

**COCONINO COMMUNITY COLLEGE**  
**COURSE OUTLINE**

Prepared by: Rod Horn/Dave Bowman  
Revised by: Dave Bowman  
Status: Permanent

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A. Identification:

1. Subject Area: Drafting (DFT)
2. Course Number: 155
3. Course Title: SolidWorks and the Manufacturing Environment
4. Credit Hours: 3
5. Course Description: This course will enable students to utilize SolidWorks, a 3-D parametric solid modeling software. Students will also explore the relationship of SolidWorks in the world of manufacturing. \*Course is available to Dual Enrollment Students Only. May be taken for S/U credit with instructor approval. Three Lecture.

B. Course Goals:

The student will become familiar and proficient in the basics of using a computer aided design software, such as SolidWorks, and use the many functions and capabilities associated with software.

C. Course Outcomes: Students will:

1. describe the basic functions and dimensioning of the software;
2. achieve proficiency in the various functions of computer aided design software;
3. demonstrate proficiencies related to illustrations of manufacturing components;
4. describe the different manufacturing components such as Castings, Turned, Molded parts, and their Patterns for illustrations used in manufacturing labs;
5. and identify uses for 3D printing.

D. Assessment of Course Outcomes

A capstone – half will be a written exam and half will be creating a final project using the computer aided computer software.

E. Course Content will include:

1. basic 3-D modeling;
2. 2-3D sketching;
3. features/casting;
4. turned parts and molded parts;
5. patterns;
6. model appearance;
7. sheet metal;
8. springs, threads, curves;
9. assemblies;
10. design drawings
11. manufacturing labs include:
12. CNC milling and turning;
13. laser engraving;
14. plastic injection molding;
15. vacuuming forming;
16. and 3D printing with rapid prototyping.