

BACHELOR OF SCIENCE - BOTANY

1. Class: FYBSc

2. Program Outcomes: Core Discipline knowledge and Critical Thinking

- learn about plant diversity and their application in our day to day life
- Understand life forms and understand industrial applications of plants.
- Able to observe accurately and objectively.
- trained to address issues pertaining to classical botany aspects and think scientifically, independently and draw rational conclusions.

Science Communication

- Curriculum empowers communication skills in science, which further enhances easy spread of scientific knowledge in the society.
- Students are made aware of environment related issues.

All-round Personality

- Students acquire attributes of good citizens with certain ethics, made aware of environment its management and planning.
- Students develop as all-round individuals possessing variety of values and skills conferred by extracurricular activities.

Program Specific Outcomes:

- To get the knowledge of plants from primitive to highly evolved groups.
- To acquire valuable information regarding their utility in human welfare.
- To understand the significance of living single plant cell, its form and functions.
- To learn and correlate plants and their ecological adaptations of various environmental conditions.
- To get the experience of natural manipulation of genes by studying and performing crosses between genes on paper.
- To study the anatomical details of some plants.
- To explain how current medicinal practices are often based on knowledge of indigenous plant and to get introduced to different perspectives on treating ailments according to ethnomedicinal principles.
- To understand patterns of heredity and variation among individuals, species and populations.

5. Course Outcomes:

Title of the course	Course credit	Course outcome
Semester I		
Plant Diversity I		<ol style="list-style-type: none">1. To understand classification, morphology, life cycle2. To learn about the economic importance algae,3. To study their economic importance.
Form and Function I		<ol style="list-style-type: none">1. To differentiate between eukaryotic and prokaryotic cell. To learn important cell organelles, their ultra-structures and functions.2. To understand the nature of energy flow in an ecosystem.3. To identify and understand adaptations of plants belonging to various ecological conditions. To study their morphological peculiarities.4. To study and understand different Mendelian Laws of genetics. To know the way of gene segregation and their independent assortment. To learn allelic and non-allelic interaction of genes and correlate the results.
Semester II		
Plant Diversity I		<ol style="list-style-type: none">1. To learn morphology, structure, systematic positions, modes of reproduction and economic importance of pteridophytes, gymnosperms as well as angiosperms.2. To learn the taxonomical terminology and understand the meaning of the same.3. To study two families and plants with economic importance belonging to them.
Form and Function I		<ol style="list-style-type: none">1. To study types of plant tissues and differentiate monocots and dicots on the basis of their anatomy.2. To understand the structures of stomata of monocot and dicot leaves.3. To learn transport mechanism in plants and differentiate between the physiological processes and their importance.4. To study some organic compounds, their synthesis and breakdown in plants.5. To recall botanical names, active constituents, medicinal uses and useful parts of six medicinal plants, which have been used traditionally since very long time in India.

Academic year : 2020 – 2021

Class: S.Y.B.Sc.

Program Outcomes: Specific core discipline knowledge

- Students can recall details and information about the evolution, anatomy, morphology, systematic, genetics, physiology, ecology, and conservation of plants and all other forms of life.
- Students can recall details of the unique ecological and evolutionary features of the local and Indian flora.

Communication skills

- Students can communicate effectively using oral and written communication skills
- Involvement of students towards interactive section in class

Problem solving and research skills

- Students can generate and test hypotheses, make observations, collect data, analyze and interpret results, derive conclusions, and evaluate their significance within a broad scientific context

Program Specific Outcomes:

- To understand the phylogeny of plants and study various systems of classification.
- To explore the morphological, anatomical, embryological details as well as economic importance of algae, fungi, bryophytes, pteridophytes, gymnosperms and angiosperms.
- To understand physiological processes and adaptations of plants.
- To provide knowledge about environmental factors and natural resources and their importance in sustainable development.
- To understand patterns of heredity and variation among individuals, species and populations and apply principles for improvement of quality and yield.
- To be able to apply statistical tools to gain insights into significantly different data from different sources.
- To acquire recently published knowledge in molecular biology, such as rDNA technology; PTC and bioinformatics and their applications.

Title of the course	Course credit	Course outcome
Semester III		
Plant Diversity		<ol style="list-style-type: none"> 1. To understand the salient features of three major groups of algae, their life cycle patterns with a suitable example; to be able to identify them. 2. To gain the nomenclature information with various classification point of view. 3. To provide plant description, describe the morphological and reproductive structures of four families and also identify and classify according to Bentham and Hooker's system. 4. To study the modern methods about the instrument and their principles regarding working and functioning.
Form and Function II		<ol style="list-style-type: none"> 1. To gain the basic knowledge about the various essential organ / tissue systems/ cells/ cell organelles from the plant species diversities. 2. To understand the pattern of cell division and its function according to types. 3. To acquire the knowledge about the genetic materials and its role in living system. 4. To gain the information about the various activities of the chromosomes along with variation with respect to examples like Drosophila as basic organism. 5. To relate the above information for understanding the genetic hereditary effects of such variations. 6. To gain the knowledge about the central dogma and mechanism of all machinery related to it.
Current Trends in Plant Sciences I		<ol style="list-style-type: none"> 1. To understand the various aspects of pharmaceutical industries with respect to medicinal herbs and related adulterant plants to it. 2. To gain the information about the international standards of pharmacopeia. 3. To provide the concise knowledge about Indian pharmacopeia and Ayurvedic pharmacopeia 4. To demonstrate the different geographical zones of India their existing flora and the economic values with respect to spices and medicines as well.

Semester IV

Plant Diversity		<ol style="list-style-type: none">1. To learn the general characteristics and classification of two major groups of fungi alongwith life cycles of each group; to be able to identify them.2. To observe the effect of infection occurred due to the fungi towards economic plants.3. To understand the basic mode of transmission and life cycle to preventive measures and other alternatives.4. To gain the information about very unique type of organism on the earth i.e. Lichens and its life cycle and uses for mankind.
Form and Function II		<ol style="list-style-type: none">1. To acquire the structure and functions of tissue systems of plants.2. To understand the arrangement of the conducting tissues in plants.3. To gain the knowledge of physiological mechanism related to the respiration in plants and specific responses given by plants towards the Photosynthetic region of light spectrum.4. To demonstrate the schematics of mineral cycles like Nitrogen, carbon and water respectively.5. To gain the information of different abiotic factors and the relation between the community flourishing in it.
Current Trends in Plant Sciences I		<ol style="list-style-type: none">1. To construct schematics of garden types and specific locations with their suitable plant to grow.2. To understand the importance of some garden types with its principle ideas with examples in India.3. To gain the widely expanding knowledge related to genetic information and its uses in4. fields like PTC, R-DNA technology, and their utilization.5. To acquire the use of biostatistician tools for analyze, relate, solve and interpret the data generated through the biological experiments.6. To understand the importance and uses of bioinformatics and day to day need of it in various genetic experiments and discoveries.