

Practical Plan

Name of the college: Government College of Arts, Science & Commerce, Sanquelim-Goa		
Name of Faculty: Dr Tanvi Nitin Prabhu	Subject: Botany	
Paper code: BOT 200 (Diversity of Microbes and non-flowering plants)	Program: S.Y.B.Sc	Batch: - NA
Academic year: 2025 - 2026	Semester: III	Total Practicals/Labs: 15
Credits: 01		
Course Objectives: 1. Familiarize students with diverse groups of microbes and non-flowering plants. 2. Provide the ability to identify and classify microbes and non-flowering plant groups. 3. Impart knowledge of the morphology, life cycle, reproduction and economic importance of various microbes and non-flowering plants.		
Expected Course Outcome: 1. Identify and classify microbes and non-flowering plants based on their characteristic features. 2. Compare and contrast the morphological features within and between the groups for a comprehensive understanding of the basis of their classification. 3. Examine the life cycle and methods of reproduction of microbes and non-flowering plant groups. 4. Appraise the economic importance of microbes and non-flowering plants.		
Student Learning Outcome: 1. Identify and classify microbes and non-flowering plants based on their characteristic features. 2. Compare and contrast the morphological features within and between the groups for a comprehensive understanding of the basis of their classification. 3. Examine the life cycle and methods of reproduction of microbes and non-flowering plant groups. 4. Appraise the economic importance of microbes and non-flowering plants.		

Month	Practicals/Labs Scheduled Date	No. of Practical/Labs planned	List of Experiments	Reference books
June 2025	30.06.2025	01	Study of viruses (T-Phage, TMV) and bacteria using electron micrographs.	Vashishta, PC, Sinha, AK and Kumar, A (2006). Botany for Degree Students: Gymnosperms. S. Chand and Company Pvt. Ltd., New Delhi. Vashishta, PC, Sinha, AK and Kumar, A (2010). Botany for Degree Students: Pteridophyta. S. Chand and Company Pvt. Ltd., New Delhi. Vashishta, BR and Sinha, AK (2014). Botany for Degree Students: Fungi. S. Chand and Company Pvt. Ltd., New Delhi. Sharma, OP (2014). Series on Diversity of Microbes and Cryptogams: Bryophyta. McGraw Hill Education India Pvt. Ltd., Chennai.
July 2025	07.07.2025	01	Study of bacteria by monochrome staining and Gram staining techniques.	
	14.07.2025	01	Study of bacteria by monochrome staining and Gram staining techniques.	
	21.07.2025	01	Study of asexual and sexual stages of Mucor and Aspergillus (temporary mounts / permanent slides).	
	28.07.2025	01	Study of asexual and sexual stages of Mucor and Aspergillus (temporary mounts / permanent slides).	
August 2025	04.08.2025	01	a.Study of endomycorrhizae using trypan blue staining method. b. Study of ectomycorrhizae (permanent slides or photographs).	
	11.08.2025	01	Morphology of thallus and reproductive structures of <i>Nostoc</i> , <i>Spirogyra</i> , <i>Sargassum</i> and <i>Polysiphonia</i> (fresh or preserved specimens / permanent slides).	
	18.08.2025	01	Morphology of thallus and sporophyte of <i>Riccia</i> , <i>Anthoceros</i> and <i>Funaria</i> (fresh or preserved specimens).	
	25.08.2025	01	Morphology of thallus and sporophyte of <i>Riccia</i> , <i>Anthoceros</i> and <i>Funaria</i> (fresh or preserved specimens / permanent slides).	
September	08.09.2025	01	Study of different types of lichen thalli (crustose, foliose and fruticose).	
	15.09.2025	01	Morphology of <i>Selaginella</i> and L.S. of its strobilus.	

	22.09.2025	01	Morphology and reproductive structures (male and female cones) of <i>Cycas</i> , <i>Pinus</i> and <i>Gnetum</i> (fresh / preserved specimens).
	29.09.2025	01	Morphology and reproductive structures (male and female cones) of <i>Cycas</i> , <i>Pinus</i> and <i>Gnetum</i> (fresh / preserved specimens).
October	06.10.2025	01	Journal certification