## 𝒟𝒮 SOLIDWORKS Essentials

## OVERVIEW

**CLASSROOM LENGTH:** 4 days / **INSTRUCTOR-LED ONLINE LENGTH:** 6 days

**PREREQUISITES:** We recommend completing the introductory SOLIDWORKS Tutorials, lessons one through three.

**DESCRIPTION:** SOLIDWORKS Essentials is a four-day training class that teaches how to use SOLIDWORKS to build 3D parametric models of parts and assemblies and prepare drawings of those parts & assemblies.

### LESSON 1:
### SOLIDWORKS BASICS

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

### LESSON 2:
### INTRODUCTION TO SKETCHING

- 2D Sketching
- Stages in the Process
- Saving Files
- What Are We Going to Sketch
- Sketching and Sketch Entities
- Basic Sketching
- Rules That Govern Sketches
- Design Intent
- Sketch Relations
- Dimensions
- Extrude
- Sketching Guidelines

### LESSON 3:
### BASIC PART MODELING

- Basic Modeling and 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
- Filleting
- Editing Tools
- Detailing Basics
- Drawing Views
- Center Marks
- Dimensioning
- Changing Parameters

### LESSON 4:
### MODELING A CASTING OR FORGING

- 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
- Copy and Paste Features

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## SOLIDWORKS Essentials

### LESSON 5:
### PATTERNING

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

### LESSON 6:
### REVOLVED FEATURES

- Case Study: Handwheel
- Design Intent
- Revolved Features
- Building the Rim
- Building the Spoke
- Edit Material
- Mass Properties
- File Properties
- SOLIDWORKS SimulationXpress

### LESSON 7:
### SHELLING AND RIBS

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

### LESSON 8:
### EDITING - REPAIRS

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

### LESSON 9:
### EDITING - DESIGN CHANGES

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

### LESSON 10:
### CONFIGURATIONS

- Using Configurations
- Other Methods To Create Configurations
- Modeling Strategies for Configurations
- Editing Parts that Have Configurations
- Design Library

### LESSON 11:
### GLOBAL VARIABLES AND EQUATIONS

- Using Global Variables and Equations
- Renaming Features and Dimensions
- Design Rules Using Global Variables
- Global Variables
- Equations
- Using Operators and Functions

### LESSON 12:
### USING DRAWINGS

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

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### LESSON 13:

### 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
- Mating Components
- Using Part Configurations in Assemblies
- Sub-Assemblies
- Smart Mates
- Inserting Sub-Assemblies
- Pack and Go

### LESSON 14:

### USING ASSEMBLIES

- Using Assemblies
- Analyzing the Assembly
- Checking for Clearances
- Changing the Values of Dimensions
- Exploded Assemblies
- Rollback and Reorder Explode Steps
- Explode Line Sketch
- Bill of Materials
- Assembly Drawings

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