

DEPARTMENT OF BOTANY

B.Sc. Botany Model II – Horticulture and Nursery Management

Programme Outcomes

PO1	To know and understand the range of plant diversity in terms of structure, function and environmental relationships. 2. The evaluation of plant diversity. 3. Plant classification. 4. The role of plants in the functioning of the global ecosystem.
PO2	Students learn to carry out practical work, in the field and in the laboratory, in the following areas plant morphology and anatomy, plant taxonomy, plant ecology, plant physiology.
PO3	To demonstrate procedural knowledge that creates different types of professionals in the field of Botany i.e. research, teaching, horticulture. Further application of knowledge can enhance productivity of several economically important product/botanicals
PO4	Develop skills and ability to use knowledge efficiently in areas related to specializations and current updates in the subject
PO5	Apply the knowledge and understanding of Botany to new/unfamiliar situations and to identify problems and solutions in daily life.

COURSE OUTCOMES

BO1CRT01: METHODOLOGY OF SCIENCE AND AN INTRODUCTION TO BOTANY

Course outcome

- Develop a comprehensive understanding of the scientific method, and its steps, including observation, hypothesis, experimentation and theory formulation.
- Execute scientific method for solving problems.
- Build a foundation to study Plant science.
- Develop basic skills to study Botany in detail.

BO2CRT02: MICROBIOLOGY, MYCOLOGY AND PLANT PATHOLOGY

Course outcome

- Understand the general characters, classification and distinguishing features of different classes of fungi.
- Understand the beneficial and harmful effects of fungi on humans, plants and the environment.
- Recognize the origins, types and host parasite relationships of plant diseases.
- Understand the symptoms, causes, disease cycles and control measures of common plant diseases.

BO3CRT03: PHYCOLOGY AND BRYOLOGY

Course outcome

- Recognize the evolutionary importance of Algae as progenitors of land plants
- Understand the unique and general features Algae and Bryophytes and familiarize it
- Understand external morphology, internal structure and reproduction of different types of Algae and Bryophytes
- Realize the application of Phycology in different fields.
- Understand the Evolutionary significance of Bryophytes.

BO4CRT04: PTERIDOLOGY, GYMNOSPERMS AND PALEOBOTANY

Course outcome

- Understand the diversity of various groups of plants.
- Understand the evolutionary trends in Pteridophytes and Gymnosperms.

- Identify the anatomical variations in vascular plants.
- Identify different types of fossil plants
- Understand the significance of Paleobotany and its applications.

BO5CRT05: ANATOMY, REPRODUCTIVE BOTANY AND MICROTECHNIQUE

Course outcome

- Understand the structure and composition of plant cells.
- Understand different tissue systems in plants.
- Understand the structural adaptations in plants growing in different environment.
- Familiarize the mechanism of fertilization in Angiosperms.
- Understand the techniques used to preserve and study plant materials.

BO5CRT06: RESEARCH METHODOLOGY, BIOPHYSICS AND BIOSTATISTICS

Course outcome

- Equip students to undertake independent research and write research reports.
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- Facilitate students with the fundamental computer skills required for performing research
- Understand the principles, working, and applications of various biophysical instrumentations
- Introduce basic statistical concepts and methods

BO5CRT07: PLANT PHYSIOLOGY AND BIOCHEMISTRY

Course outcome

- Understand the basic concepts and components of plant water relations.
- Recognize the deficiency symptoms of essential nutrients.
- Understand the mechanisms and significance of plant metabolism.
- Analyze the physiological effects and practical applications of Plant growth regulators.
- Evaluate the plant responses to biotic and abiotic stresses.
- Familiarize with the basic skills and experiments related to biochemistry.

BO5CRT08: ENVIRONMENTAL SCIENCE AND HUMAN RIGHTS

Course outcomes

- Describe the interactions in the ecosystem.
- Explain structure, functions and development of ecosystems.
- Apply the knowledge to conserve the biodiversity.
- Apply the knowledge to control pollution
- Summarizes the biodiversity conservation efforts
- Understand various environmental laws and human rights in India.

Open course –BO5OPT01: AGRI-BASED MICROENTERPRISES

Course outcomes

- Understand the basic information about the business opportunities in plant sciences.
- Describe the student about sustainable agriculture and organic farming.
- Understand the methods of plant propagation.
- Demonstrate the cultivation of Mushroom.
- Understand the basic concepts of totipotency in Micropropagation.

BO6CRT09: GENETICS, PLANT BREEDING AND HORTICULTURE

Course outcome

- Understand the principles of heredity.
- Understand the patterns of inheritance in different organisms
- Understand the inheritance pattern of nuclear and extra nuclear genes
- Understand the methods of crop improvement
- Understand the importance of horticulture in human welfare
- Develop skill in gardening technique among students

BO6CRT10: CELL AND MOLECULAR BIOLOGY

Course outcome

- Understand the ultra-structure and functioning of cell in the sub-microscopic and molecular level.
- Understand the structure, function, and types of chromosomes

- Understand the cellular components underlying mitotic and meiotic cell division.
- Understand the cytological aspects of growth and development.
- Understand the Central Dogma of Molecular Biology and the how flow of genetic information is regulated to control cell behaviour.
- Learn the mechanisms and regulation of genome maintenance and gene expression

BO6CRT11: ANGIOSPERM MORPHOLOGY, TAXONOMY AND ECONOMIC BOTANY

Course outcomes

- Describe the plants in technical terms.
- Understand the methods in Plant taxonomy.
- Apply the knowledge to solve taxonomic problems
- Recognize the economical and ethno-botanical importance of plants.
- Familiarizing with the plants having immense economic importance.

BO6CRT12: BIOTECHNOLOGY AND BIOINFORMATICS

Course outcome

- Understand the current developments in the field of Biotechnology and Bioinformatics.
- Familiarize different techniques involved in biotechnology.
- Understand different biological databases.
- Apply the knowledge of different visualization programmes to identify the protein structure
- Introduce the vast repositories of biological data knowledge.
- Equip to access and analyse the data available in the databases.

Elective course:BO6PT01: AGRIBUSINESS

Course outcomes

- Develop an idea about the business opportunities in the field of plant sciences.
- Develop an entrepreneurial mind-set and also to stick on to the core subject among the Botany students.
- Demonstrate the different methods of organic farming.
- Apply the knowledge of different techniques of composting.
- Apply different cultivation methods of mushrooms

Vocational course 1 –BO1BO3T01:FUNDAMENTALS OF HORTICULTURE

Course Outcome

- Understand the importance of horticulture
- Familiarize different irrigation systems
- Understand the basic information about garden tools and implements
- Acquire basic knowledge on soil formation.

Vocational Course 2 -BO1BO3T02: PLANT PROPAGATION

Course Outcome

- Understand the need of plant propagation.
- Demonstrate the different plant propagation methods(natural and Artificial)
- Develop practical skills in artificial propagation methods.
- Familiarize preparation of potting mixture.

Vocational Course 3 –BO2VO3T03:ORNAMENTAL HORTICULTURE AND LANDSCAPING

Course Outcome

- Understand the scope and importance of ornamental horticulture.
- Familiarize cultivation methods of different groups of ornamental plants
- Create an interest in gardening and landscaping
- Create an awareness about the scope of commercial landscaping
- Develop skills in ornamental gardening technique among students

Vocational Course 4 –BO2VO3T04: PLANT PROTECTION AND NURSERY MANAGEMENT

Course Outcome

- Understand common diseases of horticultural crops.
- Familiarize with the different plant protection measures.
- Recognize agricultural chemicals used in crop protection.
- Apply the knowledge to establish a plant nursery.
- Understand the different aspects of transplanting.

Vocational Course 5 –BO3VO3T05: FLORICULTURE

Course Outcome

- Understand the importance of commercial floriculture.
- Summarize the cultivation methods of flowering plants.
- Design a landscape garden.
- Demonstrate the basic styles of bonsai.
- Create different styles of flower arrangement.

Vocational Course 6 – BO3VO3T06: OLERICULTURE

Course Outcome

- To familiarize cultivation methods of vegetables and mushrooms
- To develop practical skills in cultivation of vegetables
- Equip the students to carry out commercial level of cultivation.
- To create awareness on sustainable agriculture and healthy foods
- Develop interest in sustainable cultivation of mushrooms and vegetables

Vocational Course 7 - BO4VO3T07: POMOLOGY, FOOD TECHNOLOGY AND POST-HARVEST MANAGEMENT OF HORTICULTURAL CROPS

Course Outcome

- Summarize the cultivation of fruit trees.
- Recognize the major pests and diseases of fruit trees.
- Understand the importance of packaging of fruits Know the different methods of food preservation.
- Preparation of processed products from fruits.
- Understand the regulations and specifications for fresh and processed products.

Vocational Course 8 – BO4VO3T08: CULTIVATION OF MEDICINAL AND AROMATIC PLANTS, SPICES AND PLANTATION CROPS

Course Outcome

- Equip the students to identify different medicinal plants.
- Familiarize the cultivation methods and processing practices of different spices
- Understand the scope and importance of plantation crops.
- Create an insight about the traditional uses of medicinal and aromatic plants in Kerala.