Introduction to Creo Parametric 5.0

Overview

Course Code: TRN-5301-T
Course Length: 40 Hours

In this course, you will learn core modeling skills and quickly become proficient with Creo Parametric 5.0. 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. After completing the course, you will be well prepared to work effectively on product design projects using Creo Parametric 5.0.

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 PTC University Proficiency intended to evaluate your understanding of the course as a whole.

This course has been developed using Creo Parametric 5.0 F000.

Course Objectives

- Learn the basic Creo Parametric modeling process
- Understand Creo Parametric concepts
- Learn how to use the Creo Parametric interface
- Select and edit geometry, features, and models
- Sketch geometry and use tools
- Create sketches for features
- Create datum planes and datum axes
- Create extrudes, revolves, and profile ribs
- Utilize internal sketches and embedded datums
- Create sweeps and blends
- Create holes, shells, and drafts
- Create rounds and chamfers
- Group, copy, and mirror items
- Create patterns
- Measure and inspect models
- Assemble with constraints
- Assemble with connections
• Explode assemblies
• Lay out drawings and create views
• Create drawing annotations
• Use layers
• Investigate parent/child relationships
• Capture and manage design intent
• Resolve failures and seek help
• Comprehensive two part 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

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Course Content

Module 1. Introduction to the Creo Parametric Basic Modeling Process
   i. Creo Parametric Basic Modeling Process

Module 2. Understanding Creo Parametric Concepts
   i. Understanding Solid Modeling Concepts
   ii. Understanding Feature-Based Concepts
   iii. Understanding Parametric Concepts
   iv. Understanding Associative Concepts
   v. Understanding Model-Centric Concepts
   vi. Recognizing File Extensions

Knowledge Check Questions

Module 3. Using the Creo Parametric Interface
   i. Understanding the Main Interface
   ii. Understanding the Folder Browser
   iii. Understanding the Web Browser
   iv. Setting the Working Directory and Opening and Saving Files
   v. Understanding the Ribbon Interface
   vi. Working with Multiple Windows
   vii. Managing Files in Creo Parametric
   viii. Understanding Datum Display Options
   ix. Understanding Display Style Options
   x. Analyzing Basic 3-D Orientation
   xi. Understanding the View Manager
   xii. Creating and Managing View Orientations
   xiii. Managing and Editing Appearances
   xiv. Setting Up New Part Models

Knowledge Check Questions

Module 4. Selecting Geometry, Features, and Models
   i. Understanding Creo Parametric Basic Controls
   ii. Using Drag Handles and Dimension Draggers
   iii. Understanding the Model Tree
   iv. Understanding Model Tree Filters
   v. Using the Geometry Selection Filter
   vi. Understanding Selection Filters
   vii. Selecting Items Using Direct Selection
   viii. Selecting Items Using Query Selection
   ix. Using the Search Tool

Knowledge Check Questions

Module 5. Editing Geometry, Features, and Models
Module 6. Creating Sketcher Geometry
   i. Reviewing Sketcher Theory
   ii. Understanding Design Intent
   iii. Modifying the Sketcher Display
   iv. Utilizing Constraints
   v. Sketching with On-the-Fly Constraints
   vi. Sketching Lines
   vii. Sketching Centerlines
   viii. Sketching Rectangles and Parallelograms
   ix. Sketching Circles
   x. Sketching Arcs
   xi. Sketching Circular Fillets
   xii. Sketching Chamfers

Knowledge Check Questions

Module 7. Using Sketcher Tools
   i. Understanding Construction Geometry Theory
   ii. Sketching Points
   iii. Using Geometry Tools Within Sketcher
   iv. Manipulating Sketches Within Sketcher
   v. Dimensioning Entities Within Sketcher
   vi. Modifying Dimensions Within Sketcher
   vii. Sketcher Conflicts
   viii. Creating New Sketch Files
   ix. Placing Sections into Sketcher

Knowledge Check Questions

Module 8. Creating Sketches for Features
   i. Creating Sketches (Sketch Feature)
   ii. Specifying and Manipulating the Sketch Setup
   iii. Utilizing Sketch References
   iv. Using Entity from Edge within Sketcher

Knowledge Check Questions
Module 9. Creating Datum Features: Planes and Axes
   i. Creating Datum Features Theory
   ii. Creating Datum Axes
   iii. Creating Datum Planes

Knowledge Check Questions

Module 10. Creating Extrudes, Revolves, and Ribs
   i. Creating Solid Extrude Features
   ii. Adding Taper to Extrude Features
   iii. Common Dashboard Options: Extrude Depth
   iv. Common Dashboard Options: Feature Direction
   v. Common Dashboard Options: Thicken Sketch
   vi. Creating Solid Revolve Features
   vii. Common Dashboard Options: Revolve Angle
   viii. Creating Profile Rib Features

Knowledge Check Questions

Module 11. Sketcher Workflow
   i. Analyzing Open and Closed Sections
   ii. Creating Internal Sketches
   iii. Analyzing Sketcher Workflow
   iv. Creating Embedded Datum Features

Knowledge Check Questions

Module 12. Creating Sweeps and Blends
   i. Creating Sweeps with Open Trajectories
   ii. Creating Sweeps with Closed Trajectories
   iii. Analyzing Sweep Feature Attributes
   iv. Creating Blends by Selecting Parallel Sections
   v. Creating Blends by Sketching Sections
   vi. Analyzing Blend Options

Knowledge Check Questions

Module 13. Creating Holes, Shells, and Draft
   i. Common Dashboard Options - Hole Depth
   ii. Creating Coaxial Holes
   iii. Creating Linear Holes
   iv. Creating Radial and Diameter Holes
   v. Exploring Hole Profile Options
   vi. Creating Shell Features
   vii. Creating Draft Features
   viii. Creating Basic Split Drafts

Knowledge Check Questions
Module 14. Creating Rounds and Chamfers

i. Creating Rounds Theory
ii. Creating Rounds by Selecting Edges
iii. Creating Rounds by Selecting a Surface and Edge
iv. Creating Rounds by Selecting Two Surfaces
v. Creating Full Rounds
vi. Creating Round Sets
vii. Creating Chamfers by Selecting Edges
viii. Analyzing Basic Chamfer Dimensioning Schemes
ix. Creating Chamfer Sets

Knowledge Check Questions

Module 15. Project I

i. The Air Circulator
ii. Piston Assembly Components
iii. Crankshaft, Engine Block, Impeller, and Impeller Housing
iv. The Frame and Bolt

Module 16. Group, Copy, and Mirror Tools

i. Creating Local Groups
ii. Copying and Pasting Features
iii. Moving and Rotating Copied Features
iv. Mirroring Selected Features
v. Mirroring All Features
vi. Creating Mirrored Parts

Knowledge Check Questions

Module 17. Creating Patterns

i. Direction Patterning in the First Direction
ii. Direction Patterning in the Second Direction
iii. Axis Patterning in the First Direction
iv. Axis Patterning in the Second Direction
v. Direction Patterning with Multiple Direction Types
vi. Creating Reference Patterns of Features
vii. Creating Reference Patterns of Components
viii. Deleting Patterns or Pattern Members

Knowledge Check Questions

Module 18. Measuring and Inspecting Models

i. Viewing and Editing Model Properties
ii. Investigating Model Units
iii. Assigning Materials
iv. Analyzing Mass Properties
v. Using the Measure Tools
vi. Using the Measure Summary Tool
vii. Creating Planar Part Cross-Sections
viii. Measuring Global Interference

Knowledge Check Questions

Module 19. Assembling with Constraints
i. Understanding Assembly Theory
ii. Creating New Assembly Models
iii. Understanding Constraint Theory
iv. Understanding Assembly Constraint Status
v. Assembling Components Using Default Constraint
vi. Orienting Components
vii. Creating Coincident Constraints Using Geometry
viii. Creating Coincident Constraints Using Datum Features
ix. Creating Distance Constraints
x. Creating Parallel, Normal, and Angle Constraints
xi. Assembling Using Automatic
xii. Utilizing the Accessory Window

Knowledge Check Questions

Module 20. Assembling with Connections
i. Understanding Connection Theory
ii. Dragging Connected Components
iii. Assembling Components using the Slider Connection
iv. Assembling Components using the Pin Connection
v. Assembling Components using the Cylinder Connection
vi. Analyzing Collision Detection Settings

Knowledge Check Questions

Module 21. Exploding Assemblies
i. Creating and Managing Explode States
ii. Creating Explode Lines
iii. Animating Explode States

Knowledge Check Questions

Module 22. Drawing Layout and Views
i. Analyzing Drawing Concepts and Theory
ii. Analyzing Basic 2-D Orientation
iii. Utilizing the Drawing Tree
iv. Creating New Drawings and Applying Formats
v. Creating and Orienting General Views
vi. Managing Drawing Sheets
vii. Adding Drawing Models
viii. Creating Projection Views
ix. Creating Cross-Section Views
x. Creating Detailed Views
xi. Creating Auxiliary Views
xii. Creating Assembly and Exploded Views
xiii. Modifying Drawing Views
xiv. Creating New Drawings using Drawing Templates

Knowledge Check Questions

Module 23. Creating Drawing Annotations
i. Analyzing Annotation Concepts and Types
ii. Creating Tables from File
iii. Creating BOM Balloons
iv. Showing, Erasing, and Deleting Annotations
v. Cleaning Up Dimensions
vi. Manipulating Dimensions
vii. Creating Driven Dimensions
viii. Inserting Notes
ix. Analyzing Drawing Associativity
x. Publishing Drawings

Knowledge Check Questions

Module 24. Using Layers
i. Understanding Layers
ii. Creating and Managing Layers
iii. Utilizing Layers in Part Models
iv. Utilizing Layers in Assembly Models

Knowledge Check Questions

Module 25. Investigating Parent/Child Relationships
i. Understanding Parent/Child Relationships
ii. Viewing Part Parent/Child Information
iii. Viewing Assembly Parent/Child Information
iv. Viewing Model, Feature, and Component Information

Knowledge Check Questions

Module 26. Capturing and Managing Design Intent
i. Handling Children of Deleted and Suppressed Items
ii. Reordering Features
iii. Inserting Features
iv. Redefining Features and Sketches
v. Capturing Design Intent in Sketches
vi. Capturing Design Intent in Features
vii. Capturing Design Intent in Parts
viii. Capturing Design Intent in Assemblies
Knowledge Check Questions

Module 27. Resolving Failures and Seeking Help
  i. Understanding and Identifying Failures
  ii. Understanding the Notification Center
  iii. Analyzing Geometry Failures
  iv. Analyzing Open Section Failures
  v. Analyzing Missing Part Reference Failures
  vi. Analyzing Missing Component Failures
  vii. Analyzing Missing Component Reference Failures
  viii. Analyzing Invalid Assembly Constraint Failures
  ix. Recovering Models
  x. Using Creo Parametric Help

Knowledge Check Questions

Module 28. Project II
  i. The Air Circulator
  ii. Piston Assembly
  iii. Engine Block and Drawing
  iv. Blower Assembly
  v. Engine Blower Assembly
  vi. Completing the Design