

GUJARAT TECHNOLOGICAL UNIVERSITY

M.E. Semester: III

Plastic Engineering

Subject Name: **Thermoplastic Elastomers (Major Elective-IV)**

Sr.No	Course content
1.	Introduction to Thermoplastic Elastomers (TPE) Polyolefin – based thermoplastic elastomers – Block copolymer, Random Block polymers, Graft copolymers, Polyolefin blend TPE's preparation, Properties, processing and applications.
2.	Polyvinylchloride Based Thermoplastic Elastomers – PVC/Nitrile Rubber blends, PVC/Polyurethane blends, PVC/Co-polyester elastomer blends. Styrenic Thermoplastic Elastomers – Manufacture, Properties, Compounding, Processing and Applications..
3.	Thermoplastic Polyurethane Elastomer – Raw materials, Synthesis, Properties, Processing, Blends and Applications
4.	Polyamides Based Thermoplastic Elastomers – Polyamide thermoplastic elastomers, Preparation properties, Structure – Property relationship, Processing and applications. Thermoplastic Polyether Ester Elastomers – Synthesis, polymer structure and Morphology, Properties, Blends and applications.
5.	Dynamically Vulcanized Thermo Plastic Elastomer Blends – Introduction - Preparation of Elastomer – Plastic blends by dynamic vulcanization, properties and applications. Ionomeric Thermoplastic Elastomers: Synthesis, Properties, ionic interactions in polymer blends and applications of ionomeric elastomers.

Reference Books:

1. G.Holden, N.R. Legge, R. Quirk, H.E. Schrolder, Thermoplastic Elastomers – 2nd Edition, Hanser Publishers, Munich, 1996.
2. Anil K. Bhowmick, Howard L. Stephens, Hand Book of Elastomers New Developments

and Technology, Marcel Dekker, Inc., New York, 1988.

3. S.K. De, Anil K. Bhowmick, Thermoplastic Elastomers from Rubber – Plastic Blends, Ellis Horwood, New York, 1990.
4. Benjamin M. Walker, Hand Book of Thermoplastic Elastomers, Van Nostrand Reinhold Company, New York, 1979.