Mold Design using Pro/ENGINEER Wildfire 5.0

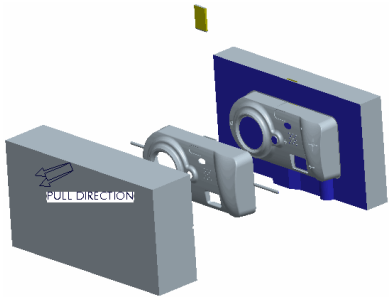
Overview

Course Code	TRN-2241–T
Course Length	2 days

Pro/MOLDESIGN provides the tools to create a mold model from start to finish by using the mold design process within Pro/ENGINEER Wildfire 5.0. In this course, you will learn how to create, modify, and analyze mold components and assemblies. Any changes made to the design model automatically propagate to the mold components and assemblies. You will learn how to create final extract components that reflect the geometry of the design model, along with shrinkage considerations, adequate drafting, mold features, and cooling systems. After completing the course, you will have a better understanding of the mold design process and how to create molded products by using the mold design process. At the end of each module, you will complete a skills assessment. The questions are used to help reinforce your understanding of the module topics and form the basis for review of any topics, if necessary.

Course Objectives

- Learn the basic mold process
- Prepare design models for the mold process
- Analyze design models to ensure their readiness for molding
- Create mold models
- Apply shrinkage to the reference model
- Create and assemble workpieces into the mold model
- Create mold volumes
- Create parting lines and parting surfaces
- Split mold volumes
- Extract mold components
- Create mold features
- Learn how to fill and open the mold



Prerequisites

- Introduction to Pro/ENGINEER Wildfire 5.0
- Basic understanding of industry standard Mold design terminology and processes.
- Knowledge of Pro/ENGINEER surfacing techniques a plus.

Audience

- This course is intended for designers, machinists, and manufacturing engineers. The topics in this course are also available as a Web-based training course.

Agenda

Day 1

Module	1	Introduction to the Pro/ENGINEER Basic Mold Process
Module	2	Design Model Preparation
Module	3	Design Model Analysis
Module	4	Mold Models
Module	5	Shrinkage
Module	6	Workpieces
Module	7	Mold Volume Creation

Day 2

Module	8	Parting Line and Parting Surface Creation
Module	9	Splitting Mold Volumes
Module	10	Mold Component Extraction
Module	11	Mold Features Creation
Module	12	Filling and Opening the Mold

Course Content

Module 1. Introduction to the Pro/ENGINEER Basic Mold Process

i. Pro/ENGINEER Basic Mold Process

Knowledge Check Questions

Module 2. Design Model Preparation

i. Understanding Mold Theory
ii. Preparing Design Models for the Mold Process
iii. Creating Profile Rib Features
iv. Creating Drafts Split at Sketch
v. Creating Drafts Split at Curve
vi. Creating Drafts Split at Surface

Knowledge Check Questions

Module 3. Design Model Analysis

i. Analyzing Design Models Theory
ii. Performing a Draft Check
iii. Understanding Mold Analysis Settings
iv. Performing a Thickness Check

Knowledge Check Questions

Module 4. Mold Models

i. Creating New Mold Models
ii. Analyzing Model Accuracy
iii. Creating the Reference Model
iv. Redefining the Reference Model
v. Analyzing Reference Model Orientation
vi. Analyzing Mold Cavity Layout
vii. Analyzing Variable Mold Cavity Layout
viii. Analyzing Mold Cavity Layout Orientation
ix. Calculating Projected Area

Knowledge Check Questions

Module 5. Shrinkage

i. Understanding Shrinkage
ii. Applying Shrinkage by Scale
iii. Applying Shrinkage by Dimension

Knowledge Check Questions

Module 6. Workpieces

i. Creating Style States using the View Manager
ii. Creating a Workpiece Automatically
iii. Creating a Custom Automatic Workpiece
iv. Creating and Assembling a Workpiece Manually

v. Reclassifying and Removing Mold Model Components

Knowledge Check Questions

Module 7. Mold Volume Creation

i. Surfacing Terms
ii. Understanding Mold Volumes
iii. Sketching Mold Volumes
iv. Creating Sliders using Boundary Quilts
v. Sketching Slider Mold Volumes
vi. Creating a Reference Part Cutout
vii. Sketching Lifter Mold Volumes
viii. Replacing Surfaces and Trimming to Geometry
ix. Sketching Insert Mold Volumes

Knowledge Check Questions

Module 8. Parting Line and Parting Surface Creation

i. Understanding Parting Lines and Parting Surfaces
ii. Creating an Automatic Parting Line using Silhouette Curves
iii. Analyzing Silhouette Curve Options: Slides
iv. Analyzing Silhouette Curve Options: Loop Selection
v. Creating a Skirt Surface
vi. Analyzing Skirt Surface Options: Extend Curves
vii. Analyzing Skirt Surface Options: Tangent Conditions
viii. Analyzing Skirt Surface Options: Extension Directions
ix. Analyzing Skirt Surface Options: ShutOff Extension
x. Analyzing Surface Editing and Manipulation Tools
xi. Merging Surfaces
xii. Creating Saddle Shutoff Surfaces
xiii. Creating a Parting Surface Manually

Knowledge Check Questions

Module 9. Splitting Mold Volumes

i. Splitting the Workpiece
ii. Splitting Mold Volumes
iii. Splitting Volumes using Multiple Parting Surfaces
iv. Blanking and Unblanking Mold Items
v. Analyzing Split Classification

Knowledge Check Questions

Module 10. Mold Component Extraction

i. Extracting Mold Components from Volumes
ii. Applying Start Models to Mold Components

Knowledge Check Questions

Module 11. Mold Features Creation

i. Creating Waterline Circuits
ii. Analyzing Waterline End Conditions
iii. Performing a Waterlines Check
iv. Creating Sprues and Runners
v. Creating Ejector Pin Clearance Holes
vi. Creating UDFs
vii. Placing UDFs

Knowledge Check Questions

Module 12. Filling and Opening the Mold

i. Creating a Molding
ii. Opening the Mold
iii. Draft Checking a Mold Opening Step
iv. Interference Checking a Mold Opening Step
v. Viewing Mold Information

Knowledge Check Questions