## Botany Program Outcome:

- They understand the nature and role of micro organisms like bacteria and viruses their uses directly and indirectly.
- > They understand the role of plants in the functioning of an healthy global ecosystem.
- > They gain scientific knowledge in life science and fundamental metabolism of plants.
- They will be able to identify the taxonomic position plants in their surrounding environment, and also understand the ecological adaptations of the plants.
- They will be able to apply reasoning informed by the text knowledge to assess plant diversity, its importance for society and environmental issues and the consequent responsibilities relevant to the biodiversity conservation practice.

| S. No. | Semester | Course                        | Credits | Course Outcomes   |  |  |  |
|--------|----------|-------------------------------|---------|---|--|--|--|
| 1.     | 1        | Microbial Diversity of        | 5       | Understand the morphology and   |  |  |  |
|        |          | Lower Plants                  |         | staining techniques of bacteria   |  |  |  |
|        |          |                               |         | Gain the knowledge about plant  |  |  |  |
|        |          |                               |         | diseases caused by bacteria and viruses.  |  |  |  |
|        |          |                               |         | Understand the morphological<br>diversity of the lower plants which<br>include algae, fungi, lichens<br>Bryophyta and Pteridophyta. |  |  |  |
|        |          |                               |         | <ul> <li>It also imparts knowledge about<br/>biofertilizers, Stelar evolution,<br/>Heterospory and seed habit.</li> </ul>           |  |  |  |
| 2.     | П        | Gymnosperms, Taxonomy         | 5       | Understand the general characters of  |  |  |  |
|        |          | of Angiosperms and<br>Ecology |         | Gymnosperms and gain knowledge<br>about the morphological and<br>anatomical features of Pinus and<br>Gnetum                         |  |  |  |
|        |          |                               |         | <ul> <li>Understand the Geological time scale<br/>and Paleobotany.</li> </ul>   |  |  |  |
|        |          |                               |         | Understand the Principles of plant<br>classification  |  |  |  |
|        |          |                               |         | Knowledge about Bentham & Hooker<br>and Engler & Prantlsystems of plant<br>classifications.   |  |  |  |
|        |          |                               |         | Understand ICN, Schenzen code and<br>Herbarium techniques.  |  |  |  |
|        |          |                               |         | Learn about the characters of<br>biologically important families of<br>engineering  |  |  |  |
|        |          |                               |         | <ul> <li>angiosperms.</li> <li>Know the floral variations in angiospermic families, their phylogeny and evolution.</li> </ul>       |  |  |  |

## \* Botany Course Outcome:

|    |    |  |   | <ul> <li>This course provides the skills needed to recognise and characterize several plants.</li> <li>The students are made to understand different types of plant classifications and principles involved in nomenclature.</li> <li>They are also made to understand the role of anatomy, embryology, cytology in solving taxonomic and phylogenetic problems.</li> <li>Understand the concept of Ecosystem &amp; its components, Plant adaptations and plant successions.</li> </ul>   |
|----|----|--|---|---|
| 3. |    | Plant Anatomy and<br>Embryology                | 5 | <ul> <li>Know various types of plant tissues,<br/>Internal structure of dicot and<br/>monocot stem.</li> <li>Understand the normal and<br/>anamolous secondary growth found<br/>in specific stems and root.</li> <li>Gain knowledge about the wood<br/>structure in some plants like teak,<br/>rosewood, neem etc.</li> <li>Know the structure and morphology<br/>of anther, microsporogenesis.</li> <li>Understand the development of<br/>male gametophyte and female<br/>gametophyte.</li> <li>Know the different mechanisms of<br/>pollination and fertilization in<br/>flowering plants.</li> <li>Know the structure appendages and<br/>dispersal mechanisms in seeds</li> <li>Understand the development and<br/>types of endosperm and embryo.</li> <li>Gain knowledge about<br/>Polyembryony and Apomixis.</li> <li>These studies have been designed to<br/>impart an insight into the internal<br/>structures and also the<br/>embryological features of the highly<br/>evolved plants i.e. the angiosperms.</li> </ul> |
| 4. | IV | Cell Biology, Genetics and<br>Plant Physiology | 5 | <ul> <li>Gain knowledge about plant cell<br/>envelopes, cell organelles, nucleus,<br/>chromosomes- structure and types<br/>of DNA &amp; RNA</li> <li>Understand the mechanism of cell</li> </ul>  |

|    |    |                                  |   | A<br>A<br>A | division- mitosis and meiosis.<br>Gain knowledge about Mendel's laws<br>of inheritance, Incomplete<br>dominance and co-dominance.<br>Understand the concepts Linkage<br>and crossing over, Variation in<br>number and structure of Gene<br>mutations.<br>Understand the growth and<br>developmental processes in plants. |
|----|----|----------------------------------|---|-------------|--|
|    |    |                                  |   |             | Know about Photosynthesis and<br>Respiration in plants.<br>Understand the process of<br>translocation of solutes in plants   |
|    |    |                                  |   |             | Know the nitrogen metabolism and<br>its importance.  |
|    |    |                                  |   |             | cain knowledge about plant-water<br>relations, mineral nutrition,<br>transpiration enzymes   |
|    |    |                                  |   | ×           | Understand the role of phytohormones.  |
| 5. | V  | Biodiversity and<br>Conservation | 5 | >           | Know about the Plant diversity and<br>its scope- Genetic diversity, species<br>and agro diversity  |
|    |    |                                  |   |             | Gain knowledge about values and uses of biodiversity.  |
|    |    |                                  |   |             | Understand the loss of biodiversity,<br>Gain knowledge about organizations<br>associated with biodiversity,<br>biodiversity legislation and<br>conservation.   |
|    |    |                                  |   |             | Learns the need to conserve<br>biodiversity and Principles of  |
|    |    |                                  |   | ×           | Understand the role of plants in relation to human welfare   |
|    |    |                                  |   | ~           | Learn about the alcoholic beverages<br>through ages, important fruit crops<br>and their commercial importance.   |
| 6. | VI | Plant Molecular Biology          | 5 | >           | Learn the structural levels of Nucleic acids, structure types of DNA,  |
|    |    |                                  |   |             | Structure of RNA and its types.<br>Learn about Nucleosome, chromatin   |
|    |    |                                  |   | ►           | Gain knowledge about molecular   |
|    |    |                                  |   | >           | Understand the overview of central dogma of life and genetic code  |
|    |    |                                  |   | ×           | Understand the mechanism of transcription, split gene concept of   |

|  |  | A A A | introns<br>Learn<br>process<br>Unders<br>Transla<br>protein<br>Learn a<br>regulat | and exor<br>about<br>sing.<br>tand the<br>tion in p<br>synthesi<br>bout tran<br>ion in pro | ns.<br>eukaryotic<br>molecular e<br>rokaryotes le<br>is.<br>nscriptional<br>okaryotes. | mRNA<br>vents of<br>ading to |
|--|--|-------|---|--|--|------------------------------|
|  |  |       |   |  |  |                              |