

**Course Title:** Biochemistry

**Course Code:** CSE- 876

**Course Objectives:**

- Biochemistry is an introductory course designed for both biology and chemistry students introducing the essentials of biochemistry: protein structure, enzymology, carbohydrate metabolism, electron transport, integration and regulation of metabolism.
- A consistent theme in this course is the development of a quantitative understanding of the interactions of biological molecules from a structural and molecular dynamic point of view.
- A molecular simulation environment provides the opportunity for you to explore the effect of molecular interactions on the biochemical properties of systems

**Course Outcomes:**

- After the completion of this course, students would be able to understand the role of chemistry in biological systems as well as the computational theories / methods used to study them

**Course Contents:**

- Chemical Functional Groups
- Chemical Bonding
- Hydrogen bonding
- Partial Charges
- IUPAC Nomenclature
- Stereochemistry
- Proteins, Enzymes
- Instrumental methods of Analysis
- Computational theories

**Recommended / Reference Books:**

- Biochemistry by Richard Harvey and Denise Ferrier, 5th edition, published by Lippincott Williams and Wilkins.
- Introduction to general organic and biochemistry by Morris Hein, Scott Pattison and Susan Arena, published by John Wiley and Sons, Inc.
- Principles of Bioinorganic Chemistry by Stephen J. Lippard and Jeremy M. Berg, 1994, University Science Books, Mill Valley, CA.
- Bioinorganic Chemistry, A Short Course by Rosette M. Roat-Malone, 2nd edition, 2007, published by John Wiley and Sons, Inc., Hoboken, New Jersey.
- Essentials of Computational Chemistry 2nd edition theories and models by Christopher J. Cramer, published by John Wiley and Sons, Ltd, The Atrium, Southern Gate, Chichester, West Sussex, England.