

Programme	Biochemistry	Course Code	BC. 101	Credit Hours	3 (2+1)
Course Title	Introduction to Biochemistry				
Course Introduction					
This course will provide fundamental concepts in biochemistry, understanding of classification, structures, properties and biological functions of major macromolecules along with basic laboratory skills.					
Learning Outcomes					
After completing this course student should be able to:					
<ul style="list-style-type: none"> • Understand the scope of biochemistry • Understand biochemical basis of life • Acquire basic knowledge of biomolecules 					
Course Content					
Theory Unit-					
<ul style="list-style-type: none"> • Scope of biochemistry • Historical perspective of biochemistry • Importance of biochemistry • Molecular evolution of life from prebiotic era • Evolution of Complex Self-Replicating Systems from Simple Molecules • Forms, functions and brief classification of Prokaryotes • Forms, functions and brief classification of eukaryotes, Diversity of eukaryotes • Importance of water, Physical and chemical properties of water • pH and buffer • Concept (laws) of thermodynamics and energy change • Life Achieves Homeostasis While Obeying the Laws of Thermodynamics • Unique properties of carbon found in biological molecules • Unique properties of other elements found in biological molecules • Composition, functions and properties of lipids, proteins, carbohydrates and nucleic acids • Introduction and importance of vitamins, hormones, enzymes • Nature of organic matter; isomerism; general reactions of different functional groups; biologically important organic compounds/solvents • Use and significance of radioisotopes in biochemistry 					
Practical Unit –I					
<ul style="list-style-type: none"> • Safety measures in laboratory • Laboratory glass apparatus and its usage • Use of commonly used instruments in the biochemistry lab. • Preparation of solutions routinely used in biochemical experiments (% solution) • Preparation of solutions routinely used in biochemical experiments (molar solutions) • Preparation of solutions routinely used in biochemical experiments (normal solutions) • Preparation of solutions routinely used in biochemical experiments (stock and dilute solutions) • pH determination using pH meter • pH determination using litmus paper/ litmus solution • pH determination using indicator dyes • Preparation of acetic acid-sodium acetate buffer of different pH values • Preparation of phosphate buffer of different pH values • Preparation of Tris-HCl buffer of different pH values • Preparation of carbonate-bicarbonate buffer of different pH values • Preparation of Tris-glycine buffer of different pH values 					

Textbooks and Reading Material			
Textbooks			
<ul style="list-style-type: none"> ▪ Voet D and Voet TG, 2008. Biochemistry. 4 th Edition; John Wiley and Sons, New York. ▪ Christopher Mathews et al., Biochemistry (4th Ed.). Pearson publishers, 2013. ▪ Stryer et al., 2006. Biochemistry. 6 th Edition; WH Freeman, New York. (available at www.ncbi.nlm.nih.gov) ▪ Schantz JT, 2007. A Manual for Biochemistry Protocols. World Scientific Publishing. (available online) ▪ Arti Nigam. Lab Manual in Biochemistry, Immunology and Biotechnology, Tata McGraw-Hill Education publishers • 6. David T. Plummer, 2001. Introduction to Practical Biochemistry, Tata McGraw-Hill Education publishing company. 			
Teaching Learning Strategies			
<ul style="list-style-type: none"> • Class Lecture • Class Discussions • Class Tutorials • Lab Demonstration 			
Assignments: Types and Number with Calendar			
<ul style="list-style-type: none"> • 1st Quiz in 4th Week of 5 marks • 2nd Quiz in 10th Week of 5 marks • 3rd Quiz in 14th Week of 5 marks • 1st Assignment in 8th Week of 10 marks 			
Assessment			
Sr. No.	Elements	Weightage	Details
1	Midterm Assessment	35%	Written Assessment at the mid-point of the semester.
2	Formative Assessment	25%	Continuous assessment includes: Classroom participation, assignments, presentations, viva voce, attitude and behavior, hands-on-activities, short tests, projects, practical, reflections, readings, quizzes etc.
3	Final Assessment	40%	Written Examination at the end of the semester. It is mostly in the form of a test, but owing to the nature of the course the teacher may assess their students based on term paper, research proposal development, field work and report writing etc.