

# COMPUTER AIDED DRAFTING/ DESIGN (CAD)

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## **CAD 1010 Introduction to CAD (3 Credits)**

The class is an introductory course into the techniques of generating graphic images with computers. Topics include: overview of computer aided design (CAD) technology, computer technology, hardware / software descriptions and requirements, file manipulation and management, two and three-dimensional geometric construction, symbol library creation, dimensioning, scaling, sectioning, plotting, detail and assembly drawing including tolerance studies.

## **CAD 1026 Electronics Graphic CAD (3 Credits)**

Introduces the concepts and practical applications of computer-aided design for electrical and electronic circuits, using software such as MultiSim and LabView. Also introduces the simulation of electrical and electronic circuits.

## **CAD 1140 Architectural CAD (3 Credits)**

This course is an introduction to the theory and practice of architectural planning, design, and drawing production. Topics include: drawing layouts, floor plan development, elevation views, renderings, material specifications, and building code requirements.

Previous: Legacy Equivalent(s): CAD\* 114

## **CAD 1330 2D CAD (AutoCAD) (3 Credits)**

The objective of this course is to give the student a basic understanding of Computer Aided Drafting using the latest version of AutoCAD. The student will learn drafting fundamentals for engineering through projects from various technical disciplines. Topics include drawing setup, text, dimensioning, layering systems, blocks, printing and plotting, orthographic and isometric, and section views as well. Upon finishing this course, students should be able to prepare drawings in their own engineering disciplines. One hour of class work; four hours of laboratory.

Previous: Legacy Equivalent(s): CAD\* 133

## **CAD 2098 Special Topics in CAD (3 Credits)**

This course focuses on special topics which will vary from semester to semester. The topics may incorporate a cross-functional learning approach by partnering with industry for real-world projects in CAD. Additional topics will be advanced concepts for two or three-dimensional drawings utilizing a team approach and project management techniques.

Previous: Legacy Equivalent(s): CAD\* 299

## **CAD 2200 Parametric Design (3 Credits)**

Introduction to computer-based design using SolidWorks® parametric 3D CAD software. The course focuses on Parametric Modeling and topics include: Design Intent and Process, Sketching Techniques, Model Development Techniques, Process-Specific Modeling, Design Changes, Editing Models, Patterning and Assembly Techniques. Students will participate in mostly individual and some group design projects as appropriate.

Previous: Legacy Equivalent(s): CAD\* 200, CAD\* 141

## **CAD 2204 CAD 3D Architectural (3 Credits)**

Applies engineering and technological principles to the design of residential and light commercial structures. Students will create architectural drawings and three-dimensional models using AutoCAD software.

Prerequisites: CAD 1140 with a C- or higher

*Additional fees may apply*

Previous: Legacy Equivalent(s): CAD\* 204, CAD\* D116

## **CAD 2210 Advanced Parametrics Design (Solidworks) (3 Credits)**

A continuation of the first course in Parametric CAD using SolidWorks® and project-based learning. Topics include advanced modeling techniques and tools, with emphasis on surfaces, SimulationXpress, sheet metal development, and top-down assembly techniques.

Prerequisites: CAD 2200 or permission of instructor

Previous: Legacy Equivalent(s): CAD\* 220, CAD\* 221

## **CAD 2271 CAD Solids Mechanical PTC CREO (3 Credits)**

Introduces the basic PTC CREO software operation including part creation, drawing and assembly. 3D objects are made and orthographic drawings are created. PTC CREO is 3D solid modeling software from parametric technology.

## **CAD 2300 Parametric 3D CAD using NX (3 Credits)**

This course introduces basic Siemens NX® parametric based solid modeling techniques. Exercises and projects include creating and editing solid models using primitive features, form features and sketches. The course also covers bidirectional associative nature of the software to demonstrate modifications made in the model to be reflected in the orthographic and auxiliary drawing views and vice versa.

Prerequisites: CAD 1330 or permission of instructor

Previous: Legacy Equivalent(s): CAD\* 230

## **CAD 2520 Architectural Design and Modeling (3 Credits)**

Enables students to develop advanced skills and understanding of the conceptual design process. Students will design mass models, building shells and cores, rendered images, landscapes, and architectural drawings. Modeling techniques are explored primarily using AutoCAD's Architectural Desktop.

Prerequisites: CAD 2204 with C- or higher

*Additional fees may apply*

Previous: Legacy Equivalent(s): CAD\* 252