AMTD26 PLASTICS PROCESSING TECHNOLOGY

UNIT-1 BASIC PRINCIPLES

1.1 Classification of processing methods- Definition- Effect of Polymer properties on processing behaviour.

1.2 Injection Moulding: Principle- Definition of Terms- specifications- Types of machine used- parts and their functions.

1.3 Cycle time, process variables & its effects on moulding quality, Cavity-pressure profile- factors influencing moulding shrinkage

1.4 Dimensional control, annealing, Types of clamping systems, start up and shut down procedures, precautions to be taken while processing of engineering plastics such as nylon, acetal polycarbonate etc.

1.5 Common moulding defects, causes and remedies.

1.6 Thermoset Injection moulding process- Machine description, parts and their functions-process parameters-merits and de-merits.

UNIT-2 COMPRESSION MOULDING

2.1 Introduction- principles- definition of Terms, Compression moulding process-specifications machine used-Bulk factor-flow-cure relationship- cycle time.

2.2 Preforming, preheating, Influence of process variables such as temperature pressure, part size & configuration on quality and cycle time.

2.3 Finishing Operation. Transfer moulding: Principles- Types of process- machine used pot transfer, plunger transfer, screw transfer moulding techniques, theoretical calculation of pressures, trouble shooting.

UNIT-3 EXTRUSION

3.1 Introduction, principles, Classification of extruders, single screw extruder, specification, screw nomenclature, types of screws.

3.2 Process, machinery, dies for producing products such as film-blown film, cast film, and co-extruded films.

3.3 Sheets, co-extruded sheets, Tubes/ pipes, corrugated pipes.

3.4 Mono Strapping.

3.5 Coating/ Lamination, Profiles.

3.6 Twin screw extruder- principle- types- process- merits & demerits; vented barrel extruder- hopper loading devices; drying equipment.

UNIT-4 BLOW MOULDING

4.1 Introduction- principle- processes- Extrusion blow molding- injection blow molding- stretch blow moldings- process control- parison programming- machine used- Troubleshooting- recent advances in blow molding.

4.2 Thermoforming :Introduction- pressure forming- vacuum forming- Techniques of vacuum forming- simple vacuum forming- drape forming- plug assisted forming

4.3 Snap- backvacuum forming- pressure snap- back forming- blow back forming- merits and demerits of vacuum forming- moulds

4.4 Matched dies forming- continuous forming methods – application.

4.5 Calendaring: Introduction – type of calendars – roll configuration – definition of terms such as calendar bank- calendaring process- process variables- application- troubleshooting.

4.6 Rotational Molding: Introduction – principle- process- machinery used- materials- molds process parameters, merits and demerits of rotational molding.

4.7 Plastics Recycling: Introduction.

Reference Books:

1. Injection moulding Theory and Practice -By Irvin I Rubin
2. Injection Moulding Hand book -By D.V. Rosato
3. Injection Moulding - By A.S. Athalye Blow Molding - By E.G. Fischer