

## Practical Plan

**Name of the college:** Government College of Arts, Science and Commerce, Sanquelim- Goa

**Name of Faculty:** Ms. Shubha Shivdas Kauthankar

**Subject:** Botany

**Paper code:** BOT100- Fundamentals of Botany

**Program:** F.Y.B.Sc.

**Division:** -

**Academic year:** 2024- 2025

**Semester:** I

**Total Practicals/Labs:** 14

**Credits:** 1 (2 Hours)

**Course Objectives:** To increase the understanding about the diversity, identification, classification, evolutionary history, relationship of plants with man and other sciences. To familiarize the fundamentals of different branches in Botany, studying plants with regards to their morphological features, physical, chemical and biological functioning of plants.

**Course Outcome:** 1. To understand the classification plant kingdom and summarize the evolutionary history of plants.  
2. To study the different branches in Botany.  
3. To understand the processes and functioning of plant through laboratory exercises.

**Student Learning Outcome:**

1. Outline the classification of life and identify the characteristics features of plant kingdom.
2. Summarize the evolutionary history of plants.
3. Outline the different branches in botany and their relation to other sciences.
4. Analyse the morphological features of plants.
5. Examine the stages of plant growth, plant cells, processes and its responses

Month	Practicals/Labs Scheduled Date	No. of Practical/Labs planned	List of Experiments	Reference books
July 2024	12/07/2024	1 (2 hours)	Study of different types of fossils as mentioned in theory	Sambamurthy AVSS (2006). A Textbook of Bryophytes, Pteridophytes, Gymnosperms and Paleobotany  Bhojwani, SS, Bhatnagar, SP, Dantu, PK (2015). The embryology of Angiosperms  Gangulee, SC, Das, KS, Dutta, CD. and Kar, AK (1968). College Botany  Pandey, BP (2014). Plant Anatomy  Sharma VK (1991). Techniques in microscopy and cell biology
July 2024	19/07/2024	1 (2 hours)	To study different types of stems and roots	
July 2024	26/07/2024	1 (2 hours)	To study different characters of leaves with respect to: a. phyllotaxy – Alternate, spiral, opposite, whorled; shapes of leaves, leaf types - compound, simple. b. leaf margins, leaf apex, leaf venation - parallel and reticulate, vernation	
August 2024	02/07/2024	1 (2 hours)	To study various parts of the flower, types of inflorescences and fruits	
August 2024	09/08/2024	1 (2 hours)	To study type of seeds and germination in seeds of Ricinus and Cucurbita	
August 2024	16/08/2024	1 (2 hours)	To study types of tissues as mentioned in theory with the help of permanent slides.	
August 2024	23/08/2024	1 (2 hours)	Demonstration of tropic responses in plants - phototropism, geotropism, chemotropism, hydrotropism and thigmotropism.	
August 2024	30/08/2024	1 (2 hours)	To demonstrate leaf movements as mentioned in theory.	
September 2024	13/09/2024	1 (2 hours)	Photosynthesis and Respiration: a. To demonstrate that oxygen is evolved during photosynthesis using inverted funnel method b. Demonstration of respiration in germinating seeds by phenol red method	
September 2024	20/09/2024	1 (2 hours)	Demonstration of process of Osmosis and Imbibition in plants	
September 2024	27/09/2024	1 (2 hours)	Demonstration of process of Diffusion and Transpiration in plants.	

October 2024	04/10/2024	1 (2 hours)	Study of basic instruments used in botanical studies: a. Dissection microscope, light microscope, distillation unit, spectrophotometer, Autoclave
October 2024	11/10/2024	1 (2 hours)	b. Laminar air flow unit, centrifuge, orbital shaker, micrometres (stage and ocular), pH meter
October 2024	18/10/2024	1 (2 hours)	Field visit to observe the plant diversity (Algae, bryophytes, pteridophytes, gymnosperms, angiosperms)

**\*Assessment Rubrics**

<b>Component</b>	<b>Max Marks</b>
ISA 1	7.5
ISA 2	7.5
ISA 3	7.5
Practical	25
Project	-
Semester End Exam	60