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 • General Characters of Division Phaeophyta: Distribution, Cell structure, range of thallus, Economic Importance. • Structure, life cycle and systematic position of ***Sargassum*** • General Account of Class Anthocerotae and Musci • Structure, life cycle and systematic position of o ***Anthoceros*** o ***Funaria***		**15 Lectures**
Unit II: Angiosperms Systematics: Objectives and Goals of Plant systematic • Plant Nomenclature • Taxonomy in relation to Anatomy Palynology Chemical constituents Embryology Cytology Ecology o 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: o Leguminosae o Asterace o Amaranthaceae o Palmae		**15 Lectures**
Unit III :Modern Techniques to Study Plant Diversity Preservation methods :Dry and Wet method • 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**

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 *Anthoceros* from fresh/ preserved material and permanent slides.

4 Study of stages in the life cycle of *Funaria* 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: Fungi, Plant Pathology and Lichens Fungi • General characters of Ascomycetae • Structure, life cycle and systematic position of *Erysiphe* and *Xylaria* • 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**
Unit II: Pteridophyta and Paleobotany Pteridophyta- • 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 *Selaginella* • Paleobotany- The geological time scale; Formation and types of fossils; Structure and systematic position of form genus *Rhynia*		**15 Lectures**
Unit III : Gymnosperms • 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 *Pinus* • Structure and systematic position of the form genus *Cordaites*		**15 Lectures**

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

SEMESTER IV
PRACTICAL

Semester III USBOP4	**Cr**
PRACTICAL Paper I – Plant Diversity II	**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.