115 ENGINEERING GRAPHICS 3 UNITS
2 hours lecture, 4 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, scales, multiview projections, and pictorial drawings to visualize, represent and document basic engineering problems.

CSU, UC, UC credit limit

120 INTRODUCTION TO COMPUTER-AIDED DRAFTING AND 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 hours lecture, 4 hours laboratory
Concepts, techniques and procedures of Computer-Aided Drafting and Design (CADD). Introduces AutoCAD software as a drafting tool. Students will develop a basic functional understanding of computer-aided drafting. Not open to students with credit in ENGR 119.

CSU, UC, UC credit limit

125 3D SOLID MODELING 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 hours lecture, 4 hours laboratory
Advanced graphic communication using solid modeling techniques and software (SolidWorks). Techniques include feature based part construction using extrudes, cuts and revolves; advanced surface shaping using lofts and sweeps; and assembly construction and constraining in an engineering design environment. Students will continue to develop 2D drafting skills including proper organization and layout of component drawing views, dimensioning and tolerancing, sectioning and detailing, detail descriptive geometry, and introduction to manufacturing processes of mechanical parts such as sheet metal process and molding. Also listed as ENGR 125. Not open to students with credit in ENGR 125.

CSU, UC, UC credit limit

126 ELECTRONIC DRAFTING 3 UNITS
Prerequisite: “C” grade or higher or “Pass” in CADD 120 or equivalent
3 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

127 SURVEY DRAFTING TECHNOLOGY 3 UNITS
Prerequisite: “C” grade or higher or “Pass” in CADD 120 or equivalent
2 hours lecture, 4 hours laboratory
Professional Civil Engineering/Surveyor’s office method drafting course that applies the basic skills and techniques acquired in CADD 115. Land surveying, land development procedures, legal descriptions, topographical analysis, earthworks, geographic control and subdivision processes will be covered.

CSU

128 DIMENSIONING AND TOLERANCING 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 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.

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129 ENGINEERING SOLID MODELING 3 UNITS
Prerequisite: “C” grade or higher or “Pass” in CADD 115 or ENGR 100 or equivalent
2 hours lecture, 4 hours laboratory
Advanced 3D computer-aided mechanical design and drafting. This parametric modeling course provides skills and knowledge of appropriate software (Pro/Engineer) and feature based part construction using extrudes, cuts, revolves, lofts and sweeps. Students will enhance their skills in model assembly and assembly drawings including proper organization and layout of component drawing views, dimensioning and tolerancing, sectioning and detailing. Also listed as ENGR 129. Not open to students with credit in ENGR 129.

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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 hours lecture, 4 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 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

132 ADVANCED COMPUTER-AIDED DRAFTING AND DESIGN 3 UNITS
Prerequisite: “C” grade or higher or “Pass” in CADD/ENGR 125 or equivalent
Recommended Preparation: Working knowledge of basic computer operations and file administration.
2 hours lecture, 4 hours laboratory
Advanced Computer-Aided Drafting and Design (CADD) topics such as concepts and application of three-dimensional constructions, editing and viewing capabilities of AutoCAD, 3D modeling, and AutoCAD customization. Includes techniques for creating lights, scenes, surface texture (bit-mapped/raster) materials, rendering and animation.

CSU

133 ADVANCED ARCHITECTURAL COMPUTER-AIDED DRAFTING AND DESIGN 3 UNITS
Prerequisite: “C” grade or higher or “Pass” in CADD 131 or equivalent
2 hours lecture, 4 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.

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199 SPECIAL STUDIES OR PROJECTS
(see page 40, Academic Policies and Procedures)

200 INTRODUCTION TO COMPUTER-AIDED LANDSCAPE DESIGN 3 UNITS
2 hours lecture, 3 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.

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201 ADVANCED COMPUTER-AIDED LANDSCAPE DESIGN 3 UNITS
Prerequisite: “C” grade or higher or “Pass” in CADD/OH 200 or equivalent
2 hours lecture, 3 hours laboratory
Use of computer-aided landscape design software for the application of graphics, symbols, patterns, layers, 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.

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