

## **B.Sc. First Year (Botany), Semester – I**

### **CCB-I (A) Theory Paper –I: Viruses ,Bacteria, Algae, Fungi, Lichens and Mycorrhiza**

#### **Learning outcomes:**

1. Understand the morphology, structure and importance of the various organisms
2. Differentiate between various groups of Algae, Fungi, Bacteria, Viruses, and Lichens & Mycorrhiza
3. Learn the life cycles of individuals belonging to Algae, Fungi, Bacteria, Viruses, Lichens & Mycorrhiza

### **CCB-I (B) Theory Paper –II: Plant Ecology ,Phytogeography and Environmental Biology**

#### **Learning outcomes:**

1. Able to understand the ecological principles, interactions taking place in the Ecosystems and the flow of energy
2. Learn about the concept of phytogeography and its relations with other disciplines

## **B.Sc. First Year (Botany), Semester – II**

### **CCB-II (A) Theory Paper –III : Bryophytes, Pteridophytes ,Gymnosperms & Paleobotany**

#### **Learning outcomes:**

1. Learn the life cycles of individuals belonging to Bryophytes, Pteridophytes & Gymnosperms
2. Learn about process of fossil formation and fossils plants

### **CCB-II (B) Theory Paper –IV: Taxonomy of Angiosperms**

#### **Learning Outcomes:**

1. Proficiency with the basic terminology of plant morphology
2. Able to identify the major families of plants and their economic importance
3. Understand the methods of collecting and preserving plants

## **B.Sc. Second Year (Botany), Semester – III**

### **CCB-III (SECTION-A): Morphology and Taxonomy of Angiosperms (P-VI)**

#### **Learning Outcomes:**

1. Know the basic characteristics of plants for identification
2. Understand classification system of flowering plants

### **CCB-III (SECTION-B): Histology, Anatomy and Embryology of Angiosperms (P-VII)**

#### **Learning Outcomes:**

1. Understand various tissue system in plants
2. Understand structure and development of fruits and seeds

## **B.Sc. Second Year (Botany), Semester – IV**

### **CCB-IV (SECTION-A): Gymnosperms and Palaeobotany (P-VIII)**

#### **Learning Outcomes:**

1. Understand the life cycle of Gymnosperms
2. Know the scopes of Paleobotany, process of fossilization and geological time scale

### **CCB-IV (SECTION-B): Ecology and Environmental Biology (P-IX)**

#### **Learning Outcomes:**

1. Understand basic structure of ecosystem and ecological adaptations
2. Understand the causes, effects and control measures of environmental pollutions

## **B.Sc. Third Year (Botany), Semester – V**

### **DSEB-I: Theory Paper –XII : Plant Physiology**

#### **Learning Outcomes:**

1. Understand the process of translocation of solutes and mineral nutrition in plants
2. Understand the role of plant growth promoting hormones in growth and development of plants
3. Know the different primary and secondary metabolites of plants

### **DSEB-I: Theory Paper –XIII: PLANT PATHOLOGY-I ( B-I )**

#### **Learning Outcomes:**

1. Know the basic aspects of pathogens and disease development in plants
2. Understand the pathology and control measures of different plant diseases

## **B.Sc. Third Year (Botany), Semester – VI**

### **DSEB –II: Theory Paper –XIV: Plant Metabolism, Biochemistry and Biotechnology**

#### **Learning Outcomes:**

1. Understand the process of photosynthesis and respiration in plants
2. Know the scope and applications of tissue culture in development of disease free plants
3. Understand the plant enzymes and nitrogen metabolism

### **DSEB –II: Theory Paper –XV: Plant Pathology-II ( B-I)**

#### **Learning Outcomes:**

1. Understand the air flora and mechanism of disease resistance in plants
2. Understand the pathology and control measures of different plant diseases

# **M. Sc. FIRST YEAR (BOTANY) SEMESTER – I**

## **THEORY PAPER-I: BIOLOGY AND DIVERSITY OF MICROBES**

### **Learning outcomes:**

1. Understand the morphology, structure and importance of the various organisms
2. Differentiate between various groups of Fungi, Bacteria, Viruses, and Lichens & Mycorrhiza.
3. Learn the life cycles of individuals belonging to Fungi, Bacteria, Viruses, Lichens & Mycorrhiza.

## **THEORY PAPER-II: BIOLOGY AND DIVERSITY OF CRYPTOGAMS**

### **Learning outcomes:**

1. Understand the morphology, structure and importance of the various organisms
2. Differentiate between various groups of Algae, Bryophyta and Pteridophyta.
3. Learn the life cycles of individuals belonging to Algae, Bryophyta and Pteridophyta.

## **THEORY PAPER-III: TAXONOMY OF ANGIOSPERMS AND GYMNOSPERMS**

### **Learning outcomes:**

1. Understand the morphology, structure and importance of the various organisms.
2. Differentiate between various groups of Gymnosperms, Angiosperms and fossil plants.
3. Learn the characters of taxa belonging to Gymnosperms, Angiosperms and fossil plants.

## **THEORY PAPER-IV: PLANT ANATOMY & DEVELOPMENTAL BIOLOGY**

### **Learning outcomes:**

1. Understand the anatomy, embryology and palynology of angiosperms.
2. Learn the applied aspects of palynology, embryology and anatomy.

## **M. Sc. FIRST YEAR (BOTANY) SEMESTER – II**

### **THEORY PAPER-VI: BIOINSTRUMENTATION AND METHODS IN BIOLOGY**

#### **Learning outcomes:**

1. Understand the actual working and applications of different laboratory equipments
2. Learn the various techniques used in life sciences and their utility.

### **THEORY PAPER-VII: CELL BIOLOGY, GENETICS AND PLANT BREEDING**

#### **Learning outcomes:**

1. Understand the structural organization and functions of cell and cell organelles.
2. Able to understand Gene structure, linkage groups, Genetic inheritance and extra chromosomal inheritance in plants.
3. Understand basic techniques of hybridization.

### **THEORY PAPER-VIII: PLANT RESOURCE UTILIZATION & BIODIVERSITY CONSERVATION**

#### **Learning outcomes:**

1. Study of origin, cultivation and economic importances of various plant wealth
2. Learn the importance of biodiversity and motivation of students for its conservation

### **THEORY PAPER-IX: PLANT ECOLOGY, ENVIRONMENTAL BIOLOGY AND PHYTOGEOGRAPHY**

#### **Learning outcomes:**

1. Able to understand the ecological principles, structure and functions of ecosystem.
2. Learn about the causes of environmental pollution and its control measures.
3. Learn about different phytogeographic regions and their vegetation pattern.