

MAR AUGUSTHINOSE COLLEGE RAMAPURAM
Department of Biotechnology
MSc Biotechnology 2019 onwards
Programme Outcomes, Programme Specific Outcomes, Course Outcomes

PROGRAM OUTCOMES

- PO1. Nurturing novel ideas and meaningful insights through scientific thinking.
- PO2. Enabling critical analysis of problems and situations to reach solutions.
- PO3. Development of communication skills to present scientific data in oral and written formats.
- PO4. Providing a platform for individual and collective work.
- PO5. Understanding the significance of sustainable scientific processes to support the environment.

PROGRAM SPECIFIC OUTCOMES

- PSO1. Imparting basic knowledge in interdisciplinary fields of biotechnology.
- PSO2. Using modern tools to study and analyze biological data
- PSO3. To equip the candidates to meet the demands of the society to get sustainable products and processes through biotechnology.
- PSO4. To be aware of the ethical issues, personal and environmental safety during biotechnology practices.
- PSO5. Promoting scientific discoveries and familiarizing with research methodology through the implementation of projects.

COURSE OUTCOMES

SEMESTER 1	
Course Name	Course outcomes
BT020101 General Biochemistry	The student is exposed to The biochemical composition of the cell. The structure and types of nutrient components. To describe structural characteristics of simple organic biomolecules and their biologically important derivatives indicating the constituent units, the linkage between them etc
BT020102 Cell Biology and/ Genetics	The student can understand how the cell is equipped with types of machinery to conduct activities as the basic structural and functional unit of life. The structural features of cell organelles/machineries. The functional mechanisms of cellular phenomena. The fundamental principles of heredity and deviations from mendelian behavior. The

MAR AUGUSTHINOSE COLLEGE RAMAPURAM
Department of Biotechnology
MSc Biotechnology 2019 onwards
Programme Outcomes, Programme Specific Outcomes, Course Outcomes

	effect of mutations and mutational analysis. Principles of behavioral and population genetics.
BT020103 Instrumentation and Biostatistics	The student gets an awareness in: The techniques used in the visualization of cellular components and macromolecules. Analytical techniques used in the detection and quantification of biological compounds and the separation techniques are used in biology. The application of statistical principles in biological studies. The research methodology and documentation.
BT020104 Biophysics and Bioinformatics	An exposure is given to students in: the bioenergetics of cell and the basic architecture of macromolecules. The interaction between macromolecules. The role of bioinformatics in biological data storage. The applications of bioinformatic tools in analyzing biological data.
BT020105 Laboratory Course I	The students are able to understand: the basic principles of preparation of solutions. The detection, assay and purification of biological compounds. Design experiments and analyse results. Handling of required equipment's
SEMESTER 2	
BT020201 Microbiology	The students get exposure in: Microbial grouping and its taxonomical significance. Cultivation and identification of microorganisms. Tools and techniques used in microbiology. Microbial metabolism and molecular processes.
BT020202 Immunology	The students know The cells and organs associated with the immune system. The details of immune system functioning. Analytical techniques based on immunological reactions. The after-effects of defects in the immune system.
BT020203 Molecular Biology	The student gets a comprehensive knowledge of : The structural and functional organization of genome. The molecular phenomena of DNA copying and transmission of information. The regulation of gene function and associated phenomena.
BT020204 Metabolism and	The students have knowledge of: The major metabolic pathways and their significance. The coordination of metabolic pathways. The details

MAR AUGUSTHINOSE COLLEGE RAMAPURAM
Department of Biotechnology
MSc Biotechnology 2019 onwards
Programme Outcomes, Programme Specific Outcomes, Course Outcomes

Enzymology	of energy production in our body and its storage. The students are able to understand the biochemical importance of enzymes, its purification, its role in regulation of metabolic path ways and application of enzymes in biotechnology.
BT020205 Laboratory Course II	Course outcome: The student can learn: The cultivation, observation and identification of microorganisms. The design of immunological experiments. The detection of compounds of interest in biological samples
SEMESTER 3	
BT020301 Bioprocess Technology	The students are trained in: Screening for microbial strains from different samples. Types of Bioprocess and standard lab practices. Bioreactor designing and control. Industrial production conditions through fermentation.
BT020302 Recombinant DNA technology	The student is exposed to the basic requirements to perform genetic engineering experiments. The techniques involved in the preparation and introduction of r DNA to the host. Applications of r DNA technology. Regulations in carrying out r DNA experiments
BT020303 Plant and Animal Biotechnology	Students get familiarized with the: fundamental requirements and design of lab to carry out plant and animal cell culture experiments. The different approaches and techniques involved in creating recombinant plant and animals. The applications and demerits of genetic modification in plants and animals.
BT020304 Environmental Biotechnology	The student is able to understand: the role of biotechnology in environmental applications. Degradation of recalcitrant compounds by biological agents. Treatment technologies involved in the processing of solid and liquid waste. Alternate green energy sources and green technologies
BT020305 Laboratory Course III	Students are trained in: Characterizing waste water, bacteriological analysis of water and food, plant tissue culture techniques and other lab scale bioprocesses
SEMESTER 4	

MAR AUGUSTHINOSE COLLEGE RAMAPURAM
Department of Biotechnology
MSc Biotechnology 2019 onwards
Programme Outcomes, Programme Specific Outcomes, Course Outcomes

BT850401 Molecular Biology of Development	The students are exposed to: The cellular processes leading to organogenesis and development. Significance of molecular patterns and molecular mechanisms of development in plants and animals. Basic mechanism of senescence and cell death.
BT850402 Cancer Biology	The students are able to understand: Basic aspects of cancer pathology. Mechanisms of Carcinogenesis and metastasis. Diagnostic techniques and treatment approaches
BT850403 Genomics: Techniques and Applications	The student will be aware of: The structural and functional organization of genome. Human genomic structure and implications of HGP. Techniques involved in genomics and their applications.
BT020401 Laboratory Course IV	Students are trained in: Isolation of genetic material, purification. Modification of genetic material, generation and introduction of r DNA, analysis of genome.