

**JYOTI NIVAS COLLEGE AUTONOMOUS
SYLLABUS FOR 2018 BATCH AND THEREAFTER**

Programme: B.Sc.

Semester: II

BOTANY PAPER II

DIVERSITY OF NON-VASCULAR PLANTS AND ANATOMY OF VASCULAR PLANTS

Course Code: 18IIBO2

No. of Hours: 60

COURSE OBJECTIVES:

- To Understand the scope and importance of Mycology.
- To Know the disease cycle and disease development .
- To understand the effect of plant diseases on economy of crops.

LEARNING OUTCOMES:

- Classify fungi, lichens, algae and bryophytes based on their structure, reproduction and life cycles.
- Analyze and ascertain the plant disease symptoms due to viruses, bacteria and fungi.
- Recall and explain the evolutionary trends among amphibians of plant kingdom for their shift to land habitat

UNIT I Mycology

18 HRS

A general account of fungi – Occurrence, Structure and Reproduction. Outlines of classification by G.C.Ainsworth (1973). Occurrence, structure, reproduction and life cycle of *Albugo*, *Rhizopus*, *Peziza*, *Lycoperdon*, *Puccinia*, and *Cercospora*.

Economic Importance of Fungi: - In Medicine, Industry, Food (Mushroom culture) and environment. Mycorrhiza – A brief account with examples.

UNIT II Lichens

6 HRS

General account: Occurrence and nature of association. Classification based on morphology and mycobionts. Lichen morphology anatomical structure of foliose thallus. Asexual and Sexual reproduction in Lichens. Economic importance of Lichens.

UNIT III Plant Pathology

6 HRS

A general account of symptoms, causal organisms and control measures of Koleroga in Areca nut, smut of Sorghum, red rot of sugarcane, coffee rust and Blast of Rice. Brief account of Biopesticides :, *Bacillus thuringiensis* and *Trichoderma and Neem* .

UNIT IV Bryophytes

16 HRS

A general account of distribution, structure, reproduction, and Alternation of Generations in Bryophytes. Type study of *Marchantia*, *Anthoceros* and *Funaria* (Developmental Study not required). Economic importance of Bryophytes.

UNIT V Plant Anatomy

14 HRS

Meristematic tissues: Structure, function and Classification. Organization of Apical meristems: Tunica - corpus theory and Histogen theory.

Secretary cells and tissues: Structure, classification and significance.

Secondary growth: Origin and activity of vascular cambium and cork cambium in dicot stem. Anomalous secondary growth – *Boerhaavia* (*Dicot stem*) and *Dracaena* (*Monocot stem*) Wood anatomy: Ring Porous and Diffuse Porous, Uniseriate and Multiseriate rays, Apotracheal and Paratracheal parenchyma, Heart wood and sap wood, Tyloses, Growth rings, Dendrochronology Identifying features of following types of wood: Rosewood, Teakwood, Honne and Sal.

REFERENCES:

1. Alexopoulos (1992) An Introduction to Mycology, New Age International, New Delhi.
2. Mehrotra, R.S. (1983) Plant Pathology. Tata McGraw-Hill Pub Co Ltd.
3. Dube, H.C. (1993) Vikas Pub. Houses Pvt. Ltd.
4. Parihar, N S (1970) An Introduction to Embryophyta. Vol. 1 Bryophyta, Central Book Depot, Allahabad.
5. Fahn, A (1974) Plant Anatomy 4th ed. Adity Books (P) Ltd., New Delhi.
6. Sporne K R (1966) Bryophytes. 4th ed., B.I. Publishing Pvt. Ltd.
7. Vashista, B R (1978) Fungi, S Chand & Co Ltd., New Delhi.
8. Vashista, B R (1993) Bryophytes, 5th ed., S Chand & Co Ltd., New Delhi
9. Singh, R S (1978), Plant Diseases, 4th ed., Oxford and IBH, New Delhi.
10. Katherine Easu, (1993) Anatomy. 2nd ed. Wiley Eastern Pvt. Ltd. New Delhi.
11. Smith, G.M. (1994) Cryptogamic Botany Vol. II, 2nd ed., Tata McGraw Hill, New Delhi.
12. Pandey, B.P. (2004). College Botany Vol – I. S Chand & Co Ltd., New Delhi.
13. Vashishta B.R., Sinha A.K. (2003). Botany for Degree students Part – II. S Chand & Co Ltd., New Delhi.

14. SundaraRajan,S.(2001). Practical Manual of Fungi. Anmol Publishers Pvt Ltd. New Delhi.
15. Vashishta B.R. & et al. (2010). Botany for Degree Students – Bryophyta S Chand & Co Ltd., New Delhi.
16. Rangaswami G (1988) Diseases of Crop plants in India, Prentice-Hall of India Pvt. Ltd., New Delhi (3 rd Edition).
17. Pandey B P (2001), College Botany Vol. I, S. Chand & Co. Ltd., New Delhi.

BOTANY PAPER II PRACTICAL – II

1. Identification and classification of fungal members included in the theory.
2. Demonstration of Mushroom Culture.
3. Study of Lichens.
4. Study of Plant diseases included in the theory.
5. Study of forms of Bryophytes included in the theory.
6. Study of Apical root and stem – (photomicrographs)
7. Free hand sections of Stem and Root -Tridax (Dicot stem),Grass (Monocot stem) , Cicer (Dicot root) and Canna (monocot root).
8. Study of Anomalous secondary growth in stem –, Dracena and Beet root.
9. Identification and Submission of two Fungaldiseased plants. (Herbaria)
10. Test and Repetition

ACTIVITY FOR II-SEMESTER: Field Visit