

SARDAR PATEL UNIVERSITY
Programme & Subject: M.Sc (Polymer Science & Technology)
Semester: IV
Syllabus with Effect from: June - 2015

Paper Code: PS04CPST12	Total Credit: 4
Title Of Paper: Polymers Blends, Adhesives and Pigments	

Unit	Description in detail	Weightage (%)
I	Polymer blends: Terminology, classification, equilibrium phase behavior and transitions, thermodynamics, methods of studying miscibility and immiscibility, molecular interpretation of polymer–polymer miscibility, Flory-Huggins theory, parameters influencing miscibility, methods of enhancing miscibility, Techniques for preparation and characterization of polymer blends. Phase morphology and application.	25%
II	Compatibilization: Practical compatibilization, factors affecting miscibility, compatibilization by Physical processes, Physical additives, polymer modifications for physical compatibilization, reactive compatibilizers and reaction mechanism. Commercial polymer blends: Thermoplastics polymer blends and thermosetting polymer blends viz. High impact polystyrene (HIPS), Acrylonitrile-Butadiene-Styrene (ABS), Polypropylene, Nylons, Epoxy resins.	25%
III	Adhesives: Concepts and terminology, classification of adhesive, advantages and disadvantages of adhesives bonding, joint design, adhesive selection, adhesive properties surface preparation and bonding process. Characteristics of adhesive material, Solvent cementing of thermoplastics, cementing of thermosetting Polymer, Welding of thermoplastics, Ultrasonic assembly, and testing of adhesive bonds.	25%
IV	Colorants for Polymers: Inorganic Pigments, Organic Pigments, Dyes and Effect of colorants on polymer.	25%

Basic Text & Reference Books:-

- Multi component polymer systems, I.S. Miles and S. Rostami, Chapman & Hall, New York.
- Polymer blends and Alloys, G.O. Shonaike and G.P. Simon, Marcel Dekker Inc, New York.
- Polymer Blends, Vol 1& 2, D.R. Paul and Seymour Newman, Published by Academic Press, New York.
- Plastics Engineering Handbook, Joel Frados, Van Nostrand Reinhold, New York.
- Plastics Engineering Handbook, M.L. Berins, Van Nostrand Reinhold, New York.
- Adhesives Handbook, Butterworth's, J. Shields.
- Adhesives Technology Handbook, Sina Ebnesassad, USA.
- Coloring of Plastics, Albrecht Muller, HANSER, Germany

