

2. POLYMER PROCESSING

Module I (11 Hours)

General features of single screw extrusion, Feed zone, compression zone and metering zone. Mechanism of flow, Analysis of flow in extruder, General features of twin screw extruders, Profile production, Film blowing. Recent developments in extrusion technology. Introduction to blow moulding, Extrusion blow moulding, Extrusion stretch blow moulding.

Module II (8 Hours)

Types of Screws, Nozzles. Moulds- runners, sprues, venting, mould temperature controls. Structural foam injection moulding. Sandwich moulding. Reaction injection moulding. Injection moulding of thermosetting materials.

Module III (9 Hours)

Introduction to thermoforming-Vacuum forming, pressure forming, analysis of thermoforming. Calendaring process and analysis of calendaring. Rotational moulding. Compression moulding and Transfer moulding.

Module IV (8 Hours)

Introduction to FRPs. Different forms of reinforcement- Filament, Fabric, cloth, Mat, chopped fibers. Manufacturing methods- Manual processing methods- Layups, Semi-Automatic processing methods- cold press moulding, Automatic Process- Filament winding, centrifugal casting, pultrusion and injection moulding.

Text and Reference Books:

1. Crawford R.J., "Plastics Engineering", Pergamon Press, 2nd Edition, 1987.
2. Bill Meyer, "Text Book Of Polymer Science", John Wiley & Sons(Asia) Pvt Ltd, 1994.
3. Michael L. Berins "Plastic Engineering Hand Book of Society of the Plastic Industry", Springer Fifth edition.