

**M.Sc. Botany – I,II,III & IV Semesters**

| Code                             | Course Name              | Course Outcomes   |
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| <b>M.Sc. Botany – I Semester</b> |                          |   |
| <b>PBOT11</b>                    | <b>Bio Diversity– I</b>  | <p>Upon completion of this course students will be able to</p> <p><b>CO1:</b> understand different classification system, thallus structure, reproduction, phylogeny and economic importance of algae. <b>K1</b></p> <p><b>CO2:</b> understand the classification, structure of mycelium, reproduction and evolutionary trends in fungi.<b>K2</b></p> <p><b>CO3:</b> acquire knowledge on classification, structure and reproduction of Lichens.<b>K2</b></p> <p><b>CO4:</b> classify the types, structure and reproduction in bacteria <b>K3</b></p> <p><b>CO5:</b> understand the classification, structure and reproduction of Viruses and Bacteriophages. <b>K2</b></p>   |
| <b>PBOT12</b>                    | <b>Bio Diversity– II</b> | <p>Upon completion of this course, students will be able to</p> <p><b>CO1:</b> understand the characters, distribution, classification and regeneration of Bryophytes <b>K2</b></p> <p><b>CO2:</b> learn different classification system of Pteridophytes. Also learn morphological and anatomical characters of different genus under Pteridophytes <b>K1</b></p> <p><b>CO3:</b> critically differentiate fossil and living fossil. Students will also understand the evolutionary tendencies and comparative morphology of Cycadales, Cycadeodales and Pteridospermales. <b>K2</b></p> <p><b>CO4:</b> compare the characters of different orders <b>K3</b></p> <p><b>CO5:</b> critically differentiate the characters of Gymnosperm orders such as Ginkogales, Coniferales, and Taxales <b>K4</b></p> |

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| <b>PBOT13</b> | <b>Plant Taxonomy And Systematics</b>                      | <p>Upon completion of this course, students will be able to</p> <p><b>CO1:</b> understand different classification systems &amp; <b>K1</b></p> <p><b>CO2:</b> acquire knowledge on nomenclature of different plant taxa <b>K2</b></p> <p><b>CO3:</b> understand the vegetative and floral characters of various plant families <b>K2</b></p> <p><b>CO4:</b> know the role of herbarium, monographs and flora in plant systematics <b>K3</b></p> <p><b>CO5:</b> analyse Plant Biosystematics. <b>K3</b></p>   |
| <b>PBOE11</b> | <b>Choice-1 Ethanobotany And Economic Botany</b>           | <p>Upon completion of this course , students will be able to</p> <p><b>CO1:</b> understand the origin and cultivation of various crops <b>K1</b></p> <p><b>CO2:</b> know about the history, cultivation and processing of rubber and tea. <b>K1</b></p> <p><b>CO3:</b> understand the characteristics and uses of timber yielding plants <b>K2</b></p> <p><b>CO4:</b> understand the basics of Ethnobotany and its significance <b>K2</b></p> <p><b>CO5:</b> attain the knowledge about the plants used by major tribes of South India <b>K3</b></p> |
| <b>PBOE11</b> | <b>Choice-2 Gardening and Lawn Making and Horticulture</b> | <p>Upon completion of this course the students will be able to</p> <p><b>CO1.</b>understand economic importance of plant and plant product. <b>K2</b></p> <p><b>CO2.</b> know the different methods of plant propagation. <b>K1</b></p> <p><b>CO3.</b>understand the principles of gardening, garden components, adornment and lawn making, <b>K3</b></p> <p><b>CO4.</b>understand the scope &amp; importance of Horticulture.<b>K2</b></p> <p><b>CO5.</b>understand the methods of nursery techniques and cropping systems <b>K4</b></p>            |

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| <b>M.Sc. Botany – II Semester</b> |   |  |
| <b>PBOT24</b>                     | <b>Plant Pathology and Microbial Technology</b>                     | <p>Upon completion of this course the students will be able to</p> <p><b>CO1.</b>understand the scope and importance of plant pathology and know disease cycle and disease development <b>K2</b></p> <p><b>CO2.</b>know the common plant diseases of India <b>K1</b></p> <p><b>CO3:</b> comprehend the basics of genomics and proteomics <b>K2</b></p> <p><b>CO4:</b> analyse the concepts of bioremediation and biofertilizers <b>K3</b></p> <p><b>CO5:</b> identify the food microorganisms and controlling food spoilage pathogen <b>K2</b></p>   |
| <b>PBOT25</b>                     | <b>Anatomy Of Angiosperms, Plant Microtechniques And Embryology</b> | <p>Upon completion of this course the students will be able to</p> <p><b>CO1.</b>understand the terms: Meristems, Vascular cambium, secondary xylem and secondary phloem <b>K1</b></p> <p><b>CO2.</b> comprehend the systematic study of plant anatomy and seed anatomy <b>K1</b></p> <p><b>CO3.</b> differentiate the principles and types of microscopic techniques and application <b>K2</b></p> <p><b>CO4:</b> apply the principles of micrometry and their uses <b>K4</b></p> <p><b>CO5:</b>know the development of anther, pollen, endosperm, polyembryogeny, seed germination and seedling growth <b>K2</b></p> |
| <b>PBOT26</b>                     | <b>Cell Biology And Biophysics</b>                                  | <p>Upon completion of this course the students will be able to</p> <p><b>CO1.</b> understand the scope of cell biology and its composition <b>K1</b></p> <p><b>CO2.</b> study the principles of enzymes and enzyme kinetics</p>  |

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|               |   | <p><b>K2</b></p> <p><b>CO3.</b> understand the structure and functions of different membrane models and their transport mechanism <b>K2</b></p> <p><b>CO4.</b> analyse the structural organization and the functions of intracellular organelles <b>K3</b></p> <p><b>CO5.</b> comprehend the organisations of genes and chromosomes <b>K3</b></p>   |
| <b>PBOP22</b> | <b>Parctical – II -Plant Pathology And Microbial Technology And Anatomy Of Angiosperms,Plant Microtechniques And Embryology</b> | <p>Upon completion of this course the students will be able to</p> <p><b>CO1:</b> identify plant diseases, causative agents and control measure for plant diseases <b>K2</b></p> <p><b>CO2:</b> acquire knowledge on fungicide and other bio-controls. <b>K2</b></p> <p><b>CO3:</b> identify bacteria and fungi through microbial techniques <b>K4</b></p> <p><b>CO4:</b> comprehend the plant development <b>K5</b></p> <p><b>CO5:</b> examine vascular cambium and identification of wood <b>K5</b></p>                         |
| <b>PBOE22</b> | <b>Choice 1:Food Preservation And Processing</b>  | <p>Upon completion of this course the students will be able to</p> <p><b>CO1:</b> understand the nutritive aspects of food constituents. <b>K2</b></p> <p><b>CO2:</b> know about the principles of food preservatives and its classification <b>K1</b></p> <p><b>CO3:</b> understand the processing of food and its importance <b>K2</b></p> <p><b>CO4:</b> acquire knowledge the methods of Large-scale food processing <b>K2</b></p> <p><b>CO5:</b> know about the different methods of food handling and storage <b>K3</b></p> |

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| <b>PBOE22</b> | <b>Choice 2: Wood Technology</b> | <p>Upon completion of this course the students will be able to</p> <p><b>CO1:</b> understand the microscopic structure of wood. <b>K1</b></p> <p><b>CO2:</b> know about the physical and chemical properties of wood <b>K1</b></p> <p><b>CO3:</b> compare the monocot and dicot wood <b>K2</b></p> <p><b>CO4:</b> understand the various wood preservation methods <b>K2</b></p> <p><b>CO5:</b> know about the chemically modified wood <b>K3</b></p> |

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| <b>M.Sc. Botany – III Semester</b> |  |  |
| <b>PBOT37</b>                      | <b>Plant Physiology And Biochemistry</b> | <p><b>CO1:</b> know the scope and importance of plant physiology and water relation. <b>K1</b></p> <p><b>CO2:</b> understand the process of photosynthesis, C3, C4, CAM pathways. <b>K2</b></p> <p><b>CO3:</b> understand the process of respiration, growth and developmental process in plant. <b>K2</b></p> <p><b>CO4:</b> acquire knowledge on different biochemical reaction in plant cell <b>K2</b></p> <p><b>CO5:</b> cognize the structure and function of carbohydrate, amino acids, proteins, and lipids <b>K2</b></p> |
| <b>PBOT38</b>                      | <b>Genetics and Plant Breeding</b>       | <p>Upon completion of this course the students will be able to</p> <p><b>CO1.</b> understand the Mendelian inheritance and interaction of genes, multiple alleles and linkage and crossing over. <b>K1</b></p> <p><b>CO2.</b> differentiate sex linked inheritance and chromosomal aberrations <b>K2</b></p>   |

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|               |  | <p><b>CO3.</b> understand the scope &amp; importance of plant breeding. <b>K3</b></p> <p><b>CO4.</b> know about Red Data Book, germplasm maintenance, patent and IPR <b>K4</b></p> <p><b>CO5.</b> know the evolutionary sequence of various groups of plants and its breeding methods <b>K4</b></p>  |
| <b>PBOT39</b> | <b>Plant Biotechnology</b>   | <p>Upon completion of this course the students will be able to</p> <p><b>CO1.</b> understand the fundamentals of genome organisation in plants <b>K1</b></p> <p><b>CO2.</b> expertise in tissue culture techniques. <b>K3</b></p> <p><b>CO3.</b> acquire knowledge on the Plant Genetic Transformation Techniques - Ti and Ri plasmids and its use as vectors <b>K6</b></p> <p><b>CO4.</b> understand the concept of Transgenic plants and techniques. <b>K2</b></p> <p><b>CO5.</b> understand the basics of metabolic engineering and Plant Molecular Farming <b>K2</b></p> |
| <b>PBOP33</b> | <b>Practical - III – (Plant Physiology, Biochemistry, Genetics And Plant Breeding)</b> | <p>Upon completion of this course the students will be able to</p> <p><b>CO1:</b> extract chloroplast and pigments from leaves. <b>K3</b></p> <p><b>CO2:</b> perform basic biochemical tests <b>K5</b></p> <p><b>CO3:</b> isolate DNA from Plant materials <b>K3</b></p> <p><b>CO4:</b> understand and solve the problems related to genetics <b>K2</b></p> <p><b>CO5:</b> know the basic techniques in plant breeding <b>K6</b></p>   |
| <b>PBOE33</b> | <b>Choice 1: -Mycology</b>   | <p>Upon completion of this course</p> <p><b>CO1:</b> characterize and classify fungi through different lifecycle. <b>K1</b></p> <p><b>CO2:</b> know the basics of lichens and mycorrhizae <b>K2</b></p> <p><b>CO3:</b> acquire knowledge on fermentation techniques and</p>  |

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|               |   | usage of fungi in industries <b>K2</b><br><b>CO4:</b> identify and differentiate fungal diseases in plants. <b>K3</b><br><b>CO5:</b> apply the knowledge on commercial production of fungal products <b>K2</b>  |
| <b>PBOE33</b> | <b>Choice 2: -<br/>Bioprospecting Of<br/>Plants</b> | Upon completion of this course the students will be able to<br><b>CO1:</b> understand the basic concepts of bioprospecting <b>K2</b><br><b>CO2:</b> comprehend the basics of medicinal plant bioprospecting <b>K2</b><br><b>CO3:</b> know the basics of Marine bioprospecting and their applications <b>K2</b><br><b>CO4:</b> know about the basics of Microbial bioprospecting <b>K1</b><br><b>CO5:</b> comprehend the basics of forest products <b>K2</b> |

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| <b>M.Sc. Botany – IV Semester</b> |   |   |
| <b>PBOT410</b>                    | <b>Bioinstrumentation,<br/>Biostatistics and<br/>Bioinformatics</b> | Upon completion of this course the students will be able to<br><b>CO1.</b> understand the various analytical techniques used for research purposes <b>K2</b><br><b>CO2.</b> know the basic terms and test of hypothesis in biostatistics. <b>K1</b><br><b>CO3.</b> apply research methodology and write their thesis <b>K3</b><br><b>CO4.</b> acquire knowledge on the concepts of bioinformatics |

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|                |                      | and various tools used. <b>K2</b><br><b>CO5.</b> perform sampling methods and analysis of biostatistical data <b>K4</b>   |
| <b>PBOT411</b> | <b>Algology</b>      | Upon completion of this course the students will be able to<br><b>CO1.</b> Differentiate and identify the characteristic features of major classes of algae <b>K2</b><br><b>CO2.</b> know about the thallus organization and reproduction of important families of algae <b>K1</b><br><b>CO3.</b> understand the life-cycles in algae <b>K2</b><br><b>CO4.</b> Get well-versed in the Industrial and Pharmaceutical usage of algae <b>K2</b><br><b>CO5.</b> analyze various applications of algae <b>K3</b> |
| <b>PBOP44</b>  | <b>Major Project</b> | All the candidates of M.Sc (Botany) are required to undergo a Major project and submit the following:<br><br>Dissertation/Thesis based on the work done by the student.<br><br>Soft copy of the project on CD/DVD   |