

## Advanced Assembly Design using Creo Parametric 2.0

### Overview

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Course Code TRN-3904-T

Course Length 3 Days

In this course, you will learn how to use Creo Parametric 2.0 to create and manage complex assemblies. You will learn how to use advanced assembly tools that enable you to add and maintain designs, 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, which are 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.

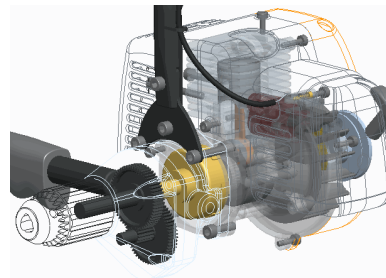
At the end of each module, you will complete a set of review questions to reinforce critical topics from that module. At the end of the course, you will complete a course assessment in Pro/FICIENCY intended to evaluate your understanding of the course as a whole.



### Course Objectives

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- Use advanced assembly constraints
- Create and using component interfaces
- Create and using flexible components
- Restructure and mirror assemblies
- Use assembly features and shrinkwrap
- Replace components in an assembly
- Understand the basics of simplified reps
- Create cross-sections, display styles, layer states, and combined views
- Substitute components using user-defined reps, envelopes, and simplified reps
- Understand advanced simplified rep functionality
- Create and use assembly structure and skeletons



## Prerequisites

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- Introduction to Creo Parametric 2.0
- Update to Creo Parametric 2.0 from Creo Elements/Pro 5.0

## Audience

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- This course is intended for 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, Layer States, and Combined Views

### Day 3

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Module	9	Substituting Components using User Defined, Envelopes, and Simplified Reps
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 Fix
- ii. Constraining Two Coordinate Systems using Coincident
- iii. Constraining a Point on a Line using Coincident
- iv. Constraining a Point on a Surface using Coincident
- v. Constraining an Edge on a Surface using Coincident
- vi. Constraining a Point on a Point using Coincident
- vii. Creating a Tangent Constraint using Auto Constrain
- viii. Configuring Constraint Sets with Parameters

*Knowledge Check Questions*

### 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 the Save as Interface Dialog Box
- v. Auto Placing Components
- vi. Copying and Pasting Components
- vii. Repeating Component Placement

*Knowledge Check Questions*

### 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

*Knowledge Check Questions*

### Module 4. Restructuring and Mirroring Assemblies

- i. Restructuring and Reordering Assembly Components
- ii. Creating Mirrored Assemblies
- iii. Creating Mirrored Components
- iv. Creating Mirrored Sub-Assemblies

*Knowledge Check Questions*

### Module 5. Using Assembly Features and Shrinkwrap

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

*Knowledge Check Questions*

**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
- v. Replacing Unrelated Components
- vi. Understanding Interchange Assemblies
- vii. Replacing using a Functional Interchange Assembly

*Knowledge Check Questions*

**Module 7. Understanding the Basics of Simplified Reps**

- i. Retrieving Assembly Subsets
- ii. Understanding Standard Simplified Reps
- iii. Understanding Custom Simplified Reps
- iv. Lightweight Graphics Representations
- v. Using Graphics Simplified Reps
- vi. Using Geometry Simplified Reps
- vii. Excluding Components using Simplified Reps
- viii. Defining Simplified Reps Using the Component Chooser
- ix. Creating a Default Envelope Simplified Rep
- x. Creating Part Simplified Reps
- xi. Opening Simplified Reps

*Knowledge Check Questions*

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

- i. Understanding Assembly Cross-Sections
- ii. Creating Assembly Cross-Sections
- iii. Creating Offset Assembly Cross-Sections
- iv. Creating Zone Assembly Cross-Sections
- v. Creating Display Styles
- vi. Creating Layer States in an Assembly
- vii. Creating Combination Views

*Knowledge Check Questions*

**Module 9. Substituting Components using User Defined, Envelopes, and Simplified Reps**

- i. Understanding Envelopes
  - ii. Creating and using a Surface Subset Shrinkwrap Envelope
  - iii. Creating and Using a Faceted Shrinkwrap Envelope
  - iv. Creating and Using an All Solid Surfaces Shrinkwrap Envelope
  - v. Creating and Using a Create Features Envelope
  - vi. Creating and Using an Envelope Copied from an Existing Part
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- vii. Substituting Components using User Defined
- viii. Substituting by Interchange and Family Table

*Knowledge Check Questions*

#### **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

*Knowledge Check Questions*

#### **Module 11. Creating and Using Assembly Structure and Skeletons**

- i. Understanding Skeletons
- ii. Creating an Assembly Structure
- iii. Creating Skeletons for Space Claims
- 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

*Knowledge Check Questions*

#### **Module 12. Project**

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

*Knowledge Check Questions*

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