Gyanmanjari Innovative University

Course Syllabus
Gyanmanjari Science College
Semester-1(B.Sc)

Subject: Basic Botany -BSCBO11304

Type of course: Minor

Prerequisite: Basic knowledge of Plant physiology and morphology.

Rationale:

This course has been designed to make the students know about basic principles of Botany. The students learn hierarchy of plants and will learn about the life span of lower to higher plants. Students will learn to identify plants parts through their external morphology.

Teaching and Examination Scheme:

Teaching Scheme			Credits	Examination Marks					Total Marks
				SEE		CCE			
CI	T	P	C	Theory	Practical	MSE	LWA/V	ALA	
3	0	2	4	75	25	30	20	50	200

Legends: CI-Classroom Instructions; T – Tutorial; P - Practical; C – Credit; SEE - Semester End Evaluation; MSE- Mid Semester Examination; LWA - Lab Work Assessment; V – Viva voce; CCE-Continuous and Comprehensive Evaluation; ALA- Active Learning Activities.

3 Credits * 25 Marks = 75 Marks (each credit carries 25 Marks) Theory

1 Credits * 25 Marks = 25 Marks (each credit carries 25 Marks) Practical

SEE 100 Marks will be converted in to 50 Marks

CCE 100 Marks will be converted in to 50 Marks

It is compulsory to pass in each individual component.

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Sr. No	Active Learning Activities	Marks
1	**Learn to Identify** Students will visit the College campus with faculty and will learn to identify Plants and prepare a record and upload to the Moodle.	10
2	**Quiz** Faculty will conduct the particular chapter test that will be arranged in the class and marks will be uploaded to the Moodle.	10
3	**Tree Planting Project** Tree planting process at home by Students and will take Picture and upload to the Moodle.	10
4	**Field Visit** Students will visit the instructed field under the guidance of faculty, will prepare the report and upload to the Moodle.	10
5	**Attendance**	10
Total		50

Course Content

Unit No	Course content	Hrs	% Weightage
1	**Chapter-1: Algae** General characteristics of Algae. Taxonomic Position, structure of thallus, vegetative, asexual and sexual modes of reproduction of the following genus 1. Spirogyra. **Chapter-2: Fungi** General characteristics of Fungi. Taxonomic Position, structure of thallus, vegetative, asexual and sexual modes of reproduction of the following genus 1. Mucor.	10	25%

2	**Chapter-3:Bryophyte** General characteristics of Bryophytes. Taxonomic Position, structure of thallus, vegetative, asexual and sexual modes of reproduction of the following genus 1. Marchantia **Chapter-4:Pteridophyte** General characteristics of Pteridophytes. Taxonomic Position, structure of thallus, vegetative, asexual and sexual modes of reproduction of the following genus 1. Nephrolepis.	10	25%
3	**Chapter-5: Gymnosperm** Outline Classification of Gymnosperms by Chamberlain. General characteristics of Gymnosperms. Occurrence, distribution, taxonomic position, morphology, reproduction and life history of the following genus (excluding anatomy) 1. Cycas. **Chapter-6: Angiosperm** General characteristics of Angiosperms. Occurrence, distribution, taxonomic position, morphology, reproduction and life history of the following genus (excluding anatomy) 1. Sunflower.	15	25%
4	**Chapter-7: Plant Morphology** Phyllotaxy and its types – Alternate, Opposite and Whorled. **Types of Leaves** 1. Simple leaf and their parts 2. Compound leaf and its types – Pinnate compound and Palmate compound. **Venation** 1. Reticulate and their types 2. Parallel and their types.	10	25%

	Inflorescence 1. Racemose – Raceme Spike, Catkin, Spadix, Umbel, Capitulum 2. Cymose –Solitary terminal, Solitary axillary, Helicoid, Scorpioid, Biparous, Multiparous cymes 3. Special Types of Inflorescences – Hypanthodium, Verticillaster; Cyathium. Flower and their parts – Types of Flowers based on position of ovary.		
	Total:	**45 Hr**	

Suggested Specification table with Marks (Theory):75

Distribution of Theory Marks **(Revised Bloom's Taxonomy)**						
Level	Remembrance (R)	Understanding (U)	Application (A)	Analyze (N)	Evaluate (E)	Create (C)
Weightage	30%	50%	20%	-	-	-

Note: This specification table shall be treated as a general guideline for students and teachers. The actual distribution of marks in the question paper may vary slightly from above table.

Course Outcome:

After learning the course the students should be able to:	
CO1	Understand the characteristics and taxonomic position of Algae and Fungi.
CO2	Understand the characteristics and structure of Cryptogamic plants.
CO3	Understand the difference between Angiosperms and Gymnosperms with their characteristics.
CO4	Identify and describe different plant parts based on their Morphology.

List of Practical :

Sr. No	Descriptions	Unit No	Hrs
1.	**Practical: 1** Study of morphology, anatomy and reproductive structures in Spirogyra. **Practical: 2** Study of morphology, anatomy and reproductive structures in Mucor.	1	7
2.	**Practical: 3** Study of morphology, anatomy and reproductive structures in Marchantia. **Practical: 4** Study of morphology, anatomy and reproductive structures in Nephrolepis.	2	7
3.	**Practical: 5** Study of morphology, anatomy and reproductive structures in Cycas. **Practical: 6** To study the life cycle of the Sunflower.	3	7

4.	**Practical: 7** To study types of Leaves and Venation. **Practical: 8** To study Phyllotaxy and its types: Alternate, Opposite and Whorled. **Practical: 9** To study Inflorescence: Racemose, Cymose, and Special types of Inflorescence. **Practical: 10** To study Flower: Flower Parts, Types based on position of Ovary.	4	9
		Total	30

Instructional Method:

The course delivery method will depend upon the requirement of content and the needs of students. The teacher, in addition to conventional teaching methods by black board, may also use any tools such as demonstration, role play, Quiz, brainstorming, MOOCs etc.

From the content 10% topics are suggested for flipped mode instruction.

Students will use supplementary resources such as online videos, NPTEL/SWAYAM videos, e-courses, Virtual Laboratory

The internal evaluation will be done on the basis of Active Learning Assignment

Practical/Viva examination will be conducted at the end of semester for evaluation of performance of students in the laboratory.

Reference Books:

1) Botany Vol. I & II Das, Dutta, Gangulee and Kar., New Central Book Agency,
2) Fungi, Bryophyte, Pteridophyte by Vasishta., S. Chand Pub, New Delhi
3) 3. Cryptogamic Botany. Vol. 1 & 2. Smith, G. M. 1972. Tata McGraw Hill Publishing Co. Ltd
4) Sporne, K.K. 1991. The Morphology of Pteridophytes. B.I. Publishing Pvt. Ltd. Bombay
5) 5.A Textbook of Botany vol. I and II S.N. Pandey, P. S. Trivedi and S. P. Misra., Vikas
6) Publication House Pvt. Ltd.
7) 6.Bhatnagar, S.P. and Moitra, A. 1996. Gymnosperms. New Age International Pvt. Ltd.,

8) New Delhi.
9) 7.Raghavan, V.1999. Developmental Biology of Flowering plants. Springer - Verlag, New
10) York.
11) 8.Naik, V.N. 1984. Taxonomy of Angiosperms. Tata McGraw - Hill Publishing Co. Ltd. New
12) Delhi.
13) 9. Verma B. K. 2011. Introduction to Taxonomy of Angiosperms. PHI Learning Private Ltd.
14) New Delhi
15) 10. Botany for degree students- Vol. V, Gymnosperm by P. C. Vasishta (S. Chand, Delhi)
16) 11. Gymnosperm by G. L. Chopra (S. Nagin & Co., Jullundhar)