

**SACRED HEART COLLEGE (AUTONOMOUS)**

**Department of Botany**

**BACHELOR OF SCIENCE**

**Course plan**

**Academic Year 2016 - 17**

**Semester 1**

**COURSE PLAN (COURSE 1)**

<b>PROGRAMME</b>	<b>BSC BOTANY</b>	<b>SEMESTER</b>	<b>1</b>
<b>COURSE CODE AND TITLE</b>	<b>15U1CCENG1: COMMUNICATION SKILLS IN ENGLISH</b>	<b>CREDIT</b>	<b>3+1</b>
<b>HOURS/WEEK</b>	<b>5</b>	<b>HOURS/SEM</b>	<b>90</b>
<b>FACULTY NAME</b>	<b>Sunil K V</b>		

<b>COURSE OBJECTIVES</b>
To understand the mechanics of English language and comprehend the meaning of simple narrations, announcements and instructions.
Make inferences about the implications of statements from stress and tone recognize the various registers of speech.
Listen to formal presentations and prepare lecture notes in the appropriate format.
Use English for a variety of speaking contexts including conversations, presentations, speeches, discussions and negotiations.
Critically evaluate presentations, narrations, speeches and analyse and evaluate their content and respond to them appropriately.
Creatively respond to one's surroundings in the form of drama, poetry, narrations, and songs, and perform them before an audience.

<b>SESSI ON</b>	<b>TOPIC</b>	<b>Learning Resources</b>	<b>Activity</b>	<b>REMARKS</b>
<b>MODULE I</b>				
<b>MODULE – I : Speech Sounds</b>				
1	Introduction to Communication Skills	Course book	Lecture	
2	Phonemic symbols	Audio	Q & A	
3	Vowels	Audio	Q & A	
4	Consonants	Audio	Q & A	

5	Vowels	Audio	Q & A	
6	Consonants	Audio	Q & A	
7	Syllables	Course book	Exercises	
8	Syllables	Audio	Q & A	
9	Syllables	Audio	Q & A	
10	Word stress	Audio	Q & A	
11	Word stress	Course book	Exercises	
12	Word stress	Course book	Exercises	
13	Word stress	Audio	Q & A	
14	Stress in polysyllabic words	Audio	Q & A	
15	Stress in polysyllabic words	Course book	Exercises	
16	Stress in polysyllabic words	Course book	Exercises	
17	Stress in words used as different parts of speech	Audio	Q & A	
18	Stress in words used as different parts of speech	Audio	Q & A	
19	Stress in words used as different parts of speech	Lecture		
<b>MODULE II : Listening</b>				
20	Sentence stress	Course Book	Lecture	
21	Sentence stress	Audio	Q& A	
22	Sentence stress	Audio	Q& A	
23	Sentence stress	Lecture	Exercises	
24	Weak forms and strong forms	Audio	Q & A	
25	Weak forms and strong forms	Audio & Lecture	Exercises	

26	Weak forms and strong forms	Lecture	Exercises	
27	Intonation	Lecture	Exercises	
28	Intonation	Audio	Q & A	
<b>Internal Assessment Test 1</b>				
30	Awareness of different accents	Video	Q & A	
31	Awareness of different accents	Audio/Video	Q & A	
32	Awareness of different accents	Audio/Video	Q & A	
<b>MODULE- III: Speaking</b>				
33	American English	Course Book	Lecture	
34	American English	Audio	Discussion	
35	American English	Audio	Discussion	
36	American English	Audio	Exercises	
37	British and Indian English	Course Book	Discussion	
38	British and Indian English	Audio	Discussion	
39	British and Indian English	Audio	Discussion	
40	British and Indian English	Audio	Discussion	
<b>Unit II: Academic Listening &amp; Note-taking</b>				
41	Influence of the mother tongue	Course Book	Lecture	
42	Influence of the mother tongue	Course book	Exercises	
43	Influence of the mother tongue	Audio	Exercises	
44	Influence of the mother tongue	Audio	Exercises	
45	Active listening	Audio	Exercises	

46	Active listening	Audio	Exercises	
47	Barriers to listening	Audio	Exercises	
48	Barriers to listening	Audio	Exercises	
<b>MODULE III</b>				
<b>Unit 1 – Art of Small Talk</b>				
49	Seminar Presentation	Course book	Lecture	
50	Listening and note taking	Course book	Exercises	
51	Listening and note taking	Audio	Q & A	
52	Listening and note taking	Course book	Q & A	
53	Listening and note taking	Course book	Exercises	
54	Listening to announcements	Audio	Exercises	
55	Listening to announcements	Course book	Exercises	
56	Listening to announcements	Course book	Exercises	
57	Listening to announcements	Course book	Exercises	
<b>Unit II: Transactional Conversation</b>				
59	Listening to news on the radio and television	Course book	Exercises	
60	Listening to news on the radio and television	Course book	Exercises	
61	Listening to news on the radio and television	Course book	Exercises	

62	Word stress and rhythm	Course book	Exercises	
63	Word stress and rhythm	Course book	Exercises	
64	Pauses and sense groups	Course book	Exercises	
65	Pauses and sense groups	Course book	Exercises	
66	Pauses and sense groups	Course book	Exercises	
67	Falling and rising tones	Course book	Exercises	
68	Falling and rising tones	Course book	Exercises	
69	Falling and rising tones	Course book	Exercises	
<b>Unit III: Telephone Conversation</b>				
70	Fluency and pace of delivery	Course book	Lecture	
71	Internal Examination	Course book	Exercises	
72	Art of small talk	Course book	Exercises	
<b>Internal Assessment 2</b>				
<b>MODULE IV</b>				
<b>Unit 1: Presentation</b>				
73	Participating in conversations	Course book	Lecture	
74	Participating in conversations	Discussion	Exercises	

75	Participating in conversations	Course book	Lecture	
76	Making a short formal speech	Course book	Discussion	
77	Participating in conversations	Course book	Discussion	
78	Describing people	Course book	Discussion	
79	Describing people	Course book	Discussion	
80	Place, events and things	Course book	Lecture	
81	Group discussion skills and telephone skills	Course book	Discussion	
82	Reading: theory and Practice -----	Course book	Discussion	
83	Scanning - Surveying a textbook using an index	Course book	Discussion	
84	Reading with a purpose – making predictions	Course book	Discussion	
<b>MODULE – IV: Reading</b>				
85	To understand text structure	Course book	Lecture	
86	Locating main points – Making inferences	Course book	performance	
87	Reading graphics	Course book	performance	
88	Reading critically	Course book	performance	

89	Reading for research	Course book	performance	
90	Reading for research			

#### ASSIGNMENTS

No.	Date	Topic of Assignment & Nature of assignment (Individual/ Group – Written/ Presentation – Graded or Non-graded etc)
1	Mid of semester	Write a note on your bus trip the college & present it before the class.
2	Mid of semester	Write a descriptive note on the sights and sounds of the college canteen + presentation before the class
3	Mid of semester	Write an interesting conversation you listened to recently and present it before the class with your partner.
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
5	Mid of semester	Write a description of the Lakeview ground
6	Mid of semester	Describe the college auditorium
7	Mid of semester	Describe the sights and sounds in the portico of the college on any given day
8	Mid of semester	Describe the aquarium in the portico
9	Mid of semester	Narrate your experiences of any day on the campus

#### 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**

<b>PROGRAMME</b>	<b>BSc Botany</b>	<b>SEMESTER</b>	<b>1</b>
<b>COURSE CODE AND TITLE</b>	<b>15U1CCENG2: Reading Literature in English</b>	<b>CREDIT</b>	<b>3</b>
<b>HOURS/WEEK</b>	<b>4</b>	<b>HOURS/SEM</b>	<b>72</b>
<b>FACULTY NAME</b>	<b>Bijo N Mathew</b>		

**COURSE OBJECTIVES**

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

<b>SESSION</b>	<b>TOPIC</b>	<b>Learning Resources</b>	<b>VALUE ADDITIONS</b>	<b>REMARKS</b>
<b>MODULE I</b>				
<b>ESSAYS</b>				
1	Introducing the text book	Text	PPT	
2	Bores: E V Lucas	Text		
3	Bores: E V Lucas	Text		
4	Bores: E V Lucas	Text		
5	A Glory has Departed- Jawaharlal Nehru	Text	Group Discussion	

6	A Glory has Departed- Jawaharlal Nehru	Text		
7	A Glory has Departed- Jawaharlal Nehru	Text		
8	A Glory has Departed- Jawaharlal Nehru	Text		
9	Tryst with Destiny- Amartya Sen	Text		
10	Tryst with Destiny- Amartya Sen	Text		
11	Tryst with Destiny- Amartya Sen	Text		
12	Tryst with Destiny- Amartya Sen	Text		
13	How to Escape from Intellectual Rubbish-Bertrand Russel	Text	Group Discussion	
14	How to Escape from Intellectual Rubbish-Bertrand Russel	Text		
15	How to Escape from Intellectual Rubbish-Bertrand Russel	Text		
16	How to Escape from Intellectual Rubbish-Bertrand Russel	Text		
17	Discussion			
18	Discussion		Quiz	
MODULE II- Poetry				
19	Sonnet XXX-William Shakespeare	Text	Lecture/PPT	
20	Sonnet XXX-William Shakespeare	Text		
21	Sonnet XXX-William Shakespeare	Text	Poetry Recitation	
22	Ode to a Nightingale-John Keats	Text	Poetry Recitation	
23	Ode to a Nightingale-John Keats	Text		
24	Mending Wall- Robert Frost		Interaction	

First Internal Examination				
25	Mending Wall- Robert Frost	Text	Poetry Recitation	
26	Mending Wall- Robert Frost	Text	Role Play	
27	The Bicycle- David Malouf	Text	Role play	
28	The Bicycle- David Malouf	Text		
29	The Bicycle- David Malouf	Text		
30	The Refuge	Text		
Unit 3: The Boy Comes Home				
30	Poor Girl- Maya Angelou	Text	Lecture/PPT	
31	Poor Girl- Maya Angelou	Text		
32	The Mask- Kamala Suraiya	Text		
33	The Mask- Kamala Suraiya	Text		
34	Goodbye party for Miss Pushpa T S- Nissim Ezekiel	Text	Poetry Recitation	
35	Goodbye party for Miss Pushpa T S- Nissim Ezekiel	Text		
36	Once Upon a Time-Gabriel Okara	text	Quiz	
MODULE III: Short Story				
37	The Lottery Ticket- Anton Pavlovich Chekhov	Text		
38	The Lottery Ticket- Anton Pavlovich Chekhov	Text		
39	The Lottery Ticket- Anton Pavlovich Chekhov	Text		
40	The Lottery Ticket- Anton Pavlovich Chekhov	Text	Quiz	

41	The Lottery Ticket- Anton Pavlovich Chekhov	Text	Video/ e-content	
42	Retrieved Reformation- O. Henry	Text		
43	Retrieved Reformation- O. Henry	Text		
44	Retrieved Reformation- O. Henry	Text		
45	Retrieved Reformation- O. Henry	Text	PPT	
46	Retrieved Reformation- O. Henry	Text		
47	A Shadow- R K Narayan	Text		
48	A Shadow- R K Narayan	Text		
49	A Shadow- R K Narayan	Text		
50	A Shadow- R K Narayan	Text	PPT	
51	A Devoted Son- Anita Deasi	Text		
52	A Devoted Son- Anita Deasi	Text		
53	A Devoted Son- Anita Deasi	Text		
54	A Devoted Son- Anita Deasi	Text	Discussion/Quiz	
55	Two Gentlemen of Verona- A J Cronin	Text		
56	Two Gentlemen of Verona- A J Cronin	Text		
57	Two Gentlemen of Verona- A J Cronin	Text		
58	Two Gentlemen of Verona- A J Cronin	Text	Quiz	
59	Two Gentlemen of Verona- A J Cronin	Text	Role Play	

60	Two Gentlemen of Verona- A J Cronin	Text		
<b>Unit 4: DRAMA</b>				
61	Refund- Fritz Karinthy	Text		
62	Refund- Fritz Karinthy	Text		
63	Refund- Fritz Karinthy	Text		
64	Refund- Fritz Karinthy	Text	Enacting the Drama	
65	Lord Byron's Love Letter-Tennessee Williams	Text		
66	Lord Byron's Love Letter-Tennessee Williams	Text	Quiz	
<b>Second Internal Examination</b>				
67	Lord Byron's Love Letter-Tennessee Williams	Text		
68	Lord Byron's Love Letter-Tennessee Williams	Text	Enacting the Drama	
69	The Monkey's Paw- W.W Jacob	Text Recital/ lecture		
70	The Monkey's Paw- W.W Jacob	Text		
71	The Monkey's Paw- W.W Jacob	Text		
72	The Monkey's Paw- W.W Jacob	Text	Enacting the Drama	

#### ASSIGNMENT

	<b>Date of submission/ completion</b>	<b>Topic of Assignment &amp; Nature of assignment (Individual/Group – Written/Presentation – Graded or Non-graded etc)</b>
1	By October	Review of a book, article

#### REFERENCE

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

### COURSE PLAN

PROGRAMME	BACHELOR OF SCIENCE IN BOTANY	SEMESTER	1
COURSE CODE AND TITLE	15U1CCHIN1A – PROSE AND DRAMA	CREDIT	4
HOURS/WEEK	4	HOURS/SEM	72
FACULTY NAME	Dr. MINIPRIYA R, SYAMLAL M. S		

### COURSE OBJECTIVES

To understand and explain the different prose forms written in Hindi language.

To understand various trends in Hindi Drama and its presentation.

To understand the ancient Indian culture

To understand the socio - cultural change in literature

To understand the development of literature and aesthetics

SESSION	TOPIC	LEARNING RESOURCES	VALUE ADDITIONS	REMARKS
<b>MODULE I</b>				
1	General information about literature	Lecture/Discussion		
2	Development of Drama	Lecture/Discussion		
3	Madhavi – Introduction of Author Bishma Sahni	Lecture/PPT		
4	Madhavi Act – 1, Scene -1	Lecture	Video	
5	Essay - Jeevan Mein Sahitya Ka Sthan Introduction of Author Premchand	Lecture/Discussion		
6	Premchand and his literary works	Lecture/PPT		
7	Madhavi Act – 1, Scene -1	Lecture	Narration of stories related to 'Mahabharat'	
8	Revision	Interaction	Video	
9	Madhavi Act – 1, Scene -1	Lecture		
10	Madhavi Act – 1, Scene -2	Lecture/Discussion		
11	Essay - Jeevan Mein Sahitya Ka Sthan	Lecture		

12	Revision	Interaction	Presentation by students	
13	Madhavi Act – 1, Scene -2	Lecture		
14	Madhavi Act – 1, Scene -2	Lecture		
15	Madhavi Act – 1, Scene -3	Lecture	Presentation by students	
16	Essay - Jeevan Mein Sahitya Ka Sthan	Interaction	Acting	
17	Analyzing the characters of 'Madhavi'	Interaction	Conversation	
18	Essay - Jeevan Mein Sahitya Ka Sthan	Lecture	Seminar	
19	Madhavi Act – 1, Scene -3	Lecture/Discussion	Video	
20	Essay - Jeevan Mein Sahitya Ka Sthan	Lecture		
21	Essay - Jeevan Mein Sahitya Ka Sthan	Interaction		
22	Essay - Jeevan Mein Sahitya Ka Sthan	Lecture/Discussion		
23	Essay - Sahitya Ki Mahatta Introduction of Author Mahaveer Prasad Dwivedi	Lecture/PPT		
24	<b>CIA – I (1Hour Exam)</b>			
<b>MODULE II</b>				
25	Essay - Sahitya Ki Mahatta	Lecture	Seminar	
26	Essay - Sahitya Ki Mahatta	Lecture		
27	Essay - Sahitya Ki Mahatta	Lecture		
28	Essay - Sahitya Ki Mahatta	Lecture/Discussion		
29	Revision	Interaction	Seminar	
30	Madhavi Act – 2, Scene -1	Lecture		
31	Madhavi Act – 2, Scene -1	Lecture	Presentation by students	
32	Madhavi Act – 2, Scene -1	Lecture/Discussion		
33	Madhavi Act – 2, Scene -2	Lecture		
34	Madhavi Act – 2, Scene -2	Lecture		
35	Madhavi Act – 2, Scene -2	Lecture	Presentation by students	
36	Revision	Interaction	Video	
37	Madhavi Act – 2, Scene -3	Lecture		
38	Madhavi Act – 2, Scene -3	Lecture/Discussion		
39	Essay - Lalit Kalayen Introduction of the Author Dr. Syamsundar Das	Lecture/PPT		



40	Essay - Lalit Kalayen	Lecture	Seminar	
41	Essay - Lalit Kalayen	Lecture		
42	Essay - Lalit Kalayen	Lecture/Discussion		
43	Essay - Lalit Kalayen	Lecture/Discussion		
44	Madhavi Act – 2, Scene -3	Lecture	Video	
45	Madhavi Act – 2, Scene -3	Lecture	Video	
46	Interactive session	Discussion	Debate	
47	<b>CIA – II (2 Hours Exam)</b>			
<b>MODULE III</b>				
48	Essay - Rashtra Ka Swaroop Introduction of the Author Vasudev Saran Agraval	Lecture/PPT		
49	Essay - Rashtra Ka Swaroop	Lecture		
50	Essay - Rashtra Ka Swaroop	Lecture		
51	Essay - Rashtra Ka Swaroop	Discussion	Presentation by students	
52	Madhavi Act – 2, Scene -4	Lecture		
53	Madhavi Act – 2, Scene -4	Lecture		
54	Madhavi Act – 3, Scene -1	Lecture		
55	Madhavi Act – 3, Scene -1	Lecture/Discussion		
56	Revision	Discussion	Video	
57	Essay - Tum Ghar Kab Aoge Kavi Introduction of the Author Ramdhari Sinh Dinakar	Lecture/PPT		
58	Essay - Tum Ghar Kab Aoge Kavi	Lecture		
59	Essay - Tum Ghar Kab Aoge Kavi	Lecture	Seminar	
60	Essay - Tum Ghar Kab Aoge Kavi	Lecture		
61	Essay - Tum Ghar Kab Aoge Kavi	Lecture/Discussion		
62	Essay - Tum Ghar Kab Aoge Kavi	Discussion	Presentation by students	
63	Madhavi Act – 3, Scene -2	Lecture		
64	Madhavi Act – 3, Scene -2	Lecture		
65	Madhavi Act – 3, Scene -2	Lecture/Discussion	Video	
66	Madhavi Act – 3, Scene -3	Lecture	Video	
67	Madhavi Act – 3, Scene -3	Lecture/Discussion	Presentation by students	
68	Madhavi Act – 3, Scene -3			
69	Madhavi Conclusion	Interaction	Criticising the drama	

70	Seminar			
71	Seminar			
72	Evaluation of the course			

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

Sl.No	Date of Completion	Topic of Assignment & Nature of assignment (Individual/Group – Written/Presentation – Graded or Non-graded etc)
1	Assignment (October)	Review of a lesson based on the text book 2 and reference-Writing (Individual)
2	Seminar (October)	Presentation on a given topic based on t the text book 1 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	September	Literary Analysis of drama and its video (Group Discussion)
2	September	Presentation of any scene from drama Madhavi.(Group Activity)

#### References

- Hindi Natak Ka Ithihas : Somanath Gupt Hindi Bhavan, Allahabad
- Yug- Chaya , Editor: Shivdan Singh Chouhan, Rajkamal Prakashan, New Delhi.

#### Web resource references:

- [epustakalay.com](http://epustakalay.com)
- [www.hindikunj.com](http://www.hindikunj.com)

### COURSE PLAN

PROGRAMME	BSc Botany	SEMESTER	1
COURSE CODE AND TITLE	15U1CCFRN1A - FRENCH LANGUAGE AND COMMUNICATION SKILLS I	CREDIT	4
HOURS/WEEK	4	HOURS/SEM	72

### COURSE OBJECTIVES

To understand the basic concepts of French language including grammar, vocabulary and sentence structure

To understand the basic communication skills necessary for living in France and French speaking countries.

Describe oneself and ones surroundings using a repertory of words and expressions in a simple and structured grammatical manner.

Develop business communication skills

Express an issue of concern including topics like environmental, social or health issues, enumerate its causes and consequences and suggest solutions

To understand the mannerisms, culture and tradition of France and Francophone countries and compare it to one's own country and develop co-cultural feeling

To understand and appreciate the history of France and Francophone countries and compare it to one's own country

To understand the special features of France including gastronomy, social institutions, policis, the present French scenario and compare it to one's own country

Session	Topic	Method of Teaching	Value Additions	Remarks
<b>MODULE I</b>				
1	Introducing French Basics	role play,	french basic communication	
		Discussion		
2	French basics -alphabets	chalk n talk, audio	Lecture	
3	french basics	audio ppt, discussion	Lecture	
4	french basics	chalk n talk	Lecture	
5	numbers 1-20	role play,audio ppt	Lecture	
6	verbs introduction	chalk n talk	Lecture	
7	conjugation introduction	chalk n talk,ppt audio	audio	
8	Greetings	role play,audio ppt	Know a new culture	
9	Basic useful sentences in French	role play, audio ppt	Q and A	
10	spell in French	role play,audio ppt	presentation	
11	Indefinite articles	chalk n talk,audio ppt	Lecture	
12	prononciation of vowels	role play,audio ppt	Lecture	
13	French culture	Discussion, audio,ICT	Lecture,q nd A	
14	Revision			
<b>MODULE II</b>				
15	introducing a third person	game,audio ppt	Q nd A	
16	Asking personal information in french	role play,audio ppt	Lecture	
17	Giving personal information in french	role play,audio ppt	Interaction	
18	verbs etre ,avoir	chalk n talk	Lecture	
19	ER verbs	chalk n talk, audio ppt	Lecture	
20	adjectives of nationalities	role play, conversation	Lecture	
21	grammar articles	role play, listening	Ppt	
22	CIA 1			
23	Profession	cross words,chalk n talk	Lecture	
24	interests and tastes	role play,audio	Lecture	
25	Masculine,feminine of adjectives	exercices ,chalk n talk,audio	Lecture	
26	French culture- french names and profession	roleplay,audio	knowing culture	

27	explaining the objective of learning French	Discussion, ICT, audio	Lecture, q and A	
28	Revision			
		<b>MODULE III</b>		
29	describe a locality	oral, description	Q and A	
30	Express in quantity	role play, chalk n talk	Lecture	
31	"vivre" verb conjugation	audio, chalk n talk	Lecture	
32	places vocabulary	games, music, audio	Video	
33	Il y a,	audio,	daily needed vocabs	
	il n'y a pas	chalk n talk		
34	definite articles	chalk n talk, audio ppt	Lecture	
35	Adjectives	role play, audio ppt	Lecture	
36	Prepositions	role play, audio ppt	Lecture	
37	Negation	chalk n talk/roleplay	Lecture	
38	Qualificative adjectives	chalk n talk, audio ppt	Q and A	
39	Describing ur ideal locality	role play/presentation	Lecture	
40	intonations	audio ppt	Lecture	
41	French culture-express preference for city or village	Discussion	knowing culture	
42	revision			
43	CIA 2			
44	Corresponding with a friend expressing one's likings	chalk n talk/Role plays	Q and A	
45	Speak about a person's character	role play, GD	know each other	
46	adjectif possessif part 1	chalk n talk, audio ppt	Lecture	
47	adjectif possessif part 2	chalk n talk, audio ppt	Lecture	
48	Speak about the surroundings	discussion	Lecture	
49	introduce and describe someone	role play	Lecture	
50	activities - vocabulary	lecture, audio	Lecture	
51	sports vocabulary	speaking/role play	general knowledge	
52	Vocabulary - relations	chalk n talk, audio ppt	Lecture	
53	famous French personality	discussion/comprehension	Lecture	
54	lexique des liens de parente	chalk n talk, audio ppt	Lecture	
	Express one's likings	Audio ppt, discussion	Q and A	
55	lexiques des loisirs	Audio ppt, discussion	Video	

56	forme negation	Audio ppt,discussion	Q and A	
57	pronunciation of verbs	Audio ppt,discussion	Q and A	
58	form filling	Audio ppt,discussion	Q and A	
59	french artists	Audio ppt,discussion	GK	
60	french music	Audio ppt,discussion	Video	
61	one's own musical preferences	Audio ppt,discussion	Q and A	
62	french music and comparison to one's own musical preference	discussion	knowing the culture	
63	module 1 -revision			
64	module 1 -revision			
65	module 2- revision			
66	module 2-revision			
67	module 3-revision			
68	module 3-revision			
69	module 4-revision			
70	module 4-revision			
71	PYQs discussion			
72	PYQs 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 October	Basic vocabulary on communication skills in Malayalam and French
2		roleplays

#### References

Version Originale, site web

## COURSE PLAN

PROGRAMME	BACHELOR OF SCIENCE IN BOTANY	SEMESTER	1
COURSE CODE AND TITLE	15U1CCSAN1A: DRAMA, POETRY AND ALANKARA	CREDIT	4
HOURS/WEEK	4	HOURS/SEM	72
FACULTY NAME	Mr. Mathew Jose		

### COURSE OBJECTIVES

Students can understand the poetic style with special reference to classical literature

Students get an awareness about Indian classical poetic tradition

Students familiarize the figures of speech and their usage

Students get an awareness about aesthetic values

Express an issue of concern including topics like environmental, social or health issues, enumerate its causes and consequences and suggest solutions

To understand moral values through Drama

To understand the tools to beautify the literature through Alankara

Students identify the richness of Indian Literature

SESSION	TOPIC	LEARNING RESOURCES	VALUE ADDITIONS	REMARKS
<b>MODULE I</b>				
1	Introducing Sanskrit Basics	Lecture		
2	About Mahakavya	Lecture		
3	About Kumarasambava	Lecture		
4	Fifth sarga of Kumarasambava	Lecture	e-resource	
5	Brahmacharipravesha	Lecture		
6	Parvathi's penance	PPT/Lecture		
7	Inviting Brahmachari	Lecture		
8	Purushartha	Lecture		
9	Himalaya	Lecture		
10	Conversation to Parvathy	Lecture		
11	Critisisation	PPT/Lecture		
12	Questioning	PPT/Lecture		
13	Upamas	PPT/Lecture		
14	Revision			
<b>MODULE II</b>				
15	Sanskrit Drama - Introduction	PPT/Lecture		
16	Mahakavi Bhasa's Dramas	Lecture		

17	Bhasa's Karnabharam	Lecture		
18	Mahabharatha	Lecture		
19	Mangalasloka	Lecture		
20	Entry of Karna	PPT/Lecture		
21	Request to Karna	PPT/Lecture		
22	Duryodhana's order	PPT/Lecture		
23	Karna's sadness	PPT/Lecture		
24	Revenge	Lecture		
25	Karna's birth	Lecture		
26	CIA-1			
27	Kunthi's request	Lecture		
28	Karna's study	Lecture		
29	ParaShurama's teaching	PPT/Lecture		
30	Parashrama's curse	PPT/Lecture		
31	Greatness of Kshathriyas	PPT/Lecture		
32	Bravery of Karna	Lecture		
33	Indra's request to karna	Lecture		
34	Brahmana's blessing	PPT/Lecture		
35	Karna offering Horses	PPT/Lecture		
36	Karna offering elephants	PPT/Lecture		
37	Karna offering gold	Lecture		
38	Karna offering his kavacha	Lecture		
39	Indra accepting kavacha and kundala	PPT/Lecture		
40	Indra's blessing	PPT/Lecture		
41	The greatness of giving	PPT/Lecture		
42	<b>Revision</b>			
43	Revision			
44	Revision			
45	Revision			
	MODULE III			
46	Alankara introduction			
47	Kuvalayananda	PPT/Lecture		
48	Upama alankara	PPT/Lecture		
49	Upamana ,Upameya ,sadharana dharma	PPT/Lecture		
50	Ullekha Alankara	PPT/Lecture		
51	Dipika Alankara	PPT/Lecture		
52	Dipika example	PPT/Lecture	Video	
53	Vyathireka Alankara	PPT/Lecture		
54	Aprastutaprasamsa	PPT/Lecture		
55	Revision			
56	Svabhavokthi Alankara	Lecture	Debate	
57	Rupaka Alankara	PPT/Lecture		
58	Drishtantha Alankara	PPT/Lecture		
59	Dristantha -example	PPT/Lecture		
60	Arthantharanyasa	PPT/Lecture		



61	Prathama Ullekha	PPT/Lecture		
62	Dvitheeya Ullekha	PPT/Lecture		
CIA - II				
MODULE IV				
63	Characteristic of Karna	Lecture		
64	Characteristics of Shalya	Lecture	Group discussion	
65	Characteristics of Indra	Lecture		
66	Characteristics of Parvathi	PPT/Lecture		
67	Characteristics of Brahmachari	PPT/Lecture		
68	Himalaya	PPT/Lecture		
69	Revision			
70	Revision			
71	Revision			
72	Revision			

#### INDIVIDUAL ASSIGNMENTS/SEMINAR – Details & Guidelines

	Date of completion	Topic of Assignment & Nature of assignment (Individual/Group – Written/Presentation – Graded or Non-graded etc)
1	12/08/2016	The role of Karna in Mahabharatha
2	16/09/2016	Upama kalidasasya

#### GROUP ASSIGNMENTS/ACTIVITES – Details & Guidelines

	Date of completion	Topic of Assignment & Nature of assignment (Individual/Group – Written/Presentation – Graded or Non-graded etc)
1	23/9/2016	The moral values in Kumarasambava
2	30/9/2016	Purushartha –the means of life

#### References

1. Bhasanatakacakram O.R.I& Manuscript Library Trivandrum
2. Bhasanatakamanjari, Dr. V.S. Idakidath, Saparya Books, Kollam
3. Kumarasambhavam by Kuttikrishna Marar
4. Bhasanatakasarvasvam Sudhamsu Chathurvedi
5. Kalidasa Hhridayam, V. Unnikrishnan Nair
6. The Problems of Bhasa Plays, Dr. N.P. Unni
7. Abhijnana Sakunthalam, M.R.Kale
8. Kalidasarvasvam, Sudhamsucathurvedi
9. Kuvalayanandam , Appayyadikshitha

**COURSE PLAN-**

PROGRAMME	<b>B.Sc Botany</b>	SEMESTER	1
COURSE CODE & TITLE	15U1CCMAL1A കഥ നോവൽ	CREDITS	4
HOURS/WEEK	4	HOURS/SEM	72
FACULTY NAME	<b>FR. XAVIER C S, VISHNU RAJ P</b>		

COURSE OBJECTIVES
കഥ, നോവൽ എന്നിവയെക്കുറിച്ച് മെച്ചപ്പെട്ട ധാരണ ഉണ്ടാക്കുക
ഭാഷാപഠനം സാഹിത്യാനുഭവത്തിലൂടെ ആവിഷ്കരിക്കുക
വായനാഭിരുചി വർദ്ധിപ്പിക്കുക
സാഹിത്യ പരിചയം ഉണ്ടാക്കുക
വ്യാവഹാരിക തലത്തിൽ മാതൃഭാഷാപ്രയോഗിക്കുവാനുള്ള കഴിവ് നേടുക
ഭാഷാപഠനത്തിലൂടെ ആശയവിനിമയശേഷി വർദ്ധിപ്പിക്കുക

**COURSE PLAN**

Session	Topic	Learning Resources	Teaching Method	Remarks
<b>Module I</b>				
1	മലയാളസാഹിത്യം സാമാന്യാവലോകനം	സാഹിത്യചരിത്രങ്ങൾ	Lecturing	
2	ചെറുകഥയുടെ ചരിത്രം -1	സാഹിത്യചരിത്രങ്ങൾ	Lecturing	
3	ചെറുകഥയുടെ ചരിത്രം-2	സാഹിത്യചരിത്രങ്ങൾ	Discussion	
4	തകഴിയുടെ രചനാലോകം	നോവൽ & ചെറുകഥാപഠനങ്ങൾ	Lecturing	
5	വെളുത്തകുഞ്ഞ്	Text	Reading	
6	വെളുത്തകുഞ്ഞ്	Text	Group Discussion	
7	സന്തോഷ് ഏച്ചിക്കാനത്തിൻറെ കഥകൾ	ചെറുകഥാപഠനങ്ങൾ	Lecturing	
8	അഭിനയമുഹൂർത്തങ്ങൾ കഥ	Text	Reading	
9	അഭിനയമുഹൂർത്തങ്ങൾ കഥ	Text	Group Discussion	
10	ഒ വി വിജയനെ പരിചയപ്പെടുത്തുന്നു	നോവൽ & ചെറുകഥാപഠനങ്ങൾ	Lecturing	

11	കടൽത്തീരത്ത്	Text	Reading	
12	കടൽത്തീരത്ത്	Text	Group Discussion	
13	എൻ എസ് മാധവൻറെ കൃതികളുടെ രാഷ്ട്രീയം	നോവൽ & ചെറുകഥാ പഠനങ്ങൾ	Lecturing	
14	നാലാംലോകം കഥ	Text	Reading	
15	നാലാംലോകം കഥ	Text	Group Discussion	
16	നാലാംലോകം കഥ	Text	Group Discussion	
17	ചെറുകഥ - അവലോകനം	Text	Group Discussion	
Module II				
18	എം ടി വാസുദേവൻ നായരുടെ കൃതികൾ	നോവൽ & ചെറുകഥാ പഠനങ്ങൾ	Lecturing	
19	ഷെർലക്ക്	Text	Reading	
20	ഷെർലക്ക്	Text	Group Discussion	
21	ഉണ്ണി ആറിനെ പരിചയപ്പെടുത്തുന്നു	നോവൽ & ചെറുകഥാ പഠനങ്ങൾ	Lecturing	
22	ഒറ്റപ്പെട്ടവൻ-	Text	Reading	
23	ഒറ്റപ്പെട്ടവൻ-	Text	Group Discussion	
24	ജോൺ എബ്രഹാം: സാഹിത്യവും സിനിമയും	നോവൽ & ചെറുകഥാ പഠനങ്ങൾ	Lecturing	
25	നേർച്ചക്കോഴി	Text	Reading	
26	നേർച്ചക്കോഴി	Text	Group Discussion	
27	സാനാ ജോസഫ്, പുരാണ പുനർവായന	നോവൽ & ചെറുകഥാ പഠനങ്ങൾ	Lecturing	
28	തായ്ക്കലം	Text	Reading	
29	തായ്ക്കലം	Text	Group Discussion	
30	ചെറുകഥ - അവലോകനം	Text	Group Discussion	
31	Internal Assessment 1	Text		
32	Question paper discussion	Text	Group Discussion	
Module III				
33	മാധവിക്കുട്ടിയുടെ കഥകളുടെ പ്രത്യേകതകൾ	നോവൽ & ചെറുകഥാ പഠനങ്ങൾ	Lecturing	
34	പക്ഷിയുടെ മണം	Text	Reading	
35	പക്ഷിയുടെ മണം	Text	Group Discussion	
36	വൈക്കം മുഹമ്മദ് ബഷീറിൻറെ ലോകം	നോവൽ & ചെറുകഥാ പഠനങ്ങൾ	Lecturing	
37	ശിക്കിടിമുക്കൻ	Text	Reading	
38	ശിക്കിടിമുക്കൻ	Text	Group Discussion	
39	സേതുവിന്റെ കൃതികൾ		Lecturing	
40	ദൂത്	Text	Reading	
41	ദൂത്	Text	Group Discussion	

42	കെ ആർ മീരയുടെ എഴുത്തുകൾ	നോവൽ & ചെറുകഥാ പഠനങ്ങൾ	Lecturing	
43	മോഹമഞ്ഞ	Text	Reading	
44	മോഹമഞ്ഞ	Text	Group Discussion	
45	ചെറുകഥ - അവലോകനം	Text	Group Discussion	
Module - IV				
46	മലയാളനോവൽ ചരിത്രം	സാഹിത്യചരിത്രങ്ങൾ	Lecturing	
47	മലയാളനോവൽ ചരിത്രം	സാഹിത്യചരിത്രങ്ങൾ	Group Discussion	
48	മലയാളനോവൽ നൂതന പ്രവണതകൾ	സാഹിത്യചരിത്രങ്ങൾ	Lecturing	
49	മലയാളനോവൽ നൂതന പ്രവണതകൾ	സാഹിത്യചരിത്രങ്ങൾ	Group Discussion	
50	വിനോയ് തോമസ്- ആമുഖം	നോവൽ പഠനങ്ങൾ	Lecturing	
51	കരിക്കോട്ടക്കരി- നോവൽ ആമുഖം	നോവൽ പഠനങ്ങൾ	Lecturing	
52	കരിക്കോട്ടക്കരി അധ്യായം 1	Text	Group Discussion	
53	കരിക്കോട്ടക്കരി അധ്യായം 2	Text	Group Discussion	
54	കരിക്കോട്ടക്കരി അധ്യായം 3	Text	Group Discussion	
55	കരിക്കോട്ടക്കരി അധ്യായം 4	Text	Group Discussion	
56	കരിക്കോട്ടക്കരി അധ്യായം 5	Text	Group Discussion	
57	കരിക്കോട്ടക്കരി അധ്യായം 6	Text	Group Discussion	
58	കരിക്കോട്ടക്കരി അധ്യായം 7	Text	Group Discussion	
59	കരിക്കോട്ടക്കരി അധ്യായം 8	Text	Group Discussion	
60	കരിക്കോട്ടക്കരി അധ്യായം 9	Text	Group Discussion	
61	കരിക്കോട്ടക്കരി അധ്യായം 10	Text	Group Discussion	
62	കരിക്കോട്ടക്കരി അധ്യായം 11	Text	Group Discussion	
	Internal Assessment 2			
63	കരിക്കോട്ടക്കരി അധ്യായം 12	Text	Group Discussion	
64	കരിക്കോട്ടക്കരി അധ്യായം 13	Text	Group Discussion	
65	കരിക്കോട്ടക്കരി അവലോകനം	Text	Group Discussion	
66	സംവാദം- വിനോയ് തോമസ്	Text	Group Discussion	
67	സെമിനാർ	Text	Presentation	
68	സെമിനാർ	Text	Presentation	

69	സെമിനാർ	Text	Presentation	
70	സെമിനാർ	Text	Presentation	
71	സെമിനാർ	Text	Presentation	
72	Revision	Text	Group Discussion	

**ASSIGNMENTS**

Sl no	Date of submission/completion	Topic of Assignment & Nature of assignment (Individual/Group – Written/Presentation – Graded or Non-graded etc)
1	By October	മലയാളത്തിലെ തെരഞ്ഞെടുത്ത കഥാകൃത്തുക്കളുടെ വിവരണങ്ങൾ
2		സിലബസിൽ പഠിക്കാൻ ഇല്ലാത്ത ഒരു നോവലിന്റെ ആസ്വാദനം

**SEMINAR**

	Date of submission/completion	Topic of semiar & Nature of seminar (Individual/Group – Written/Presentation – Graded or Non-graded etc)
1	By October	പാഠഭാഗങ്ങളുടെ അവതരണം
2		പാഠഭാഗങ്ങളുടെ അവതരണം

**Referance :**

1. സമ്പൂർണ്ണ മലയാള സാഹിത്യചരിത്രം - എഡിറ്റർ :പന്മന രാമചന്ദ്രൻ നായർ
- 2.ചെറുകഥ ഇന്നലെ ഇന്ന് ഐം അച്യുതൻ
- 3.മലയാള നോവൽ സാഹിത്യചരിത്രം - കെ എം തരകൻ

**COURSE PLAN – MICROBIOLOGY AND PHYCOLOGY**

<b>PROGRAMME</b>	<b>BACHELOR OF BOTANY</b>	<b>SEMESTER</b>	<b>1</b>
<b>COURSE CODE AND TITLE</b>	<b>15U1CRBOT1 -MICROBIOLOGY AND PHYCOLOGY</b>	<b>CREDIT</b>	<b>2</b>
<b>HOURS/WEEK</b>	<b>4</b>	<b>HOURS/SEM</b>	<b>72</b>
<b>FACULTY NAME</b>	<b>FR. JOSE JOHN &amp; KIRAN GEORGE KOSHY</b>		

<b>COURSE OBJECTIVES</b>
Students would be able to define process and principles in the field of microbial diversity
Students would be able to explain the reproductive behaviour in Algae and microbes
Students would be able to apply the acquired knowledge on the ecological significance of the lower groups of plants and protists
Students would be able to analyze economic significance of the lower groups of plants and protists
Evaluate various algal forms and classify them in the laboratory
Develop new strategies based on various algal forms and on the basis of their applications

<b>SESSION</b>	<b>TOPIC</b>	<b>LEARNING RESOURCES</b>	<b>VALUE ADDITIONS</b>	<b>REMARKS</b>
<b>MODULE I</b>				
1	Introduction, Scope of Microbiology	PPT	video	
<b>MODULE II</b>				
2	Bacteria: Fine structure - cell wall - Peptidoglycan	PPT/Lecture		
3	Cytoplasm - Nucleoid, Flagella	PPT/Lecture		
4	Reproduction- Binary fission	PPT/Lecture	e-resource	
5	Genetic recombination - Conjugation	PPT/Lecture		
6	Transformation	PPT/Lecture		
7	Transduction	Lecture		
8	Three Domains of Life	Lecture		
9	Mycoplasma - general characters	Lecture		
<b>MODULE III</b>				
10	Virus - General morphology and structure.	Lecture		
11	Plant viruses – architecture of TMV	PPT/Lecture		
12	RNA viruses, DNA viruses (Examples only)	PPT/Lecture		
13	Brief account of virus replication	PPT/Lecture		
<b>MODULE IV</b>				

14	Biofertilizers & Biopesticides and Production of single cell protein and Probiotics	PPT/Lecture		
15	Biogas production and Antibiotics	Lecture		
16	Reconversion of waste products and Bioremediation	Lecture		
<b>PHYCOLOGY</b>				
<b>MODULE I</b>				
19	Introduction: general characters, habitat diversity, range of thallus structure and pigments in algae; Different types of life cycle and alternation of generations in algae.	Lecture	Original Photographs and Videos	
20		PPT/Lecture		
21		PPT/Lecture		
22		PPT/Lecture		
23		PPT/Lecture		
24	Classification: by Fritsch (1945); brief introduction to the modern classification by Lee (2009) [up to divisions].	Lecture		
25		Lecture		
<b>MODULE II</b>				
27	"General characters of the following major groups with special reference to the structure, reproduction and life cycles of the following types.	Lecture		
28	a. Cyanophyceae: Nostoc	Lecture		
29	b. Chlorophyceae: Volvox, Oedogonium, Cladophora, Chara	PPT/Lecture		
30	c. Xanthophyceae: Vaucheria	PPT/Lecture		
31	d. Bacillariophyceae: Pinnularia	PPT/Lecture		
32	e. Phaeophyceae : Sargassum			
<b>MODULE III</b>				
33	a. Algae as pollution indicator and in waste water treatment	PPT/Lecture		
34	b. Commercial products: Agar, Alginates, Carrageenin, Diatomaceous earth"	PPT/Lecture		
35		PPT/Lecture		
36	c. Algae in soil fertility, Fertilizer, Nitrogen fixation, minerals, soil algae and symbiosis	Lecture	Quiz	
<b>MODULE IV</b>				
37	Algal culture: isolation, cultivation and preservation of micro- and macro-algae. (Brief account only)	Lecture	Q & Ans Session	
38		PPT/Lecture		
39	Algal culture: isolation, cultivation and preservation of micro- and macro-algae. (Brief account only)	PPT/Lecture		
<b>PRACTICALS</b>				
40				

41				
42	1. Preparation of bacterial smear.			
43		Laboratory		
44	2. Grams staining.			
45				
46				
47	3. Isolation of microbes from soil (Streaking method).			
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52				
53	"1. Conduct a field visit to any one of the ecosystems rich in Algae to experience algal diversity. Submit a report of the visit with photographs.			
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56				
57				
58	2. Make micro preparation of vegetative and reproductive structures of the types mentioned in the syllabus and make labelled sketches of the specimens observed.			
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62				
63				
64				
65	3. Identify the algal specimens up to the generic level by noting their key characters.			
66				
67	4. Algal Culturing: isolation and cultivation of microalgae and macro algae using suitable growth media [Demonstration only]. 5. Familiarize the technique of algal collection and preservation and submit at least five algal specimens.			
68 – 72	Hand on session			



## REFERENCES

1. Agarwal S.K, 2008. Foundation course in Biology, Ane Books Pvt. Ltd., New Delhi.
2. Anand N, 1989. Culturing and cultivation of BGA. Handbook of Blue Green Algae.
3. Aneja K. R, 1996. Experiments in Microbiology, Plant pathology, Tissue culture and Mushroom cultivation. Wishwa Prakasan, Delhi.
4. Bilgrama K. S & Saha L. C, 1996. Text Book of Algae, C B S Publishers & Distributors
5. Carpenter P. L, 1967. Microbiology., W. B Saunder& Co, Philadelphia
6. Chapman, V. J, 1962. The Algae.: Macmillan& co. Ltd, London
7. Christian Hoek, 1995. Algae: An Introduction to Phycology, Cambridge University Press.
8. Dube H.C, 2008. Fungi, Bacteria and Viruses, Agrobios, Meerut.
9. Frazier W C & Westhoff D.C, 1978. Food Microbiology. TMH Edn.
10. Fritsch F. E, 1945. Structure and Reproduction of Algae. Vol.1: Cambridge University Press, London.

### COURSE PLAN – GENERAL CHEMISTRY

<b>PROGRAMME</b>	<b>COMPLEMENTARY CHEMISTRY FOR BACHELOR OF SCIENCE IN BOTANY</b>	<b>SEMESTER</b>	<b>1</b>
<b>COURSE CODE AND TITLE</b>	<b>15U1PCHE1: GENERAL CHEMISTRY</b>	<b>CREDIT</b>	<b>2</b>
<b>HOURS/WEEK</b>	<b>2</b>	<b>HOURS/SEM</b>	<b>36</b>
<b>FACULTY NAME</b>	<b>Mr. Senju Devassykutty and Dr. Abi T G</b>		

<b>COURSE OBJECTIVES</b>
Describe different models of atomic structure.
Define acids and bases and explain the concept of equilibrium.
To understand the concept of solubility and its applications in various fields.
Explain the fundamentals of nuclear chemistry.
Generate a basic idea on applications of nuclear energy in various fields and the possible hazards.
Explain the fundamentals of analytical chemistry.
To understand the basics of thermodynamics.

<b>SESSION</b>	<b>TOPIC</b>	<b>LEARNING RESOURCES</b>	<b>VALUE ADDITIONS</b>	<b>REMARKS</b>
<b>MODULE I : Atomic Structure (9h)</b>				
1	Introduction: Atoms, Planck's quantum Theory, Photoelectric effect	Chalk & Board	video	
2	Postulates of bohr's theory, Energy levels in atom	Chalk & Board		
3	origin of hydrogen spectrum	Chalk & Board		
4	Sommerfeld's extension of Bohr's Theory	Chalk & Board		
5	Shortcomings of Bohr Theory	Chalk & Board		
6	Dual nature of matter and radiation. Derivation of de Broglie equation	Chalk & Board		
7	Wave nature of electron and quantisation of angular momentum, Heisenberg's uncertainty principle	Chalk & Board		
8	Concept of orbital, Quantum numbers, shapes of orbitals	Chalk & Board		
9	Electronic configuration of atoms - Aufbau principle, Hund's rule of maximum multiplicity, Pauli's exclusion principle	Chalk & Board		
<b>MODULE II: Concept of Equilibrium (8h)</b>				
10	Acids and bases	Chalk & Board		
11	Theories of acids and bases	Chalk & Board		
12	Ionic product of water, introductory idea of pH, pOH.	Chalk & Board	quiz	

13	Strengths of acids and bases, $K_a$ and $K_b$ , $pK_a$ and $pK_b$	Chalk & Board		
14	Buffer solution, Henderson equation	Chalk & Board		
15	Hydrolysis of salt, solubility	Chalk & Board		
16	Solubility product, application	Chalk & Board		
17	Common ion effect, application.	Chalk & Board		
<b>MODULE III: Nuclear Chemistry (6h)</b>				
18	Stability of Nucleus	Chalk & Board		
19	Natural radioactivity, induced radioactivity	Chalk & Board	quiz	
20	Fertile and fissile isotopes, units of radioactivity.	Chalk & Board		
21	Nuclear Reactions: fission and fusion, chain reactions	Chalk & Board		
22	Disposal of nuclear wastes	Chalk & Board		
23	Applications of radioactivity	Chalk & Board		
<b>MODULE IV: Analytical Chemistry- Basic Principles (5h)</b>				
24	Concentration terms- molality, molarity, normality, weight percentage, ppm, and millimoles.	Chalk & Board		
25	Titrimetric method of analysis: General principle, types of titrations, requirements for titrimetric analysis.	Chalk & Board		
26	Primary and secondary standards, criteria for primary standards	Chalk & Board		
27	Preparation of standard solutions, standardization of solutions	Chalk & Board		
28	Problems	Chalk & Board	Quiz	
<b>MODULE V: Laws of Thermodynamics (8h)</b>				
29	System and Surrounding and First Law of Thermodynamics	Chalk & Board		
30	Second law of Thermodynamics: free energy, Entropy and Spontaneity, Statement of second law based on entropy	Chalk & Board		
31	Entropy change in Phase transitions	Chalk & Board		
32	entropy of fusion, entropy of vaporization, entropy of sublimation	Chalk & Board		
33	The concept of Gibbs's free energy- Physical significance of free energy, conditions for equilibrium & spontaneity based on $\Delta G$ values.	Chalk & Board		
34	Effect of temperature on spontaneity of Reaction.	Chalk & Board		
35	Third law of thermodynamics	Chalk & Board		
36	Problems based on Laws of Thermodynamics	Chalk & Board	Quiz	

### INDIVIDUAL ASSIGNMENTS/SEMINAR – Details & Guidelines

	Date of completion	Topic of Assignment & Nature of assignment (Individual/Group – Written/Presentation – Graded or Non-graded etc)
1	04/08/2016	Applications of solubility product
2	28/10/2016	Effect of temperature on spontaneity of Reaction.

### GROUP ASSIGNMENTS/ACTIVITES – Details & Guidelines

	Date of completion	Topic of Assignment & Nature of assignment (Individual/Group – Written/Presentation – Graded or Non-graded etc)
1	02/11/2016	Concentration terms

### REFERENCES

1. P. L. Soni, Inorganic Chemistry.
2. C. N. R. Rao, University General Chemistry, Macmillan.
3. R. A. Day Junior, A.L. Underwood, Quantitative Analysis, 5th edn. Prentice Hall of India Pvt. Ltd. New Delhi, 1988.
4. R. Gopalan, Analytical Chemistry, S. Chand and Co., New Delhi.
5. B. R. Puri, L. R. Sharma, M.S. Pathania, Elements of Physical Chemistry, 3rd edn. Vishal Pub. CO., 2008.
6. B. R. Puri, L. R. Sharma, Kalia, Principles of Inorganic Chemistry, 31st edn. Milstone (2010). Manas Chanda, 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 PLAN – Complementary Zoology

<b>PROGRAMME</b>	BSC BOTANY	<b>SEMESTER</b>	1
<b>COURSE CODE AND TITLE</b>	15U1CPZOO1: Animal Diversity – Non-Chordata	<b>CREDIT</b>	2
<b>HOURS/WEEK</b>	4	<b>HOURS/SEM</b>	36
<b>FACULTY NAME</b>	Dr. SMITHA		

<b>COURSE OBJECTIVES</b>
To understand the basic concepts and principles of invertebrate taxonomy
Analyse the salient features and taxonomy up to phylum of Kingdom Protista
To understand the salient features and taxonomy of mesozoa and Parazoa.
Differentiate the coral reefs and the rich biodiversity of coelenterates
To understand the pathogenicity of round worms and flat worms.
To understand the salient features and taxonomy of segmented, jointed and shelled invertebrates.
To understand the morphological aspects, structural and functional facets of <i>Penaeus</i> .
Impart the knowledge of the pests of paddy, coconut and stored grains.
Analyze the salient features of Hemichordata with reference to evolutionary sequence

<b>SESSION</b>	<b>TOPIC</b>	<b>LEARNING RESOURCES</b>	<b>VALUE ADDITIONS</b>	<b>REMARKS</b>
<b>MODULE I</b>				
1	General Introduction, 5 Kingdom classification, Classification in general	Lecture/ppt		
2	Classification up to Classes	Lecture /PPT		
<b>MODULE II</b>				
3	Kingdom Protista; Salient features and classification up to phyla	PPT	Video	
4	Phylum Rhizopoda: Amoeba Phylum Actinopod: Actinophrys	Lecture	Demo	
5	Phylum Parabasalia: Trychonympha Phylum Dinoflagellate: Noctiluca	Lecture	Video	
6	Phylum Metamonada : Giardia Phylum Kinetoplasta: Trypanosoma	Lecture	Demo	
7	Phylum Euglenophyta: Euglena	PPT		

	Phylum Cryptophyta: Cryptomonas			
8	Phylum Opalinata: Opalina Phylum Bacillariophyta: Diatoms	PPT	Video	
9	Phylum Chlorophyta: Volvox Phylum Choanoflagellates: Proterospongia	PPT	Demo	
10	Phylum Sporozoa: Plasmodium Phylum Ciliophora: Paramecium	PPT/Lecture	Video	
11	Phylum Rhodophyta: Red Alga Phylum Microsporidia: Nosema	PPT/Lecture	Video	
12	Pathogenic Protista–Plasmodium	Lecture	Video	
13	Pathogenic Protista – Entamoeba	Lecture	Video	
CIA-1				
<b>MODULE III</b>				
14	Mesozoa – eg. Rhopalura	PPT/Lecture	Video	
15	Phylum Parazoa	PPT/Lecture	Video	
16	Phylum Porifera – eg Leucosolenia Phylum Placozoa –eg.Trycoplax adherens	PPT/Lecture		
<b>MODULE IV Coelenterate</b>				
17	Phylum Coelenterate salient features	Lecture	Video	
18	Hydrozoa – Physalia Scyphozoa – Aurelia	PPT/Lecture	Video	
19	Anthozoa – Adamsia Corals and coral reefs.	PPT/Lecture	Video	
<b>Module V. Phylum - Platyhelminthes</b>				
20	Phylum - Platyhelminthes Salient features, classification up to classes 1.Turbellaria – Planaria	PPT/Lecture		
21	CIA- II		2 hrs	
<b>Module VI. Phylum Nematoda</b>				
22	Phylum Nematoda Salient features, classification up to classes	Lecture	Video	
23	Phasmidia - Wuchereria 2.Aphasmidia – Trichinella	PPT/Lecture	Video	
Revision & Evaluation of the course				
<b>Module VII. Phylum: Annelida</b>				
24	Phylum Annelida: Salient features and classification up to class.	PPT/Lecture	Video	
25	Class 1: Polychaeta (eg: Nereis) Class 2: Oligochaeta (eg: Pheretima)	PPT/Lecture	Video	

	Class 3: Hirudinomorpha (eg: Hirudinaria)			
<b>Module 8 – Phylum : Arthropoda</b>				
26	Arthropoda: Salient features. Fenneropenaeus (Penaeus) habitat, morphology,	PPT/Lecture	Video	
27	Appendages, sexual dimorphism, digestive system, respiratory system, circulatory system, excretory system	PPT/Lecture	Video	
28	Nervous system, sense organs	PPT/Lecture		
29	Reproductive system, larval stages.	PPT/Lecture		
30	Classification up to class with one example	PPT/Lecture		
27	Phylum Onychophora – eg. Peripatus (Mention its affinities) Insect pests	PPT/Lecture		
28	Pests of coconut – Oryctes rhinoceros, Rhynchophorus ferrugineus, Nephantisserinopa, Eriophid mite	PPT/Lecture	Live discussion	
29	Pests of paddy – Leptocorisaacuta, Spodoptera mauritius 3. Pests of stored grains - Trogoderma granarium, Tribolium castaneum, Sitophilus oryzae	PPT/Lecture	Live discussion	
<b>Module 9: Phylum : Mollusca</b>				
30	Salient features and classification up to class	PPT/Lecture		
31	Class 1: Aplousobranchia (eg: Neomenia) Class 2: Monoplousobranchia (eg: Neopilina) Class 3: Polyplousobranchia	PPT/Lecture	Live discussion	
32	Class 4: Bivalvia (eg: Perna) Class 5: Gastropoda (eg: Xancus) Class 6: Cephalopoda (eg: Sepia) Class 7: Scaphopoda (eg: Dentalium)	PPT/Lecture	Video	
<b>Module 10: Phylum: Echinodermata</b>				
33	Salient features and classification up to class	PPT/Lecture		
34	Class 1: Asterozoa (eg: Astropecten) Class 2: Ophiurozoa (eg: Ophiothrix) Class 3: Echinozoa (eg: Echinus)	PPT/Lecture	Video	
35	Class 4: Holothurozoa (eg: Holothuria) Class 5: Crinozoa (eg: Antedon)	PPT/Lecture	Video	
<b>Module 11. Phylum Hemichordata</b>				
36	Phylum Hemichordata	PPT/Lecture		
37	Salient features eg: Balanoglossus	PPT/Lecture		

### ASSIGNMENTS

	Date of completion	Topic of Assignment & Nature of assignment (Individual/ /Presentation – Graded)
1	4/11/2016	Make a classification of chart of invertebrates

### GROUP ASSIGNMENTS/ACTIVITES – Details & Guidelines

	Date of completion	Video presentation-Individual
1	14/11/2016	Find the invertebrates around you premises

### REFERENCES

- Barnes, R.D. , 1987. Invertebrate Zoology (W.B. Saunders, New York).
- Barrington, E.J.W., 1967. Invertebrate Structure and function (ELBS and Nelson , London).
- Dhami, P.S. and Dhami, J.K. 1979. Invertebrate Zoology (R. Chand and Co. New Delhi).
- Ekamberanatha Ayyar M. (1990) A Manual of Zoology, Volume I. Invertebrate Part I and Part II S. Viswanathan Printers & Publishers Pvt. Ltd.
- Groove, A.J. and Newell, G.E. 1974. Animal Biology – Indian Reprint (University Book Stall, New Delhi).
- Hyman, L.H. The Invertebrate vols. (McGraw-Hill) 1942. Comparative vertebrate Anatomy (The University of Chicago Press)

### Web resource references:

- <https://www.nationalgeographic.com/animals/invertebrates/>