

GUJARAT TECHNOLOGICAL UNIVERSITY

B.E. Semester : IV

Environmental Science & Technology

Subject Code : 143501

Subject Name : Organic Chemistry for Technologists – II

Sr. No.	Course contents
01.	Mechanism of organic reactions Nucleophilic substitution : SN 1 & SN 2 Elimination reaction : E 1 & E 2 Addition reaction : Hydroboration – oxidation reaction Rearrangment : Pinacol & Benzidine NGP
02.	Aromaticity: Characteristics of aromatic compounds, Huckel rule, benzenoid & non-benzenoid compounds, mechanism of aromatic electrophilic substitution reactions. IUPAC nomenclature of aromatic compounds, Isomerism in substituted benzenes & naphthalenes, orienting influence of substituent.
03.	Friedel – Craft & related reactions, Halogenated compounds, nitroaromatic compounds, aromatic amines, aromatic sulfonic acids, phenols.
04.	Heterocyclic chemistry Introduction-nomenclature-properties-synthesis & reactions involved in five member & six member heterocycles. Heterocycles with one, two or more hetero atoms . Biological importance of heterocycles.
05.	Study of individual reactions Allylic rearrangement – Arndt Eister synthesis – Baeyer Villiger reaction Baker-Venkatraman reaction - Benzilic acid rearrangement-Carrol reaction- Curtius rearrangement-Dimorth rearrangement – Favorskii rearrangement - Lossen-Schmidt rearrangement - Pinner reaction – Reformatsky reaction - Robinson Annellation reaction - Witting reaction - Diels-Alder reaction,Birch reduction, Mannich 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. Stadohofer, 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**