GUJARAT TECHNOLOGICAL UNIVERSITY

BACHELOR OF PHARMACY

Semester: 4

Subject Code: **240003**
Subject Name: **Pharmaceutical Chemistry-IV (Organic)**

Sr. No.	Course content	Proposed No. of Hours of Teching
1.	Stereochemistry Chirality, optical activity, stereoisomerism, nomenclature and associated physicochemical properties, specification of configuration, resolution of racemic mixture, reactions involving stereoisomers, stereoselective and stereospecific reactions, conformations – alkanes and cycloalkanes, chiral reagents, stereochemistry of biphenyls, allenes, and spirans – specification of their configuration.	08
2.	Structure, properties, nomenclature, preparation and reactions of the following class of functional groups Benzene, polynuclear aromatic compounds, arenes, amines, phenols, aldehydes and ketones, carboxylic acids and their derivatives.	30
3.	α,β-unsaturated carbonyl compounds, conservation of orbital symmetry and rules, Nucelophilic aromatic substitution	04
4.	Introduction to nanochemistry, microwave synthesis and green chemistry.	03

Pharmaceutical Chemistry-IV (Organic) – Practical (45 Hours)

1. Qualitative analysis of unknown organic compound. **16**

2. Introduction and detailed demonstration to various synthetic techniques and apparatus used therein.
   Heating and cooling methods, distillation, reaction work-up, filtration, extraction, purification, identification. **06**

3. Synthesis of selected organic compounds
   Synthesis of at least fifteen selected compounds based on various reaction mechanisms like halogenation, nitration, alkylation, hydrolysis, oxidation, condensation, diazotization. Purification of the synthesized compound using precipitation or recrystallization. Monitoring progress of reaction by thin layer chromatography**.** **20**

Reference Books:

1. Organic Chemistry, Robert T. Morrison and Robert N. Boyd, 6th Ed., Pearson Education, 2002.
2. Organic Chemistry, G. Marc Loudon, 4th Ed., Oxford University Press, 2004.
3. Organic Chemistry, Vol I and II by I. L. Finar, 6th Ed., Pearson Education, 2000.
4. Advanced Organic Chemistry, Jerry March, 4th Ed., Wiley India, 2007.
5. Vogel's textbook of practical organic chemistry, 5th Edition, Pearson Education Ltd., 2005
6. "Experimental Organic Chemistry" L. M. Harwood, L. J. Moody, J. M. Percy, 2nd Edition, Blackwell Science, 2005.
7. Techniques and Experiment of Organic Chemistry, Addison Ault, 6th Edition, University Science Books, 1998.
8. Introduction to Organic Laboratory Techniques, A Microscale Approach, Donald L. Pavia, Gary M. Lampman, George S. Kriz, 3rd Edition, Harcourt College Pub., 4th Edition, 2007.