

## DEPARTMENT OF BOTANY

### A. PROGRAMME OUTCOME(PO)

- Evaluate the role of science, mathematics, and technology in addressing current issues facing local and global communities.
- Drives scientific and societal advancement through technological innovation and entrepreneurship.
- Acquire domain knowledge
- Strengthen critical thinking and reasoning skills
- Develop effective communication skills
- Imbibe human values, inclusiveness attitude and socio-cultural sensitivity
- Build up self-esteem and competence to face challenges
- Attain life-readiness through problem-solving skills and competencies
- Work effectively in groups to meet a shared goal with people whose disciplinary and cultural backgrounds differ from their own.
- Develop appropriate methods of research, investigation, and design, to solve problems in science, mathematics, and technology.

### B. PROGRAMME SPECIFIC OUTCOMES(PSO)

- To lay a strong foundation in the study of Botany
- Develop basic skills in Botany
- To study the evolutionary importance of different groups of plants
- Understand the unique and general features of plant groups
- To study the external and internal structure, reproduction and economic importance.
- Develop ability to work and to make them fit for the society

### C. COURSE OUTCOMES (CO)

Semester	Paper code	Title of paper	Course outcome
I Core course 1	BO1CRT01	METHODOLOGY OF SCIENCE AND AN INTRODUCTION TO BOTANY	<ul style="list-style-type: none"><li>• To understand universal nature of science</li><li>• Demonstrate the use of scientific method</li><li>• To lay strong foundation in the study of Botany</li><li>• To develop basic skills in Botany</li></ul>
II Core course 2	BO2CRT02	MICROBIOLOGY, MYCOLOGY AND PLANT PATHOLOGY	<ul style="list-style-type: none"><li>• To understand the world of microbes</li><li>• Better understanding of fungi and lichens</li><li>• Appreciate their adaptive strategies</li><li>• To study their economic</li></ul>

			and pathological importance
III core course 3	BO3CRT03	PHYCOLOGY AND BRYOLOGY	<ul style="list-style-type: none"> <li>• Study evolutionary importance of algae</li> <li>• Study the unique and general features of algae and bryophytes</li> <li>• Study their morphology, internal structure and reproduction</li> <li>• To realize the application of Phycology</li> </ul>
IV core course 4	BO4CRT04	PTERIDOLOGY, GYMNOSPERMS AND PALEOBOTANY	<ul style="list-style-type: none"> <li>• To impart an insight into the modern classifications in lower forms of plants.</li> <li>• Understand the evolutionary trends in Pteridophytes and Gymnosperms.</li> <li>• Study the anatomical variations in vascular plants.</li> <li>• Understand the significance of Paleobotany and its applications</li> </ul>
V core course 5	BO5CRT05	ANATOMY, REPRODUCTIVE BOTANY AND MICROTECHNIQUE	<ul style="list-style-type: none"> <li>• Understand the structural adaptations in plants growing in different environment.</li> <li>• Understand the morphology and development of reproductive parts.</li> <li>• Get an insight in to the fruit and seed development.</li> <li>• Understand the techniques used to preserve and study plant materials.</li> </ul>
V core course 6	BO5CRT06	RESEARCH METHODOLOGY, BIOPHYSICS AND BIOSTATISTICS	<ul style="list-style-type: none"> <li>• To equip the students to conduct independent research and prepare research reports.</li> <li>• To make the students acquaint with different tools and techniques used in research work.</li> <li>• To equip the students with basic computer skills</li> </ul>

			<p>necessary for conducting research.</p> <ul style="list-style-type: none"> <li>To enable the students to have enough numerical skills necessary to carry out research.</li> </ul>
V core course 7	BO5CRT07	PLANT PHYSIOLOGY AND BIOCHEMISTRY	<ul style="list-style-type: none"> <li>Acquire basic knowledge needed for proper understanding of plant functioning.</li> <li>Familiarize with the basic skills and techniques related to plant physiology.</li> <li>Understand their role</li> <li>structure and importance of the bio molecules associated with plant life</li> </ul>
V core course 8	BO5CRT08	ENVIRONMENTAL SCIENCE AND HUMAN RIGHTS	<ul style="list-style-type: none"> <li>Acquaint the student with the significance of Environmental Science.</li> <li>Make the students aware about the extent of the total biodiversity and the importance of their conservation.</li> <li>Help the student to design novel mechanisms for the sustainable utilization of natural resources.</li> <li>Enable the students to understand the structure and function of the ecosystems.</li> </ul>
V Open course	BO5OPT01	AGRI-BASED MICROENTERPRISES	<ul style="list-style-type: none"> <li>Provide basic information about the business opportunities in plant sciences.</li> <li>Inform the student about sustainable agriculture and organic farming.</li> <li>Inculcate an enthusiasm and awareness about ornamental gardening</li> <li>nursery management and mushroom cultivation</li> </ul>
VI core course 9	BO6CRT09	GENETICS, PLANT BREEDING AND HORTICULTURE	<ul style="list-style-type: none"> <li>Understand the inheritance pattern of nuclear and extra nuclear genes</li> <li>Understand the methods of crop improvement</li> </ul>

			<ul style="list-style-type: none"> <li>• Understand the importance of horticulture in human welfare</li> <li>• Develop skill in gardening technique among students</li> </ul>
VI core course 10	BO6CRT10	CELL AND MOLECULAR BIOLOGY	<ul style="list-style-type: none"> <li>• Familiarization of life processes.</li> <li>• Understand the basic and scientific aspect of diversity.</li> <li>• Understand the cytological aspects of growth and development.</li> <li>• Understand DNA as the basis of heredity and variation.</li> </ul>
VI core course 11	BO6CRT11	ANGIOSPERM MORPHOLOGY, TAXONOMY AND ECONOMIC BOTANY	<ul style="list-style-type: none"> <li>• Acquaint with the aims, objectives and significance of taxonomy.</li> <li>• Identify the common species of plants growing in Kerala and their systematic position.</li> <li>• Develop inductive and deductive reasoning ability.</li> <li>• Acquaint with the basic technique in the preparation of herbarium</li> </ul>
VI core course 12	BO6CRT12	BIOTECHNOLOGY AND BIOINFORMATICS	<ul style="list-style-type: none"> <li>• Understand the current developments in the field of Biotechnology and Bioinformatics.</li> <li>• Equip the students to carry out plant tissue culture.</li> <li>• Introduce the vast repositories of biological data knowledge.</li> <li>• Equip to access and analyze the data available in the databases.</li> </ul>
VI Elective course	BO6PET01	AGRIBUSINESS	<ul style="list-style-type: none"> <li>• Inculcate and impart an idea about the business opportunities in the field of plant sciences.</li> <li>• Develop an entrepreneurial mindset and also to stick on to the core subject among the Botany students.</li> </ul>

			<ul style="list-style-type: none"> <li>• Give an idea about the need of sustainable development and organic farming.</li> <li>• Harness the opportunities and potentials in the field of ecotourism, processing technology and food sciences.</li> </ul>
I Complementary Course 1	BO1CMT01	CRYPTOGAMS, GYMNOSPERMS AND PLANT PATHOLOGY	<ul style="list-style-type: none"> <li>• Acquire fundamental knowledge in plant science and to make the student to understand that Botany is an integral part of the human life and developments.</li> <li>• Foster and encourage an attitude of curiosity, appreciation and enquiry of various life forms of plants.</li> <li>• Understand the identifying characters of the different types included in the syllabus.</li> <li>• Understand the diversity of plants with respect to Algae, Fungi, Lichens, Bryophytes, Pteridophytes and Gymnosperms</li> </ul>
II Complementary Course 2	BO2CMT02	PLANT PHYSIOLOGY	<ul style="list-style-type: none"> <li>• Make the students realize the importance of all physiological processes which take place in plants.</li> <li>• Relation between transpiration and guttation</li> <li>• Different stomatal types. structure</li> <li>• Understand the mechanism of various physiological processes related to plant life.</li> </ul>
III Complementary Course 3	BO3CMT03	ANGIOSPERM TAXONOMY AND ECONOMIC BOTANY	<ul style="list-style-type: none"> <li>• Acquaint the student with the objectives and components of Taxonomy.</li> <li>• Help the student to understand the systems of classification of angiosperms.</li> <li>• Help the student to identify</li> </ul>

			<p>the common angiosperm species of Kerala.</p> <ul style="list-style-type: none"> <li>• Familiarize the student with plants of immense economic importance.</li> </ul>
IV Complementary Course 4	BO4CMT04	ANATOMY AND APPLIED BOTANY	<ul style="list-style-type: none"> <li>• Understand different types of plant tissues.</li> <li>• Understand the internal structure of different plant organs with reference to their functions.</li> <li>• Understand the process of normal and anomalous secondary thickening in plants.</li> <li>• Know the morphological and anatomical adaptations of plants growing in different habitats.</li> </ul>