

THEORY**Introduction of the Course:**

The course is organized to provide an adequate knowledge about different plant groups with their representatives along with their Taxonomy, Morphology and life cycle patterns. It is generally aimed to familiarize students with the morphological and systematic knowledge of different plant groups, their evolution and Economic importance.

Course Objectives:

The course is designed:

1. To provide an adequate knowledge about basic concepts of different plant groups and their morphological/anatomical characteristics.
2. To increase the understanding of the students about the diversity of plants, their classification, structure and growth.

Contents:

1. General account including morphology, habitat, reproduction and economic signification of: -
 - a. Viruses: RNA and DNA types with special reference to Tobacco Mosaic Virus (TMV)
 - b. Bacteria and Cyanobacteria: *Nostoc*, *Oscillatoria*
 - c. Algae: *Chlamydomonas*, *Spirogyra*, *Chara*, *Pinnularia*, *Ectocarpus* and *Polysiphonia*
 - d. Fungi: *Mucor*, *Penicillium*, *Phyllactinia*, *Ustilago*, *Puccinia* and *Agaricus*, their effects on crop production and industrial applications.
 - e. Lichens: *Physcia*
 - f. Bryophytes: *Riccia*, *Anthoceros*, *Funaria*
 - g. Pteridophytes: Fossils and Fossilization, Major Groups and their Affinities, Psilopsida (*Psilotum*), Lycopsida (*Selaginella*), Sphenopsida (*Equisetum*), Pteropsida (*Marsilea*).
 - h. Gymnosperms: *Cycas*, *Pinus* and *Ephedra*
 - i. Angiosperms: Dicots and Monocots

2. Seed Habit
3. Fossil and Fossilization

Practicals:

1. Culturing and staining of microbial types.
2. Maintenance and preservation of cultures of microbes (Bacteria / Cyanobacteria / Algae / Fungi)
3. Identification of various types mentioned in the syllabus from fresh / preserved specimens and prepared slides.
4. Study of morphology and reproductive structures of the types mentioned in theory (Specimens/prepared slides)

Teaching-learning Strategies

1. Lectures
2. Group Discussion
3. Laboratory work
4. Seminar/ Workshop

Learning Outcome:

1. Students are expected to get familiarized with the morphological and systematic knowledge about different plant groups.
2. They will learn about the general characters, structure, life history, classification and Economic importance of different plant groups.
3. The obtained knowledge will enable students to know the earlier plants, their vegetative and reproductive structures and their importance.
4. This will enable them qualify for basic to moderate level jobs involving knowledge of plants and their environment.

Assessment Strategies:

1. Lecture Based Examination (Objective and Subjective)
2. Assignments
3. Class discussion
4. Quiz
5. Tests

Recommended Readings:

1. Agrios, G.N. (2004). *Plant Pathology*. (8th Ed.), Academic Press London.
2. Alexopoulos, C.J., Mims, C.W. and Blackwell, M. (1996). *Introductory Mycology*. (4th Ed.) John Wiley and Sons, UK.
3. Biswas, C, and Johri, B.M. (1999). *The Gymnosperms*. Narosa Publishing House. New Delhi and London.
4. Lee, E. R. (2007). *Phycology*. (4th Ed.) Cambridge University Press U.K.
5. Mauseth. J.D. (2003). *Botany: An Introduction to Plant Biology*. (3rd Ed.) Jones & Bartlett Pub.UK.
6. Prescott, L.M., Harley, J.P. and Klein, A.D. (2004). *Microbiology*, (3rd Ed.) WM. C. Brown Publishers.
7. Sambamurty, A.V.S.S. (2005). *A Textbook of Bryophytes, Pteridophytes, Gymnosperms and Paleobotany*. I.K. International Pvt. Ltd. New Delhi, Bangalore, Mumbai. 573 pp.
