P.R.GOVERNMENT COLLEGE (A), KAKINADA
DEPARTMENT OF BIOTECHNOLOGY

Course outcomes of Biotechnology course

I Semester - Microbiology and cell biology BT 1210

CO1. To acquire skills and competency in microbiological laboratory practices applicable to microbiological research or clinical methods, including accurately reporting observations and analysis.
CO2. Course will provide practical knowledge about different types of bacteria, virus and fungi found in environment.
CO3. Course will impart knowledge on isolation and identification techniques.
CO4. Course will impart knowledge on role of cell organelles, cell division and its regulation.

II Semester- Macromoleules and enzymology BT 2210

CO1. Impart complete knowledge about structure and function of different biomolecules (proteins, lipids, nucleic acids, and carbohydrates) found in living cells..
CO2. Impart complete knowledge on classification of biomolecules.
CO3. Impart knowledge on physical and chemical properties of biomolecules.
CO4. Impart knowledge on enzyme kinetics.

III Semester – Biophysical techniques BT 3210

CO1. Bioanalytical tools are cell-based bioassays that give a measure of the effect and presence of known and unknown chemicals in complex environmental samples
CO3. Course will impart knowledge on the principle, working, maintain and calibrations of bioanalytical tools and techniques for industrial and research purpose.
CO4. Students will be able to learn underlying principle of techniques such as electrophoresis, microscopy, spectroscopy, centrifugation and chromatography.

Semester IV - Immunology BT 4210

CO1. Course will provide technical knowledge as to how different diseases are caused and various responses mediated by living cells to combat pathogen attack.
CO2. Course will provide sound knowledge of how immune system deals with various pathogens, different processes and cell types involved in prevention of disease.

CO3. Students will understand mechanism of different hypersensitivity reactions.
CO4. Students will become aware about concept and action mechanism of vaccines.

Semester V - Genetics and molecular biology BT 5219

CO.1 Course on molecular Biology & genetics will enhance the knowledge base about functional and structural organization of nucleic acid.
CO2. The course particularly aims at understanding structure , synthesis and replication of nucleic acids.
CO3. Acquire knowledge on different gene mutations and their causative agents.
CO4. Acquire knowledge on Mendilian principles and their applications in biology and different epistatic gene interactions.

Semester V - Gene expression and rDNA technology BT 5220

CO1. Acquire knowledge on enzymology and steps in gene expression and regulation.

CO2. Understand the mechanism of action and the use of restriction enzymes in biotechnology research and recombinant protein production.

CO3. Explain the steps of a bacterial transformation and various selection processes for identifying transformants

CO4. Understanding on application of genetic engineering techniques in basic and applied experimental biology and proficiency in designing and conducting experiments involving genetic manipulation.

Semester VI - Biostatistics, bioinformatics and IPRS BT 6258

CO1. Bioinformatics is an interdisciplinary area that is the interface between the biological and computational sciences. The primary goal of this course is to uncover how various tools and techniques of bioinformatics can be utilized in studies pertaining to macromolecules (DNA, RNA, protein).
CO2. After completing this course students will be able to analyze, interpret and study biological data (sequence, structure, etc) stored in various databases available on internet.
CO3. Understand the various Statistical Tools for Analysis of Biological Data.
CO4. Understand the various international organizations involved in IPR.

Semester VI - Plant Biotechnology and Animal Biotechnology BT 6259

CO1. The course will provide complete exposure as how plant and animal cells are isolated, cultured and genetically manipulated in laboratory.
CO2. The course will provide information hoe cell suspension cultures can be utilized for

molecular farming for commercially synthesizing products such as vaccines, hormones, proteins, enzymes, etc..

CO3. Understand the mechanism of different gene transfer methods in plants and animals.

CO4. Understand the applications of Transgenic plants and animals.

Semester VI - Environmental Biotechnology BT 6260

CO1. Environment Biotechnology is to describe existing and emerging technologies that are important in the area of environment.

CO2. Course will impart knowledge on principles and techniques which underline the application of biosciences, address environmental issues including pollution, mineral resource, renewable energy and water recycling.

CO3. Course will have a specific focus on bioremediation and treatment of polluted effluent.

CO4. Understand the various techniques involved in waste water management.

Semester VI - Industrial Biotechnology BT 6916

CO1. Develop an understanding of the various aspects of Bioprocess Technology.

CO2 Develop skills associated with screening of Industrially Important Strains.

CO3 Understand principles underlying design of Fermentor and Fermentation Process.

CO4 Understand the steps involved in production of various biotechnological products.