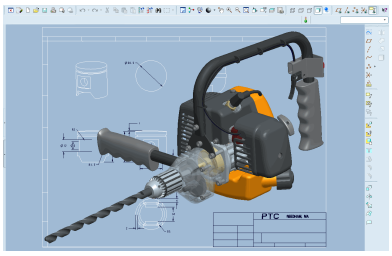
Introduction to Pro/ENGINEER Wildfire 5.0

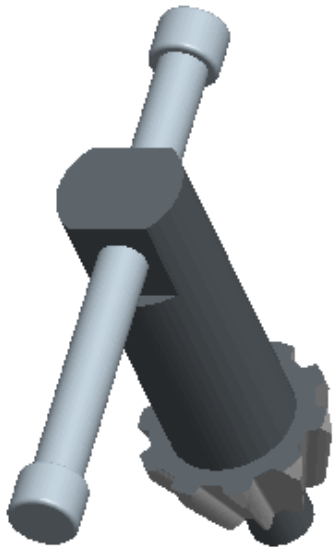
Overview

Course Code	TRN-2232–T
Course Length	5 Days



This course is designed for new users who want to become proficient with Pro/ENGINEER Wildfire 5.0 as quickly as possible. In this course, you will focus on learning core-modeling skills. 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. At the end of each module, you will find 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. After completing the course you will be well prepared to work effectively on product design projects using Pro/ENGINEER Wildfire.

Course Objectives



- Learning the basic Pro/ENGINEER Design Process
- Understanding Pro/ENGINEER concepts
- Learning how to use the Pro/ENGINEER interface
- Selecting and editing items
- Sketching geometry and using tools
- Creating sketches for features
- Creating datum planes and datum axes
- Creating extrudes, revolves, and ribs
- Utilizing internal sketches and embedded datums
- Creating sweeps and blends
- Creating holes, shells, and drafts
- Creating rounds and chamfers
- Grouping, copying, and mirroring items
- Creating patterns
- Measuring and inspecting models
- Assembling with constraints
- Assembling with connections
- Exploding assemblies
- Laying out drawings and creating views
- Creating drawing annotations
- Using layers
- Investigating parent/child relationships
- Capturing and managing design intent
- Resolving failures and seeking 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

Day 1

Module	1	Introduction to the Pro/ENGINEER Wildfire Basic Modeling Process
Module	2	Understanding Pro/ENGINEER Concepts
Module	3	Using the Pro/ENGINEER Interface
Module	4	Selecting and Editing
Module	5	Creating Sketcher Geometry

Day 2

Module	6	Using Sketcher Tools
Module	7	Creating Sketches for Features
Module	8	Creating Datum Features: Planes and Axes
Module	9	Creating Extrudes, Revolves, and Ribs
Module	10	Utilizing Internal Sketches and Embedded Datums
Module	11	Creating Sweeps and Blends

Day 3

Module	12	Creating Holes, Shells, and Draft
Module	13	Creating Rounds and Chamfers
Module	14	Project I
Module	15	Group, Copy, and Mirror Tools
Module	16	Creating Patterns
Module	17	Measuring and Inspecting Models

Day 4

Module	18	Assembling with Constraints
Module	19	Assembling with Connections
Module	20	Exploding Assemblies
Module	21	Drawing Layout and Views
Module	22	Creating Drawing Annotations

Module 23 Using Layers

Day 5

Module 24 Investigating Parent/Child Relationships

Module 25 Capturing and Managing Design Intent

Module 26 Resolving Failures and Seeking Help

Module 27 Project II

Course Content

Module 1. Introduction to the Pro/ENGINEER Wildfire Basic Modeling Process

i. Pro/ENGINEER Wildfire Basic Modeling Process

Module 2. Understanding Pro/ENGINEER 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 Pro/ENGINEER Interface

i. Understanding the Main Interface
ii. Understanding the Folder Browser
iii. Understanding the Web Browser
iv. Understanding the Window Menu
v. Setting the Working Directory and Opening and Saving Files
vi. Managing Files in Pro/ENGINEER
vii. Understanding Basic Display Options
viii. Analyzing Basic 3-D Orientation
ix. Understanding the View Manager
x. Creating and Managing View Orientations
xi. Creating Style States using the View Manager
xii. Managing and Editing Appearances
xiii. Setting Up New Part Models

Knowledge Check Questions

Module 4. Selecting and Editing

i. Understanding Pro/ENGINEER Basic Controls
ii. Using Drag Handles
iii. Using Keyboard Shortcuts
iv. Understanding the Model Tree
v. Understanding Model Tree Filters
vi. Understanding Basic Model Tree Columns
vii. Selecting Items using Direct Selection
viii. Selecting Items using Query Selection
ix. Using the Search Tool
x. Using the Smart Selection Filter
xi. Understanding Selection Filters
xii. Renaming Objects

xiii. Utilizing Undo and Redo Operations
xiv. Editing Features and Regenerating
xv. Activating and Editing Models
xvi. Using Dynamic Edit
xvii. Deleting and Suppressing Items
xviii. Editing Feature and Component Visibility

Knowledge Check Questions

Module 5. 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 6. 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 7. Creating Sketches for Features

i. Creating Sketches ('Sketch' Feature)
ii. Specifying the Sketch Setup
iii. Utilizing Sketch References
iv. Using Entity from Edge within Sketcher
v. Thickening Edges

Knowledge Check Questions

Module 8. Creating Datum Features: Planes and Axes

i. Creating Datum Features Theory
ii. Creating Datum Axes
iii. Creating Datum Planes

Knowledge Check Questions

Module 9. Creating Extrudes, Revolves, and Ribs

i. Creating Solid Extrude Features
ii. Common Dashboard Options: Extrude Depth
iii. Common Dashboard Options: Feature Direction
iv. Common Dashboard Options: Thicken Sketch
v. Creating Solid Revolve Features
vi. Common Dashboard Options: Revolve Angle
vii. Creating Profile Rib Features

Knowledge Check Questions

Module 10. Utilizing Internal Sketches and Embedded Datums

i. Creating Internal Sketches
ii. Creating Embedded Datum Features

Knowledge Check Questions

Module 11. Creating Sweeps and Blends

i. Creating Sweeps with Open Trajectories
ii. Creating Sweeps with Closed Trajectories
iii. Analyzing Sweep Feature Attributes
iv. Creating a Parallel Blend Protrusion or Cut
v. Experimenting with Parallel Blend Attributes
vi. Analyzing Parallel Blend Section Tools

Knowledge Check Questions

Module 12. 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
ix. Analyzing Draft Hinges and Pull Direction

Knowledge Check Questions

Module 13. 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 14. Project I

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

Module 15. 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 16. 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 17. Measuring and Inspecting Models

i. Viewing and Editing Model Properties
ii. Investigating Model Units
iii. Analyzing Mass Properties
iv. Measuring Models
v. Creating Planar Part Cross-Sections
vi. Measuring Global Interference

Knowledge Check Questions

Module 18. 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 the Default Constraint
vi. Analyzing Basic Component Orientation
vii. Constraining Components using Insert
viii. Constraining Components using Mate Coincident
ix. Constraining Components using Align Coincident
x. Constraining Components using Align and Mate Offset
xi. Constraining Components using Align and Mate Oriented
xii. Constraining Components using Align and Mate Angle
xiii. Constraining Components using the Automatic Option
xiv. Utilizing the Accessory Window

Knowledge Check Questions

Module 19. 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 20. Exploding Assemblies

i. Creating and Managing Explode States
ii. Creating Explode Lines
iii. Animating Explode States

Knowledge Check Questions

Module 21. Drawing Layout and Views

i. Analyzing Drawing Concepts and Theory
ii. Analyzing Basic 2-D Orientation
iii. Understanding the Drawing Ribbon User Interface
iv. Creating New Drawings and Applying Formats
v. Creating and Orienting General Views
vi. Utilizing the Drawing Tree
vii. Managing Drawing Sheets
viii. Adding Drawing Models
ix. Creating Projection Views
x. Creating Cross-Section Views

xi. Creating Detailed Views
xii. Creating Auxiliary Views
xiii. Creating New Drawings using Drawing Templates
xiv. Modifying Drawing Views
xv. Creating Assembly and Exploded Views

Knowledge Check Questions

Module 22. Creating Drawing Annotations

i. Analyzing Annotation Concepts and Types
ii. Inserting a Bill of Materials Table
iii. Showing, Erasing, and Deleting Annotations
iv. Cleaning Up Dimensions
v. Manipulating Dimensions
vi. Creating Driven Dimensions
vii. Inserting Notes
viii. Analyzing Drawing Associativity
ix. Publishing Drawings

Knowledge Check Questions

Module 23. Using Layers

i. Understanding Layers
ii. Creating and Managing Layers
iii. Utilizing Layers in Part Models
iv. Creating Layer States
v. Utilizing Layers in Assembly Models

Knowledge Check Questions

Module 24. 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 25. 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 26. Resolving Failures and Seeking Help

i. Understanding and Identifying Failures
ii. Analyzing Geometry Failures
iii. Analyzing Open Section Failures
iv. Analyzing Missing Part References Failures
v. Analyzing Missing Component Failures
vi. Analyzing Missing Component Reference Failures
vii. Analyzing Invalid Assembly Constraint Failures
viii. Understanding Resolve Mode Tools
ix. Recovering Models
x. Using Pro/ENGINEER Help

Knowledge Check Questions

Module 27. 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