

**KAKCHING KHUNOU COLLEGE,
KAKCHING KHUNOU, UMATHEL
KAKCHING DISTRICT, MANIPUR – 795103**



DEPARTMENT OF BOTANY

PROGRAM OUTCOME

B.Sc. BOTANY

After successful completion of three-year degree program in Botany, a student should be able to:

PO -1. Apply the knowledge of different branches of Botany meant for higher studies and value added courses.

PO-2. Insist the significance of conserving a clean environment for perpetuation and sustainable development.

PO-3. Acquire the basic skills in the observation and study of economics importance and medical uses of plants as well as techniques of plant breeding.

PO-4. Apply the knowledge of plant science to make scientific queries and enhance the comprehension potential.

PO-5. Botany graduate may go for self employment in the fields of floriculture, arboretum, biotechnology farm , seed technology, production of bio-fertilizers, selling of tissue culture plants, cultivation and export of fruits, flowers, fresh vegetables, etc.

COURSE OUTCOMES

BSC BOTANY SEMESTER-I

Subject Code-101

Subject name: Virus, Bacteria and Cryptogams.

After completion of this course students should be able to :

1. Understand structure, classification of virus, bacteria, nomenclature of virus, viral components and viral replication, genetic recombination of bacteria.
2. Learn about classification, economic importance of fungi, lichen and understand the causes of plant disease and principle of plant disease management.
3. Know the classification, economic importance, range of vegetative and reproductive structure of different classes, life cycle of algae.
4. Understand the characters, alternative of generation and life cycle of bryophytes.
5. Know the general characters, classification and life cycle of Pteridophytes.

SEMESTER-II

Subject Code-202

Subject name: Gymnosperms, Angiosperms, Applied Botany and Embryology.

After completion of this course students should be able to:

1. Learn about the general characters of Gymnosperms, classification, life cycle and geological time, scale and dominant fossil flora of different ages.
2. Know the Angiosperm taxonomy, importance of field work, observation, herbarium preparation, rules of nomenclature and taxonomic studies of families.
3. Understand about applied botany, origin and cultivation, importance of cultivated plants, processing of tea, uses of timber yielding and medicinal plants.
4. Know about the plant anatomy cell structure, cell inclusion and organization structure and distribution of simple and complex tissues and anomalous secondary growth.
5. Learn plant embryology, fertilization process endosperm formation and aerobiology and pollen allergy.

SEMESTER-III

Subject Code: BOT-303

Subject name: Plant geography, Ecology, Plant physiology and Molecular biology

On completion of this course students should be able to:

1. Know the distribution of world vegetation with particular emphasis on the influence of the environment factors that determine this distribution.
2. Examine how ecosystem work and relates to their components such as chemicals, bedrock, soil, plants and animals.
3. Understand plant water relationship, process of photosynthesis, how to fix atmosphere nitrogen by plants, aerobic and anaerobic cellular respiration.
4. Learn structure and physical properties of DNA and RNA and know the mechanism of protein synthesis.
5. Know about the Biochemistry classification and functions of biomolecules and mechanism of enzyme action.

SEMESTER-IV

Subject Code: BOT-404

Subject name: Cytogenetic, Biotechnology and Biometrics

On completion of this course students should be able to:

1. Know the structure and functions of cell and its components and significance of mitosis and meiosis.
2. Learn the Mendelism genetics, mutation, sex chromosome and sex determination in plants.
3. Know the principles of plant breeding and breeding methods.
4. Learn about genetic engineering in plant improvement and application to other fields such as medicine, agriculture and human welfare.
5. Know the application of statistics in biological science.

SEMESTER-V

Subject Code: BOT-505

Subject name: Microbial diversity, Plant pathology and Embryophyta.

After completion of this course students should be able to:

1. Learn diversity of microorganism, three domains of living organism and microbiology of soil, air and water.
2. Know about the roles of microbes in human welfare.
3. Understand the classification of plant diseases, symptoms, disease cycles of crop diseases.
4. Learn the plant disease management, concept of integrated pest disease management.
5. Know about the development of bryology and pteridology in India, evolutionary trends, ecological and economic importance of bryophytes, gymnosperm and pteridophytes.

SEMESTER-V

Subject Code: BOT-506

Subject name: Advanced Plant Taxonomy, Anatomy, Embryology and Palynology

After completion of this course students should be able to:

1. Learn about the concept of progymnosperms, origin and evolution of gymnosperms and their distribution, fossil algae and fungi of primitive land plants and exploration of fossil fuels.
2. Know the objectives, principles and practices of plant taxonomy, classification system.
3. Understand the plant resources, management and utilization.
4. Know the anatomy of angiosperms, histological theories of shoot and root apices and anomalous secondary growth in plants.
5. Learn the plant embryology microsporangium, megasporangium and application of palaeopalynology, melisso-palynology and forensic palaeopalynology.

SEMESTER-VI

Subject Code: BOT-608

Subject name: Ecology, Plant physiology and molecular biology.

After completion of this course students should be able to:

1. Understand the vegetation and natural resources.
2. Learn the importance of ecology and conservation of biodiversity.
3. Know about the basic principles of plant function, metabolism, secondary products, cell physiology and principles of growth and development.
4. Understand the properties of water, biophysical chemistry and bioenergetics.
5. Learn the recombinant DNA technology, various techniques of gene mapping and concept of DNA fingerprinting.

SEMESTER-VI

Subject Code: BOT-609

Subject name: Cell Biology, Genetics, Plant breeding, Biotechnology and Computer Application.

After completion of this course students should be able to:

1. Understand the characteristics of microbes such as archaebacteria and mycoplasma.
2. Know the cell theory, ultra structure of cell organelles.
3. Learn about the membrane transport, role of various membrane proteins, ion channels and pumps.
4. Learn about the Mendelian genetics, Quantitative genetics.
5. Understand the process of plant breeding, methods of plant improvement.
6. Learn about the genetic engineering, salient achievement in crop biotechnology.
7. Know about the internet and its application, communication tools- word processing, spread sheet and presentation of software.
8. Understand the application of computer in biological sciences.
9. Learn about the introduction and access of bioinformatics tools.