

CHURACHANDPUR COLLEGE
DEPARTMENT OF BOTANY
B.SC BOTANY- PROGRAMME OUTCOMES(POs)

1. Apply the knowledge of Botany to make Scientific thinking enhance the comprehenship to students.
2. Successful transfer of Scientific knowledge both orally and in written for effective communication to the people.
3. Responsible for learning, develop, honesty in work and respect for self and others as an effective citizenship.
4. Social interaction function as an individual as a member or a leader to perform a task in class room situation or during field study.
5. Maintaining the covey and practice in social, environmental and Biological ethics.
6. Insist the significance of conserving a clean environment of perpetuation and sustainable development.
7. Self-directed and life-long learning study by self to cope with growing competition for higher studies and employment.
8. Knowledge of identification of plants and its classification enhance the love and affection to plants.

B.SC BOTANY- PROGRAMME SPECIFIC OUTCOMES (PSO)

1. Understand the basic concepts of lower to higher groups of plants throught theory, practicals and environmental concept.
2. It create awareness about Cultivation, conservation and sustainable utilization of the Biodiversity.
3. It gives knowledge of identification of plants and its classification system upto species level and also describe economic emportance.
4. It gives knowledge of physiological experiment process and ecological adaptation to environment of plants.
5. Understand contribution of Botany in increase and improve our supply of medicines, fibres, biofertilizer production and other plant products.
6. To create awareness on the utility of drugs of natural origin, which are not only economical but even safer too.

7. Understand knowledge of Botany is an essential pre-requisite for the pursuit of many applied Sciences.
8. It gives knowledge of plant cell and its molecular structures, Biotechnology, principles of heredity and variation of genes from one generation to the next generation.
9. It create the platform for higher studies in Botany.
10. Facilitate students for taking up and shaping successful career in Botany.

B.SC. BOTANY- COURSE OUTCOME (COs)

Paper-I (BOT:101)

(Virus, Bacteria & Cryptogams)

1. Discuss about the importance of morphological , structure , classification, reproduction, and nutrition of virus and Bacteria.
2. Study and impart knowledge about the general characteristics, structure, reproduction, life cycle and economic importance of fungi and Lichens.
3. Students able to explain about structure, classification, reproduction, life cycle and economic importance of Bryophytes.
4. Discuss about the importance of morphological structure, classification, reproduction, life cycle and economic importance of Algae.
5. Students able to know the general characters, classification anatomy of sporophytes, reproduction of Pteridophytes.
6. Learn the microscopic technique with external and internal structure of lower and higher group of organisms, Lichens and its types, plant diseases and causal organisms practically.

Paper-II
BOTANY-II(BOT:202)
(Gymnosperms, Angiosperm, Applied Botany and Embryology)

1. Understand the morphology, classification and reproduction of Gymnosperms and formation of fossil, Geological time scale of different ages.
2. Discuss minutely the morphology, classification, reproduction of Angiospermic plants both Monocotyledonous and Dicotyledonous plants with economic importance.
3. Understand the origin, cultivation and improvement of Rice, Potato etc. and processing of Tea and the medicinal plants used by different races ethnically.
4. Understand the all structure, organization, Primary and secondary growth in plants and anomalous secondary growth.
5. Understand the development of male and female gametophytes causes such as allergy etc.
6. Understand the preparation of the morphological and reproductive structures of Virus, Bacteria, Fungi, Lichens, Algae, Bryophytes and Pteridophytic plant through practical in the Laboratory.

Paper- III
BOTANY-III(BOT:303)
(Plant Geography, Ecology, Plant physiology and Molecular Biology)

1. Explain detailed about Plant Geography, its scope and importance, different Phytogeographical regions in India, factors affecting in distribution, dispersal and migration methods.
2. Understand the Ecosystem, mineral cycle, ecological adaptation of different habitate and ecological succession.
3. Interpret the Physiological functions of plants with growth and development and biological Nitrogen fixation.
4. Understand the Biochemical process such as proteins, nucleic acids, vitamins etc. and different mechanisms of enzyme action.

5. Acquire knowledge of Gene organization, biosynthesis of nucleic acids, DNA, RNA replication and mechanisms of protein synthesis.
6. Determination of frequency of vegetation, Physiological experiments etc. practically confirmed in the laboratory.

Paper-IV
Botany-IV (BOT:404)
(Cytogenetics, Biotechnology and Biometrics)

1. Acquire Knowledge of ultrastructure of cell, chemical composition of chromatin and concept of cell division.
2. Interpret of Mendel's principles, acquire knowledge on cytoplasmic inheritance and sex linked inheritance.
3. Understand the breeding behavior, breeding methods and self and cross pollination.
4. Acquire knowledge of Genetic Engineering in plant improvement and biotechnology and medicine, agriculture and human welfare.
5. Understand the Biometry processes such as collection of data, sampling of mean, median, standard deviation and chi-square test.
6. Practically analysis of different stages of cell division, callus induction, preparation of culture media sterilization and inoculation of plant material and analysis of data for mean, mode, median and standard deviation.

Paper-V
Botany-V (BOT:505)
(Microbial Diversity, Plant Pathology and Embryophyta)

1. Understand the history of microbiology , classification of Microorganisms such as Virus, Bacteria, microorganisms present in soil, air and water.
2. Get knowledge on role of Microbes in Human Welfare such as in industry of alcohol, antibiotics, vitamins etc. and food microbiology.

3. Inculcate the importance of plant diseases, Biological control measures in different affected plants.
4. Understand the plant disease management and concept of integrated pest disease mangemant.
5. Evolutionary trend, ecological and economic importance of Bryophytes and Pteridophytes with seed habit and stellar evolution in Petridophytes are well understand.
6. Explaintion of Bryophytic plants as the first land plant.

Paper-VI

Botany-VI (BOT:506)

(Advanced Plant Taxonomy, Anatomy, Embryology and Polynology)

1. Understand the concept of Progymnosperms, diversity among Gymnosperms and their destrivution in India and Palaeobotanical study of fossil plants especially Gymnosperm plants.
2. Understand the practices of Plant Taxonomy, application of DNA hybridization technique, DNA markers etc. for identification and classification of plants and their economic importance.
3. Detail knowledge of plant Resources, management, utilization and importance of ethnobotany in genepool and germplasm conservation.
4. Understand the detailed internal structure with the formation of internodes, branching pattern, root stem transition and anomalous secondary growth.
5. Understand the embryology in detailed with pollen production and dispersion in space and time.
6. Understand the application of palaecopalynology, mesissopalynology and forensic palaecopalynology .

Paper-VII
Botany-VII (BOT:507)
Practical

1. The laboratory course gives practical knowledge to presuing students in the field of Cytology, Geneties, Plant pathology and Anatomy.
2. Understand the preparation of culture media for bacteria and fungi (nutrient agar and PDA) and staining of Bacteria and fungi.
3. Detailed study of symptoms, causal organisms and microscopic studies of diseased plants.
4. Comparative study of anatomical structures of Bryophytes and Pteridophytes plants.
5. Dissection of Angiospermic plants of different parts and measuring ovary size.
6. To study the germination percentage of pollen grains, preparation of pollen slides by acetolysis method.

Paper-VIII
Botany-VIII (BOT:608)
(Ecology, Plant Physiology and Molecular Biology)

1. Understand the detailed the vegetation and floristice regions in difernt vegetation types and mineral, water resources etc. with renewable and non-renewable resources.
2. Understand the Ecosystems and pollution with their control measures and climate change, globe warming and Biodiversity.
3. Detailed knowledge of plant physiological process going on and their mechanisms with significance light reactions.
4. Understand the water as universal solvent, Bioenergeties, enzyme and isozymes and Biosynthesis of nucleic acid and protein synthesis.
5. Understand the gene organization, RNA splicing and mRNA stability.

6. Detailed knowledge of denaturation and renauration of DNA and different forms of RNA.

Paper-IX

Botany-IX (BOT:609)

(Cell Biology, Genetics, plant breeding, Biotechnology and Computer Application)

1. Understand prokaryotic and eukaryotic cell, Mitochondrion and chloroplast and pumps in cellular transport and signaling.
2. Detailed study of Genetics, Multiple allelism and Quantitative traits with multiple factor hypothesis.
3. Understand the plant breeding with acclimatization of Hybrid vigour and Mutation.
4. Understand the Organogenesis and embryogenesis, *Agrobacterium* – the natural genetic engineer.
5. Detailed Knowledge of computer application of software for Botanical study.
6. Understand with detailed introduction to Bioinformatics tools for assaying advanced techniques.

Paper-X

Botany-X (BOT:601)

Practical

1. Students are capable of freely handle the equipments performs for practical classes.
2. Students are capable to become practical knowledge about micro-preparation and observation of permanent slides of different genera.
3. Isolation, quantification and storage method of DNA, RNA and Plasmids will be helpful to carry out advanced studies like genetic engineering.
4. Student are well aware of separation of plant pigments and enzymes by paper chromatograph techniques.
5. Understand the determination of chromosome counts from dividing mother cells, root tips and pollen grains.

6. Students are capable of handling computer and calculation of mean, median, mode and correlation coefficient.

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