GUJARAT TECHNOLOGICAL UNIVERSITY

B.E. SEMESTER : 3

CHEMICAL TECHNOLOGY

Subject Code: **133601**

Subject name : **INTRODUCTION TO MEDICINAL CHEMISTRY AND BIOCHEMISTRY**

Sr. No.	Course contents
01.	Introduction to Medicinal & Pharmaceutical Chemistry, Methods of classification of drugs based on structure & biological activity, Concept of acidity & basicity of drugs & pKa values. Introduction of absorption & distribution of drugs based on physicochemical properties, Drug metabolism chemistry.
02.	Anti – infective: study of the chemistry of the following classes of drugs: nomenclature, classification, SAR: - Anti-infective agents: antiseptic & disinfectant, antibacterial – sulfonamides, quinoline, DHE antagonists, antibiotics including stability & degradation products, antiparasitic agents – antimalarial antiamoebic, antihelminitic, antimycobactrial agents, antifungal agents, anticancer agents, antiviagents, diagnostic agents, anticancer agents, antiviral agents.Non – steroidal anti – inflammatory agents.
03.	Cellular level cell & cell organelles. Coenzymes & cofactors: role of vitamins as coenzymes. Enzyme: structure, classification, mechanism of enzyme action, enzyme kinetics, enzyme inhibitors.
04.	Oxidative metabolism: biological oxidation, respiratory cycle, oxidation phosphorylation, metabolism of carbohydrates: Photosynthesis, glycolysis, pentose phosphate cycle, TCA cycle. Metabolism of proteins & amino acids, urea cycle. Metabolism of lipids: formation of fatty acids, beta oxidation of fatty acids: DNA as carrier of genetic information, transfers of information, protein biosynthesis. Miscellaneous: role of hormone & other body fluids. Introduction, importance general application in pharmaceutical industry concept of GMP.

Reference Books:

1. Strategies for Organic Drug Synthesis & Design, & Daniel Led nicer, John Willey & Sons Inc. New York., 2nd Ed, 1998
2. Burger's Medicinal Chemistry & Drug Discovery: Vol. 1 to 6, A. Burger & M.E. Wolff, John Wiley & Sons – New Jersey,6th Ed, 2003

3. Foye's Principles of Medicinal Chemistry, W.O. Foye, Lippincott Williams & Wilkins-Philadelphia, Oxford, 6th Ed, 2008.
4. Text book of Medicinal & Pharmaceutical Chemistry, Charles Owens Wilson Lippincott Williams & Wilkins – Philadelphia. 1962
5. Organic Synthesis – The Disconnection Approach, Warren S., John Wiley & Sons – Chichester.,1st Ed., 2005
6. Pharmaceutical Substances: Synthesis, Patents, Applications (N-Z), A. Kleemann, Georg Thieme Verlag,Stuttgart.4th Ed, 2001
7. Textbook of Medicinal & Pharmaceuticals Chemistry, Wilson & Gisvold ., Williams & Wilkins,1st Ed, 2004.
8. Principles of Biochemistry, Lehninger, Freeman & Company, 5th Ed, 2008
9. Biochemistry, J.M.Berg, J.L.Tymoczko & L. Stryer,W H Freeman, 5th Ed, 2002