



## CAD 112: Maker Space Projects and Advanced Mechanical Design with SolidWorks

This course is a continuation of CAD 111. It uses the latest PC-based associative, parametric solid modeling software to produce advanced 3-D models of mechanical objects and assemblies. Topics include 3d printing, Laser etching/cutting and cnc (computer numerical control) router, advanced sketching, assemblies, dimensioning, testing and analysis. Several SolidWorks modules are used to analyze and demonstrate part and assembly designs. This course continually emphasizes mechanical design principles using the CAD system. Co or Prerequisite: CAD 111 or permission of instructor. Two lecture hours and three laboratory hours per week. Instructional Support Fee. NOTE: Utilizes Windows based software only. 3 credits Spring. Prerequisite: CAD 111 or permission of instructor.

### Course Student Learning Outcomes

1. Apply advanced SolidWorks parametric modeling functions. 2. Create detail drawings following current engineering standards ANSI Y14.1. 3. Construct student drawing templates. 4. Compare advanced mechanical processes, terminology, and products for utilization in mechanical models and assemblies. 5. Demonstrate SolidWorks failure analysis functions. 6. Create project prototypes. 7. Evaluate project prototypes. 8. Document their projects with an e-portfolio.

**Credits:** 3

**Program:** Computer Aided Drafting