1CCFRN2A - FRENCH LANGUAGE AND COMMUNICATION SKILLS II	CREDIT	4
HOURS/WEEK	4	HOURS/SEM	72
FACULTY NAME	Dr.SHOBA LIZA JOHN		

COURSE OUTCOMES (COs)	
1	introduce the basic concepts of French language including grammar, vocabulary and sentence structure.
2	introduce 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	analyze 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	comprehend the special features of France including gastronomy, social institutions, policis, the present French scenario and compare it to one's own country

Session	Topic	Method of Teaching	Value Additions	CO	PO/ PSO	Cognitive Leve(CL)	Knowledge Category (KC)
MODULE I							
01-Jan	Introductory Session	role play, games. A pplying to	french basic comctn	1,2,3		U	C
2	#NAME?	chalk n talk	Introducing oneself	1,2,3		U	F
3	Pronominal verbs	games,music		1,2,3		U	F
4	Me too- me neither	role play		1,2,3		U	C
5	Developing communicative skills	chalk n talk		1,2,3		U	C
6	Narrating one's day	Discussion, ICT		6,7,8		An	C
MODULE II							
7	Adjective interrogative	game		2,3		A	C
8	civilisation	chalk n talk, game		2,3		U	C
9	civilisation	role play, listening		2,3		U	C
10	Vocabulary building exercices	chalk n talk		2,3		U	C
11	BUYING A PRODUCT	roleplay		5,6,7,8		U	C
12	PRODUCTS FROM GENERATION TO GENERATION	Discussion, ICT		5,6,7,8		An	C
MODULE III							
17	Food vocabulary	oral, description		2,3,		U	C
18	Articles partitifs	games,music		2,3		U	C
19	Future proche	role play		2,3		U	C
20	Giving an order and taking order at a restaurant	chalk ntalk/roleplay		2,3		Ap	C
21	civilisation	role play/presentation		2,3		u	M,C
22	civilisation	Discussion		5,6,7,8		U	C
MODULE IV							
23	past tense	chalk n talk/Role		2,3		U	C

		plays					
24	Describing a past event	chalk n talk		1,2,3		Ap	C
25	Part time jobs vocabulary,ads	speaking/role play		1,2,3		U	C
26	Civilization	discussion/comprehension		5,6,7,8		An	C
27	civilisation	discussion		5,6,7,8		An	C

COURSE PLAN

PROGRAMME	**BACHELOR OF SCIENCE IN CHEMISTRY**	**SEMESTER**	**II**
COURSE CODE AND TITLE	**19U2CCSAN2A: COMMUNICATION SKILLS IN SANSKRIT LANGUAGE**	**CREDIT**	**4**
HOURS/WEEK	**4**	**HOURS/SEM**	**72**
FACULTY NAME	**DR. VIJAYARAJAN K U**		

	COURSE OUTCOMES	**PO / PSO**	**CL**
CO1	Developing the basic knowledge in Sanskrit	PO 1, PO 5 PSO 1	R
CO2	Students can understand the poetic style with special reference to classical literature	PO 1 PSO 1	U
CO3	Students get an awareness about Indian classical poetic tradition	PO 1 PSO 1	U
CO4	Students familiarize the figures of speech and their usage	PO 1, PO 6 PSO 1	U
CO5	Students develop the communication skills in Sanskrit	PO 1, PO 6 PSO 1	U
CO6	Understand moral values through Drama	PO 1, PO 6 PSO 1	U
CO7	Students develop writing skills in Sanskrit	PO 1, PO 6 PSO 1	U
CO8	Students get awareness about Verbal forms	PO 1, PO 6 PSO 1	U

Sessions	**Topic**	**Learning Resources**	**Value Additions**	**COs**
1 - 2	Introductory session-	Lecturing	Q & A Session	CO 1, CO 2,

	ViBhakthi			CO 8
3 - 4	Seven forms of ViBhakthi	Lecturing		CO 1, CO 2, CO 5, CO 8
5 – 6	Forms of rama ,Hari shabdas	Chalk n talk		CO 1, CO 2, CO 4, CO 8
7 - 8	Forms of rema, Guru, Latha Shabdas	Discussion		CO 2, CO 3, CO 4
9 - 10	Verbs- Present Tense	Lecturing		CO 2, CO 3, CO 4
11 - 12	Verbs- Past Tense	Discussion	Q & A Session	CO 2, CO 3, CO 4
13 – 14	Verbs - Future Tense	Discussion		CO 1, CO 2, CO 8
15 - 16	Conversation in Sanskrit	Practicing		CO 1, CO 3, CO 4
17 - 18	Structure of Sentence	Lecturing		CO 2, CO 3, CO 4
19 – 20	Prathama Purusha	Lecturing		CO 2, CO 3, CO 4
21 - 22	Madhyamapurusha	Lecturing		CO 2, CO 3, CO 4
23 - 24	Uthamapurusha	Chalk n talk		CO 3, CO 5
25 - 27	Verb's rule	Discussion		CO 3, CO 4
28 - 30	Use of ekavachana, dvivachana, bahuvachana	Role play		CO 4, CO 5, CO 8
31 - 33	Sentence - Active voice	Oral, Description		CO 2, CO 4, CO 6
34 - 36	Sentence - Passive voice	Lecturing	Q & A Session	CO 2, CO 3
37 - 39	Introductory session	Lecturing		CO 7, CO 8
40 - 42	Explaining Ghandakavya	Discussion		CO 7, CO 8
43 - 45	Yaksha's story	Chalk n talk		CO 7, CO 8
46 - 48	Requesting to Megha	Discussion		CO 4, CO 5, CO 8
49 - 51	Reading slokas	Discussion		CO 3, CO 4, CO 5
52 - 54	Yaksha's explanation	Lecturing		CO 4, CO 5, CO 8
55 - 57	Introductory session	Lecturing		CO 3, CO 4, CO 8
58 - 60	Bhasa's Dramas	Lecturing		CO 4, CO 5, CO 8
61 - 63	Prathamanga	Lecturing	Q & A Session	CO 1, CO 2, CO 3
64 - 66	Dvitheeyanga	Oral, Description		CO 1, CO 2, CO 3
67 - 68	Tritheeyanga	Lecturing		CO 1, CO 2,

				CO 3
69	Summarizing	Lecturing		CO 4, CO 5, CO 6
70	Revision			
71	Revision			
72	Revision			

ASSIGNMENTS

	Date of submission / completion	Topic of Assignment & Nature of assignment (Individual/Group – Written/Presentation – Graded or Non-graded etc)	Course Outcomes
1	Assignment (December)	Forms of rema, Guru, Latha Shabdas	CO 2, CO 3, CO 4
2	Seminar (January-February)	Explaining Ghandakavya	CO 7, CO 8

REFERENCES

- Meghadootha of Kalidasa
- Siddharupam and Sabdamanjari

COURSE PLAN

PROGRAMME	ADDITIONAL LANGUAGE – MALAYALAM	SEMESTER	2
COURSE CODE AND TITLE	□□□□	CREDIT	4
HOURS/WEEK	4	HOURS/SEM	72
FACULTY NAME	□□.□□□□□□□ □□.□□□ , □□□□□□□ □□□□ □□		

COURSE OBJECTIVES

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COURSE OUTCOMES

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Sessions		**Topic**	**Method**	**Remarks/Reference**
1		Introductory Session	Lecturing	1,2,3
2		□□□□□□□□□□□□□□□□□ □□□□□□□□□□□□□□□□ □□	Lecturing	2,3
3		□□□□□□□□□□□□□□□□□ □□□□□□□□□□□□□□□□ □□□□□□□□□□□□□□□□ □□□□□□□□	Group Discussion	1,2,3
4		□□□□□□□□□□□□□□□□□ □□□□□□□□□□□□□□□□□ □□□□□□□□.	Independent Reading/Lecturing	1,2,4
5		□□□□□□□□□□□□	Lecturing	2,3
6		□□□□□□□□□□□□	Lecturing	1,2,3
7		□□□□□□□□□□□□□□□□□ □-□□□□□□□□ □□□□□□□□□□□□□□□□□ □□□□□□{□□□□□□□□□□	writing/Lecturing/Group Discussion	2,3

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8		□□□□□□□□□□□□□□□□□ □□□□□□□□□□□□□□□□□□ □□ □□□□□□□□□□□□□□□□□□ □□□□□□□□□□□□□.	Group Discussion/point presentation/evaluation	1,2,3
9		□□□□□□□□□□□□□	Reading/Lecturing	1,2,4
10		□□□□□□□□□□□□□	Reading/Lecturing	
11		□□□□□□□□□□□□□□□□□ □□□□□□□□□□□□□□□□□□	Lecturing	1,2,3
12		□□□□□□□□□□□□□□□□□ □□□□□□□□□□□□□	writing/discussion/ Lecturing	2,3
13		□□□□□□□□□□□□□	Reading/Lecturing	1,2,4
14		□□□□□□□□□□□□□	Reading/Lecturing	2,3
15		□□□□□□□□□□□□□□□□□□ □□□□□□□□□□□□□□□□□- □□□□□□□□□□□□□□□□□□ □□□□	Lecturing	2,3
16		□□□□□□□□□□,□□□□□□□□ □□□□□□	Reading	1,2,3
17		□□□□□□□□□□□□□□□□□ □□□□□□□□□□□□□□□□□ □□□□□□□□□□□	Reading/Lecturing	2,3
18		□□□□□□□□□□□□□□□□□□ □□□□□□□□□□□□□□□□	Reading/Lecturing	2,3
19		□□□□□□□□□□□□□□□□□ □□□□□□□□□□□□□□□□□□ □□□□□□□□□□□□□	Lecturing	1,2,3
20		□□□□□□□□□□	Reading	1,2,3
21		□□□□□□□□□□□□□	Reading/Lecturing	1,2,4
22		□□□□□□□□□□□□□	Reading/Lecturing	1,2,4

23		[illegible]	Class Discussion	1,2,3
24		CIA -I	1hr; descriptive answers only	2,3
25		SEMINAR PRESENTATION POEMS	Presentation/discussion	2,3
26		SEMINAR PRESENTATION POEMS	Presentation/discussion	1,2,3
27		Discussion on the CIA I	Class Discussion	
28		[illegible]	Discussion	1,2,3
29		[illegible]	Debate/discussion	2,3
30		[illegible]	Class Discussion	2,3
31		[illegible]	Lecturing	1,2,3
32		[illegible]	Lecturing/Class Discussion	1,2,4
33		[illegible]	Reading/Lecturing	1,2,4
34		[illegible]	Reading/Lecturing	1,2,3
35		[illegible]	Lecturing	2,3

36		□□□□□□□□□□□□□□□□ □□□□□□□□□□□□□□□□ □□□□□□□□□□ ,□□□□□□□□□□□□□□□ □□□□□□□□□□□□□□□□ □□□□□□□□□□□□□	Class Discussion	1,2,3
37		□□□□□□□□□□□□□□□□ □□□□□□□□□□□□□□□□ □□□□□□.	Lecturing/Class Discussion	1,2,4
38		□□□□□□□□□□□□□□□□ □□□□□□□□□□□□□□□□□ □□□□□□□□□□	Lecturing	2,3
39		□□□□□□□□□□□□□□□□□ □□□□□□□□□□□□□□□□□ □□□□□□□□□□□□□□□□□ □□□□□□□□□□□	Class Discussion	2,3
40		□□□□□□□□□□□□□□□□□ □□□□□□□□□□□□□□□□□ □□□□□□□□□□□□□□□□ □□□□□□□□□□□□□□□□ □□□□□□.	LecturingDiscussion /	1,2,3
41		□□□□□□□□□□□□□□□□ □□□□□□□□□□□□□□□□ □□□□□□□□□□□□□□□□□ □□□□□□□□□	Drama Perfomance	2,3
42		□□□□□□□□□□□□□□□□□ □□□□□□□□□□□□□□□□ □□□□□□□□□□□□□□□□ □□- □□□□□□□□□□□□□□□□□ □□	Lecturing	1,2,3
43		□□□□□□□□□□□□□□□□□ □□□□□□□□□□□□□□□□□ □□□□□□□□□□□□□□□□ □□□□□□□□□□□□□□□□□ □□□□□□□□□□□□.	LecturingDiscussion	1,2,3
44		□□□□□□□□□□□□□□□□□	Lecturing	1,2,3

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45		□□□□□□□□□□□□□□□□□□□□□□□□□	Lecturing	1,2,4
46		□□□ .□□□□□□□□□□□□□□□□ □□□□□□□□□□□□□□□□□□□□ □□□□□□□□□□□□□□□□□□□□ □□□□□□□□□□□□□□□□□□	Discussion/	1,2,3
47		□□□□□□□□□□□□□	Lecturing	1,2,4
48		□□.□□.□□□□□□□□□□□□□ □□□□□□□□□□□□□□□□□□□□ □□□□□□□□□□□□□□□□□□□□	Reading	1,2,4
49		□□□□□□□□□□□□□	Lecturing	1,2,3
50		□□□□□□□□□□□□□□□□□□ □□□□□□□□□□□□□□□□□□□□ □□□□□□ □□□□□□□□□□□□□□□□□□ □□□□□□□□□□□□□□□□□□□□ □□□□□□	Lecturing	1,2,4
51		□□□□□□□□□□□□□	Lecturing	2,3
52		□□□□□□□□□□□□□□□□□□□ □□□□□□□□□□□□□□□□□□□ □□□□□□□□□□□	Lecturing Discussion/	1,2,3
53		□□□□□□□□□□□□□□□□□□□ □□□□□□□□□□□□□□□□	Lecturing	2,3
54		□□□□□□□□□□□□□□□□□□□ □□□□□□□□□□□□□□□□□ □□□□□□□□□□□□□□	Lecturing	2,3
55		□□□□□□□□□□□□□□□□□□ □□□□□□□□	Lecturing	2,3
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57		□□	Lecturing Discussion	2,3
58		□□□□□□□□□□□□□□□□□□□□□□□□□□□□□	Discussion	2,3
59		□□□	Lecturing	2,3
60		□□□□□□□- □□□□□□□□□□□□	Reading/Lecturing	2,3
61		□□□□□□□- □□□□□□□□□□□□	Reading/Lecturing	2,3
62		□□□□□□□- □□□□□□□□□□□□	Reading/Lecturing	2,3
63		.□□□□□□□□□□□□		2,3
64		□□□	Debate/discussion	1,2,4
65		□□□□□□□□,□□□□□□,□□□□□□□□□□□□□□□□□□□□ - □□□□□□□□□,□□□□□□	Discussion/Debate	1,2,4
66		CIA II{common}	2hr	
67		CIA II{common}	2hr	
68		CIA II{common}	2hr	
69		CIA II{common}	2hr	
70		CIA II{common}	2hr	
71		CIA II{common}	2hr	
72		SEMINAR PRESENTATION ON POEMS	Presentation/discussion	1,2,4

73		SEMINAR PRESENTATION ON POEMS	Presentation/discussion	1,2,4
74		Discussion on the CIA II	Class Discussion	1,2,4
75		REVISION		1,2,4

ASSIGNMENTS

	Date of submission /completion	Topic of Assignment & Nature of assignment (Individual/Group – Written/Presentation – Graded or Non-graded etc)	Weighttage	Cos
1		□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□ □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□	5	1,2,3,4
2		□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□	5	1,2,3,4

REFERENCES

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COURSE PLAN

PROGRAMME	BSC MATHEMATICS	SEMESTER	2
COURSE CODE AND TITLE	15U1CRMAT02-ANALYTIC GEOMETRY, TRIGONOMETRY AND MATRICES	CREDIT	4
HOURS/WEEK	4	HOURS/SEM	72

FACULTY NAME	JEET KURIAN MATTAM, APARNA V	

COURSE OUTCOME

CO1: To find the equation to tangent and normal at a point on a conic
CO2: To find the polar equation of a line, circle, tangent and normal to conics.
CO3: To familiarize with real and imaginary parts of a circular and hyperbolic functions of a complex variable
CO4: To solve a system of linear equations using the inverse of a matrix.
CO5: To familiarize with the characteristic roots and characteristic vectors.
CO6: To find the inverse of a matrix by Cayley- Hamilton theorem.

SESSIONS	TOPIC	METHOD	CO	REMARKS
1	Analytic geometry-preliminaries	Lecture, Group discussion, Problem solving	CO1	
2	Analytic geometry-preliminaries	Lecture, Group Discussion,Problem solving	CO1	
3	Analytic geometry-preliminaries	Lecture, Group Discussion,Problem solving	CO1	
4	**Module 1** Tangents in terms of their slope	Lecture, Group Discussion,Problem solving	CO1	
5	Number of tangents from a point	Lecture, Group Discussion,Problem solving	CO1	
6	Orthoptic Locus	Lecture, Group Discussion,Problem solving	CO1	
7	Tangent at a point	Lecture, Group Discussion,Problem solving	CO1	
8	Chord joining two points, tangent , intersection of tangents and normal of a parabola	Lecture, Group Discussion,Problem solving	CO1	
9	Problems	Group	CO1	

		Discussion,Problem solving		
10	Chord joining two points, tangent , intersection of tangents and normal of an ellipse	Lecture, Group Discussion,Problem solving	CO1	
11	Chord joining two points, tangent , intersection of tangents and normal of a hyperbola	Lecture, Group Discussion,Problem solving	CO1	
12	Problems	Group Discussion,Problem solving	CO1	
13	Chord of contact	Lecture, Group Discussion,Problem solving	CO1	
14	Chord with a given mid point	Lecture, Group Discussion,Problem solving	CO1	
15	Problems	Group Discussion,Problem solving		
16	Equation of the polar of a given point and pole of a given line	Lecture, Group Discussion,Problem solving	CO2	
17	Conjugate lines and problems	Lecture, Group Discussion,Problem solving	CO2	
18	Conjugate diameters of ellipse	Lecture, Group Discussion,Problem solving	CO2	
19	Properties and problems	Lecture, Group Discussion,Problem solving	CO2	
20	Conjugate diameters of hyperbola	Lecture, Group Discussion,Problem solving	CO2	
21	Problems	Group Discussion,Problem solving	CO2	

22	Asymptotes	Lecture, Group Discussion,Problem solving	CO2	
23	Conjugate hyperbola	Lecture, Group Discussion,Problem solving		
24	Properties and problems	Lecture, Group Discussion,Problem solving	CO2	
25	Rectangular hyperbola, Parametric coordinates	Lecture, Group Discussion,Problem solving	CO2	
26	Problems	Group Discussion,Problem solving	CO2	
27	Problems	Group Discussion,Problem solving	CO2	
28	**Module 2** Polar coordinates, distance between the points, area of a triangle	Lecture, Group Discussion,Problem solving	CO3	
29	Equation of a straight line, Parallel lines, perpendicular straight lines	Lecture, Group Discussion,Problem solving	CO3	
30	Test	1 hour		
31	Equation of a circle	Lecture, Group Discussion,Problem solving	CO3	
32	Problems	Group Discussion,Problem solving	CO3	
33	Polar equation of a conic	Lecture, Group Discussion,Problem solving	CO3	
34	Chord of a conic	Lecture, Group Discussion,Problem solving	CO3	
35	Tangent and normal of a	Lecture, Group	CO3	

	conic	Discussion,Problem solving		
36	Polar of a point with respect to a conic	Lecture, Group Discussion,Problem solving	CO3	
37	Asymptotes of conic	Lecture, Group Discussion,Problem solving	CO3	
38	Problems	Group Discussion,Problem solving	CO3	
39	Problems	Group Discussion,Problem solving	CO3	
40	CIA-1	1 hour		
41	**Module 3** Trigonometry-Introduction	Lecture, Group Discussion,Problem solving	CO4	
42	Expansion of sine and cosine functions	Lecture, Group Discussion,Problem solving	CO4	
43	Hyperbolic functions and relation connecting hyperbolic and circular functions	Lecture, Group Discussion,Problem solving	CO4	
44	Problems	Group Discussion,Problem solving	CO4	
45	Problems	Group Discussion,Problem solving	CO4	
46	Separation into real and imaginary parts - problems	Lecture, Group Discussion,Problem solving	CO4	
47	Problems	Group Discussion,Problem solving	CO4	
48	Problems	Group Discussion,Problem solving	CO4	

49	Factorisation of x^n -1	Lecture, Group Discussion,Problem solving	CO4	
50	Problems	Group Discussion,Problem solving	CO4	
51	Factorisation of x^n +1	Lecture, Group Discussion,Problem solving	CO4	
52	Problems	Group Discussion,Problem solving	CO4	
53	Factorisation of $x^{2n} - 2x^n a^n \cos nx + a^{2n}$	Lecture, Group Discussion,Problem solving	CO4	
54	Problems	Group Discussion,Problem solving	CO4	
55	Summation based on geometric series - problems	Lecture, Group Discussion,Problem solving	CO4	
56	Summation based on binomial series - problems	Lecture, Group Discussion,Problem solving	CO4	
57	Summation based on exponential series- problems	Lecture, Group Discussion,Problem solving	CO4	
58	Summation based on logarithmic series- problems	Lecture, Group Discussion,Problem solving	CO4	
59	Summation based on hyperbolic series - problems	Lecture, Group Discussion,Problem solving	CO4	
60	**Module 4** Rank of a matrix and problems	Lecture, Group Discussion,Problem solving	CO5	
61	Elementary transformations and inverse of Elementary transformations	Lecture, Group Discussion,Problem solving	CO5	

62	Equivalent matrices	Lecture, Group Discussion,Problem solving	CO5	
63	Normal form of a matrix to find the rank and problems	Lecture, Group Discussion,Problem solving	CO5	
64	Row equivalent canonical form to find the rank and problems	Lecture, Group Discussion,Problem solving	CO5	
65	System of non homogenous linear equations and matrix method to solve	Lecture, Group Discussion,Problem solving	CO5	
66	Problems	Group Discussion,Problem solving	CO6	
67	Cramer's rule and problems	Lecture, Group Discussion,Problem solving	CO5	
68	System of homogenous linear equations and problems	Lecture, Group Discussion,Problem solving	CO5	
69	Characteristic equation of a matrix and roots	Lecture, Group Discussion,Problem solving	CO6	
70	Characteristic vectors and problems	Lecture, Group Discussion,Problem solving	CO6	
71	Cayley-Hamilton theorem and problems	Lecture, Group Discussion,Problem solving	CO6	
72	Problems	Group Discussion,Problem solving	CO6	
73	CIA-2	2 hours		

INDIVIDUAL ASSIGNMENTS/SEMINAR – Details & Guidelines

	Date of completion	Topic of Assignment & Nature of assignment (Individual/Group – Written/Presentation – Graded or Non-	Course Outcome

		graded etc)	
1	21/12/2018	PROBLEMS FROM MODULE-1	CO 1
2	19/1/2019	PROBLEMS FROM MODULE -2	CO2

REFERENCES

1.Manicavachagom Pillay , Natarajan–Analytic Geometry (Part I, Two Dimensions)

2.S.L.Loney–Plane TrigonometryPart –II, S. Chand and Company Ltd.
3.Frank Ayres Jr-Matrices , Schaum's Outline Series, TMH Edition.

COURSE PLAN

PROGRAMME	**BACHELOR OF MATHEMATICS**	**SEMESTER**	**2**
COURSE CODE AND TITLE	**U2CPPHY2: ELECTRIC AND MAGNETIC PHENOMENA, THERMODYNAMICS AND SPECIAL THEORY OF RELATIVITY**	**CREDIT**	**2**
THEORY HOURS/WEEK	**2**	**HOURS/SEM**	**36**
FACULTY NAME	**DR. ROBY CHERIAN &DR. SUMOD S.G**		

	COURSE OUTCOMES	**PO/ PSO**	**CL**
CO 1	Analyzing the concepts Dielectrics	PO1, PSO1	U
CO 2	Apply the concepts Magnetic materials	PO1, PSO1	U
CO 3	Introduce the role of equilibrium thermodynamics	PO1, PSO1	U/An
CO 4	Applying the concepts of Special theory of relativity	PO1, PSO1	U/An

CL* Cognitive Level

SESSION	**TOPIC**	**LEARNING RESOURCES**	**COURSE OUTCOME**
	MODULE I		
1	Dielectrics- polar and non-polar dielectrics	Lect	CO1
2	polarization- sources of polarization	Lect+PPT	CO1
3	Gauss's law in dielectrics + Problem solving	Lect + Group Activity	CO1

4	permittivity	Lect	CO1
5	dielectric displacement vector- dielectric constant	Lect	CO1
6	susceptibility- ferroelectricity	Lect	CO1
7	Dielectrics- polar and non-polar dielectrics	Lect	CO1
8	Problem Solving	Group Activity	CO1
9	Magnetization in materials	Lect	CO2
10	linear and non-linear materials-	Lect+PPT	CO2
11	Diamagnetism paramagnetism	Lect	CO2
12	ferromagnetism- hysteresis	Lect	CO2
13	FerromagneticDomains antiferromagnetism	Lect	CO2
14	Problem Solving	Group Activity	CO2
15	Thermodynamic systems- thermodynamic equilibrium	Lect	CO 3
16	thermodynamic processes- isothermal process- adiabatic process	Lect	CO 3
17	zeroth law of thermodynamics	Lect	CO 3
18	first law of thermodynamics	Lect	CO 3
19	heat engine	Lect	CO 3
20	heat engine	Lect+Video	CO 3
21	the Carnot engine	Lect+PPT	CO 3
22	the Carnot engine + Problem solving	Lect + Group Activity	CO 3
23	refrigerator concept of entropy-	Lect	CO 3
24	second law of thermodynamics	Lect	CO 3
25	- third law of thermodynami	Lect	CO 3
26	Maxwell's thermodynamic relations.	Lect	CO 3
	MODULE II		
27	Special theory of relativityIntroduction	Lect	CO 4
28	Galilean transformation	Lect	CO 4
29	Newtonian principle of relativity	Lect+PPT	CO 4
30	Special theory of Relativity-Conceptual Description	Lect	CO 4
31	postulates: Explanation with discussion on its implications	Lect	CO 4
32	Lorentz transformation- Derivation, Length Contraction	Lect	CO 4
33	Time dilation –Concept and derivation	Lect + Group Activity	CO 4
34	relativity of simultaneity, addition of velocities-	Group Activity	CO 4

35	relativistic mass transformations	Lect	CO 4
36	mass energy relation and Problem solving and revision	Lect	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	Dielectrics in daily life	CO 1
2	20/1/2019	Applications of ferromagnetic materials	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	Thermodynamics related problem solving (Group Discussion)	CO 3

REFERENCES

1. Introduction to Modern Physics- H.S. Mani and G.K. Mehta (Affiliated East West press Pvt. Ltd)
2. Concepts of Modern Physics- A. Beiser (Tata McGraw-Hill, 5th Edn.)
3. Modern Physics- R. Murugeshan (S. Chand and Co.)
4. Introduction of Electrodynamics- D.J. Griffiths (PHI Pvt. Ltd)
5. Modern Physics- G.Aruldas and P.Rajagopal (PHI Pub)
6. Thermodynamics- Zemansky and Dittmann (Tata McGraw-Hill)
7. Heat and Thermodynamics- Brijlal and Subrahmanyam (S. Chand &Co)

COURSE PLAN

PROGRAMME	**BACHELOR OF MATHEMATICS**	**SEMESTER**	**2**
COURSE CODE AND TITLE	**U2CRSTA02 : PROBABILITY AND STATISTICS**	**CREDIT**	**3**
HOURS/WEEK	**4**	**HOURS/SEM**	**60**
FACULTY NAME	**MS. DEEPTHI K DASAN**		

	COURSE OUTCOMES	PO/ PSO	CL
CO 1	Analyse different approaches to probability - their properties, Addition & Multiplication theorem, Theorem of total probability.	PO1,PO2, PO6, PSO2, PSO3	U
CO 2	Introduce random variables, probability distributions - their properties, distribution functions, Reliability functions, change of variables (univariate case only).	PO1, PSO2, PSO3	A
CO 3	Comprehend joint distribution of a pair of random variables, marginal & conditional distributions, independence of random variables.	PO1, PO2, PSO1	U
CO 4	apply the concepts of correlation - its properties, different measures of correlation.	PO1, PO2, PSO1, PSO2,PSO4	An
CO 5	Introduce the regression equations - their identificaion, Probable error, Coefficient of determination, Linear regression (Three variable case), partial & multiple correlations - their expressional properties (no derivation).	PO1, PO2, PO3, PO4, PO5, PSO2, PSO3	U

CL* Cognitive Level

SESSION	TOPIC	LEARNING RESOURCES	VALUE ADDITIONS	COURSE OUTCOME
1	Random Experiments,sample space	PPT	video	CO 1
2	Events, Algebra of events	PPT/Lecture		CO 1
3	Borel field of events.Approaches to probability	PPT/Lecture		CO 1
4	Statistical definition of probability	PPT/Lecture	e-resource	CO 1
5	Classical definition of probability	PPT/Lecture		CO 1
6	Axiomatic definition of probability	PPT/Lecture		CO 1
7	Addition theorem on probability, conditional probability	Lecture		CO 1
8	Independence of events	Lecture		CO 1
9	Problems	Lecture		CO 1

10	Problems	Lecture		CO 1
11	Theorem of total probability	PPT/Lecture		CO 1
12	Properties, Problems	PPT/Lecture		CO 1
13	Bayes theorem	PPT/Lecture		CO 1
14	Problems			
15	Random variables	PPT/Lecture		CO 2
16	Probability distribution of discrete random variables, properties	Lecture		CO 2
17	Probability distribution of continuous random variables,properties	Lecture		CO 2
18	Distribution function	Lecture		CO 2
19	Problems	Lecture		CO 2
20	Joint distribution of a pair of random variables,	PPT/Lecture		CO 2
21	marginal and conditional distributions	PPT/Lecture		CO 2
22	Problems			
23	Independence of random variables	PPT/Lecture		CO 2
24	Problems	Lecture		CO 2
25	Correlation and its properties	Lecture		CO 2
26	Rank correlation			
27	Regression equations	Lecture		CO 2
28	Coefficient of determination	Lecture		CO 2
29	Partial and multiple correlation	PPT/Lecture		CO 2
30	Properties	PPT/Lecture		CO2
31	Reliability functions	PPT/Lecture		CO 2
32	Change of variables			
	Problems			
33	Joint distribution o f a pair of random variables	PPT/Lecture		CO 3
34	Problems	PPT/Lectur		CO 3

		e		
35	Properties of joint p.d.f	PPT/Lecture		CO 3
36	Problems	Lecture	Quiz	CO 3
37	Distribution functions	Lecture	Q & Ans Session	CO 4
38	Marginal distribution	PPT/Lecture		CO 4
39	Problems	PPT/Lecture		CO 4
40	Conditional distribution	PPT/Lecture		CO 4
41	Problems	PPT/Lecture		CO 4
42	Independence of random variables	Lecture		CO 4
43	Problems			
44	Correlation	PPT/Lecture		CO 4
45	Types of correlations	PPT/Lecture		CO 4
46	Correlation coefficient	PPT/Lecture		CO 4
47	Properties of correlation coeff.	PPT/Lecture		CO 4
48	Problems	PPT/Lecture		CO 4
49	Rank correlation	PPT/Lecture		CO 4
50	Problems	PPT/Lecture		CO 4
51	Regression	PPT/Lecture		CO 4
52	Properties	PPT/Lecture	Video	CO 4
53	Multiple regression	PPT/Lecture		CO 4
54	Examination	PPT/Lecture		CO 4
55	Partial and multiple correlation			

INDIVIDUAL ASSIGNMENTS/SEMINAR – Details & Guidelines

	Topic of Assignment & Nature of assignment (Individual/Group – Written/Presentation – Graded or Non-graded etc)	Course Outcome
1	Problems ON CORRELATION COEFFICIENT	CO 2
2	Problems using PROBABILITY AND BAYES THEOREM	CO 3

REFERENCES:

1. S.P.GUPTA STATISTICAL METHODS
2. S.C.GUPTA ,V.K.KAPOOR FUNDAMENTALS OF MATHEMATICAL STATISTICS
3. B.L.AGARWAL BASIC STATISTICS