

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 302	Program/Course: Botany (B.Sc)	Batch: - NA
Academic year: 2026 - 2027	Semester: V	Total Practicals/Labs: 15
Credits: 01		
Course Objectives: 1. Provide knowledge of basic and advanced concepts in microbiology and plant pathology. 2. Impart skills in various microbiological techniques, safety measures in the laboratory, role of micro-organisms in diverse applications and adoption of strategies for plant disease detection and management 3. Provide training in basic skills in isolation and handling of micro-organisms and their preservation.		
Expected Course Outcome: 1. Recall methods of sterilization and understand the biohazards in a microbiology laboratory and biosafety measures to be adopted. 2. Explain plant diseases, defence mechanisms in plants and conventional as well as modern strategies for detection and management of plant disease. 3. Analyse the role of micro-organisms in various fermentation processes, decomposition, bioremediation, water pollution and in production of biogas and biodegradable plastics 4. Apply skills of basic microbiological techniques in testing water samples for presence of micro-organisms and identification of various diseases and causal agents of important plant diseases.		
Student Learning Outcome: 1. Recall methods of sterilization and understand the biohazards in a microbiology laboratory and biosafety measures to be adopted. 2. Explain plant diseases, defence mechanisms in plants and conventional as well as modern strategies for detection and management of plant disease. 3. Analyse the role of micro-organisms in various fermentation processes, decomposition, bioremediation, water pollution and in production of biogas and biodegradable plastics 4. Apply skills of basic microbiological techniques in testing water samples for presence of micro-organisms and identification of various diseases and causal agents of important plant diseases.		

Month	Practicals/Labs Scheduled Date	No. of Practical/Labs planned	List of Experiments	Reference books
June 2026	24.06.2026	01	Working and handling of equipment used in microbiology laboratory.	Kale, V and Bhusari, K (2005). Practical Microbiology: Principles and Techniques. Himalaya Publishing House, Mumbai. Tripathi, SK, Bhale, MS, Yadav, VK and Shrivastava, A (2022). Fundamentals of Plant Pathology. Scientific Publishers, India.
July 2026	01.07.2026	01	Preparation of liquid and solid (plates and slants) culture media – Nutrient Broth, Nutrient Agar and Potato Dextrose Agar.	
July 2026	08.07.2026	01	Preparation of liquid and solid (plates and slants) culture media – Nutrient Broth, Nutrient Agar and Potato Dextrose Agar.	
July 2026	15.07.2026	01	Isolation of micro-organisms from air and study of colony characteristics of bacteria and fungi.	
July 2026	22.07.2026	01	Isolation of micro-organisms from air and study of colony characteristics of bacteria and fungi.	
July 2026	29.07.2026	01	Preparation of pure culture of bacteria by streak plate method; preservation of cultures by streaking on slants	
August 2026	05.08.2026	01	Preparation of Media (Starch agar) for next practical	
August 2026	12.08.2026	01	Screening for amylase producing micro-organisms in soil using starch agar by serial dilution and spread plate method	
August 2026	19.08.2026	01	Analysis of water sample to determine its potability (presumptive test, confirmed test and completed test).	
August 2026	26.08.2026	01	Analysis of water sample to determine its potability (presumptive test, confirmed test and completed test).	
September 2026	02.09.2026	01	Screening for antimicrobial activity of plant extracts by agar well/disc diffusion method (extracts of neem, garlic and lemon grass).	

September 2026	09.09.2026	01	Screening for antimicrobial activity of plant extracts by agar well/disc diffusion method (extracts of neem, garlic and lemon grass).
September 2026	23.09.2026	01	Demonstration of Koch’s postulates for a bacterial/fungal pathogen.
September 2026	30.09.2026	01	Study of causal organism, symptoms, disease cycle and control measures of plant diseases (viral, bacterial and fungal – one each).
October 2026	07.10.2026	01	Anatomy/mounting of spores of fungus infected specimens (rust, blight and rot).
October 2026	14.10.2026	01	Journal certification

Assessment Rubrics

Component	Max. Marks
ISA 1	NA
ISA 2	NA
ISA 3	NA
Practical	25
Semester End Exam	NA