

## SOLIDWORKS Sheet Metal and Weldments

### OVERVIEW

**CLASSROOM LENGTH:** 2 days

**PREREQUISITES:** Mechanical design experience; completion of SOLIDWORKS Essentials or similar experience.

**DESCRIPTION:** The SOLIDWORKS Sheet Metal and Weldments course will teach you how to build standalone sheet metal parts and convert conventional parts to sheet metal in assembly context, as well as how to create welded structures with standard structural members and weld beads.

### WELDMENTS LESSON PLAN

#### LESSON 1:

##### BASIC FLANGE FEATURES

- Weldments
- Structural Members
- Groups vs. Structural Members
- Manual Trimming of Structural Members
- Adding Plates
- Gussets and End Caps
- Using Symmetry
- Profile Sketches
- Working with Weldments
- Managing the Cut List
- Advantages of a Multibody Part
- Limitations of a Multibody Part

#### LESSON 2:

##### WORKING WITH WELDMENTS

- Managing the Cut List
- Cut List Item Names
- Accessing Properties
- Cut-List Properties Dialog
- Structural Member Properties
- Adding Cut List Properties
- Bounding Boxes in Weldments
- Options for Generating Cut List Items
- Custom Structural Member Profiles
- Defining Material
- Creating Custom Profiles
- Standard or Configured Profiles
- Inserting Existing Parts
- When to Use an Assembly

#### LESSON 3:

##### CONFIGURING AND DETAILING WELDMENTS

- Weldment Configurations
- Post-Assembly Machining Features
- Weldment Drawings
- Drawing Views of Individual Bodies
- Representing Welds

#### LESSON 4:

##### WORKING WITH BENT STRUCTURAL MEMBERS

- Working with Bent Structural Members
- 3D Sketching

#### LESSON 5:

##### INTRODUCTION TO STRUCTURE SYSTEM

- Structure System
- Primary vs. Secondary Members
- Secondary Members

## **SOLIDWORKS** Sheet Metal and Weldments

### SHEET METAL LESSON PLAN

#### LESSON 1:

##### **BASIC FLANGE FEATURES**

- What are Sheet Metal Parts?
- Sheet Metal Methods
- Base Flange
- Sheet Metal Parameters
- Editing Sheet Metal Parameters
- Sheet Metal Bend Features
- Flat-Pattern Feature
- Additional Flange Features
- Edge Flanges
- Editing the Flange Profile
- Edge Flanges on Curved Edges
- Miter Flanges
- Hem Feature
- Tab Features
- Cuts in Sheet Metal
- Summary of Flange Features

#### LESSON 2:

##### **WORKING WITH THE FLAT PATTERN**

- Working with the Flat Pattern .
- Flat Pattern Settings
- Features for Manufacture
- Corner-Trim Feature
- Corners in the Formed State
- Closed Corner
- Corner Relief
- Break Corner/Corner Trim
- Producing the Flat Pattern
- Sheet Metal Cut List Properties
- Flat Pattern Drawing Views
- Flat Pattern View Properties
- Drawing Document Properties
- Sheet Metal Tables
- Cut List Properties as a Note
- Exporting the Flat Pattern

#### LESSON 3:

##### **ADDITIONAL SHEET METAL TECHNIQUES**

- Additional Sheet Metal Methods
- Designing from the Flat
- Sketched Bend Feature
- Jog Feature
- Adding Features in an Unfolded State
- Unfold and Fold
- Swept Flange
- Swept Flange Flat Pattern Options
- Lofted Bends
- Lofted Bends in the Design Library

#### LESSON 4:

##### **CONVERTING TO SHEET METAL**

- Sheet Metal Conversion
- Insert Bends Method
- Imported Geometry to Sheet Metal
- Adding Rips & Inserting Bends
- Making Changes
- Welded Corner
- Converting Cones and Cylinders
- Convert to Sheet Metal

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## SHEET METAL LESSON PLAN CONTINUED

**LESSON 5:****MULTIBODY SHEET METAL PARTS**

- Multibody Sheet Metal Parts
- Multibodies with Base Flange
- Sheet Metal Parameters for Multibodies
- Cut List Item Properties for Multibodies
- Flat Pattern Drawing Views for Multibodies
- Cut List Balloon Annotations
- Exporting to DXF/DWGs with Multibodies
- Convert with Multibodies
- Hiding and Showing Bodies
- Using Split with Sheet Metal Parts
- Patterning for Multibodies
- Using Edge Flanges to Merge Bodies
- Interfering Bodies
- Combining Sheet Metal with Other Bodies

**LESSON 6:****FORMING TOOLS AND GUSSETS**

- Sheet Metal Forming Tools
- Standard Forming Tools
- Form Tool Features in the Flat
- Part Document Properties
- Custom Forming Tools
- Split Line
- Forming Tool
- Form Tools in Drawings
- Sheet Metal Gusset

**LESSON 7:****ADDITIONAL SHEET METAL FUNCTIONS**

- Additional Sheet Metal Functions
- Cross-Breaks
- Vent Features
- Mirror Part
- Tab and Slot
- Process Plans
- Sheet Metal Costing