CADD TECHNOLOGY (CADD)

UC credit limit: all CADD courses, ENGR 119, ENGR 129, OH 200, OH 201 combined: maximum credit, one course.

CADD-115
Engineering Graphics **3 UNITS**
2.0 hours lecture, 4.0 hours laboratory
Introduction to engineering drafting. Covers the fundamentals of drafting using both mechanical instruments and the computer as drafting tools. Students will learn the fundamentals of engineering graphics as a universal language of communication in all engineering fields. Includes organization and drawing layouts, text, dimensions, tolerances, scales, multiview projections, and pictorial drawings to visualize, represent and document basic engineering problems. (CSU/UC)

CADD-120
Introduction to Computer-Aided Drafting and Design **3 UNITS**
Corequisite: CADD 115 or previous enrollment
Recommended Preparation: Working knowledge of basic computer operations and file administration
2.0 hours lecture, 4.0 hours laboratory
Concepts, techniques and procedures of Computer-Aided Drafting and Design (CADD). Offers a hands-on activity-based approach to the use of AutoCAD as a drafting tool. Course content focuses on manufacturing drawings, but also includes Architectural and General drawings. Students will develop a comprehensive understanding of computer-aided drafting in 2D geometry as well as in 3D-modeling. Not open to students with credit in ENGR 119. (CSU/UC)

CADD-125
Solid Modeling Design **3 UNITS**
Prerequisite: "C" grade or higher or "Pass" in CADD 115 or ENGR 100 or equivalent
Recommended Preparation: Working knowledge of basic computer operations and file administration
2.0 hours lecture, 4.0 hours laboratory
This is advanced graphic communication course using solid modeling techniques. This course covers feature based solid part construction including extrudes, cuts and revolves; advanced surface shaping using lofts and sweeps. This also covers assembly construction and constraining in an engineering design environment. Students learn how to produce technical/engineering drawing including proper layout of component drawing views, sectioning and detailing. Threads and fasteners are also included in this course. Dimensioning and tolerancing will be taught in accordance with ANSI standard. Introduction to 3D printing technology (aka Additive Manufacturing) is part of this course. SolidWorks software is used throughout the course. Also listed as ENGR 125. Not open to students with credit in ENGR 125. (CSU/UC)

CADD-126
Electronic Drafting **3 UNITS**
Prerequisite: "C" grade or higher or "Pass" in CADD 120 or equivalent
3.0 hours lecture
Application of electronic graphics to create all aspects of engineering support documentation. Includes all types: block diagrams, flow charts, wiring, and mechanical enclosures. Covers Schematic Capture and Printed Circuit Board (PCB) layout and design using AutoCAD. Other software may be incorporated. ASME, ANSI, military and NASA standards for engineering are discussed. (CSU/UC)

CADD-127
Survey Drafting Technology **3 UNITS**
Prerequisite: "C" grade or higher or "Pass" in CADD 120 or equivalent
2.0 hours lecture, 4.0 hours laboratory
Professional Civil Engineering/Surveyor's office method drafting course that applies the basic skills and techniques acquired in CADD 120. Land surveying, land development procedures, legal descriptions, topographical analysis, earthworks, geographic control and subdivision processes will be covered. Also listed as SURV 127. Not open to students with credit in SURV 127. (CSU/UC)

CADD-128
Geometric Dimensioning and Tolerancing (GDT) **3 UNITS**
Prerequisite: "C" grade or higher or "Pass" in CADD 120 or equivalent
Recommended Preparation: "C" grade or higher or "Pass" in CADD/ENGR 125 or equivalent
3.0 hours lecture
Provides the complete fundamentals of Geometric Dimensioning and Tolerancing (GD & T) concepts as adopted by the American National Standard Institute (ANSI) standards: ASME (American Society for Mechanical Engineers)/ANSI Y14.5-2009. The importance of precision technique in conjunction with Computer-Aided Drafting and Design (CADD) is emphasized. The content of this course is considered to be one of the fundamental components to the engineering design and drafting profession. (CSU/UC)

CADD-129
Engineering Solid Modeling **3 UNITS**
Prerequisite: "C" grade or higher or "Pass" in CADD 115 or ENGR 100 or equivalent
2.0 hours lecture, 4.0 hours laboratory
Advanced 3D computer-aided mechanical design and drafting. This parametric modeling course provides skills and knowledge of appropriate software and feature based part construction using extrudes, cuts, revolves, lofts and sweeps. Students will enhance their skills in sheet metal design as well as model assembly and assembly drawings including proper organization and layout of component drawing views, dimensioning and tolerancing, sectioning and detailing. 3D printing technology (additive manufacturing) is integrated to this course. Also listed as ENGR 129. Not open to students with credit in ENGR 129. (CSU/UC)

CADD-131
Architectural Computer-Aided Drafting and Design **3 UNITS**
Prerequisite: "C" grade or higher or "Pass" in CADD 120 or ENGR 119 or equivalent
2.0 hours lecture, 4.0 hours laboratory
This course is a hands-on study of computer-aided drafting and design (CADD) using three-dimensional (3D) parametric solid modeling programs, such as Revit and AutoCAD, and associated commands, techniques, and processes required for the creation of contract documents for residential projects using professional standards. Application of architectural graphics, symbols, patterns, layouts, text, dimensions and scales to develop design drawings for small architecture, interior design, and space planning projects. Uses the parametric CADD program Revit. (CSU/UC)

CADD-132
Advanced Computer-Aided Drafting and Design in 3D Modeling 3 UNITS
Prerequisite: "C" grade or higher or "Pass" in CADD 115 or equivalent
Recommended Preparation: Working knowledge of basic computer operations and file administration
2.0 hours lecture, 4.0 hours laboratory
Advanced Computer-Aided Drafting and Design (CADD) topics such as aspects of designing with solid modeling and parametric modeling, concepts, application of three-dimensional constructions, and editing 3D modeling. Exploring and experiencing Additive Manufacturing (aka Rapid Prototyping or 3D Printing Technology). 3D Solid Modeling software "Autodesk Inventor" will be used as an instructional tool. (CSU/UC)

CADD-133
Advanced Architectural Computer-Aided Drafting and Design 3 UNITS
Prerequisite: "C" grade or higher or "Pass" in CADD 131 or equivalent
2.0 hours lecture, 4.0 hours laboratory
This course is an advanced, practical study of Revit and Building Information Modeling (BIM). Emphasis is placed on the complex aspects of the Revit program used in the development of two-dimensional, three-dimensional, and presentation documents. This course is intended for advanced CADD/architecture students and practicing professionals. (CSU/UC)

CADD-140
Introduction to Advanced CADD/ Manufacturing 2 UNITS
2.0 hours lecture
Concept of manufacturing, provide in depth the fundamental differences between manufacturing and advanced manufacturing processes. Role of artificial intelligence (AI) in manufacturing- robotics, automation, numerical control, quality control, etc. (CSU)

CADD-141
Introduction to Technology of Machine Tools 2 UNITS
2.0 hours lecture
This course introduces new manufacturing technologies and processes. Study of the development of tools throughout history. Covers the standard types of machine tools used in industry as well as the newly developed space-age machines and processes. (CSU)

CADD-150
Occupational Work Experience in CADD Technology/ Manufacturing 1-4 UNITS
Prerequisite: Preregistration counseling with the instructor is required. Must meet State guidelines for work experience
Recommended Preparation: Recommendation from Program Coordinator
This course is designed to provide a broad range of hands-on technical experience in CADD Technology/Manufacturing. It prepares students for full-time employment in an appropriate CADD industry setting. Students learn how to work safely in the work environment and apply skills attained in the classroom setting. Occupational cooperative work experience credit may accrue at the rate of one to eight units per semester for a total of sixteen units, and students must work 75 paid hours or 60 nonpaid hours per unit earned. 75 hours paid or 60 hours non-paid work experience per unit, 1-4 units. (CSU)

CADD-200
Introduction to Computer-Aided Landscape Design 3 UNITS
2.0 hours lecture, 3.0 hours laboratory
Introduction to computer-aided landscape design using AutoCAD software. Creation of site plans, landscape plans, sprinkler plans, contour maps and landscape estimates. Elevation and perspective drawings are also created. Also listed as OH 200. Not open to students with credit in OH 200. (CSU/UC)

CADD-201
Advanced Computer-Aided Landscape Design 3 UNITS
Prerequisite: "C" grade or higher or "Pass" in CADD/OH 200 or equivalent
2.0 hours lecture, 3.0 hours laboratory
Use of computer-aided landscape design software for the application of graphics, symbols, patterns, layouts, text and scales for the development of design drawings, concept plans, construction documents and cost estimates for residential landscape projects. Also listed as OH 201. Not open to students with credit in OH 201. (CSU/UC)