

Course Title: Inorganic Polymers

Semester: VIII

Course Code: CH-453

Credit Hours: 3-0

Pre-requisite: Nil

Course Objectives

1. Students will acquire knowledge about polymers, polymerization processes, inorganic polymers, characterization of polymers and their applications.

Text Books

2. C.E. Carraher, Jr., J.E. Sheads and C.U. Pittman, Jr., *Advances in Organometallic and Inorganic Polymer Science*, Marcel Dekker, Inc., New York (1982).

C.E. Carraher, Jr., *Polymer Chemistry*, 5th ed., Marcel Dekker, Inc., New York (2000).

Recommended Books

3. J.E. Mark, H. R. Allcock and R. West, *Inorganic Polymers*, Oxford University Press, (2005). F.G.A. Stone and W.A.G. Graham, *Inorganic Polymers*, Academic Press, Inc., London (1962). F.G.R. Gimblett, *Inorganic Polymer Chemistry*, Butterworths, London (1963).

Detailed Contents

4. Introduction: Classification, polymerization processes. Preparation and properties of: polysiloxanes, polyphosphazenes, polythiazyl and transition-metal polymers. Characterization of polymeric materials: molecular weight determination, IR and NMR spectroscopy, thermogravimetry, dynamic mechanical analysis, microscopy, differential scanning calorimetry. Applications of polymers.

Course Outcomes

At the end of the course, students will be able to understand the introduction to polymers, polymerization processes, characteri