COURSE OUTCOMES

OF

BACHELOR OF SCIENCE

Vision

To attain leading role in Biotechnology research, technology development and promotion of incubation centre for industry and entrepreneurs.

Mission

- A well directed effort for realising full potential of biotechnology, generation of products, processes and technologies, environmentally sustainable technologies, scientific and technological nurturing which leads to potential utility.
- To enhance skill among students by training to excel in industry through research and development and promote the development of different assays and methods related to the field of biotechnology.

COURSE OBJECTIVE

- The outcome of the Program in Biotechnology will be development of skill and knowledge.
- The outcome of the program will be enhancement of students in the field of Cell Biology, Microbiology, Biochemistry, Immunology, Biophysics and Recombinant DNA Technology.
- Increase in orientation of students towards self-employment through development of skilled Biotechnologist.
- To make students more competent to meet the need of Biotechnology based industries.

DEPARTMENT OF BIOTECHNOLOGY

Paper	Name of Paper

B.Sc. I	
Paper I	Biochemistry, Biostastics And Computers
Paper II	Cell Biology, Genetics And Microbiology
B.Sc. II	
Paper I	Molecular Biology & Biophysics
Paper II	Recombinant Dna Technologyand Genomics
B.Sc. III	
Paper I	Plant, Environmental & Industrial Biotechnology
Paper II	Immunology, Animal & Medical Biotechnology

Course Outcomes

At the end of this course, a student will have developed ability to:

B.Sc. I

Paper	Name of Paper	Course Outcomes
		CO-1: The course will help introduce students to

Paper I	Biochemistry, Biostastics And Computers	several fields of biotechnology like biochemistry, and structural aspects of Carbohydrate and Lipids. **CO-2:** It will help students acquaint themselves to different biomolecules of living system like amino acids, proteins and enzymes. **CO-3:** The students will get the knowledge about hormones of plants and animals as well as metabolic reactions which are carried out in our body. **CO-4:** The students will have a better understanding of Biostatistics, methods of Collection of data, sampling techniques, Processing and Presentation of data. **CO-5:** They will have an understanding of basics of computers and its application in the field of biotechnology.
Paper II	Biology, Genetics And Microbiology	**CO-1:** This course will help students understand the concept of Cell theory along with structure and diversity of microbes along with cell organelles. **CO-2:** They will have knowledge of different cell organelles, their characters and functions, cell division and programmed cell death. **CO-3:** They will have an understanding of Mendel's Laws of Inheritance and different types of chromosomal variations. **CO-4:** Students will get knowledge about microbiology, Microbial Culture and their growth along with general features of Fungi, Algae and protozoa. **CO-5:** Students will acquaint themselves with

		features of bacterial reproduction and diseases of mycoplasma and viral life cycle.
Lab course	Microbiology And Biochemical Techniques	**CO-1**: Understanding about media preparation for microbial culture. **CO-2:** Understanding about microbial culture techniques and their characterization. **CO-3**: Understanding about factors behind microbial growth. **CO-4:** Technical soundness about biochemical estimation and characterization. **CO-5:** Skill development for interpretation of science by using statistical tools and computer applications.
B.Sc. II		
Paper I	Molecular Biology & Biophysics	**CO-1:** The course will help to get knowledge about structure of Nucleic Acid, Plasmids and transposons. **CO-2:** The course will help students understand the basic concepts of molecular biology including DNA replication, mutation and repair. **CO-3:** Students will acquire in-depth knowledge of Genetic code, Transcription, Translation along with operon models. **CO-4:** It will enable students to acquire knowledge of instruments including Microscopy, Colorimeter, spectroscopy, electrophoresis,

		centrifugation and chromatography. **CO-5:** Students will acquire knowledge about different techniques like Autoradiography, DNA fingerprinting and biosensors.
Paper II	Recombinant Dna Technologyand Genomics	**CO-1:** Students will be able to understand the scope and objectives of Recombinant DNA Technology, its general concept and applications. **CO-2:** Students will get knowledge about Vectors, Library Construction and Screening of recombinants. **CO-3:** It will help students to acquire knowledge of advanced techniques like PCR and molecular marker as well as applications of human genome project. **CO-4:** Get the knowledge of Gene Transfer methods, Gene therapy and stem cell technology. **CO-5:** The course will help students to be introduced to bioinformatics and to the concept of proteomics and genomics.
Lab course	Molecular Biology, Biophysics, Recombinant Dna Technology And Genomics	**CO-1:** Skill development about DNA, RNA isolation and quantification. **CO-2:** Expertise in photometric instrument operation. **CO-3:** Development of Knowledge of proteomics and genomics based experimentation. **CO-4:** Development of expertise in chromatographic techniques. **CO-5:** Development of skill of Bioinformatics for

		Genomics and proteomics interpretation.
B.Sc. III		
Paper I	Plant, Environmental & Industrial Biotechnology	**CO-1:** Students will enhance their knowledge with different techniques and applications of plant cell and tissue culture. **CO-2:** It will enable students to understand the concept of edible vaccines and genetically modified plants and also the applications of germ plasm storage. **CO-3:** It will encourage students to understand the effects of environmental pollution and its management methods, solid waste management as well as waste water treatment. **CO-4:** The course will enhance students' knowledge about Biofertilizer and Biopesticide, Bioremediation and showcase the importance of copyright acts. **CO-5:** The course will enhance students' knowledge in the field of industrially important microorganisms, their large scale production and Food technology.
Paper II	Immunology, Animal & Medical Biotechnology	**CO-1:** This course will impart knowledge of different types of immunity and various cells and organs associated with immune system and Antigen- Antibody. **CO-2:** The course will enhance students' knowledge about cytokines, autoimmune and Immuno-deficiency diseases. **CO-3:** It will encourage students to understand the Antigen- Antibody interaction, Immunity to infectious diseases and Epidemic disease. **CO-4:** It will enable students to understand the concept of Animal Cell Culture and cell Lines along with Tissue Engineering. **CO-5:** It will help students to learn the fundamentals of

		Hypersensitivity, organ transplantation, cancer biology and IVF.
Lab course	Plant, Environmental, Industrial And Medical Biotechnology	**CO-1:** Practical skill development of plant tissue culture. **CO-2:** Practical knowledge of environmental analysis. **CO-3:** Knowledge of food preservation. **CO-4:** Knowledge about commercial exploitation of microorganisms. **CO-5:** Skill development of immunology based medical diagnostics.