

# Syllabus for the S.Y.B.Sc. Program: B.Sc. Course:BOTANY

## SEMESTER III THEORY

Course Code	Title	Credits
USBO301	PLANT DIVERSITY	2 Credits (45 lectures )
<b><u>Unit I : Thallophyta (Algae) &amp; Bryophyta</u></b> <ul style="list-style-type: none"> <li>• General Characters of Division Phaeophyta: Distribution, Cell structure, range of thallus, Economic Importance.</li> <li>• Structure, life cycle and systematic position of <i>Sargassum</i></li> <li>• General Account of Class Anthocerotae and Musci</li> <li>• Structure, life cycle and systematic position of               <ul style="list-style-type: none"> <li>○ <i>Anthoceros</i></li> <li>○ <i>Funaria</i></li> </ul> </li> </ul>		15 Lectures
<b><u>Unit II: Angiosperms</u></b> Systematics: Objectives and Goals of Plant systematic <ul style="list-style-type: none"> <li>• Plant Nomenclature</li> <li>• Taxonomy in relation to               <ul style="list-style-type: none"> <li>Anatomy</li> <li>Palynology</li> <li>Chemical constituents</li> <li>Embryology</li> <li>Cytology</li> <li>Ecology</li> </ul> </li> <li>○ With the help of Bentham and Hooker's system of <b>Classification for flowering plants</b> study the vegetative, floral characters and economic importance of the following families:               <ul style="list-style-type: none"> <li>○ Leguminosae</li> <li>○ Asterace</li> <li>○ Amaranthaceae</li> <li>○ Palmae</li> </ul> </li> </ul>		15 Lectures
<b><u>Unit III :Modern Techniques to Study Plant Diversity</u></b> Preservation methods :Dry and Wet method <ul style="list-style-type: none"> <li>• Microscopy – Principle and working of Light, and electron microscope.</li> <li>• Chromatography- Principles and techniques in paper and thin layer chromatography.</li> <li>• Principles and techniques of Horizontal and Vertical electrophoresis.</li> </ul>		15 Lectures

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### SEMESTER III PRACTICAL

Semester III USBOP3 PRACTICAL Paper I – Plant Diversity II	Cr 1
<p><b>Algae &amp; Bryophyta</b></p> <ol style="list-style-type: none"><li>1. Study of stages in the life cycle of <i>Sargassum</i> from fresh/ preserved material and permanent slides.</li><li>2. Economic importance and range of thallus in Phaeophyta</li><li>3 Study of stages in the life cycle of <i>Anthoceros</i> from fresh/ preserved material and permanent slides.</li><li>4 Study of stages in the life cycle of <i>Funaria</i> from fresh/ preserved material and permanent slides.</li></ol> <p><b>Angiosperms</b></p> <ol style="list-style-type: none"><li>5. Study of plants for anatomy in relation to taxonomy</li><li>6. Study of plants for Phenols and Flavanoids ( chemotaxonomy)</li><li>7. Study of one plant from each family prescribed for theory: morphological peculiarities and economic importance of the members of these families.</li></ol> <p><b>Techniques to study Plant Diversity</b></p> <ol style="list-style-type: none"><li>8. Preparation of herbarium and wet preservation technique</li><li>9. Chromatography: Separation of amino by circular paper chromatography</li><li>10. Separation of Carotenoids by thin layer chromatography</li><li>11. Horizontal and Vertical Gel Electrophoresis – Demonstration</li></ol>	

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## SEMESTER IV THEORY

Course Code	Title	Credits
USBO401	PLANT DIVERSITY	2 Credits (45 lectures )
<b><u>Unit I : Thallophyta: Fungi, Plant Pathology and Lichens Fungi</u></b> <ul style="list-style-type: none"><li>• General characters of Ascomycetae</li><li>• Structure, life cycle and systematic position of <i>Erysiphe</i> and <i>Xylaria</i></li><li>• Plant Pathology- Symptoms, causative organism, disease cycle and control measures of o Powdery mildew and Late blight of potato</li><li>• Lichens- Classification, Structure, Method of Reproduction, Economic Importance and Ecological Significance of Lichens.</li></ul>		15 Lectures
<b><u>Unit II: Pteridophyta and Paleobotany Pteridophyta-</u></b> <ul style="list-style-type: none"><li>• Salient features and classification upto orders (with examples of each) of Psilophyta and Lepidophyta (G M Smith's system of classification to be followed)</li><li>• Structure, life cycle and systematic position of <i>Selaginella</i></li><li>• Paleobotany- The geological time scale; Formation and types of fossils; Structure and systematic position of form genus <i>Rhynia</i></li></ul>		15 Lectures
<b><u>Unit III : Gymnosperms</u></b> <ul style="list-style-type: none"><li>• Salient features, classification up to orders (with examples of each) and economic importance of Coniferophyta (Chamberlain's system of classification to be followed)</li><li>• Structure life cycle and systematic position of <i>Pinus</i></li><li>• Structure and systematic position of the form genus <i>Cordaites</i></li></ul>		15 Lectures

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### SEMESTER IV PRACTICAL

Semester III USBOP4 PRACTICAL Paper I – Plant Diversity II	Cr 1
<p><b>Fungi and Plant Pathology</b></p> <p>1 Study of stages in the life cycle of <i>Erysiphe</i> from fresh/ preserved material and permanent slides.</p> <p>2 Study of stages in the life cycle of <i>Xylaria</i> from fresh/ preserved material and permanent slides.</p> <p>3 Study of fungal diseases as prescribed for theory.</p> <p>4 Study of Lichens (crustose, foliose, &amp; fruiticose).</p>	
<p><b>Pteridophyta and Palaeobotany</b></p> <p>5-6 Study of stages in the life cycle of <i>Selaginella</i> from fresh/ preserved material and permanent slides.</p> <p>7 Study of form genera <i>Rhynia</i> with the help of permanent slides/ photomicrographs.</p>	
<p><b>Gymnosperms</b></p> <p>8- Study of stages in the life cycle of <i>Pinus</i> from fresh/ preserved material and permanent slides.</p> <p>9- Study of the form genus <i>Cordaites</i> with the help of permanent slide/ photomicrographs.</p>	