Advanced Assembly Design using Creo Parametric 3.0

Overview

Course Code	TRN-4503-T
Course Length	3 Days

In this course, you will learn how to use Creo Parametric 3.0 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

- Use advanced component selection
- Use advanced assembly constraints
- Create and use component interfaces
- Utilize intelligent fasteners
- Create and use 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, and combined views
- Substitute components by reps, envelopes, and simplified reps
- Understand advanced simplified rep functionality
- Create and use assembly structure and skeletons
- Utilize design exploration
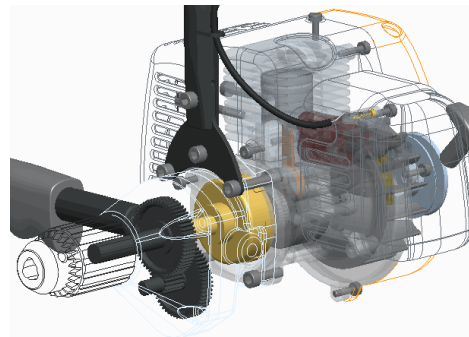
Prerequisites

- Introduction to Creo Parametric 3.0
- Update to Creo Parametric 3.0 from Creo Parametric 2.0

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	Advanced Component Selection
Module	2	Using Advanced Assembly Constraints
Module	3	Creating and Using Component Interfaces
Module	4	Utilizing Intelligent Fasteners
Module	5	Creating and Using Flexible Components
Module	6	Restructuring and Mirroring Assemblies

Day 2

Module	7	Using Assembly Features and Shrinkwrap
Module	8	Replacing Components in an Assembly
Module	9	Understanding the Basics of Simplified Reps
Module	10	Creating Cross-Sections, Display Styles, Layer States, and Combined Views

Day 3

Module	11	Substituting Components using User Defined, Envelopes, and Simplified Reps
Module	12	Understanding Advanced Simplified Rep Functionality
Module	13	Creating and Using Assembly Structure and Skeletons
Module	14	Utilizing Design Exploration
Module	15	Project

Course Content

Module 1. Advanced Component Selection
    i.   Locating Components in the Model Tree
    ii.   Using the Assembly Model Tree Search Field
    iii.   Selecting Multiple Components
Knowledge Check Questions

Module 2. Using Advanced Assembly Constraints
    i.   Constraining Components using Fix
    ii.   Constraining Two Coordinate Systems
    iii.   Constraining a Point on a Line
    iv.   Constraining a Point on a Surface
    v.   Constraining an Edge on a Surface
    vi.   Constraining a Point on a Point
    vii.   Creating a Tangent Constraint
    viii.   Configuring Constraint Sets with Parameters
Knowledge Check Questions

Module 3. 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 4. Utilizing Intelligent Fasteners
    i.   Understanding the Intelligent Fastener Extension
    ii.   Assembling Intelligent Fasteners
    iii.   Manipulating Intelligent Fasteners
    iv.   Assembling Intelligent Fasteners Using Advanced Options
    v.   Manipulating Intelligent Fasteners Using Advanced Options
Knowledge Check Questions

Module 5. 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 6. 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 7. 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
   vii. Summarizing Shrinkwrap Features and Models

Knowledge Check Questions

Module 8. 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 9. 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 10. 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

Module 14. Utilizing Design Exploration
   i.   Understanding Design Exploration
   ii. Exploring Part and Assembly Designs
   iii. Creating Design Exploration Branches
   iv. Opening and Saving Design Exploration Sessions
   v.   Using Design Exploration Options
   vi. Utilizing Update Control with Copy Geometry Features
Knowledge Check Questions

Module 15. 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