

SARDAR PATEL UNIVERSITY
Programme & Subject: M.Sc (Polymer Science & Technology)
Semester: III
Syllabus with Effect from: June-2013

Paper Code: PS03EPST04	Total Credit: 4
Title Of Paper: Polymer Processing Tool Design	

Unit	Description in detail	Weightage (%)
I	Mould making: Introduction, Common machine tools, Processes employed for mould making, machine tools, Casting, Electro-deposition, cold hobbing, pressure casting, spark machining, bench fitting, Materials for mould making, CAD/CAM.	25%
II	Injection mould Design: General Mould construction, Basic terminology mould cavities, Materials and process employed for mould making, General mould construction- types of injection moulds, cavities and core, bolsters, ancillary items, mould mounting, attachment of mould to the plate, Ejection: Ejector grid, ejector plate assembly, Ejection techniques, Sprue pullers.	25%
III	Feed system- runners and gates design. Venting and Parting surfaces, Mould cooling and shrinkage allowances on moulds: Cooling of integer moulds, insert moulds, insert -bolster assembly and mould cooling plates, Runner less moulds- nozzle types, hot runner unit mould, insulated runner mouldand hot runner plate mould, Runner less injection moulding.	25%
IV	Die Design: Screw extruder fundamentals, general features of die, Material and process for die making, design features of dies, Design procedure, Die geometry, Extruder –Die operations, heating systems, temperature control, ease of maintenance and cleaning, fabrication, and cost estimation	25%

Basic Text & Reference Books:-

- Injection moulding Handbook, Dominick. V. Rosato and Donald .V. Rosato, CBS Publishers &, New Delhi.
- Plastics Extrusion Technology Handbook, Sidney Levy and James F. Carley, Industrial Press, New York.1989.
- Polymer Processing, Morton & Jones, Chapman & Hall.
- Dies for Extrusion, M.V. Joshi, Mcmillan Ltd.
- Injection mould Design, R.C. W. Pye, Longman Scientific & Technical.

