BOTANY

PROGRAMME SPECIFIC OUTCOME

PSO1:   Develop a conceptual understanding of principles, importance and evolutionary aspects of plant diversity.

PSO2:   Obtain knowledge in the internal structure and functions of various plant components.

PSO3:   Understand the advanced concepts of physiological, metabolical and ecological aspects of plants and microbes.

PSO4:   Become aware about plant diversity and its conservation for sustainable development.

PSO5:   Acquire knowledge in problem solving and apply appropriate techniques, tools, resources and modern technology in multidisciplinary way.

PSO6:   Facilitate students to take-up successful career in Botany.

PROGRAMME OUTCOMES

- Acquired the ability for critical thinking and problem solving

- Attained life skills and communication skills

- Inculcated moral and ethical values

- Become a promoter of unpolluted environs and proactive society

- Developed a culture of research and lifelong learning

- Become an empowered woman aware of global perspectives and national realities

COURSE OUTCOME

SJBOT1C01: PHYCOLOGY, BRYOLOGY, PTERIDOLOGY AND GYMNOSPERMS

SJBOT1C01.1	Understand the general features, habitats and life cycles of algae, bryophytes, pteridophytes and gymnosperms
SJBOT1C01.2	Understand the geological time scale and familiarize the fossil members.
SJBOT1C01.3	Discuss the evolutionary affinities among the lower groups and gymnosperms
SJBOT1C01.4	Recognize and distinguish between the reproductive organs and mechanisms.
SJBOT1C01.5	Predict the ecological and economical significance in day today life
SJBOT1C01.6	Identify the plant groups based on the internal structure.

SJBOT1C02: MYCOLOGY AND LICHENOLOGY MICROBIOLOGY AND PLANT PATHOLOGY

SJBOT1C02.1	Understand the classification and characteristic features and of fungi, lichens, and microbes and examine the role of fungal interactions
SJBOT1C02.2	Examine the possible applications of role microbes and fungi in Agricutural, Environmental and industry in day to day life
SJBOT1C02.3	Understand the principles of plant pathology and disease management.
SJBOT1C02.4	Apply the skill to identify the major diseases of crop plants and propose their control measures
SJBOT1C02.5	Develop basic skill and Examine the Morphology, anatomical, reproductive structures of different fungus, microbes and Lichens
SJBOT1C02.6	Identify different types of fungi and microbes through field collection, micro preparation and herbarium and apply the skill to identify plant diseases based on symptoms.

SJBOT1CO3: ANGIOSPERM ANATOMY, ANGIOSPERM EMBRYOLOGY, PALYNOLOGY AND LAB TECHNIQUES

SJBOT1CO3.1	Understand the anatomical Peculiarities of plant parts, to identify anomalous growth and correlate anatomical features to taxonomy.
SJBOT1CO3.2	Perceive the knowledge about Morphology and development of reproductive Parts and to impart knowledge about its future applications.

| SJBOT1CO3.3 | Develop the knowledge on how to make temporary microscopic slides, using different cutting techniques and permanent microscopic slides using paraffin method. |
| SJBOT1CO3.4 | To familiarize the techniques for the preservation and processing of tissues, to get practical experience in micro & macro preparations, histochemistry and staining procedure. |

SJBOT2C04 : CELL BIOLOGY, MOLECULAR BIOLOGY AND BIOPHYSICS

SJBOT2C04.1	Understand the structure of cell organelle, intracellular compartments, cell communication and signalling, life cycle and cytoskeleton of the cell.
SJBOT2C04.2	Build the knowledge about DNA replication, compare and distinguish the processes and mechanisms involved in Transcription and Translation repair and recombination
SJBOT2C04.3	Analyze and assess the regulation of gene expression in Viral, Prokaryotic and Eukaryotic Systems.
SJBOT2C04.4	Acquire practical skill in cytological preparations and molecular biology problems.
SJBOT2C04.5	Understand principles and applications of instruments.

SJBOT2C05 : CYTOGENETICS, GENETICS, BIOSTATISTICS, PLANT BREEDING AND EVOLUTION

SJBOT2C05.1	Understand the basics of gene interactions and linkage.
SJBOT2C05.2	Impart the knowledge of Cytogenetics ,Human genetics and Population genetics
SJBOT2C05.3	Familiarize the students with different conventional aspects and modern approaches of plant breeding used in crop improvement.
SJBOT2C05.4	Introduce relevance of Biometrical techniques and IPR in plant breeding.
SJBOT2C05.5	Understand basic concepts and mechanisms of evolution.
SJBOT2C05.6	Recognize ,Compare and Apply the statistical methods used for data analysis and biological experiments.

SJBOT2CO6: PLANT ECOLOGY, CONSERVATION BIOLOGY, PHYTOGEOGRAPHY AND FOREST BOTANY

SJBOT2CO6.1	Understand the concept and principles of ecosystem productivity, energy flow and biodiversity.
SJBOT2CO6.2	Impart knowledge on phytogeography and recognize the different forest types and products for sustainable utilization of bioresources.
SJBOT2CO6.3	Build awareness in controlling pollution and apply their knowledge in waste management

SJBOT2CO6.4	Understand and analyse environmental problems and social issues which need immediate attention.
SJBOT2CO6.5	Examine the biodiversity loss and create an awareness about the significance of genetic resources and its conservation
SJBOT2CO6.6	Evaluate conservation ventures at local/national and global levels

SJBOT2L03 : PRACTICALS OF CELL BIOLOGY, MOLECULAR BIOLOGY, BIOPHYSICS AND CYTOGENETICS,

SJBOT2L03.1	Understand and observe the various stages of mitosis and meiosis and to get the skill for induction of polyploidy
SJBOT2L03.2	Workout problems based on molecular biology
SJBOT2L03.3	Assess the basic function and workin of analytical instruments used in research
SJBOT2L03.4	Understand the features of chromosome for the Preparation of ideogram

SJBOT2L04 : PRACTICALS OF GENETICS, BIOSTATISTICS, PLANT BREEDING, PLANT ECOLOGY, CONSERVATION BIOLOGY,PHYTOGEOGRAPHY AND FOREST BOTANY

SJBOT2L04.1	Solve the problems relatedto genetics
SJBOT2L04.2	Develop the skills to analyze the water quality using different parameters
SJBOT2L04.3	Develop practical skill in plant breeding
SJBOT2L04.4	Explain basic soft ware skills necessary for the conduct of research
SJBOT2L04.5	Apply statistical tools in biological research

SJBOT3C07 : PLANT PHYSIOLOGY METABOLISM AND BIOCHEMISTRY

SJBOT3C07.1	Understand the water relations, absorption and transport of minerals in plants
SJBOT3C07.2	Understand and evaluate the role of growth hormones in plant development and external factors in plant development and stress induction
SJBOT3C07.3	Discuss the various secondary metabolic pathways and their physiological ecological, phylogenetic importance
SJBOT3C07.4	Understand the structure, function, mechanism of action, synthesis regulation of biomolecules in plants.
SJBOT3C07.5	Discuss the different photoreceptive pigments and photosynthetic and metabolic pathways

| SJBOT3C07.6 | Develop basic skills and techniques for qualitative and quantitative analysis of Physiological and biochemical parameters |

SJBOT3C08 : ANGIOSPERM MORPHOLOGY, ANGIOSPERM TAXONOMY AND PLANT RESOURCES

SJBOT3C08.1	Understand the evolutionary pattern of angiosperms and their floral parts through various theories and co-evolution of pollinators.
SJBOT3C08.2	Understand the conceptual basis and history of development of systems of classifications in taxonomy.
SJBOT3C08.3	Understand various rules, principles and recommendations of plant nomenclature emphasizing on ICN.
SJBOT3C08.4	Familiarize the concept of character and literature in plant taxonomy.
SJBOT3C08.5	Perceive the knowledge about modern trends in taxonomy.
SJBOT3C08.6	Familiarize and categorize various plant resources

SJBOT3C09 : BIOTECHNOLOGY AND BIOINFORMATICS

SJBOT3C09.1	Understand the mechanism of tissue culture and regeneration of plants, and production of metabolites from plants.
SJBOT3C09.2	Evaluate the different methods and process involved in plant tissue culture.
SJBOT3C09.3	Identify various culture methods.
SJBOT3C09.4	Investigate the societal issues in biotechnology.
SJBOT3C09.5	Examine the role of bioinformatics in biotechnology and provide the knowledge on Bioinformatics and its applications, and different types of data bases.

SJBOT3L05 : PRACTICALS OF PLANT PHYSIOLOGY, METABOLISM, BIOCHEMISTRY, ANGIOSPERM MORPHOLOGY AND ANGIOSPERM TAXONOMY

SJBOT3L05.1	Familiarize and identify various plants through field study and Herbarium techniques
SJBOT3L05.2	Devise methods and tests to improve basic skills and techniques related to biochemistry and apply the quantitative and qualitative analysis of plant metabolites
SJBOT3L05.3	Explain and demonstrate various physiological parameters through experiments
SJBOT3L05.4	Identify the various parameters related to water quality and quantify them.

SJBOT3L05.5	Identify and categorize plant members into their specific families using floras and keys

SJBOT3L06 : PRACTICALS OF PLANT RESOURCES, BIOTECHNOLOGY AND BIOINFORMATICS

SJBOT3L06.1	Identify members of the major plants of economic importance
SJBOT3L06.2	Understand the basic concepts and advanced techniques of plant tissue culture and develop skill in micropropagation and to establish commercial tissue culture ventures
SJBOT3L06.3	Develop basic skills and techniques involved in isolation and quantification of DNA
SJBOT3L06.4	Familiarize the techniques involved in Bioinformatics and analyze the data available in databases
SJBOT3L06.5	Acquire knowledge in the usage of biological networks

SJBOT4E01 : ENVIRONMENTAL BIOLOGY AND BIODIVERSITY CONSERVATION

SJBOT4E01.1	Understand and familiarize the fundamentals of the concepts of ecosystem along with its structrual and functional attributes.
SJBOT4E01.2	Identify the different components and their interrelationships in the ecosystem.
SJBOT4E01.3	Classify different types of ecosystems and give an awareness to its conservation
SJBOT4E01.4	To create an attitude in conserving plants for sustainable development.
SJBOT4E01.5	Build awareness in environmental problems and social issues, and apply their knowledge in waste management
SJBOT4E01.6	Asses the biodiversity loss and understand the need to conserve it, understand global climatic change.
SJBOT4E01.7	Familiarize various types of natural resources, vegetations and different conservation strategies..
SJBOT4E01.8	Acquire skills for water analysis to estimate phosphate and nitrate content, major elements, and to get experience in quadrate study.

SJBOT4E02 : GENETIC ENGINEERING

SJBOT4E02.1	Awareness about the fundamentals of Genetic engineering
SJBOT4E02.2	To evaluate and familiarise with the tools and techniques of genetic engineering and gene transfer technologies.
SJBOT4E02.3	To utilize various plant transformation techniques and in creating transgenic plants.
SJBOT4E02.4	Acquire an in depth knowledge on plant biotechnology and its application

SJBOT4E02.5	Discuss the important applications of genetic engineering in day to day life
SJBOT4E02.6	Bestow practical skill in isolation of DNA, RNA and Protein
SJBOT4E02.7	Discuss the applications of biotechnology by visiting A biotechnology laboratory. Submit a report of the visit

SJBOT4L07 : PRACTICALS OF ELECTIVES-ENVIRONMENTAL BIOLOGY, BIODIVERSITY

SJBOT4L07.1	Analysis of vegetation type by Quadrat method 60.00
SJBOT4L07.2	Develop basic skills and techniques involved in isolation and quantification of DNA, RNA, protein
SJBOT4L07.3	Acquire skills for water analysis to estimate carbon calcium and carbon etc
SJBOT4L07.4	Acquire skills for water analysis to estimate carbon calcium and carbon etc

SJBOT4D01 : DISSERTATION

SJBOT4D01.1	Plan and engage in an independent ans sustained critical investigation and evaluation of chosen research topic relevent to the environment and society
SJBOT4D01.2	Describe a relevant area of career development or work related area.
SJBOT4D01.3	Critically analyze and evaluate the knowledge and understanding in relation to the agreed area of study
SJBOT4D01.4	Communicate research concepts and contexts clearly and effectively both in writing and orally

SJBOT4V01 : VIVA VOCE

SJBOT4V01.1	Demonstrate knowledge in Programme domain
SJBOT4V01.2	Exhibit professional etiquette suitable for career Progression
SJBOT4V01.3	Explain views cogently and precisely