



ESTD: 1984

ADITYA DEGREE COLLEGE

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CO - PO MAPPING - M.Sc., BIOCHEMISTRY

SEMESTER	COURSE NAME	CO	COURSE OUTCOMES	PROGRAMME OUTCOMES															
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
I	Cell Biology-I	CO1	Deals with Structural organization and functions of the cell & cell organelles	3		3	2					3	1				3		
		CO2	Explain the chemical composition of cell membrane, membrane structure models, membrane transport	2		3	2	2				2	3				2		
		CO3	Understanding about Mitochondria, Chloroplast composition and functions		2	3	3	3		3			2					2	
		CO4	Learn about mitochondrial respiratory chain; mechanism of oxidative phosphorylation	3		3	2	3	3		3		2	3					2
		CO5	Understand about phases and events of cell cycle	3		2	2	3	2		3		3	3					2
		CO6	Explain the Cell division and Regulation of cell cycle	3	3	3		2	3	2	3			2		2		2	
	Biomolecules-I	CO1	Enable the student to understand the Amino acids structure and physicochemical properties	3		2	2	2			3	2						2	3
		CO2	Students will know about the characterization of proteins	2	2	2	3		2		3		2	3				2	3
		CO3	Understand the Carbohydrates—structure & classification	3	3	2	3	2	2		3	2	2						3
		CO4	Expertise the students for DNA denaturation and renaturation kinetics	2	2	3	3	2	3	2				2				3	2
CO5		Understand Lipids structure & physicochemical properties	2	2	2	3		2		3		2	3				2	3	

	CO	COURSE OUTCOMES	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
				CO6	Explain the biological role of DNA and RNA – structure and types	3		3	2	2			3	2				
Microbiology I	CO1	Demonstrate the Microbiology; Classification and taxonomy			3	2												
	CO2	Students will be able to know about Modes of nutrition	2		3	2	2					2	3			2		
	CO3	Learner can summarize Microbial Growth curve and kinetics	2	2	2	3		2		3		2	3				3	2
	CO4	They can learn the Microbial diseases Source, Symptoms, Diagnosis and Prevention	2	2	2	3		2		3		2	3				2	3
	CO5	Learner will be able to know about Virus - morphology, characteristics and life cycle	3		3	2	2			3	2						2	3
	CO6	Learner can demonstrate the Methods of culturing of viruses	2	2	2	3		2		3		2	3				2	3
Analytical Techniques - I	CO1	Student will learn the various analytical techniques and their applications in separation and isolation of cells and tissues for studying their functional abnormalities	3	3	3		2	3	2	3			2		2	2		
	CO2	Expertise the student for pH electrodes	2		3	2						3	2					3
	CO3	Gained knowledge is useful in food industries, pharma industries, clinical and microbiological labs.	2		3	2	2					2	3				2	
	CO4	Evaluate the separations done by chromatographic, centrifugation and electrophoretic techniques of the biomolecules	2	2	2	3		2		3		2	3				2	3
	CO5	Understand about cell disruption methods	2	2	2	3		2		3		2	3				2	3
	CO6	Learn about spectroscopy and tracer techniques	3		3	2	2			2	2						2	3
II	CO1	Deals with DNA Replication mechanism	2	2	2	3		2		3		2	3				2	3
	CO2	Explain the relationship between DNA, RNA and proteins and learning how these are regulated.	3		3	2	2			3	2						2	3

	CO	COURSE OUTCOMES	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15			
				CO3	Understanding about regulation mechanism	2	2	2	3		2		3		2	3			2	3
	CO4	Learn about gene concepts, genetic code, gene expression, gene regulation and also learn about mutation.	2	2	3	3	2	3	2				2				3	2		
	CO5	Characterization of Post transcriptional processing	2	2	2	3		2		3		2	3				2	3		
	CO6	Understand about Mechanism of protein synthesis	3		3	2	2			3	2						2	3		
Enzymology- II	CO1	Expertise the students for quantification of enzymes' activities, glucose, proteins and lipid levels in blood which will have clinical applications	3		2	2	3	2		3		3	3					2		
	CO2	Enable the student explain relationship between the structure and function of enzymes	3	3	3		2	3	2	3			2			2	2			
	CO3	Explain how enzymes are able to increase speed of an biochemical reaction in sense of thermodynamics, kinetics and molecular interactions	3		3	2	3				3	2						2	3	
	CO4	use catalytic strategies in interpreting mechanisms of enzymatic action	2	2	2	3		2		2		2	3					2	3	
	CO5	apply appropriate methods for determination of catalytic parameters and activity of enzymes and resolve problems	2	2	3	3	2	3	2					2					3	2
	CO6	Student will get knowledge in immune system, vaccines and also understand the pathogenesis of auto immune diseases and immune deficiency diseases	2	2	2	3		2			3		2	3					2	3
Immunology- II	CO1	demonstrate the basic knowledge of immunological processes at a cellular and molecular level	3		3	2	2				3	2						2	3	
	CO2	Define central immunological principles and concepts	3		3	2	2				3	2							2	3
	CO3	outline, compare and contrast the key mechanisms and cellular players of innate and adaptive immunity and how they relate	2		3	2	2						2	3					2	

	CO	COURSE OUTCOMES	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15		
	CO4	Demonstrate/illustrate how every aspect of our physiology and behavior is directly controlled or modified by hormones using reproduction, growth, development, stress, and metabolism as examples	2		3	2	2					2	3				2		
	CO5	Develop an appreciation of an evolutionary perspective that explains why mammalian .Endocrine systems work the way they do	2	2	2	3		2		3		2	3				2	3	
	CO6	Demonstrate/illustrate the concept of cross talk between physiological systems and within target cells between signalling pathways; i.e., how many hormones affect the secretion and actions of other hormones.	2	2	2	3		2		3		2	3				2	3	
Physiology and Bioenergetics- III	CO1	Enumerating the various methods of isolation, detection and identification of microorganisms employed in food and dairy industries	3		3	2	2			3	2						2	3	
	CO2	Identifying the types and nature of food spoilage caused by microorganisms	2	2	2	3		2		3		2	3				2	3	
	CO3	Developing principles and methods for the microbiological examination and preservation of foods	3	3	3		2	3	2	3				2			2	2	
	CO4	Perception of food safety regulations and the rationale use of standard methods and procedures for the microbial analysis of food and dairy products	2		3	2							3	2					3
	CO5	Providing basic understanding of microbial diversity in the environment	2		3	2	2						2	3				2	
	CO6	Understanding microbial interaction with other living systems	2	2	2	3		2		3			2	3				2	3
Intermediary Metabolism - III	CO1	Illustrate the metabolism of carbohydrates through various anabolic and catabolic pathways like glycolysis, Kreb's cycle, Glycogen metabolism, glucuronic acid cycle etc.	2	2	2	3		2		3		3	2				2	3	

	CO	COURSE OUTCOMES	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
				CO2	Students will gain knowledge in amino acid metabolism	3		3	2	2			3	2				
	CO3	understand about Lipid metabolism	2	2	2	3		2		3		2	3			2	3	
	CO4	Explain about Nucleic acid metabolism	3		3	2	2			3	2					2	3	
	CO5	learn about In born errors of nucleic acid metabolism	2	2	2	3		2		3		2	3			2	3	
	CO6	Study about In born errors of lipid metabolism	2	2	3	3	2	3	2				2			3	2	
	CO1	Understand “ Gene Regulation mechanism in Prokaryotes, Viruses and Eukaryotes”	2	2	2	3		2		3		2	3			2	3	
	CO2	Gain knowledge about Recombinant DNA technology by studying about various Vectors and Restriction Enzymes involved.	3		3	2	2			3	2					2	3	
	CO3	Application of R-DNA technology and use of Restriction enzymes in construction of various vectors and libraries such as c-DNA & Genomic libraries	3		2	2	3	2		3		3	3				2	
	CO4	Differentiating between the different mechanisms involved, depending on the organism and the process involved in regulation.	3	3	3		2	3	2	3			2		2	2		
	CO5	Study of Various Expression Systems and Molecular Markers	2		3	2						3	2				3	
	CO6	Clear & Lucid understanding of the Various Regulatory mechanisms and their Applications	2		3	2	2					2	3			2		
IV	Plant and Environmental 1 Biochemistry- IV	CO1	Explain the Photosynthesis	2	2	3	3		2		3		2	3			2	3
		CO2	The main objective of this paper is to create an awareness among the students about the environment	2	2	2	3		2		3		2	3			2	3

	CO	COURSE OUTCOMES	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
				CO3	By the end of the course, the students will have a better appreciation for the environment and become responsible citizens	3		3	2	2			3	2			
	CO4	This course teaches Nitrogen fixation and function and mechanism of action of phytohormones	2	2	2	3		2		3		2	3			2	3
	CO5	Demonstrate the Renewable and non-renewable resources	3		3	2	2			3	2					2	1
	CO6	They learn about the Environmental, Soil pollution	2	2	2	3		2		3		2	3			2	3
Clinical Biochemistry and Human Nutrition -IV	CO1	Provide knowledge on hormones, their functions and the diseases occurring due to alterations in the levels of hormones.	2	2	2	3		2		3		2	3			2	3
	CO2	Student will know the nutritional importance of proteins, carbohydrates, lipids, vitamins and minerals.	2	2	2	3		2		3		2	3			2	2
	CO3	Enable the student to do diagnostic tests for liver diseases, Gastro intestinal diseases, renal diseases and nutritional deficiencies.	3		3	2	2			3	2					2	3
	CO4	Gain knowledge about the blood and gastro intestinal systems in the human body	2	2	2	3		2		3		2	3			2	3
	CO5	Understanding the endocrine pathways by designing tests that will help to diagnose	3	3	3		2	3	2	3			2		2	2	
	CO6	Study of Various Biological effects of non nutrients, Antinutrients	2		3	2							3	2			
Applied Biochemistry and Cancer Biology - IV	CO1	Application of R-DNA technology and use of Restriction enzymes in construction of various vectors and libraries such as c-DNA & Genomic libraries	2		3	2	2					2	3			2	
	CO2	Screening of the libraries with the help of “ Reporter Genes” and Molecular Markers such as RFLP,RAPD, AFLP	2	2	2	3		2		3		2	3			2	3

	CO	COURSE OUTCOMES	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
				CO3	understand the concept of Fermentation Technology	2	2	2	3		2		3		2	3	
	CO4	Study of Various Expression Systems and Molecular Markers	3		3	2	2			3	2					2	2
	CO5	It is an elective paper which deals with fundamentals required for understanding the cancer at molecular level.	2	2	2	3		2		3		2	3			2	3
	CO6	Under stand the concept of Strategies of anticancer drug therapy	3		3	2	2			3	2					2	3
Omics, Bioethics and Research Methodology - IV	CO1	To study the principles of Genomics, Proteomics	2	2	2	3		2		3		2	3			2	2
	CO2	As beginners the students will learn to use a computer, internet, scope and applications of bioinformatics	2	2	2	3		2		3		2	3			2	3
	CO3	Using Bioinformatics tools in conducting research	3		3	2	2			3	2					2	3
	CO4	This course aims to provide the knowledge and practical skills of functional genomics and proteomics	2	2	2	3		2		3		2	3			2	3
	CO5	This course is an introduction to the students on the ethical aspects of conducting research and safety aspects to be adhered in a research setting	3		3	2	2			3	2					2	3
	CO6	Students will learn on Basics, Origin and identification of problem, Literature survey, Formulation of hypothesis	2	2	2	3		2		3		2	3			2	3