

## SolidWorks Essentials Training Course

**Description:** The goal of this 5-day course is to teach you how to use the SolidWorks mechanical CAD software to build parametric models of parts and assemblies and how to make drawings of those parts and assemblies. This course is designed around a process or task based approach to training. Rather than focus on individual features and functions, a process-based training course emphasizes the process and procedures you follow to complete a particular task. By utilizing case studies to illustrate these processes, you learn the necessary commands, options and menus in the context of completing a design task.

**Length:** 5 Days

**Prerequisites:** Lessons 1 -3 of the SolidWorks Getting Started tutorial located in the "Help Tutorials" within your SolidWorks CAD software.

### Courses Lesson 1: Introduction

- About This Course
- What is the SolidWorks Software?
- Design Intent
- The SolidWorks User Interface

### Lesson 2: Introduction to Sketching

- 2D Sketching
- Stages in the Process
- What are We Going to Sketch?
- Sketching
- Sketch Entities
- Basic Sketching
- Rules That Govern Sketches
- Design Intent
- Sketch Relations
- Dimensions
- Sketch Fillets
- Extrude

### Lesson 3: Basic Part Modeling

- Basic Modeling
- Terminology
- Choosing the Best Profile
- Choosing the Sketch Plane
- Details of the Part
- Boss Feature
- Sketching on a Planar Face
- Using the Hole Wizard

## SolidWorks Essentials Training Course (Cont.)

- Cut Feature
- View Options
- Filleting
- Detailing Basics
- Drawing Views
- Center Marks
- Model Dimensions
- Changing Parameters

### Lesson 4: Modeling a Casting or Forging

- Case Study: Ratchet
- Design Intent
- Boss Feature with Draft
- Symmetry in the Sketch
- First Feature
- Sketching Inside the Model
- View Options
- Keyboard Shortcuts
- Using Model Edges in a Sketch
- Creating Trimmed Sketch Geometry
- Using Copy and Paste
- Editing Features

### Lesson 5: Patterning

- Why Use Patterns?
- Linear Pattern
- Circular Patterns
- Mirror Patterns
- Using Pattern Seed Only
- Curve Driven Patterns
- Table and Sketch Driven Patterns
- Using Vary Sketch
- Pattern of a Pattern
- Patterning Faces
- Fill Patterns

### Lesson 6: Revolved Features

- Case Study: Handwheel
- Design Intent
- Revolved Features
- Building the Rim
- Building the Spoke

## SolidWorks Essentials Training Course (Cont.)

- Edit Material
- Mass Properties
- SimulationXpress
- Using the Wizard

### Lesson 7: Editing: Repairs

- Part Editing
- Editing Topics
- Check Sketch for Feature Information From a Model
- Rebuilding Tools

### Lesson 8: Editing: Design Changes

- Part Editing
- Design Changes
- Sketch Contours
- Adding Textures

### Lesson 9: Configurations of Parts

- Configurations
- Using Configurations
- Editing Parts that Have Configurations
- Design Library

### Lesson 10: Design Tables and Equations

- Design Tables
- Link Values
- Equations
- Design Tables
- Existing Design Tables
- Modeling Strategies for Configurations
- More About Making Drawings
- In the Advanced Course...

### Lesson 11: Shelling and Ribs

- Shelling and Ribs
- Analyzing and Adding Draft
- Other Options for Draft
- Shelling
- Ribs
- Full Round Fillets
- Thin Features

## **SolidWorks Essentials Training Course (Cont.)**

### **Lesson 12: Bottom-Up Assembly Modeling**

- Case Study: Universal Joint
- Bottom-Up Assembly
- Creating a New Assembly
- Position of the First Component
- FeatureManager Design Tree and Symbols
- Adding Components
- Using Part Configurations in Assemblies
- Creating Copies of Instances
- Component Hiding and Transparency
- Component Properties
- Sub-assemblies
- Smart Mates
- Inserting Sub-assemblies

### **Lesson 13: Using Assemblies**

- Using Assemblies
- Analyzing the Assembly
- Changing the Values of Dimensions
- Using Physical Dynamics
- Physical Simulation
- Exploded Assemblies
- Explode Line Sketch
- Assembly Drawings
- In the Drawings Course...