

Advanced Assembly Design with Pro/ENGINEER Wildfire 4.0

Overview

Course Code TRN- 2174-T

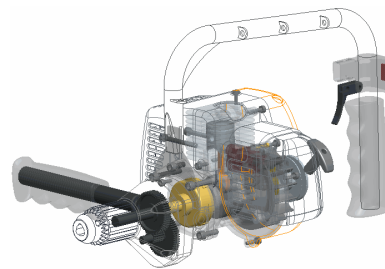
Course Length 3 Days

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.
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Agenda

Day 1

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| 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

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

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|--------|----|---|
| 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 |
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Course Content

Module 1. Using Advanced Assembly Constraints

- i. Constraining Components using Coordinate Systems
- ii. Constraining Components using Tangency
- iii. Constraining Components using Pnt on Line
- iv. Constraining Components using Pnt on Surf
- v. Constraining Components using Edge on Surf
- vi. Constraining Components using Pnt on Pnt
- vii. Constraining Components using Fix

Module 2. Creating and Using Component Interfaces

- i. Understanding Component Interfaces
- ii. Using a Placing Component Interface
- iii. Using a Receiving Component Interface
- iv. Creating a Component Interface using Save as Interface
- v. Auto Placing Components
- vi. Copying and Pasting Components
- vii. Repeating Component Placement

Module 3. Creating and Using Flexible Components

- i. Adding Flexibility to a Component
- ii. Placing Flexible Components in an Assembly
- iii. Adding Flexibility to Already Placed Components
- iv. Using Flexible Parameters

Module 4. Restructuring and Mirroring Assemblies

- i. Restructuring Assemblies
- ii. Creating Mirrored Assemblies
- iii. Creating Mirrored Components
- iv. Creating Mirrored Subassemblies

Module 5. Using Assembly Features and Shrinkwrap

- i. Understanding Assembly Features
- ii. Creating an Assembly Cut
- iii. Creating Assembly Holes
- iv. Creating a Shrinkwrap Feature
- v. Creating a Shrinkwrap Model
- vi. Summarizing Shrinkwrap Features and Models

Module 6. Replacing Components in an Assembly

- i. Understanding Component Replace
 - ii. Replacing Components using Family Table
 - iii. Replacing Components using Reference Model
 - iv. Replacing Components using By Copy
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- v. Replacing Unrelated Components
- vi. Understanding Interchange Assemblies
- vii. Replacing using a Functional Interchange Assembly

Module 7. Understanding the Basics of Simplified Reps

- i. Understanding Simplified Rep Concepts
- ii. Customizing Simplified Reps
- iii. Excluding Components using Simplified Reps
- iv. Creating Geometry and Graphics Simplified Reps
- v. Opening Simplified Reps
- vi. Creating Part Simplified Reps
- vii. Creating a Simplified Rep using Shrinkwrap

Module 8. Creating Cross-Sections, Display Styles, and Combined Views

- i. Understanding Assembly Cross-Sections
- ii. Creating Planar Assembly Cross-Sections
- iii. Creating Offset Assembly Cross-Sections
- iv. Creating Zone Assembly Cross-Sections
- v. Creating Display Styles
- vi. Creating Combination Views

Module 9. Substituting Components By Rep, Envelope, and Model

- i. Understanding Envelopes
- ii. Creating and Using a Surface Subset Shrinkwrap Envelope
- iii. Creating and Using a Faceted Shrinkwrap Envelope
- iv. Creating and Using a Create Features Envelope
- v. Creating and Using an Envelope Copied from an Existing Part
- vi. Substituting Components Using By Rep
- vii. Substituting Components Using By Model

Module 10. Understanding Advanced Simplified Rep Functionality

- i. Searching for Components for Simplified Reps
- ii. Creating Simplified Reps by Size
- iii. Creating Simplified Reps using Zones
- iv. Creating Simplified Reps by Distance
- v. Creating Simplified Reps using Exterior Components
- vi. Defining Simplified Reps using Rules
- vii. Using On-Demand Simplified Reps
- viii. Creating External Simplified Reps

Module 11. Creating and Using Assembly Structure and Skeletons

- i. Understanding Skeletons
 - ii. Creating Assembly Structure
 - iii. Creating Skeletons for Space Claims
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- iv. Creating Skeletons for Placement References
 - v. Copying a Model to a Skeleton
- vi. Creating Multiple Skeletons
- vii. Sharing Skeleton Geometry
- viii. Creating and Placing Models using Skeleton References
 - ix. Creating a Motion Skeleton
 - x. Sketching a Motion Skeleton
 - xi. Creating Bodies for a Motion Skeleton
 - xii. Assigning Connections for a Motion Skeleton
- xiii. Creating Solid Models from a Motion Skeleton

Module 12. Project

- i. The Table Fan
 - ii. Skeleton Models
 - iii. The Shaft and Arm Parts
 - iv. Components to Assemblies
 - v. Editing the Design
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