Semester Lecture Plan (Theory)

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

Name of Faculty: Dr. Tanvi Nitin Prabhu | **Subject:** Botany

Paper code: BOT 241 | **Program/Course: B.Sc (Botany)** | **Division: A**

Academic Year: 2025-26 | **Semester: III** | **Total Lectures: 15**

Course Objectives:

- Impart knowledge on the use of medicinal and aromatic plants in the manufacture of herbal drugs, cosmeceuticals and nutraceuticals.
- Focus on developing entrepreneurial skills by imparting hands-on training in the preparation of herbal products.

Expected Course Outcome: On completion of the course, students will be able to

- Recall the importance of medicinal and aromatic plants for preparation of herbal medicines.
- Describe the methods for preparation of crude herbal extracts and drug evaluation.
- Apply the acquired knowledge and skills to prepare herbal products.
- Analyse the use of herbal plants for preparation of cosmeceuticals and nutraceuticals

Student Learning Outcome:

- Recall the importance of medicinal and aromatic plants for preparation of herbal medicines.
- Describe the methods for preparation of crude herbal extracts and drug evaluation.
- Apply the acquired knowledge and skills to prepare herbal products.
- Analyse the use of herbal plants for preparation of cosmeceuticals and nutraceuticals

Month	Lectures		No. of lectures allotted	Topic, Subtopic to be covered	Exercise/ Assignment	ICT Tools	Reference books
	From:	To:					
June 2025	24.06.2025	28.06.2025	01	Module 1: Herbal technology for industrially important products and formulations Introduction: Importance of herbal medicines		PowerPoint presentation	Agarwal, SS and Paridhavi, M (2012). Herbal Drug Technology. 2nd

							edition. Universities Press (India) Private Limited, Hyderabad**.**
June 2025-July 2025	30.06.2025	05.07.2025	01	Brief account of methods of collection and processing (drying, garbling, packing and storage) of herbal raw materials		PowerPoint presentation	
July 2025	07.07.2025	12.07.2025	01	Brief account of decoction, maceration, infusion, hot continuous extraction, distillation and supercritical fluid extraction.		PowerPoint presentation	Kumaresan, V (2015). Herbal Biotechnology and Pharmacognosy. Saras Publication, Tamil Nadu.
July 2025	14.07.2025	19.07.2025	01	Brief account of drug evaluation using morphological, microscopic, chemical, physical and biological methods;		PowerPoint presentation	
July 2025	21.07.2025	26.07.2025	01	Brief account of drug evaluation using morphological, microscopic, chemical, physical and biological methods;		PowerPoint presentation	
July 2025 – August 2025	28.07.2025	02.08.2025	01	Drug adulteration - deliberate and indeliberate adulteration; types of adulterants.		PowerPoint presentation	Rosaline, A (2011). Pharmacognosy. MJP Publishers, Chennai.
August 2025	04.08.2025	09.08.2025	01	ISA 1 (Assignment) Drug adulteration - deliberate and indeliberate adulteration; types of adulterants.		PowerPoint presentation	
August 2025	11.08.2025	16.08.2025	01	hair care - oil, shampoo, conditioner and dye		PowerPoint presentation	
August 2025	18.08.2025	23.08.2025	01	care - toothpaste and mouthwash		PowerPoint presentation	
September 2025	01.09.2025	06.09.2025	01	Herbal excipients - significance of substances of natural origin as excipients (binding agents, colourants, diluents, emulsifying agents, flavours and sweetening agents) - any two examples for each type.		PowerPoint presentation	
September 2025	08.09.2025	13.09.2025	01	Herbal excipients - significance of substances of natural origin as excipients (binding agents, colourants, diluents, emulsifying agents, flavours and sweetening agents) - any two examples for each type.		PowerPoint presentation	

September 2025	15.09.2025	20.09.2025	01	Aromatherapy - study of various oils used in aromatherapy with special reference to its applications in inhalation, local application and bath.		PowerPoint presentation	
September 2025	22.09.2025	27.09.2025	01	Herbal nutraceuticals and their health benefits; culinary uses of any five herbs.		PowerPoint presentation	
September 2025 – October 2025	29.09.2025	04.10.2025	01	Contribution of Dabur Ltd., Himalaya Wellness Company and Vicco Labs		PowerPoint presentation	
October 2025	06.10.2025	11.10.2025	01	ISA 02		PowerPoint presentation	
October 2025	13.10.2025	18.10.2025	01	Central Institute of Medicinal and Aromatic Plants (CIMAP) and National Medicinal Plants Board (NMPB); role of Traditional Knowledge Digital Library (TKDL).		PowerPoint presentation	

Assessment Rubrics

Component	Max Marks
ISA 1	5
ISA 2	5
Practical	40
Project	NA
Semester End Exam	20

Practical Plan

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

Name of Faculty: Dr Jyosna Gawas	**Subject: Botany**	
Paper code: BOC110 (Plant Ecology & Phytogeography)	**Program: T.Y.B.Sc**	**Batch: I**
Academic year: 2023 - 2024	**Semester: VI**	**Total Practicals/Labs: 15**

Credits: 02

Course Objectives: To familiarise students with various ecological parameters mentioned in the syllabus

Expected Course Outcome: After completion of this course student will be able to discuss, describe and determine various ecological parameters mentioned in the syllabus

Student Learning Outcome:

1. Describe the working of instruments used determine ecological factors.
2. Learn various methods to find out pH, conductivity, dissolved O_2, carbon content, species diversity.
3. Describe interactions between plants
4. Discuss major phytogeographical zones in India and vegetation types in Goa

Month	Practicals/Labs Scheduled Date	No. of Practicals/Labs planned	List of Experiments	Reference books
January	02-01-2023	01	Study of instruments used to measure microclimatic variables; Soil thermometer, maximum and minimum thermometer, anemometer, psychrometer/hygrometer, rain gauge and lux meter	Ecology and Environment By P.D. Sharma Concepts of Ecology By P. S Verma & V. S. Agarwal Practicals in Ecology By Pratima Kapur & Sudha Rani Govil
	09-01-2023	01	Determination of pH of various soil and water samples (pH meter, universal indicator/ lovibond comparator and pH paper).	

	16-01-2023	01	Analysis for carbonates, chlorides, nitrates, sulphates, organic matter and base deficiency from two soil samples by rapid field tests.	
	23-01-2023	01	Determination of organic matter of different soil samples by Walkley & Black rapid titration method	
	30-01-2023	01	Determination of soil conductivity & water holding capacity in soils of three habitats	
February	06-01-2023	01	Study of dissolved oxygen of water samples from polluted and unpolluted sources.	
	13-02-2023	01	Study of aquatic ecosystem of phytoplanktons and hydrophyte diversity.	
	20-02-2023	01	Study of morphological and anatomical adaptations of hydrophytes and xerophytes	
	27-03-2023	01	Study of biotic interaction of the following: Stem parasite (*Loranthus* & *Cuscuta*), Epiphytes (Orchids), Predation (Insectivorous plants – *Utricularia*/*Drosera*/Pitcher plant).	
March	5-03-2023	01	Determination of minimal quadrate size for the study of herbaceous vegetation in the college campus, by species area curve method	
	12-03-2023	01	Quantitative analysis of herbaceous vegetation for density and abundance in the college campus.	
	19-03-2023	01	To prepare map of India with respect to (i) major climatic zones (ii) forest type (iii) biogeographical regions.	
	26-03-2023	01	To prepare map of Goa to show its vegetation types as specified in theory.	
April	02-04-2023	01	Jpurnal certification	