



St. Albert's College (Autonomous)

An initiative of Archdiocese of Verapoly

Affiliated to Mahatma Gandhi University, Kottayam

(Accredited with "A" Grade by NAAC)

Programme Outcomes

Programme Specific Outcomes

Course Outcomes

Department of Botany

M.Sc. Botany (2016 Syllabus)

Programme Objectives

- To encourage a clear, comprehensive and advanced mastery in the field of Botany.
- To provide basic principles of biological sciences with special reference to Botany and its applied branches.
- Enabling the students to explore the intricacies of life forms at cellular, molecular and nano level.
- To sustain students' motivation and enthusiasm and to help them not only to appreciate the beauty of different life forms but also to inspire them in the dissemination of the concept of biodiversity conservation.
- To develop problem solving skills in students and encourage them to carry out innovative research projects thereby enkindling in them the spirit of knowledge creation.

Programme Specific Objectives

- Facilitate the acquisition of practical skills and techniques for scientific enquiry, research and evaluation.
- Contribute towards finding of solutions for societal problems associated with plant science and resources.
- Apply knowledge of plant science in the development of plant products and restoration of degraded environments.
- Identify research problems, formulate testable objectives, develop appropriate methods and experimental designs and write up viable research proposals in plant science.
- Provide advanced training of personnel for Staff development to meet state and national demands in the field of teaching and research.

Course Objectives

PBT1CRT01 Microbiology and Phycology

- To enable students to understand the diversity of microbes and importance of classification of microorganisms.
- To help the students to understand the influence of microorganisms and microbiological applications on everyday life.

- Know the characteristics features and classification of algae.

PBT1CRT02 Mycology and Crop Pathology

- Study the classification, structure and reproduction and various fungi.
- Study the classification, of various biotic and abiotic pathogens in plants.
- Study the classification, structure and method of invasion in various pathogens in plants.

PBT1CRT03 Bryology and Pteridology

- To learn the ecology and habitat of these plant forms in the environment.
- Study the structure and reproduction of various forms of bryophytes.
- To know the structure and reproduction of various forms of Pteridophytes.

PBT1CRT04 Environmental Biology

- To understand the significance of ecosystem
- To understand the natural resources.
- To study the environmental pollution.
- To recognize Diversity indices, evenness and richness.
- To know the ecological concept more in relation to the protection of the environment.

PBT2CRT01 Gymnosperms, Evolution and Developmental Biology

- To understand the structure, characters and classification of gymnosperms.
- To understand the structure and development of male and female reproductive organs of angiosperms
- To analyze the morphogenetic potentials pertaining to its development of various organs

PBT2CRT02 Cell and Molecular Biology

- To provide a thorough knowledge about structure and function of Cells, bio molecules and cellular development
- To provide the knowledge on advances in cell biology

PBT2CRT0713 Plant anatomy and Principles of Angiosperm systematic

- The student understands anatomical features of various organs with relation to its function in growth and development.

- The student will be able to apply knowledge in different fields like histotaxonomy and pharmacognosy.
- The student is able to identify the different types of stomata, nodal patterns, anthers, ovules, embryogeny and endosperm development in various angiosperms.
- The student understands the developmental stages in the life-cycle of Angiosperms.
- Learn the application of various taxonomic properties in classification of higher plants.

PBT2CRT04 Genetics and Biochemistry

- Understand basic structure and function of DNA and chromosomes.
- Provide sufficient knowledge of hybridization and concepts of genetics.
- Understand the concept of genetic recombination's at molecular level.
- Studied the origins of the human species and population genetics.
- To develop a sufficient background for those students who wish to study more advanced biochemistry.
- To motivate the students familiar with basic biochemistry techniques

PBT3CRT01 Research Methodology, Biophysical instrumentation, Biostatistics and Microtechnique

- To understand the theoretical and practical knowledge of instruments in modern biology.
- To understand the working principles and applications of instruments used in the studies related to various disciplines of biological sciences.
- To understand the theoretical and practical knowledge of application of statistics in biological studies.

PBT3CRT02 Plant Physiology and Plant Breeding

- To understand how plant structure relates to function.
- To understand how and why water and ions are transported through plants.
- To understand plant strategies in the capture of light.
- To recognize different methods plants use to sequester nutrients.
- To understand different plant strategies in the utilization of nutrients.

PBT3CRT03 Biotechnology

- To study the Plant tissue culture techniques.
- To experiment with various biotech tools.

- To study the Development of Transgenic plants.

PBT3CRT04 Taxonomy of Angiosperms

- To understand the principles and methodology of Plant taxonomy.
- To develop skills for identifying plants using morphological traits and dichotomous keys in laboratory and field.
- To develop the ability to recognize major plant families and representative species
- To demonstrate the bases for assessing taxonomic relationships among flowering plants.
- To develop skill to identify the local flora.

PROGRAM ELECTIVES

PBT4CRT01 Tissue culture and Microbial biotechnology

- Students gain knowledge and develop skill in plant tissue culture techniques which finds application in the agricultural and environmental sectors.
- The students shall learn the tools and techniques of recombinant DNA technology
- The learner gains an insight into the judicious use of biotechnology for environmental and medical application and he/ she is aware of the ethical principles and issues pertaining to the use of genetic engineering.

PBT4CRT02 Genetic engineering

- Explain and demonstrate the methodology of nucleic acid isolation and its visualization by electrophoresis.
- Learn the construction and application of cloning vectors from different categories.
- Familiarize the construction of DNA libraries and their applications.
- Learn to explain different strategies for gene silencing.
- Understands the basic principles, techniques and strategies involved in immunology.

PBT4CRT03 Genomics, Proteomics and Bioinformatics

- To understand the basic concept of Bioinformatics and Nucleic acid databases.
- Students will be able to understand the basic steps in genome mapping and sequencing
- Infer the basic concepts of genomics, transcriptomics and proteomics.
- List and discuss the use of genomics and proteomics in human health and medicine.
- Suggest and outline solution to theoretical and experimental problems in Genomics and

- Proteomics fields.