

In.M.Sc, Applied Chemistry (5 years)

8th Semester

FCYE--805	Chemical Biology		
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Module -I

Concept of Energy in Biosystems

Cells obtain energy by the oxidation of foodstuff (organic molecules).

Introduction to metabolism (catabolism, anabolism). ATP: The universal currency of cellular energy, ATP hydrolysis and free energy change. Agents for transfer of electrons in biological redox systems: NAD⁺, FAD. Conversion of food to energy: Outline of catabolic pathways of carbohydrate- glycolysis, fermentation, Krebs cycle, TCA Cycle, and Gluconeogenesis

Overview of catabolic pathways of fat and protein. Interrelationship in the metabolic pathways of protein, fat and carbohydrate. Caloric value of food, standard caloric content of food types.

Module -II

Introduction to biomolecules: basic idea. Structure and function of Hormones, Minerals and Vitamins; Bio-complexes: Nucleoproteins, Glyco-proteins, Lipoproteins and Vitamin complexes.

Module -III

Enzymes: Properties of enzyme, classification of enzymes, mechanism of enzyme action, kinetics of enzyme action, activation energy, enzyme inhibition, coenzyme, apo enzyme and holozyme

Text Book

1. Principle of Bio-Chemistry – Lehinger, Nelson and Cox
2. Biochemistry of Biochemistry by L. Stryer
3. Fundamentals of Biochemistry – Voet & Voet
4. Biochemistry, C.B.Powar & G.R.Chatwal, Himalaya Publishing House.
5. Biochemistry, Rastogi, Tata McGraw Hill.