

Course Code	Course Name	Credits
26BY001	PLANT DIVERSITY-I	04

Course Objectives

- To give basic knowledge about the diversity, classification, and general features of lower plants like algae, fungi, and bryophytes.
- To help understand the structure, reproduction, and life cycles of important examples such as *Oscillatoria*, *Volvox*, *Navicula*, *Polysiphonia*, *Rhizopus*, *Peziza*, *Albugo*, *Phytophthora*, *Riccia*, *Anthoceros*, and *Funaria*.
- To introduce standard classification systems used for algae, fungi, and bryophytes.
- To explain the ecological, economic, and industrial importance of algae, fungi, bryophytes, and lichens.

Learning Outcomes

Upon successful completion of this course it is intended that a student will be able to:

- Describe and classify algae, fungi, and bryophytes and identify their key features.
- Explain the structure, reproduction, and life cycles of selected organisms.
- Understand the ecological roles and economic importance of algae, fungi, bryophytes, and lichens.
- Apply basic knowledge of lower plants in practical and research work.

Unit 1 - Algae (12 Hrs.)

General Characters, Classification (F.E. Fritsch), Thallus Organization, Life Cycles and Economic Importance of Algae.

Unit 2 – Algae (12 Hrs.)

Structure, Reproduction and Life Cycles of the Following (Development not required) Cyanophyceae (*Oscillatoria*); Chlorophyceae (*Volvox*); Bacillariophyceae (*Navicula*); Rhodophyceae (*Polysiphonia*).

Unit 3 - Fungi (12 Hrs.)

Habit, Habitat, Nutrition, Thallus organization and Reproduction, Classification (Ainsworth), and Economic and industrial applications of Fungi. General Account of Lichens- Structure and Reproduction in *Usnea*.

Unit 4 – Fungi (12 Hrs.)

Structure, Reproduction and Life Cycles of the Following (Development not required) Zygomycotina (*Rhizopus*); Ascomycotina (*Peziza*); Mastigomycotina (*Albugo*); Oomycotina (*Phytophthora*).

Unit 5 – Bryophytes (12 Hrs.)

General Characters and Classification (Rothmaler) of Bryophytes. Structure, Reproduction and Life cycle of the Following (Development not required) Hepaticopsida (*Riccia*); Anthocerotopsida (*Anthoceros*); Bryopsida (*Funaria*). Economic importance and industrial applications of Bryophytes.

Reference Books:

- Fritsch, F.E. (1965). The Structure & Reproduction of Algae 1945): Cambridge University press, Cambridge, U.K.
- Kumar, H.D. & Sing, H. N. (1976): A Text book of Algae. Affiliated East West press Pvt. Ltd., New Delhi, Madras.
- Kumaresan, V. (1997). Algae & Bryophytes. Saras Publications, Nagercoil, India.
- Smith, G.M. (1938). Cryptogamic Botany (Vol.1 Algae, Fungi, & Liches). McGraw Hill Book Co., New York.
- Sharma.O.P. (1992). Test Book of Fungi. Tata McGraw-Hill Publishing C., New Delhi
- Venkateswarlu, V. (1970). A Text Book of Algae. Maruthi Book Depot, Guntur, Hyderabad, India.
- Vashista,B.R.(1982).Botany for Degree Students – Fungi. S.Chand& Co., New Delhi.
- Alexopoulos, C.J. and Delavoryas, T. (1987). Morphology of Plants & Fungi. Harper & Row, Publishers.
- Chopra, G.L. (1968). A class Book of Bryophyta. Hari singh& Bros., Jullunder.
- Kumra, P.K. (1988). Biology of Bryophytes. Wiley Easter Ltd., New Delhi.
- Parihar, N.S. (1965). An introduction to Embrophyta –Vol.II. Bryophyta. Central Book Depot, Allahabad.