

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

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SEMESTER III PRACTICAL

Semester III USBOP3 PRACTICAL Paper I – Plant Diversity II	Cr 1
<p>Algae & Bryophyta</p> <ol style="list-style-type: none">1. Study of stages in the life cycle of <i>Sargassum</i> from fresh/ preserved material and permanent slides.2. Economic importance and range of thallus in Phaeophyta3 Study of stages in the life cycle of <i>Anthoceros</i> from fresh/ preserved material and permanent slides.4 Study of stages in the life cycle of <i>Funaria</i> from fresh/ preserved material and permanent slides. <p>Angiosperms</p> <ol style="list-style-type: none">5. Study of plants for anatomy in relation to taxonomy6. Study of plants for Phenols and Flavanoids (chemotaxonomy)7. Study of one plant from each family prescribed for theory: morphological peculiarities and economic importance of the members of these families. <p>Techniques to study Plant Diversity</p> <ol style="list-style-type: none">8. Preparation of herbarium and wet preservation technique9. Chromatography: Separation of amino by circular paper chromatography10. Separation of Carotenoids by thin layer chromatography11. Horizontal and Vertical Gel Electrophoresis – Demonstration	

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SEMESTER IV THEORY

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

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SEMESTER IV PRACTICAL

Semester III USBOP4 PRACTICAL Paper I – Plant Diversity II	Cr 1
<p>Fungi and Plant Pathology</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, & fruiticose).</p>	
<p>Pteridophyta and Palaeobotany</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>Gymnosperms</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>	