

**SACRED HEART COLLEGE (AUTONOMOUS)**

**DEPARTMENT OF ZOOLOGY**

**BACHELOR OF SCIENCE IN ZOOLOGY**

**Course plan**

**Academic Year 2014 - 15**

**Semester 3**

### COURSE STRUCTURE

TITLE OF THE COURSE	NO. HRS./ WEEK	CREDITS	TOTAL HRS./SEM
REFLECTIONS ON INDIAN POLITY, SECULARISM AND SUSTAINABLE ENVIRONMENT	5	4	90
POETRY AND FICTION	5	4	90
AN ADVANCED COURSE IN FRENCH	5	4	90
TRANSLATION AND COMMUNICATION	5	4	90
അനുഭവം പൊതുജനം	5	4	72
ANIMAL DIVERSITY- CHORDATA	3	3	54
INORGANIC AND BIO-INORGANIC CHEMISTRY	3	3	54
ANGIOSPERM TAXONOMY AND ECONOMIC BOTANY	3	3	54

### COURSE PLAN

PROGRAMME	UG COMMON COURSE 3-Zoology	SEMESTER	3
COURSE TITLE	REFLECTIONS ON INDIAN POLITY, SECULARISM AND SUSTAINABLE ENVIRONMENT	CREDIT	4
HOURS/WEEK	5	HOURS/SEM	90

### COURSE OBJECTIVES

To communicate effectively in English.

To understand the vital aspects of Indian polity viz. democracy, federalism and secularism.

To respond critically to the questions of sustainable development

To assimilate and creatively respond to Gandhian thoughts

To compare and contrast scholarly texts (both content and style

To critique the challenges and opportunities that citizens are bound to encounter.

SESSION	TOPIC	LEARNING RESOURCES	VALUE ADDITIONS	REMARKS
<b>MODULE I -INDIAN POLITY</b>				
1	The Preamble of the Constitution	Lecture		
2	The Preamble of the Constitution	PPT/Lecture		
3	The Preamble of the Constitution	PPT/Lecture		
4	On the Constitution of India	lecture		
5	Rajendra Prasad : “Let Posterity Judge”	PPT/Lecture	video	
6	Rajendra Prasad : “Let Posterity Judge”	PPT/Lecture	PPT	
7	Rajendra Prasad : “Let Posterity Judge”	Lecture		
8	Rajendra Prasad : “Let Posterity Judge”	Lecture		
9	Rajendra Prasad : “Let Posterity Judge”	PPT/Lecture	video	
10	Rajendra Prasad : “Let Posterity Judge”	PPT/Lecture		
11	Sebastian : “Exciting Views”	Discussion		
12	Sebastian : “Exciting Views”	Discussion		
13	Amulal Hingorani : “Brother Abdul Rahman”	Seminar Presentation s	PPT	
14	Amulal Hingorani : “Brother Abdul Rahman”	Seminar Presentation s	PPT	
15	Amulal Hingorani : “Brother Abdul Rahman”	Seminar Presentation s	PPT	
<b>MODULE II</b>				
16	Vallathol : “My Master”	Discussion		
17	Vallathol : “My Master”	Discussion		
18	Louis Fischer : “Gandhi and Western World”	Seminar Presentation s	PPT	

19	Louis Fischer : "Gandhi and Western World"	Seminar Presentation s	PPT	
20	Louis Fischer : "Gandhi and Western World"	Seminar Presentation s	PPT	
21	Louis Fischer : "Gandhi and Western World"	Seminar Presentation s	PPT	
22	Raja Rao : "The Cow of the Barricades"	Lecture		
23	Raja Rao : "The Cow of the Barricades"	Lecture		
24	Raja Rao : "The Cow of the Barricades"	Discussion		
25	M.K.Gandhi : "Round Table Conference Speech"	Lecture	Text	
26	M.K.Gandhi : "Round Table Conference Speech"	PPT/Lecture		
27	M.K.Gandhi : "Round Table Conference Speech"	Lecture		
28	M.K.Gandhi : "Round Table Conference Speech"	Lecture		
29	C E M Joad : "The Gandhian Way"	Lecture		
30	C E M Joad : "The Gandhian Way"	PPT/Lecture	PPT	
31	C E M Joad : "The Gandhian Way"	Lecture		
MODULE III				
32	Mohinder Sing Sarna : "Smaller Gandhis"	Lecture	Text	
33	Mohinder Sing Sarna : "Smaller Gandhis"	Lecture		
34	Mohinder Sing Sarna : "Smaller Gandhis"	PPT/Lecture	PPT	
35	Mohinder Sing Sarna : "Smaller Gandhis"	Lecture	video	
36	Kumar Vikal : "Can you Make Out"	Seminar	PPT	
37	Kumar Vikal : "Can you Make Out"	Seminar	PPT	
38	Shashi Tharoor : "The Idea of India: India's Mosaic of Multiplicities"	Seminar	PPT	

39	Shashi Tharoor : “The Idea of India: India’s Mosaic of Multiplicities”	Seminar	PPT	
40	Shashi Tharoor : “The Idea of India: India’s Mosaic of Multiplicities”	Seminar	PPT	
41	Roots	PPT/Lecture		
42	Roots	Lecture	video	
43	Roots	Lecture		
44	Roots	Lecture		
45	Roots	Lecture	Quiz	
46	Padma Sachdev : “Smoke”	Discussion	PPT	
47	Padma Sachdev : “Smoke”	Discussion	Essay	
48	Padma Sachdev : “Smoke”	Discussion		
<b>MODULE IV</b>				
49	Seminar	Presentation		
<b>MODULE III- PRAXIS OF GANDHIAN THOUGHT</b>				
50	Fritjof Capra : “Deep Ecology”	Lecture	Video	
51	Fritjof Capra : “Deep Ecology”	Discussion		
52	Fritjof Capra : “Deep Ecology”	Discussion		
53	A K Ramanujan : “Ecology”	Seminar	PPT	
54	A K Ramanujan : “Ecology”	Seminar	PPT	
55	A K Ramanujan : “Ecology”	Seminar	PPT	
56	Sujatha Bhatt : “The First Meeting”	Lecture, discussion		
57	Sujatha Bhatt : “The First Meeting”	Discussion		
58	Ramachandra Guha : “A Gandhian in Garhwal”	Lecture	Notes	
59	Ramachandra Guha : “A Gandhian in Garhwal”	Discussion		
60	Ramachandra Guha : “A Gandhian in Garhwal”	Lecture		
61	Ramachandra Guha : “A Gandhian in Garhwal”	Lecture		

62	Jack London : "The Law of Life"	Seminar	PPT	
63	Jack London : "The Law of Life"	Seminar	PPT	
64	Jack London : "The Law of Life"	Seminar	PPT	
65	Jack London : "The Law of Life"	Seminar	PPT	
66	Elizabeth Bishop : "The Fish"	Discussion	Text	
67	Elizabeth Bishop : "The Fish"	Discussion	Text	
68	Chief Seattle : "The End of Living and the Beginning of Survival"	Presentation	PPT	
69	Chief Seattle : "The End of Living and the Beginning of Survival"	Presentation	PPT	
70	Chief Seattle : "The End of Living and the Beginning of Survival"	PPT/Lecture	PPT	
71	Deep Ecology	Lecture	video	
72	Deep Ecology	Lecture		
73	Robinson Jeffers : "The Last Conservative"	PPT/Lecture	Notes	
74	Robinson Jeffers : "The Last Conservative"	PPT		
75	Review			
76	Review			
77	Review			
78	Review			
79	Review			
80	Seminar Presentation	PPT		
81	Seminar Presentation	PPT		
82	CIA 2			

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

	Date of completion	Topic of Assignment & Nature of assignment (Individual/Group – Written/Presentation – Graded or Non-graded etc)
1	2/8/2014	Presentations
2	28/8/2014	Role Plays

### **GROUP ASSIGNMENTS/ACTIVITIES – Details & Guidelines**

	Date of completion	Topic of Assignment & Nature of assignment (Individual/Group – Written/Presentation – Graded or Non-graded etc)
<b>1</b>	12/9/2014	Group Discussions
<b>2</b>	20/9/2014	Performances

### **References**

Dr B Keralavarma Ed. Understanding India: An Anthology on Indian Polity, Secularism and Sustainable Environment. Macmillan and Mahatma Gandhi University.



## COURSE PLAN

PROGRAMME	BACHELOR OF SCIENCE- ZOOLOGY	SEMESTER	3
COURSE TITLE	POETRY AND FICTION	CREDIT	4
HOURS/WEEK	5	HOURS/SEM	90

### COURSE OBJECTIVES

- |  |
|--|
| To describe the various aspects of Hindi poetry in context of socio-cultural and political condition of that period. |
| To recognise the social significance of a literary work in any language.   |
| To develop creative thinking capacity through literature.  |
| To acquire ability to read, appreciate and analyze Novel independently   |
| To develop knowledge of literary forms in Hindi Short story and effective reading skills.                            |

SESSION	TOPIC	LEARNING RESOURCES	VALUE ADDITIONS	REMARKS
<b>MODULE I</b>				
1	General Introduction about the history of Hindi Poetry and Stories	Lecture/PPT		
2	Kabirdas	Lecture/PPT		
3	Kabirdas	Lecture/PPT		
4	General Introduction about the history of Hindi Novel and introducing the prescribed textbook.	Lecture/PPT		
5	Introduction of the author Rajendra Awasthi	Lecture/ PPT		
6	Kabirdas	Lecture/Discussion	Seminar	
7	Akeli Awaz (Novel)	Lecture		
8	Sarojsmruthi, Introduction of the author	Lecture/ PPT		
9	Sarojsmruthi	Lecture/Discussion		
10	Akeli Awaz (Novel)	Lecture		
11	Akeli Awaz (Novel)	Lecture		
12	Sarojsmruthi	Lecture/Discussion		

13	Sarojmruthi	Lecture/Discussion	Seminar	
14	Akeli Awaz (Novel)	Lecture		
15	Akeli Awaz (Novel)	Lecture/Discussion		
16	Aansuom Ki Holi, Introduction of the author	Lecture/ PPT		
17	Aansuom Ki Holi	Lecture/ PPT		
18	Akeli Awaz (Novel)	Lecture		
19	Akeli Awaz (Novel)	Lecture		
20	Aansuom Ki Holi	Interaction	Seminar	
21	Akeli Awaz (Novel)	Lecture		
22	Aansuom Ki Holi	Lecture/PPT		
23	Aansuom Ki Holi	Lecture/PPT		
24	Akeli Awaz (Novel)	Lecture		
25	Akeli Awaz (Novel)	Lecture		
26	Nach, Introduction of the author	Lecture/PPT		
27	Nach	Lecture/PPT		
28	Akeli Awaz (Novel)	Lecture/Discussion		
29	Nach	Lecture/Discussion		
30	Nach	Interaction	Seminar	
31	Revision	Lecture		
32	<b>CIA I ( I Hr Exam)</b>			
<b>MODULE II</b>				
33	Tulsidas	Lecture/PPT		
34	Tulsidas	Lecture		
35	Akeli Awaz (Novel)	Lecture		
36	Akeli Awaz (Novel)	Lecture		
37	Tulsidas	Lecture/ Discussion	Seminar	
38	Khamosh Dhadkaneim, Introduction of the author	Lecture/PPT		
39	Akeli Awaz (Novel)	Lecture		
40	Akeli Awaz (Novel)	Interaction		
41	Khamosh Dhadkaneim	Interaction	Seminar	
42	Akeli Awaz (Novel)	Lecture/Discussion		
43	Khamosh Dhadkaneim	Lecture/PPT		
44	Khamosh Dhadkaneim	Lecture		
45	Akeli Awaz (Novel)	Lecture		
46	Akeli Awaz (Novel)	Interaction		
47	Rani Maa Ka Chabootara, Introduction of the author	Lecture		
48	Rani Maa Ka Chabootara	Lecture		
49	Akeli Awaz (Novel)	Lecture		
50	Akeli Awaz (Novel)	Lecture		
51	Rani Maa Ka Chabootara	Discussion	Seminar	
52	Akeli Awaz (Novel)	Lecture		
53	Akeli Awaz (Novel)	Lecture		
54	Rani Maa Ka Chabootara	Lecture/ Discussion		
55	Sthriyam, Introduction of the author	Lecture/PPT		
56	Akeli Awaz (Novel)	Lecture		

57	Sthriyam	Lecture		
58	Sthriyam	Lecture/ Discussion		
59	Sthriyam	Discussion	Seminar	
60	Revision	Interaction		
61	Revision	Interaction		
62	<b>CIA II (2 Hrs Exam)</b>			
	<b>MODULE II</b>			
63	Meerabai	Lecture/PPT		
64	Meerabai	Lecture		
65	Akeli Awaz (Novel)	Lecture		
66	Akeli Awaz (Novel)	Lecture		
67	Meerabai	Lecture/Discussion	Seminar	
68	Akeli Awaz (Novel)	Lecture/Discussion		
69	Meerabai	Interaction	Seminar	
70	Akeli Awaz (Novel)	Lecture		
71	Akeli Awaz (Novel)	Lecture/Discussion		
72	Prem Patra, Introduction of the Author	Lecture/PPT		
73	Prem Patra	Lecture/Discussion	Seminar	
74	Akeli Awaz (Novel)	Lecture		
75	Prem Patra	Lecture		
76	Prem Patra	Lecture/ Discussion	Seminar	
77	Aparadh, Introduction of the Author	Lecture/PPT		
78	Revision	Interaction		
79	Revision	Interaction		
80	Aparadh	Lecture		
81	Aparadh	Lecture	Seminar	
82	Aparadh	Lecture/Discussion		
83	Akeli Awaz (Novel)	Lecture/Discussion	Seminar	
84	Aparadh	Lecture		
85	Aparadh	Lecture		
86	Seminar	Discussion	Seminar	
87	Seminar	Discussion		
88	Revision	Interaction		
89	Revision	Interaction		
90	Evaluation of the course			

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

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 textbook 2 and reference, Writing (Individual)
2	Seminar (October)	Presentation on a given topic based on the text book 1 and reference – oral (Individual)

## GROUP ASSIGNMENTS/ACTIVITIES – Details & Guidelines

SL NO	Date of completion	Topic of Assignment & Nature of assignment (Individual/Group – Written/Presentation – Graded or Non-graded etc)
1	September	Exercise activity based on Novel (Group Discussion).
2	September	Review a Poem from the textbook 1 and reference, Writing (Group Activity).

### References

- Nayi Said Ki Kavita , Ganesh Pandey ,Vani Prakashan, New Delhi .
- Hindi Upanyas Naya Path ,Hemant Kukreti , Vani Prakashan, New Delhi .

### Web resource references:

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

## COURSE PLAN

PROGRAMME	ZOOLOGY	SEMESTER	3
COURSE TITLE	AN ADVANCED COURSE IN FRENCH I	CREDIT	4
HOURS/WEEK	5	HOURS/SEM	90

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.
To describe oneself and ones surroundings using a repertory of words and expressions in a simple and structured grammatical manner.
<b>To develop business communication skills</b>
To express an issue of concern including topics like environmental, social or health issues, enumerate its causes and consequences and suggest solutions
To understand the mannerisms, culture and tradition of France and Francophone countries and compare it to one's own country and develop co-cultural feeling
To understand and appreciate the history of France and Francophone countries and compare it to one's own country
To understand the special features of France including gastronomy, social institutions, policis, the present French scenario and compare it to one's own country

SESSION	TOPIC	LEARNING RESOURCES	VALUE ADDITIONS	REMARKS
<b>MODULE I</b>				
1	Revision of French Basics	Role play, games	Video	
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	e-resource	
9	Unit 1 – Le passé compose	Chalk and talk		
10	Past tense	lecture		
11	Past tense –narrate an event	Communication skills		
12	Past tense –narrate an event	Oral		
13	Past tense –narrate an event	Oral		
14	Narrate the life of a person	Communication Skills		
15	Narrate a positive/Negative event	Communication Skills		
16.	To learn the entire life	Role play		
17.	One's opinion on learning the entire life	Role Play		
18.	Interview on learning the entire life	Role Play		
19.	Sharing experiences on learning during old age	Debate/Discussion		

20	Reading Comprehension	Understanding Skills		
21.	Reading Comprehension	Understanding Skills	Video	
22.	Reading Comprehension	Understanding Skills		
23.	Vocabulary building	Games		
24	Communicative skills- emotions	Chalk and talk, oral		
25	Emotions of a teacher	Expression oral		
26.	Emotion of a student in a language class	Discussion		
27	Expressions related to emotions	Vocabulary building games		
28	Language network	Discussions ICT	e-resource	
29	French culture – EU Rights	Discussions, comparison		
30	Class test of Unit 1			
<b>MODULE II</b>				
31	Describe one's house	Game		
32	Describe one's Furniture	Lecture	Video	
33	Grammar-prepositions	Lecture		
34	Making Sentences	Games, Role plays		
35	Describe your friend's house	discussion		
36	Vocabulary Building	Games		
37	Pronoun Y, Locate things	Chalk and talk		
38	Sentence Construction	Games		
39	Type of lodging	Roleplay, listening exercise	e-resource	
40	Preferences on type of lodging	Roleplay		
41	Comparison, describe one's favourite place	Chalk and Talk, role play		
42	Compare 2 cities/countries	Debate		
43	Vocabulary Building	Games		
44	Country or country side - debate	Lecture/Discussion		
45	Revision			
46	Revision			
47	Revision			
48	Revision			
49	Revision			
50	Revision			
51	Revision			
<b>CIA-1</b>				
52	Discussion of CIA			
53	Vocabulary Building	Games		
<b>MODULE III</b>				
54	Describe a natural product	PPT/Lecture	Video	
55	Describe an Indian Product	PPT/Lecture		
56	Positives and negatives of a product	PPT/Lecture		
57	Advertise a product	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	e-resource	
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	Adventure sports in India	Discussion		
71	Sport which you like	Discussion		
CIA II				
<b>MODULE IV</b>				
72	Past tense- imparfait	Chalk and talk		
73	Sentence construction using imparfait	Role play		
74	Narrate an event using imparfait	Role play		
75	Describing something	Discussion		
76	Vocabulary Building	Games, Music		
77	French movie	Audio visual		
78	French Movie	Audio Visual		
79	Describe a past event-may 68	Chalk n talk/Reading Comprehension		
80	Describe an event in your country	Discussion		
81	Describe an historical event/incident	Discussion		
82	Describe an historical event/incident	Discussion		
83	Talk about an event in the past	Discussion		
84	Describing a place, childhood event	Roleplay		
85	Narrate a positive childhood event	Roleplay		
86	Conversation on a past happening	Role play		
87	Narrate a negative happening	Role play		
88	A historical event which you like	Speaking practice		
89	French Culture- peaceful demonstrations	discussion		
90	Peaceful demo in India(your country)	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	Preparing a guide for French tourists on basic communication skills in French and Malayalam
2		roleplays

### References

Version Originale, site web

## COURSE PLAN

PROGRAMME	BACHELOR OF SCIENCE,ZOOLOGY	SEMESTER	3
COURSE TITLE	TRANSLATION AND COMMUNICATION	CREDIT	4
HOURS/WEEK	5	HOURS/SEM	90

### COURSE OBJECTIVES

To Learn the art of translation
To understand translation as a Linguistic activity
To understand translation as a cultural ,economic and profssional activity
To familiarise the technology of Translation
To understand moral values through Drama
To inculcate students with reading and communication skills in Sanskrit
To understand the tools to beautify the literature through Drama and Translation
To identify the richness of Indian Literature

SESSION	TOPIC	LEARNING RESOURCES	VALUE ADDITIONS	REMARKS
<b>MODULE I</b>				
1	Introducing Translation	Lecture		
2	History of translation	Discussion		
3	History of Bible translation	Lecture		
4	History of Arabic translation	Lecture		
5	History of Indian translation	Lecture		
6	Qualities of translator	Chalk n talk		
7	Tools of Translation	Lecture		
8	Glossaries, Dictionaries	Chalk n talk		
9	News paper style	Lecture		
10	Theories of translation	Lecture		
11	Applied linguistics	Discussion		
12	Morphology	Discussion		
13	Syntax	PPT/Lecture		
14	Revision			
<b>MODULE II</b>				
15	Source language	PPT/Lecture		
16	Target language	Chalk n talk		
17	Transliteration	Lecture		
18	Word to word translation	Lecture		



19	Faithful translation	Lecture	Group discussion	
20	Recreation	Game		
21	Unit of translation	Game		
22	Sentence as the unit	PPT/Lecture		
23	Paragraph as the unit	PPT/Lecture		
24	Science related translation	Lecture		
25	Cultural importance in translation	Lecture		
CIA-1				
26	Poem translation	Lecture		
27	Prose translation	Chalk n talk		
28	Idioms and proverbs	Chalk n talk		
29	Translation in Modern age	Discussion		
30	Limitations of translation	Discussion	Group discussion	
31	Translation of person's name	Lecture		
32	Revision			
MODULE III				
33	Introduction Abhijanashakunthalam	Lecture		
34	Prathamanga	Lecture		
35	Dushyantha's hunting	Lecture		
36	Dushyanthas meeting with Shakunthala	Lecture		
37	Shakunthala's history	PPT/Lecture		
38	Dvitheeyanga- Samagamam	PPT/Lecture		
39	Dushyantha's talk with Mandavya	PPT/Lecture		
40	Sages meeting with Dushyantha	Lecture		
41	Mandhavya going to palace	Lecture		
42	Thritheeyangam	Chalk n talk		
43	Dushyantha 's talk with shakunthala	Discussion		
44	Durvasa's visiting and curse	Roleplay		
45	Chathurthanga	Discussion		
46	Shakunthala's departure from Ashrama	PPT/Lecture		
47	Kannva's advice to Shakunthala	PPT/ Lecture		
48	Revision			
MODULE IV				
50	Introduction Mrichakatika drama	PPT/Lecture		
51	Charudatha	PPT/Lecture	Video	
52	Vasanthasena	PPT/Lecture		
53	Vasanthasena's visiting	PPT/Lecture		
54	Rajasyala Samsthanaka	Lecture		
55	Vasanthasena 's meeting with Charudatha	Lecture		
56	Matithreya's conversation with Radanika	PPT/Lecture		
57	Rohasena	PPT/Lecture		
58	Dvitheeyanka	PPT/Lecture		
59	Gambling incident	PPT/Lecture		

60	Catching Gambler	PPT/Lecture		
61	Escaping	PPT/Lecture		
CIA - II				
62	Vasanthasena's talk with her servant	Chalk n talk		
63	thritheeyanka	Lecture		
64	Rebhila's music discussion	Lecture	Group discussion	
65	Sharvilaka –the thief	Lecture		
66	Taking gold from Maithreya	PPT/Lecture		
67	Charudatha talk with Maithreya	PPT/Lecture		
68	Dootha's talking	PPT/Lecture		
69	Revision			
70	Revision			
71	Revision			
72	Revision			

### INDIVIDUAL ASSIGNMENTS/SEMINAR – Details & Guidelines

	Date of completion	Topic of Assignment & Nature of assignment (Individual/Group – Written/Presentation – Graded or Non-graded etc)
1	13/08/2014	Kalidasa's Dramas
2	21/08/2014	Shakunthal in Mahabharatha

### GROUP ASSIGNMENTS/ACTIVITES – Details & Guidelines

	Date of completion	Topic of Assignment & Nature of assignment (Individual/Group – Written/Presentation – Graded or Non-graded etc)
1	09/09/2014	The modern possibilities for Translation
2	24/09/2014	Shakunthalam and Medias

### References

Vivarttanattinte Bhasasatrabhoomika, Prabodhacandran V.R., Kerala Bhasha Institute, Trivandrum, 1986, pp. 38-39

Vivarttanam, A group of authors, Kerala Bhasha Institute, 1990, Chapter, 3&Preface of N.V. Krishna Warriar, pp. 3-7.

Sakunthalaparakashika, Prof. M.V. Gopalakrishnan

Mricchakatikakathasamgrham, Prof. P.C. Vasudevan Elayat

**COURSE PLAN**

PROGRAMME	<b>B.Sc ZOOLOGY</b>	SEMESTER	3
COURSE TITLE	അരങ്ങും പൊരുളും	CREDITS	4
HOURS/WEEK	5	HOURS/SEM	90

COURSE OBJECTIVES
കഥകളി, നാടകം, സിനിമ തുടങ്ങിയ ദൃശ്യകലകളെക്കുറിച്ച് മനസ്സിലാക്കുക.
ഭാഷാപഠനം സാഹിത്യാനുഭവത്തിലൂടെ ആവിഷ്കരിക്കുക കേരളത്തിലെ കലാരൂപങ്ങളെക്കുറിച്ച് മനസ്സിലാക്കുക .
സാഹിത്യ പരിചയം ഉണ്ടാക്കുക
വ്യാവഹാരിക തലത്തിൽ മാതൃഭാഷാപ്രയോഗിക്കുവാനുള്ള കഴിവ് നേടുക
ഭാഷാപഠനത്തിലൂടെ ആശയവിനിമയശേഷി വർദ്ധിപ്പിക്കുക

Session	Topic	Learning Resources	Teaching Method	Remarks
<b>Module I</b>				
1	ദൃശ്യകലാ സാഹിത്യം സാമാന്യാവലോകനം,	സാഹിത്യചരിത്രങ്ങൾ	Lecturing	
2	ദൃശ്യകലാ സാഹിത്യം സാമാന്യാവലോകനം-നാടകം	സാഹിത്യചരിത്രങ്ങൾ	Lecturing	
3	ദൃശ്യകലാ സാഹിത്യം സാമാന്യാവലോകനം-നാടകം	സാഹിത്യചരിത്രങ്ങൾ	Discussion	
4	മലയാളശാകുന്തളം(നാടകം)	Text	Lecturing	
5	മലയാളശാകുന്തളം(നാടകം) ആമുഖം	Text	Reading	
6	മലയാളശാകുന്തളം(നാടകം)	Text	Group Discussion	
7	അങ്കം ഒന്ന്- ആമുഖം	Text	Lecturing	
8	അങ്കം ഒന്ന്- ആമുഖം	Text	Reading	
9	അങ്കം ഒന്ന്	Text	Group Discussion	
10	അങ്കം രണ്ട് ആമുഖം	Text	Lecturing	
11	അങ്കം രണ്ട് ആമുഖം	Text	Reading	
12	അങ്കം രണ്ട്	Text	Group Discussion	
13	അങ്കം -	Text	Lecturing	
14	അങ്കം രണ്ട്	Text	Reading	
15	അങ്കം മൂന്ന്	Text	Group Discussion	
16	അങ്കം മൂന്ന്	Text	Group Discussion	
17	അങ്കം മൂന്ന്	Text	Group Discussion	

18	അങ്കം നാല്	Text	Lecturing	
19	അങ്കം നാല്	Text	Reading	
20	അങ്കം നാല്	Text	Group Discussion	
21	അങ്കം നാല്	Text	Lecturing	
22	അങ്കം നാല്	Text	Reading	
23	അങ്കം നാല്	Text	Group Discussion	
		<b>Module II</b>		
24	നളചരിതം രണ്ടാംദിവസം (ആട്ടക്കഥ)	Text	Lecturing	
25	നളചരിതം രണ്ടാംദിവസം (ആട്ടക്കഥ)	Text	Group Discussion	
26	രംഗം അഞ്ച്	Text	Lecturing	
27	രംഗം അഞ്ച്	Text	Reading	
28	രംഗം ആറ്	Text	Group Discussion	
29	രംഗം ആറ്	Text	Group Discussion	
30	Internal Assessment 1	Text		
31	Question paper discussion	Text	Group Discussion	
32	രംഗം ആറ്	Text	Lecturing	
33	രംഗം ഏഴ്	Text	Reading	
34	രംഗം ഏഴ്	Text	Group Discussion	
35	രംഗം എട്ട്	Text	Lecturing	
36	രംഗം എട്ട്	Text	Reading	
37	രംഗം ഒൻപത്	Text	Group Discussion	
38	രംഗം ഒൻപത്		Lecturing	
39	രംഗം പത്ത്	Text	Reading	
40	രംഗം പത്ത്	Text	Group Discussion	
41	നളചരിതം - ഒരു അവലോകനം	Text	Lecturing	
42	നളചരിതം - ഒരു അവലോകനം	Text	Reading	
		<b>Module III</b>		
43	മലയാളനാടകചരിത്രം - അവലോകനം	സാഹിത്യചരിത്രങ്ങൾ	Lecturing	
44	മലയാളനാടകചരിത്രം - അവലോകനം	സാഹിത്യചരിത്രങ്ങൾ	Group Discussion	
45	മലയാള നാടകത്തിലെ - നൂതന പ്രവണതകൾ	സാഹിത്യചരിത്രങ്ങൾ	Lecturing	
46	ഒരു മാധ്യമേനൽ പ്രണയരാവ്-ആമുഖം	Text	Group Discussion	
47	ഒരു മാധ്യമേനൽ പ്രണയരാവ്-ആമുഖം	Text	Lecturing	
48	നാടകവിശകലനം	Text	Lecturing	
49	നാടകവിശകലനം	Text	Group Discussion	
50	നാടകവിശകലനം	Text	Group Discussion	
51	നാടകാവതരണം	Text	Performance	
52	നാടകാവതരണം	Text	Performance	
53	നാടകവിശകലനം	Text	Group Discussion	
54	നാടകവിശകലനം	Text	Group Discussion	
55	നാടകാവതരണം	Text	Performance	
56	നാടകാവതരണം	Text	Performance	

57	നാടകാവതരണം	Text	Performance	
58	നാടകവിശകലനം	Text	Group Discussion	
59	നാടകാവതരണം	Text	Performance	
60	നാടകാവതരണം	Text	Performance	
61	നാടകാവതരണം	Text	Performance	
62	നാടകവിശകലനം	Text	Group Discussion	
63	സംവാദം	Text	Group Discussion	
		<b>Module IV</b>		
64	സിനിമയുടെ ചരിത്രം	Text	Group Discussion	
65	വാക്കും ദൃശ്യവും	Text	Presentation	
66	അധ്യായം 1	Text	Presentation	
67	അധ്യായം 2	Text	Presentation	
68	ചെമ്മീൻ	Text	Presentation	
69	സിനിമ പ്രദർശനം	Film	Screening	
70	സിനിമ പ്രദർശനം	Film	Screening	
71	സിനിമ വിശകലനം	Text	Group Discussion	
72	സിനിമ വിശകലനം	Text	Group Discussion	
73	വിധേയൻ	Text	Group Discussion	
74	സിനിമ പ്രദർശനം	Film	Screening	
75	സിനിമ പ്രദർശനം	Film	Screening	
76	സിനിമ വിശകലനം	Text	Group Discussion	
77	പഥേർ പാഞ്ചലി	Text	Group Discussion	
78	പഥേർ പാഞ്ചലി	Text	Group Discussion	
79	സിനിമ പ്രദർശനം	Film	Screening	
80	സിനിമ പ്രദർശനം	Film	Screening	
81	സിനിമ പ്രദർശനം	Text	Presentation	
82	സിനിമ വിശകലനം	Text	Group Discussion	
83	സിനിമ വിശകലനം	Text	Group Discussion	
84	സിനിമസംവാദം	Text	Group Discussion	
87	സിനിമസംവാദം	Text	Group Discussion	
85	സെമിനാർ	Text	Presentation	
86	സെമിനാർ	Text	Presentation	
87	സെമിനാർ	Text	Presentation	
88	സെമിനാർ	Text	Presentation	
89	Revision	Text	Presentation	
90	Evaluation of the course	Interaction	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	അനുരൂപണസിനിമയുടെ സവിശേഷതകൾ
2		കേരളത്തിലെ ദൃശ്യകലാപാരമ്പര്യം

## 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.നാടകദർശനം -ജി .ശങ്കരപ്പിള്ള

2.സിനിമയുടെ ലോകം - അടൂർ ഗോപാലകൃഷ്ണൻ

## COURSE PLAN

PROGRAMME	<b>BSC ZOOLOGY</b>	SEMESTER	3
COURSE TITLE	<b>CORE COURSE 3 ANIMAL DIVERSITY- CHORDATA</b>	CREDIT	3
HOURS/WEEK	3	HOURS/SEM	54

<b>COURSE OBJECTIVES</b>
To Know the general classification of Phylum Chordata, sub phyla Urochordata and Cephalochordata their classes and specific examples
To understand the classification of Sub phylum Vertebrata, divisions Agnatha and Gnathostomata, super class Pisces and its various classes with typical examples
To elaborate the accessory respiratory organs in fish, parental care, scales in fishes, migration, common culture fishes and lung fishes
To understand super class Tetrapoda, class Amphibia, elaborate study of type – frog, various orders under class Amphibia
To explain classification and biology of the class Reptilia and Aves
To outline the characteristics of sub classes under Mammalia, their orders and examples

SESSION	TOPIC	LEARNING RESOURCES	VALUE ADDITIONS	REMARKS
<b>MODULE I- INTRODUCTION AND GENERAL CLASSIFICATION OF PHYLUM CHORDATA</b>		<b>3 Hr</b>		
1	<b>Introduction to Phylum Chordata</b> - General classification (Classification up to order – Sub phylum, Super class, Class, Subclass, Order)	PPT/Lecture		
2	<b>Sub phylum: Urochordata</b> Class I: Larvacea, Eg. Oikopleura	PPT/Lecture		
3	Class II: Ascidiacea Eg: Ascidia Mention Retrogressive Metamorphosis	PPT/Lecture		
4	Class III Thaliacea Eg: Doliolum	PPT/Lecture		
5	<b>Sub phylum: Cephalochorda</b> Salient Features, Example - <b>Amphioxus</b>	PPT/Lecture		
6	Amphioxus – Body features and affinities	PPT/Lecture		
<b>MODULE II. SUB PHYLUM: VERTEBRATA</b>				
7	<b>Division 1– Agnatha</b> Class I Ostracodermi, Eg: Cephalaspis Class II Cyclostomata, Eg: Petromyzon	PPT/Lecture		
8	<b>Division 2 – Gnathostomata</b> Features and Classification <b>Super class: Pisces</b>	PPT/Lecture		

	Features and Classification			
9	<b>Class: Chondrichthyes</b> Sub class – Elasmobranchi, <i>Eg.</i> : Narcine Sub class -Holocephali <i>Eg.</i> : Chimaera	PPT/Lecture		
10	<b>Class: Osteichthyes</b> Sub class – Choanichthyes Order 1: Crossopterygii, <i>Eg.</i> : Latimeria	PPT/Lecture		
11	Order 2: Dipnoi, <i>Eg.</i> : Lepidosiren	PPT/Lecture		
12	Sub class: - Actinopterygii Super order 1. Chondrostei <i>Eg.</i> : Acipenser Super order 2. Holostei, <i>Eg.</i> : Amia	PPT/Lecture		
13	Super order 3. Teleostei <i>Eg.</i> : Sardine	PPT/Lecture		
14	<b>General topics</b> 1. Accessory respiratory organs in fish.	PPT/Lecture		
15	2. Parental care in fishes.	PPT/Lecture	Video	
16	3. Scales in fishes	PPT/Lecture		
17	4. Migration in fishes	PPT/Lecture	Video	
18	5. Common culture fishes of Kerala 6. Lung fishes	PPT/Lecture	Video	
<b>CIA-1</b>				
<b>MODULE III</b>				
<b>SUPER CLASS: TETRAPODA</b>				
19	Class Amphibia- Salient features <b>Type Frog</b>	PPT/Lecture		
20	Frog-Skin and Digestive System	PPT/Lecture		
21	Frog- Skeletal system-Axial skeleton	PPT/Lecture		
22	Frog- Skeletal system- Vertebrae	PPT/Lecture		
23	Frog- Skeletal system-Appendicular skeleton	PPT/Lecture		
24	Frog- Circulatory system	PPT/Lecture		
25	Frog- Respiratory system	PPT/Lecture		
26	Frog- Nervous system	PPT/Lecture		
27	Frog- Reproduction and development	PPT/Lecture		
28	Order I Anura ( <i>Eg.</i> : Hyla) Order II Urodela ( <i>Eg.</i> : Amblystoma ) axolotl larva and neotony Order III Apoda <i>Eg.</i> : Ichthyophis.	PPT/Lecture		
	<b>Class Reptilia</b>	PPT/Lecture		
29	Classification Sub class I: Anapsida Order Chelonia; <i>Eg.</i> : Chelone Sub class II: Parapsida; <i>Eg.</i> : Ichthyosaurus	PPT/Lecture		
30	Sub class III: Diapsida Order I Rhynchocephalia <i>Eg.</i> : Sphenodon			
31	Order II Squamata <i>Eg.</i> : Chamaleon Sub class IV: Synapsida <i>Eg.</i> : Cynognathus	PPT/Lecture		
32	<b>General topic</b> Identification of poisonous and non poisonous snakes	PPT/Lecture		
33	<b>Class Aves-</b> Introduction	PPT/Lecture		



	<b>Sub class I: Archeornithes; Eg: Archaeopteryx</b> (Affinities)			
34	<b>Sub class II: Neornithes</b> Super order I: Palaeognathe Eg: Struthio Super order II: Neognathe Eg; Brahminy kite	PPT/Lecture		
35	<b>General topic</b> 1. Migrations in birds	PPT/Lecture		
36	<b>General topic</b> 2. Flight adaptations in birds	PPT/Lecture		
	<b>MODULE IV- CLASS MAMMALIA</b>			
37	Introduction and salient features	PPT/Lecture		
38	<b>Type: Rabbit</b>	PPT/Lecture		
39	Integument	PPT/Lecture		
40	Skeletal system	PPT/Lecture		
41	Skeletal system, Digestive system, Circulatory system	PPT/Lecture		
42	Respiratory system	PPT/Lecture		
43	Nervous system	PPT/Lecture		
44	Reproductive system	PPT/Lecture		
45	Sub class I: Prototheria; Eg: Echidna Sub class II: Metatheria; Eg: Macropus Sub class III: Eutheria Order 1. Insectivora; Eg: Talpa	PPT/Lecture		
46	Order 2 Dermoptera; Eg:Galeopithecus Order 3. Chiroptera; Eg: Pteropus Order 4. Primates; Eg: Loris	PPT/Lecture		
47	Order 5 Carnivora; Eg: Panthera Order 6 Edentata; Eg: Armadillo	PPT/Lecture		
48	Order 7 Pholibota; Eg: Manis Order 8 Proboscidea; Eg: Elephas	PPT/Lecture		
49	Order 9 Hydracoidea; Eg: Procavia Order 10 Sirenia; Eg: Dugong	PPT/Lecture		
50	Order 11 Perissodactyla; Eg: Zebra Order 12 Artiodactyla; Eg: Cameleus	PPT/Lecture		
51	Order 13 Lagomorpha Eg: Oryctolagus Order 14 Rodentia, Eg: Porcupine	PPT/Lecture		
52	Order 15 Tubulidentata; Eg: Orycteropus Order 16 Cetacea; Eg: Delphinus	PPT/Lecture		
53	<b>General topics</b> 1. Dentition in Mammals	PPT/Lecture		
54	2. Aquatic Mammals	PPT/Lecture	Video	

### INDIVIDUAL ASSIGNMENTS/SEMINAR – Details & Guidelines

	Date of completion	Topic of Assignment & Nature of assignment (Individual – Written/Presentation – Graded or Non-graded etc)
1	5/8/2014	Economic importance of fishes
2	18/9/2014	Amphibian diversity

### References

TEXTBOOKS	
1	Jordan E L and .P.S. Verma, 2002 Chordate Zoology S. Chand and Co. New Delhi.
2	Ekambaranatha Iyer 2000 A Manual of Zoology Vol. !!.S. Viswanathan and Co.
3	Thomas A P (Editor) 2010 Chordata. Green leaf publications- Kottayam
4	Zoological Society of Kerala Study material. <i>Animal Diversity</i> 2002&2011
5	Ekambaranatha Iyer 2000 A Manual of Zoology Vol.II.S. Viswanathan and Co.
6	Jhingran 1977, Fish and Fisheries of India, Hindustan Publishing Co.
7	Jordan E L and .P.S. Verma, 2002 Chordate Zoology S. Chand and Co. New Delhi.
8	Kotpal R.L. 2000, Modern Text Book of zoology, Vertebrates, Rastogi Publications, Meerut.
9	Nigam and Sobti 2000, Functional Organization of Chordates. Shoban Lal Nagin Chand and Co. New Delhi.
10	Young J.Z, 1981, The Life of Vertebrates Oxford University Press.
11	Young J.Z. 2006 The life of Vertebrates Oxford University Press (Third Ed.) India Ed.

### COURSE PLAN

PROGRAMME	COMPLEMENTARY CHEMISTRY FOR BACHELOR OF SCIENCE IN ZOOLOGY	SEMESTER	3
COURSE TITLE	INORGANIC AND BIO-INORGANIC CHEMISTRY	CREDIT	3
HOURS/WEEK	3	HOURS/SEM	54

COURSE OBJECTIVES
To analyse the basic chemistry involved in biological processes
To demonstrate the role of chemistry in enzymes and nucleic acids
To illustrate the role of chemistry in agriculture

SESSION	TOPIC	LEARNING RESOURCES	VALUE ADDITIONS	REMARKS
<b>MODULE I: Chemistry and Agriculture</b>				
1	Mineral nutrients-Macro nutrients- Primary and Secondary macro nutrients.	PPT/Lecture	Q & A Session	
2	Micronutrients, their role in plant growth.	PPT/Lecture		
3	Pesticides-classifications, simple examples	PPT/Lecture		
4	NPK value superphosphates, triple super phosphate	PPT/Lecture		
5	Uses of mixed fertilizers and Bio-fertilizers	PPT/Lecture		
6	Plant growth hormones and Bio pesticides	PPT/Lecture		
7	Insecticides – stomach poisons, Contact insecticides, examples	PPT/Lecture		
8	Fumigants, examples, Method of preparation of DDT, BHC, pyrethrin	PPT/Lecture		
9	Herbicides- structure and function of 2,4-D and 2,4,5 –T	PPT/Lecture		
10	Fungicides- inorganic and organic- Bordeaux mixture, dithiocarbamates,	PPT/Lecture		
11	Excessive use of pesticides – environmental hazards.	PPT/Lecture		
12	Revision	PPT/Lecture		
<b>MODULE II: Oxygen carriers in biological system</b>				
13	Structure and functions of hemoglobin		Q & A Session	
14	Structure and functions of myoglobin	PPT/Lecture		
15	Oxygen transport mechanism and cooperativity of hemoglobin	PPT/Lecture		
16	Perutz mechanism	PPT/Lecture		
17	Bohr effect	PPT/Lecture		
18	Hemocyanin	PPT/Lecture		
19	Hemerythrin	PPT/Lecture		
CIA-I				
20	Structure and different types of chlorophyll	PPT/Lecture		
21	Photosystem-I	PPT/Lecture		

22	Photosystem-II	PPT/Lecture		
23	Z-scheme and Photophosphorylation	PPT/Lecture	Video	
24	Revision	PPT/Lecture	Video	
<b>MODULE III: Enzymes &amp; Nucleic Acids</b>				
25	Exergonic and endergonic reactions, coupled reactions, biological oxidation reactions	PPT/Lecture	Q & A Session	
26	Nomenclature and classification of enzymes	PPT/Lecture		
27	Metalloenzymes. Prosthetic group, coenzyme & cofactor	PPT/Lecture		
28	Characteristics and Mechanism of enzymes action	PPT/Lecture		
29	Lock and key model, induced fit model	PPT/Lecture		
30	Factors affecting enzyme action, enzyme inhibition	PPT/Lecture		
31	Structure and functions of peroxidase, catalase, cytochrome P-450, carbonic anhydrase	PPT/Lecture		
32	Structure and functions of carboxy peptidase, cytochrome oxidase. Vitamin B <sub>12</sub> .	PPT/Lecture		
33	Na <sup>+</sup> /K <sup>+</sup> ATPase, sodium potassium pump	PPT/Lecture		
34	Elementary structure of ATP and ADP	PPT/Lecture		
35	Chemical composition of nucleic acid	PPT/Lecture		
36	Structure of nucleosides and nucleotides	PPT/Lecture		
37	Structure of DNA	PPT/Lecture		
38	Structure of RNA	PPT/Lecture		
39	Biological functions of DNA and RNA	PPT/Lecture		
CIA – I				
<b>MODULE IV: Chemistry in Medicine</b>				
40	Essential and trace elements in biological system.	PPT/Lecture	Q & A Session	
41	Metal deficiency and disease- Iron, Zinc Copper.	PPT/Lecture		
42	Metal toxicity- Toxicity due to Copper overload, Iron, Plutonium and mercury	PPT/Lecture		
43	Chelation therapy-Treatment for excess iron, copper	PPT/Lecture		
44	Chelation therapy-Treatment for excess mercury and plutonium.	PPT/Lecture		
45	Anti-cancer drugs Cisplatin.	PPT/Lecture		
46	Anti-Arthritis drugs- Gold compounds,	PPT/Lecture		
47	Outline study and applications of antibiotics	PPT/Lecture		
48	Outline study and applications of sulpha drugs	PPT/Lecture		
49	Outline study and applications of antipyretics	PPT/Lecture		
50	Outline study and applications of analgesics	PPT/Lecture		
51	Outline study and applications of tranquilizers,	PPT/Lecture		
52	Outline study and applications of antidepressants	PPT/Lecture		
53	Drug addiction abuse and prevention.	PPT/Lecture		
54	Revision	PPT/Lecture		

### INDIVIDUAL ASSIGNMENTS/SEMINAR – Details & Guidelines

	Date of completion	Topic of Assignment & Nature of assignment (Individual/Group – Written/Presentation – Graded or Non-graded etc)
1	05/08/2014	Catalytic sites present in enzymes
2	17/09/2014	Pesticides used in agriculture

### References

- R. Puri, L. R. Sharma, K. C. Kalia, Principles of Inorganic Chemistry, 31<sup>st</sup> Milestone Publishers, New Delhi, 2010.
- L. Finar, Organic Chemistry, Vol. 1 & 2, 6th Edition, Pearson.
- G. T. Austin, Shreve's Chemical process Industries, 5th edition, McGraw Hill, 1984.
- Rastogi, Biochemistry, Tata McGraw. Hill Publication, 1996.
- K. S. Tewari, N. K. Vishnoi, A Text Book of Organic Chemistry, 3<sup>rd</sup> edition, Vikas publishing House Pvt. Ltd, 2006.
- J. D. Lee, Concise Inorganic Chemistry 5<sup>th</sup>edn., Wiley India Pvt. Ltd. 2008.
- R. Puri, L. R. Sharma, K. C. Kalia, Principles of Inorganic Chemistry, 31<sup>st</sup> Milestone Publishers, New Delhi, 2010.
- G.L. Meissler, D.A Tarr, Inorganic Chemistry, 3<sup>rd</sup>Edn. Pearson Education, 2004.
- J. E. Huheey, E. A. Keiter, R. L. Keiter, O. K. Medhi, Inorganic Chemistry, Pearson 2006
- Rastogi, Biochemistry, Tata McGraw. Hill Publication, 1996.
- A.C. Deb, Fundamentals of Biochemistry, 9<sup>th</sup>Edn. New Central Book Agency, 2001.

### Web resource references:

[http://en.wikipedia.org/wiki/Plant\\_nutrition](http://en.wikipedia.org/wiki/Plant_nutrition)

### COURSE PLAN

PROGRAMME	COMPLEMENTARY BOTANY FOR BACHELOR OF SCIENCE IN ZOOLOGY	SEMESTER	3
COURSE TITLE	ANGIOSPERM TAXONOMY AND ECONOMIC BOTANY	CREDIT	Theory -3 Practical -1
HOURS/WEEK	5	HOURS/SEM	Theory - 54 Practical - 36

### COURSE OBJECTIVES

To define the different systems of angiosperm classification and understand the merits and demerits of the classification systems

To explain the floral morphology of angiosperms

To apply the interdisciplinary knowledge in solving taxonomic problems

To analyze the floral characters and classify the angiosperms into different families

To explain the economically and ethnobotanically important plants.

SESSION	TOPIC	LEARNING RESOURCES	VALUE ADDITIONS	REMARKS
<b>Module 1. Angiosperm Taxonomy (Theory 36 hours; Practical 24 hours)</b>				
Session 1	Classification: Importance of plant classification, types of classification- Artificial, Natural and Phylogenetic	PPT/Lecture		
Session 2	Nomenclature: Binomial nomenclature	PPT/Lecture		
Session 3	ICN and its principles	PPT/Lecture		
Session 4	Cytotaxonomy	PPT/Lecture		
Session 5	chemotaxonomy	PPT/Lecture		
Session 6	Field study, field note, Vasculum, plant press,	PPT/Lecture	Seminar	
Session 7	Steps involved in herbarium preparation	PPT/Lecture		
Session 8	significance of herbarium	PPT/Lecture		
Session 9	Bentham and Hooker's system of classification - Outline	PPT/Lecture		
Session 10	Bentham and Hooker's system of classification - Description	PPT/Lecture		
Session 11	Bentham and Hooker's system of classification - merits and demerits	PPT/Lecture		
Session 12	Morphology of Angiosperms - Leaf	PPT/Lecture	Seminar	
Session 13	Morphology of Angiosperms - Inflorescence	PPT/Lecture		
Session 14	Morphology of Angiosperms - Flower	PPT/Lecture		
Session 15	Morphology of Angiosperms - Fruits	PPT/Lecture		
Session 16	Annonaceae	PPT/Lecture		
Session 17		PPT/Lecture		

Session 18	Malvaceae	PPT/Lecture		
Session 19		PPT/Lecture		
Session 20	Rutaceae	PPT/Lecture		
Session 21		PPT/Lecture		
Session 22	Leguminosae	PPT/Lecture		
Session 23		PPT/Lecture		
Session 24	Apiaceae	PPT/Lecture		
Session 25		PPT/Lecture		
Session 26	Rubiaceae	PPT/Lecture		
Session 27		PPT/Lecture		
Session 28	Asteraceae	PPT/Lecture		
Session 29		PPT/Lecture		
Session 30	Apocynaceae,	PPT/Lecture		
Session 31		PPT/Lecture		
Session 32	Lamiaceae	PPT/Lecture		
Session 33		PPT/Lecture		
Session 34	Euphorbiaceae	PPT/Lecture		
Session 35	Arecaceae	PPT/Lecture		
Session 36	Poaceae	PPT/Lecture		
<b>Module 2. Economic Botany (Theory 18 hours, Practical 12 hours)</b>				
Session 37	Classification of economic plants based on their uses - Cereals	PPT/Lecture	Seminar	
Session 38	Classification of economic plants based on their uses - legumes and pulses	PPT/Lecture		
Session 39	Classification of economic plants based on their uses - tuber crops, spices, beverages	PPT/Lecture		
Session 40	Cereals : Paddy, Wheat.	PPT/Lecture		
Session 41	Pulses : Green gram, Bengal gram.	PPT/Lecture		
Session 42	Spices : Pepper, Cardamom; Tuber crops : Tapioca.	PPT/Lecture		
Session 43	Beverages : Tea, Coffee.	PPT/Lecture		
Session 44	Oil yielding plants : Coconut, Groundnut	PPT/Lecture		
Session 45	Fibre yielding plants : Cotton, Coir.	PPT/Lecture		
Session 46	Timber yielding plants : Teak, Rose wood.	PPT/Lecture		
Session 47	Latex yielding plants : Para rubber.	PPT/Lecture		
Session 48	Bio pesticides : Neem, Tobacco.	PPT/Lecture		
Session 49	Ornamental plants : Rose, Orchids, Anthurium.	PPT/Lecture		
Session 50	medicinal plants - Adhatoda, Aloe	PPT/Lecture		
Session 51	medicinal plants -Brahmi (Bacopa), Catharanthus	PPT/Lecture		
Session 52	medicinal plants - Eclipta, Neem	PPT/Lecture		
Session 53	medicinal plants - Ocimum, Phyllanthusamarus	PPT/Lecture		
Session 54	medicinal plants - Rauwolfia, Sida	PPT/Lecture		
<b>Practical 36 hrs</b>				

Session 55		Hands-on		
Session 56	Floral morphology	Hands-on		
Session 57		Hands-on		
Session 58		Hands-on		
Session 59	Inflorescence	Hands-on		
Session 60		Hands-on		
Session 61		Hands-on		
Session 62	Fruits	Hands-on		
Session 63		Hands-on		
Session 64	Annonaceae	Hands-on		
Session 65	Malvaceae	Hands-on		
Session 66	Rutaceae	Hands-on		
Session 67	Leguminosae	Hands-on		
Session 68	Apiaceae	Hands-on		
Session 69	Rubiaceae	Hands-on		
Session 70	Asteraceae	Hands-on		
Session 71	Apocynaceae,	Hands-on		
Session 72	Lamiaceae	Hands-on		
Session 73	Euphorbiaceae	Hands-on		
Session 74	Arecaceae	Hands-on		
Session 75	Poaceae	Hands-on		
Session 76	Cereals : Paddy, Wheat.	Hands-on		
Session 77	Pulses : Green gram, Bengal gram.	Hands-on		
Session 78	Spices : Pepper, Cardamom; Tuber crops : Tapioca.	Hands-on		
Session 79	Beverages : Tea, Coffee.	Hands-on		
Session 80	Oil yielding plants : Coconut, Groundnut	Hands-on		
Session 81	Fibre yielding plants : Cotton, Coir.	Hands-on		
Session 82	Timber yielding plants : Teak, Rose wood.	Hands-on		
Session 83	Latex yielding plants : Para rubber.	Hands-on		
Session 84	Bio pesticides : Neem, Tobacco.	Hands-on		
Session 85	Ornamental plants : Rose, Orchids, Anthurium.	Hands-on		
Session 86	medicinal plants - Adhatoda, Aloe	Hands-on		
Session 87	medicinal plants -Brahmi (Bacopa), Catharanthus	Hands-on		
Session 88	medicinal plants - Eclipta, Neem	Hands-on		
Session 89	medicinal plants - Ocimum, Phyllanthusamarus	Hands-on		
Session 90	medicinal plants - Rauwolfia, Sida	Hands-on		



### INDIVIDUAL ASSIGNMENTS/SEMINAR – Details & Guidelines

Sl. No.	Date of completion	Topic of Assignment & Nature of assignment (Individual/Group – Written/Presentation – Graded or Non-graded etc)
1	12/6/2014	Herbarium - Preparation
2	13/7/2014	Economic botany – specimen collection

### References

1. Ashok Bendra and Ashok Kumar ,1980. *Economic botany*.:Rastogi publications, Meerut.
2. CornquistA. ,1968. *The evolution and Classification of FloweringPlants*.
3. Davis P.H and Heywood V.H. 1967 *Principles of Angiosperm Taxonomy*. Edinburgh: Oliver and Boyl.
4. Eames A.J. 1961 *Morphology of Angiosperms*. New York: Mc Graw Hill.
5. Foaster A.S. and Giffad E.M. 1962 *Comparative Morphology of Vascular Plants*.Allied Pacific Pvt. Ltd. Bombay.
6. Henry and Chandra Bose 2001 *An Aid to the International Code of Botanical Nomenclature*. Botanical Survey of India. Coimbatore.
7. Heywood V.H. 1967. *Plant Taxonomy*. London: Edward Arnold.
8. Hill A.F. 1982. *Economic Botany*.: Mc Graw Hill ,New York.
9. Jain S. K. 1981. *Glimpses of Indian Ethnobotany*.: Oxford and IBH. New Delhi
10. Jain S. K. 1987. *A Manual of Ethnobotany*.Jodhpur Scientific Publishers.
11. Jain S.K. and Rao R.R. 1976. *A hand book of field and herbarium technique*. Today and Tomorrow's Publishers, New Delhi.
12. Jeffery C. (1968) *An Introduction to Plant Taxonomy*, J and A Churchill. London.
13. Maheshwari P. and Umarm Singh. (1965) *Dictionary of Economic Plants in India*, ICAR. New Delhi.
14. Naik V.N. (1984) *Taxonomy of angiosperms*. Tata Mc Graw- Hill Publishing Company, New Delhi.
15. Rendle A.B. (1979) *Classification of flowering plants*. Vikas Publishing House, U.P. Vols. I & II.
16. Sreemali J.L. (1979) *Economic Botany*.Allahabad :KitabMAhal.
17. Singh V. and Jain D. K. (1989)*Taxonomy of Angiosperms*. Meerut :Rastogi Publication.
18. Sivarajan V.V. (1982) *Introduction to Principles of Taxonomy*, Oxford and IBH Publication. New Delhi
19. Swain T. (1963) *Chemical Plant Taxonomy*. New York: Academic Press.
20. . S.P. Misra S.N. Pandey *Taxonomy of Angiosperms* by
21. Sivarajan V.V. 1991, *Introduction to the Principles of Plant taxonomy*. Oxford IBH Publishing Co. Pvt. Ltd., New Delhi.
22. Jain S K. 2004, *A Manual Of Ethnobotany*, Scientific Publishers, India
23. Verma V. *Text book of Economic Botany*, Ane Book Pvt. Ltd.
24. Pandey &Misra 2008 *Taxonomy of Angiosperms*. Ane Book Pvt. Ltd.