Lassen Community College Course Outline

WT-25 SolidWorks Fundamentals 3.0 Units

I. Catalog Description

This course is the first in a two part series using computer-aided-design (CAD) software. Part of our advanced manufacturing program, this course teaches students how to use SolidWorks and mechanical design automation software to build parametric models of parts and assemblies, and how to make drawings of those parts and assemblies.

Transfer to CSU only
34 Hours Lecture, 51 Hours Lab
Scheduled: Fall

II. Coding Information

Repeatability: Not Repeatable
Grading Option: Graded or Credit/No Credit
Credit Type: Credit - Degree Applicable
TOP Code: 095650

III. Course Objectives

A. **Course Student Learning Outcomes**

Upon completion of this course the student will be able to:

1. **Modeling**: Students will be able to create 3D parametric models of mechanical components in SolidWorks.
2. **Assemblies**: Students will be able to create 3D parametric assemblies of mechanical systems in SolidWorks.

B. **Course Objectives**

Upon completion of this course the student will be able to:

1. Describe the role of technical graphics in the engineering design process.
2. Set up a solid modeling application to develop parts, assemblies and output drawings.
3. Create orthographic and pictorials sketches of mechanical parts and objects using freehand sketching techniques.
4. Create parts with extrudes, sweeps and loft attributes using a solid modeling application.
5. Manipulate and combine parts to produce assemblies from modeled parts using a solid modeling application.
6. Create drawings from parts and assemblies including three view orthographic projection, isometric and exploded pictorial projection using a solids modeling application.
7. Apply relevant areas of graphics to document attributes of parts, assemblies and associated drawings.

IV. Course Content

A. Unit Titles

Lecture

Topics	**Lec Hrs**

1. Technical Graphics Applications	2.00
2. Engineering Design	3.00
3. Basic solids modeling operations	3.00
4. Freehand Sketching and Lettering	2.00
5. Engineering Geometry and Modeling	3.00
6. Parts with extrudes, sweeps and lofts	6.00
7. Assemblies with mates and limits	6.00
8. Drawings with orthographic and pictorial views	2.00
9. Dimensioning, annotation and tolerancing	4.00
10. Graphic Standards	3.00
Total Hours	34.00

Lab

Topics	**Lec Hrs**
1. Technical Graphics Applications	2.00
2. Engineering Design	2.00
3. Basic solids modeling operations	8.00
4. Freehand Sketching and Lettering	4.00
5. Engineering Geometry and Modeling	8.00
6. Parts with extrudes, sweeps and lofts	8.00
7. Assemblies with mates and limits	6.00
8. Drawings with orthographic and pictorial views	6.00
9. Dimensioning, annotation and tolerancing	4.00
10. Graphic Standards	3.00
Total Hours	51.00

V. Assignments

A. **Appropriate readings**
Textbook and outside reading - Students will be expected to complete all assigned reading assignments.

B. **Online lab assignments**
Watch specifically assigned YouTube channels on SolidWorks and answer instructor prepared questions.

C. **Writing assignments**
The student will summarize in their own words the scope and application of the engineering graphics standard ANSI Y14.5.

D. **Out of class assignments**
Homework - Complete end of chapter questions/exercises.

VI. Methods of Evaluation

Traditional method of evaluation will be based on the following:

A. Exams/Tests
B. Quizzes
C. Projects
D. Homework
E. Class participation

VII. Methods of Delivery

Check those delivery methods for which, this course has been separately approved by the Curriculum/Academic Standards Committee.

☒ **Traditional Classroom Delivery** ☐ Correspondence Delivery

☐ Hybrid Delivery ☐ Online Delivery

Traditional Delivery
Traditional classroom delivery will be used for all required lecture/lab hours.

VIII. Representative Texts and Supplies

Text:

Planchard, David; *Engineering Graphics with SolidWorks 2018 and Video Instruction with Access*, SDC Publications, 2018, Ninth Edition, ISBN: 1-63057-152-0 or ISBN: 9781630571528

IX. Discipline/s Assignment

Welding Technology

X. Course Status

Current Status: Active
Course Originator: Kory Konkol
Original Approval Date: 04/02/2019
Board Approval Date: 05/14/2019
Chancellor's Office Approval Date: 05/25/2019
Revised By: Kory Konkol
Latest Curriculum/Academic Standards Committee Revision Date: 10/19/2021