



HOUSATONIC COMMUNITY COLLEGE  
COURSE SYLLABUS

**MFG 110 SolidWorks Design**

**COURSE DESCRIPTION:** SolidWorks design focuses on parametric modeling while introducing the student to the paperless computer based design process utilizing the modern parametric 3-D design software SolidWorks. The course reviews the following topics: design process, design engineering, assembly modeling, mechanism analysis, rapid prototyping, team design, geometric dimensioning and tolerancing, and the analysis of tolerance stackups. Students will participate in individual & team design projects.

Instructor:

**REQUIRED TEXT and MATERIALS:**

Textbook: Engineering Design with SolidWorks by David & Marie Planchard, 2009 SDC Pub. (Provided)

Materials: A 1 Gig. Flash Drive to store your projects on. (Not provided)

Teaching Methodology: lecture & demonstration with multimedia.

Software: SolidWorks Student Edition 2009-2010 (Provided)

**WEEKLY ASSIGNMENTS:**

Week	Chapter/ Topic	Title	Grade Percentages
1-3	Project 1		
4-6	Project 2	Extrude and Revolve Feature.	10%
7-8	Project 3	Fundamentals of Drawing (Lets put it on a print)	10%
9	Midterm	Midterm	20%
9-11	Project 4	Sweep, Loft, Wrap & Additional Features	10%
11-12	Project 5	Fundamentals of Assembly Modeling	10%
12-14	Project 6	Rapid Prototyping & Sheet Metal Parts	10%
15	Final	Final Exam	20%
			<b>100%</b>

**General Course Objectives/Outcomes**

- Demonstrate a basic understanding of the fundamentals of Part Modeling.
- Demonstrate an understanding of the extrude and revolve features.
- Demonstrate an understanding of the fundamentals of drawing.
- Demonstrate an understanding of Sweep, Loft, Wrap & Additional Features.
- Demonstrate an understanding of the fundamentals of Assembly Modeling.
- Demonstrate an understanding of top-down assembly modeling

- Demonstrate an understanding Rapid Prototyping

**Project 1: Page 4-93 (EX. 4.6) Chapter/Topic: Fundamentals of Part Modeling**

**General Course Objective/Outcome:** Demonstrate a basic understanding of the fundamentals of Part Modeling.

**Learning Objectives:**

- Effectively use SolidWorks User Interface & Toolbars
- Create file folders for projects & templates
- Use System Options & Document Properties
- Create a 2D sketch.

**Project 2: Page 4-92 (EX. 4.4) Chapter/Topic : Extrude and Revolve Features**

**General course Objectives/Outcome:** Demonstrate an understanding of the Extrude & Revolve features.

**Learning Objectives:**

- Incorporate design intent into sketches, features, parts, and assembly.
- Apply Document properties.
- Create custom part templates.
- Use the following features: Extruded Cut, Revolve Boss/Base, Revolved Cut, Dome, Shell, Circular Pattern, and Fillet.

**Project 3: Page 3-83 (EX. 3.2) Chapter/Topic : Fundamentals of Drawing**

**General Course Objective/Outcome:** Demonstrate an understanding of the fundamentals of drawing.

**Learning Objectives:**

- Create drawing template with document properties and sheet properties.
- Create a sheet format with document properties & sheet properties.
- Create standard, auxiliary, detailed & section views.
- Insert, create and modify dimensions & annotations.
- Develop and incorporate bill of materials.

**Midterm**

**Project 4: Page 6-114 (EX. 6.7) Chapter/Topic: Sweep, Loft, Wrap & Additional Features**

**General course Objectives/Outcome:** Demonstrate an understanding of Sweep, Loft, Wrap & Additional Features.

**Learning Objectives:**

- Use sweep & loft, wrap features in 3D modeling.
- Create components.
- Use Bottom-Up assembly modeling techniques.

**Project 5: C-Clamp (I will provide drawings) Chapter/Topic: Fundamentals of Assembly Modeling**

**General Course Objective/Outcomes:** Demonstrate an understanding of the fundamentals of Assembly Modeling.

**Learning Objectives:**

- Insert components; insert & edit Mates and SmartMates in an assembly.
- Obtain & assemble components using the Content Central.
- Assemble components from the SolidWorks Design Library.
- Use the Resolved Based feature: the Save as a Copy option, and the Component Pattern feature.

**Project 6: Produce Original Designed Part Chapter/Topic:** Dimension Rapid Prototype Machine

**General course Objectives/Outcome:** Demonstrate an understanding the Dimension Rapid Prototype machine.

**Learning Objectives: .**

- Import .STL Files parts to Dimension Rapid Prototype machine producing an original part.

**Project 7: Page 6-14 Box Simplified (Optional) Chapter/Topic:** Fundamentals Sheet Metal Modeling

**General course Objectives/Outcome:** Demonstrate an understanding of Sheet Metal Part Features.

**Learning Objectives:**

- Convert a solid part into a sheet metal part and insert sheet metal features.
- Configure drawing into 3D Formed & 2D Flat Pattern states.
- Use sheet metal features: Base, Edge, Miter Flange, Hem, and Flat Pattern.

Final