GUJARAT TECHNOLOGICAL UNIVERSITY
BACHELOR OF PHARMACY
SEMESTER: V

Subject Name: **Pharmaceutical Chemistry – V (Biochemistry)**

Sr. No.	Course contents	Proposed No. of Hours of Teaching
1.	Introduction to Carbohydrates, Proteins and Lipids.	**15**
2.	Biochemical Organization of the cell and Transport Processes Across cell Membrane.	**2**
3.	The Concept of free energy, Determination of Change in free energy from Equilibrium Constant and Reduction Potential, Bioenergetics, Production of ATP and its Biological Significance	**2**
4.	**Enzymes:** Nomenclature, Enzyme Kinetics and its Mechanism of action, Mechanism of Inhibition, Enzymes and Iso-Enzymes in Clinical Diagnosis.	**5**
5.	**Co-Enzymes:** Vitamins as Co-Enzymes and their Significance. Metals as Co-Enzymes and their Significance.	**3**
6.	**a. Carbohydrate Metabolism:** Conversion of Polysaccharides to Glucose-1-Phosphate. Glycolysis and Fermentation and their Regulation, Gluconeogenesis, Glycogenesis and Glycogenolysis, Metabolism of Galactose and Fructose. Role of Sugar Nucleosides in Biosynthesis and Pentose-Phosphate Pathway. **b. The Citric Acid Cycle:** Significance, Reaction and Energetic of the Cycle, Amphibolic Role of the Cycle and Glyoxalic Acid Cycle, Uric Acid Cycle **c.** Role of Hormones in Maintenance of Blood Sugar Level.	**18**

Pharmaceutical Chemistry – V (Biochemistry) – Practical 3hr/week:

1. Separation of Amino Acids by Paper Chromatography and Thin Layer Chromatography (TLC).
2. Analysis of Normal and Abnormal Constituents of Urine.
3. Estimation of Chlorides, Phosphates, Acidity and Ammonia, Glucose in Urine, Gastric Juice.
4. Identification of Carbohydrates and Proteins.
5. Biochemistry of Cheese, Milk, Bread and Bile.
6. Identification of Substances of Physiological Importance.
7. Estimation of Diastase in Urine.
8. Achromic and Chromic Period of Salivary Amylase.

References Books:

1. E. E. Conn and P. K. Stumpf, Outlines of biochemistry, John Wiley and Sons, New York.
2. A. L. Lehninger, Principles of biochemistry, CBS Publishers and Distributors.
3. R. K. Murray, D. K. Granner, P. A. Mayes. V.W. Rodwell, Harpers Biochemistry, Prentice hall International Inc. latest edn.
4. S. C. Rastogi, Biochemistry, Tata McGraw Hill New delhi, Latest edn.
5. M.Cohn, K.S. Roth, Biochemistry and Disease. William and Wilkins co. Baltimore, Latest edn.
6. U.Satyanarayan, Biochemistry, Books and allied (P) ltd. Calcutta, latest edn.
7. G. F. Zubay, W. W. Parson, D. E. Vance, Principles of Biochemistry, WCB Publishers, England, latest edn.
8. S. Ramkrishnan, K. G. Prasannan, R. Rajan. Textbook of medical Biochemistry, Orient Longman Madras, Latest edn.
9. S.K. Sawhney, Randir Singh Eds, Introductory practical Biochemistry, Narosa Publishing house New Delhi.
10. D. T. Plummer, An Introduction to Practical Biochemistry, Tata McGraw Hill New Delhi.
11. J. Jayaraman, Laboratory manual in Biochemistry, Wiley eastern Ltd. New Delhi.