Course Title: Organic Polymer Chemistry

Course Code: CH-815

Credit Hours:

Prerequisite: Nil

Course Objectives

To get knowledge about stereo-chemical nomenclature polymers, synthesis and classification of polymers, polymer degradation and stability with special emphasis on thermal and photo degradation and daily life applications of polymers.

Course Outcomes

By the end of the course students will have achieved a solid foundation in Polymer Chemistry. In particular they will have a clear understanding of:

i. ii. iii. Various methods for the synthesis and characterization of polymers.
ii. Polymer properties, structure/property relationships
iii. Applications of polymers in daily life.

Course Contents

Fundamental concepts of polymerization, Types of Polymers, Classification, Mechanism and Kinetic: Step Growth, Free radical addition polymerization, Ionic polymerization, Ziegler Natta catalyst used in polymerization, Stereochemistry of polymers, definition and examples of isotactic polymers, atactic, syndiotactic polymers and their stereoregulation., molecular weight determination of polymers, different methods used to determine the absolute and relative molecular weights of polymer, Structure-property relationship of polymers, Reactions of Synthetic polymers, polymer degradation and stability, special emphasis on thermal and photo degradation, Special emphasis on thermal and photo degradation

Recommended Books

1. R. Allcock, F. M. Lampe and J. E. Mark, Contemporary polymer Chemistry, 3 Person Education me, Person Prentice Hall (2003). rd ed.,
2. F. W. Billmeyer Jr., A Textbook of Polymer Sciences, John Wiley & Sons Pvt. Ltd Singapore 1994. 3. 4.
3. G. Odian, Principles of Polymerization, 4 th ed., John Wiley & Sons, Inc. (2004). M. S. Bhatnagar, A Textbook of Polymers, Vol, I, II, III, S. Chand and Co. Ltd (2004).