Karnatak University Dharwad
Department of Microbiology and Biotechnology

1. **Programme code Name of the Programme:** M. Sc., Microbiology and M. Sc., Biotechnology, Ph. D. Microbiology and Ph. D. Biotechnology

Program Outcome Microbiology

PO-1	After completion of M.Sc first semester students will be able to identify and classify the various microorganisms by using various microbial techniques like Microscopy, Staining, Chromatography, Electrophoresis and Radio isotope techniques further students are able to understand the physiology and metabolism of the organisms.
PO-2	By the end of M. Sc. Second Semester, the students will gain the knowledge on computer applications using different softwares, Bioinformatics tools, and Biostatistical analysis and its applications in Molecular Biology and Genetic Engineering.
PO-3	Application of Microbiology in the field of Environment, Agriculture, Plant Pathology, Food and Dairy Technology will be dealt with in M. Sc. III Sem.
PO-4	In M. Sc. IV Sem students will gain the knowledge on various Immunological techniques, identify diseases and their causative agents, Bioprocess Engineering and Fermentation Technology.

Program Specific Outcome – Microbiology

PSO - 1	Identify and classify microorganisms using various microbial techniques. Gain knowledge on microbial diversity in different environments.
PSO - 2	Understand the principles used in pathogen detection and different diagnostic tools for their identification.
PSO - 3	Mastering the skills of handling microorganisms, hands on training for accessing the information technology in computers and its applications in identifying the organisms using bioinformatics tools.
PSO - 4	Appreciate the versatility and significance of microorganisms in the various fields such as Agriculture, Pharmaceuticals, Medical, Food, Dairy and Fermentation technology, Immunodiagnostics.
PSO - 5	Develop the different research / entrepreneurship skills in industries to understand the significance of research in Microbiology.

Course Outcome – Microbiology
MICROBIOLOGY FIRST SEMESTER
MBCT 1.1 - GENERAL MICROBIOLOGY
Course Outcomes

Paper Code and Name	**MBCT 1.1 - GENERAL MICROBIOLOGY**
COURSE OUTCOMES (COs)	
After completing this paper, the students will be able to:	
CO 1	Identify and classify the various microorganisms
CO 2	Use various microbial techniques like Microscopy, Staining, Chromatography, Electrophoresis and Radio isotope techniques

CO 3	understand the physiology and metabolism of the organisms.
CO 4	Learn about the different groups of Microorganisms

MBCT 1.1 - GENERAL MICROBIOLOGY
Course Specific Outcome
MB CT 1.2 – MICROBIAL DIVERSITY AND TAXONOMY
Course Outcome

Paper Code and Name	**MB CT 1.2 – MICROBIAL DIVERSITY AND TAXONOMY**
COURSE OUTCOMES (COs)	
After completing this paper, the students will be able to:	
CO 1	Identify and classify the various microorganisms
CO 2	understand the concepts and scope of microbial taxonomy and diversity
CO 3	understand the physiology and metabolism of the organisms.
CO 4	skills and have a Biotechnological approach towards Ecology, diversity and Bioproductivity

MB CT 1.3- MICROBIAL TECHNIQUES
Course Outcomes

Paper Code and Name	**MB CT 1.3- MICROBIAL TECHNIQUES**
COURSE OUTCOMES (COs)	
After completing this paper, the students will be able to:	
CO 1	Identify different types of microscopes and specimen preparation accordingly
CO 2	Acquainted with physical and chemical methods of sterilization
CO 3	Understand the methods of isolation and culture of microorganisms
CO 4	Aware of types of stains and various staining techniques
CO 5	Taught the principles types, and applications of chromatography, electrophoresis radio isotopic techniques

MB CT 1.4 –MICROBIAL PHYSIOLOGY AND METABOLISM
Course Outcome

Paper Code and Name	**MB CT 1.3- MICROBIAL TECHNIQUES**
COURSE OUTCOMES (COs)	
After completing this paper, the students will be able to:	
CO 1	Define the Structure, principles, types and uses of Enzymes.
CO 2	Understand the Concept of photosynthesis and associated pigments in microbes.
CO 3	Understand the nutrition in microorganisms, know the methods and mechanism of respiration in bacteria
CO 4	Understand carbohydrate, lipid, neucleotide, protein and amino acid metabolism

MICROBIOLOGY SECOND SEMESTER SYLLABUS
MBCT 2.1 – MICROBIAL GENETICS AND MOLECULAR BIOLOGY
Course Outcomes

Paper Code and Name	MBCT 2.1 – MICROBIAL GENETICS AND MOLECULAR BIOLOGY
COURSE OUTCOMES (COs)	
After completing this paper, the students will be able to:	
CO 1	Understand the structure and genome organization in microorganisms
CO 2	Understand the Structure and types of DNA and its replication.
CO 3	Know the process, mechanism and significance of transcription, Translation, mutation and recombination.
CO 4	Learn fungal, algal and viral genetics

MBCT 2.2: COMPUTER APPLICATIONS, BIOINFORMATICS AND BIOSTATISTICS

Paper Code and Name	MBCT 2.2: COMPUTER APPLICATIONS, BIOINFORMATICS AND BIOSTATISTICS
COURSE OUTCOMES (COs)	
After completing this paper, the students will be able to:	
CO 1	Understand the parts, concepts and types of computers, Operating system, Computer Viruses and Computer network
CO 2	Have hands on training on various programmes and its applications in computers.
CO 3	Know the types of alignments, Phylogenetic analysis and Primer designing
CO 4	Analyze Commercial application of bioinformatics, Disease monitoring, profiles for therapeutic molecular targeting. Diagnostics, Comparative proteomics and its applications, IPR and Bioinformatics patents
CO 5	Apply Biostatistcs in basic problems, measures of – Central tendency Survival analysis and Statistical softwares

MB CT 2.3 GENETIC ENGINEERING
Course Outcome

Paper Code and Name	MB CT 2.3 GENETIC ENGINEERING
COURSE OUTCOMES (COs)	
After completing this paper, the students will be able to:	
CO 1	Understand the Scope and importance of Genetic engineering and application
CO 2	Have hands on training on enzymes used as tools in genetic engineering
CO 3	Know the significance of cDNA, screening techniques and Genomic DNA Librar
CO 4	Understand Labelling, Transformation and Transfection, techniques,Antisense and Ribozyme technology
CO 5	Apply Genetic engineering and rDNA technology tools and techniques required

MBET 2.4 Fundamentals and applications of Microbiology
Course Outcome

Paper Code and Name	MBET 2.4 Fundamentals and applications of Microbiology
COURSE OUTCOMES (COs)	
After completing this paper, the students will be able to:	
CO 1	Know the history and contributions of various pioneers and scientists in the field of Microbiology.

CO 2	Understand the differences and comparison between the prokaryotes and the eukaryotic microorganisms
CO 3	Industrial production of Alcohol, Organic acids, Solvent, Antibiotics Single cell proteins (SCP) Vitamins (Riboflavin) Enzymes, Recombinant protein
CO 4	Understand pathogenesis, Clinical conditions, laboratory diagnosis, epidemiology, Prophylaxis and treatment of the diseases caused by microorganisms.
CO 5	Perform Specimen collections, handling, transport, identification of pathogens from specimens and hospital management

MICROBIOLOGY THIRD SEMESTER
MB CT 3.1 ENVIRONMENTAL MICROBIOLOGY
Course Outcome

Paper Code and Name	**MB CT 3.1 ENVIRONMENTAL MICROBIOLOGY**
COURSE OUTCOMES (COs)	
After completing this paper, the students will be able to:	
CO 1	Know the history, scope of environment and environmental pollution.
CO 2	Understand the Sources and characteristics of air pollutants, health hazards and control measures of air, soil, water pollution and waste management.
CO 3	Concepts and principles of bioremediation, biodeterioration biodegradation, biomining, and bioleaching.
CO 4	Provide Environmental Education regarding Agrochemicals, Botanicals of Global Warming, ozone depletion, Greenhouse gas effect, acid rains & their impact and Biotechnological approaches in the environment**.**

MB CT 3.2 AGRICULTURAL MICROBIOLOGY AND PLANT PATHOLOGY
Course outcome

Paper Code and Name	**MB CT 3.2 AGRICULTURAL MICROBIOLOGY AND PLANT PATHOLOGY**
COURSE OUTCOMES (COs)	
After completing this paper, the students will be able to:	
CO 1	Know the history, scope of agricultural microbiology and plant pathology
CO 2	Understand the Sources and characteristics of air pollutants, health hazards and control measures of air, soil, water pollution and waste management.
CO 3	Know the Concepts and principles of nitrogen fixation, Mineralization and immobilization of nitrogen,
CO 4	Gain knowledge onTypes and applications of Biopesticides, biofertiizers,
CO 5	Analyse plant diseases, etiology, post harvest disease and control measures
CO 6	Understand post harvest diseases, Integrated pest management and biological control agents for disease management

MB CT 3.3 FOOD AND DAIRY MICROBIOLOGY
Course Outcome

Paper Code and Name	**MB CT 3.3 FOOD AND DAIRY MICROBIOLOGY**
COURSE OUTCOMES (COs)	
After completing this paper, the students will be able to:	
CO 1	Know the Concepts and scope of food and dairy microbiology.

CO 2	Understand the Important microorganisms in food and their source.
CO 3	Know the various principles of food spoilage, contamination. and detection of food borne microbes. Food preservation techniques
CO 4	Gain knowledge on food borne diseases, Food Borne outbreaks, lab testing procedures and preventive measures
CO 5	Analyze the food borne diseases, Food Borne outbreaks, lab testing procedures and preventive measures
CO 6	Know the Sanitation in manufacture and retail trade; food control agencies and their regulations. Food safety laws, standards and Food packing strategies.

MB ET - 3.4 FOOD AND FERMENTATION TECHNOLOGY
Course Outcome

Paper Code and Name	**MB ET - 3.4 FOOD AND FERMENTATION TECHNOLOGY**
COURSE OUTCOMES (COs)	
After completing this paper, the students will be able to:	
CO 1	Know the Concepts and scope of food and dairy microbiology.
CO 2	Understand the Important microorganisms in food and their source.
CO 3	Know the various principles of food spoilage, contamination. and detection of food borne microbes. Food preservation techniques
CO 4	Gain knowledge on food borne diseases, Food Borne outbreaks, lab testing procedures and preventive measures
CO 5	Understand the industrial production of agar, alcohols, vitamins recombinant protein etc

MICROBIOLOGY FOURTH SEMESTER SYLLABUS
MB CT 4.1 IMMUNOLOGY AND IMMUNOTECHNOLOGY
Course Outcome

Paper Code and Name	**MB CT 4.1 IMMUNOLOGY AND IMMUNOTECHNOLOGY**
COURSE OUTCOMES (COs)	
After completing this paper, the students will be able to:	
CO 1	Know the fundamental concepts and cells involved in immunology.
CO 2	Understand the principles, types of antigens and immunoglobulins
CO 3	Know the various principles of different Serological methods for detection and quantization of viral diseases borne microbes.
CO 4	Gain knowledge on Immuno techniques and applications
CO 5	Understand the different methods of immunization and also about the different types of vaccines.

MB CT- 4.2 MEDICAL MICROBIOLOGY
Course Outcome

Paper Code and Name	**MB CT- 4.2 MEDICAL MICROBIOLOGY**
COURSE OUTCOMES (COs)	
After completing this paper, the students will be able to:	
CO 1	Know the classification of medically important microorganisms, normal microbial flora

	and their significance..
CO 2	Understand the modes of disease transmission.
CO 3	Know the various principles of different Serological methods for detection and quantization diseases
CO 4	Gain knowledge on Immuno techniques and applications
CO 5	Understand the Clinical Microbiology: Students will learn methods of Specimen collections, handling, transport, identification of pathogens.
CO 6	Analyze the Pathogenesis, Clinical conditions, laboratory diagnosis, epidemiology, Prophylaxis and treatment of the microbial diseases. Nosocomial and Dental infections.

MB CT- 4.3 BIOPROCESS ENGINEERING AND TECHNOLOGY
Course Outcome

Paper Code and Name	**MB CT- 4.3 BIOPROCESS ENGINEERING AND TECHNOLOGY**
COURSE OUTCOMES (COs)	
After completing this paper, the students will be able to:	
CO 1	Know the concept of Bioprocess engineering, Isolation, screening, selection, preservation and maintenance of industrial important microorganisms.
CO 2	Understand the types of sterilization, bioreactors, and design of fermentors
CO 3	Know the various principles of downstream processing, crystallization, packaging and quality assurance.
CO 4	Gain knowledge on **Entrepreneurship**: Potential entrepreneurship activities in biotechnology, Biotechnology industries in India and the potential job opportunities and Intellectual property rights (IPRs)

MB CP- 4.7 Project Work/ Dissertation
Course Outcome

Paper Code and Name	**MB CP- 4.7 Project Work/ Dissertation**
COURSE OUTCOMES (COs)	
After completing this paper, the students will be able to:	
CO 1	Know the concept and skill of scientific writing
CO 2	Understand the research methodology
CO 3	Gain knowledge on skills, applications and entrepreneurship activities in Microbiology

Program Outcome – Biotechnology

PO - 1	Understand the importance of different Biomolecules and basic aspects of Microbiology, Biotechnology, Cell biology, Genetics and be well equipped with various Biophysical and Biochemical techniques.
PO - 2	Learn the basics and applied aspects of Molecular biology, Bioinformatics, Biostatistics with hands on training. Understand the concepts of Immunology, Immunotechnology, Enzymology and Metabolism.
PO - 3	Students will get to know the fundamental and applied concepts of Animal and Plant Biotechnology, Environmental Biotechnology, with practical skills.

PO - 4	Students will gain a broad knowledge regarding Bioprocess Engineering & Technology, Medical Biotechnology and perform experiments in the related field.

Program Specific Outcome – Biotechnology

PSO - 1	Students will learn the basics of Cell biology, Genetics, Biodiversity and be equipped with various Biophysical and Biochemical techniques. Learn the basics of Molecular biology, Bioinformatics and Biostatistics skills.
PSO - 2	Understand the theoretical and practical aspects of Immunology and Immunotechnology, Enzymology and metabolism.
PSO - 3	Students will know the fundamental concepts and gain practical knowledge on Agriculture Biotechnology, Animal Biotechnology, Environmental Biotechnology.
PSO - 4	Students learn the concept and perform various experiments in Genetic engineering, Plant Biotechnology, Bioprocess Engineering and Technology, gain knowledge on basics and applications of medical biotechnology.
PSO - 5	Develop the different research / entrepreneurship skills in industries to understand the significance of research in Biotechnology.

Course outcomes – Biotechnology

Program code and Name	**BT CT 1.1 - BIOMOLECULES**
Course Outcome	
CO-1	The students would understand the different chemical bonding, bond energy, confirmations and configurations of different biomolecules**.**
CO-2	**St**udents will understand the structure and properties of water molecules and its physical and physiological properties. **St**udents will also understand the pH and buffers preparations and its importance.
CO-3	**Bio-organic reactions: St**udents will understand the acid- base concepts, and related bio reactions.
CO-4	**S**tudents get to know the types of carbohydrates, nucleic acid, proteins, lipids, vitamins, antibiotics properties and their biological functions.

Program code and name	**BT CT 1.2 - MICROBIOLOGY**
Course Outcome	
CO-1	**History and scope of Microbiology:** Students will understand the history and contribution of scientists in the field of microbiology.
CO-2	**Microbial diversity:** Students will learn about the classification of microorganisms and different methods of classification.
CO-3	**Isolation identification of microorganisms:** Students will learn the different techniques for the isolation of microorganisms from different environment samples.

CO-4	**S**tudents know about the structure and classification of Bacteria, Fungi, Algae, viruses.
CO-5	**S**tudents know about the importance of different branches of microbiology and its significance

BT CT 1.3 - BIOPHYSICAL AND BIOCHEMICAL TECHNIQUES

Program code and name	**BT CT 1.3 - BIOPHYSICAL AND BIOCHEMICAL TECHNIQUES**
Course Outcome	
CO-1	**S**tudents will learn about the scope of biophysics and different type of chemical bonds involved, acids and bases
CO-2	Students will familiarize with different types of microscopes, centrifugation, chromatography, electrophoresis and radioisotopes with its application.
CO-3	Students will learn about the different methods for synthesis of nanoparticles and their applications, X-ray crystallography and its uses

BT CT 1.4 - CELL BIOLOGY AND GENETICS

Program code and name	**BT CT 1.4 - CELL BIOLOGY AND GENETICS**
	Course Outcome
CO-1	Students will learn about the cell theory, cell organelles, mechanism of membrane transport and cell division.
CO-2	**S**tudents will learn about the eukaryotic chromosomes, genome organization, euploidy, polyploidy and their significance.
CO-3	**S**tudents will learn about the different types and application of principles of heredity, linkage and crossing over and sex determination.
CO-4	Students will learn about the different types of mutation, molecular basis of mutation and population genetics.

BT CT 2.1- - MOLECULAR BIOLOGY, BIOINFORMATICS AND BIOSTATICS

Paper Code and Name	**BTCT 2.1 – MOLECULAR BIOLOGY, BIOINFORMATICS AND BIOSTATICS**
COURSE OUTCOMES (COs)	
After completing this paper, the students will be able to:	
CO 1	Understand the structure and genome organization. Structure and types of DNA and its replication.
CO 2	Know the process, mechanism and significance of transcription, Translation, mutation and recombination.
CO 3	Analyze Commercial application of bioinformatics, Disease monitoring, profiles for therapeutic molecular targeting. Diagnostics, Comparative proteomics and its applications, IPR and Bioinformatics patents

CO 4	Apply Biostatistics in basic problems, measures of – Central tendency Survival analysis and Statistical softwares

BT CT 2.2 – IMMUNOLOGY AND IMMUNOTECHNOLOGY
Course Outcome

Paper Code and Name	**BTCT 2.2. IMMUNOLOGY AND IMMUNOTECHNOLOGY**
COURSE OUTCOMES (COs)	
After completing this paper, the students will be able to:	
CO 1	Know the fundamental concepts and cells involved in immunology.
CO 2	Understand the principles, types of antigens and immunoglobulins
CO 3	Know the various principles of different Serological methods for detection and quantization of viral diseasesborne microbes.
CO 4	Gain knowledge on Immunotechniques and applications
CO 5	Understand the different methods of immunization and about the different types of vaccines.

BT CT 2.3 Enzymology and Metabolism

Paper Code and Name	**BT CT 2.3 Enzymology and Metabolism**
COURSE OUTCOMES (COs)	
After completing this paper, the students will be able to:	
CO 1	Students will get to know the Thermodynamics– laws of thermodynamics, Metabolism- Catabolism, anabolism, catabolic, anabolic and amphibolic pathways
CO 2	Students will familiarize with the. Sources of carbohydrates, proteins, lipids, enzymes etc. rate controlling steps and regulation of the metabolic pathways.
CO 3	will learn about the Chemistry and components of photo systems, Photorespiration and its impact in bacterial photosynthesis.
CO 4	Students will learn about the different types of Inter and Intra cellular signaling, signaling molecules–and the mechanism of transduction and the Role of secondary messengers, biochemistry of proteins.

BTET 2.1 –MOLECULAR CELL BIOLOGY
Course Outcomes

Paper Code and Name	**BTET 2.1 – MOLECULAR CELL BIOLOGY**
COURSE OUTCOMES (COs)	
After completing this paper, the students will be able to:	
CO 1	Understand the structure and genome organization in microorganisms
CO 2	Understand the Structure and types of DNA and its replication.
CO 3	Know the process, mechanism and significance of transcription, Translation, mutation and recombination.
CO 4	Learn fungal, algal and viral genetics

BTCT 3.1 ANIMAL BIOTECHNOLOGY

Paper Code and Name	**BTCT 3.1 ANIMAL BIOTECHNOLOGY**
COURSE OUTCOMES (COs)	
After completing this paper, the students will be able to:	
CO 1	Students will get to know the fundamental of Tissue culture role of nutrients in animal cell culture and techniques.
CO 2	**S**tudents will learn about Stem cells and Tissue engineering, Stem cell Therapy Clinical applications of stem cell therapy and basics of Tissue Engineering.
CO 3	Students will get to know about biopolymers, Composite Biomaterials: Properties, Applications of biomaterials in Drug delivery systems
CO 4	Students will learn Biosafety regulations, guidelines for research in transgenic animals

BT CT 3.2 – ENVIRONMENTAL BIOTECHNOLOGY AND BIODIVERSITY

Paper Code and Name	**BT CT 3.2 – ENVIRONMENTAL BIOTECHNOLOGY AND BIODIVERSITY**
COURSE OUTCOMES (COs)	
After completing this paper, the students will be able to:	
CO 1	Know the history, scope of environment and environmental pollution.
CO 2	Understand the Sources and characteristics of air pollutants, health hazards and control measures of air, soil, water pollution and waste management.
CO 3	Concepts and principles of bioremediation, biodeterioration biodegradation, biomining, and bioleaching.
CO 4	Provide Environmental Education regarding Agrochemicals, Botanicals of Global Warming, ozone depletion, Greenhouse gas effect, acid rains & their impact and Biotechnological approaches in the environment**.**

BT CT 3.3 – BIOPROCESS ENGINEERING AND TECHNOLOGY

Paper Code and Name	**BT CT 3.3 – BIOPROCESS ENGINEERING AND TECHNOLOGY**
COURSE OUTCOMES (COs)	
After completing this paper, the students will be able to:	
CO 1	Know the concept of Bioprocess engineering, Isolation, screening, selection, preservation and maintenance of industrial important microorganisms.
CO 2	Understand the types of sterilization, bioreactors, and design of fermenters
CO 3	Know the various principles of downstream processing, crystallization, packaging, and quality assurance.
CO 4	Gain knowledge on Entrepreneurship: Potential entrepreneurship activities in biotechnology. Biotechnology industries in India and the potential job opportunities

	and Intellectual property rights (IPRs)

BT ET 3.4 – PLANT AND ANIMAL TISSUE CULTURE

Paper Code and Name	**BT ET 3.4 – PLANT AND ANIMAL TISSUE CULTURE**
COURSE OUTCOMES (COs)	
After completing this paper, the students will be able to:	
CO 1	Students will get to know the Cell and Tissue culture and its maintenance.
CO 2	Students will gain the knowledge of embryogenesis and production of virus free plants by different methods.
CO 3	Students will understand the historical perspectives, development and advantages and limitations of tissue culture. Students will gain the knowledge of organ and embryo culture.
CO 4	Students will understand the importance of growth factors in tissue regeneration and also about the Hybridoma technology and production of monoclonal antibodies.

BT CT 4.1 GENETIC ENGINEERING

Paper Code and Name	**BT CT 2.3 GENETIC ENGINEERING**
COURSE OUTCOMES (COs)	
After completing this paper, the students will be able to:	
CO 1	Understand the Scope and importance of Genetic engineering and application
CO 2	Have hands on training on enzymes used as tools in genetic engineering
CO 3	Know the significance of cDNA, screening techniques and Genomic DNA Library
CO 4	Understand Labelling, Transformation and Transfection, techniques, Antisense and Ribozyme technology
CO 5	Apply Genetic engineering and rDNA technology tools and techniques required

BT CT 4.2 – PLANT BIOTECHNOLOGY

Paper Code and Name	**BT CT 4.2 – PLANT BIOTECHNOLOGY**
COURSE OUTCOMES (COs)	
After completing this paper, the students will be able to:	
CO 1	Students will gain the knowledge about the Cell and Tissue culture technique and maintenance of callus, suspension culture, Cell and Organogenesis.
CO 2	Students will understand the different methods of gene transfer and use of gene markers. Students will gain knowledge about Isolation and uses of different promoters, production of marker free transgenic plants.
CO 3	Students will understand the process of insertion of desired genes in to various vectors and their applications. Students will gain knowledge about the trans gene stability and gene silencing.
CO 4	Students will understand the plant genomics and Plant proteomics of plants and Comparative genomics and analysis for selection of best plants.

BT CT 4.3 – MEDICAL BIOTECHNOLOGY

Paper Code and Name	BT CT 4.3 – MEDICAL BIOTECHNOLOGY
COURSE OUTCOMES (COs)	
After completing this paper, the students will be able to:	
CO 1	students will be able to classify medically important microorganisms, normal microbial flora and their significance.
CO 2	Students will be able to understand Mode of infection, symptoms, epidemiology and control measures of diseases caused by viruses, bacteria, fungi and protozoa.
CO 3	Students will be able to understand the genes for a various human disease and its importance in health care.
CO 4	Students will be able to understand the Introduction, types and synthesis of nano-materials, Nanoparticles in realtime monitoring and disease diagnostics and cancer therapy Risk potential of nano-materials.

BT CP- 4.7 Project Work/ Dissertation
Course Outcome

Paper Code and Name	BT CP- 4.7 Project Work/ Dissertation
COURSE OUTCOMES (COs)	
After completing this paper, the students will be able to:	
CO 1	Know the concept and skill of scientific writing
CO 2	Understand the research methodology
CO 3	Gain knowledge on skills, applications and entrepreneurship activities in Biotechnology.