

CO -Department of Biotechnology			
Semester 1	COURSE NAME		Course Outcomes
	General Biochemistry	CO1	Theoretical knowledge of various topics as per syllabus
		CO2	Exhaustive study of carbohydrates, lipids, proteins and its classification
		CO3	Understanding of different level of protein structure
		CO4	To study the different types of hormones & its action
	Cell biology and Genetics	CO1	To understand the various organelles of a cell and its function
		CO2	To know about the different cellular receptors and signal transduction pathway
		CO3	To understand the cell cycle and apoptosis
		CO4	To explain mendel's law of genetics
	Instrumentation and Biostatistics	CO1	To understand the working principle and applications of various tools used in analysis of biomolecules
		CO2	To understand the role of microscopy in biology
		CO3	Explain the basic concepts of biostatistics.
		CO4	Outline about test of significance.
	Biophysics and Bioinformatics	CO1	To describe the basic concepts of thermodynamics
		CO2	To compare the types of DNA
		CO3	To classify protein folding
CO4		To explain the basic concepts and applications of bioinformatics.	
Lab Course I	CO1	To prepare solutions	
	CO2	To apply different techniques for the qualitative and quantitative analysis of biomolecules	
	CO3	To demonstrate cell cycle stages and to predict the outcomes in a cross	
	CO4	To apply basic biostatistics methods	
Semester 2	COURSE NAME		Course Outcomes
	Microbiology	CO1	To understand the nutritional requirements of bacteria and to apply different methods for identification of bacteria and to measure the bacterial growth
		CO2	To classify antibiotics based on their mode of action and measure the susceptibility of microorganism to drugs and then to analyse the mechanism of drug resistance
		CO3	To evaluate various metabolic pathways utilised by microorganisms for meeting energy requirements
		CO4	
	Immunology	CO1	To understand the various organelles of a cell and its function
		CO2	To know about the different cellular receptors and signal transduction pathway
		CO3	To understand the cell cycle and apoptosis
		CO4	To understand the etiology of cancer
	Molecular Biology	CO1	Understanding of Genome Organization, types of genes
		CO2	To know concepts of DNA, RNA, replication, transcription, translation process
		CO3	To analyse various concepts about gene regulation, operon concept etc
		CO4	To understand the concept of siRNA, miRNA
	Enzymology and Metabolism	CO1	To list the basic concepts of enzymes
		CO2	To describe the applications of enzymes
		CO3	To distinguish substrate level and oxidative phosphorylation
CO4		To analyse different metabolic cycles	
Lab Course II	CO1	To diagnose diseases by observing enzyme levels.	
	CO2	To perform different methods for identification of microorganisms	
	CO3	To apply sterilization techniques cultivate bacteria and fungi and to study the antibiotic susceptibility of bacteria	
	CO4	To perform serological tests	
Semester 3	COURSE NAME		Course Outcomes
	Bioprocess Technology	CO1	To understand how to isolate industrially important microorganism
		CO2	To understand basic structure and parts of fermenter
		CO3	To understand various methods for recovery of fermentation products
		CO4	To understand how to produce industrially important products by microorganism
	Recombinant DNA Technology	CO1	To select appropriate tool for DNA editing
		CO2	To modify DNA sequences using adaptors and linkers
		CO3	To analyse different techniques in rDNA technology
		CO4	To examine the application of rDNA technology in different resources
	Environmental Biotechnology	CO1	To list and study the techniques for eradicating man made and natural pollutants in environment.
		CO2	To list the uses of biofertilizers and viral pesticides.
		CO3	To study the techniques adopted in waste water treatment
		CO4	To classify biofuels and bioplastics
	Plant and Animal Biotechnology	CO1	Knowledge of various topics including Organogenesis; Somatic embryogenesis; Regulation and applications; Artificial seed production; Micropropagation; Somaclonal variation; Androgenesis, somaclonal variation etc
		CO2	Theoretical knowledge of various topics as per the syllabus including basic cell culture techniques; Primary culture, secondary culture; Continuous cell lines; Suspension cultures; Transfection, pluripotency, stem cells etc
		CO3	Study of various approaches related to vaccine production, disease diagnostic assays and many other assays involved in animal health management.
CO4		To understand the application in Plant & Animal Biotechnology	
Lab Course III	CO1	To test the quality of milk sample	
	CO2	To develop callus from explant	
	CO3	To test the level of contamination in water sample	
	CO4	To measure the amount of microorganism in a food sample	
Environmental & Biotechnology	COURSE NAME		Course Outcomes
	Environmental & Biotechnology	CO1	To improve the quality of environment
		CO2	To compare different biomes
		CO3	To choose the right conservation method for biodiversity
		CO4	To explain different environmental hazards
CO1		To explain different fermented products	

		CO2	To know the applications of food in biotechnology
		CO3	to explain the contamination and spoilage of food, various food borne pathogens and the methods to preserve food
	Food Biotechnology	CO4	To explain different genetically modified products
	Advanced Molecular Techniques	CO1	To know the concept of DNA isolation, application of Electrophoresis
		CO2	To understand the applications of PCR
		CO3	To analyse next generation sequencing and it's application
		CO4	To implement the application of DNA profiling
	Project & Course Viva	CO1	Research on various topics as per the expertise and facilities available in the department (and with other institutions), including hands on training on various advanced molecular and analytical techniques
		CO2	An overall study on the concerned plant/animal/microbial system addressing any of relevant and pursuable scientific problems.
		CO3	Familiarization with good laboratory practices, data presentation, thesis writing etc.
		CO4	To analyse the students with their capability in overall courses allotted in their program
	Lab Course IV	CO1	Practical exposure on the basis of syllabus
		CO2	To Understand the isolation of DNA,RNA,plasmid etc
		CO3	To acquire practical exposure in PCR,application etc
		CO4	Practical knowledg in preparation of competent cell&transformation
	Semester 4		