PTC University

Pro|ENGINEER®

WILDFIRE® 4.0

# Curriculum Guide

NOTE: For a graphical depiction of the curriculum based on job role, please visit this page: http://www.ptc.com/services/edserv/learning/paths/ptc/proe_wf4.htm

# Live Classroom Curriculum Guide

- Milling using Pro/ENGINEER Wildfire 4.0
- Pro/ENGINEER Mechanica Simulation using Pro/ENGINEER Wildfire 4.0
- Introduction to Pro/ENGINEER Wildfire 4.0
- Pro/ENGINEER Wildfire 4.0 Update from Pro/ENGINEER Wildfire 3.0
- Pro/ENGINEER Wildfire 4.0 Update from Pro/ENGINEER Wildfire 2.0
- Detailing with Pro/ENGINEER Wildfire 4.0
- Advanced Assembly Design with Pro/ENGINEER Wildfire 4.0
- Advanced Modeling with Pro/ENGINEER Wildfire 4.0
- Surfacing using Pro/ENGINEER Wildfire 4.0
- Freeform Surfacing using Pro/ENGINEER Wildfire 4.0

# Milling using Pro/ENGINEER Wildfire 4.0

## Overview

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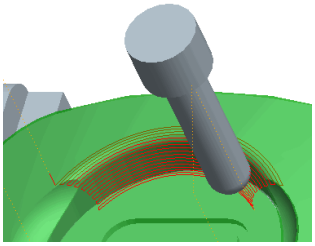
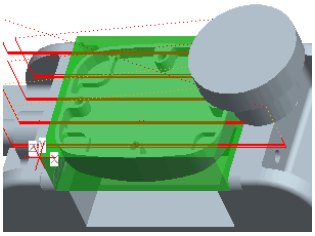
|---|---|
| Course Code | TRN-2166–T |
| Course Length | 5 Days |



In this training course you will learn how to machine products using Pro/ENGINEER Wildfire 4.0 manufacturing tools. This course covers creating tool paths for 3 axis milling machines. During the course you will learn how to complete each phase of the manufacturing process. You will start by creating manufacturing models and configuring the manufacturing environment. This will include configuring tools, fixtures, and machining operations. You will then learn how to create milling sequences and holemaking sequences, and post-process cutter location (CL) data to create machine code.After completing the course, you will be able to create numerical control (NC) programs for milling machines and post-process cutter location (CL) data to create machine specific code.

## Course Objectives



- Understanding the manufacturing process.
- Creating and configuring manufacturing models.
- Configuring the manufacturing environment.
- Creating and modifying milling sequences.
- Creating and modifying holemaking sequences.
- Using the process manager to create NC sequences.
- Post-processing cutter location (CL) data.

## Prerequisites

- Introduction to Pro/ENGINEER Wildfire 4.0 – Fundamentals (Web Based Training) or equivalent experience.

## Audience

- This course is intended for manufacturing engineers and NC machinists.

# Agenda

## Day 1

| | | |
|---|---|---|
| Module | 1 | Introduction to Manufacturing |
| Module | 2 | Creating Manufacturing Models |
| Module | 3 | Configuring Operations |
| Module | 4 | Using Reference Models |
| Module | 5 | Using Workpiece Models |
| Module | 6 | Creating and Using NC Model Assemblies |
| Module | 7 | Creating and Configuring Workcells |

## Day 2

| | | |
|---|---|---|
| Module | 8 | Creating and Configuring Tools |
| Module | 9 | Using Template Manufacturing Models |
| Module | 10 | Using Manufacturing Parameters |
| Module | 11 | Creating Face Milling Sequences |

## Day 3

| | | |
|---|---|---|
| Module | 12 | Creating Volume Milling Sequences |
| Module | 13 | Creating Profile Milling Sequences |
| Module | 14 | Creating Straight Cut Surface Milling Sequences |
| Module | 15 | Creating From Surface Isolines Surface Milling Sequences |

## Day 4

| | | |
|---|---|---|
| Module | 16 | Creating Cut Line Surface Milling Sequences |
| Module | 17 | Advanced Surface Milling Options |
| Module | 18 | Creating Roughing and Re-roughing Sequences |
| Module | 19 | Creating Finishing Sequences |

## Day 5

| | | |
|---|---|---|
| Module | 20 | Creating Trajectory Milling Sequences |
| Module | 21 | Creating Holemaking Sequences |

# Pro/ENGINEER Mechanica Simulation using Pro/ENGINEER Wildfire 4.0

## Overview

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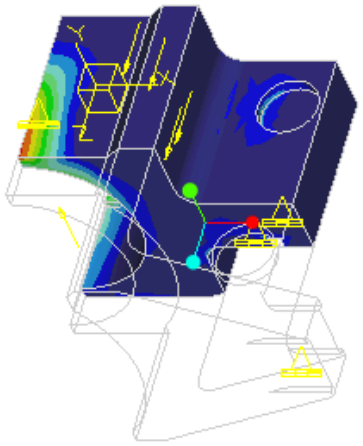
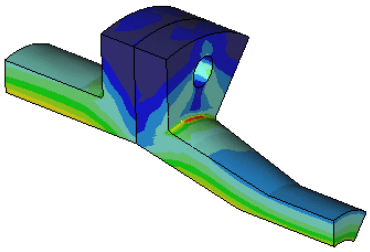
|---|---|
| Course Code | TRN-2167-T |
| Course Length | 5 Days |



This course is designed for new users who want to test, validate, and optimize product designs with the Pro/ENGINEER Wildfire 4.0 Mechanica module. Mechanica enables you to simulate structural and thermal loads on product designs. In this course, you will complete comprehensive, hands-on lab exercises that simulate realistic analysis and design optimization activities. You will also learn about advanced topics such as dynamic analyses, combined mechanical and thermal analyses, and Fatigue Studies. A module on Mechanica Best Practices is also included to help users avoid some of the more common problems that new users encounter. After completing the course, you will be able to run engineering analyses and optimizations on your product design models. At the end of each module, you will find a set of review questions to reinforce critical topics from that module. Your instructor will discuss these with the class. At the end of the course, you will find a course assessment in Pro/FICIENCY intended to evaluate your understanding of the course as a whole. After completing the course you will be well prepared to complete Pro/MECHANICA analyses on product design projects in Pro/ENGINEER Wildfire 4.0.

## Course Objectives

- Learning the basic Pro/MECHANICA Analysis Process
- Theory and Mechanica Model Topics
- Exploring Results
- Materials and Material Properties
- Understanding and Using Pro/MECHANICA idealizations
- Understanding and Using Structural Loads
- Understanding and Using Structural Constraints
- Running Structural Analyses
- Running Thermal Analyses
- Convergence



- Analyzing Assemblies with Pro/MECHANICA
- Completing Design and Sensitivity Studies
- Running Optimization Studies
- Advanced Topics
- Analysis Best Practices
- Analysis Projects

## Prerequisites

- Three months of Pro/ENGINEER Wildfire 4.0 experience

## Audience

- This course is intended for design engineers and mechanical designers. People in related roles will also benefit from taking this course.

# Agenda

## Day 1

| | | |
|---|---|---|
| Module | 1 | The Pro/ENGINEER Mechanica 4.0 Process |
| Module | 2 | Theory and Mechanica Model Topics |
| Module | 3 | Results |
| Module | 4 | Materials and Material Properties |

## Day 2

| | | |
|---|---|---|
| Module | 5 | Idealizations |
| Module | 6 | Structural Loads |
| Module | 7 | Structural Constraints |
| Module | 8 | Structural Analysis I |

## Day 3

| | | |
|---|---|---|
| Module | 9 | Structural Analysis II |
| Module | 10 | Thermal Analysis |
| Module | 11 | Convergence |
| Module | 12 | Analyzing Assemblies I |

## Day 4

| | | |
|---|---|---|
| Module | 13 | Analyzing Assemblies II |
| Module | 14 | Design and Sensitivity Studies |
| Module | 15 | Optimization Studies |
| Module | 16 | Dynamic Analyses |

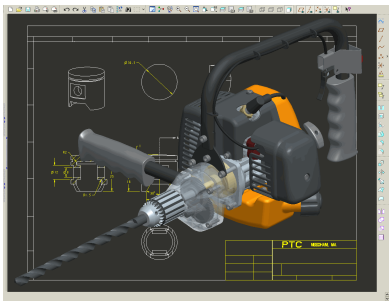
## Day 5

| | | |
|---|---|---|
| Module | 17 | Advanced Topics |
| Module | 18 | Analysis Best Practices |
| Module | 19 | Projects |

# Introduction to Pro/ENGINEER Wildfire 4.0

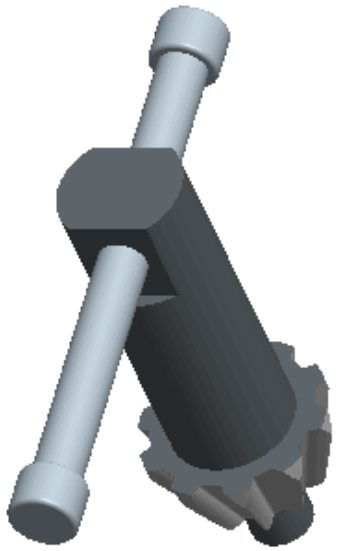
## Overview

| | |
|---|---|
| Course Code | TRN-2169–T |
| Course Length | 5 Days |



This course is designed for new users who want to become proficient with Pro/ENGINEER Wildfire 4.0 as quickly as possible. You will focus on learning core-modeling skills in this comprehensive, hands-on course. Topics include sketching, part modeling, assemblies, drawings, and basic model management techniques. The course also includes a comprehensive design project that enables you to practice your new skills by creating realistic parts, assemblies, and drawings. At the end of each module, you will find a set of review questions to reinforce critical topics from that module. Your instructor will discuss these with the class. At the end of the course, you will find a course assessment in Pro/FICIENCY intended to evaluate your understanding of the course as a whole. After completing the course you will be well prepared to work effectively on product design projects using Pro/ENGINEER Wildfire.

## Course Objectives



- Learning the basic Pro/ENGINEER Design Process
- Understanding Pro/ENGINEER concepts
- Learning how to use the Pro/ENGINEER interface
- Selecting and editing items
- Sketching geometry and using tools
- Creating sketches for features
- Creating datum planes and datum axes
- Creating extrudes, revolves, and ribs
- Utilizing internal sketches and embedded datums
- Creating holes, drafts, and shells
- Creating sweeps and blends
- Creating rounds and chamfers
- Grouping, copying, and mirroring items
- Creating patterns
- Measuring and inspecting models
- Assembling with constraints
- Assembling with connections
- Exploding assemblies
- Creating drawing views
- Creating drawing details
- Using layers
- Investigating parent/child relationships
- Capturing and managing design intent
- Resolving failures and seeking help
- Comprehensive Design Project

## Prerequisites

- None

## Audience

- This course is intended for product designers, drafters, industrial/conceptual designers, and routed systems designers. People in related roles will also benefit from taking this course.

# Agenda

## Day 1

| | | |
|---|---|---|
| Module | 1 | Introduction to the Pro/ENGINEER Wildfire Basic Modeling Process |
| Module | 2 | Understanding Pro/ENGINEER Concepts |
| Module | 3 | Using the Pro/ENGINEER Interface |
| Module | 4 | Selecting and Editing |
| Module | 5 | Creating Sketcher Geometry |

## Day 2

| | | |
|---|---|---|
| Module | 6 | Using Sketcher Tools |
| Module | 7 | Creating Sketches for Features |
| Module | 8 | Creating Datum Features: Planes and Axes |
| Module | 9 | Creating Extrudes, Revolves, and Ribs |
| Module | 10 | Utilizing Internal Sketches and Embedded Datums |
| Module | 11 | Creating Sweeps and Blends |

## Day 3

| | | |
|---|---|---|
| Module | 12 | Creating Holes and Shells |
| Module | 13 | Creating Rounds and Chamfers |
| Module | 14 | Group, Copy, and Mirror Tools |
| Module | 15 | Creating Patterns |
| Module | 16 | Measuring and Inspecting Models |

## Day 4

| | | |
|---|---|---|
| Module | 17 | Assembling with Constraints |
| Module | 18 | Assembling with Connections |
| Module | 19 | Exploding Assemblies |
| Module | 20 | Creating Drawing Views |
| Module | 21 | Creating Drawing Details |
| Module | 22 | Using Layers |

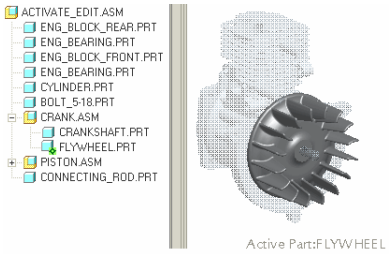
## Day 5

| | | |
|---|---|---|
| Module | 23 | Investigating Parent/Child Relationships |
| Module | 24 | Capturing and Managing Design Intent |
| Module | 25 | Resolving Failures and Seeking Help |
| Module | 26 | Project |

# Pro/ENGINEER Wildfire 4.0 Update from Pro/ENGINEER Wildfire 3.0

## Overview

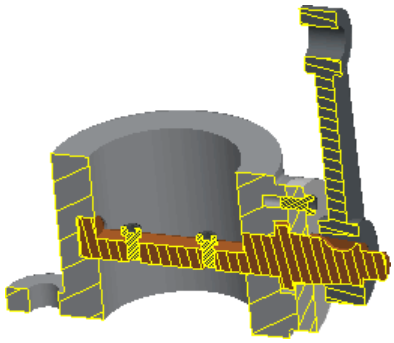
| | |
|---|---|
| Course Code | TRN-2171–T |
| Course Length | 1 Day |




In this course you will learn how to utilize many of the enhancements to core functionality in Pro/ENGINEER Wildfire 4.0. You will become familiar with enhancements to Part mode, including Draft, Swept Blends, UDFs and general interface enhancements. You will become familiar with the enhancements to Sketcher, such as referencing intent objects and replacing sketcher references. You will learn about new and enhanced Assembly capabilities such as the Global Reference Manager. You will review Drawing and Sheetmetal enhancements as well.

## Course Objectives

- Describe and utilize Part enhancements.
- Describe and utilize Sketcher enhancements.
- Describe and utilize Assembly enhancements.
- Describe and utilize Drawing enhancements.
- Describe and utilize Sheetmetal enhancements.



## Prerequisites

- Completion of T1827-350 Pro/ENGINEER Wildfire 3.0 Update from Pro/ENGINEER Wildfire 2.0 or equivalent experience.

## Audience

- This course is intended for people who have already upgraded to Pro/ENGINEER Wildfire 3.0.

# Agenda

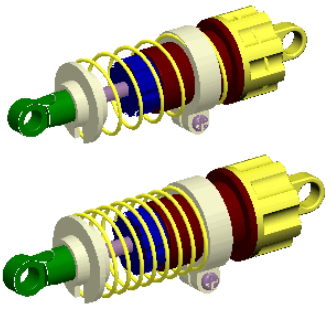
## Day 1

| | | |
|---|---|---|
| Module | 1 | Part Enhancements |
| Module | 2 | Advanced Part Enhancements |
| Module | 3 | Sketcher Enhancements |
| Module | 4 | Assembly Enhancements |
| Module | 5 | Drawing Enhancements |
| Module | 6 | Sheetmetal Enhancements |

# Pro/ENGINEER Wildfire 4.0 Update from Pro/ENGINEER Wildfire 2.0

## Overview

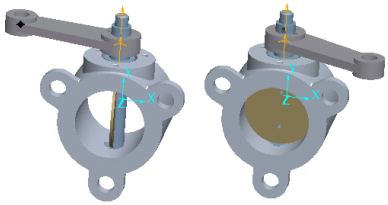
| | |
|---|---|
| Course Code | TRN-2172–T |
| Course Length | 2 Days |



In this course, you will learn how to utilize many of the enhancements to core functionality in Pro/ENGINEER Wildfire 4.0. This course is intended as an update directly from Pro/ENGINEER Wildfire 2.0 to Pro/ENGINEER Wildfire 4.0, so some of the enhancements covered in this course were introduced in the Pro/ENGINEER Wildfire 3.0 release.You will become familiar with enhancements to Part mode, including embedded datum creation, and warp and partial shell features. You will learn new methods for creating features such as swept blends, and new methods for placing user defined features. You review new capabilities for feature manipulation, such as enhanced patterning capabilities. You will become familiar with the enhancements to Sketcher, such as how to copy and paste items in sketcher and how to insert predefined shapes such as polygons and common engineering sections, such as I-beams. You will also learn how to reference intent objects and replace sketcher references. You will learn about new and enhanced Assembly capabilities such as the Global Reference Manager and the new user interface for assembling components. You will use new drawing functionality, including how to create shaded drawing views. You will also learn about sheetmetal enhancements including how to create multiple walls in a single operation.

## Course Objectives

- Describe and utilize Part enhancements.
- Describe and utilize Sketcher enhancements.
- Describe and utilize Assembly enhancements.
- Describe and utilize Drawing enhancements.
- Describe and utilize Sheetmetal enhancements.



## Prerequisites

- Completion of T1707-340 Pro/ENGINEER Wildfire 2.0 Update or equivalent experience.

## Audience

- This course is intended for people who have already upgraded to Pro/ENGINEER Wildfire 2.0, and who are moving directly to Pro/ENGINEER Wildfire 4.0.

# Agenda

## Day 1

| | | |
|---|---|---|
| Module | 1 | Part Enhancements |
| Module | 2 | Part Feature Duplication Enhancements |
| Module | 3 | Sketcher Enhancements |

## Day 2

| | | |
|---|---|---|
| Module | 4 | Assembly Component Enhancements |
| Module | 5 | Advanced Assembly Enhancements |
| Module | 6 | Drawing Enhancements |
| Module | 7 | Sheetmetal Enhancements |

# Detailing with Pro/ENGINEER Wildfire 4.0

## Overview

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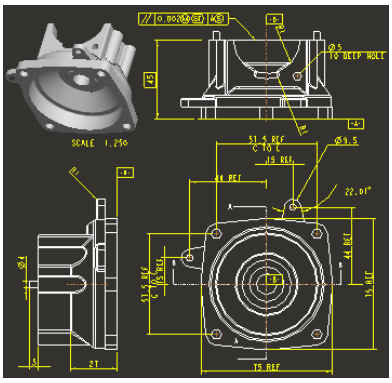
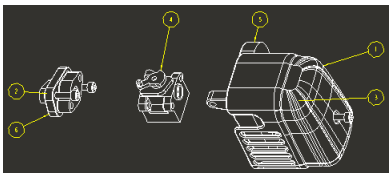
|---|---|
| Course Code | TRN-2173–T |
| Course Length | 3 Days |



Detailing with Pro/ENGINEER Wildfire 4.0 is a comprehensive training course that teaches you how to quickly create detailed drawings using information captured within 3-D design models. In this course, you learn how to create drawings, how to detail drawings, and how to take advantage of the parametric and associative nature of Pro/ENGINEER Wildfire 4.0 when configuring drawings. After completing this course, you will be able to create production drawings suitable for manufacturing.

## Course Objectives



- Understand the drawing development process.
- Create new drawings using formats and drawing templates.
- Create different types of views in drawings.
- Create dimensions and notes.
- Control display options using layers.
- Apply dimensional and geometric tolerances in drawings.
- Add draft geometry and symbols to drawings.
- Use layers in drawings to control the display of views and detail items.
- Create drawing tables and a bill of materials.
- Create drawing formats.
- Configure the drawing environment.
- Manage large drawings.

## Prerequisites

- Introduction to Pro/ENGINEER Wildfire 4.0.

## Audience

- This course is intended for mechanical designers, design engineers, and related roles.

# Agenda

## Day 1

| | | |
|---|---|---|
| Module | 1 | Introduction to Drawings |
| Module | 2 | Creating New Drawings |
| Module | 3 | Creating Drawing Views |

## Day 2

| | | |
|---|---|---|
| Module | 4 | Adding Model Details to Drawings |
| Module | 5 | Adding Notes to Drawings |
| Module | 6 | Adding Tolerance Information |
| Module | 7 | Adding Draft Geometry and Symbols |

## Day 3

| | | |
|---|---|---|
| Module | 8 | Using Layers in Drawings |
| Module | 9 | Creating and Using Tables in Drawings |
| Module | 10 | Using Report Information in Drawings |
| Module | 11 | Creating Drawing Formats |
| Module | 12 | Configuring the Drawing Environment |
| Module | 13 | Managing Large Drawings |

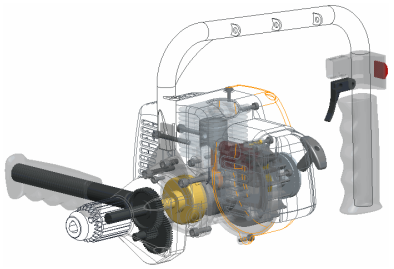
# Advanced Assembly Design with Pro/ENGINEER Wildfire 4.0

## Overview

| | |
|---|---|
| Course Code | TRN-2174–T |
| Course Length | 3 Days |

In this course, you will learn how to use Pro/ENGINEER Wildfire 4.0 to create and manage complex assemblies. You will learn how to use advanced assembly tools that enable you to add and maintain design, increase your efficiency, and increase system performance when working with large assemblies. In addition, you will learn the basics of using and creating predefined assembly structures and skeletons, both valuable tools typically used in a top-down design process. The course also includes an assembly design project that enables you to practice your new skills by performing various design tasks in an assembly model.At the end of each module, you will complete a set of review questions to reinforce critical topics from that module. Your instructor will discuss these with the class. At the end of the course, you will find a course assessment in Pro/FICIENCY intended to evaluate your understanding of the course as a whole.

## Course Objectives



- Using Advanced Assembly Constraints
- Creating and Using Component Interfaces
- Creating and Using Flexible Components
- Restructuring and Mirroring Assemblies
- Using Assembly Features and Shrinkwrap
- Replacing Components in an Assembly
- Understanding the Basics of Simplified Reps
- Creating Cross-Sections, Display Styles, and Combined Views
- Substituting Components By Rep, Envelope, and Model
- Understanding Advanced Simplified Rep Functionality
- Creating and Using Assembly Structure and Skeletons
- Project

## Prerequisites

- Fast Track to Pro/ENGINEER Wildfire 4.0

## Audience

- Design engineers, mechanical designers, and related roles.

# Agenda

## Day 1

| | | |
|---|---|---|
| Module | 1 | Using Advanced Assembly Constraints |
| Module | 2 | Creating and Using Component Interfaces |
| Module | 3 | Creating and Using Flexible Components |
| Module | 4 | Restructuring and Mirroring Assemblies |

## Day 2

| | | |
|---|---|---|
| Module | 5 | Using Assembly Features and Shrinkwrap |
| Module | 6 | Replacing Components in an Assembly |
| Module | 7 | Understanding the Basics of Simplified Reps |
| Module | 8 | Creating Cross-Sections, Display Styles, and Combined Views |

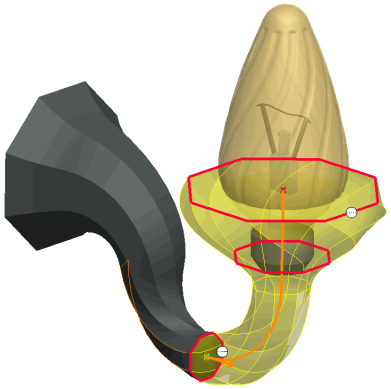
## Day 3

| | | |
|---|---|---|
| Module | 9 | Substituting Components By Rep, Envelope, and Model |
| Module | 10 | Understanding Advanced Simplified Rep Functionality |
| Module | 11 | Creating and Using Assembly Structure and Skeletons |
| Module | 12 | Project |

# Advanced Modeling with Pro/ENGINEER Wildfire 4.0

## Overview

| | |
|---|---|
| Course Code | TRN-2175–T |
| Course Length | 3 Days |



The Advanced Part Modeling with Pro/ENGINEER Wildfire 4.0 training course teaches you how to use advanced part modeling techniques in Pro/ENGINEER Wildfire 4.0 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 4.0.

## Course Objectives

- Learn advanced selection techniques
- Create advanced datum features
- Use advanced sketching techniques
- Create advanced holes
- Create drafts
- 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 4.0
- Pro/ENGINEER Wildfire 4.0 Update from Pro/ENGINEER Wildfire 3.0.

## 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 | Drafts |
| 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 |

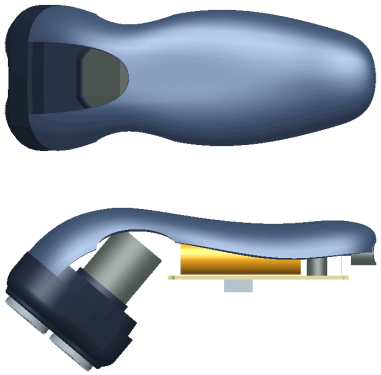
## Day 3

| | | |
|---|---|---|
| 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 |

# Surfacing using Pro/ENGINEER Wildfire 4.0

## Overview

| | |
|---|---|
| Course Code | TRN-2176–T |
| Course Length | 3 Days |



The Surface Modeling with Pro/ENGINEER Wildfire 4.0 training course teaches you how to use surface modeling in Pro/ENGINEER Wildfire 4.0 to create models with shapes that are too complex for solid features. In this course, you will learn how to use various techniques to create complex surfaces with tangent and curvature continuities. You will also learn how manipulate surfaces using editing tools, and analyze surfaces for quality and desired characteristics. In addition you will learn how to create solid features using the surfaces as references. 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 create complex shaped models using surfaces in Pro/ENGINEER Wildfire 4.0.

## Course Objectives

- Describe surface modeling and its terminology
- Learn advanced selection techniques
- Create advanced datum features
- Use advanced sketching techniques
- Learn basic surfacing tools
- Create various boundary surfaces
- Create variable section sweep surfaces
- Create helical sweep surfaces
- Create swept blend surfaces
- Utilize surface analysis tools
- Extend and trim surfaces
- Manipulate surfaces
- Create and edit solid models using surface quilts
- Utilize the master model technique

## Prerequisites

- Introduction to Pro/ENGINEER Wildfire 4.0
- Pro/ENGINEER Wildfire 4.0 Update from Pro/ENGINEER Wildfire 3.0.

## Audience

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

# Agenda

## Day 1

| | | |
|---|---|---|
| Module | 1 | Surface Modeling Overview |
| Module | 2 | Advanced Selection |
| Module | 3 | Advanced Datum Features |
| Module | 4 | Advanced Sketching |
| Module | 5 | Basic Surfacing Tools |
| Module | 6 | Boundary Blend Surfaces |

## Day 2

| | | |
|---|---|---|
| Module | 7 | Additional Boundary Surfaces |
| Module | 8 | Variable Section Sweeps |
| Module | 9 | Helical Sweeps |
| Module | 10 | Swept Blends |
| Module | 11 | Analyzing Surface Curvature |
| Module | 12 | Additional Surface Analysis Tools |

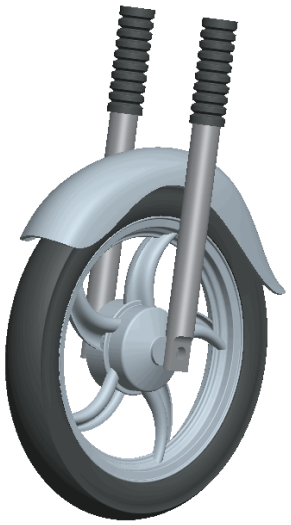
## Day 3

| | | |
|---|---|---|
| Module | 13 | Extending and Trimming Surfaces |
| Module | 14 | Manipulating Surfaces |
| Module | 15 | Creating and Editing Solids using Quilts |
| Module | 16 | Master Model Technique |
| Module | 17 | Project |

# Freeform Surfacing using Pro/ENGINEER Wildfire 4.0

## Overview

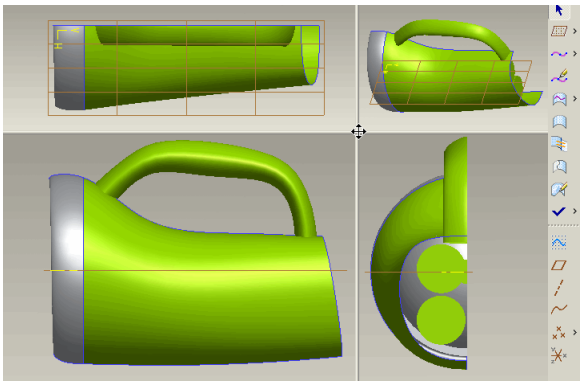
| | |
|---|---|
| Course Code | TRN–2178-T |
| Course Length | 2 Day |



In Pro/ENGINEER Wildfire 4.0 you can create freeform surface models using the interactive surface design extension (ISDX) modeling environment, often called Freeform Surfacing or Style surfacing. The Style tool is a spline-based freeform modeler that enables you to combine the parametric feature-based modeling approach with the unconstrained freeform surface modeling approach. This gives you the flexibility to design complex-shaped products in a single modeling environment. In this course, you learn how to use the Style tool to create and manipulate freeform curves, freeform surfaces, freeform surface details, and advanced freeform surface models. You also learn how to integrate style features with other parametric features in design models. After completing this course, you will be well prepared to design complex-shaped freeform surface models in Pro/ENGINEER Wildfire 4.0. At the end of each module, you will complete a set of review questions to reinforce critical topics from that module. Your instructor will discuss these with the class. At the end of the course, you will find a course assessment in Pro/FICIENCY intended to evaluate your understanding of the course as a whole.

## Course Objectives

- Introduction to the Freeform Surface Modeling Process
- Understanding Freeform Surface Modeling Concepts
- Creating Initial Freeform Curves
- Developing Freeform Surface Models
- Advanced Tools and Techniques for Defining Freeform Shapes
- Creating Smooth Freeform Surface Models
- Integrating Style and Parametric Features
- Techniques for Creating Common Detailed Shapes



- Creating Complex, High Quality Freeform Models

## Prerequisites

- Fast Track to Pro/ENGINEER Wildfire 4.0

## Audience

- Design engineers, mechanical designers, who have a need to create styled surface geometry.

# Agenda

## Day 1

| | | |
|---|---|---|
| Module | 1 | Introduction to the Freeform Surface Modeling Process |
| Module | 2 | Understanding Freeform Surface Modeling Concepts |
| Module | 3 | Creating Initial Freeform Curves |
| Module | 4 | Developing Freeform Surface Models |

## Day 2

| | | |
|---|---|---|
| Module | 5 | Advanced Tools and Techniques for Defining Freeform Shapes |
| Module | 6 | Creating Smooth Freeform Surface Models |
| Module | 7 | Integrating Style and Parametric Features |
| Module | 8 | Techniques for Creating Common Detailed Shapes |
| Module | 9 | Creating Complex, High Quality Freeform Models |

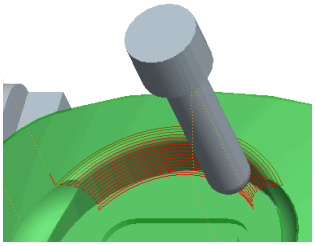
# Web Based Curriculum Guide

- Milling using Pro/ENGINEER Wildfire 4.0
- Pro/ENGINEER Mechanica Simulation using Pro/ENGINEER Wildfire 4.0
- Introduction to Pro/ENGINEER Wildfire 4.0
- Pro/ENGINEER Wildfire 4.0 Update from Pro/ENGINEER Wildfire 3.0
- Pro/ENGINEER Wildfire 4.0 Update from Pro/ENGINEER Wildfire 2.0
- Detailing with Pro/ENGINEER Wildfire 4.0
- Advanced Assembly Design with Pro/ENGINEER Wildfire 4.0

# Milling using Pro/ENGINEER Wildfire 4.0

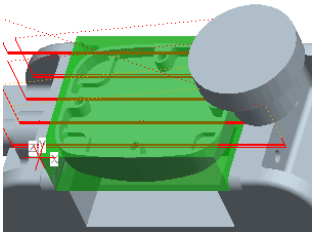
## Overview

| | |
|---|---|
| Course Code | TRN-WBT2166–S |
| Course Length | 40 Hours |



In this training course you will learn how to machine products using Pro/ENGINEER Wildfire 4.0 manufacturing tools. This course covers creating tool paths for 3 axis milling machines. During the course you will learn how to complete each phase of the manufacturing process. You will start by creating manufacturing models and configuring the manufacturing environment. This will include configuring tools, fixtures, and machining operations. You will then learn how to create milling sequences and holemaking sequences, and post-process cutter location (CL) data to create machine code.After completing the course, you will be able to create numerical control (NC) programs for milling machines and post-process cutter location (CL) data to create machine specific code.

## Course Objectives



- Understanding the manufacturing process.
- Creating and configuring manufacturing models.
- Configuring the manufacturing environment.
- Creating and modifying milling sequences.
- Creating and modifying holemaking sequences.
- Using the process manager to create NC sequences.
- Post-processing cutter location (CL) data.

## Prerequisites

- Introduction to Pro/ENGINEER Wildfire 4.0 – Fundamentals (Web Based Training) or equivalent experience.

## Audience

- This course is intended for manufacturing engineers and NC machinists.

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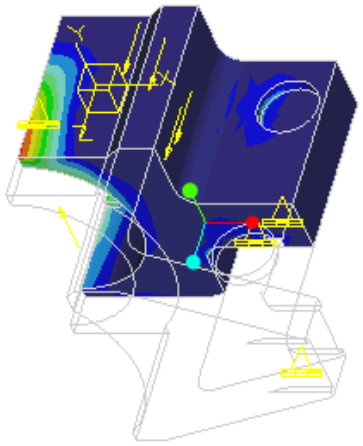
# Pro/ENGINEER Mechanica Simulation using Pro/ENGINEER Wildfire 4.0

## Overview

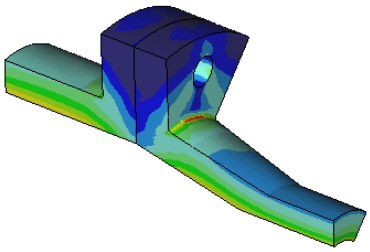
| | |
|---|---|
| Course Code | TRN-WBT2167-S |
| Course Length | 40 Hours |



This course is designed for new users who want to test, validate, and optimize product designs with the Pro/ENGINEER Wildfire 4.0 Mechanica module. Mechanica enables you to simulate structural and thermal loads on product designs. In this course, you will complete comprehensive, hands-on lab exercises that simulate realistic analysis and design optimization activities. You will also learn about advanced topics such as dynamic analyses, combined mechanical and thermal analyses, and Fatigue Studies. A module on Mechanica Best Practices is also included to help users avoid some of the more common problems that new users encounter. After completing the course, you will be able to run engineering analyses and optimizations on your product design models. At the end of each module, you will find a set of review questions to reinforce critical topics from that module. Your instructor will discuss these with the class. At the end of the course, you will find a course assessment in Pro/FICIENCY intended to evaluate your understanding of the course as a whole. After completing the course you will be well prepared to complete Pro/MECHANICA analyses on product design projects in Pro/ENGINEER Wildfire 4.0.

## Course Objectives

- Learning the basic Pro/MECHANICA Analysis Process
- Theory and Mechanica Model Topics
- Exploring Results
- Materials and Material Properties
- Understanding and Using Pro/MECHANICA idealizations
- Understanding and Using Structural Loads
- Understanding and Using Structural Constraints
- Running Structural Analyses
- Running Thermal Analyses
- Convergence



- Analyzing Assemblies with Pro/MECHANICA
- Completing Design and Sensitivity Studies
- Running Optimization Studies
- Advanced Topics
- Analysis Best Practices
- Analysis Projects

## Prerequisites

- Three months of Pro/ENGINEER Wildfire 4.0 experience

## Audience

- This course is intended for design engineers and mechanical designers. People in related roles will also benefit from taking this course.

PTC University

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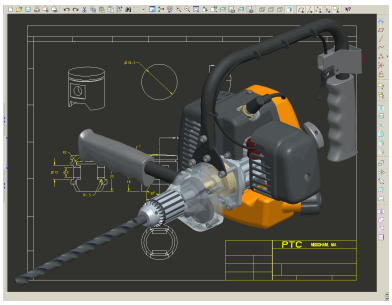
# Introduction to Pro/ENGINEER Wildfire 4.0

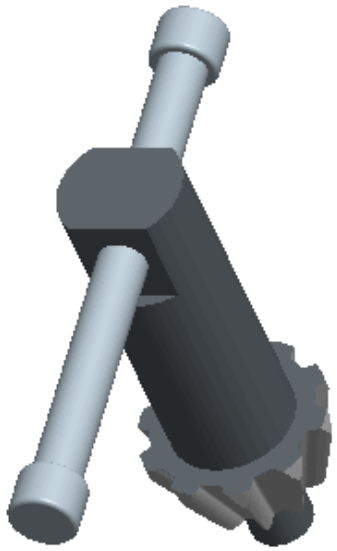
## Overview

| | |
|---|---|
| Course Code | TRN-WBT2169–S |
| Course Length | 40 Hours |



This course is designed for new users who want to become proficient with Pro/ENGINEER Wildfire 4.0 as quickly as possible. You will focus on learning core-modeling skills in this comprehensive, hands-on course. Topics include sketching, part modeling, assemblies, drawings, and basic model management techniques. The course also includes a comprehensive design project that enables you to practice your new skills by creating realistic parts, assemblies, and drawings. At the end of each module, you will find a set of review questions to reinforce critical topics from that module. Your instructor will discuss these with the class. At the end of the course, you will find a course assessment in Pro/FICIENCY intended to evaluate your understanding of the course as a whole. After completing the course you will be well prepared to work effectively on product design projects using Pro/ENGINEER Wildfire.

## Course Objectives



- Learning the basic Pro/ENGINEER Design Process
- Understanding Pro/ENGINEER concepts
- Learning how to use the Pro/ENGINEER interface
- Selecting and editing items
- Sketching geometry and using tools
- Creating sketches for features
- Creating datum planes and datum axes
- Creating extrudes, revolves, and ribs
- Utilizing internal sketches and embedded datums
- Creating holes, drafts, and shells
- Creating sweeps and blends
- Creating rounds and chamfers
- Grouping, copying, and mirroring items
- Creating patterns
- Measuring and inspecting models
- Assembling with constraints
- Assembling with connections
- Exploding assemblies
- Creating drawing views
- Creating drawing details
- Using layers
- Investigating parent/child relationships
- Capturing and managing design intent
- Resolving failures and seeking help
- Comprehensive Design Project

## Prerequisites

- None

## Audience

- This course is intended for product designers, drafters, industrial/conceptual designers, and routed systems designers. People in related roles will also benefit from taking this course.

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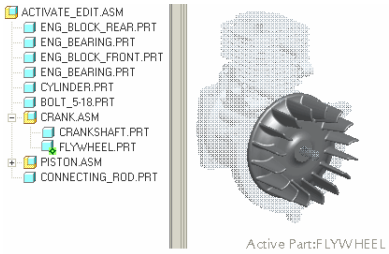
# Pro/ENGINEER Wildfire 4.0 Update from Pro/ENGINEER Wildfire 3.0

## Overview

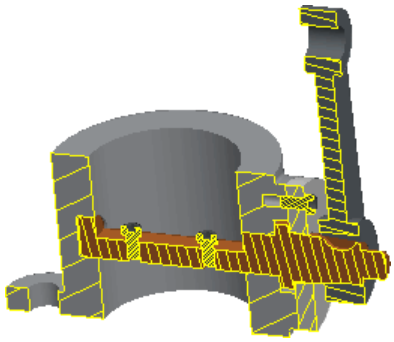
| | |
|---|---|
| Course Code | TRN-WBT2171-S |
| Course Length | 8 Hours |

In this course you will learn how to utilize many of the enhancements to core functionality in Pro/ENGINEER Wildfire 4.0. You will become familiar with enhancements to Part mode, including Draft, Swept Blends, UDFs and general interface enhancements. You will become familiar with the enhancements to Sketcher, such as referencing intent objects and replacing sketcher references. You will learn about new and enhanced Assembly capabilities such as the Global Reference Manager. You will review Drawing and Sheetmetal enhancements as well.




## Course Objectives

- Describe and utilize Part enhancements.
- Describe and utilize Sketcher enhancements.
- Describe and utilize Assembly enhancements.
- Describe and utilize Drawing enhancements.
- Describe and utilize Sheetmetal enhancements.



## Prerequisites

- Completion of T1827-350 Pro/ENGINEER Wildfire 3.0 Update from Pro/ENGINEER Wildfire 2.0 or equivalent experience.

## Audience

- This course is intended for people who have already upgraded to Pro/ENGINEER Wildfire 3.0.

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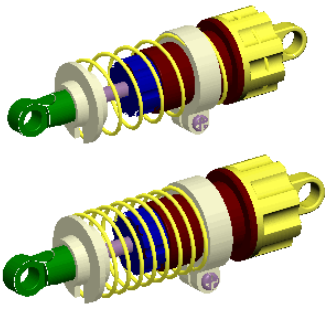
# Pro/ENGINEER Wildfire 4.0 Update from Pro/ENGINEER Wildfire 2.0

## Overview

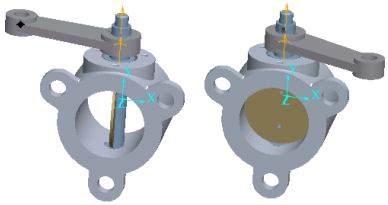
| | |
|---|---|
| Course Code | TRN-WBT2172–S |
| Course Length | 16 Hours |



In this course, you will learn how to utilize many of the enhancements to core functionality in Pro/ENGINEER Wildfire 4.0. This course is intended as an update directly from Pro/ENGINEER Wildfire 2.0 to Pro/ENGINEER Wildfire 4.0, so some of the enhancements covered in this course were introduced in the Pro/ENGINEER Wildfire 3.0 release.You will become familiar with enhancements to Part mode, including embedded datum creation, and warp and partial shell features. You will learn new methods for creating features such as swept blends, and new methods for placing user defined features. You review new capabilities for feature manipulation, such as enhanced patterning capabilities. You will become familiar with the enhancements to Sketcher, such as how to copy and paste items in sketcher and how to insert predefined shapes such as polygons and common engineering sections, such as I-beams. You will also learn how to reference intent objects and replace sketcher references. You will learn about new and enhanced Assembly capabilities such as the Global Reference Manager and the new user interface for assembling components. You will use new drawing functionality, including how to create shaded drawing views. You will also learn about sheetmetal enhancements including how to create multiple walls in a single operation.

## Course Objectives

- Describe and utilize Part enhancements.
- Describe and utilize Sketcher enhancements.
- Describe and utilize Assembly enhancements.
- Describe and utilize Drawing enhancements.
- Describe and utilize Sheetmetal enhancements.



## Prerequisites

- Completion of T1707-340 Pro/ENGINEER Wildfire 2.0 Update or equivalent experience.

## Audience

- This course is intended for people who have already upgraded to Pro/ENGINEER Wildfire 2.0, and who are moving directly to Pro/ENGINEER Wildfire 4.0.

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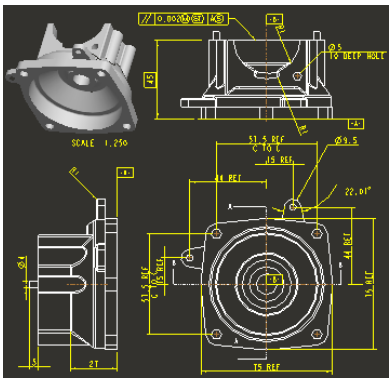
# Detailing with Pro/ENGINEER Wildfire 4.0

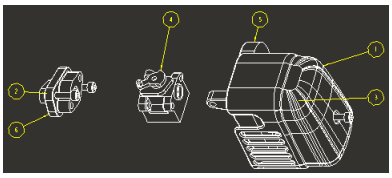
## Overview

| | |
|---|---|
| Course Code | TRN-WBT2173–S |
| Course Length | 24 Hours |



Detailing with Pro/ENGINEER Wildfire 4.0 is a comprehensive training course that teaches you how to quickly create detailed drawings using information captured within 3-D design models. In this course, you learn how to create drawings, how to detail drawings, and how to take advantage of the parametric and associative nature of Pro/ENGINEER Wildfire 4.0 when configuring drawings. After completing this course, you will be able to create production drawings suitable for manufacturing.

## Course Objectives



- Understand the drawing development process.
- Create new drawings using formats and drawing templates.
- Create different types of views in drawings.
- Create dimensions and notes.
- Control display options using layers.
- Apply dimensional and geometric tolerances in drawings.
- Add draft geometry and symbols to drawings.
- Use layers in drawings to control the display of views and detail items.
- Create drawing tables and a bill of materials.
- Create drawing formats.
- Configure the drawing environment.
- Manage large drawings.

## Prerequisites

- Introduction to Pro/ENGINEER Wildfire 4.0.

## Audience

- This course is intended for mechanical designers, design engineers, and related roles.

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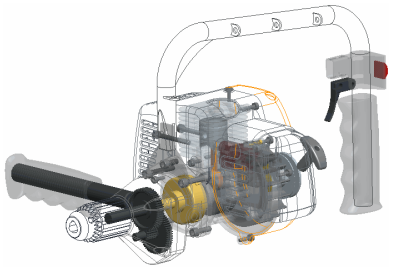
# Advanced Assembly Design with Pro/ENGINEER Wildfire 4.0

## Overview

| | |
|---|---|
| Course Code | TRN-WBT2174–S |
| Course Length | 24 Hours |

In this course, you will learn how to use Pro/ENGINEER Wildfire 4.0 to create and manage complex assemblies. You will learn how to use advanced assembly tools that enable you to add and maintain design, increase your efficiency, and increase system performance when working with large assemblies. In addition, you will learn the basics of using and creating predefined assembly structures and skeletons, both valuable tools typically used in a top-down design process. The course also includes an assembly design project that enables you to practice your new skills by performing various design tasks in an assembly model.At the end of each module, you will complete a set of review questions to reinforce critical topics from that module. Your instructor will discuss these with the class. At the end of the course, you will find a course assessment in Pro/FICIENCY intended to evaluate your understanding of the course as a whole.

## Course Objectives



- Using Advanced Assembly Constraints
- Creating and Using Component Interfaces
- Creating and Using Flexible Components
- Restructuring and Mirroring Assemblies
- Using Assembly Features and Shrinkwrap
- Replacing Components in an Assembly
- Understanding the Basics of Simplified Reps
- Creating Cross-Sections, Display Styles, and Combined Views
- Substituting Components By Rep, Envelope, and Model
- Understanding Advanced Simplified Rep Functionality
- Creating and Using Assembly Structure and Skeletons
- Project

## Prerequisites

- Fast Track to Pro/ENGINEER Wildfire 4.0

## Audience

- Design engineers, mechanical designers, and related roles.

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