

Semester Lecture Plan (Theory)

Name of the college: Government College of Arts, Science and Commerce, Sanquelim							
Name of Faculty: Ms Vinita Baykar			Subject: Botany				
Paper code: BOT-101			Program/Course: B.Sc.		Division: A		
Academic Year: 2026-2027			Semester: I		Total Lectures: 30		
Course Objectives: 1. Provide a fundamental understanding of plant diversity, evolution, classification and life processes. 2. Develop knowledge of morphology, anatomy, tissues, and physiological responses of flowering plants. 3. Introduce modern advancements in plant science, including AI, remote sensing, GIS, biofortification, synthetic biology, and biofuels. 4. Impart practical skills in plant identification, observation, experimentation and analysis through laboratory experiments, field visits and hands-on training with scientific instruments and digital tools, fostering scientific inquiry and environmental awareness.							
Expected Course Outcome: On completion of the course, students will be able to - Recall the diversity of plant life, basic biological processes, plant structures, adaptive responses, modern botanical advancements and laboratory tools. - Explain evolutionary trends, structural organization, functional activities of plants, technological interventions in agriculture, and principles of scientific instruments - Apply concepts of plant biology and emerging technologies to interpret observations, solve basic botanical problems and perform laboratory-based tasks. - Analyze and evaluate plant systems and technological innovations to address issues related to sustainability, food security and future developments in plant science.							
Student Learning Outcome: By the end of the course the students will gain Knowledge on plant diversity, evolution, classification, and physiological processes and apply modern plant science techniques, laboratory skills, and technologies for sustainable plant research and applications							
Month	Lectures		No. of lectures allotted	Topic, Subtopic to be covered	Exercise/ Assignment	ICT Tools	Reference books
	From:	To:					

July	7/07/2026	11/07/2026	01	Introduction to plant kingdom and life processes. Fundamental notions of plants: Relation of plants to man	Enlist importance of plants in maintaining life	Chalk and board; Power point presentations	College Botany by Gangulee
	13/07/2026	18/07/2026	02	interdisciplinary links of Botany to other sciences; definition and importance of different branches of Botany (Phycology, Mycology, Systematic Botany, Cytology,	Explain meaning of each term in simple words		Paleobotany and the Evolution of Plants by Steward, WM
	20/07/2026	25/07/2026	02	Anatomy, Morphology, Embryology, Biochemistry, Physiology, Genetics, Ecology, Phytogeography, Economic Botany, Ethnobotany and Paleobotany)	Compare and contrast different types of fossils		A Textbook of Bryophytes, Pteridophytes, Gymnosperms and Paleobotany by Sambamurty, AVSS
July/August	27/07/2026	1/08/2026	02	Evolutionary history of plants: Evolution of plants on geological time scale; Fossil formation process,			Plant Systematics. Theory and Practice by Singh, G
August	3/08/2026	8/08/2026	02	types of fossils – Impression, Compression, Petrification and Amber ;Classification of plant kingdom: Seven kingdom classification of life;			
	11/08/2026	15/08/2026	02	characteristic features of the plant kingdom and plant groups (Algae, Fungi, Bryophytes, Pteridophytes, Gymnosperms and Angiosperms)	Naming different types of classification systems		College Botany by Gangulee, et al
	17/08/2026	22/08/2026	02	Life processes: Definition, brief process and significance of osmosis, imbibition, diffusion, transpiration, photosynthesis and respiration	Comparative analysis of plant groups and life process		Fundamentals of Plant Physiology by Jain, VK
	24/08/2026	29/08/2026	02	Recent technologies in plant science: Artificial intelligence in agriculture; role of remote sensing and GIS; sensor-based crop monitoring;			Foundations and Applications of Remote Sensing and GIS by Surwase et al

August/ September	31/08/2026	5/09/2026	02	ISA II plant identification apps – Google Lens. Plants and food security:	Enlist various agricultural task that could be done using AI	Chalk and board; Power point presentations	Underutilized Crops: Towards Nutritional Security and Climate Resilienc by Tiwari, et al Handbook of Plant-based Biofuels by Pandey, A Techniques in Microscopy and Cell Biology by Sharma
September	7/09/2026	12/09/2026	02	Global food challenges; food demand and nutritional security; underutilized crops; biofortification			
	21/09/2026	26/09/2026	02	Future perspectives in plant science: Plant synthetic biology; biofuels from plants (biodiesel – <i>Jatropha curcas</i> ,	Enlist any two underutilize plants and explain biofortification		
September/ October	28/09/2026	3/10/2026	02	ethanol – <i>Saccharum officinarum</i> , algal biofuel – <i>Chlorella vulgaris</i>)			
October	5/10/2026	10/10/2026	02	Instrumentation: Principle and applications – microscopy, spectrophotometer, centrifuge, laminar air flow unit,	Explain function of each instrument in short		
	12/10/2026	17/10/2026	02	orbital shaker, pH meter and autoclave			

Assessment Rubrics

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