GUJARAT TECHNOLOGICAL UNIVERSITY
B. E. SEMESTER: VIII
PLASTIC TECHNOLOGY

Subject Name: **Plastics Alloys and Blends**

Sr. No	Course Content	Total Hrs.
1.	Introduction: Alloying & blending -definition-need to alloy & blend polymers-polymer that can be blended-introduction to composites-raw material selection criteria.	**4**
2.	Alloys & blends. Introduction: historical outline of industrial development of polymer alloys and blends-definitions-the reasons for and methods of blending-how to select blend components-fundamental principles for development of polymer alloys and blends.	**6**
3.	Polymer-polymer miscibility: general principles of phase equilibria calculation-theories of liquid mixtures containing polymer: Huggins-Flory theory, eqt. of state theories, Gas-lattice model, etc; Mechanisms of phase separation-general types of Polymer blends-polymer crystallization-morphology of blends-measurement of polymer/polymer interaction.	**7**
4.	Blend preparation equipments: mixers' and their various types like banbury, hot and cold mixers, twin screw compounders, and two- roll mills, etc. Design features of these equipments like rotor types, screws and their various types; flow behavior of the plastic material in the mixing equipments, theory of mixing etc.	**5**
5.	Characterization of Blends: characterization techniques like differential scanning Calorimetry, UVIR, FTIR, scanning electron micrographs, etc.	**6**
6.	Commercial polymer alloys and blends: blends of engineering and commodity plastics like PVC/ABS, PVC/SAN, PVC/NBR, PC/PET, PC/PBT, PC/ABS; PPO/HIPS etc. study in detail along with properties and applications.	**14**

Text Books:

- Polymer Alloys and Blends by L.A.Uttracki
- Polymer Engineering and Science Encyclopedia.