

B.Sc. BOTANY PROGRAMME

PROGRAMME SPECIFIC OUTCOME (PSO)

PSO1: Describe the major concepts and theoretical principles in Undergraduate Programme of Botany

PSO2: Apply scientific knowledge to design, perform, record and analyze experiments

PSO3: Solve problems using basic understanding in Botany, Zoology and Chemistry

PSO4: Develop communication skills to identify, investigate, formulate and transmit new ideas and concepts.

PSO5: Develop analytical, creative, cognitive skills with social responsibility and environmental consciousness

SEMESTER 1

COURSE CODE	TITLE OF THE COURSE	CREDITS	COURSE TYPE
BO1CRT01	Methodology of Science and an Introduction to Botany	2	CORE COURSE 1
BO1CMT01	Cryptogams, Gymnosperms and Plant Pathology	2	COMPLEMENTARY COURSE 1

SEMESTER 1

CORE COURSE 1-Methodology of Science and an Introduction to Botany

CREDITS-2

COURSE OUTCOMES

CO1- Demonstrate the methodology of Science and experimentation with special emphasis to ethics(U)

CO2- Explain the origin of life forms and evolution

CO3- Recognize the diversity of life through classification

CO4- Employ various basic botanical skills and techniques

SEMESTER 1

COMPLEMENTARY COURSE 1- Cryptogams, Gymnosperms and Plant Pathology

CREDITS-2

COURSE OUTCOMES

CO1-Recognize various life forms in Cryptogams by detailed study of their morphology and anatomy(R, U)

CO2- Explain the Life cycle of Cryptogams and Gymnosperms

CO3- Describe the economic aspects of Algae, Fungi and Lichen

CO4- Distinguish various plant pathological symptoms and related diseases

SEMESTER 2

COURSE CODE	TITLE OF THE COURSE	CREDITS	COURSE TYPE
BO2CRT02	Microbiology, Mycology and Plant Pathology	2	CORE COURSE 2
BO2CMT02	Plant Physiology	2	COMPLEMENTARY COURSE 2

SEMESTER 2

CORE COURSE 2- Microbiology, Mycology and Plant Pathology

CREDITS-2

COURSE OUTCOMES

CO1-Analyze the ultrastructure of Bacteria and Viruses

CO2- Explain the process of bacterial culture and related applied aspects

CO3-Illustrate the Life history of various fungal groups including lichens with emphasizing on its classification

CO4-Distinguish various plant pathological symptoms and related diseases based on disease development and control measures

SEMESTER 2

Complementary course 2- Plant Physiology

CREDITS-2

COURSE OUTCOMES

CO1- Understand Water absorption and movements in plants

CO2-Identify Mineral nutritional deficiencies in plants

CO3-Illustrate the Mechanism of Photosynthesis and translocation

CO4-Express the role of Plant growth regulators in development

SEMESTER 3

COURSE CODE	TITLE OF THE COURSE	CREDITS	COURSE TYPE
BO3CRT03	Phycology and Bryology	3	CORE COURSE 3
BO3CMT03	Angiosperm Taxonomy and Economic Botany	3	COMPLEMENTARY COURSE 3

SEMESTER 3

CORE COURSE 3- Phycology and Bryology

CREDITS-3

COURSE OUTCOMES

CO1-Understand the role of evolution in habitat, thallus structure and pigments in Algae

CO2-Recall the classification of Algae by Fritsch and Lee

CO3- Illustrate the Life history of algal types

CO4.Generalize the process of Macro and Micro algal culture with economic importance

CO5-Recall the classification of bryophytes by Rothmaler and Goffinet

CO6- Compare the life history of major groups of bryophytes and their economic importance

SEMESTER 3

COMPLEMENTARY COURSE 3- Angiosperm Taxonomy and Economic Botany

CREDITS-3

COURSE OUTCOMES

CO1-Observe the morphology of flowering plant parts

CO2-Enumerate different types of classification and rules of Nomenclature

CO3- Explain the role of Herbaria, Cyto and Chemotaxonomy in Angiosperm taxonomy

CO4- Illustrate the Characters of flowering plant families

CO5-Classify economically important flowering plants based on utility

CO6-Review the role of medicinal plants

SEMESTER 4

COURSE CODE	TITLE OF THE COURSE	CREDITS	COURSE TYPE
BO4CRT04	Pteridology, Gymnosperms and Paleobotany	3	CORE COURSE 4
BO4CMT04	Anatomy and Applied Botany	3	COMPLEMENTARY COURSE 4

SEMESTER 4

CORE COURSE 4- Pteridology, Gymnosperms and Paleobotany

CREDITS-3

COURSE OUTCOMES

CO1-Explain the classification and general characters of Pteridophytes

CO2-Describe the life cycle of primitive and advanced Pteridophytes with economic importance

CO3- Explain the classification and general characters of Gymnosperms

CO4-Describe the life cycle of primitive and advanced Gymnosperms with economic importance

CO5-Review Paleobotanical aspects of fossil types, fossilization and lower group fossils

CO6-Observe the importance of fossil deposits, institutions and contributions of Paleobotanists.

SEMESTER 4

COMPLEMENTARY COURSE 4- Anatomy and Applied Botany

CREDITS-3

COURSE OUTCOMES

CO 1-Understand cell types and tissues in plants

CO2- Compare the anatomy of normal and abnormal plant parts like stem, root and leaves

CO3- Identify morpho-anatomical adaptations of hydro, xero and epiphytes

CO4- Distinguish plant breeding methods

CO5- Explain artificial vegetative propagation strategies in plants

CO6-Describe Micropropagation as a tool for mass multiplication of plants

SEMESTER 5

COURSE CODE	TITLE OF THE COURSE	CREDITS	COURSE TYPE
BO5CRT05	Anatomy, Reproductive Botany, Microtechnique	3	CORE COURSE 5
BO5CRT06	Research methodology, Biophysics and Biostatistics	3	CORE COURSE 6
BO5CRT07	Plant Physiology and Biochemistry	3	CORE COURSE 7
BO5CRT08	Environmental sciences and Human Rights	3	CORE COURSE 8
BO5OPT02	Horticulture and Nursery management	3	OPEN COURSE

SEMESTER 5

CORE COURSE 5- Anatomy, Reproductive Botany, Microtechnique

CREDITS-3

COURSE OUTCOMES

CO1- Understand internal structure of cells and tissues

CO2- Compare the anatomy of normal and abnormal plant parts like stem, root and leaf

CO3- Differentiate wood types with respect to anatomy

CO4- Understand the structure of flower and its role in fruit and seed development for propagation

CO5- Record techniques useful for the preservation of plant parts for microtechnique

CO6- Explain techniques to study temporary and permanent section preparation

SEMESTER 5

CORE COURSE 6- Research methodology, Biophysics and Biostatistics

CREDITS-3

COURSE OUTCOMES

CO1- Examine the elements of scientific research through process of research

CO2- Understand basic computer applications of MS WORD and MS EXCEL

CO3- Apply computer skills to prepare worksheets, Graphs, diagrams and presentations

CO4- Describe basic principles and applications of biophysical instruments

CO5- Understand sampling methods, collection and representation of data

CO6- Analyse data using statistical tools

SEMESTER 5

CORE COURSE 7- Plant Physiology and Biochemistry

CREDITS-3

COURSE OUTCOMES

CO1- Understand Water absorption and movements in plants

CO2-Identify Mineral nutritional deficiencies in plants

CO3-Illustrate the Mechanism of Photosynthesis, Respiration and translocation

CO4-Describe the factors of Plant growth in development in normal and stressed conditions

CO5- Understand the structure and function of biomolecules

SEMESTER 5

CORE COURSE 8-Environmental sciences and Human Rights

CREDITS-3

COURSE OUTCOMES

CO1- Understand the role and function of ecosystem at population and Community level

CO2-Describe various energy conversions in ecosystem

CO3- Identify the role of biodiversity in human life and its conservation strategies

CO4- Explain environmental issues due to pollution

CO5-Review the role of global and national efforts to conserve biodiversity

CO6-Observe human rights at national and international levels

SEMESTER 5

OPEN COURSE-Horticulture and Nursery management

CREDITS-3

COURSE OUTCOMES

CO1-Discuss horticultural plants and role of irrigation in cultivation

CO2- Apply vegetative propagation methods of plants through cutting, Layering, Grafting and Budding

CO3-Describe the role of gardens and landscaping in human life

CO4- Understand the methods of Floriculture, Olericulture and Pomology

CO5-Explain the role of garden friends, foes, effective use of insect pest management and essentials of nursery management

SEMESTER 6

COURSE CODE	TITLE OF THE COURSE	CREDITS	COURSE TYPE
BO6CRT09	Genetics, Plant Breeding and Horticulture	3	CORE COURSE 9
BO6CRT10	Cell and Molecular Biology	3	CORE COURSE 10
BO6CRT11	Angiosperm morphology, Taxonomy and Economic Botany	3	CORE COURSE11
BO6CRT12	Biotechnology and Bioinformatics	3	CORE COURSE12
BO6PET02	Plant Genetic Resources Management	3	CHOICE BASED CORE COURSE

SEMESTER 6

CORE COURSE- Genetics, Plant Breeding and Horticulture

CREDITS-3

COURSE OUTCOMES

- CO1**-Understand the pattern of Mendelian inheritance in Plants
- CO2**-Explain non-Mendelian patterns of inheritance in plants and animals
- CO3**-Recognize the role of genes in chromosomal and non-chromosomal inheritance
- CO4**-Understand the methods of Crop improvement
- CO5**-Explain the importance of horticulture in human welfare
- CO6**-Describe plant propagation techniques and gardening methods of horticultural plants

SEMESTER 6

CORE COURSE- Cell and Molecular Biology

CREDITS-3

COURSE OUTCOMES

- CO1**-Differentiate cellular organelles based on structure and function

CO2-Understand the structural organization, behavior during division and aberrations of Chromosomes

CO3- Understand the structure of DNA and RNA

CO4- Explains replication and expression of genetic material

CO5- Illustrate Operon concept of gene expression

CO6-Understand the genetic basis of Cancer

SEMESTER 6

CORE COURSE- Angiosperm morphology, Taxonomy and Economic Botany

CREDITS-3

COURSE OUTCOMES

CO1-Observe the morphology of flowering plant parts

CO2-Enumerate different types of classification and the role of ICBN in framing rules of Nomenclature

CO3- Explain the role of Herbaria, Cyto and Chemotaxonomy in Angiosperm taxonomy

CO4- Distinguish the Characters of flowering plant families

CO5-Classify economically important flowering plants based on utility

CO6- Understand the significance of Ethnobotany in human life

SEMESTER 6

CORE COURSE-Biotechnology and Bioinformatics

CREDITS-3

COURSE OUTCOMES

CO1-Explain the basic requirements to conduct tissue culture and its applications

CO2- Understand the role and application of Cloning vectors in recombinant DNA technology

CO3-Describe the techniques of Nucleic acid isolation and sequencing

CO4-Discuss the importance of biological data bases of nucleic acids and proteins

CO5-Identify nucleotide sequence analysis tools

SEMESTER 6

CHOICE BASED CORE COURSE- Plant Genetic Resources Management

CREDITS-3

COURSE OUTCOMES

- CO1-** Understand the center of origin and diversification of Crop plants
- CO2-** Identify strategies for the conservation of plant genetic resources
- CO3-** Explain the role of Government and NGO's in Plant genetic resource management
- CO4-** Identifies major Crop plants of Kerala and their mode of cultivation
- CO5-** Recognize the botany of unexploited and underutilized plants