Department of Botany

PROGRAMME NAME : *B.Sc BOTANY*

PROGRAMME OUTCOMES :

PO 1	Understanding of plant diversity and its significance in maintaining ecological equilibrium.
PO 2	Students learn how to understand plant morphology and anatomy, plant identification, and vegetation analysis techniques in the field and in the laboratory.
PO 3	Apply the knowledge of basic science, biological sciences, and plant fundamentals.
PO 4	Prioritize exploration into current techniques and tools for biochemical estimation, Molecular Biology, Biotechnology, Plant Tissue Culture trials, cellular and physiological assessments of plants, and review of its applications in human life.
PO 5	Develop and pivot in societal upliftment through tackling health, environmental challenges, food insecurity, and so on.

SL. NO.	COURSE NAME	COURSE OUTCOME	
1	ALGAE AND BRYOPHYTES - PRACTICAL	CO. 1	To understand the general characters and classification and lifecycle of Algae
		CO. 2	To comprehend Algae systematic position, structure, reproduction, and economic significance.
		CO. 3	To examine and analyse various plant Seaweed cultivation and describe about their economic importance of Algae
		CO. 4	To examine and analyse various plant mass culture and describe about their economic importance.
		CO. 5	To understand the general characters and classification and lifecycle of Bryophytes.

2	DIVERSITY AND MEDICINAL BOTANY – PRACTICAL	CO. 1	To understand the general characters and economic importance classification and lifecycle of Alage and fungi.
		CO. 2	To understand the general characters and economic importance classification and lifecycle of Lichens and Bryophytes.
		CO. 3	To understand the general characters and economic importance classification and lifecycle of Pteridophytes and Gymnosperms.
		CO. 4	To understand the general characters and economic importance classification and Taxonomy of Angiosperms with selected families
		CO. 5	To morphology of the useful parts and their medicinal and economic importance.
3	MICRO TECHNIQUES – PRACTICAL	CO. 1	To understand the Meristems – Characteristics and Types, functions and Structure and functions of simple and permanent tissues
		CO. 2	To comprehend structure of dicot, monocot stem and root, structure of dicot and monocot leaves.
		CO. 3	To normal secondary thickening in dicot stem and root, anomalous secondary growth
		CO. 4	To examine and analyse various plant Nodal anatomy: Types of nodes and describe about their leaf traces and leaf.
		CO. 5	To appraise the Microscopy and their application and Micro techniques – staining types and preparation of permanent slides – Maceration
4	EMBRYOLOGY, PLANT ANATOMY, PHYSIOLOGY AND BIOTECHNOLOGYPRACTICAL	CO. 1	To understand the structure and development of microsporangium and megasporangium and Endosperm – type
		CO. 2	To meristem - structure and classification and Primary structure of Dicot and Monocot stem and root; Structure of lea
		CO. 3	To examine and analyse absorption of water and Ascent of sap and Transpiration and Photosynthesis

		CO. 4	To examine and analyse Morphology, Use as Biofertilizer and Mass cultivation
		CO. 5	To appraise the Tissue Culture - Scope and importance and Nutrient media review their economic importan
5	FUNGI, PLANT PATHOLOGY AND LICHENOLOGY (4 hrs / week)	CO. 1	To understand the classification and lifecycle of fungi.
		CO. 2	To comprehend fungi's systematic position, structure, reproduction, and economic significance.
		CO. 3 & 4	To examine and analyse various plant diseases and describe about their control measures
		CO. 5	To appraise the lichens and their classification and review their economic importance
6	MUSHROOM CULTURE TECHNOLOGY (4hrs / week)	CO. 1	To discuss about nutritional and medicinal value of mushroom and their lifecycle
		CO. 2	To demonstrate and transfer knowledge about the Mushroom Cultivation Technology
		CO. 3	To appraise the harvesting methods of mushroom.
		CO. 4	To criticize and illustrate about the protection techniques involved in mushroom cultivation
		CO. 5	To understand the storage and preparation of food from mushroom
7	SKILL BASED SUBJECT - I (B) ORGANIC FARMING	CO. 1	To study about the description and types of soil
		CO. 2	To infer about the preparation of organic manures
		CO. 3	To sketch and illustrate the advantages of composting.
		CO. 4	To criticize and realize the importance of bio-fertilizers
		CO. 5	To grade and develop about the importance and preparation of vermincomposting and punchagavya

8	PTERIDOPHYTES, GYMNOSPERMS AND PALEOBOTANY	CO. 1	To explain the classification, distribution, structure, diversity inhabits, habitats , reproduction and life cycle and organization of Pteridophytes. (Psilotum and Lycopodium)
		CO. 2	To impart an insight into the Occurrence, Systematic Position, Structure, Reproduction and Life Cycle of gametophytes.
		CO. 3	To argue about the General characteristics and Classification of Gymnosperms
		CO. 4	To outline the anatomical variations in Gnetum
		CO. 5	To infer the significance of Paleobotany and its applications.
9	GARDENING AND GARDEN MANAGEMENT	CO. 1	To study about the types of garden
		CO. 2	To realize the propagation techniques
		CO. 3	To revise the components of ornamental gardens
		CO. 4	Application of kitchen garden
		CO. 5	To apprehend the maintenance of indoor gardening
		CO. 5	To apprehend the maintenance of indoor gardening
10	HERBAL MEDICINE	CO. 1	To discern the traditional medicinal system of Tamil Nadu and classification of medicinal plants based on morphology and pharmacology
		CO. 2	To know and understand the Botanical name, Family, morphology, useful part and medicinal uses of various spices
		CO. 3	To illustrate and articulate the habit, morphology of the useful part and uses of various plants
		CO. 4	To transfer knowledge about the Cultivation, Storage and Conservation of medicinal plants
		CO. 5	To learn and infer about the extraction of medicinal oils

11	FLORICULTURE	CO. 1	To understand the importance of floriculture
		CO. 2	To appreciate the commercial production of Polyanthus, Marigold and Gerbera
		CO. 3	To know about the Cultivation techniques of Anthurium, Orchids and Heliconia
		CO. 4	To study the importance of flowers in perfumery, Extraction of Jasmine oil and Rose oil.
		CO. 5	To comprehend the general principles of flower arrangement in western ways
12	PRESERVATION OF FRUITS AND VEGETABLES	CO. 1	Acquire basic knowledge about the nutritive values of fruits and vegetables
		CO. 2	Familiarize with the basic skills in the methods of Preservation.
		CO. 3	Understand the Methods of preparation of Fruit Juice
		CO. 4	Understand the Preparation of Chutney, Ketchup and Drying of fruits.
		CO. 5	To know about the canning methods.
13	FOOD AND NUTRITION	CO. 1	To understand the energy value of food and balanced diet
		CO. 2	To make the students aware about the nutritive value of cereals, nuts and oil seeds.
		CO. 3	To help students to design novel mechanisms for the sustainable utilization of naturalresources.
		CO. 4	To study about the importance of preservationand uses of oil and spices
		CO. 5	To make the students aware about food poisoning
		CO. 6	To know about the fermentation types
14	BOTANY FOR COMPETITIVE EXAMINATION	CO. 1	To make the students to understand the plant kingdom.
		CO. 2	To study the Basics of Angiosperm Taxonomy
		CO. 3	To help the student to study the medicinal values of local plants.

		CO. 4	To study about the basics of plant physiology.
		CO. 5	To create awareness tothestudents to understand in Tissue systems, Genetics, Genetic Engineering and Plant Tissue culture.
15	CELL BIOLOGY AND EMBRYOLOGY OF ANGIOSPERMS (5 HRS/WEEK)	CO. 1	To study the structure of Prokaryotic and Eukaryotic cells
		CO. 2	To understand the ultrastructure of cell organelles and function
		CO. 3	To help the students to study the Morphological nature of Flowe
		CO. 4	To aid the students to understand how the zygote is formed in plants
		CO. 5	To make the students to understand about the Seed and Fruit Development
16	MORPHOLOGY AND TAXONOMY OF ANGIOSPERMS	CO. 1	To study the morphological modifications in plants
		CO. 2	To help the students to understand the Systems of classification of plants.
		CO. 3	To understand the detailed study of the following families and their economic importance: Nymphaeaceae, Annonaceae, Rutaceae, Caesalpiniaceae, Cucurbitaceae and Apiaceae.
		CO. 4	To study about the detailed study of the following families and their economic importance Rubiaceae, Sapotaceae, Convolvulaceae, Asclepiadaceae and Lamiaceae.
		CO. 5	To make the students to understand detailed study of the following families and their economic importance Amaranthaceae, Euphorbiaceae, Liliaceae, Arecaceae and Poaceae.
17	BIOCHEMISTRY AND BIOINFORMATICS	CO. 1	To make the students aware about the basic chemical structure and basic instruments
		CO. 2	To study the structure and properties of carbohydrates.
		CO. 3	To help the students to understand the properties of proteins

		CO. 4	To study about the basics of enzyme function and its application
		CO. 5	To make the student's familiar with the bioinformatics tool and data bases for screening big data corresponding to the living organisms and its applications in genetic diversity, heredity and forensics. Also in the modeling of macromolecules and drug designs strategies
18	PLANT ECOLOGY AND PHYTOGEOGRAPHY	CO. 1	To enable the students to understand biotic and abiotic factors in various ecosystems and vegetation
		CO. 2	To study the concept and types of ecosystem and adaptations
		CO. 3	To help the students to analyze the vegetation by quadrant method
		CO. 4	To study about the Biosensors and Bio indicators.
		CO. 5	Make the students to understand the principles of continental drift and endemism and to know about the vegetation in Tamil Nadu and uses of Remote Sensing.
19	MARINE BIOTECHNOLOGY	CO. 1	To understand the importance of benthic and lotic ecosystem and its life forms.
		CO. 2	To expertize the production, cultivation and value addition of phytoplanktons and its applications
		CO. 3	To understand and infer the impact of marine flora.
		CO. 4	To understand the basic concepts of sea weed cultivation
		CO. 5	To make the students to understand the things that affect the marine water and also about the conservation of coastal ecosystem especially mangroves
20	GENETICS, EVOLUTION AND BIOSTATISTICS	CO. 1	To impart an insight into the principles of heredity and the mendelian concepts.
		CO. 2	To understand the patterns of inheritance in different organisms and the modes of linkages and crossing over

		CO. 3	To study about the basics of genetic material and their expression in the determination of sex and other characteristics
		CO. 4	To contrast and relate the theory of evolution and its applications.
		CO. 5	To develop skills in biostatistics and its applications
21	PLANT PHYSIOLOGY	CO. 1	To understand the relationship between water and plant cells
		CO. 2	To transport water and food materials throughout the body of the plant
		CO. 3	To study about the various pathways for training to the photosynthetic activity and respiration
		CO. 4	To understand in detail about the growth of the plant and the influence of plant growth regulators on its growth.
		CO. 5	To know about the sea dormancy its application and photo periodic effects.
22	MICROBIOLOGY	CO. 1	To understand the history of microbiology bacterial classification culture of bacteria and its predictive techniques.
		CO. 2	To study about virus, virions prions and why rights and their diseases in plants.
		CO. 3	To know about the importance of microbes in food as well as their pathogenic effects
		CO. 4	To realize the need for gene transfer and its mechanism; also to know about different microscopy and its techniques.
		CO. 5	To know about identification of recombinants marker systems and blotting techniques.
23	HORTICULTURE & PLANT BREEDING	CO. 1	To know about the different types of horticulture and its uses.
		CO. 2	To understand different propagation techniques and its steps and procedure
		CO. 3	To learn and work with the different garden tools and components
		CO. 4	To Realize and revitalize the hybridization techniques both in theory and practical

		CO. 5	To apply mutation in the breeding of plants and tocreate various resistant varieties
24	FORESTRY	CO. 1	To know about the forest ecosystem its classification and Indian forest policy
		CO. 2	To Know about the degradation of forest and its solution
		CO. 3	To study about the classical and modern forest management techniques
		CO. 4	To realize the need for agro forestry and recreational forestry
		CO. 5	To critically analyze the various uses of forest and its manipulation for the betterment of the human kind
25	PLANT BIOTECHNOLOGY AND GENETIC ENGINEERING	CO. 1	To study about the various techniques pertaining to the plant tissue culture
		CO. 2	Understand the various applications of plant tissue culture in the production of hybrids as well as its aid in the preservation of indigenous species
		CO. 3	To know about the various enzymes and vectors used in the genetic engineering techniques
		CO. 4	To know about the various techniques involved in gene cloning and the use of polymerized chain reaction.
		CO. 5	To relate and criticize the different applications of GMOs and few of its examples
26	ENVIRONMENTAL BIOTECHNOLOGY	CO. 1	To know about the aim and scope of environmental technology and application of biotechnological methods to bio remediate the present environment
		CO. 2	To know and understand in detail about the biofuels and its production
		CO. 3	To evaluate the successful treatment of sewage through biotechnology.
		CO. 4	To study about the solid waste treatment and in detail about bioremediation.
		CO. 5	To know in detail about the greenhouse effects and remote sensing techniques.

PROGRAMME NAME : *M.Sc BOTANY*

PROGRAMME OUTCOMES

PO – 1	Strong and competent knowledge in basic Plant Sciences
PO – 2	Updated knowledge related to the subjects.
PO – 3	To develop diversified basic professional skills through various laboratory technical training, communication and presentation skills
PO – 4	ability to identify, formulate, and solve problems, related to the subject of Botany by applying reasoning and technical inputs
PO – 5	Course provides wide interdisciplinary knowledge and stimulates the students to think beyond the course knowledge, apply this knowledge for solving the environmental problems, efficient use of resources by designing novel and innovative experiments.
PO – 6	Impart leadership abilities to the students to lead and excel in their respective fields. The deep knowledge of the subject, analytical and scientific reasoning, effective communication and problem solving task develop special qualities in a person to attract and influence the audience,

SL. NO	**COURSE NAME**		**COURSE OUTCOME**
1	Algology and Bryology	CO 1	The course will enable students to know the earlier plant kingdom, their vegetative and reproductive structures and their importance.
		CO 2	Appreciate the diversity and evolutionary significance of lower plant groups
		CO 3	Understand the economic and ecological importance of lower plant groups
		CO 4	Student can critically differentiate the characters of Algae and Bryophytes. Identify bryophyte and algae in the field
		CO 5	Know the importance of algae in modern research and its application
2	Mycology, Lichenology and Plant Pathology	CO 1	The course will enable students to recognize the morphology, reproduction and lifecycle pattern of Fungi and Lichen.
		CO 2	Comparative study of different fungi with special reference to evolutionary trends

		CO 3	Identification of Fungi and Lichen included in the syllabus. Understand the economic and ecological importance of Fungi and lichen. Application of mycorrhizae.
		CO 4	Students will gain understanding of the plant diseases, causal organism, host and their relationship and control measure for plant diseases,
		CO 5	Study the mechanism of disease development by pathogens. Understand the interaction between plant and pathogen in relation to the overall environment.
3	Microbiology and Immunology	CO 1	Students will be able to understand the classification, characteristics, ultra structure of Bacteria, Mycoplasma and Virus
		CO 2	Students will study the growth and different bacteriological techniques involved in microbiology.
		CO 3	Comprehend the intricate interaction between viruses and host cells
		CO 4	Get equipped with a theoretical understanding of food and industrial microbiology. Appreciate how microbiology is applied in manufacture of industrial products.
		CO 5	Recognize and describe the characteristics of important pathogens and spoilage microorganisms in foods. Competently explain various aspects of environmental and Agricultural microbiology
4	Phytochemistry	CO 1	To know the different extraction techniques.
		CO 2	Gain knowledge of common secondary metabolites in plants Explain the process of isolation, purification and identification of crude drugs
		CO 3	Students get updated knowledge about the Flavonoids. Alkaloids, Glycosides, Terpenoids
		CO 4	Get equipped with extraction and utilization of various volatile oils
		CO 5	Knowledge about recent trends and advances in the field of Phytochemistry

5	Algology, Bryology, Mycology, Lichenology and Plant Pathology	CO 1	Acquire strong and competent knowledge in morphological and anatomical structure of Algae, Bryophytes, Mycology
		CO 2	To equip the students with skills related to identify the reproductive organs of Algae, Bryophytes, Mycology and Lichenology
		CO 3	Students get updated knowledge on identifying plant diseases
		CO 4	Get equipped with identifying algae, fungi on the field
		CO 5	To create foundation for further studies in Botany
6	Microbiology, Immunology and Phytochemistry Microbiology and Immunology	CO 1	To get strong and competent knowledge in preparation of media, sterilization process
		CO 2	To equip the students with skills related to methods of isolation of the bacteria and fungi
		CO 3	Students get updated konowledgeon staining / techniques
		CO 4	Students gain skills on the estimation of secondary metabolites
		CO 5	Students develop the skill on identifying the secondary metabolites from the chemical structure
7	Pteridophytes, Gymnosperms and Paleobotany	CO 1	Learn about the general characters and classification by K.R. Sporne, stelar evolution in Pteridophytes, heterospory and origin of seed habit.
		CO 2	Understand the economic importance of the Peridophytes and Gymnosperms
		CO 3	To gain knowledge about life cycles of Peridophytes and Gymnispermous plants
		CO 4	Student can critically differentiate the characters of Pteridophytes and Gymnosperms.
		CO 5	Studied the methods of fossilization and fossil plants. To understand about geological time scale.

8	Genetics and Cell Biology	CO 1	Recall the DNA structure and types. Distinguish the structure of prokaryotic and eukaryotic cell
		CO 2	Understanding the mechanism of sex determination in plants
		CO 3	At the end of the course, the student has a strong foundation on the functions of the cell.
		CO 4	Students gain knowledge in gene concepts and genetic code, gene expression, gene regulation, DNA replication and also learn about polypeptide synthesis.
		CO 5	Increases interest of students to unravel mysteries regarding DNA and RNA functioning and their correlation with the protein functions in cell.
9	Plant Anatomy, Embryology and Morphogenesis	CO 1	Students familiar with different types of tissues and their organization. Understand the normal and anomalous secondary growth in plants and their causes.
		CO 2	At the end of the course, students know about the reproductive organs and fertilization process in angiosperms. Students gain knowledge about the pollen and pistil interaction.
		CO 3	Students know about the developmental patterns of trichome, stomata and leaf.
		CO 4	To gain knowledge on morphogenesis in plants
		CO 5	To make connections between plant anatomy and the other major disciplines of biology. Ability to apply skills on wood identification.
10	Entrepreneurship and Economic Botan	CO 1	Graduates will understand the value of economically important plants
		CO 2	Familiarization with principles and practices of landscaping, ornamental gardening, vegetable Production and floriculture.
		CO 3	Develop understanding of organic farming system including Good Agricultural Practices
		CO 4	Communicate effectively within the discipline and also be able to transmit knowledge and skills to lay-persons in the general public.
		CO 5	Acquisition of knowledge in various skills to help become entrepreneur

11	Field Work	CO 1	Acquire skills related to design, analyse and execute an experiment
		CO 2	Acquisition of graduate attributes and descriptors with demonstrated abilities through field work training.
		CO 3	Ability to express thoughts and ideas effectively, and present complex information in a clear and concise manner to different groups.
		CO 4	Analyze and synthesize data from a variety of sources and draw valid conclusions.
		CO 5	Capacity to extrapolate from what one has learned and apply their competencies to solve different kinds of problems and taking up challenges in unforeseen challenges.
12	Pteridophytes, Gymnosperms, Paleobotany, Plant Anatomy, Embryology and Morphogenesis	CO 1	Acquire strong and competent knowledge in morphological and anatomical structure of Pteridophytes and Gymnosperms
		CO 2	To equip the students with skills related to identify the reproductive organs of Pteridophytes and Gymnosperms
		CO 3	Student gets knowledge to describe the fossil specimens
		CO 4	The students will gain ability to apply the acquired knowledge and skills in the field of plant diversity
		CO 5	To create foundation for further studies in Botany
13	Plant Anatomy, Embryology and Morphogenesis	CO 1	Acquire strong and competent knowledge in identification of wood
		CO 2	To equip the students with skills related to identify the anomalous structure in stem
		CO 3	Student gets knowledge to compare the leaf anatomy of C3 and C4 plants.
		CO 4	The students will gain ability to dissect the embryo from the seed
		CO 5	To facilitate students for taking up research projects in Plant Anatomy

14	Taxonomy of Angiosperms	CO 1	Acquire strong and competent knowledge in plant nomenclature and importance of classification in Angiosperms
		CO 2	To know the role of Numerical taxonomy, Molecular systematic, Chemotaxonomy, Serotaxonomy
		CO 3	Understand various angiosperm families emphasizing their morphology, distinctive features and biology.
		CO 4	The students should be in a position to understand and use Floras, Revisions and Monographs. Should be able to apply nomenclatural rules
		CO 5	To gain proficiency in the use of keys and identification manuals for identifying any unknown plants to species level.
15	Biochemistry and Biophysics	CO 1	Understand in detail about structure of carbohydrates, proteins, amino acids and types of carbohydrates, proteins, amino acids
		CO 2	Recognize the structural levels of organization of proteins, 3D structure of proteins, its functions, denaturation
		CO 3	Describing structure, functions and the mechanism of action of enzymes. Learning kinetics of enzyme catalysed reactions and enzyme inhibitions and regulatory process.
		CO 4	Gives a clear understanding about the classifications and biological significance of lipids. Get familiar with biosynthesis and oxidation of fatty acid.
		CO 5	Relating entropy to law of thermodynamics and free energy and its relation to chemical equilibria. Detail description of coupled reactions and their role in metabolism and chemiosmotic hypothesis of ATP synthesis.
16	Computer Application and Bioinformatics	CO 1	Acquire strong and competent knowledge in basics of computer
		CO 2	To understand the importance and applications of computational methods in Biology
		CO 3	Acquire knowledge and awareness on basic informatics tools and to extract or retrieve information from Biological databases

		CO 4	Describe features that can be annotated on a DNA sequence of interest. Appreciate different levels and organization of protein structures and their prediction
		CO 5	Should be able to understand the concept of different forms of sequence alignment methods and selection of appropriate alignment method
17	Research Methodology and Bioinstrumentation	CO 1	To lay a strong foundation for the students to understand the basics of research and report preparation
		CO 2	Understand the sampling techniques and interpret the data based on the measures of the central tendency. Learn deviations of the variable based of measures of dispersion
		CO 3	to know the principles and application of Microscopy and plant micro technique
		CO 4	Exhibit a knowledge base in handling different chromatographic techniques and learn fundamental principles behind centrifugation and electrophoresis and apply them practically.
		CO 5	Capable to choose and apply suitable separation techniques to identify different biomolecules.
18	Taxonomy of Angiosperms and Research Methodology and Bioinstrumentation	CO 1	The objective of this course is to familiarize students with the basic concepts and applications of performing taxonomic studies
		CO 2	To enable the students to develop skill in the preparation of taxonomic key.
		CO 3	To gain practical knowledge on the application of biostatistics in research
		CO 4	To identify the instruments, their parts and applications
		CO 5	The objective of this laboratory course is to provide the students practical skills in discipline centric electives.
19	Biochemistry, Biophysics, Computer Application and Bioinformatics	CO 1	To estimate various biochemical parameters in plants
		CO 2	To enable the students to develop skill in the preparation of graph and solve statistical problems in Excel.
		CO 3	To gain practical knowledge on the application of bioinformatics in research

		CO 4	the student gets practical knowledge in order to preparation of molar, normal and percentage solutions and their dilutions
		CO 5	The laboratory courses help the student to understand and learning principles of laboratory.
20	Plant Physiology	CO 1	Understand the physiology of plants with reference to water relations, mineral nutrition and transport of ions, solutes and other macromolecules. A fair knowledge on deficiency of minerals and their related diseases.
		CO 2	The students will be able to explain various physiological and metabolic processes unique to plants
		CO 3	To enable the students to learn or to know the biological, physiological activities of various organs.
		CO 4	Understand the role of hormones in plant development and to understand how the plant system works and explains the mechanisms.
		CO 5	Analyze the role of external factors in plant development and stress induction
21	Plant Ecology and Conservation Biology	CO 1	Understand the importance of ecosystem, biodiversity and energy flow
		CO 2	understand the population ecology and community ecology system in the world
		CO 3	get meticulous knowledge in ecological succession and phytogeography
		CO 4	To understand the correlation of different environmental/ ecological parameters with living systems and their protection & sustenance.
		CO 5	get knowledge in environmental pollution, global environmental problems, their mitigation and remedies and to acquire knowledge about the importance of biodiversity conservation
22	Applied Biotechnology	CO 1	Learn the basic concepts, principles and processes in plant biotechnology. Understand the role of vectors, plasmids in gene technology

		CO 2	The student will learn about the applications of Biotechnology in agriculture like micro-propagation, haploid plants, embryo culture, hybrids, cybrids etc.
		CO 3	Students would have learnt the basics of gene cloning, construction of various libraries and gene identification.
		CO 4	Explain the general principles of generating transgenic plants. its pros and cons.
		CO 5	To apply the knowledge of tissue culture in the commercial and industrial field of agriculture.
23	Plant Physiology and Applied Biotechnology	CO 1	To estimate various physiological parameters in plants
		CO 2	Provide essential knowledge and cutting edge practical methodologies that are fundamental to the physiological study
		CO 3	Provide students an insight of the non - conventional methods of plant propagation. This laboratory course is to provide the students practical skills in basic Plant Tissue culture
		CO 4	Know about equipment's required in Tissue culture Lab. Media preparation techniques and sterilization techniques for media as well as for explants
		CO 5	Demonstrate practical skills in different laboratory equipment's and their handling
24	Plant Ecology and Conservation Biology + Elective	CO 1	Knowledge and skills to use practical and analytical techniques to examine population size and structure and quantify population dynamics
		CO 2	Understand the quadrat techniques
		CO 3	Students get knowledge about the local flora
		CO 4	To get in-depth knowledge about the analysis of soil and water
		CO 5	Demonstrate practical skills in different laboratory equipment's and their handling

25	Medicinal Botany and Dietetics	CO 1	Know about history and relevance of herbal drugs in Indian system of medicine
		CO 2	Understand the constituents of plant based oils
		CO 3	Occurring knowledge to identify the major chemical components of food
		CO 4	Familiarize nutritional assessment, RDA and Recommendations & Guidelines.
		CO 5	Acquire the skills and techniques involved in the planning and preparation of therapeutic diets for various ailments.
26	Agricultural Botany and Plant Breeding	CO 1	understand cropping system in India and physical and chemical properties of soil and their effect on plant's health
		CO 2	Acquire the skills and techniques in tillage, weeding and irrigation methods
		CO 3	Learn the techniques of Hybridization. Learn about the selection methods for self pollinated, cross pollinated plants
		CO 4	Students understand the introduction to plant breeding, domestication, plant introduction and acclimatization.
		CO 5	Student knows about the mutant breeding, Polyploidy in plant breeding, Breeding for nutritional quality.
27	Project	CO 1	Students should have increased their capacity to think critically
		CO 2	students should have increased their ability to design, analyze and execute an experiment
		CO 3	Students should have increased their confidence and ability in communication skills (in writing and oral).
		CO 4	in acquiring the literature collection methods and interpreting the data of their scientific experiments etc.
		CO 5	Developing research skills in nutrition field through Dissertation/Project.