

(4 Lect./Week)
(4 hrs. Lab/Week)
(1 Student's presentation /Week)

(Total Credits -7)

Paper 801: Applied Polymer Science

1. Introduction, function and properties of adhesives, mechanical interlocking, adsorption and surface reaction. Surface topography, wetting and setting, thermodynamic work of adhesion, influence of constitution on adhesion, interfacial bonding, and surface preparation of adherents. Types of adhesives (Structural, elastomeric and pseudo plastic based).
2. General information, paints composition, selection and water solubility, interface-surface treatment, properties manufacturer of paints and uses of paints.
3. Definition and importance of coating, raw materials and composition of coating, manufacture of coatings, criteria and type of coatings.
4. The technology for preparation of paints, coatings and adhesives and their use in different fields, coating operations.

Practical - Polymer VIII:

1. Formulation of paints (water and solvent based).
2. Peel Test of coatings.
3. Adhesive formulation and compounding.
4. Measurement of Wettability of adhesives.
5. Coating Processes (Brush coating, roller coating, dip coating, spray coating).
6. Measurement of resin/paint viscosity by Ford cup 4 and Brookfield viscometer.

Suggested Readings:

1. Outline of Paint Technology by W. M. Morgan, CBS Publisher (2000).
2. Paints, Coatings and Solvents by D. Stoye, Wiley-VCH (2008).
3. Adhesion and Adhesives Technology by A. V. Pocius, H. Carl, Hanser-Verlag (2002).
4. Coatings of polymers and plastics by R. A. Ryntz, P. V. Yaneff, Marcel Dekker (2003).
5. Adhesion aspects of polymer coatings by K.L. Mittal, VSP (2003).