

## **PPE7J001 POLYMER COMPOSITE TECHNOLOGY**

### **Module -I**

Introduction of composite material- comparison between composites and other materials-advantages and disadvantages. Principles of composite reinforcement- Effect of fibrous reinforcement on composite strength-Types of reinforcements- natural fibre, glass, carbon/graphite, aramid fibres, high strength and high modulus fibers.

### **Module -II**

Thermosetting and thermoplastic materials for the composites and their selection for particular application-

Processing and production techniques-Hand-lay-up, Spray-up, Bag moldings, Filament winding and Pultrusion.

### **Module -III**

Prepreg- manufacture and characterization. Sheet moulding and dough moulding compounds and their processing, Preform and resin transfer moldings. Hybrid and sandwich type composites.

### **Reference Books**

1. *Astrom; B.T, Manufacture of Polymer Composites, Chapman and Hall, London (1997)*
2. *Bunsell; A. R. and J. Renard, Fundamentals of Fibre Reinforced Composite*
3. *Materials, Institute of Physics Publishing Ltd., Bristol (2005).*
4. *Hollaway; Leonard (Ed.), Handbook of Polymer Composites for Engineers, Woodhead Publishing Ltd., Cambridge (1994), Reprint (2007).*
5. *Miller; Edward, Introduction to Plastics and Composites, Marcel Dekker, Inc., New York (1996)*