

PLASTICS PROCESSING TECHNOLOGY (3-1-0) 4 Cr

1. Extrusion : Introduction and Principles – Single screw, specifications, types of screw (single/twin, extruder parts and their functions); products defects, causes and remedies. Extrusion blow molding and stretch blow molding-process sequences, the machine, multiple cavity blow molding, co-extrusion, preform production, comparison between blow and stretch blow molding.
2. Injection : Introduction and principles, components-functions, process variables, product defects and remedies. Injection blow moulding, Thermoplastics and thermosetting comparative behaviors.
3. Compression and transfer moldings : Introduction and principles, machine process and process variable, product defects and remedies, comparison between the above – mentioned process.
4. Rotational molding and thermoforming process : Principle and practices.

TEXT BOOKS :

1. D.H.Maron-Jones, “Polymer Processing”, Chapman and Hall, London(1989) or newer edition.
2. W.Michaeli, “Plastics Processing – An Introduction” Hanser Publishers, New York (1992).
3. Seymour S.Schwartz and Sidney H.Goodman, ‘Plastics Materials and Process, Van Nostrand Reinhold Co., New York (1982).

ELECTIVE SUBJECTS

ELECTIVE – I (Any one of the following subjects)

1. COMPOSITE MATERIALS (3-1-0) 3 Cr.

1. Composite materials for structural applications, Manufacturing methods of FRP composites, polymers and ceramics.
2. Fibrous and particulate composites, Micromechanical and Macromechanical behavior of orthotropic laminate and laminated composites.
3. Evaluation of strength and failure criteria of composites, Optimum fiber reinforcement criteria, Kelly-Davies model.
4. Testing, joining, environmental effects and the effects of defects on performance of composites, interpenetrating network.

TEXT BOOKS :

1. Lawrence E.Nielsen and Robert F. Landel, “Mechanical Properties of Polymers and Composites”, 2nd Edition, Marcel Dekker, New York (1994).
2. B.T.Astrom, “Manufacturing of Polymer Composites”, Chapman and Hall, London (1995).
3. T.G.Gutowski, “Advanced Composites Manufacturing:”, John Wiley and Sons, New York (1997).
4. Jones, R.M. “Mechanics of Composites Materials” Scripta Book Co.