

Engineering Plastics- Plastics available to the designer- Selection of Plastics for specific applications - Physical Basis of Polymer Processing- Mixing- Types of mixing process. Extrusion- Features of a Single Screw Extruder, Analysis of Flow, Aspects of Screw Design, Operating Point. Twin Screw Extrusion- Processes based on extrusion- Co extrusion- Injection Moulding- Principles- Moulding Cycle- Reciprocating Screw Injection Moulding Machine- Types of Clamping Units- PVT diagram- Aspects of Product Quality- Residual stresses- Hot Runner Moulding- Gas Assisted Injection Moulding. Compression and Transfer Moulding- Thermosetting Compounds- Analysis of compression moulding process- Types of Moulding Machines- Transfer Moulding- Trouble shooting- Comparison. Fibre Reinforced Plastics- Lay up Processes- SMC, DMC- Resin Transfer Moulding- Pultrusion, Bag Moulding Processes- Filament Winding- process Variants- Newer developments using thermosets. Viscoelastic behavior of plastics- stress, strain and rate of deformation- Newtonian and Non Newtonian fluids- Time dependent fluids- Isothermal viscous flow in tubes- Entrance and exit effects- elastic effects in polymer melt flow- die-swell and melt fracture- Weissenberg effect- Extensional Viscosity. Measurement of rheological properties- capillary rheometers- melt flow indexer- cone and plate viscometer- torque rheometers.

TEXTBOOKS/REFERENCES:

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