



CONCEPTS IN MOLD BUILDING AND DESIGN

Course Syllabus

Day One

The Molding Cycle ♦ Injection ♦ Cooling ♦ Ejection ♦ Reasons for Type of Mold
Mold Classifications ♦ SPI Class 101 ♦ 102 ♦ 103 ♦ 104 ♦ 105
Factors in Cost of the Mold ♦ Design ♦ Mold Base ♦ Materials ♦ Runner System ♦ Components ♦ Labor
Types of Mold Bases ♦ A, B, T, X ♦ Unit ♦ Unscrewing ♦ Shuttle ♦ Stack ♦ Special
Starting the Mold Design ♦ Data ♦ Solid Model ♦ Design Steps ♦ Views in Mold Design
Nomenclature of the Mold ♦ Components ♦ Guide Systems ♦ Locating Systems ♦ Sprue Bushing ♦ Interlocks
Mold Details ♦ Width ♦ Length ♦ Height ♦ Plate thickness ♦ Standard Numbering System
Cost of Molding a Part ♦ Material ♦ Hourly Rate ♦ Labor ♦ Overhead ♦ Sales and Administrative Costs ♦ Profit
Design Steps ♦ Parting Lines and Types ♦ Surrounding with Steel ♦ Ejector Locations ♦ Plates and Applications
Cavity and Core ♦ Inserts ♦ Number per Block ♦ Determining Ejector Side
Draft ♦ Direction ♦ Reason ♦ Degree ♦ Application Rules ♦ Role in Ejection
Identifying the Mold ♦ Zero-Zero Corner ♦ Cavity Identification ♦ Component Identification
Cavity and Core ♦ Placement ♦ Usable Mold Area ♦ Cavity and Core Press ♦ Mounting Methods
Conventional Runner Systems ♦ Full Round ♦ Half Round ♦ Trapezoidal ♦ Efficiencies
Gate Styles ♦ Sprue ♦ Edge ♦ Overlap ♦ Submarine ♦ Cashew ♦ Tab ♦ Fan ♦ Film Diaphragm ♦ Pin Point ♦ Ring
Runnerless Molding Systems ♦ Internally Heated ♦ Externally Heated Manifolds ♦ Bushings ♦ Drops ♦ Valve Gates

Day Two

Balancing the Mold ♦ Feed Systems ♦ Cooling ♦ Pressures
Temperature Control (Cooling) ♦ Principles ♦ Flow Variables ♦ Channels ♦ Baffles ♦ Bubblers ♦ Pitch Distances
Plastic Part Analysis ♦ Flow ♦ Cooling ♦ Warpage ♦ Shrinkage
Venting the Cavity ♦ Parting Line Vents ♦ Inserts ♦ Ejector Pins ♦ Cores
Ejector Systems ♦ Conventional Pins ♦ Blade Ejectors ♦ Sleeves ♦ Stripper Plates ♦ Air Poppets ♦ Failure Modes
Mold Interlocks ♦ Tapered ♦ Straight ♦ Integral ♦ How to Place
Shrink Rates ♦ Calculations ♦ How Plastics Shrinks ♦ General Rates ♦ Importance of Steel Safe
Mold Materials ♦ Mold Base ♦ Cavity ♦ Core ♦ Criteria ♦ Hardness ♦ Thermal Conductivity ♦ Polishability
Cavity Finish ♦ Finish Types ♦ Texturing ♦ Engraving ♦ Plating and Coatings
Mold Detailing ♦ Plan Views ♦ Short Section ♦ Long Section ♦ Bill of Materials
Mold Actions ♦ Undercuts ♦ Mechanical Slide Action ♦ Hydraulic Side Cores ♦ Lifters ♦ Unscrewing Cores
♦ Collapsible Cores ♦ Wedges ♦ Multiple Slides ♦ Expandable Cavities
Strength of Mold ♦ Formulas ♦ Side Walls ♦ Bending ♦ Flexing ♦ Component Failure

Course Content Subject to Change due to Participant Interests and Questions