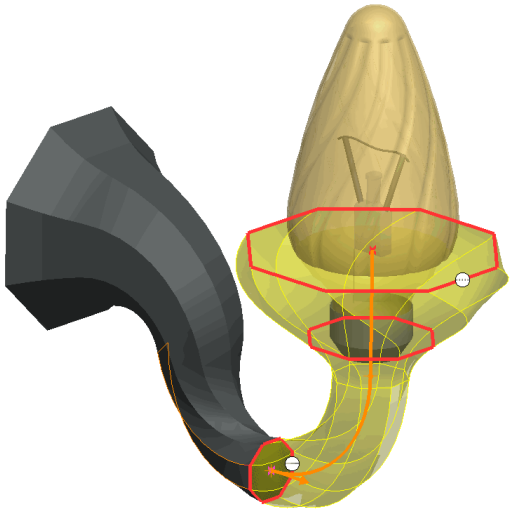
Advanced Modeling with Pro/ENGINEER Wildfire 5.0

Overview

Course Code	TRN-2238–T
Course Length	3 Days



The Advanced Part Modeling with Pro/ENGINEER Wildfire 5.0 training course teaches you how to use advanced part modeling techniques in Pro/ENGINEER Wildfire 5.0 to improve your product designs. In this course, you will learn how to create and modify design models using advanced sketching techniques and feature creation tools. You will also learn how to reuse existing design geometry when creating new design models. Pro/FICIENCY assessments will be provided in order for you to assess your understanding of the course materials. The assessment results will also identify the class topics that require further review. At the end of the class, you will either take an assessment via your PTC University account, or your instructor will provide training on how to do this after the class. After completing this course, you will be well prepared to work efficiently with complex product designs using Pro/ENGINEER Wildfire 5.0.

Course Objectives

- Learn advanced selection techniques
- Create advanced datum features
- Use advanced sketching techniques
- Create advanced holes
- Create advanced drafts and ribs
- Create advanced shells
- Create advanced rounds and chamfers
- Use relations and parameters
- Create advanced blends
- Create variable section sweeps
- Create helical sweeps
- Create swept blends
- Learn advanced layer techniques
- Learn how to use different advanced reference management techniques
- Create family tables
- Reuse features
- Learn advanced copy techniques
- Create advanced patterns

Prerequisites

- Introduction to Pro/ENGINEER Wildfire 5.0
- Pro/ENGINEER Wildfire 5.0 Update from Pro/ENGINEER Wildfire 4.0.

Audience

- This course is intended for mechanical designers, design engineers and related roles. The topics in this course are also available as Web-based training courses.

Agenda

Day 1

Module	1	Advanced Selection
Module	2	Advanced Datum Features
Module	3	Advanced Sketching
Module	4	Advanced Hole Creation
Module	5	Advanced Drafts and Ribs
Module	6	Advanced Shells
Module	7	Advanced Rounds and Chamfers

Day 2

Module	8	Relations and Parameters
Module	9	Advanced Blends
Module	10	Variable Section Sweeps
Module	11	Helical Sweeps
Module	12	Swept Blends

Day 3

Module	13	Advanced Layers
Module	14	Advanced Reference Management
Module	15	Family Tables
Module	16	Reusing Features
Module	17	Advanced Copy
Module	18	Advanced Patterns

Course Content

Module 1. Advanced Selection

i. Advanced Chain Selection
ii. Advanced Surface Selection

Knowledge Check Questions

Module 2. Advanced Datum Features

i. Creating Datum Graphs
ii. Creating Datum Coordinate Systems
iii. Creating Points On or Offset from Entities
iv. Creating Points at Intersections
v. Creating Points using an Offset Coordinate System
vi. Sketching Geometry Datums
vii. Creating Curves Through a Point or Vertex
viii. Creating a Curve Through a Point Array
ix. Creating a Curve From File
x. Creating a Curve from a Cross-Section
xi. Creating a Curve From Equation
xii. Creating Composite Curves
xiii. Creating a Curve from Curve Intersections
xiv. Creating a Curve at Surface Intersection
xv. Projecting and Wrapping Curves
xvi. Trimming Curves
xvii. Creating Offset Curves

Knowledge Check Questions

Module 3. Advanced Sketching

i. Using Sketched Curves
ii. Sketching Ellipses
iii. Sketching Elliptical Fillets
iv. Sketching Splines
v. Modifying Splines – Basic Operations
vi. Modifying Splines – Advanced Operations
vii. Importing and Exporting Spline Points
viii. Sketching Conics
ix. Sketching Text
x. Analyzing Sketcher Convert Options
xi. Locking Sketcher Entities
xii. Analyzing Sketcher Dimension Options
xiii. Sketcher Diagnostic Tools

Knowledge Check Questions

Module 4. Advanced Hole Creation

i. Creating Standard Holes
ii. Lightweight Hole Display
iii. Creating Sketched Holes
iv. Creating On Point Holes

Knowledge Check Questions

Module 5. Advanced Drafts and Ribs

i. Drafting Intent Surfaces
ii. Creating Drafts with Multiple Angles
iii. Using the Extend Intersect Surfaces Draft Option
iv. Creating Drafts Split at Sketch
v. Creating Drafts Split at Curve
vi. Creating Drafts Split at Surface
vii. Creating Drafts with Variable Pull Direction
viii. Creating Trajectory Ribs

Knowledge Check Questions

Module 6. Advanced Shells

i. Analyzing Shell References and Thickness Options
ii. Excluding Surfaces from Shells
iii. Extending Shell Surfaces
iv. Analyzing Shell Corner Options

Knowledge Check Questions

Module 7. Advanced Rounds and Chamfers

i. Analyzing Round Profile
ii. Analyzing Round Creation Methods
iii. Creating Rounds Through Curve
iv. Creating Variable Radius Rounds
v. Auto Round
vi. Creating Rounds by Reference
vii. Analyzing Round References and Pieces
viii. Using Intent Edges for Rounds
ix. Using Round Transitions
x. Analyzing Additional Chamfer Types
xi. Analyzing Advanced Chamfer Dimensioning Schemes
xii. Analyzing Chamfer Creation Methods
xiii. Creating Corner Chamfers
xiv. Creating Chamfers by Reference
xv. Analyzing Chamfer References and Pieces
xvi. Using Intent Edges for Chamfers
xvii. Using Chamfer Transitions

Knowledge Check Questions

Module 8. Relations and Parameters

i. Understanding Relation Theory
ii. Understanding Relation Types
iii. Understanding Basic Relation Operators and Functions
iv. Understanding Advanced Relation Operators and Functions
v. Exact Relation
vi. Creating Parameters
vii. Understanding Advanced Parameter Options
viii. Creating Relations
ix. Creating Relations for Patterns
x. Creating Section Relations
xi. Using the Evalgraph Function
xii. Using Simultaneous Equations

Knowledge Check Questions

Module 9. Advanced Blends

i. Understanding Rotational and General Blend Theory
ii. Creating a Rotational Blend Protrusion or Cut
iii. Analyzing Rotational Blend Attributes
iv. Creating a General Blend Protrusion or Cut
v. Analyzing General Blend Attributes
vi. Defining Rotational and General Blend Tangency
vii. Selecting Sections for Rotational and General Blends

Knowledge Check Questions

Module 10. Variable Section Sweeps

i. Understanding Variable Section Sweep Theory
ii. Creating Variable Section Sweeps using a Constant Section
iii. Creating Variable Section Sweeps Normal to Trajectory
iv. Creating Variable Section Sweeps using Constant Normal Direction
v. Creating Variable Section Sweeps Normal to Projection
vi. Analyzing Horizontal and Vertical Control in a Variable Section Sweep
vii. Creating Variable Section Sweeps Utilizing Multiple Trajectories
viii. Creating Variable Section Sweeps with Tangent Trajectories
ix. Analyzing Variable Section Sweep Trajectory Options and Rules
x. Using Trajpar with Solid Features
xi. Using Trajpar and Datum Graphs with Solid Features

Knowledge Check Questions

Module 11. Helical Sweeps

i. Understanding Helical Sweeps Theory
ii. Creating Helical Sweeps for Springs

iii. Creating Helical Sweeps for Threads
iv. Analyzing Helical Sweep Profile and Pitch Variations

Knowledge Check Questions

Module 12. Swept Blends

i. Understanding Swept Blend Theory
ii. Creating Swept Blends by Selecting Sections
iii. Creating Swept Blends by Sketching Sections
iv. Analyzing Swept Blend Section Options
v. Analyzing Swept Blend Section Plane Control
vi. Analyzing Horizontal and Vertical Control in a Swept Blend
vii. Analyzing Swept Blend Tangency
viii. Analyzing Swept Blend Options
ix. Analyzing Swept Blend Rules

Knowledge Check Questions

Module 13. Advanced Layers

i. Understanding Layers
ii. Creating and Managing Layers
iii. Creating Layer Rules
iv. Creating Layers in Assemblies

Knowledge Check Questions

Module 14. Advanced Reference Management

i. Editing Feature References
ii. Replacing Feature References
iii. Replacing Sketcher References
iv. Replacing Sketcher Geometry

Knowledge Check Questions

Module 15. Family Tables

i. Understanding Family Table Theory
ii. Creating a Family Table
iii. Patternizing Family Table Instances
iv. Creating a Multi-Level Family Table
v. Editing Family Table Members

Knowledge Check Questions

Module 16. Reusing Features

i. Creating UDFs
ii. Placing UDFs
iii. Creating UDFs Using On-Surface Coordinate Systems
iv. Creating Inheritance Features
v. Using External Merge to Add Material

vi. Using External Merge to Remove Material

Knowledge Check Questions

Module 17. Advanced Copy

i. Configuring Independency
ii. Analyzing Advanced Reference Configuration
iii. Copying Features Fully Dependent with Options to Vary

Knowledge Check Questions

Module 18. Advanced Patterns

i. Understanding Pattern Regeneration Options
ii. Creating Dimension Patterns in One Direction
iii. Creating Dimension Patterns in Two Directions
iv. Creating Rotational Dimension Patterns
v. Creating Fill Patterns
vi. Specifying Fill Pattern Settings
vii. Creating Pattern Tables
viii. Applying Pattern Tables
ix. Creating Curve Patterns
x. Creating Point Patterns
xi. Unpatterning Group Patterns
xii. Creating Patterns of Patterns
xiii. Moving/Mirroring Patterns

Knowledge Check Questions