# COMPUTER AIDED DRAFTING (CAD)

## CAD-108 CAD for Electrical Design  (2)
Introduces creating and editing electrical drawings using CAD software. Covers project files, electrical schematics, panel drawings, PLC symbols, creating custom symbols, and generating reports. Arts & Sciences Elective Code: B
*Hours per week:* 1.0 lecture, 2.0 lab

## CAD-110 Introduction to Parametric Solid Modeling  (2)
Covers basic operations for creating drawings and assemblies. Uses a software platform called Solidworks. Allows for some self-paced work, but instructor-led demonstrations and additional exercises outside the text are required. Arts & Sciences Elective Code: B
*Hours per week:* 1.0 lecture, 2.0 lab

## CAD-140 Parametric Solid Modeling I  (3)
Extends the skills with Solidworks covered in Intro to Parametric Modeling. Covers intermediate topics in mastering part modeling, assembly modeling, surfacing, sheet metal, and simulation xpress. The CSWA certification will be offered. Arts & Sciences Elective Code: B
*Hours per week:* 2.0 lecture, 2.0 lab

*Prerequisite:* Take CAD-110.

## CAD-141 Parametric Solid Modeling II  (3)
Extends the skills with Solidworks covered in Parametric Solid Modeling I. Focuses on Solidworks advanced features of the software useful to the design/manufacturing workplace. Covers advanced topics in surfacing, sheet metal modeling, Weldments, Mold tools, drawings, and 3-D drawing annotations as time allows. Additional certifications tests will be offered. Arts & Sciences Elective Code: B
*Hours per week:* 2.0 lecture, 2.0 lab

*Prerequisite:* Take CAD-140.

## CAD-147 Parametric Solid Modeling III  (3)
Introduces the fundamentals of drafting, such as graphic language and vocabulary, orthographic projection, drawing layouts, section views, title blocks and dimensioning. Explains the tools and techniques of the trade. Covers the basic concepts of creating engineering drawings that are submitted to be manufactured. Uses a software platform called Creo. Arts & Sciences Elective Code: B
*Hours per week:* 2.0 lecture, 2.0 lab

*Prerequisite:* Take CAD-141.

## CAD-168 Introduction to 3D Printing  (2)
Introduces students to the historical factors that have helped shape manufacturing over centuries. Covers the current and emerging 3D printing applications and describes advantages and limitations of each technology. Evaluates real-life scenarios. Includes hands-on components of this class. Requires that students download and print a model, as well as create a 3D model and then make a .stl file and print it. Arts & Sciences Elective Code: B
*Hours per week:* 1.0 lecture, 2.0 lab

## CAD-201 Introduction to Building Information Modeling  (3)
Introduces the basic principles and skills of BIM (Building Information Management) software for the creation of architectural documents. Focus is on broad, basic understanding of common tools, assemblies, and systems. Follows examples, videos, and/or textbook resources to establish competency before creating original, basic architectural documents based on assigned parameters. Arts & Sciences Elective Code: B
*Hours per week:* 3.0 lecture

## CAD-237 Geometric Dimensioning and Tolerancing  (3)
Introduces the special symbols used on mechanical drawings. Geometric dimensioning and tolerancing is a means of specifying engineering design and drawing requirements with respect to actual function and relationship of part features. It is a technique that ensures the most economical and effective production of these features for fabrication and inspection. Arts & Sciences Elective Code: B
*Hours per week:* 3.0 lecture

## CAD-300 AutoCAD for Applied Engineering  (2)
Provides instruction in entry-level computer-aided design (CAD) skills. Covers basic commands, CAD hardware and applications, and complete 2-D drawings with AutoCAD. Requires computer familiarity. Allows for some self-paced work. Arts & Sciences Elective Code: B
*Hours per week:* 1.0 lecture, 2.0 lab

## CAD-330 Solidworks I  (3)
Introduces the basics of 3D parametric modeling using Solidworks. Includes creating and modifying part files, applying sketch constraints, dimension and annotating drawings, and constructing work planes, axes, and points. Covers creating assembly files. Arts & Sciences Elective Code: B
*Hours per week:* 2.0 lecture, 2.0 lab

## CAD-340 Solidworks II  (3)
Builds on the skills from Solidworks I, covering intermediate techniques in part modeling, surface modeling, 3D sketching, sheet metal and assemblies. Applies advanced modeling strategies and prepares for the CSWA certification. Arts & Sciences Elective Code: B
*Hours per week:* 2.0 lecture, 2.0 lab

*Pre/corequisite:* Take CAD-330.

## CAD-350 Solidworks III  (3)
Advances the skills learned in Solidworks II, focusing on more complex features of the software. Covers advanced surface modeling, mold design, sheet metal, weldments, and advanced drawings and 3-D drawing annotations as time allows. Prepares for additional certification tests. Arts & Sciences Elective Code: B
*Hours per week:* 2.0 lecture, 2.0 lab

*Prerequisite:* Take CAD-340.

## CAD-360 Creo I  (3)
Introduces the basics of 3D parametric modeling using Creo. Includes creating and modifying part files, applying sketch constraints, dimension and annotating drawings, and constructing work planes, axes, and points. Covers creating assembly files. Arts & Sciences Elective Code: B
*Hours per week:* 2.0 lecture, 2.0 lab

## CAD-924 Honors Project  (1)

Allows a qualified honors student to pursue a special concentration of study under the guidance of a faculty member. Requires completion of an honors project contract. May be taken more than once. Arts & Sciences Elective Code: B; Comments: Requires approval of supervising professor and dean

*Hours per week:* 1.0 lecture

## CAD-928 Independent Study  (1-3)

Provides readings, papers and basic research or other projects under the individual guidance of a staff member. Arts & Sciences Elective Code: B; Comments: Permission of instructor, dean

*Hours per week:* 1.0 lecture