

## **5. ELECTIVE (ANY ONE)**

### **POLYMER BLENDS AND ALLOYS**

#### **Module I (12 hours)**

Definition, classification and importance of polymer blends and alloys; copolymer vs. polyblends & alloys; concept of polymer miscibility, thermodynamics of polyblends

Interchain forces in polyblends, interpenetrating polymer network in polyblends, morphology, and phase separation

#### **Module II (14 hours)**

Preparation, processing and properties of polymer blends.

Thermal, Mechanical and morphological characterization techniques used in polymer blends

Rheology of polyblends and alloys

#### **Module III (10 hours)**

Applications of polyblends and alloys in adhesives, molded products, footwear, films, fibers, tyres and tubes, surface coatings, wire and cable compounds, belting and hoses, miscellaneous uses, current trends in polyblends and alloys technology

#### **Text and Reference Books:**

1. Polymer Blends & Alloys- An Overview: RP Singh, CK Das, S.K. Mustafi, Asian Books Published 1<sup>st</sup> ed. 2002
2. Polymer Blends & Alloys: Folkes & Hope Blackie Academic Professional 1993
3. Advances in Polymer Blends & Alloys Technology by Malvyn Kohudic, Technomic, 1988
4. L.A. Utracki, Commercial polymer Blends, Chapman & Hall, London 1998
5. D.R. Paul & Seymour Newman, Polymer Blends, Vol.1 & 2, Academic Press, New York, 1978
6. Chris Rauwendaal, Polymer Mixing A self study guide, Hanser Publication