

**College of San Mateo**  
**Official Course Outline**

1. **COURSE ID:** DRAF 111    **TITLE:** Solidworks II

**Units:** 3.0 units    **Hours/Semester:** 32.0-36.0 Lecture hours; 48.0-54.0 Lab hours; and 64.0-72.0 Homework hours

**Method of Grading:** Grade Option (Letter Grade or Pass/No Pass)

**Prerequisite:** DRAF 110

2. **COURSE DESIGNATION:**

**Degree Credit**

**Transfer credit:** CSU

3. **COURSE DESCRIPTIONS:**

**Catalog Description:**

SolidWorks software is used to generate 3-dimensional solid models, assemblies, and detailed drawings of mechanical objects used in industrial design and engineering. Drawing detailing, engineering standards, multiple part and assemblies configurations, design tables, bill of materials, datums, 3-D sketches and surface modeling and methods to create complex solid geometry will be covered. A materials fee as shown in the Schedule of Classes is payable upon registration.

4. **STUDENT LEARNING OUTCOME(S) (SLO'S):**

Upon successful completion of this course, a student will meet the following outcomes:

1. Use SolidWorks drawing and detailing options.
2. Build multiple part and assembly structures that will interact with drawings, design tables and bill of materials.
3. Create appropriate drawing views to best show details in all model configurations.
4. Create surface modeling basics such as datum curves, datum points, and 3D sketches.
5. Utilize SolidWorks surface features to create complex solid geometry.

5. **SPECIFIC INSTRUCTIONAL OBJECTIVES:**

Upon successful completion of this course, a student will be able to:

1. Use SolidWorks to satisfy given industry problems
2. Apply engineering standards and sheet standards to any projects requiring CAD drawings.
3. Create legible drawings to best show details in all model configurations.
4. Utilize SolidWorks features to create complex solid geometry.

6. **COURSE CONTENT:**

**Lecture Content:**

1. Review of Solidworks I – Part and drawing creation
2. Introduction to Advanced Modeling techniques
3. 3D sketch
4. Plane Creation
5. Composite Curve and helix creation
6. Sweeps Vs. Lofts
7. Lofts with guide curves
8. Lofted surfaces
9. Advances Surfaces
10. Surfaces vs. Solid Modeling
11. Simulation Express
12. Sheet Metal
13. Forming Tools
14. Sheet Metal Conversions
15. Top Down Assembly
16. Tooling Design

**Lab Content:**

LAB portion of each class session supports each lecture through design problems that support the given lecture theme.

## 7. REPRESENTATIVE METHODS OF INSTRUCTION:

Typical methods of instruction may include:

- A. Lecture
- B. Lab
- C. Field Trips
- D. Other (Specify): Reading assignments: Instructor will assign reading from syllabus each week. Writing assignments: Student will be required to submit one research paper on a CAD related topic. The paper will include a clear general and specific purpose, introduction, body, and conclusion, use of effective organizational format, and smooth transitional devices; Multimedia: Students will watch PowerPoint presentations and analyze them accordingly to theory and concepts presented in class; Critical thinking: i) Lecture/discussion to understand specific processes used in production drawings of the manufacturing and design of products. ii) Students will locate types of evidence in design, architectural, engineering magazines, on line, etc. and evaluate them on criteria for reasonable evidence for their term report.

## 8. REPRESENTATIVE ASSIGNMENTS

Representative assignments in this course may include, but are not limited to the following:

### **Writing Assignments:**

Assignments are problem solving part creation and drawings.

### **Reading Assignments:**

Reading assignments are from the syllabus as well as the web and industry magazines.

## 9. REPRESENTATIVE METHODS OF EVALUATION

Representative methods of evaluation may include:

- A. Class Participation
- B. Class Performance
- C. Class Work
- D. Exams/Tests
- E. Homework
- F. Portfolios
- G. Quizzes
- H. Sketches of Planned Drawings- to reflect students' ability to summarize a strategy in drawing assembly strategies; Completion of Timed Assigned Drawings – to demonstrate students' ability to use evidence and reasoning skills to complete work; Written Exams – to reflect students' knowledge of theories, concepts, recognize and use evidence and skills presented in class lectures, text and discussions; Participation – to demonstrate students' involvement in class discussions, giving feedback on projects to fellow classmates, doing lab projects and homework assignments; Final Project – to reflect students' knowledge of theories, concepts, ability to organize information, and apply reasoning skills presented in class discussions, lectures, and text.

## 10. REPRESENTATIVE TEXT(S):

Possible textbooks include:

- A. Tran, Paul. *SOLIDWORKS 2020 Intermediate Skills*, ed. SDC Publications, 2019

Other:

- A. The following publications available in the CSM library and online:  
Instructor will provide instructor prepared review materials in lieu of textbook as well.  
Industrial Design magazines  
Engineering Design magazines  
Architectural magazines  
Furniture and product design texts

**Origination Date:** September 2020

**Curriculum Committee Approval Date:** October 2020

**Effective Term:** Fall 2021

**Course Originator:** Rosemary Nurre