Lecture Plan

Name of the college: Government college of arts science and commerce Sanquelim-Goa

Name of Faculty: Anuja Naik	**Subject:** Botany (Fundamentals of Botany)	
Paper code: BOT 100	**Program/Course: F.Y B.Sc.**	**Division: A**
Academic year: 2024 - 2025	**Semester: 1**	**Total Lectures: 45**

Course Objectives: This course aims to increase the understanding about the diversity, identification, classification, evolutionary history, relationship of plants with man and other sciences, fundamentals of different branches in Botany, studying the plants with regards to their morphological features, physical, chemical and biological functioning of plants and various plant processes with emphasis on basic instruments and techniques used in the Botanical studies. Laboratory exercises are designed to give hands on experience in handling all specimens and to understand the processes and functioning of plants.

Course 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	Lectures From:	To:	No. of lectures allotted	Topic, Subtopic to be covered	Learning outcome	Exercise /Assignment	ICT Tools	Reference books
July	17/07/2024	20/07/2024	0				Power point presentation	Plant systematic by Gurcharan Singh Fundamental of plant physiology by
	21/07/2024	27/02/2021	2	Module 1: Introduction to plant kingdom Fundamental notions of plants:	Students are able to explain the role of plants in human life.	Students are asked to write		

				Relation of plants to man relation of Botany to other sciences	Students are able to link the botany with other subjects.	the uses of plants in their nootebook		V.K. Jain. Techniques in microscopy and cell biology by VK Sharma
	28/07/24	31/07/24	2	brief description of various branches in Botany (Systematic botany- Classification, Taxonomy and nomenclature; Morphology – external, internal	Students are able to describe systematic botany Students explains the internal and external morphology of plants			
August	1/08/24	3/08/24	0					
	5/08/24	10/08/24	2	Embryology, Physiology, Ecology Phytogeography, Economic Botany, Cytology and Cytogenetics,	Students define embryology physiology and ecology Students explain and define phytogeography, economic botany, cytology and cytogenetics.			
	12/08/24	17/08/24	2	Ethnobotany, Biotechnology, Molecular Biology, Biochemistry)	Students define ethnobotany, biotechnology, molecular biology			

					and biochemistry		
				Evolutionary history of plants: Evolution of plants on geological time scale;	Students understand the evolution of plants on geological time scale.	Students are asked to homework on fossils based on their understanding	
	19/08/24	24/08/24	2	Paleobotany: Fossil formation process,	Students define paleobotany and explain the formation of fossils.		
				types of fossils – Impression, Compression, Petrification and coal balls.	Students are able to identify different types of fossils based on the theoretical knowledge gained		
	26/08/24	31/08/24	2	Broad classification of plant kingdom: Introduction to seven kingdom classification of life,	Students are able to classify the plants into seven kingdom		
				Characteristic features of the plant kingdom.	Students recall the characteristics features of the plant kingdom.		
September	2/09/24	7/09/24	2	Classification of Plant kingdom up to divisions (G.M. Smith's classification)	Students classify the plants kingdom according to Smith's		

				classification.		
			Module 3: Plant growth and Plant movements; Instrumentation	Students are able to justify how plants grow and movements of the plants.		
09/09/24	14/09/24	2	Plant movements: tropic responses phototropism, geotropism, chemotropism,	Students are able to explain the plant movements according to the environmental factors.	Students are asked to do experiment at home to keep the plant on window in pot and asked them to observe on which side do plant grow	
			hydrotropism and thigmotropism);	Students are able to explain the plant movements according to the environmental factors		
16/09/24	21/09/24	2	leaf movements (nyctinasty and seismonasty).	Students are able to explain the leaf movements.		
23/09/24	28/09/24	2	Photosynthesis,	Students define		

				Respiration,	and explains the process of photosynthesis and respiration		
				Transpiration, Osmosis,	Students define and explain the process of transpiration and osmosis.		
October				Imbibition and Diffusion.	Students define and explains the process of imbibitions and diffusion		
	1/10/24	5/10/24	2	Principle, working and applications of: microscopy (Dissection and light microscope),	Students apply the knowledge gained through theory in practicles while using microscopes.	Students are given hands on training and practice.	
				micrometry, distillation unit,	Students will apply the knowledge gained through theory of using micrometer and distillation unit in their career.		
	7/10/24	12/10/24	2	spectrophotometer	Students apply the knowledge gained through theory in practicles while using spectrophotomete		

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	14/10/24	19/10/24	2	Centrifuge.	Students apply the knowledge gained through theory in practicles while using centrifuge			
				Laminar air flow unit.	Students apply the knowledge gained through theory in practicles while using laminar air flow unit			
	21/10/24	22/10/24	2	orbital shaker.	Students apply the knowledge gained through theory in practicles while orbital shaker.			
				pH meter, Autoclave.	Students apply the knowledge gained through theory in practicles while using PH meter and Autoclave.			