

P2PLBC02 - PLASTICS PROCESSING THEORY AND PRODUCT DESIGN (3-1-0)

Module I

Injection Moulding : Introduction to microprocessor control systems, effect of processing parameters on moulding quality, frozen in stresses, Annealing, Processing of Engineering Plastics, Statistically process control.

Module II

Fabrication & decoration of plastics – Sealing, Welding, Joining, Printing, Painting, Host Stamping, Vacuum metalizing, In mould decoration.

Module III

Calendaring : Introduction, type of calendars, roll, configuration, definition of terms such as calendar bank, calendaring process, process variable and application.

Module IV

Concepts : Size, shape and function – form and function – Aesthetics, Ergonomics – Shrinkage, Flash lines, Undercuts – External & Internal – wall thickness – variance in wall thickness – suggested wall thickness for thermoplastics and thermosetting materials – steps in product design – emphasize on designing with engineering plastics – Taper or draft – Fits & Tolerance – Designing with plastics for load bearing applications like gear, bearing etc. Design of radii, fillets, ribs & bosses – Design for flow and shape – moulded holes – through hole – blind holes – threaded holes – side holes – holes parallel to draw – nearness of holes of each other and side wall – moulding holes not parallel to draw – drilled and tapped holes – moulded threads – moulded lettering – surface treatment.

Text Books

1. Donald V. Rossato, Injection Moulding Handbook, International Thomson Publishing Co., 1995.
2. M.S.Welling, Injection Moulding Technology, VDI – Verlag GmbH, 1981.
3. Seymour S.Sctiwartz & Sidney H.Goodman, Plastics Materials and process, Van Nostrand Reinhold Company, New York, 1982.
4. RGW PYE Injection Mould Design for Thermoplastics, affiliated East-West Press P. Ltd., New Delhi 1989.
5. Beck, Plastics product design, Yan Nostrand Reinhold Company London.
6. Donatas satas Plastics Finishing and Decoration Van Nostrand Reinhold Company, New York. 1986.
7. James M. Margoills, decorating Plastics, Hanset Publishers, New York, 1986.