



DEPARTMENT OF BIOTECHNOLOGY

PROGRAMME OUTCOMES OF UG COURSES (2021 ONWARDS)

Name of the Programme: B.Sc Biotechnology	
PO1	Design the model of a cell.
PO2	Differentiate the structure of Prokaryotic and Eukaryotic Cell.
PO3	Explain the Organization of Genes and Chromosomes, Chromosomes, morphology and its applications.
PO4	Compare and contrast the events of Cell cycle and its regulations.
PO5	Explain the communications of Cells with other cells and to the Environment.
PO6	To know the cell Organelles and locate its parts along with functions.
PO7	Be aware of the laboratory rules and Regulations. The Importance evolution and Diversity of cells and preparation of Slides. Learns to Visualize the Cells by employing different types of Microscopes.
PO8	Overview historical overview of microbial genetics and genetic Materials, Gene expression and Mutation, Knowledge about mutation, understood the analytical techniques in the field of Biotechnology to understand the basic principles of Bioanalytical instruments.
PO9	. The concept of Mitosis and visualize the sex chromatin under the microscope. To give hands on experience in quantification of important biological constituents of cell.
P10	Analyze the media composition and grow the desired microbe. Apply the knowledge to enumerate the microorganisms from natural environment. Evaluate the success of understanding the viruses



PROGRAMME SPECIFIC OUTCOMES OF UG COURSES (2021 ONWARDS)

Name of the Programme: B.Sc BIOTECHNOLOGY	
PSO1	Students will understand the structures and purposes of basic components of prokaryotic and eukaryotic cells, especially macromolecules, membranes, and organelles, underlying mitotic cell division . On successful completion of the subject the student should have understood the Structural features, Organelles and the cellular mechanisms
PSO2	Introduce an fundamentals of cell biology techniques in instrument principles in biotechnology and cell biology experiments•
PSO3	Historical introduction to Genetics and genetic materials , principles of genetics exchanges and Its expression in host and to provide an idea about gene regulations and its control .Microbiological techniques in handling the instruments and the culture .
PSO4	Understood the analytical techniques in the field of Biotechnology and the basic principles of Bioanalytical instruments. statistical methods like measures of location, dispersion and the relationship between two variables in bio-statistics
PSO5	Molecular & Cellular Biology undergraduate curriculum, molecular profiling of genes and proteins for its analysis. Applications of Microbes , Know about Fermentation, Microbial products, amino acids solvents, vitamins and antibiotics. Understood the applications of azospirillum, bio pesticides
PSO6	To understood the concept therapy, inherited variation in drug response., the basic steps in the drug research, toxicological, pre-clinical and clinical studies . the production of transgenic products and their therapeutic applications . To gain sound technical knowledge and hands on practical skills in various aspects of bioprocess Biotechnology and enzymology
PSO7	To develop analytical and critical thinking skills in biological phenomena through scientific methods , To understood the concept of food colors, food flavoring agents, food sweeteners.



COURSE OUTCOMES OF UG COURSES (2019 ONWARDS)

Name of the Programme: B.Sc BIOTECHNOLOGY		
Course Code & Course Title	Course Outcome	
SEMESTER-I		
21UBT01 Cell Biology	CO1	On the successful completion of the course, student will be able to Design the model of a cell.
	CO2	Differentiate the structure of prokaryotic and eukaryotic cell.
	CO3	Explain the organization of Genes and chromosomes, chromosome morphology and its aberrations Compare and contrast the events of cell cycle and its regulation
	CO4	Explain the communications of cells with other cells and to the environment.
	CO5	To know the cell organelles and locate its parts along with functions
21UBTP01 PRACTICAL - Lab In Cell Biology	CO1	Be aware of the laboratory rules and regulations..
	CO2	Understand On the successful completion of the course, student will be able to: the importance, evolution and diversity of cells and preparation of slides



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	CO3	Learns to visualize the cells by employing different types of microscopes
SEMESTER-II		
21UBT02 Genetics	CO1	Obtain acquaintance on historical overview of microbial genetics and genetic Materials
	CO2	Comprehend the concept of replication of genetic materials
	CO3	Understand about regulation of gene expression and mutation
	CO4	Demonstrate the genetic exchange mechanism in microorganisms Gain knowledge on Mutation Grasp the Basic of genetics and their role



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	CO5	Grasp the Basic of genetics and their role
21UBTS01 Bioinstrumentation	CO1	Demonstrate the basics of instrumentation by analysis categorize the working principle and
	CO2	Exemplify the structure of atoms and molecules by using the principles of Spectroscopy
	CO3	applications of fluorescence and radiation based techniques
21UBTP02 PRACTICAL - LAB IN GENETICS	CO1	Successfully quantify the important biological constituents of cell.
	CO2	Examine and evaluate the stages of Mitosis Could able to separate and interpret the mixture of components.
SEMESTER-III		
21UBTP02 GENERAL MICROBIOLOGY	CO1	Understand and differentiate the different types of microbes.
	CO2	Analyze the media composition and grow the desired microbe. Apply the knowledge to enumerate the microorganisms from natural environment.
	CO3	Evaluate the success of understanding the viruses
21USTA05 BIO-STATISTICS	CO1	Understand and apply the statistical methods like measures of location, dispersion and the relationship between two variables in bio-statistics.
	CO2	Understand large and small samples in laboratory study to apply it in real life problems.→.
	CO1	Use main developmental biology concepts explain the molecular mechanisms that underlie animal and plant development
	CO2	Explain underlying developmental biology processes of sperm and egg
	CO3	Review scientific literature in the subject developmental biology critically



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21UBTS02 DEVELOPMENTAL BIOLOGY	CO4	Plan and carry out laboratory sessions as well as interpret results to examine the importance of specific genes in developmental biology processes.
	CO5	Understands the students about sequential changes from single cell organization to organ
	CO6	Level in the development of multicellular organisms.
21UBTN01 CONCEPT OF BIOTECHNOLOGY	CO1	1. Describe the fundamental biochemical processes of cells such as ion/molecule uptake, energy transfers, metabolism and the immune system
	CO2	2. Describe the fundamentals of cell division and genetics, including the role of DNA as genetic material
	CO3	3. Describe the basic principles and techniques used for the study and manipulation of DNA
	CO4	4. Appreciate the application of biotechnology in diverse areas such as health and medicine, agriculture and/or the environment
	CO5	5. Conduct and/or observe a variety of laboratory exercises where some of the above theoretical knowledge is applied to practical situations
	CO6	6. Demonstrate the ability to work safely and communicate effectively.
21UBTP03 LAB IN MICROBIOLOGY	CO1	Understand the importance, evolution and diversity of cells and preparation of Buffers
	CO2	Learns to visualize the cells by employing different types of microscopes
	CO3	Bring in the concepts of microbial culturing techniques
	CO4	Analysis of phenotypic characterization of known and unknown microbes and basic instruments
SEMESTER-IV		
	CO1	Learning structural levels of nucleic acids- DNA and RNA and genome organization in prokaryotes and eukaryotes concept and Eukaryotes.



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21UBTN02 MOLECULAR BIOLOGY	CO2	Understanding the concept of Gene and the gene architecture.
	CO3	Overview of the central dogma of life and various molecular events
	CO4	Learning molecular events in the DNA replication and role of different enzymes.
	CO5	Molecular Events Translation leading to protein synthesis and Post translational modification..



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	CO6	Understanding the regulation of gene expression in prokaryotes using operon
21UBTN02 BIOTECHNOLOGY FOR HUMAN WELFARE	CO1	Students who successfully complete this unit will be able to: Demonstrate the ability to work safely and communicate effectively.
	CO2	Describe the basic principles and techniques used for the study and manipulation of DNA
	CO3	Appreciate the application of biotechnology in diverse areas such as health and medicine, agriculture and/or the environment
	CO4	Conduct and/or observe a variety of laboratory exercises where some of the above theoretical knowledge is applied to practical situations
21UBTP04 LAB IN MOLECULAR BIOLOGY	CO1	To acquire knowledge about basic molecular biology tools
	CO2	To develop the skills in isolating and identifying the challenges in molecular biology related tools
SEMESTER-V		
21UBT05 PLANT BIOTECHNOLOGY	CO1	Understand scientific and technical skills on plants study .•
	CO2	Acquire knowledge on limitations and challenges in plant cell tissue culture
	CO3	Learn the preservative methods of cells•
	CO4	Evaluate and discuss public and ethical concerns over the use of plant Biotechnology•



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21UBTP06 IMMUNOLOGY AND IMMUNOTECHNOLOGY	CO1	Design a model of Immunoglobulin/Antibodies • • hypersensitivity and autoimmunity • • •
	CO2	Describe which cell Mtypes and organs present in the immune response
	CO3	Illustrate various mechanisms that regulate immune responses and maintain •
	CO4	Tolerance Exemplify the adverse effect of immune system including Allergy,
	CO5	Apply basic techniques for identifying antigen antibody interactions.
	CO6	Explain the stages of transplantation responses .
21UBT07 PRACTICAL - GENETIC ENGINEERING	CO1	On the successful completion of the course, student will be able to Technology
	CO2	Acquaint with the vocabulary involved in molecular cloning strategies and techniques used to probe DNA for specific genes of interest.
	CO3	: Relate the role of restriction and modifying enzymes in recombinant DNA



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	CO4	Explore the techniques involved in construction of genomic DNA library and cDNA library
	CO5	Design the protocols for analyzing gene transfer methods and to explore knowledge on hybridization based markers .
21UBTS03 NANOBIOTECHNOLOGY AND BIOINFORMATICS	CO1	The student will develop a fundamental knowledge of nanomaterials.
	CO2	The student will demonstrate a basic understanding of the length scale that defines nano for metal and semiconductor materials.
	CO3	The student will demonstrate an understanding of the challenges on safe nanotechnology
	CO4	A student will develop a fundamental knowledge of DNA databank , protein data bank and sequence alignment tool
21UBTP06 LAB IN GENETIC ENGINEERING AND IMMUNOLOGY	CO1	Understand the practical skills in Immunology
	CO2	Examining and analyzing the results involved in immune techniques and • genetic engineering
	CO3	Developing and applying the recent technology involved in diagnostic
	CO4	Acquire skills in genetic engineering • techniques of immunology and genetic engineering
21UBTP05 LAB IN PLANT BIOTECHNOLOGY	CO1	Understanding the concepts and principles of Plant tissue culture Techniques of establishing cell suspension culture.
	CO2	Learning the techniques of sterilization and monitoring method of sterilization.
	CO3	. Learning different pathways of plant regeneration under in vitro conditions - organogenesis and somatic embryogenesis.
SEMESTER-VI		



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21UBT08 ANIMAL BIOTECHNOLOGY	CO1	In the successful completion of the course, students will be able to:
	CO2	To develop an understanding on basic pattern of animal cell culture and controlling characters
	CO3	Acquire knowledge on handling animal cell culture and their applications
	CO4	Understand the gene transfer technology , transgenic animal and stem cell technology
	CO5	Emphasize techniques on fertilization in animals and its development



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	CO6	Highlight the applications of animal biotechnology in various fields
21UBT09 PROTEOMICS AND GENOMICS	CO1	students will develop the molecular skills, knowledge about the handling of instruments for different applications.
	CO2	Demonstrate process of requirements gathering, classification, specification & validation.
21UBT10 BIOPROCESS AND ENZYME TECHNOLOGY	CO1	On successful completion of the course, student will be able to Think about the innovativeness in the production of new beneficial metabolites
	CO2	: Narrate the scope and economics of Microbial Biotechnology.
	CO3	Understand the need of microbial products for the mankind
	CO4	Examine the learned techniques in production of industrially important products
	CO5	On successful completion of the course, student will be able to Think about the innovativeness in the production of new beneficial metabolites



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21UBTS04 PHARMACUETICAL BIOTECHNOLOGY	CO1	On the successful completion of the course, student will be able to:
	CO2	Compare and contrast the specific pharmacology of the major classes of drugs, important distinctions among members of each class
	CO3	Understand the medicinal and pharmaceutical importance of drug compounds
	CO4	Analyze the fundamental principles of pharmacokinetics and pharmacodynamics.
21UBTP07 LAB IN ANIMAL BIOTECHNOLOGY	CO1	On the successful completion of the course, examining and analyzing the results involved in animal tissue culture technique
	CO2	practical skills in animal biotechnology
	CO3	students will be able to understand the acquires skills in animal tissue culture
	CO4	examining and analyzing the results involved in animal tissue culture technique



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	CO5	
	CO6	
21UCSS06 PHP SCRIPTING LANGUAGE	CO1	
	CO2	
	CO3	
	CO4	
	CO5	
	CO6	
LAB IN BIOPROCESS TECHNOLOGY AND ENZYMOLOGY	CO1	On the successful completion of the course, student will be able to: enzymology tools and
	CO2	Acquire an overview about the fundamentals of Bioprocess Technology and their application in industry, agriculture and milk production
	CO3	Bioprocess Technology and their application in industry, agriculture and milk production



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PROGRAMME OUTCOMES OF PG PROGRAMMES (2021 ONWARDS)

Name of the Programme: M.Sc BIOTECHNOLOGY	
PO1	To understand the prime importance of higher education and research in the domain of Biotechnology.
PO2	To create an awareness of biotechnology products and its process. →
PO3	To develop an interest in the realm of biotechnology and its allied areas. →
PO4	Examining the cellular basis of differentiation.
PO5	To learn agricultural and environmental microbiology.



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PROGRAMME SPECIFIC OUTCOMES OF PG COURSES (2021 ONWARDS)

Name of the Programme: M.Sc BIOTECHNOLOGY	
PSO1	The students will get a chance to be a part of ongoing QA, QC, Production, and R&D activities in different industries, commercial enterprises and organization.
PSO2	The students can also join laboratories in research institutes and reputed universities.
PSO3	The students will explore and gain experience in different sectors of biotechnology viz agriculture, food, medicine and pharmaceutical.
PSO4	The students will acquire skill to write, analyze and present the detailed technical , scientific report. Biochemistry is the study of biological phenomena at the molecular level
PSO5	At the end of successful project, semester training, potentially the Students become employable in the industries/organizations



COURSE OUTCOMES OF PG COURSES (2021 ONWARDS)

Name of the Programme: M.Sc BIOTECHNOLOGY	
CourseCode & CourseTitle	CourseOutcome
SEMESTER-I	
21PBT02 CELL BIOLOGY	CO1 : Understanding the prokaryotic and Eukaryotic cell.
	CO2 Discussing in detail the cell membrane and function.
	CO3 3: Understanding the structural and functional organization of cell organelles.
	CO4 4: Gaining knowledge for cell to cell signaling.
	CO5 Examining the cellular basis of differentiation.
21PBT02 BIOLOGICAL CHEMISTRY	CO1 To make students have a strong foundation in chemical biology.
	CO2 To correlate Biochemical process with biotechnology applications.
	CO3 To introduce them to metabolic pathways of the major biomolecules and relevance to clinical condition
	CO4 To discuss the significance of various metabolic processes occurring in biological system.
	CO5 To evaluate of both Hormones and Enzymology and also its medical importance in the human life.



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21PBT03 MICROBIOLOGY	CO1	To understand the landmarks of microbiology, sterilization and principle and working of microscopes.
	CO2	To get in depth knowledge of microbial diversity and growth curve of microbes.
	CO3	To know microbial diseases and host pathogens interaction by microbes.
	CO4	To examine on epidemic and pandemic diseases.
	CO5	To learn agricultural and environmental microbiology.
21PBTP01 PRACTICAL I- LAB IN CELL BIOLOGY AND BIOLOGICAL CHEMISTRY	CO1	Find out the various stages of Cell division. 2.
	CO2	Sex chromatin determination by performing a Barr body experiment.
	CO3	Differentiate the bacterial cells.
	CO4	To train the students for estimation of nucleic acid, protein and starch.



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	CO5	Use chromatography techniques, students will be able to separate pigments and amino acids from a mixture of samples
21PBTP02 PRACTICAL II- LAB IN MICROBIOLOGY	CO1	To understand the practical skills in microscopy and their handling techniques and staining procedures 6
	CO2	2. To understanding various Culture media and their applications and also understand various physical and chemical means of sterilization
	CO3	3. To realize General bacteriology and microbial techniques for isolation of pure cultures of bacteria and fungi
	CO4	4. To master aseptic techniques and be able to perform routine culture handling tasks safely and effectively
	CO5	5. Comprehend the various methods for identification of unknown microorganisms
	CO6	. To know the various Physical and Chemical growth requirements of bacteria and get equipped with various methods of bacterial growth measurement.
SEMESTER-II		
21PBT04 GENETICS AND MOLECULAR BIOLOGY	CO1	Learn the basic concept of genetics with Mendelian and non Mendelian inheritance with suitable model organisms.
	CO2	Understand the structural organization of chromosome, gene and genome
	CO3	Apply the principles and mechanisms of microbial and population genetics
	CO4	Evaluate the mechanism of genome mapping with molecular markers and oncogenes
21PBT05 IMMUNOLOGY AND IMMUNOTECHNOLOGY	CO1	To present an overview on types of immunity & immunological responses and to illustrate about different cells and organs involved in immune system, properties and role of antigens and antibodies in immune system.
	CO2	To demonstrate the principle of antigen and antibody interactions and its



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		diagnostic applications
	CO3	To display the role of MHC in antigen processing and presentation and elaborate the process of T cell and B cell activation during the course of Cell mediated and Humoral immune responses respectively
	CO4	To elucidate on the properties and functions of cytokines and complement components in immune response, hypersensitivity reactions and different types of vaccines
	CO5	To interpret the mechanism of immune response against the Infectious diseases, Immunodeficiency and Autoimmune diseases, Transplantations and Cancers.



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21PBT06 GENETIC ENGINEERING	CO1	To learn the theoretical knowledge in the genetic engineering enzymes and application.
	CO2	Understanding the basic concept of gene cloning and the role of enzymes and vectors responsible for gene manipulation, transformation and genetic engineering.
	CO3	Students expanded their knowledge about gene transfer methods and identifying suitable hosts for cloning and sequencing.
	CO4	To learn the genomic library construction, hybridization and labeling techniques.
	CO5	Describe the Transgenic methods, chromosome jumping and PCR and methods for gene therapy.
21PBTP03 PRACTICAL III-LAB IN IMMUNOLOGY AND IMMUNOTECHNOLOGY	CO1	Identify various immune cells and enumerate them. 4
	CO2	2. Competently perform serological diagnostic tests such as ASO, CRP.
	CO3	3. Identify blood groups and types.
	CO4	. Students will learn the ELISA and western Blotting Techniques.
21PBTP04 PRACTICAL IV-LAB IN GENETIC ENGINEERING AND MOLECULAR BIOLOGY	CO1	Outline the fundamental steps in a genetic engineering procedure
	CO2	2. Describe the mechanism of action and the use of restriction enzymes in biotechnology
	CO3	.. 3. Explain the steps of a bacterial transformation and various selection processes for identifying transformants.
	CO4	. Students will become familiar with the tools and techniques of genetic engineering DNA manipulation enzymes, genome and transcriptome analysis and manipulation tools.
	CO5	5. Students will be able to perform basic genetic engineering experiments at the end of course.



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21PBT07 PLANT BIOTECHNOLOGY	CO1	Acquire the knowledge about the techniques of Plant Tissue Culture, Lab. organization & measures adopted for aseptic manipulation and nutritional requirements of cultured tissues.
	CO2	Learn the techniques of culturing tissues, single cells, protoplasts & anther culture, germplasm conservation and cryobiology
	CO3	Learn the large scale clonal propagation of plants through various micropropagation techniques, Production of secondary metabolites under in vitro conditions
	CO4	A good understanding of r-DNA technology, methods of gene transfer, molecular markers and marker assisted selection
	CO5	Develop transgenics resistant to biotic & abiotic stresses & quality characteristics and their role in crop improvement .
21PHR01 HUMAN RIGHTS	CO1	Understand the historical growth of the idea of human rights.
	CO2	Demonstrate an awareness of the international context of human rights .
	CO3	Position of human rights in the UK prior to 1798
	CO4	Demonstrate an awareness of the importance of the Human Rights Act 1798.
	CO5	Students will be able to analyze and evaluate concepts and ideas.
SEMESTER- III		
21PBT08 ANIMAL BIOTECHNOLOGY	CO1	To know and be familiar with the organization of animal cells, scope & limitations of animal cell culture, types and characteristics of cell culture.
	CO2	To gain knowledge on the infrastructure requirements for animal cell culture like laboratory layout & design, equipments, substrates and media requirements for animal cell culture, properties of animal cell



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		culture medium and maintenance of aseptic condition.
	CO3	To become aware of the basic techniques involved in animal cell culture for establishment of cell line, cloning & selection, cell line characterization, quantification and scale up techniques.
	CO4	To understand about the applications of animal cell culture in drug testing like viability and cytotoxicity assay, cryopreservation of cell lines and establishment of cell banks, biosafety regulations and Bioethics in animal cell culture and specialized techniques preferred in animal cell culture.



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	CO5	To interpret about culture of specific cell types like hematopoietic cells and tumor cells, tissue engineering and stem cell technology and its applications, role of animal cell culture in IVF & test tube babies and gene therapy using embryonic stem cells.
21PPHED1 EDC	CO1	The basic principles of electronics.
	CO2	Fundamental components of electronics.
	CO3	Electronics devices and application.
	CO4	Analog electronics system and applications.
	CO5	Digital electronics system and application.
21PBT09 BIOPROCESS TECHNOLOGY	CO1	Designing of bioreactors and control necessary for maximizing production.
	CO2	Select and optimize media for maximum production of microbial metabolites.
	CO3	Designing of protocols for strain improvement and separation of molecules after separation process
	CO4	Describe and analyze the control of in vitro cellular growth process within the industrial –scale bioreactor environment
	CO5	To understand the various techniques for isolation, recovery and purification of a protein and evaluate the outcome.
21PBT10 RESEARCH METHODOLOGY AND BIOINSTRUMENTATION	CO1	On completion of course, students should be able to gain basic skills in plant biotechnology. Primary culture of chick embryo fibroblasts.
	CO2	2. Gain the knowledge on animal cell cultures.
	CO3	3. Learn about the culture media used in animal cell culture.



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	CO4	4. Gain the knowledge on Preparation of media for animal cell culture.
	CO5	Primary culture of chick organ - spleen and kidney cells.
21PBTP06 PRACTICAL VI- LAB IN BIOPROCESS TECHNOLOGY	CO1	To isolate the industrially important microorganisms from soil .
	CO2	2. Carry out the basic technique for the isolation of antibiotic and carotenoid producing bacteria.
	CO3	3. Assay technique for protease, amylase and antibiotic .
	CO4	4. Immobilization technique and production techniques for citric acid and alcohol .
	CO5	5. Learn the purification of enzymes .
SEMESTER- IV		
21PBTPR1 PROJECT	CO1	. Work in a team
	CO2	2. Adapt to the varying working environment in industry and research institute
	CO3	3. Identify a problem in biotechnology based industry.
	CO4	4. Formulate a research problem in research laboratory
	CO5	5. Design experiments to solve the industrial/research problem.
	C06	6. Compile and/or interpret the industrial data.
	CO1	An understanding of global issues and source of environmental pollution.



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21PBTE01 ENVIRONMENTAL AND NANO BIOTECHNOLOGY	CO2	The ability to formulate technique for bioremediation process.
	CO3	The capability to advanced knowledge on environmental sample analysis.



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	CO4	The detail understanding of the importance of nanoparticles and its application in Nano biotechnology.
	CO5	Understand the various types of nanoparticle characterization techniques
21PBTE02 FOOD SCIENCE AND TECHNOLOGY	CO1	Describe the significance and importance of microbes in food.
	CO2	Details of food processing and preservation techniques.
	CO3	Explain about principles of toxicology and its process.
	CO4	Elaborate study on epidemic and pandemic diseases.
	CO5	Describe agricultural and environmental microbiology
21PBTE03 GENOMICS, PROTEOMICS AND BIOINFORMATICS	CO1	To familiarize the students with genome databases and metagenome database and analysis, markers for genetic analysis and gene expression profiling
	CO2	To gain insight into different sequencing methods, comparative and functional genomic analysis which enables the students to understand about sequence and structure based approaches for gene prediction and function determination.
	CO3	To have better understanding about proteomics and learn about protein profiling and analysis of data generated through mass spectrometry and to be aware of the bioinformatics tools available for analysis of proteomic data.
	CO4	To have an enhanced theoretical knowledge on biological databases and sequence analysis
	CO5	To understand well about sequence alignment tools, gene prediction methods and homology modelling & drug targeting.
	CO1	To gain the knowledge about the genetic and chromosomal disorder
	CO2	Getting the knowledge for the diagnostics and treatment of genetic and



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21PBTE04 PHARMACEUTICAL AND MEDICAL BIOTECHNOLOGY		chromosomal disorders.
	CO3	Getting the knowledge for the Protein mode of action and pharmacodynamics
	CO4	Students will learn the medical biotechnology and its application.



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	CO5	Explain insights about genetic diseases and also about the molecular aspects related to human disease
SEMESTER		
SEMESTER	CO1	To have a fundamental idea about the principles of management, learn to make a business proposal, arrange for financial resources and maintenance of business establishment by accounting practices and other essential concepts required for executing a business plan..
	CO2	Understand the key security and compliance challenges of cloud computing. To establish basic knowledge on the role of human resource development and learn about recruitment process, developing managerial and marketing skill, team work and achieve customer satisfaction.
	CO3	To understand the features of entrepreneurship and enabling the students to develop their capacity as an entrepreneur thereby emphasising their role in building the economy of the nation
	CO4	To gain insight into the characteristics and objectives of small scale industry (SSI), thereby making the students to be aware of the government support to small scale industry
	CO5	To be familiar with the different schemes offered by Government institutions to support entrepreneurs and also provides the basic knowledge on project proposal preparation, feasibility analysis, execution and management.
21PBTE06 HUMAN PHYSIOLOGY	CO1	Learn about medical terminology and cardio physiology
	CO2	Understand the structure and functions of respiratory and excretory system
	CO3	Apply the working principles of nerve and muscle physiology
	CO4	Analyze the mechanism and regulation of digestion and structure and functions of skin system



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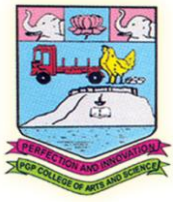
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	CO5	Synthesis and functions of various hormones and also learn the Structure and functions of sensory organs and reproductive system.
21PBTE01 ANALYTICAL TECHNIQUES IN BIOTECHNOLOGY	CO1	The students will be able to handle the equipment available and identify the suitable and appropriate experiments for their research.:
	CO2	To plan analytical campaigns to apply to different types of samples and research objectives, including selection of the most appropriate technique/instrumentation for the students' research project.
	CO3	To Understand the correct sample preparation and characterization prior to analysis by the chosen techniques or instruments.
	CO4	The students will be able to understand the radioisotope technique.
	CO5	The students will be able to understand the molecular techniques.
21PBTE03 MICROBIAL TECHNOLOGY	CO1	learn about Introduction, scope and methods for production of proteins
	C02	acquiring the skills for fermentative production of alcohol, beer, Wine, citric acid, glutamic acid, vitamin B12 and Mold modified Foods.
	C03	apply the working principles and production methodology of biocontrol agents, microbial insecticides and microbial biofertilizer.
	C04	Analyze the production strategies for microbial production of polysaccharides, enzymes and insulin
	C05	learn the mechanism of microbial treatment of sewage and degradation of Xenobiotics and heavy metals



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