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

## SEMESTER III THEORY

USBO301       PLANT DIVERSITY       2 Credits (45 lectures )         Unit I : Thallophyta (Algae) & Bryophyta       Distribution, Cell structure, range of thallus, Economic Importance.       Is Lectures         • Structure, life cycle and systematic position of Sargassum       General Account of Class Anthocerotae and Musci       Is Lectures         • Structure, life cycle and systematic position of o Anthoceros o Funaria       Is Lectures       Is Lectures         Unit II: Angiosperms Systematics: Objectives and Goals of Plant systematic       Is Lectures       Is Lectures         • Plant Nomenclature       Taxonomy in relation to Anatomy Palynology Chemical constituents Embryology Cytology Ecology       Is Lectures and economic importance of the following families: o Asterace o Amaranthaceae o Palmae       Is Lectures         Unit III: Modern Techniques to Study Plant Diversity Preservation methods :Dry and Wet method       Is Lectures         • Microscopy - Principle and working of Light, and electron microscope.       Is Lectures         • Principles and techniques of Horizontal and Vertical electrophoresis.       Is Lectures	Course Code	Title	Credits
<ul> <li>General Characters of Division Phaeophyta: Distribution, Cell structure, range of thallus, Economic Importance.</li> <li>Structure, life cycle and systematic position of Sargassum</li> <li>General Account of Class Anthocerotae and Musci</li> <li>Structure, life cycle and systematic position of         <ul> <li>Anthoceros</li> <li>Funaria</li> </ul> </li> <li>Unit II: Angiosperms</li> <li>Systematics: Objectives and Goals of Plant systematic</li> <li>Plant Nomenclature</li> <li>Taxonomy in relation to         <ul> <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 Classification for flowering plants study the vegetative, floral characters and economic importance of the following families:             <ul> <li>Leguminosae</li> <li>Amaranthaceae</li> <li>Palmae</li> </ul> </li> <li>Unit II: Modern Techniques to Study Plant Diversity</li> <li>Preservation methods :Dry and Wet method</li> <li>Microscopy – Principle and working of Light, and electron microscope.</li> <ul> <li>Chromatography. Principles and techniques in paper and thin layer chromatography.</li> </ul> </ul>	USBO301	PLANT DIVERSITY	
range of thallus, Economic Importance.       In Figure 1         • Structure, life cycle and systematic position of Sargassum       General Account of Class Anthocerotae and Musci         • Structure, life cycle and systematic position of       • Anthoceros         • Anthoceros       • Funaria         Unit II: Angiosperms       15 Lectures         Systematics:       Objectives and Goals of Plant systematic         • Plant Nomenclature       • Taxonomy in relation to         • 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:         • Leguminosae       • Asterace         • Amaranthaceae       • Palmae         Unit II: Modern Techniques to Study Plant Diversity       15 Lectures	Unit I : Thallophyta	a (Algae) & Bryophyta	
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## Syllabus for the S.Y.B.Sc. Program: B.Sc.Course : BOTANY

## SEMESTER III PRACTICAL

Semester III USBOP3	Cr			
PRACTICAL Paper I – Plant Diversity II	1			
Algae & Bryophyta				
1. Study of stages in the life cycle of Sargassum from fresh/ preserved				
material and permanent slides.				
2. Economic importance and range of thallus in Phaeophyta				
3 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.				
Angiosperms				
5. Study of plants for anatomy in relation to taxonomy				
6. 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.				
Techniques to study Plant Diversity				
8. Preparation of herbarium and wet preservation technique				
9. Chromatography: Separation of amino by circular paper chromatography				
10. Separation of Carotenoids by thin layer chromatography				
11. Horizontal and Vertical Gel Electrophoresis – Demonstration				

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

## SEMESTER IV THEORY

Course Code	Title	Credits
USBO401	PLANT DIVERSITY	2 Credits (45 lectures )
Unit I : Thallophyta General chara Structure, life Plant Patholo control measu Lichens- Class Importance a	15 Lectures	
<ul> <li>Unit II: Pteridophyta and Paleobotany Pteridophyta-</li> <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
<ul> <li><u>Unit III : Gymnosperms</u></li> <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

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

### SEMESTER IV PRACTICAL

### Semester III USBOP4 PRACTICAL Paper I – Plant Diversity II

Cr 1

### **Fungi and Plant Pathology**

1 Study of stages in the life cycle of *Erysiphe* from fresh/ preserved material and permanent slides.

2 Study of stages in the life cycle of *Xylaria* from fresh/ preserved material and permanent slides.

3 Study of fungal diseases as prescribed for theory.

4 Study of Lichens (crustose, foliose, & fruiticose).

### **Pteridophyta and Palaeobotany**

5-6 Study of stages in the life cycle of *Selaginella* from fresh/ preserved material and permanent slides.

7 Study of form genera *Rhynia* with the help of permanent slides/ photomicrographs.

#### Gymnosperms

8- Study of stages in the life cycle of *Pinus* from fresh/ preserved material and permanent slides.

9- Study of the form genus *Cordaites* with the help of permanent slide/ photomicrographs.