GUJARAT TECHNOLOGICAL UNIVERSITY
BACHELOR OF PHARMACY
Semester: VI

Subject Name**: Pharmaceutical Chemistry-VII (Biochemistry)**

Subject Code**: 260003**

Sr. No.	Course contents	Teaching Hours
1.	Lipid metabolism: oxidation of fatty acids, beta-oxidation and energetic, alpha-oxidation, omega-oxidations, biosynthesis of ketone bodies and their utilization, biosynthesis of saturated and unsaturated fatty acids, control of lipid metabolism and metabolism of cholesterol.	08
2.	Biological oxidation, enzymes and co-enzymes involved in oxidation reduction and its control. The respiratory chain, its role in energy capture and its control, energetic of oxidative phosphorylation, inhibitors of respiratory chain and oxidative phosphorylation, mechanism of oxidative phosphorylation	09
3.	Metabolism of ammonia and nitrogen containing monomers: nitrogen balance, biosynthesis of amino acids, catabolism of amino acids, conversion of amino acids to specialized products. Assimilation of ammonia, urea cycle. Metabolic disorders of urea cycle, metabolism of sulphur containing amino acids, porphyrin biosynthesis, formation of bile pigments, hyperbilirubinemia, purine biosynthesis, purine nucleotide interconversion, pyridine biosynthesis.	12
4.	Biosynthesis of nucleic acids. Brief introduction of genetic organization of the mammalian genome, alteration and rearrangement of genetic material, biosynthesis of DNA and its replication, DNA repair mechanism, biosynthesis of RNA	04
5.	Genetic code and protein synthesis: genetic code, components of protein synthesis and inhibition of protein synthesis. Brief account of genetic engineering and polymerase chain reactions	03
6.	Regulation of gene expression	03
7.	Techniques used in biochemistry: spectrophotometry, centrifugation, electrophoresis, chromatography, extraction and purification of nucleic acids	03
8.	Water and mineral metabolism: brief introduction	03

Pharmaceutical Chemistry-VII (Biochemistry) – Practical 3hrs/wk

1. Analysis of lipids.
2. Biochemistry of gastric juice.
3. Biochemistry of flour and potato.
4. Estimation of calcium in serum.
5. Estimation of calcium and magnesium in urine.
6. Estimation of uric acid in urine.
7. Colorimetric analysis of
    i. Glucose, creatinine and urea in blood
    ii. Protein, bilirubin and cholesterol in plasma
    iii. SGPT, SGOT

Books recommended:

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. M.Cohn, K.S. Roth, Biochemistry and disease. William and Wilkins co. Baltimore, Latest edn.
5. U.Satyanarayan, Biochemistry, Books and allied (P) ltd. Calcutta, latest edn.
6. G. F. Zubay, W. W. Parson, D. E. Vance, Principles of Biochemistry, WCB publishers, England, latest edn.
7. S.K. Sawhney, Randir Singh Eds, Introductory practical biochemistry, Narosa publishing house New Delhi.
8. D. T. Plummer, An introduction to practical biochemistry, Tata McGraw Hill New Delhi.
9. J. Jayaraman, Laboratory manual in biochemistry, Wiley eastern Ltd. New Delhi.
10. G. T. Mills, G. Leaf Practical Biochemistry, John Smith and Son Ltd.
11. Alan H. Gowenlock, Janet R. Mcmurray, Donald M. McLauchlan, Varley's Practical clinical biochemistry, Heinemann professional publishing.
12. P. G. Tikekar, Practical Biochemistry.