

SARDAR PATEL UNIVERSITY**Programme: B.Sc (Chemistry)****Semester: IV****Syllabus with effect from: November/December-2012**

Paper Code: US04ECHE03	Total Credit: 2
Title Of Paper: Polymer Chemistry	

Unit	Description in detail	Weighting (%)
I	General Introduction Introduction, Classification, Nomenclature of polymers, Isomerism in polymer chain, Mechanism of polymerization, Coordination polymerization, Ring opening polymerization. Dienes as a monomer: structure and properties, Resonance in conjugated dienes, Resonance in alkene. Hyperconjugation, Ease of formation of conjugated dienes, Electrophilic addition to conjugated dienes. 1,4-addition, Free radical polymerization of dienes.	
II	Physical Properties Of The Polymers Macromolecules, Polymer and polymerization, Free-radical vinyl polymerization, Copolymerization, Ionic polymerization. Leaving group, Coordination polymerization, Stepreaction polymerization, Structure and properties of macromolecules. Distinguishing features of addition and condensation polymerization, Copolymers, Phase system for polymerization like bulk, solution, emulsion and suspension polymerization, Classification of polymers (1 to 3), Plastics and resins.	
III	Inorganic Polymer Introduction, Classification of inorganic polymers, General properties of inorganic polymers Polymers containing boron, silicon, phosphorous and sulphur.	
IV	Molecular Weight Determination Cryoscopy, Ebulliometry, Membrane osmometry, End group analysis, Viscometry, Ultracentrifugation Light scattering.	

Basic Text & Reference Books :-

- Principles of Polymer Science by P. Bahadur and N. V. sastry.
- Organic chemistry by Morrison and Boyd, 6th ed.
- Synthetic Organic Chemistry by Gurudeep R. Chatwal.
- Advanced inorganic chemistry Vol-1 (19th Edi) by Satyaprakash, G.D.Tuli, S.K.Basu and R.D.Madan.
- Polymer Science, First Edition 1986 reprint 2008 V.R.Gowariker, N.V.Viswanathan,Jayadevsreedhar.

