

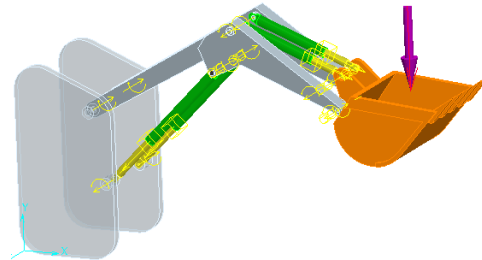
# Mechanism Design using Pro/ENGINEER Wildfire 5.0

## Overview

Course Code TRN-2242

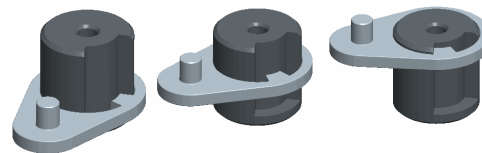
Course Length 1 Day

Mechanism Design using Pro/ENGINEER Wildfire 5.0 is designed for experienced users who want to add motion to their models by creating mechanism connections and servo motors. In Pro/ENGINEER Wildfire 5.0 you can add motion to your models using the standard mechanism functionality, often referred to as the Mechanism Design Extension (MDX). In this course, you will learn about creating mechanism connections, configuring the mechanism model, creating a kinematic analysis, and evaluating results. These topics will enable you to simulate the range of motion between components in your moving assemblies, create gear connections that simulate the gear ratios, create Cam connections that enable Pro/ENGINEER parts to "push" other parts they come into contact with, and check for collisions between moving components. After completing this course, you will be prepared to work on mechanism designs using Pro/ENGINEER Wildfire Mechanism Design. 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.



## Course Objectives

- Introduction to the mechanism design process
- Creating mechanism connections
- Configuring motion and analysis
- Evaluating analysis results



## Prerequisites

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- Introduction to Pro/ENGINEER Wildfire 5.0

## Audience

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- Design engineers and mechanical designers who need to add and evaluate the motion of their assemblies.

# Agenda

## Day 1

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Module	1	Introduction to the Mechanism Design Process
Module	2	Creating Mechanism Connections
Module	3	Configuring Motion and Analysis
Module	4	Evaluating Analysis Results

## Course Content

### Module 1. Introduction to the Mechanism Design Process

- i. Introduction to Mechanism Design
- ii. Understanding the Mechanism Design Process
- iii. Creating the Model
- iv. Verifying the Mechanism
- v. Adding Servo Motors
- vi. Preparing for Analysis of a Mechanism
- vii. Analyzing the Mechanism
- viii. Evaluating Analysis Results

*Knowledge Check Questions*

### Module 2. Creating Mechanism Connections

- i. Creating Mechanism Bodies
- ii. Understanding Constraints and Connection Sets
- iii. Understanding Predefined Connection Sets
- iv. Configuring Motion Axis Settings
- v. Using Rigid Connection Sets
- vi. Using Pin Connection Sets
- vii. Using Slider Connection Sets
- viii. Using Cylinder Connection Sets
- ix. Using Planar Connection Sets
- x. Using Ball Connection Sets
- xi. Using Weld Connection Sets
- xii. Using Bearing Connection Sets
- xiii. Using General Connection Sets
- xiv. Using Slot Connection Sets
- xv. Creating Cam-Follower Connections
- xvi. 3D Contact
- xvii. Creating Generic Gear Connections
- xviii. Creating Dynamic Gear Connections
- xix. Creating Belt Connections
- xx. Using the Drag and Snapshot Tools

*Knowledge Check Questions*

### Module 3. Configuring Motion and Analysis

- i. Understanding Servo Motors
  - ii. Understanding Analysis Definitions
  - iii. Creating Geometry Servo Motors
  - iv. Creating Motion Axis Servo Motors
  - v. Creating Slot Motors
  - vi. Graphing the Magnitude of Servo Motors
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- vii. Assigning Constant Motion
- viii. Assigning Ramp Motion
- ix. Assigning Cosine Motion
- x. Assigning SCCA Motion
- xi. Assigning Cycloidal Motion
- xii. Assigning Parabolic Motion
- xiii. Assigning Polynomial Motion
- xiv. Assigning Table Motion

*Knowledge Check Questions*

#### **Module 4. Evaluating Analysis Results**

- i. Generating Measure Results for Analysis
- ii. Creating Analysis Measure Definitions
- iii. Evaluating Playback Results
- iv. Understanding the Animate Dialog Box
- v. Checking for Collisions
- vi. Creating Motion Envelopes

*Knowledge Check Questions*

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