

AMPTE17 PLASTICS MATERIALS & APPLICATIONS-II

UNIT-1 THERMOPLASTIC ELASTOMERS

- 1.1 Speciality polymers viz. PEEK, polyimides, PAI & Ionomer, Liquid Crystalline polymers
Metallocene Polymers.
- 1.2 High tech-areas for applications of plastics. High & Low Temperature Polymers.
- 1.3 Interpenetrating Polymers Networks.
- 1.4 Ultra-high modulus fibres. Polymeric foams.

UNIT-2 REINFORCED PLASTICS

- 2.1 Principles of composite reinforcement, effect of reinforcement on strength of plastics,
- 2.2 Role and nature of binders and coupling agents, properties and applications of fibres in reinforcement (glass and carbon),
- 2.3 Properties and applications of FRP's (Thermoset & Thermoplastics: un-saturated polyesters, epoxies, PU, nylon) End use applications - case studies on applications

UNIT-3 DEFINITION, ADVANTAGES OF POLYMERS

- 3.1 Blends and alloys, role of composition,
- 3.2 Properties and applications of parameters for compability,
- 3.3 PVC – Nitrile rubber, ABS-PVC and PP-EPDM

UNIT-4 POLYOLEPHINES

- 4.1 Nylons & Polycarbonates with fillers like Glass, Mica, Talc, Caco, etc
- 4.2 Polymer Concretes & Advanced ceramic

UNIT-5 PRELEMINARY CONCEPTS OF NEW MATERIALS SUCH AS ELECTRICALLY ACTIVE POLYMERS,

- 5.1 Optoelectronic plastics, Bio-polymers,
- 5.2 Membrane plastics in bio medical applications.

References Books:

1. Folkes; M. J. and Hope; P. S., Polymer Blends and Alloys, Blackie Academic & Professional, London (1993). [CN334].
2. Paul; D. R. and Newman; Seymour (Eds.), Polymer Blends, Volumes I and II, Academic Press (1978).
3. Plastic Materials Ed 7 - By Brydson, J.A.