Course Outcomes: COs of B.Sc. Botany Semester-I

Paper-I: Microbial Diversity, Algae and Fungi

On completion of the course, students are able to:

1. Understand the diversity among Algae.
2. Know the systematic, morphology and structure, of Algae. Understand the life cycle pattern of Algae.
3. Understand the useful and harmful activities of Algae.
4. Understand the Biodiversity of Fungi
5. Know the Economic Importance of Fungi

Paper II: Diversity of Archaegoniate & Anatomy

On completion of the course, students are able to:

1. Understand the morphological diversity of Bryophytes.
2. Understand the economic importance of the Bryophytes.
3. Understand the morphological diversity of Bryophytes and Pteridophytes and Gymnosperms.
4. Understand the economic importance of the Bryophytes and Pteridophytes and Gymnosperms.
5. Know the evolution of Bryophytes and Pteridophytes and Gymnosperms.
6. Understand the habit of the angiosperm plant body.

Semester-II:

Paper-III: Plant Taxonomy and Embryology:

On completion of the course, students are able to:

1. Know the vegetative characteristics of the plant.
2. Learn about the reproductive characteristics of the plant.
3. Understand the plant morphology and basic taxonomy.

Paper IV: Plant physiology and Metabolism

On completion of the course, students are able to understand

1. Understand the Biochemical nature of cell.
2. Know the chemical nature of biomolecules.
3. Understand the different types of interaction in Biomolecules.
4. Structure and general features of enzymes.
5. Concept of enzyme activity and enzyme inhibition.
6. Learn about the movement of sap and absorption of water in plant body.
7. Understand the plant movements.
8. Know importance and scope of plant physiology.
9. Understand the plants and plant cells in relation to water.
10. Understand the process of photosynthesis in higher plants with particular emphasis on light and dark reactions, C3 and C4 pathways.
11. Understand the respiration in higher plants with particular emphasis on aerobic and anaerobic respiration.
12. Learn about the movement of sap and absorption of water in plant body
13. Understand the plant movements.

Semester- III

Paper-V: Cell biology, Genetics & Plant breeding

On completion of the course, students are able to:

1. The eukaryotic cell cycle and mitotic and meiotic cell division
2. Structure and organization of cell membrane
3. Process of membrane transport and membrane models
4. Mendelian and Neo-mendelian genetics
5. To study the phenomenon of dominance, laws of segregation, independent assortment of genes.
6. To understand the different types of genetic interaction, incomplete dominance, codominance, inter allelic genetic interactions, multiple alleles and quantitative inheritance etc.

Paper-VI: Plant Ecology and Phytogeography

On completion of the course, students are able to:

1. The students will understand the basic concepts of general geology, ecology and phytogeography.
2. learn about the analyse and basic principles of geology.
3. understand the importance of ecology and conservation
4. The students get to understand the basic concepts of geology, pedology, ecology, autecology, synecology, phytogeography and advanced ecology.
5. know the establishment of ecosystem, vegetation, plant succession and adaptations.
6. learn about carbon foot print, carbon sequestration, control of global warming, phytoremediation and disaster management.

Semester-VI

Paper VIIA: Organic farming and sustainablr Agriculture

Anatomy On completion of the course, students are able to:

1. The students will be able to understand the methods of plant breeding techniques.
2. To analyse and compare the organic and inorganic farming.
3. To understand the organic farming which does not totally exclude the elements of modern agriculture.
4. To prepare oneself for competitive / entrance examination (IFS, CSIR, UGC- NET/SET, etc.)
5. Knowledge of Mushroomculture

Paper VIIB: Nursery, Gardening and Floriculture

1. On completion of the course, students are able to:
2. Gain knowledge about “Nursery techniques”.
3. Understand Floriculture techniques, seasonal flowers, growing techniques etc.
4. Learn the scope and importance of Nursery.
5. Understand the Gardening techniques, plants to be used in gardening depending on

seasons, experimental plots to maintain gardens an nursery.

6. Understand the process of harvesting, marketing etc.
7. Understand the role nursery plants in human welfare.
8. Gain knowledge about various plants of economic use of flowers.
9. Know importance of floral plants & plant products.
10. Understand the chemical contents of the nursery plant products.
11. Know about the utility of plant resources.

Paper-VIIC: Plant tissue culture and its biotechnological application

On completion of the course, students are able to:

1. The students will understand the basic concepts of genome organization in plants and molecular markers.
2. have a clear knowledge of plant tissue culture techniques
3. have a basic understanding of the plant genetic transformation methods.
4. be fully aware of the basics and applications of plant biotechnology.
5. Understand the basics of plant tissue culture.
6. Relate various gene transfer techniques in plants.
7. Gain knowledge in micro propagation techniques.
8. Acquire knowledge on secondary metabolite production
9. Comprehend the concepts of anther culture, embryo culture and microspore culture Culture the different types of cell lines
10. Acquire knowledge on techniques such as micropropagation, callus culture, somatic embryogenesis and synthetic seed technology
11. Identify new strains that can be used for commercial purposes and for industrial processes.

Semester VI Cluster Electives

Paper VIIIA-1: Plant Diversity and Human Welfare

On completion of the course, students are able to:

1. To understand about the genetic diversity, species diversity, plant diversity at the ecosystem level and study about the values and uses of biodiversity.
2. To get awareness on the loss of biodiversity. To know about the management of plant biodiversity and about the various organizations associated with it.
3. To know about the contemporary practices in resource management and about the

conservation of biodiversity.

4. To understand the use of plant resources to produce valuable products.
5. To be enlightened about the opportunities for income and employment generation.

To be able to develop the ability to think and create useful plant products.

Paper – VIII A-2 : Ethanobotany and Medicinal botany

On completion of the course, students are able to:

1. To gain ethnobotanical knowledge which provides information regarding the traditional uses of plant wealth which can be utilized in integrated tribal development.
2. To know that ethnobotanical studies throw light on certain unknown useful plants and new uses of many known plants which can be exploited for developing new sources for plant products and agrobased industries.
3. To explain ethnobotany as a tool to protect interests of ethnic groups. To know about the history, scope and importance of medicinal plants.
4. To know about the indigenous medicinal sciences (Unani, Siddha and Ayurveda).
5. To get knowledge about the conservation of endangered and endemic medicinal plants.

Paper – VIII A-3 : Pharmacognosy and Phytochemistry

On completion of the course , students are able to:

1. To create interest in research programmes in the subjects of phytochemistry and pharmocognosy after attaining a background in the fundamentals of Biology, Chemistry and drug therapy.
2. To gain deep understanding of many of the chemical reactions and structures of Biological molecules essential for life on Earth.
3. To learn about the secondary metabolites.
4. To learn about the phytochemicals, which are chemicals derived from plants, which include Phenols, Phenolic glycosides and Alkaloids.
5. To learn about the enzymes, proteins and amino acids as drugs.

Paper – VIII B-1 : Biological instrumentation and Methodology

On completion of the course , students are able to:

1. Gain skill on working principles of pH meter, colorimeter and centrifuge.
2. Student will learn the technique of Electrophoresis & Chromatography.

3. To understand micrometry, camera lucida drawing technique
4. To gain the skill of principles and operation of Spectrophotometer
5. To know principles of phase contrast microscope

Paper – VIII B-2 : Mushroom culture and technology

On completion of the course , students are able to:

1. Know about nutritional and medicinal value of edible mushrooms & Poisonous mushrooms.
2. Learn about the Cultivation techniques of mushroom.
3. Gain knowledge on the present status of mushroom industry in India
4. Mushroom culture in self employment
5 Post harvest technology steps in mushroom culture growth and developmental processes in plants.