BOTANY DEPARTMENT
Synod College, Shillong
Course Outcomes

Paper- I (Algae, Bryophytes & Pteridophytes)

Course Outcomes:

After completion of the course, students will be able to-

1. Develop an understanding of the classification, diversity and life cycles of different algae, bryophytes and pteridophytes as well as their economic importance.
2. Develop critical understanding of morphology, anatomy and reproduction of different algae, bryophytes and pteridophytes.
3. Demonstrate proficiency in the experimental techniques of appropriate analysis of algae, bryophytes and pteridophytes.

Paper -2 (Gymnosperm, Paleobotany, Morphology & Anatomy)

Course Outcomes:

1. Develop a critical understanding of morphology, anatomy and reproduction of gymnosperms and angiosperms.
2. Understand the geological past of the earth and life forms that existed in pre-historic periods.
3. Understand the process of fossil formation and different types of fossils.
4. Understand the basic concept of plant morphogenesis and organ development.
5. Observe the variations that exist in morphology and anatomy of various parts of a plant as well as among different plant groups in support of the evolutionary concept.
6. Demonstrate proficiency in the experimental techniques and methods for appropriate analysis of gymnosperms.
7. Demonstrate the technique of preparation of double-stained specimens and study the anomalous growth in angiosperms.

Paper- 3 (Angiosperm Taxonomy, Economic Botany, Ethnobotany & Phytogeography)

Course Outcomes:

1. Understand the major systems of classification of plants.
2. Learn and understand the concept of ICN.
3. Learn the distinguishing features and economic importance of a few mentioned dicotyledonous and monocotyledonous families.

4. Understand the concept of ethnobotany and importance of plants in traditional societies.
5. Identify and describe the ethnobotanical properties of various plants and their traditional uses in society.
6. Understand the use of plants in medicine.
7. Understand and learn the cultivation, uses and importance of some economically important plants, aromatic plants and timber -yielding plants.
8. Develop an understanding about plant origin, migration and distribution.

Paper – 4 (Microbiology, Mycology & Plant Pathology)

Course Outcomes:

1. Learn about classification, characteristics, ultra structure of Prokaryotic and Eukaryotic microorganisms.
2. Learn about the importance of microbes in decomposition of organic matter, nitrogen fixation and basic concepts of industrial microbiology.
3. Gain knowledge about the fungal diversity, morphological and reproductive features of various genera and classification of fungi.
4. Knowledge about growth, structures and the economic importance of lichens.
5. Understand the scope and importance of plant pathology.
6. Learn about the host parasite interaction processes, organisms and causal factor responsible for plant diseases, prevention and control measures of plant.

Paper - 5 (Plant Physiology & Biochemistry)

Course Outcomes:

1. Understand the various physiological life processes in plants such as the various uptake and transport mechanisms in plants, Photosynthesis, Respiration, Nitrogen metabolism and Plant Growth hormones (Auxins, Gibberellins. Cytokinin, ABA).
2. Learn the properties, enzyme catalysis and activation energy– Mechanism of enzyme action. Study the structure and properties of Macromolecules
3. Gain skill on working principles of pH meter, centrifuge, spectrophotometer and Chromatography.

Paper - 6 (Ecology & Conservation Biology)

Course Outcomes:

1. Gain an understanding about the concepts and principles of ecology, biological diversity, conservation, sustainable development, population, community and ecosystem structure and function and their applications to solve environmental problems.
2. Develop and form strategies for conservation and sustainable management under certain given legislative measures.
3. Understand the various types of environmental pollution - water, air and soil.

Paper -7 (Genetics, Plant Breeding & Molecular Biology)

Course Outcomes:

1. Learn about cell cycle, Mendelian principles and gene interactions.
2. Gain knowledge on extra-nuclear inheritance, structural and numerical aberrations of chromosomes in plants.
3. Gain knowledge on Plant breeding techniques and role of gene mutation in crop improvement.
4. Understand the dogma of molecular biology (replication, transcription, and translation), gene regulation and recombination in bacteria.

Paper – 8 (Plant Reproductive Biology & Plant Biotechnology)

Course Outcomes:

1. Understand the development and structure of male and female gametophytes through the different developmental processes viz. microsporogenesis microgametogenesis, megasporogenesis, and megagametogenesis; embryo sac types.
2. Gain knowledge about double fertilization, development of embryo and endosperm and polyembryony.
3. Knowledge about the fundamentals of recombinant DNA technology and genetic engineering.
4. Understand the principles and basic protocols for plant tissue culture and gene cloning.
5. Learn about the applications of Biotechnology in plant, animal and human welfare.