5th Semester	RPL5C003	Plastics Mould and Die Design	L-T-P 3-0-0	3 Credits

Module I: **Basics of Engineering Drawing** **(6 Hours)**

Orthographic projection-Projection of solids—vertical and horizontal surfaces-Inclined Surfaces-Curved Surfaces-Sectional views and assembly drawing.

Module II: **Product Design** **(8 Hours)**

Basic Principles-Shrinkage-Flash lines-Undercuts-suggested Wall thickness-Draft-Tolerance-Moulded holes-threads-radius- moulded hinges-integral hinge-snap fits - product design thumb rules - case studies and product design.

Module III: **Moulding Features** **(7 Hours)**

Parting line-Construction of core and cavity -types of gate -types of ejection-Mould temperature control - cooling - Mould alignment Mould ancillary parts.

Module IV: **Mould Design** **(9 Hours)**

Types of moulds-two plate - three plate - split moulds - Machine selection-Principles of shrinkage allowances-materials for mould parts-life of mould-mould maintenance-case studies on mould design. Injection Moulds for threaded components – automatic unscrewing – various unscrewing methods.

Module V: **Die Design** **(10 Hours)**

Extrusion die design–Construction features of an extruder, Process, Characteristics of Polymer melt, Die geometry, Die head Pressure, characteristics of land length to Profile thickness Extrudate die swell, Die materials, Classification of dies- Dies for Solid Section, Dies for Hollow Profiles, Blown film dies, Flat film dies, Parison dies, Wire and cable Coating dies, Spiral mandrel die, Fish tail die, Adjustable Core die.

Books:

[1] Pye, R.G.W Injection Mould Design for Thermoplastic
[2] Plastics Product Design & Process Engineering - By Belofsky, Harold
[3] Plastics Moulds & Dies - By Sors, & Others