

AMPTE25 POLYMER COMPOSITES TECHNOLOGY

UNIT-1 INTRODUCTION OF COMPOSITE MATERIAL

- 1.1 Comparison of different materials with composites- advantages and disadvantages.
- 1.2 Principles of composite reinforcement.
- 1.3 Effect of fibrous reinforcement on composite strength.

UNIT-2 THERMOSETTING AND THERMOPLASTIC

- 2.1 Matrix materials for the composites
- 2.2 Unsaturated polyester resins, epoxy resins, vinyl ester resins
- 2.3 Curing of these resins and their selection for a particular application

UNIT-3 TYPES OF REINFORCEMENT

- 3.1 Such as natural, glass, carbon/graphite, aramid fibers, high strength and high modulus fibers.
- 3.2 Surface treatment and various forms of fibers.

UNIT-4 PROCESSING AND PRODUCTION

- 4.1 Techniques like hand-lay-up, spray-up, bag moldings, filament winding and pultrusion.

UNIT-5 PREPREGS

- 5.1 Their manufacture and characterization.
- 5.2 Sheet moulding and dough moulding compounds and their processing, prepreg and resin transfer moldings.
- 5.3 Hybrid and sandwich type composites.

References Books:

1. Macosko; Christopher W., RIM: Fundamentals of Reaction Injection Moulding, Society of Plastics Engineer, Hanser Publisher, Munich (1989).
2. Miller; Edward, Introduction to Plastics and Composites, Marcel Dekker, Inc., New York (1996).