

DEPARTMENT OF BIOCHEMISTRY:

PROGRAM OUTCOMES AND PROGRAM SPECIFIC OUTCOMES

S.No.	Program	Program outcome
1	B.Sc(BC.Z.C) Biochemistry, Zoology, Chemistry	Expertise in the Life sciences provides the students with opportunities to go for Higher Education and also employment opportunities in Pharma industries, R&B Labs, Clinical diagnostic Labs, quality control and research. Promotes an in-depth exploration in specific fields, current ways of thinking, new discoveries, and methodologies in the areas of biological research, health. Learn how to design and interpret experiments, thereby contributing to the creation of new knowledge in the fields of biochemistry. Develop an awareness of ethical responsibilities in research.
		Program Specific outcomes
		• Demonstrate an understanding of the chemistry, structure and function of biomolecules • Explain biological mechanisms, such as the processes and control of bioenergetics and metabolism, as chemical reactions • Explain the biochemical processes that underlie the relationship between genotype and phenotype • Demonstrate an understanding of the structure and function of both prokaryotic and eukaryotic cells • Demonstrate an understanding of the principles, and have practical experience of, a wide range of biochemical techniques (e.g. basic molecular biology, cell biology and microbiology methods, Spectrophotometry, the use of standards for quantification, enzyme kinetics; macromolecular purification, chromatography and electrophoresis) • Analyze biochemical data, (e.g. in enzyme kinetics, molecular structure analysis and biological databases)
		Learning Outcomes
		Content Knowledge: Demonstrate an understanding of fundamental biochemistry principles, including topics specific to biochemistry. Problem Solving Skills: Design, carry out, and record the results of chemical and biochemical experiments using classical techniques, modern instruments, and/or computers, then analyze those results to draw reasonable, accurate conclusions. Chemical Literature Skills: Employ modern library search tools to locate and retrieve scientific information about a technique, or topic relating to biochemistry. Laboratory Safety Skills: Observe safe practices in the laboratory, follow proper procedures and regulations for safe use and disposal of chemicals, and respond to emergencies in the laboratory. Communication Skills:Communicate biochemical concepts and experimental results through effective written and oral communication. Team Skills: Work collaboratively with members of a team in classroom and/or laboratory activities.

COURSE OUTCOMES

S.No.	Paper Code	Paper Title	CO	Course Outcomes
1	1301	Cell biology, Carbohydrates, Lipids and Proteins	CO1	Comprehensive knowledge of Cell biology
			CO2	understand water role in biological processes and measurement of PH
			CO2	Knowledge on carbohydrates Classification , Biological Importance of carbohydrates
			CO3	Knowledge on Lipids Classification , Biological Importance of Lipids
			CO4	Knowledge on Amino acids, Classification , Peptides, Biologically important peptides
			CO5	Knowledge on Proteins, Classification and Biological Importance of proteins
2	2301	Nucleic acids and Biochemical Techniques	CO1	Knowledge on Structure of Nucleic acids, Tyoes of DNA, RNA
			CO2	Define and classify Structures of porphyrins
			CO3	Understand principles and applications of centrifugation, chromatography techniques like Paper, Thin layer, Gel filtration, Ion exchange and Affinity. Electrophoresis
			CO4	Understand the principles and application Colorimetry and Spectrophotometry, Tracer techniques
			CO5	Describe outlines of Intermediary metabolism, methods of investigation
3	3301	Enzymology and Bioenergetics	CO1	Understand Classification of Enzymes and Structure
			CO2	Understand Influence of Physical factors and Inhibitors on Enzyme activity
			CO3	Understand Outline of mechanism of enzyme action, Regulation of enzyme activity
			CO4	Understand Bioenergetics: Thermodynamic principles
			CO5	Understand Biological Oxidations in Mitochondria
4	4301	Intermediary Metabolism	CO1	Understand the Concept of anabolism and catabolism, Carbohydrate Metabolism
			CO2	Understand the Concept of Lipid Metabolism
			CO3	Understand the Concept of Amino acid Metabolism
			CO4	Understand the Concept of Nitrogen cycle, Non-biological and biological nitrogen fixation
			CO5	Understand the Concept of Metabolism of Nucleic acid and heme
5	5301	Physiology, Clinical Biochemistry and Immunology	CO1	Understand and analyze the concepts Digestion and absorption of carbohydrates, lipids and proteins. Composition of blood
			CO2	Understand Endocrinology- organization of endocrine system. Classification of hormones
			CO3	Understand the Concept of Nutritional Biochemistry
			CO4	Understand the Concept of Clinical Biochemistry
			CO5	Understand the concepts of Innate and Acquired Immunity, Haptens and monoclonal antibodies

6	5302	Basic Microbiology	CO1	Understand the concepts of History and Development of Microbiology
			CO2	Able to differentiate between prokaryotic and eukaryotic cells and explain the characteristics of bacteria, virus, fungi, protozoa, algae
			CO3	Understand the viruses Poxvirus and Poliovirus. Bacterial Diseases- Cholera and Typhoid Protozoan Diseases
			CO4	Understand and analyze the concepts phycology; General characteristics of algae
			CO5	Understand and analyze the concepts General characteristics of fungi and Economic Importance of Fungi
7	6301	Microbiology and Molecular Biology	CO1	Comprehensive knowledge of Micro biology
			CO2	Understand and analyze the concepts of DNA replication and Enzymology
			CO3	Understand and describe the process of Protein synthesis and regulation of Prokaryotic gene expression
			CO4	Explain Gene regulation through Operon concept, and regulatory elements
			CO5	Understand the concepts of fermentation technology, Applied Biochemistry
8	6302	Hematology	CO1	Understand the concepts Laboratory Preparation in Hematology
			CO2	Understand the concepts Hemoglobin synthesis. Various hemoglobin's. Haemopoietic system of the body. Blood cell counts
			CO3	Understand the concepts Homeostasis and Hematological Diseases
			CO4	Understand the concepts Automation in Hematology
			CO5	Understand the concepts Immunohaematology and Blood banking
9	6303	Clinical Microbiology	CO1	Understand the concepts Clinical Microbiology
			CO2	Understand the concepts Clinical Bacteriology Laboratory & Staining methods
			CO3	Understand the concepts Culturing of Microorganisms and Identification of Bacteria
			CO4	Understand the concepts Clinical Mycology and Virology
			CO5	Understand the concepts Diagnostic Serology
10	6304	Biochemical Correlations in Diseases	CO1	Understand the concepts Inborn errors of metabolism
			CO2	Understand the concepts Nutritional Deficiency and Life style diseases
			CO3	Understand the concepts Hormonal Imbalances and Autoimmune diseases
			CO4	Understand the concepts Classification of infectious agents
			CO5	Understand the concepts Infectious diseases