

# Yashwantrao Chavan College of Science, Karad

## Department of Botany COURSE OUTCOMES M Sc. II



After the completion of the course, the student will be able to:

<b>Semester III</b>	
<b>M Sc II</b>	<b>MMT – 301: CYTOGENETICS AND CROP IMPROVEMENT</b> <ul style="list-style-type: none"><li>• Learn chromosome structure and packaging of DNA, Karyotype analysis and Banding pattern</li><li>• Study genetics of prokaryotes and Eukaryotes, crop genetic resources.</li><li>• Understand Population and evolutionary genetics</li><li>• Learn Methods of crop breeding and improvement.</li></ul>
<b>M Sc II</b>	<b>MMT – 302: BIOTECHNOLOGY AND GENETIC ENGINEERING</b> <ul style="list-style-type: none"><li>• Learn cDNA libraries, BAC, YAC, Crisper cas9</li><li>• Study methods DNA sequencing and analysis for gene expression</li><li>• Understand concept, principle and applications of recombinant DNA technology.</li><li>• Learn concepts of genomics, proteomics, IPR and IPP.</li></ul>
<b>M Sc II</b>	<b>MMT – 303: PLANT ECOLOGY AND EVOLUTION</b> <ul style="list-style-type: none"><li>• Understand origin of cells and unicellular evolution</li><li>• Learn ecological succession process</li><li>• Study Population ecology and concept of metapopulation</li><li>• Learn terrestrial and aquatic biome types.</li></ul>
<b>M Sc II</b>	<b>MMPR – 304: PRACTICAL – V</b> <ul style="list-style-type: none"><li>• Learn to determine mitotic index, karyotype analysis and orcein banding.</li><li>• Study technique of meiosis.</li><li>• Solve genetic problems on gene mapping</li><li>• Study phytoplankton and species diversity indices</li></ul>
<b>M Sc II</b>	<b>MMPR – 305: PRACTICAL – VI</b> <ul style="list-style-type: none"><li>• Acquire skill of MS medium preparation, callus culture and micropropagation.</li><li>• Learn cell suspension culture and estimation of secondary metabolites.</li><li>• Understand nucleotide sequence blast technique.</li><li>• Learn cell suspension culture.</li></ul>
<b>M Sc II</b>	<b>RP – 308: RESEARCH PROJECT</b>
<b>M. SC. PART – II (SEMESTER – IV)</b>	
<b>M Sc II</b>	<b>MET – 405.2: SPECIAL APPROACHES IN GENETIC IMPROVEMENT OF CROP PLANTS</b> <ul style="list-style-type: none"><li>• Learn functional genomics and applications</li><li>• Understand transcriptomics and quantitative trait loci</li><li>• Study allele mining for crop improvement and marker assisted selection for crop improvement.</li><li>• Understand tissue culture and production of secondary metabolites.</li></ul>

<b>M Sc II</b>	<b>MEPR – 406.2: SPECIAL APPROACHES IN GENETIC IMPROVEMENT OF CROP PLANTS</b> <ul style="list-style-type: none"> <li>• Acquire skill of In silico studies and preparation of linkage map</li> <li>• Explain QTL, EST, phylogenetics analysis.</li> <li>• Learn skill of hairy root culture, anther culture and haploid production.</li> <li>• Estimate protease inhibitors from plants.</li> </ul>
<b>M Sc II</b>	<b>MET – 405.5: APPLICATION, REGULATION AND PATENTING BIOTECHNOLOGY</b> <ul style="list-style-type: none"> <li>• Learn applications of tissue culture in various fields</li> <li>• Understand applications of biotechnology in environment protection</li> <li>• Study mechanism of Nitrogen fixation.</li> <li>• Learn protein and nucleotide sequence databases.</li> </ul>
<b>M Sc II</b>	<b>MEPR – 406.5: APPLICATION, REGULATION AND PATENTING BIOTECHNOLOGY</b> <ul style="list-style-type: none"> <li>• Study synthesis and characterization of nanoparticles.</li> <li>• Understand culturing methods in algae and fungi</li> <li>• Demonstrate phytoremediation and HPLC technique</li> </ul>
<b>M Sc II</b>	<b>RP – 407: RESEARCH PROJECT</b>
<b>M Sc II</b>	<b>MMT – 401: PLANT PHYSIOLOGY AND METABOLISM</b> <ul style="list-style-type: none"> <li>• Study active and massive mechanism of solute transport.</li> <li>• Acquire knowledge of photosynthesis and respiration process.</li> <li>• Understand nitrogen metabolism and secondary metabolites in plants.</li> </ul> Learn plant hormones and stress physiology.
<b>M Sc II</b>	<b>MMT – 402: PLANT PATHOLOGY</b> <ul style="list-style-type: none"> <li>• Learn history, symptomology, epidemiology of plant diseases.</li> <li>• Learn characteristics of Virus and MLO diseases</li> <li>• Study symptomology, casual organism and management of fungal and bacterial diseases.</li> <li>• Study symptomology, casual organism and management of fungal and bacterial diseases.</li> </ul>
<b>M Sc II</b>	<b>MMPR – 403: PRACTICAL – VII</b> <ul style="list-style-type: none"> <li>• Determine lipid peroxidation and rate of respiration</li> <li>• Estimate free amino acids, enzyme phenyl Alannine Ammonia Lyase and proline.</li> <li>• Study enzyme nitrate reductase and effects of PGR's on seed germination.</li> <li>• Learn to measure RWC in plants under stress.</li> </ul>
<b>M Sc II</b>	<b>MMPR – 404: PRACTICAL – VIII</b> <ul style="list-style-type: none"> <li>• Learn to identify important fungal diseases</li> <li>• Learn to identify bacterial, viral, phanerogamic and nematode diseases.</li> </ul>



  
**Head**  
**Department of Botany**  
**Yashwantrao Chavan College of**  
**Science, Karad**