



# **SOLIDWORKS**

# **TRAINING**

**FUNDAMENTAL AND ADVANCED  
COURSES**

**DURATION: ONE TO SIX WEEKS**

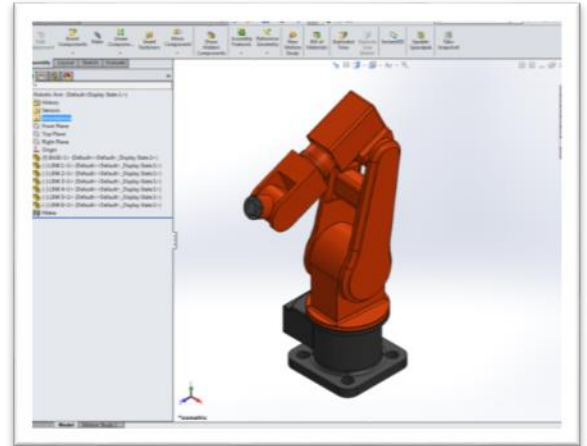
# SolidWorks Basic Fundamentals

Prerequisites: None

## Course Description:

This course introduces the SolidWorks user interface. It intends to give engineers and technical designers the ability to navigate the SolidWorks environment.

The relationship between toolbars, menus, and the graphics area is explained. Starting up SolidWorks, toolbar selection and switching between toolbars is performed. Screen layout, settings and Tool Bar locations are covered. Mouse skills and view manipulation is practiced. The product structure and file system are outlined. Part modeling and sketcher tool bar are explored using example models.



Completion of this class should leave the student capable of entering SolidWorks documents with an understanding of the file structure, basic functionality. They will know how to navigate the file structure to interrogate existing models and make simple parts.

## Suggested Audience:

Whether creating new designs or integrating existing engineering documents, this class provides the fundamental skills necessary for the operation of SolidWorks. This course is recommended as a prerequisite to all other courses offered.

## Content:

- Start-Up and Exit
- File Types
- Command Manager, Tool Bars, and Menus
- Mouse Controls
- Dialog Boxes
- Default Settings
- Part Profile Sketch and Solid Features Creation
- Feature Manager (Design Tree)
- Heads-up Tool Bar

# SolidWorks Part Design

Prerequisites: SolidWorks Basics

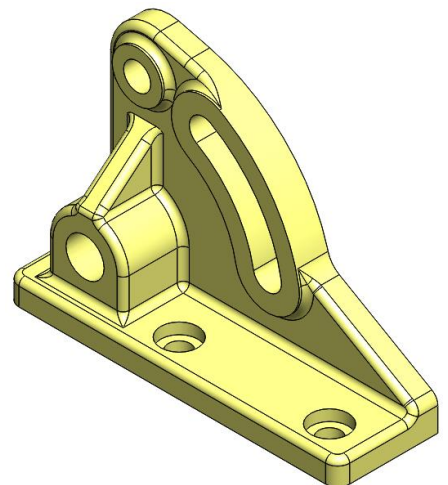
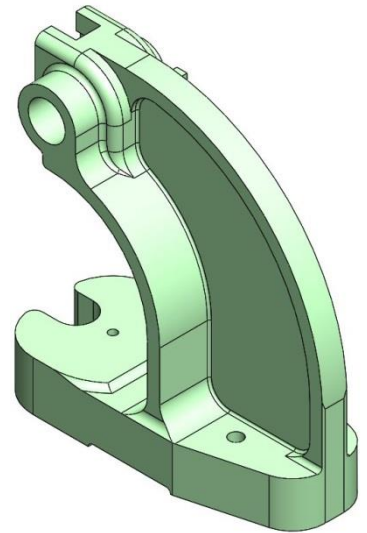
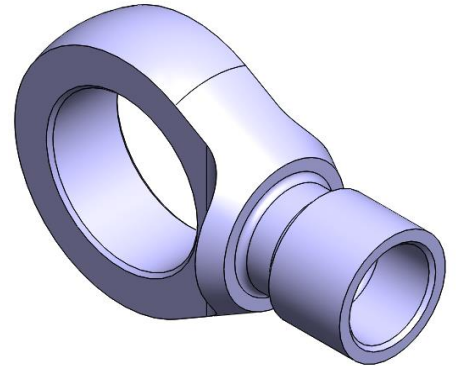
## Course Description:

The processes and terminology of part design are explained in this course. The part design toolbars, "Features" and "Sketch", and their dialog boxes are laid out. Modeling methods are demonstrated and practiced. Profiles generated using the Sketcher tool bar are used to create solid part features in the "Features" toolbar, such as "Extruded Boss/Bases" and "Extruded Cuts".

Upon completion of this course the student will be able to create basic part models with a multitude of features.

## Content:

- Part Design Terminology and General Process
- Sketcher Based Design:
  - Sketcher Toolbar
  - Features Toolbar
  - Creating Points, Lines, Circles, etc.
- Sketch-Based and Dress-Up Features:
  - Extruded Boss/Base, Extruded Cuts,
  - Revolved Boss/Base, Revolved Cut,
  - Holes, Fillet, Draft, Chamfering, Shell,
  - Rib, Swept Boss/Base, Swept Cut
- Patterns: Rectangular, Circular and Sketch Driven
- Part Modification



# SolidWorks Assembly Design

Prerequisites: SolidWorks Basics

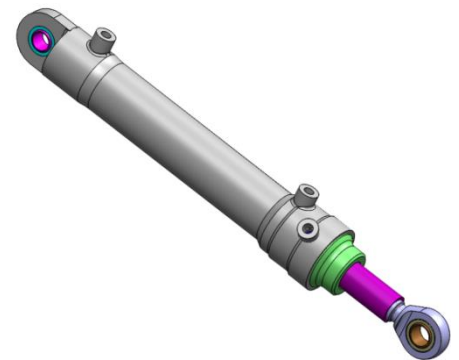
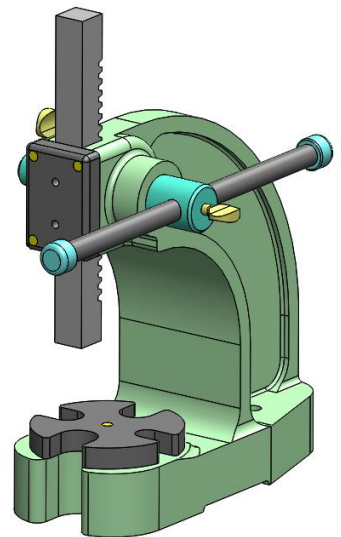
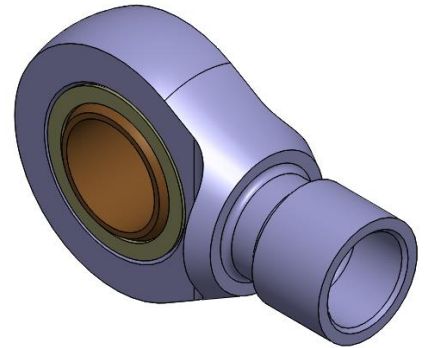
## Course Description:

This course presents the SolidWorks Product Structure and Assembly Design general process. Inserting, moving, fixing and floating components and subassemblies are practiced through exercises. Students will learn to analyze clearances, interferences, dependencies, and assembly mates. Modifying detail parts and subassemblies within the product structure is demonstrated.

On completion of this course the student will be able to create and manage assemblies.

## Content:

- Product Structure
- Assembly Design general process
- Assembly Design mates
- Inserting an Existing Component
- Moving Components
- Space Analysis
- Measuring Tools



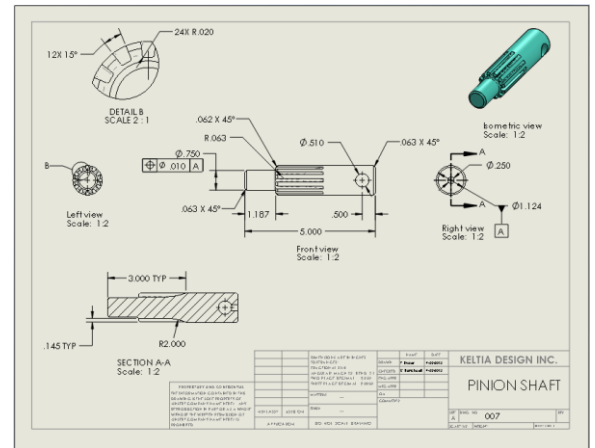
# SolidWorks Drafting

Prerequisites: SolidWorks Basics

## Course Description:

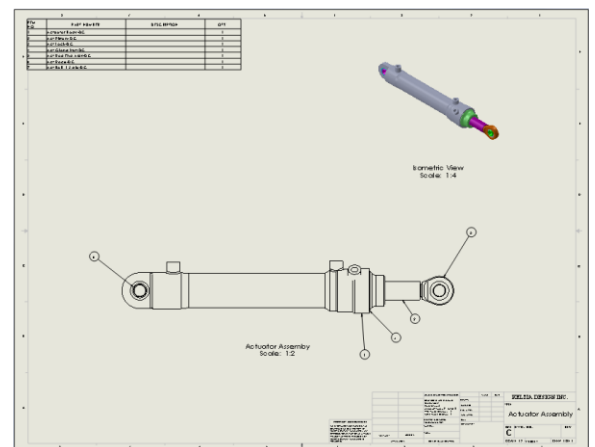
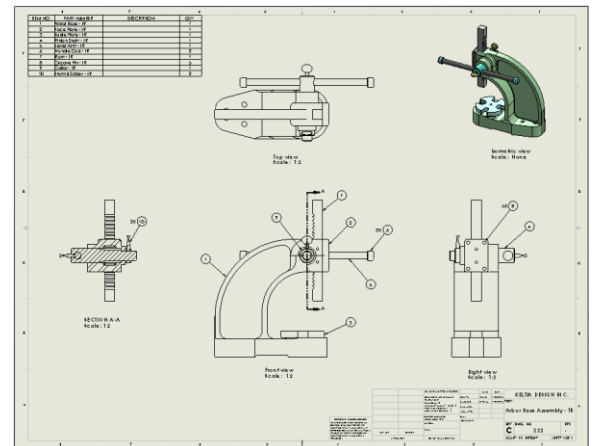
This course introduces the tools required to create detail and product drawings. The full process from sheet and view creation through text and dimensioning is presented. Text creation, dimensioning, and annotation creation are illustrated.

Graduates of this course should be able to create, save and print complete drawings of detail and assembly part models.



## Content:

- Create a New Sheet
- Insert a Drawing Border
- View Palette
- Primary View
- Section View
- Detail View
- Broken View
- Text and Dimensioning
- Drawing Standard and Default Values
- Geometry Creation
- Text Properties
- Symbols
- Bill of Materials construction
- Saving SolidWorks Drawings
- Saving SW Drawings in PDF format
- Printing



# SolidWorks Surfacing and Lofting

Prerequisites: SolidWorks Basics

## Course Description:

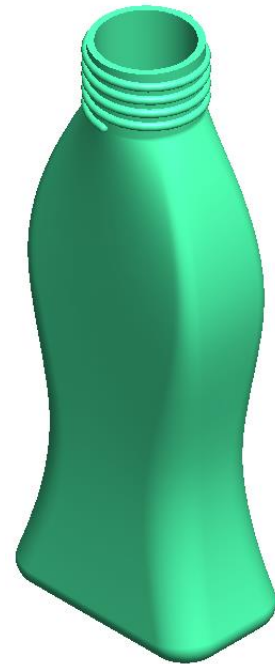
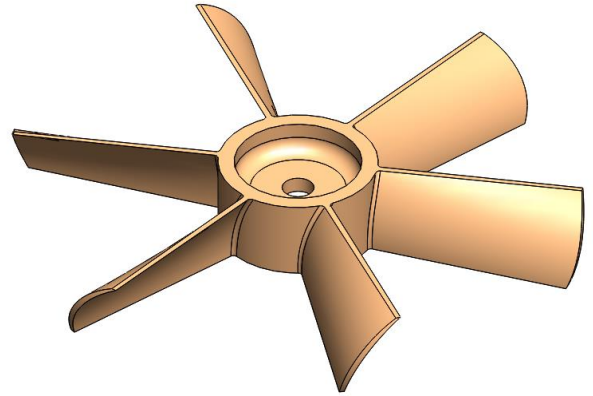
Course duration is 40 hours.

This course introduces the Surface Tool Bar. It will provide the designer with the necessary skills to create and modify basic 3D sketches and surfaces. The 3D sketch elements, point, line, circle, plane and intersect are shown. Operations on solid models using surfaces are demonstrated.

The intent of this course is to illustrate some of the three dimensional tools available for part design.

## Content:

- Surface Tool Bar
- 3D Wireframe: Points, Lines, Circles and Planes
- Surfaces: Extrusion, Offset, Sweeping, Filling, Blending and Lofting
- Tools/Options
- Boundary
- Intersection
- Surface Operations; Knit, Split, Fillet, Translate, Project and Extract



# SolidWorks Advanced Modeling and Sheetmetal

Prerequisites: SolidWorks Basics, SolidWorks Surfacing and Lofting

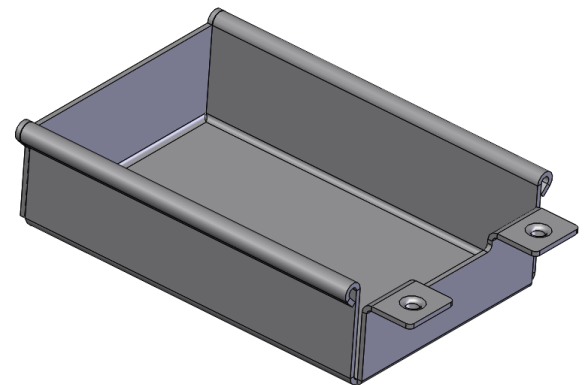
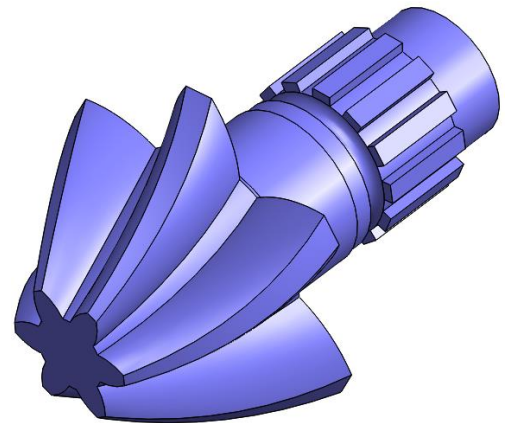
## Course Description:

This course delves deeper into all of the tool bars that were introduced in the previous five, one week courses. It also introduces Solidworks Sheetmetal design.

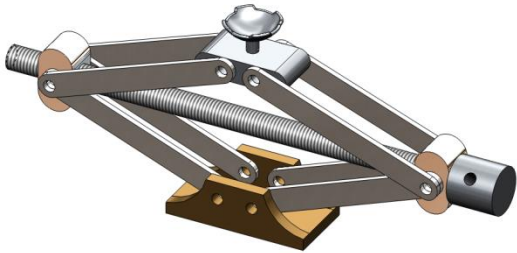
The intent of this course is to introduce some of the more obscure tools from the various tool bars and to give the student additional time and exercises in order to assimilate and integrate skills learned in the previous five courses. Further, the intent is to introduce SolidWorks sheetmetal design capabilities and concepts.

## Content:

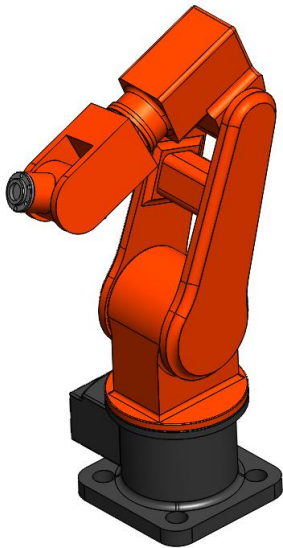
- Solid Operations: Multi Section Solid, Thickness, Thick Surface, Close Surface
- Multi Section Surface
- Sketch Analysis tool
- Feature Manager Tree Reorder
- Sheet Metal Design Tools: Base Flange, Edge Flange, Tab, Hem, Jog, Lofted Bend
- Flatten
- K Factor Calculations



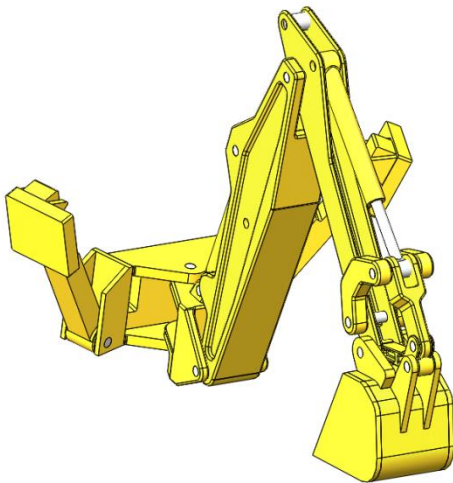
## More Examples of Advanced Exercises



**Automotive Jack**



**Robotic Arm Assembly**



**Backhoe Assembly**