Practical Plan

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

Name of Faculty: Dr Jyosna Gawas	**Subject: Botany**	
Paper code: BOT 202	**Program: S. Y. B.Sc.**	**Division: Batch I**
Academic year: 2025 - 2026	**Semester: IV**	**Total Practicals/Labs: 15**

Credits: 01

Course Objectives: This course deals with physical, chemical and biological functioning of plants. It is designed to understand the structure of plant tissues, organs and reproductive structures.

Expected Course Outcome: The student will be able to

- Identify and describe the different types of plant cells and tissues.
- Describe the primary structure of stems and roots of different plant species
- Explain the types of secondary growth in dicot stems, including normal and anomalous secondary growth.
- Describe the structure and function of epidermal appendages, stomata, anthers, ovules, and pollen grains and explain the process of pollination and dispersal mechanisms of fruits/seed

Student Learning Outcome: Student will

- Describe the structure and function of root and shoot apical meristems.
- Identify and explain the primary structure of stems and roots of different plant species.
- Analyze the types of secondary growth in dicot stems and anomalous secondary growth in different plant species.
- Explain the structure and function of epidermal appendages, stomata, anthers, ovules, and pollen grains.

Month	Practicals/Labs Scheduled Date	No. of Practicals/Labs planned	List of Experiments	Reference books
December 2025	1/12/2025	1	Study of root and shoot apical meristems (permanent slides/photographs).	
	8/12/2025	1	Maceration of wood to study xylem elements.	
	15/12/2025	0	Tarang 2025	

	22/12/2025	1	Study of primary structure of stems of *Helianthus annuus*/*Eupatorium odoratum* and *Oryza sativa*/*Zea mays*.	
January 2026	1/1/2026	1	Normal secondary growth in dicot stem (*Helianthus annuus*/*Eupatorium odoratum*).	
	5/1/2026	1	Study of primary structure of roots of *Helianthus annuus*/*Eupatorium odoratum* and *Oryza sativa*/*Zea mays*.	
	12/1/2026	2	Study of multiple epidermis and cystoliths in leaves of *Ficus* sp. and buliform cells in leaves of *Zea mays*.	
	19/1/2026	1	Anomalous secondary growth in the stems of *Boerhavia*.	Plant anatomy and embryology by S N Pandey & A Chadha Plant anatomy by B. P. Pandey Plant anatomy and microtechniques by A. Ragland & N. Arumugum
	26/1/2026	0	Republic Day	
February 2026	2/2/2026	1	Anomalous secondary growth in the stems of *Dracaena*.	
	9/2/2026	1	Study of epidermal appendages and stomatal types	
	16/2/2026	1	Study of structure of young and mature anther	
	23/2/2026	1	Study of structure and types of ovules: orthotropous, anatropous, circinotropous, amphitropous/ campylotropous	
March 2026	2/3/2026	1	Holi	
	9/3/2026	1	Temporary mount of stigma to observe germinating pollen grains	
	16/3/2026	1	Study of pollination types	
	23/3/2026	1	Study of dispersal mechanisms of fruits/seeds. Journal Certification.	
	30/3/2026	1	Semester End Practical Exam	

*** Assessment Rubrics**

Component	Max Marks
ISA 1	NA
ISA 2	NA
Practical	25
Project	NA
Semester End Exam	NA