

## **PPE6I102      MOULD ENGINEERING**

### **Module I**

#### **Mould Making**

Mold Making: Introduction of mold parts, Mechanism of metal cutting, types of tools, influence of tool angles, Cutting fluids, Tool materials used including coated tools.

Studies of various machining operations: Turning, Shaping, Planning, Drilling, Grinding (Surface, Cylindrical, Tool & Cutter, Rotary Grinding), Milling (Horizontal / Copy Milling / Vertical / Ram / Tool Milling).

Die sinking (copy milling), Pentagraph, Profile grinding, Electrical discharge machining - Characteristics, physical processes, special technological features, types of EDM, design consideration & functions and technological planning. Applications of wire cut EDM in mold making.

### **Module II**

#### **Electroforming for mold manufacturing**

materials for electroforming, design & materials for models, machining for electroformed blanks, mold cavities, economy & service life. Hobbing process for mold making – advantages- elements of hobbing - materials used for cavity, lubrication, depth of hobbing-hobbing presses- operations

Polishing technology in mold making: Definition of surface roughness, basis of polishing technology- Types of polishing tools, methods of polishing -surface texturing - Process description-patterns and mold shapes, - mold preparation- limitations of chemical texturing.

### **Module III**

Metrology and inspection: Scope of inspection, Procedures, Choices of basic measuring instruments, Vernier, Micrometer, Surface Plates, Angle plates, Squares, Vernier height gauges, Depth gauges, Slip gauges, Dial gauges, Surface roughness measurement, Hardness testing, Comparators, Optical profiles projectors, Tool makers microscope, Optical flats - types and uses.

### **Text Books**

1. *R.G.W.Pye, Injection Mold Design, East West Press Pvt. Ltd., New Delhi.*
2. *Klus Stokhert (Edt.),Mold making handbook for Plastic Engineers, Hanser Publication NY,1983*

### **References Books**

1. *HMT Production Technology, TMH (India), 1992*
2. *Bhattacharya, A New Technology, IB Publishers, 1984*
3. *Stoekhert & Menning, Mold making handbook, 2nd edition, Hanser Publishers, Munich. W.A.J Chapman, Workshop Technology, Vol I & II, ELBS.*
4. *Herbert Rees, Mold Engineering, Hanser Publishers, NY. George Menges & Paul*
5. *Mohren*
6. *How To Make Injection Molds, Hanser Publishers.*
7. *DuBois; J. Harry and Pribble; W. I. (Eds.), Plastics Mold Engineering, SPE Polymer*
8. *Technology Series, Revised Edition, Van Nostrand Reinhold Co., New York (1965)*