

## SolidWorks Essentials

**Length:** 4 Days

**Prerequisites:** Mechanical design experience; experience with the Windows® operating system.

**Summary:** SolidWorks Essentials teaches you how to use the SolidWorks mechanical design automation software to build parametric models of parts and assemblies, and how to make drawings of those parts and assemblies.

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### COURSE CONTENT

#### INTRODUCTION

- About This Course
- Windows 7
- Use of Color

#### SOLIDWORKS BASICS AND THE USER INTERFACE

- What is the SolidWorks Software?
- Design Intent
- File References
- Opening Files
- The SolidWorks User Interface
- Using the Command Manager

#### INTRODUCTION TO SKETCHING

- 2D Sketching
- Saving Files
- What are We Going to Sketch?
- Sketching
- Sketch Entities
- Basic Sketching
- Rules That Govern Sketches
- Design Intent
- Sketch Relations
- Dimensions
- Extrude
- Sketching Guidelines

#### BASIC PART MODELING TERMINOLOGY

- Choosing the Best Profile
- Choosing the Sketch Plane
- Details of the Part
- Boss Feature
- Sketching on a Planar Face
- Cut Feature
- View Selector
- Using the Hole Wizard
- View Options
- Filleting
- Editing Tools
- Detailing Basics
- Drawing Views
- Center Marks
- Dimensioning
- Changing Parameters

#### SYMMETRY AND DRAFT

- Case Study: Ratchet
- Design Intent
- Boss Feature with Draft
- Symmetry in the Sketch
- Sketching Inside the Model
- View Options
- Using Model Edges in a Sketch
- Creating Trimmed Sketch Geometry

## **PATTERNING**

- Why Use Patterns?
- Reference Geometry
- Linear Pattern
- Circular Patterns
- Mirror Patterns
- Using Pattern Seed Only
- Sketch Driven Patterns

## **REVOLVED FEATURES**

- Case Study: Handwheel
- Design Intent
- Revolved Features
- Building the Rim
- Building the Spoke
- Edit Material
- Mass Properties
- File Properties
- SolidWorks SimulationXpress
- Using SolidWorks SimulationXpress
- The SimulationXpress Interface

## **SHELLING AND RIBS**

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

## **EDITING: REPAIRS**

- Part Editing
- Editing Topics
- Sketch Issues
- Freezing Features
- FilletXpert

## **EDITING: DESIGN CHANGES**

- Part Editing
- Design Changes
- Information From a Model
- Rebuilding Tools
- Sketch Contours

## **CONFIGURATIONS**

- Using Configurations
- Other Methods to Create Configurations
- Using Global Variables and Equations
- Creating Equalities
- Global Variables
- Defining the Overall Width
- Equations
- Creating a Minimum Edge Distance
- Modeling Strategies for Configurations
- Editing Parts that Have Configurations
- Design Library
- In the Advanced Course...

## **USING DRAWINGS**

- More About Making Drawings
- Section View
- Model Views
- Broken View
- Detail Views
- Drawing Sheets and Sheet Formats
- Projected Views
- Annotations

## **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
- Sub-assemblies
- Smart Mates
- Inserting Sub-assemblies
- Pack and Go

## **USING ASSEMBLIES**

- Analyzing the Assembly
- Checking for Clearances
- Changing the Values of Dimensions
- Exploded Assemblies
- Bill of Materials
- Assembly Drawings

## **APPENDIX A: TEMPLATES**

- Options Settings
- Document Templates

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