

# Course Outcomes

2022-23

## **Course 1: Viruses, Bacteria**

The student after the completion of this course will be able to understand the general characteristics, Structure, reproduction, economic importance of microorganism.

## **Course 2: Fungi, Algae, Lichens**

The student after the completion of this course will be able to understand the Structure, cell wall composition, classification, nutrition, reproduction, Economic importance of fungi.

## **Course 3: Algae**

The student after the completion of this course will be able to understand the Structure, cell wall composition, classification, nutrition, reproduction, Economic importance of Algae.

## **Course 4: Lichens**

The student after the completion of this course will be able to understand the Structure, cell wall composition, classification, nutrition, reproduction, Economic importance of Lichens.

## **Course 5: Bryophyta**

The student after the completion of this course will be able to understand the Structure, cell wall composition, classification, nutrition, reproduction, Economic importance of Bryophyta.

## **Course 6 : Pteridophytes**

The student after the completion of this course will be able to understand the Structure, cell wall composition, classification, nutrition, reproduction, Economic importance of pteridophytes.

## **Course 7: Gymnosperm**

The student after the completion of this course will be able to understand the Structure, cell wall composition, classification, nutrition, reproduction, Economic importance of Gymnosperm.

### **Course 8: Palaeobotany**

The student after the completion of this course will be able to understand the study of Fossil, fossil gymnosperm Geological time scale

### **Course 9: Plant Taxonomy**

The student after the completion of this course will be able to understand basics of identification, nomenclature & classification of Plants. They know how to conserve the plant species. Rules of Scientific name.

### **Course 10 : Plant Description**

The student after the completion of this course will be able to understand the Systematic importance of the following families of Monocotyledons and Dicotyledons plants.

### **Course 11 : Economic Botany**

The student after the completion of this course will be able to understand the relationship between plants and people (individual and cultures). They understand the economic importance of plant such as food yielding, Fibre yielding, wood & timber yielding, Medicinal yielding, Fatty oil yielding, Tannin yielding plants etc.

### **Course 12 : Plant Anatomy**

The student after the completion of this course will be able to understand the internal structure of Plants.

### **Course 13 : Embryology**

The student after the completion of this course will be able to understand the development of plant organisms in order to reveal the functional, biochemical, and genetic nature of embryonic processes. Pollination, self incompatibility, polyembryony, Apomixes and parthenocarpy.

**Course 14 : Ecology**

The student after the completion of this course will be able to understand the environment and ecology, interrelationship with other species, environmental factor, Conservation of natural resources, provide knowledge of the interdependence between people and nature that is vital for food production, maintaining clean air and water, and sustaining biodiversity in a changing climate, cyclization of minerals.

**Course 15: Plant physiology**

The student after the completion of this course will be able to understand the relationship of Plant and Water, Diffusion, permeability, Osmosis, Imbibition, Plasmolysis, Osmotic potential and water potential, Types of soil water, Respiration, Photosynthesis and growth hormones.

**Course:16 Analytical Technology**

The student after the completion of this course will be able to understand the different techniques like Chromatography, Hot air oven, Incubator, Autoclave, Centrifuge, Spectrophotometer.

**Course: 17 Plant tissue culture**

The student after the completion of this course will be able to understand the Plant tissue culture techniques, micropropagation, somaclonal variations.

**Course:18 Plant Pathology**

The student after the completion of this course will be able to understand the Diseases in plants, control measures, Plant quarantine. Study of epidemiology and etiology of following Plant diseases.

**Course: 19 Pollution**

The student after the completion of this course will be able to understand the Environmental pollution, and environmental problems.

**Course: 20 Biodiversity and Conservation**

The student after the completion of this course will be able to understand the Biodiversity and how to conserve the biodiversity. Biogeographical regions of India.

**Course: 21 Biostatistics**

The student after the completion of this course will be able to understand the Biostatistics, Central tendencies, Standard deviation and standard error.

### **Course : 22 Cell biology**

The student after the completion of this course will be able to understand the Cell and cell organelles, Mendelian and non-Mendelian inheritance, quantitative genetics, molecular markers and linkage mapping, prokaryotic and eukaryotic genome-structure, gene function and regulation, epigenetics, cytogenetics.

They develop a strong fundamentals basics for further molecular studies.

### **Course: 23 Gene structure, Nucleic Acid**

The student after the completion of this course will be able to understand the Structure of DNA, RNA, Replication of DNA, mutation, operon model.

### **Course: 24 Genetic engineering**

This course is designed to provide a contextual and inquiry based learning of modern day advances in the field of recombinant DNA technology.. Course Learning Outcomes: Students will acquire understanding of: 1. Basic principles and modern age applications of recombinant DNA technology. 2. Learning molecular and technical skills along with applications of the instrumentation. 3. Designing/conducting experiments and analysing experimental data

### **Course: 25 Biochemistry**

The student after the completion of this course will be able to understand the Biomolecules, chemical composition, Structure of protein, carbohydrates, Lipid, Enzymes.



## PROGRAMME OUTCOMES

**On completion of program students will be able to**

PO1. **Think Critically** - Critical evaluation of ideas and arguments by collecting relevant information about the plants, so as to recognize their position in the classification systems and at phylogenetic level.

PO2. **Analyse and interpret results** generated through studies in botany, taxonomical treatments, field studies, excursion tours and laboratory techniques used in the subject.

PO3. Use **quantitative reasoning** by using mathematical calculations and graphing skills to solve problems in plant science and ecological data (Botany)

PO4. Students learn to carry out practical work, in the field and in the laboratory, interpreting plant morphology and anatomy, Plant identification, Vegetation analysis techniques.

PO5. Create, select, and apply appropriate techniques, resources, and modern instruments and equipment's for Biochemical estimation, Molecular Biology, Biotechnology, Plant Tissue culture experiments, cellular and physiological activities of plants with an understanding of the application and limitations.

PO6. Understand the relationship between science and society by recognizing and discussing logical, scientific and ethical issues in Botany subject.

PO7. **Environment and Sustainability:** Understand the issues of environmental contexts and sustainable development with respect to assessment, conservation and utilization of floral diversity.

PO8. **Ethics:** Apply ethical principles and commit to environmental ethics and responsibilities and norms of the biodiversity conservation.

PO9. development of scientific attitude, handling of problems and generating solution, improve practical skills

PO10. Understanding the nature and basic concepts of all the plant groups, their metabolism, components at the molecular level, biochemistry, taxonomy and ecology.

PO11. Students will be able to explain how Plants function at gene, genome, cellular and tissue level,

### **Programme Specific Outcomes (PSO):**

PSO1. Students will be able to conceive the idea of artificial propagation of plants via vegetative methods and to find a livelihood via establishing miniature plant nurseries.

PSO2. Candidates can work as Plant explorer, conservationist, Ecologist, Genetics and Molecular Biologist, Taxonomist, Plant Pathologist, Nursery Manager, Environmental and Farming consultant.

PSO3. After B.Sc. Students opt for M.sc in Botany, M.sc in Life Science, Ph.D.

PSO4.prepare the students for many competitive exams like CGPSC, UPSC NET SET GATE

PSO5. Develop scientific temper and undertake scientific projects.

PSO6. Identify and classify plants according to the principles of plant systematics, apply techniques like plant propagation methods, organic farming, mushroom cultivation, preparation of biofertilizers, biopesticides etc. in daily life.

PSO7. The programme will motivate the students to take up the challenges of the Ph.D course and make them mentally prepare to excel in the respective field of their research work.

PSO 8. After completion of the course, students will gain the capacity to serve the various higher academic institutions like Colleges, Universities, National Research Institutes in various fields of apex academic research.