

**SARDAR PATEL UNIVERSITY**  
**Programme & Subject: M.Sc (Industrial Polymer Chemistry)**  
**Semester: III**  
**Syllabus with Effect from: June - 2013**

<b>Paper Code: PS03CIPC07</b>	<b>Total Credit: 4</b>
<b>Title Of Paper: Polymer Structure &amp; Properties - I</b>	

Unit	Description in detail	Weightage (%)
I	Basic concepts of polymer science: Polymerization, Chain polymerization, Radical, Ionic, Stereo specific polymerization, Polycondensation, Polymer solutions: Criteria and thermodynamics of solubility, fractionation of polymers by solubility, Methods of determining molecular mass: End group analysis, colligative properties, Osmometry, Light scattering, Viscometry, Ultracentrifugation, Gel permeation chromatography (GPC).	25%
II	Molecular size and shape: Effect of molecular weight on, Processibility, Mechanical properties, Thermal properties, Electrical properties and Chemical properties,	25%
III	Intermolecular order, crystallinity and orientation Intermolecular bonding	25%
IV	Polymer chain flexibility, Internal rotations in macromolecules, Configuration and conformations, Thermodynamics of, Factors affecting chain flexibility	25%

**Basic Text & Reference Books:-**

- Plastic Materials, J.A.Brydson, Newmans Butterworths London, 1975
- Textbook of Polymer Science, F.W. Billmeyer, Interscience Publ., New York
- Properties of Polymers, D. W. Van Krevelen, Elsevier Publ., 1976
- Polymer, Structure, Properties & Applications, R.D Deanin, Cohn Books, 1972
- Macromolecules-I, Hans-Georg Elias, Plenum Press, New York, 1984
- Polymer Characterization, E. Schroder, G.Muller et al, Hanser Publ., New York

