COMPUTER ASSISTED DESIGN (CAD)

CAD 101 | Computer Aided Drafting I
Lecture/Lab Credit: 3
Focuses on basic computer aided drafting skills using the latest release of the AutoCAD software. Includes file management, Cartesian coordinate system & dynamic input, drawing templates, drawing aids, linetype and linewidths, layer usage, drawing & editing geometric objects, polylines & splines, array, text applications, creating tables, basic dimensioning, and Help access.

CAD 102 | Computer Aided Drafting II
Lecture/Lab Credit: 3
Focuses on intermediate to advanced computer aided drafting skills using the latest release of the AutoCAD software. Includes blocks, wblocks & dynamic blocks, hatching, isometric drawings, advanced dimensioning and dimension variables, layouts, paper space and viewports, templates, external references, attributes, raster images, sheet sets and printing/plotting.
Prerequisite: CAD 101 with a grade of C or better, or chair permission

CAD 106 | Introduction to MicroStation
Lecture/Lab Credit: 3
Introduces basic computer-aided drafting using the Bentley MicroStation software. Students learn specific computer-aided drafting methods. A final project incorporates the basic drafting techniques to the production of a small floor plan. Course employs a PC platform.
Corequisite: Chair Permission

CAD 115 | Sketchup
Lecture/Lab Credit: 3
Focuses on the understanding of basic concepts of the software program SketchUp. Students will learn how to draw and extrude building shapes, stairs, roofs, and interiors utilizing advanced modeling techniques.

CAD 153 | Introduction to Pro Engineering/ Basics
Lecture/Lab Credit: 3
Introduces basic Pro/Engineer software and its operations such as part creation, assembly creation, and drawing creation. Pro/Engineer is a 3D Parametric Solid Modeling program.
Prerequisite: CAD 101 with a grade of C or better, or chair permission

CAD 175 | Special Topics
Lecture/Lab Credit: 3
Provides students with a vehicle to pursue in depth exploration of special topics of interest.
Prerequisite: This course may require prerequisites or permission of instructor

CAD 217 | Rhino
Lecture/Lab Credit: 3
Introduces the Rhino modeling platform, systems and plug-ins and creation and modification of 3-D objects and scenes. Focuses on NURBS systems, Rhino plug-ins, and Rhino workflow processes. Examines how Rhino is used in various industries. Prepares students to create physical models and renderings using Rhino.
Prerequisite: CAD 240 or chair permission

CAD 219 | 3DS Max
Lecture/Lab Credit: 3
Introduces 3D model creation and editing, rendering and animation using the AutoDesk 3DS Max software. Focuses on 3D geometry, texture mapping, lighting, camera placement, shading, photo-realistic rendering, animation techniques, and walk through animations.
Prerequisite: CAD 115, CAD 224, CAD 225 or chair permission

CAD 222 | Autodesk Navisworks
Lecture/Lab Credit: 3
Introduces students to the BIM management software Autodesk Navisworks. Multiple BIM models will be combined for the purposes of scheduling and clash detection.
Prerequisite: CAD 227 with a grade of C or better, or chair permission

CAD 225 | AutoCAD Architecture
Lecture/Lab Credit: 3
Provides students with the software application training in Architectural construction drawings using industry standard software. Includes creating floorplans, sections, elevations and details necessary to produce 2D and 3D Architectural construction drawings.

CAD 227 | Advanced Revit Architecture
Lecture/Lab Credit: 3
Focuses on the advanced applications of the AutoDesk Revit Architecture software. Includes Family Editing, Topographic Site Plans, Worksharing, Phases, Advanced Scheduling, Custom Annotation, and Presentation Techniques.
Prerequisite: CAD 224 with a grade of C or better, or chair permission

CAD 240 | Inventor I/AutoDesk
Lecture/Lab Credit: 3
Introduces basic Inventor applications of non-parametric modeling, three-dimensional parametric modeling and visualization & animation of 3D modeling. The student learns to construct, modify, and manage complex models in 3D space. Produces 2D drawing assemblies from 3D models.
Prerequisite: CAD 101 with a grade of C or better, or chair permission

CAD 244 | Advanced Inventor
Lecture/Lab Credit: 3
This course focuses on the advanced applications of the parametric software Inventor. Includes management of design data, advanced assembly and analysis of model creations and constraints, documentation of bill of materials and parts lists, rendering and animation and testing a model assembly.
Prerequisite: CAD 240 with a grade of C or better, or chair permission

CAD 246 | Fusion/AutoDesk
Lecture/Lab Credit: 3
Introduces students to the AutoDesk Revit Architecture software. Examines the Building Information Modeling approach to 2D and 3D architectural construction documents. Students will create floorplans, elevations, sections, 3D models, perspective renderings and animations with this software application.

CAD 255 | SolidWorks/Mechanical
Lecture/Lab Credit: 3
Introduces parametric feature-based solid modeling 3D concepts to build confidence in 3D thinking and progresses to three-dimensional parameters. The student learns to construct, modify, and manage complex parts in 3D space as well as to produce 2D drawings from the 3D models.
Prerequisite: CAD 101 with a grade of C or better, or chair permission

CAD 259 | Advanced Solidworks
Lecture/Lab Credit: 3
Introduces advanced applications of the 3D parametric software SolidWorks. Focuses include management of design data, advanced assembly, analysis of model creations, documentation of bill of materials and parts lists, rendering, animation, and dynamic simulation and testing a model assembly.
Prerequisite: CAD 255 with a grade of C or better, or chair permission
CAD 262 | 3D Printing/Additive Manufacturing
Lecture/Lab Credit: 3
Provides the student with the ability to blend the virtual and real design worlds together through the use of 3D Scanning, 3D CAD Modeling, and 3D Printing.
Prerequisite: CAD 240 with a grade of C or better

CAD 264 | 3D Scanning and Modeling
Lecture/Lab Credit: 4
Exposes students to 3D scanning and modeling. Students will manipulate various types of 3D scanning technology and create CAD models using scanning software and other CAD programs.
Prerequisite: CAD 262 with a grade of C or better

CAD 280 | Internship
Internship Credit: 6
Provides students with the opportunity to supplement coursework with practical work experience related to their educational program. Students work under the immediate supervision of experienced personnel at the business location and with the direct guidance of the instructor.
Prerequisite: CAD 262

CAD 289 | Capstone
Lecture/Lab Credit: 6
A demonstrated culmination of learning within a given program of study.
Prerequisite: CAD 264 3D Scanning