

GUJARAT TECHNOLOGICAL UNIVERSITY
B.E. SEMESTER: 3
ENVIRONMENTAL SCIENCE & TECHNOLOGY

Subject name : ORGANIC CHEMISTRY FOR TECHNOLOGISTS - I

Sr. No.	Course contents
01.	Electronic theory: Types of bonds & bond fission process, resonance effect & hyperconjugation, tautomerism. Reaction intermediates: generation, structure & some reactions such as carbocations, carbanions, free radicals & carbenes, electrophile & nucleophile.
02.	IUPAC nomenclature of different Organic polyfunctional compounds
03.	Stereochemistry: Classification of stereoisomers, diastereoisomers, separation of enantiomers, absolute configuration (R/S, E/Z), projection formula, elements of symmetry, stereochemistry of compounds containing two asymmetric carbon atoms. Conformation: conformation around C-C bond in acyclic compounds, structure of cycloalkanes. Geometrical isomerism, Stereoselective & Stereo specific reactions.
04.	Alkanes, Alkenes, Alkynes & Haloalkanes : Methods of preparation, properties & uses.
05.	Alcohols, Thiols, Ethers & Thioethers: Methods of preparation, properties & uses.
06.	Aldehydes & Ketones, Carboxylic acids & Amines: Methods of preparation, properties & uses.
07.	Name reactions in Organic chemistry : <ul style="list-style-type: none">i. Hoffman reactionii. Grignard reactioniii. Diazotization reactioniv. Hydrogenation reactionv. Ozonolysisvi. Aldol & Cross aldol reactionvii. Cannizzaro reaction

Reference Books:

- 1) Organic Chemistry, J. McMurry, Brooks / Cole, 5th Ed., 1999
- 2) Organic Chemistry, T. W. Solomons & C. B. Fryhle, John Wiley & Sons., 7th Ed., 2000
- 3) Organic Chemistry, G. Marc Loudon, Oxford University Press, 4th Ed., 2002
- 4) Organic Chemistry, L. G. Wade Jr., Pearson Education, 5th Ed., 2003
- 5) Organic Chemistry, Volumes I & II, I L Finar, ELBS & Longman Ltd., 5th Ed., 1996
- 6) Industrial Aromatic Chemistry: Raw materials, processes, products, H. G. Franck & J. W. Stadelhofer, Berlin Springer Verlag, 1st Ed., 1988
- 7) Stereochemistry of Carbon Compounds, E. L. Eliel, McGraw – Hill, 1st Ed, 2003.
- 8) Stereochemistry: Conformation & Mechanism, P. S. Kalsi, New Age International (P) Ltd., 6th Ed., 2005
- 9) Stereochemistry & Mechanism through solved problems, P. S. Kalsi, New Age International (P) Ltd., 3rd Ed, 2007
- 10) Organic Chemistry, Morrison & Boyd, Pearson, 7th Ed, 2011
- 11) Name reactions & Reagents in Organic synthesis, B.P.Mundy, M.G.Ellerd and F G Favaloro, John Wiley and Sons, 2005
- 12) Organic Building Blocks of the Chemical Industry, H H Szmant, John Wiley and Sons, 1989

**APPROPRIATE NUMBER OF PRACTICALS WILL BE CONDUCTED AS
PER THE THEORY SYLLABUS**