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: 2025- 2026	**Semester: II**	**Total Practicals/Labs: 15**
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 Practicals/Labs planned	List of Experiments	Reference books
December 2025	06/12/2025	1 (2 hours)	Study of different types of fossils as mentioned in theory	Sambamurty 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
December 2025	13/12/2025	1 (2 hours)	To study different types of stems and roots	
January 2026	03/01/2026	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	
January 2026	10/01/2026	1 (2 hours)	To study various parts of the flower, types of inflorescences and fruits	
January 2026	17/01/2026	1 (2 hours)	To study type of seeds and germination in seeds of Riccinus and Cucurbita	
January 2026	24/01/2026	1 (2 hours)	To study types of tissues as mentioned in theory with the help of permanent slides.	
January 2026	31/01/2026	1 (2 hours)	Demonstration of tropic responses in plants - phototropism, geotropism, chemotropism, hydrotropism and thigmotropism.	
February 2026	07/02/2026	1 (2 hours)	To demonstrate leaf movements as mentioned in theory.	
February 2026	14/02/2026	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	
February 2026	21/02/2026	1 (2 hours)	Demonstration of process of Osmosis and Imbibition in plants	
February 2026	28/02/2026	1 (2 hours)	Demonstration of process of Diffusion and Transpiration in plants.	

March 2026	07/03/2026	1 (2 hours)	Study of basic instruments used in botanical studies: a. Dissection microscope, light microscope, distillation unit, spectrophotometer, Autoclave	
March 2026	14/03/2026	1 (2 hours)	b. Laminar air flow unit, centrifuge, orbital shaker, micrometres (stage and ocular), pH meter	
March 2026	21/03/2026	1 (2 hours)	Field visit to observe the plant diversity (Algae, bryophytes, pteridophytes, gymnosperms, angiosperms)	
March 2026	28/03/2026	1 (2 hours)	Revision	

***Assessment Rubrics**

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