AMTD15 MOULDS AND DIES TECHNOLOGY

UNIT-1 PLASTICS IN THE MOULD INDUSTRY

1.1 Properties of plastics- application- processing- Injection moulding- Principle- application
1.2 Temperature range- Injection moulding machines- specifications- shot weight calculation- plasticizing capacity- clamping force calculation- minimum cycle time calculation
1.3 No. of cavity calculation- Testing of plastics-visual test, smoke test, carbon black test, metal flow index test- Hand Injection moulds
1.4 Terminology- mould materials Feed system- Runner- types of runner- Runner die calculation
1.5 Gate- types of gates- Gate calculation- Ejection Techniques- Ejection force calculation-
1.6 Parting surface- venting- shrinkage- values of shrinkage
1.7 Factors governing shrinkage- temperature control- cooling- mould cooling calculation- side core and side cavity
1.8 Determine core and cavity dimensions-Internal undercuts- Two plate and three plate moulds- runner less moulds- multi daylight moulds- mould maintenance.

UNIT-2 COMPRESSION MOULDING

2.1 Application- temperature and pressure ranges- basic types of compression moulds- flash type mould- positive mould- landed positive mould- semi positive mould.
2.2 Transfer moulding- application- advantages and limitations- types of transfer mould- pot type and plunger type.

UNIT-3 EXTRUSION MOULDING

3.1 Description of the process- application. Blow moulding- Description of the process- application.
3.2 Rotational moulding- description of the process- application.
3.3 Casting and moulding- principle- advantages- application- calendaring- vacuum forming- perform moulding mat and fabric moulding- premix moulding- filament winding- multicolor moulding

UNIT-4 DIE CASTING

4.1 Advantages of die casting techniques- principle advantages and limitations of pressure die casting process- die casting terminology- die casting alloys- zinc, aluminium, magnesium, copper etc
4.2 Composition- properties of different die casting alloys- die casting machines- hot chamber and cold chamber- comparison of hot chamber and cold chamber process- die casting dies.

Reference Books:

1. Introduction to Injection Moulding - Pye
2. A Text Book of Production Engineering - P.C. Sharma (SChand)
3. Manufacturing Engineering and Technology - Serope Kalpakjain
4. Fundamentals of plastics mould design-Sanjay K. Nayak-Tata Mcgrohill.