SARDAR PATEL UNIVERSITY
Programme: B.Sc (Industrial Chemistry-Vocational)
Semester: V
Syllabus with effect from: June-2013

Paper Code: US05CICV01	**Total Credit: 3**
Title of Paper: Organic Chemistry	

Unit	Description in detail	Weightage (%)
I	Reaction Mechanisms: Types of mechanism. Reactive intermediates: Formation, Structure, Stability of carbocation, carbanion, free radical, benzyne and nitrene. Elimination reaction: mechanism and orientation, effect of changes in substrate. Addition Reaction: mechanism, orientation and reactivity. Aromatic substitution reaction (Electrophilic and Nucleophilic): mechanism, mono and di-substituted benzene – reactivity and orientation.	**25%**
II	Reaction and Rearrangement: Friedel–Craft's Reaction, Meerwein–Ponndorf–Verley Reduction, Aldol condensation, Diels–Alder Reaction. Rearrangements: Introduction, Types of Molecular Rearrangement: Pinacol – Pinacolone Rearrangement, Benzilic Acid Rearrangement, Fries Rearrangement.	**25%**
III	Reagents of Synthetic Importance: Preparation and uses of Aluminiumisopropoxide, N-Bromosuccinimide, Lead tetra acetate, Lithium aluminium hydride, Osmium Tetraoxide, Sodium Borohydride and Selenium dioxide.	**25%**
IV	Spectroscopy: Introduction, Theory, Instrumentation and Applications of Infrared (IR) Spectroscopy, Proton Nuclear Magnetic Resonance (NMR) Spectroscopy and Mass Spectroscopy. Problems pertaining to the structure elucidation of organic compounds using UV, IR, Mass and PMR spectroscopy.	**25%**

Basic Text & Reference Books:

- Organic Chemistry by M. K. Jain and S. C. Jain (ShobanLAlNagin Chand & Co. Educational Publishers, Jalandhar).
- Rreaction Mechanism and reagents in Organic Chemistry. By Gurdeep R. Chatwal, Himalaya Publishing House. Delhi.
- Organic Chemistry by Robert T. Morrison and Robert T. Boyd (VIth Edition, Prentice Hall of India Pvt. Ltd. New Delhi)
- Organic Chemistry by R. K. Bansal (Tata McGraw – Hill Publishing Co. Ltd. New Delhi)
- Spectroscopy of Organic Compounds, by P. S. Kalsi, New Age international Publications.