SACRED HEART COLLEGE (AUTONOMOUS)

Department of Mathematics

BACHELOR OF SCIENCE

[MATHEMATICS]

Course plan

Academic Year 2018 - 19

Semester 4

COURSE PLAN

PROGRAMME	BSC Mathematics	SEMESTER	4
COURSE CODE AND TITLE	15U4CCENG6: Evolution of the Philosophy of Science	CREDIT	4
HOURS/WEEK	5	HOURS/SEM	90
FACULTY NAME	RAJESH M.		

COURSE OBJECTIVES
Appreciate the role of science in all walks of life and the treatment of its themes in various literary formats
Critically engage with literary texts written in different languages and later translated into English.
Promote a new way of thinking which will encompass both science and literature
Facilitate communication between both science and literature
Apply the unfathomable power of literature and science in their writings and creative endeavors.

SESSION	**TOPIC**	**Learning Resources**	**Value Additions**	**Remarks**
What is Science- George Orwell				
1	What is Science	Text	Lecture/interaction	
2	What is Science	Text	Discussion	
3	What is Science	Text	Reflections	
4	What is Science	Text	Discussion	
5	What is Science	Text	Quiz	
The Origin of Science-Will Durant				
6	The Origin of Science	Text	Lecture/interaction	
7	The Origin of Science	Text	Discussion	
8	The Origin of Science	Text	Reflections	
9	The Origin of Science	Text	Discussion	
10	The Origin of Science	Text	Discussion	
11	The Origin of Science	Text	Quiz	
The Scientific Outlook-C V Raman				
12	The Scientific Outlook	Text	Lecture/interaction	
13	The Scientific Outlook	Text	Discussion	

14	The Scientific Outlook	Text	Reflections	
15	The Scientific Outlook	Text	Reflections	
16	The Scientific Outlook	Text	Discussion	
17	The Scientific Outlook	Text	Discussion	
18	The Scientific Outlook	Text	Quiz	
Our Picture of the Universe – Stephen Hawking				
19	Our Picture of the Universe	Text	Lecture/interaction	
20	Our Picture of the Universe	Text	Discussion	
21	Our Picture of the Universe	Text	Reflections	
22	Our Picture of the Universe	Text	Reflections	
23	Our Picture of the Universe	Text	Discussion	
24	Our Picture of the Universe		Discussion	
Our Ancestors – Carl Sagan				
25	Our Ancestors	Text	Lecture/interaction	
26	Our Ancestors	Text	Discussion	
27	Our Ancestors	Text	Reflections	
28	Our Ancestors	Text	Reflections	
29	Our Ancestors	Text	Discussion	
30	Our Ancestors		Quiz	
Literature and Science-Aldous Huxley				
30	Literature and Science	Text	Lecture/interaction	
31	Literature and Science	Text	Discussion	
32	Literature and Science	Text	Reflections	
33	Literature and Science	Text	Reflections	
34	Literature and Science	Text	Discussion	
35	Literature and Science	Text	Discussion	
36	Literature and Science	Text	Quiz	
Literature and Ecology- William Rueckert				
37	Literature and Ecology	Text	Lecture / interaction	
38	Literature and Ecology	Text	Lecture	
39	Literature and Ecology	Text	Interaction	
40	Literature and Ecology	Text	Lecture	
41	Literature and Ecology	Text	Discussion	
42	Literature and Ecology	Text	Interaction	
43	Literature and Ecology	Text	Discussion	
44	Literature and Ecology	Text	Discussion	
45	Literature and Ecology	Text	Quiz	
Science and Society – Albert Einstein				
46	Science and Society	Text	Lecture / interaction	
47	Science and Society	Text	Lecture	
48	Science and Society	Text	Interaction	
49	Science and Society	Text	Lecture	

50	Science and Society	Text	Discussion	
51	Science and Society	Text	Interaction	
52	Science and Society	Text	Discussion	
53	Science and Society	Text	Lecture / interaction	
54	Science and Society	Text	Quiz	
A Little Bit of What You Fancy – Desmond Morris				
55	A Little Bit of What You Fancy	Text	Lecture	
56	A Little Bit of What You Fancy	Text	Analysis	
57	A Little Bit of What You Fancy	Text	Reflections	
58	A Little Bit of What You Fancy	Text	Discussions	
Unit 2: Moxon's Master – Ambrose Bierce				
59	Moxon's Master	Text	Lecture	
60	Moxon's Master	Text	Analysis	
61	Moxon's Master	Text	Reflections	
62	Moxon's Master	Text	Discussions	
63	Moxon's Master	Text	Interaction	
The Stolen Bacillus – H.G.Wells				
64	The Stolen Bacillus	Text	Lecture	
65	The Stolen Bacillus	Text	Analysis	
66	The Stolen Bacillus	Text	Reflections	
67	The Stolen Bacillus	Text	Discussions	
68	The Stolen Bacillus	Text	Quiz	
EPICAC – Kurt Vonnegut				
69	EPICAC	Text	Lecture	
70	EPICAC	Text	Analysis	
71	EPICAC	Text	Reflections	
72	EPICAC	Text	Discussions	
The Comet – JayantNarlikar				
73	The Comet	Text	Lecture	
74	The Comet	Text	PPT/Video	
75	The Comet	Text	Analysis	
76	The Comet	Text	Discussion	
The Last War – Neil Grant				
77	The Last War – Neil Grant	Text	Lecture	
78	The Last War – Neil Grant	Text	PPT/Video	
79	The Last War – Neil Grant	Text	Analysis	
80	The Last War – Neil Grant	Text	Discussion	
Cyberscripture Part 1 : Unplugged- G L Horton				

81	Cyberscripture Part 1 : Unplugged	Text	Lecture	
82	Cyberscripture Part 1 : Unplugged	Text	PPT/Video	
83	Cyberscripture Part 1 : Unplugged	Text	Analysis	
84	Cyberscripture Part 1 : Unplugged	Text	Discussion	
85	Cyberscripture Part 1 : Unplugged	Text	Lecture	
86	Cyberscripture Part 1 : Unplugged	Text	PPT/Video	
87	Cyberscripture Part 1 : Unplugged	Text	Analysis	
88	Cyberscripture Part 1 : Unplugged	Text	Discussion	
Revision				
89	Syllabus	Text	Quiz/ Interaction	-6
90	Syllabus	Text	Quiz / Interaction	-6

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	Prepare a review of any book/Article that inspired you most

References

Philosophy of Science

COURSE PLAN

PROGRAMME	BACHELOR OF SCIENCE - MATHEMATICS	SEMESTER	4
COURSE CODE AND TITLE	15U4CCHIN4A-CULTURE AND CIVILIZATION OF INDIA	CREDIT	4
HOURS/WEEK	5	HOURS/SEM	90
FACULTY NAME	Dr. MINIPRIYA R, SYAMLAL M.S		

COURSE OBJECTIVES
Identify the socio-cultural aspects of literary works in different periods.
Student will be able to recognise the social significance of a literary work in any language.
Identify the relation between society and literature and analyse the cultural changes.
Develop creative thinking capacity through Essays.
Connect the cultural trends to literary forms.

SESSION	TOPIC	LEARNING RESOURCES	VALUE ADDITIONS	REMARKS
MODULE I				
1	Sanskruti Ki Kahani Introduction About The Author	Lecture/PPT		
2	Sanskruti Ki Kahani	Lecture		
3	Sanskruti Aur Apsanskruti Introduction about the Author	Lecture/PPT		
4	Sanskruti Aur Apsanskruti	Lecture/Discussion		
5	Sanskruti Ki Kahani	Lecture		
6	Sanskruti Ki Kahani	Lecture/PPT		
7	Sanskruti Aur Apsanskruti	Lecture/Discussion		
8	Sanskruti Aur Apsanskruti	Interaction		
9	Sanskruti Ki Kahani	Lecture		
10	Sanskruti Ki Kahani	Lecture/Discussion		
11	Sanskruti Aur Apsanskruti	Lecture		
12	Sanskruti Aur Apsanskruti	Interaction	Seminar	
13	Sanskruti Ki Kahani	Lecture		
14	Sanskruti Ki Kahani	Lecture		
15	Revision	Lecture/Discussion		

16	Sanskruti Aur Apsanskruti	Interaction	Seminar	
17	Sanskruti Aur Apsanskruti	Lecture/PPT		
18	Revision	Interaction	Seminar	
19	Bharateeya Sanskruti Introduction about the Author	Lecture/PPT		
20	Bharateeya Sanskruti	Lecture		
21	Ham Sanskruti Mei Nahi Vikruti Mei Vikasit Ho Rehe Hain Introduction About The Author	Lecture/PPT		
22	Bharateeya Sanskruti	Lecture		
23	Bharateeya Sanskruti	Lecture/Discussion		
24	Ham Sanskruti Mei Nahi Vikruti Mei Vikasit Ho Rehe Hain	Lecture/PPT		
25	Bharateeya Sanskruti	Lecture		
26	Bharateeya Sanskruti	Lecture/Discussion	Seminar	
27	Revision	Lecture		
28	Revision	Lecture/Discussion		
29	Revision	Interaction		
30	**CIA I (1 Hr Exam)**			
	MODULE II			
31	Bharateeya Sanskruti	Lecture		
32	Ham Sanskruti Mei Nahi Vikruti Mei Vikasit Ho Rehe Hain	Lecture/Discussion		
33	Ham Sanskruti Mei Nahi Vikruti Mei Vikasit Ho Rehe Hain	Lecture		
34	Bharateeya Sanskruti	Lecture/Discussion		
35	Bharateeya Sanskruti	Lecture/Discussion		
36	Revision	Interaction		
37	Ham Sanskruti Mei Nahi Vikruti Mei Vikasit Ho Rehe Hain	Lecture		
38	Revision	Lecture/Discussion		
39	Loktantra Ek Dharma Hai Introduction About The Author	Lecture/PPT		
40	Loktantra Ek Dharma Hai	Lecture		
41	Loktantra Ek Dharma Hai	Lecture/Discussion		
42	Atankwad Aur Hum Introduction About The Author	Lecture/Discussion		
43	Atankwad Aur Hum	Lecture/Discussion		
44	Loktantra Ek Dharma Hai	Lecture		
45	Loktantra Ek Dharma Hai	Lecture/Discussion	Seminar	
46	Atankwad Aur Hum	Discussion		
47	Atankwad Aur Hum	Lecture/Discussion		
48	Atankwad Aur Hum	Lecture		

49	Loktantra Ek Dharma Hai	Lecture		
50	Loktantra Ek Dharma Hai	Lecture/Discussion		
51	Revision	Discussion		
52	Atankwad Aur Hum	Lecture		
53	Atankwad Aur Hum	Lecture/Discussion		
54	Atankwad Aur Hum	Lecture/PPT		
55	Mahanom Ka Manwantar Introduction About The Author	Lecture/Discussion		
56	Mahanom Ka Manwantar	Discussion		
57	Atankwad Aur Hum	Lecture/PPT		
58	Atankwad Aur Hum	Lecture		
59	Revision	Lecture/Discussion	Seminar	
60	Mahanom Ka Manwantar	Lecture		
61	Mahanom Ka Manwantar	Lecture/Discussion		
62	**CIA II (2 Hrs Exam)**			
MODULE III				
63	Keral Itihas Ke Jharokhe Se Introduction About The Author	Lecture/PPT		
64	Keral Itihas Ke Jharokhe Se	Lecture		
65	Keral Itihas Ke Jharokhe Se	Lecture/Discussion		
66	Mahanom Ka Manwantar	Lecture		
67	Mahanom Ka Manwantar	Lecture/Discussion		
68	Keral Itihas Ke Jharokhe Se	Lecture		
69	Mahanom Ka Manwantar	Lecture		
70	Samajik Kranti Ka Agradoot Sree Narayan Guru Introduction About The Author	Lecture/PPT		
71	Samajik Kranti Ka Agradoot Sree Narayan Guru	Lecture		
72	Sabhyata Ka Rahasya Introduction About The Author	Lecture/PPT		
73	Sabhyata Ka Rahasya	Lecture		
74	Sabhyata Ka Rahasya	Lecture/Discussion	Seminar	
75	Samajik Kranti Ka Agradoot Sree Narayan Guru	Lecture		
76	Samajik Kranti Ka Agradoot Sree Narayan Guru	Lecture		
77	Sabhyata Ka Rahasya	Lecture/Discussion		
78	Sabhyata Ka Rahasya	Lecture/Discussion		
79	Samajik Kranti Ka Agradoot Sree Narayan Guru	Lecture/PPT		
80	Samajik Kranti Ka Agradoot Sree Narayan Guru	Lecture/Discussion	Seminar	
81	Dalit Andolan Aur Ayyankali	Lecture		

	Introduction about the Author			
82	Dalit Andolan Aur Ayyankali	Lecture/Discussion		
83	Dalit Andolan Aur Ayyankali	Lecture		
84	Dalit Andolan Aur Ayyankali	Lecture/Discussion		
85	Dalit Andolan Aur Ayyankali	Lecture		,
86	Dalit Andolan Aur Ayyankali	Lecture/Discussion	Seminar	,
87	Seminar			
88	Seminar			
89	Revision			
90	Evaluation of the course			

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

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

GROUP ASSIGNMENTS/ACTIVITES – Details & Guidelines

SL NO	Date of completion	Topic of Assignment & Nature of assignment (Individual/Group – Written/Presentation – Graded or Non-graded etc)
1	January	Analyse an essay based on the text book. (Group Discussion).
2	January	Write a general essay based on cultural studies. (Group Activity).

References

- Adhunik Sahitya Ki Pravrithiyan,Dr.Namvar Singh,Lokbharati Prakashan, New Delhi .
- Sanskruti Ka Tana Bana, Dr.Abha Gupta Thakur, Vani Prakashan, New Delhi .

Web resource references:

- epustakalay.com
- www.hindikunj.com

COURSE PLAN

PROGRAMME	MATHEMATICS	SEMESTER	4
COURSE CODE AND TITLE	15U4CCFRN4A – AN ADVANCED COURSE IN FRENCH II	CREDIT	4
HOURS/WEEK	5	HOURS/SEM	90

COURSE OBJECTIVES
Understand the basic concepts of French language including grammar, vocabulary and sentence structure
Understand the basic communication skills necessary for living in France and French speaking countries.
Describe oneself and ones surroundings using a repertory of words and expressions in a simple and structured grammatical manner.
Develop business communication skills
Express an issue of concern including topics like environmental, social or health issues, enumerate its causes and consequences and suggest solutions
Understand the mannerisms, culture and tradition of France and Francophone countries and compare it to one's own country and develop co-cultural feeling
Understand and appreciate the history of France and Francophone countries and compare it to one's own country
Understand the special features of France including gastronomy, social institutions, policis, the present French scenario and compare it to one's own country

SESSION	TOPIC	LEARNING RESOURCES	VALUE ADDITIONS	REMARKS
MODULE I				
1	Revision of French Basics	Role play, games		
2	French Basics	Chalk n talk		
3	French Basics	Chalk and Talk		
4	French Basics	Chalk and Talk		
5	French Basics	Chalk and Talk		
6	French Basics	Chalk and Talk		
7	French Basics	Chalk and Talk		
8	French Basics	Chalk and Talk		
9	Describe a personality	Lecture		
10	Edith Piaf	lecture		
11	Interview a personality	Communication skills		
12	Interview with Edith Piaf	Oral		
13	famous people in your country	Oral		
14	Narrate the life of a person of your choice	Communication Skills		
15	Describe a locality	Communication Skills		
16.	Describe a locality in your country	Role play		

17.	Grammar – relative pronoun	Lecture, games		
18.	Sentence construction using relative pronoun	Games		
19.	Artistic movements	Debate/Discussion		
20	Reading Comprehension	Understanding Skills		
21.	Reading Comprehension	Understanding Skills		
22.	Reading Comprehension	Understanding Skills		
23.	Vocabulary building	Games		
24	Artistic movements	seminar		
25	Artistic movements	Expression oral		
26.	Female artists French culture	Discussion		
27	Female artists in India	Discussions		
28	Female artists in India	Discussions ICT		
29	French culture –	Discussions, comparison		
30	Class test of Unit 1			
	MODULE II			
31	Describe weather	Game		
32	Weather forecast	Role play		
33	Weather forecast in your country	Lecture		
34	Causes and consequences of an issue	Games, Role plays		
35	Describe ways of protecting environment	discussion		
36	Vocabulary Building	Games		
37	Global warming, green house effect	Lecture		
38	Sentence Construction	Games		
39	Grammar-futur tense	Roleplay, listening exercice		
40	Describe future food habits	Roleplay		
41	Describe future food habits	Lecture , role play		
42	Cities in transition	Debate		
43	Recycling	Games		
44	Intercultural aspect	Lecture/Discussion		
45	Revision			
46	Revision			
47	Revision			
48	Revision			
49	Revision			
50	Revision			
51	Revision			
	CIA-1			
52	Discussion of CIA			
53	Vocabulary Building	Games		
	MODULE III			
54	Organizing a party	PPT/Lecture		
55	Writing an invitation	PPT/Lecture		

56	Positive and negative reply to an invitation	PPT/Lecture		
57	Vocabulary- body parts	PPT		
58	Vocabulary-parts of the body, expressing pain	Music, GAMES		
59	Explain problem which you face	Lecture/Role play		
60	Mail on seeking advice, describing a problem	Role play		
61	Telephonic conversation	Role play		
62	Vocabulary Building	Games		
63	Posting on a problem which you face	Roleplay		
64	Giving advice/grammar-imperative	Chalk and talk, roleplay		
65	webdoctor	Communication skills		
66	Writing a mail and receiving response	Communication Skills		
67	French Culture -Vacation sports	PPT/Discussion		
68	Sports in India	Debate		
69	Advantages of doing sports	Debate/Discussion		
70	Famous authors- Moliere	Discussion		
71	Clown – life of a clown	Discussion		
CIA II				
MODULE IV				
72	French language in the world	Chalk and talk		
73	French language in the world	Role play		
74	Informtion on francophone countries	Role play		
75	Describea place, its past, its present and future	Discussion		
76	Vocabulary Building	Games, Music		
77	French movie	Audio visual		
78	French Movie	Audio Visual		
79	Francophone literature	Chalk n talk/Reading Comprehension		
80	Francophone literature	Discussion		
81	Francophone literature	Discussion		
82	Francophone literature	Discussion		
83	Francophone literature	Discussion		
84	Revision			
85	Revision			
86	Revision			
87	Revision			
88	Revision			
89	Revision	discussion		
90	Revision	discussion		

INDIVIDUAL ASSIGNMENTS/SEMINAR – Details & Guidelines

	Date of completion	Topic of Assignment & Nature of assignment (Individual/Group – Written/Presentation – Graded or Non-graded etc)
1	By February	Writing a resume of a francophone novel and its author
2		roleplays

References

Version Originale, site web

COURSE PLAN

PROGRAMME	BACHELOR OF SCIENCE,MATHEMATICS	SEMESTER	4
COURSE CODE AND TITLE	15U4CCSAN4A: HISTORICAL SURVEY OF SANSKRIT LITERATURE AND KERALA CULTURE	CREDIT	4
HOURS/WEEK	5	HOURS/SEM	90
FACULTY NAME	Dr.VIJAYARAJAN K.U		

COURSE OBJECTIVES
Students familiarize the Culture and Civiliazation
Students understand the influence of Epic and in Indian Literature
Students get an awareness about Indian classical poetic tradition
Students familiarize the Mahakavyas and It's Influence
Students identify the values and philosophy in Sanskrit literature
Students get an awareness about Indian Philosophers and renovators in Kerala
Understand the tools to beautify the literature through Drama and Translation
Students identify the richness of Indian Literature

SESSION	TOPIC	LEARNING RESOURCES	VALUE ADDITIONS	REMARKS
	MODULE I			
1	Introducing the importance of epic	Lecture		
2	Valmiki's Ramayana	Discussion		
3	Ramayana story	Lecture		
4	Development of Ramayana	Lecture		
5	Seven kandas	Lecture		
6	Arguments of Prof.Jacobi	Chalk n talk		
7	Addition of two kandas	Lecture		
8	The date of ramayana	Chalk n talk		
9	Balakanda, Ayodhyakanda	Lecture		
10	Aaranyakanda, kishkindakanda	Lecture		
11	Sundarakanda, Yudhakanda	Discussion		
12	Utharakanda	Discussion		
13	Influence of Ramayana in Indian literature	PPT/Lecture		
14	Mahabharatham-Introduction	PPT/ Lecture		
15	Eighteen Parvas	PPT/ Lecture		
16	The date of mahabharatham	PPT/Lecture		
17	First stage - jayam	Chalk n talk		
18	Second stage -Bharatham	Lecture		
19	Third Stage -mahabharatham	Lecture		
20	Authorship of Mahabharatham	Lecture		
21	The numbers of sloka –More than 1 lakh	Game		
22	The content of Bharatham	Game		
23	Moralities in Bharatham	PPT/Lecture		
24	Bhagavad Geetha	PPT/Lecture		
25	The influence of Bharatham in later Indian literature	Lecture		
26	Harivamsham	Lecture		
	CIA-1			
27	Purusharthas	Lecture		
28	The Fifth veda	Chalk n talk		
29	Commentary on Bharatham	Chalk n talk		
30	Revision			
	MODULE II			
31	Introduction -Panchamahakavyas	Lecture		
32	Kumarasambava	Lecture		
33	Content of Kumarasambava			
34	Raghuvamsha	Lecture		
35	Content of Raghuvamsha	Lecture		
36	Kiratharjuneeyam	Lecture		
37	Content of Kiratharjuneeyam	Lecture		

38	Shishupalavadham	PPT/Lecture		
39	Content of Shishupalavadham	PPT/Lecture		
40	Naishadhacharitham	PPT/Lecture		
41	Content of Naishadhacharitham	Lecture		
42	The importance of mahakakavya	Lecture		
43	The authors of mahakavya	Chalk n talk		
44	Revision			
MODULE III				
45	Swapnavasavadatham	Discussion		
46	Content	PPT/Lecture		
47	Prathijnayaugandharayanam	PPT/ Lecture		
48	Content	PPT/Lecture		
49	Malavikaagnimithram	PPT/Lecture		
50	Vikramorvasheeyam	PPT/ Lecture		
51	Abhijnanashakunthalam	PPT/Lecture	Video	
52	Content	PPT/Lecture		
53	Venisamharam	PPT/Lecture		
54	Mrichakatikam	Lecture		
55	Uthararamacharitham	Lecture		
56	Ashcharyachudamani	PPT/Lecture		
57	Subhadradhananjayam	PPT/Lecture		
58	The Influence of Dramas	PPT/Lecture		
59	Revision			
MODULE IV				
60	Shankaracharya	Lecture		
61	Keralavarma Valiya koyi Thampuran	Lecture		
62	Poorna Saraswathy	Chalk n talk		
63	Sree Narayana guru	Lecture		
64	Chattambi Swamikal	Lecture	Group discussion	
65	A.R.Rajarajavarma	Lecture		
66	P.C.Devasya	PPT/Lecture		
67	K.N.Ezhuthachan	PPT/Lecture		
68	Dr.P.K.Narayana Pillai	PPT/Lecture		
69	Melpathoor Narayana Bhattathiri	PPT/Lecture		
70	Sukumara Kavi	Lecture		
71	I.C Chacko	Lecture		
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	15/01/2019	Kerala Philosophers
2	21/01/2019	The philosophy of Bhagavad Gita

GROUP ASSIGNMENTS/ACTIVITES – Details & Guidelines

	Date of completion	Topic of Assignment & Nature of assignment (Individual/Group – Written/Presentation – Graded or Non-graded etc)
1	04/02/2019	The Influence of Epics in Indian society
2	24/02/2019	Mahakavyas and Indian literature

References

1.A Short History of Sanskrit Literature, T.K. Ramachandra Iyer
2.Samskrita Sahitya Caritram, ed. K. Kunjunni Raja and M.S. Menon, Kerala Sahitya Academi, Trissur
3.Samskrita Bhasayum Sahityavum, T.P. Balakrishnan
4.History of Sanskrit Literature, A B Keith
5.Facets of Indian Culture, P C Muralimadhavan

COURSE PLAN

PROGRAMME	**B.Sc. MATHEMATICS**	SEMESTER	4
COURSE CODE & TITLE	15U1CCMAL4A ഗദ്യം രചനാപരിചയം	CREDITS	4
HOURS/WEEK	5	HOURS/SEM	90
FACULTY NAME	**VISHNU RAJ P. Dr. JUSTINA K AUGUTINE**		

COURSE OBJECTIVES
ഭാഷ ,എഴുത്ത് , രചനാപരിശീലനം എന്നീ ശേഷികളെ മനസിലാക്കുക
ഉപന്യാസരചനാതത്വങ്ങൾ ,പാദവാക്യഘടന എന്നീ ശേഷികളെ മനസിലാക്കുക
സാഹിത്യനിരൂപണം ,രാഷ്ട്രീയദർശനം ,മാധ്യമ പഠനം എന്നിങ്ങനെ വിവിധങ്ങളായ ഗദ്യവ്യവഹാരങ്ങളുടെ മികച്ച മാതൃകകൾ പരിചയപ്പെടുത്തുക
വായനാഭിരുചി വർദ്ധിപ്പിക്കുക
വ്യാവഹാരിക തലത്തിൽ മാതൃഭാഷാപ്രയോഗിക്കുവാനുള്ള കഴിവ് നേടുക

Session	Topic	Teaching method	Learning Resources	Remarks
Module I				
1	ഭാഷാചരിത്രം -ആമുഖം	Lecturing	സാഹിത്യചരിത്രങ്ങൾ	
2	ഭാഷാചരിത്രം -ആമുഖം	Lecturing	സാഹിത്യചരിത്രങ്ങൾ	
3	ക്രിയാത്മക രചന	Discussion	Text	
4	ക്രിയാത്മക രചന	Reading	Text	
5	സർഗാത്മകരചന	Demonstrating	Text	
6	സർഗാത്മകരചന	Lecturing		
7	സർഗാത്മകരചന	Discussion	Text	
8	ഭാഷാപ്രയോഗങ്ങൾ	Demonstrating	Text	
9	ഭാഷാപ്രയോഗങ്ങൾ	Reading	Text	
10	ഭാഷാപ്രയോഗങ്ങൾ	Discussion	Text	
11	വാക്യരചന	Demonstrating	സാഹിത്യചരിത്രങ്ങൾ	
12	വാക്യരചന	Discussion	Text	
13	വാക്യരചന	Discussion	Text	
14	മാനകഭാഷ	Reading	സാഹിത്യചരിത്രങ്ങൾ	
15	മാനകഭാഷ	Demonstrating	Text	
16	ഭാഷാഭേദങ്ങൾ	Discussion	Text	
17	ഭാഷാഭേദങ്ങൾ	Discussion	Text	
18	വാക്കും യുക്തിയും	Demonstrating	Text	
19	വിമർശനാത്മക ചിന്ത	lecturing	Text	
20	വിമർശനാത്മക ചിന്ത	Discussion		
21	വിമർശനാത്മക ചിന്ത	Discussion	Text	
22	സന്ധികാര്യം	lecturing	Text	
23	സന്ധികാര്യം	Discussion	Text	
24	സന്ധികാര്യം	Discussion		
25	അർത്ഥപരിണാമം	lecturing	Text	
26	അർത്ഥപരിണാമം	Discussion	Text	
27	വിവർത്തനം	lecturing	Text	
28	വിവർത്തനം	Discussion		
29	ചിഹ്നം	Lecturing	Text	
30	ചിഹ്നം	Lecturing		
31	നവപാഠങ്ങൾ	Discussion	Text	
32	ഭാഷയുടെ ഘടന	Lecturing	Text	
33	സ്ഥല പേരുകളുടെ രൂപമാറ്റം	Reading	Text	

34	പത്രഭാഷ	Discussion		
35	യന്ത്ര ഏഴുത്ത്	Discussion	Text	
36	ഉപന്യാസരചന	Lecturing	Text	
		Module II		
37	മഹാകവിയുടെ ശിൽപ്പശാലയിൽ	Reading	Text	
38	മഹാകവിയുടെ ശിൽപ്പശാലയിൽ	Discussion		
39	മഹാകവിയുടെ ശിൽപ്പശാലയിൽ	Discussion	Text	
40	മതനവീകരണം മതനിരപേക്ഷത	Lecturing Discussion	Text	
41	മതനവീകരണം മതനിരപേക്ഷത	Reading	Text	
42	പെൺവഴി രചനയുടെ മെയ്യും ഉയിരും	Discussion		
43	ജനനാന്തരസൗഹൃദങ്ങൾ	Discussion	Text	
44	പെൺവഴി രചനയുടെ മെയ്യും ഉയിരും	Lecturing	Text	
45	ജനനാന്തരസൗഹൃദങ്ങൾ	Lecturing	Text	
46	ജനനാന്തരസൗഹൃദങ്ങൾ	Reading	Text	
47	ജനനാന്തരസൗഹൃദങ്ങൾ	Discussion	Text	
		Module III		
48	സാവിത്രിയുടെ മൈന	Discussion	Text	
49	സാവിത്രിയുടെ മൈന	Reading Discussion	Text	
50	സാവിത്രിയുടെ മൈന	Discussion	Text	
51	നാനോടെക്നോളജി	Lecturing	Text	
52	നാനോടെക്നോളജി	Discussion	Text	
53	നാനോടെക്നോളജി	Lecturing	Text	
54	വി .ടി യുടെ വീട് ലോകം	Reading Discussion	Text	
55	വി .ടി യുടെ വീട് ലോകം	Discussion	Text	
56	വി .ടി യുടെ വീട് ലോകം	Discussion	Text	
57	നവോത്ഥാനത്തിന്റെ പാഠങ്ങൾ	Lecturing	Text	
58	നവോത്ഥാനത്തിന്റെ പാഠങ്ങൾ	Discussion		
59	നവോത്ഥാനത്തിന്റെ പാഠങ്ങൾ	Lecturing Discussion	Text	

60	കേരളഫോക്‌ലോർ	Reading	Text	
61	കേരളഫോക്‌ലോർ	Lecturing	Text	
62	കേരളഫോക്‌ലോർ	Discussion	Text	
63	കേരളഫോക്‌ലോർ	Discussion	Text	
64	കേരളഫോക്‌ലോർ	Reading	Text	
65	കേരളഫോക്‌ലോർ	Reading	Text	
66	കേരളഫോക്‌ലോർ	Lecturing	Text	
67	കേരളഫോക്‌ലോർ	Reading	Text	
68	കേരളഫോക്‌ലോർ	Lecturing	Text	
69	കേരളഫോക്‌ലോർ	Reading	Text	
70	കലയും സമൂഹവും	Discussion	Text	
71	കലയും സമൂഹവും	Discussion	Text	
72	കലയും സമൂഹവും	Discussion	Text	
73	സംവാദം	Discussion	Text	
74	സംവാദം	Discussion	Text	
75	സംവാദം	Discussion	Text	
		Module IV		
76	വർത്തമാന പത്രം വായനക്കുമുൻപുള്ള വർത്തമാനങ്ങൾ	Discussion	Text	
77	വർത്തമാന പത്രം വായനക്കുമുൻപുള്ള വർത്തമാനങ്ങൾ	Discussion	Text	
78	വർത്തമാന പത്രം വായനക്കുമുൻപുള്ള വർത്തമാനങ്ങൾ	Discussion	Text	
79	കാലാവസ്ഥാ മാറ്റവും തീരദേശ ജൈവവൈവിധ്യവും	Discussion	Text	
80	കാലാവസ്ഥാ മാറ്റവും തീരദേശ ജൈവവൈവിധ്യവും	Discussion	Text	
81	കാലാവസ്ഥാ മാറ്റവും തീരദേശ ജൈവവൈവിധ്യവും	Discussion	Text	
82	കാലാവസ്ഥാ മാറ്റവും തീരദേശ ജൈവവൈവിധ്യവും	Discussion	Text	
83	Revision	Discussion	Text	
84	സെമിനാർ	Presentation	Text	
85	സെമിനാർ	Discussion	Text	
86	സെമിനാർ	Presentation	Text	
87	സെമിനാർ	Discussion	Text	

88	സെമിനാർ	Presentation	Text	
89	സെമിനാർ	Discussion	Text	
90	Evaluation of course	Discussion	Text	

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	ഉപന്യാസതത്വങ്ങൾ വിവരിക്കുക
2		മലയാളഭാഷയും കേരളീയ സമൂഹവും

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 സാഹിത്യ ചരിത്രം –എഡിറ്റർ :പന്മന രാമചന്ദ്രൻ നായർ
2. മലയാളത്തിന്റെ ഭാവി -കെ. സേതുരാമൻ
3. എഴു ത്തിന്റെ വഴികൾ - എം .ജി . യൂണിവേഴ്സിറ്റി പ്രസിദ്ധീകരണം
4. ഗദ്യവിതാനം- എം .ജി . യൂണിവേഴ്സിറ്റി പ്രസിദ്ധീകരണം

PROGRAMME	BACHELOR OF SCIENCE MATHEMATICS	SEMESTER	4
COURSE CODE AND TITLE	15U4CRMAT04: VECTOR CALCULUS, THEORY OF EQUATIONS AND NUMERICAL ANALYSIS	CREDIT	4
HOURS/WEEK	5	HOURS/SEM	75
FACULTY NAME	JEET KURIAN MATTAM		

COURSE OBJECTIVES
Understand basics of vecctor calculus
Understanding vector integration.
Understand the different methods of solving polynomial equations
Understanding the methods of approximating roots of equations.

SESSION	TOPIC	LEARNING RESOURCES	VALUE ADDITIONS	REMARKS
1	Vector Equation for a line	Lecture		
2	Parametrizing a line segment	Lecture		
3	Distance from a point to a line	Lecture		
4	Eqn of a plane in space, angle between planes	Lecture		
5	The parabolic cylinder	Lecture		
6	The ellipsoid	Lecture		
7	The elliptical paraboloid	Lecture		
8	The elliptical cone	Lecture		
9	The hyperboloid of one sheet	Assignment		
10	The hyperboloid of two sheets	Lecture		

11	The hyperbolic paraboloid	Lecture		
12	Selected Exercises	Seminar		
13	Vector Functions	Lecture		
14	Velocity,Speed, Direction and acceleration	Seminar		
15	Differeniation rules	Lecture		
16	Indefinite integral	Lecture		
17	Definite integrals	Seminar		
18	Arc length and unit tangent vector	Lecture		
19	Curvature	Seminar		
20	Unit normal vector	Lecture		
21	Torsion and the unit binormal vector	Seminar		
22	Directional derivatives and gradient vectors	Lecture		
23	Tangent planes and differentials	Seminar		
24	Line integrals	Lecture		
25	Mass and moment Calculations.	Seminar		
	Exercises on pages 1147-1149			
26	Vector fields , Gradient field	Lecture		
27	Work over a smooth curve	Lecture		
28	Flow integrals and circulation	Assignment		
29	Path independence and conservative fields	Lecture		
30	Theorems on conservative fields	Seminar		
31	Exact differential Forms	Lecture		
32	Green’s theorem in the plane – Normal Form	Lecture		

33	Green's theorem in the plane – Tangential Form	Lecture		
34	Applications of Green's theorem	Seminar		
35	Green's theorem in an annular ring.	Lecture		
36	Surface area and surface integrals	Lecture		
37	Flux of a three dimensional field	Lecture		
38	Moments and masses of thin shells	Lecture		
39	Paramertized Surfaces	Assignment		
40	Area of a smooth curve	Lecture		
41	Parametric surface integral	Lecture		
42	Stoke's theorem	Lecture		
43	Applications of Stokes theorem	Seminar		CO 2
44	Divergence theorem	Lecture		
45	Applications of Divergence Theorem	Lecture		
46	Fundamental Theorem of algebra	Video Lecture		
47	Polynomial equation has exactly n roots	Lecture		
48	Relation between roots and coefficients	Assignment		
49	Selected Exercises	Lecture		
50	Transformation of equations	Video Lecture		
51	Transformation of equations continued.	Lecture		
52	Selected Exercises	Seminar		
53	Reciprocal equations	Video Lecture		
54	Reciprocal equations continued	Lecture		
55	Selected Exercises	Assignment		

56	Cardan’s method	Video Lecture		
57	Cardan’s method Continued	Lecture		
58	Selected Exercises	Lecture		
59	Ferrari’s method	Video Lecture		
60	Ferrari’s method Continued	Seminar		
61	Selected Exercises	Lecture		
62	Symmetric functions of the roots	Lecture		
63	Symmetric functions of the roots continued	Assignment		
64	Bisection Method	Lecture		
65	Bisection Method Continued	Lecture		
66	Selected Exercises	Seminar		
67	Regula Falsi Method	Lecture		
68	Regula Falsi Method continued	Lecture		
69	Selected Exercises	Lecture		
70	Iteration Method	Seminar		
71	Iteration Method Continued	Lecture		
72	Selected Exercises	Lecture		
73	Newton Raphson Method	Lecture		
74	Newton Raphson Method Continued	Lecture		
75	Selected Exercises	Seminar		

INDIVIDUAL ASSIGNMENTS/SEMINAR – Details & Guidelines

	Date of completion	Topic of Assignment & Nature of assignment (Individual/Group – Written/Presentation – Graded or Non-graded etc)
1	12/1/2019	Problems using Cardans and Ferraris method.
2	15/1/2019	Problems using Newton Raphson method

PROGRAMME	COMPLEMENTARY PHYSICS FOR BACHELORS OF SCIENCE IN MATHEMATICS	SEMESTER	4
COURSE CODE AND TITLE	15U4CPPHY07: Physical optics, Laser Physics and Astrophysics	CREDIT	3
Theory HOURS/WEEK	3	HOURS/SEM	54
FACULTY NAME	Dr. Jimmy Sebastian, Dr. Roby Cherian, Prof Malini Abraham		

COURSE OBJECTIVES
Explain the basic principles of Optics and lasers. Classify the celestial objects like Black holes, stars etc.
Apply the principles of Optics to Optical systems.
Solve specific problems in optics and lasers.
Analyze Optical systems and phenomenon based on the theory of Optics. Classify Astronomical Objects.

Sessions	**Teacher**	**Topic**	**Learning Resources**	**Remarks**
1	JS	Introduction to light	Lecture + Interaction	
2	JS	Interference of light	Lecture + Interaction	
3	JS	Principle of superposition	Lecture + Interaction	
4	JS	Conditions for maximum and minimum intensities	Lecture + Interaction	
5	JS	Coherent sources, Interference by division of wave front and division of amplitude	Lecture + Interaction	
6	JS	Young's double slit experiment (division of wave front)	Lecture + Interaction	
7	JS	Expression for fringe width	Lecture + Interaction	
8	JS	Newton's rings by reflected light division of amplitude	Lecture + Interaction	

9	JS	measurement of wavelength of sodium light by Newton's rings	Lecture + Interaction	
10	JS	Interference in thin films - 1	Lecture + Interaction	
11	JS	Interference in thin films - 2	Lecture + Interaction	
12	JS	Problem solving session	Lecture + Interaction	
13	MA	Introduction to astronomy	Lecture + Interaction	
14	MA	Spectral classification of stars	Lecture + Interaction	
15	MA	Hertzsprung – Russel Diagram.	Lecture + Interaction	
16	MA	Luminosity of Star, Stellar Evolution.	Lecture + Interaction	
17	JS	White Dwarfs	Lecture + Interaction	
18	JS	Electrons in a White Dwarf Star	Lecture + Interaction	
19	JS	Chandrasekhar Limit – Neutron Stars	Lecture + Interaction	
20	JS	Black Holes	Lecture + Interaction	
21	JS	Supernova Explosion.	Lecture + Interaction	
22	JS	Problem Solving session	Lecture + Interaction.	
23	RC	Introductory Session-	Lecture + Interaction.	
24	RC	Bridging role of the present syllabus	Lecture + Interaction	
25	RC	Introduction to diffraction	Lecture + Interaction	
26	RC	Interference vs diffraction	Lecture + Interaction	
27	RC	Fresnels diffraction	Lecture + Interaction	
28	RC	Fresnels diffraction	Lecture + Interaction	
29	RC	Fraunhofer diffraction- straight edge	Lecture + Interaction	
30	RC	Grating and Normal incidence	Lecture + Interaction	
31	RC	Resolving Power and Dispersive power and Problem solving	Lecture + Interaction	
32	RC	Laser Introduction , Interaction of electromagnetic radiation with matter	Lecture + Interaction	
33	RC	Stimulated absorption , spontaneous emission- stimulated emission	Lecture + Interaction	
34	RC	principle of laser-population inversion- Einstein's coefficients	Lecture + Interaction	,
35	RC	Types of lasers- Ruby laser - Neodymium	Lecture + Interaction	
36	RC	Neodymium YAG and laser- He-Ne laser	Lecture + Interaction	
37	RC	Properties of laser beams	Lecture + Interaction	
38	RC	Application of laser beams	Lecture + Interaction	
39	MA	Introduction to polarization	Lecture + Interaction	
40	MA	Polarized and unpolarized light, Plane of polarization and vibration	Lecture + Interaction	
41	MA	Brewster's law	Lecture + Interaction	
42	MA	Polarization by reflection	Lecture + Interaction	

43	MA	Law of Malus, Polarization by refraction through pile of plates	Lecture + Interaction	
44	MA	Polarization by refraction through pile of plates	Lecture + Interaction	
45	MA	Uni-axial and biaxial crystals, Double refraction	Lecture + Interaction	
46	MA	Principal plane, polarization by double refraction	Lecture + Interaction	
47	MA	Polarization by selective absorption	Lecture + Interaction	
48	MA	Polaroids, Problems	Lecture + Interaction	
49	MA	Polarization by scattering	Lecture + Interaction	
50	MA	Polarization by scattering	Lecture + Interaction	
51	MA	Elliptically and circularly polarized light	Lecture + Interaction	
52	MA	Half wave and quarter wave plate	Lecture + Interaction	
53	RC	CIA -1	Exam	
54	RC	CIA -2	Exam	

INDIVIDUAL ASSIGNMENTS/SEMINAR – Details & Guidelines

	Date of completion	Topic of Assignment & Nature of assignment (Individual/Group – Written/Presentation – Graded or Non-graded etc)
1	Before 1st Internal	Individual- Graded – Best of 2 sets
2	Before 2nd Internal	Individual- Graded –Best of 2 sets

ASSIGNMENTS– Details & Guidelines – Will be notified prior to the announcement of the assignment – marks will be scaled to 5.

SEMINARS will be given to each student (20 mins duration) – 5 marks (,)

REFERENCE

1. A text book of optics- N. Subrahmanyam, Brijlal and M.N.Avadhanulu (S.Chand and Co.)
2. Fundamentals of Physics - Halliday and Resnik (John Wiley)
3. An introduction to Astrophysics- Baidyanath Basu
4. Modern Physics- R. Murugeshan (S. Chand and Co.)
5. Concepts of Modern Physics- A. Beiser (Tata McGraw-Hill, 5th Edn.)

PROGRAMME	BACHELOR OF SCIENCE (MATHEMATICS)	SEMESTER	4
COURSE CODE AND TITLE	15U4CPSTA04 STATISTICAL INFERENCE	CREDIT	4
HOURS/WEEK	5	HOURS/SEM	90
FACULTY NAME	Dr.LAKSHMIPRIYA R		

COURSE OBJECTIVES
Describe and apply the concept of Estimation and its properties
Describe and apply Interval Estimation
Apply the concept and methods in testing of hypothesis.
Apply Large Sample Tests and nonparametric tests

SESSION	TOPIC	LEARNING RESOURCES	VALUE ADDITIONS	REMARKS
MODULE I				
1	Syllabus Discussion	PPT	Video	
2	Bridge course	Lecture		
3	Bridge course	Lecture		
4	Introduction	PPT/Lecture		
5	Concepts of Estimation	PPT/Lecture		
6	Concepts of Estimation	Lecture		
7	Types of estimation	PPT/Lecture	e-resource	
8	Point estimation	PPT/Lecture		
9	Properties of estimation	PPT/Lecture		
10	problems	Lecture		
11	Unbiasedness,	Lecture		
12	properties	Lecture		

13	problems	Lecture		
14	Consistency	Lecture		
15	properties	Lecture		
16	problems	Lecture		
17	Efficiency,	Lecture		
18	properties	Lecture		
19	problems	Lecture		
20	Sufficiency	Lecture		
21	problems	Lecture		
22	Unit revision	PPT/Lecture		
23	Methods of estimation	PPT/Lecture		
24	MLE	PPT/Lecture		
27	problems	Lecture		
28	Methods of Moments	Lecture		
29	problems	Lecture		
30	Method of Minimum Variance,	PPT/Lecture		
31	problems	Lecture		
32	Class test	Lecture		
33	Cramer Rao Inequality	Lecture		
34	Cramer Rao Inequality	Lecture		
35	PROBLEMS	Lecture		
36	Extra questions	Lecture		
37	Interval estimation	Lecture		
38	problems	Lecture		
39	Comparison of interval estimation with point estimation	Lecture		
40	Comparison of interval estimation	Lecture		

	with point estimation			
41	Interval estimation for mean	Lecture		
42	Interval estimation for mean	Lecture		
43	problems	PPT/Lecture		
44	CIA I	Lecture		
45	Interval estimation for variance	PPT/Lecture		
46	problems	Lecture		
47	Problems	Lecture		
48	Interval estimation for proportions	PPT/Lecture		
49	Interval estimation for proportions	Lecture		
50	Unit Revision	PPT/Lecture		
51	Revision	Lecture		
52	CIA- 1	Lecture		
53	Testing of hypothesis	Lecture		
54	Testing of hypothesis	Lecture		
55	Statistical hypothesis,	Lecture		
56	Simple hypothesis	Lecture		
57	composite hypothesis	Lecture		
58	problems	Lecture		
59	Null and Alternative hypotheses	Lecture		
60	Type I and Type II errors	Lecture		
61	Critical Region,	Lecture		
62	problems	Lecture		
63	revision	Lecture		
64	Size of the test	Lecture		

65	Power of a test	PPT/Lecture		
66	Problems	Lecture		
67	Class test	Lecture		
68	Neyman Pearson approach(without proof)	Lecture		
69	Small sample tests – Z-test, t- test	PPT/Lecture		
70		PPT/Lecture		
71	problems	Lecture		
72	Paired t –test	Lecture		
73	Chi-square test for testing variance	Lecture		
74	F test for testing equality of variances	Lecture		
75	Large Sample test-	PPT/Lecture		
76	Z test for testing population means	Lecture		
77	Equality of population means; T	PPT/Lecture		
78	Testing population proportion	Lecture		
79	quality of two population proportions	Lecture		
80	Questions	Lecture		
81	Chi-Square test-goodness of fit	Lecture	Quiz	
82	Example problems	Lecture		
83	Chi-Square test -	Lecture	Q & Ans Session	
84	test of independence, problems	v		
85	Analysis of Variance (one way	PPT/Lecture		

	classification), problems			
86	Analysis of Variance (one way classification), problems	Lecture		
87	Non parametric tests	PPT/Lecture		
88	Non parametric tests	Lecture		
89	Revision	PPT/Lecture		
90	CIA 2	Lecture		

ASSIGNMENTS

	Topic of Assignment & Nature of assignment (Individual/Group – Written/Presentation – Graded or Non-graded etc)
1	MINI PROJECT

Core Reference

1. S.C. Gupta and V.K. Kapoor: Fundamentals of Mathematical Statistics, Sultan Chand and Sons
2. Richard Johnson (2006): Probability and Statistics for Engineers (Miller and Freund). Prentice Hall.

Additional References

1. S.C Gupta : Fundamentals of Mathematical Statistics, Sultan Chand and Sons.
2. V.K. Rohatgi: An Introduction to Probability Theory and Mathematical Statistics, Wiley Eastern.
3. Mood A.M., Graybill F.A. and Boes D.C. Introduction to Theory of Statistics, McGraw Hill.