

COMPUTER AIDED DESIGN AND DRAFTING (CAD)

CAD 220 INTRODUCTION TO CADD/CAM SYSTEMS 3 UNITS

Pass/No Pass or Grade is Allowed

Fee: \$2

Recommended Preparation: RDG 158 or equivalent or through the Southwestern College multiple measures placement processes.

Lecture 2 hours, laboratory 3 hours

Offered: FALL, SPRING

Introduces the field of computer aided design and drafting (CADD). Provides an overview of the use of personal computers in the development of drawings for engineering-related fields. [D; CSU; UC]

CAD 222 CAD MECHANICAL DESIGN I 3 UNITS

Pass/No Pass or Grade is Allowed

Fee: \$2

Recommended Preparation: CAD 220 or equivalent; RDG 158 or equivalent or through the Southwestern College multiple measures placement processes.

Lecture 2 hours, laboratory 3 hours

Offered: FALL, SPRING

Introduces solid modeling using 3D mechanical design software. Covers feature-based design, parametric relationships, and design intent. Emphasizes part modeling using sketches, constraints, dimensions, and the model history tree. Additional topics include part drawings, assembly modeling, basic motion, and stress analysis. [D; CSU]

CAD 223 CAD DETAILING AND DIMENSIONING 3 UNITS

Pass/No Pass or Grade is Allowed

Fee: \$2

Recommended Preparation: CAD 220 or CAD 222 or equivalent.

Lecture 2 hours, laboratory 3 hours

Offered: FALL, SPRING

Constructs a set of completed working drawings. Includes advanced dimensioning functions, geometrical dimensioning and tolerancing (ANSI Y 14.5), and view development from three-dimensional models. [D; CSU]

CAD 224 CAD MECHANICAL DESIGN II 3 UNITS

Pass/No Pass or Grade is Allowed

Fee: \$5

Recommended Preparation: CAD 223; RDG 158 or equivalent or through the Southwestern College multiple measures placement processes.

Lecture 2 hours, laboratory 3 hours

Offered: FALL, SPRING

Introduces system and part design with an emphasis on organization and development of design projects. [D; CSU]

CAD 228 CAD ADVANCED SURFACE DESIGN 3 UNITS

Pass/No Pass or Grade is Allowed

Fee: \$2

Recommended Preparation: CAD 220 or equivalent.

Lecture 2 hours, laboratory 2 hours

Offered: ALL

Introduces freeform 3D modeling. Covers drawing and editing of curves and surfaces. Includes techniques of building surfaces from curves. Explores curvature and continuity concepts. Covers creating solids from multiple surfaces. Includes methods of curve and surface evaluation. [D; CSU]

CAD 230 INTRODUCTION TO SOLIDWORKS 3 UNITS

Pass/No Pass or Grade is Allowed

Recommended Preparation: CAD 222 or equivalent.

Lecture 2 hours, laboratory 3 hours

Offered: FALL, SPRING

Introduces students to solid modeling using Solidworks software. Provides strategies in the construction and analysis of solid parts and related drawings and assemblies. [D; CSU]

CAD 231 SOLIDWORKS II 3 UNITS

Pass/No Pass or Grade is Allowed

Recommended Preparation: CAD 230 or equivalent.

Lecture 2 hours, laboratory 3 hours

Offered: SPRING

Explores intermediate SolidWorks techniques. Expands on design of parts, assemblies, and drawings. Introduces multi-body parts, top-down assembly design, surface modeling and sheet metal design. [D; CSU]

CAD 272 SOLID MODELING II 3 UNITS

Pass/No Pass or Grade is Allowed

Fee: \$2

Recommended Preparation: ENGR 110 or equivalent.

Lecture 2 hours, laboratory 2 hours

Offered: ALL

Applies basic solid modeling skills using Creo. Covers techniques of parametric part design. Explores use of dimensions and constraints within the sketcher. Includes creation of part and assembly drawings. Covers use of patterns and family tables. [D; CSU]

CAD 273 3D MODELING USING MAYA 3 UNITS

Pass/No Pass or Grade is Allowed

Recommended Preparation: ART 192 or equivalent.

Lecture 2 hours, laboratory 4 hours

Offered: FALL, SPRING

Introduces 3D modeling using industry-recognized software used in film production and video game industries. Emphasizes creation of models using polygon and surface modeling techniques. Demonstrates application of materials and textures to models. Covers camera setup for rendering scenes with lights, shading, and environmental effects. [D; CSU; UC]

CAD 274
3D ANIMATION USING MAYA
3 UNITS

Pass/No Pass or Grade is Allowed

Recommended Preparation: CAD 273 or equivalent.

Lecture 2 hours, laboratory 4 hours

Offered: SPRING

Introduces 3D animation using industry-recognized software used in film production and video game industries. Emphasizes keyframe and motion path animation. Covers animation concepts such as tweening, frame rate, and interpolation. Provides skills to create rendered animations. [D; CSU; UC]

CAD 275A
INTERMEDIATE 3D MODELING AND ANIMATION
3 UNITS

Pass/No Pass or Grade is Allowed

Prerequisite: CAD 273 or CAD 274 or equivalent.

Lecture 2 hours, laboratory 3 hours

Offered: FALL, SPRING

Applies modeling, lighting, texture mapping, and rendering techniques as used in video games, television, film, product illustration, architectural and bioscience visualization. Explores modeling with polygons and subdivision surfaces using design strategies as well as developing proficiency with 3D modeling tools. [D; CSU]

CAD 276
TECHNICAL COMPUTER IMAGING AND ANIMATION I
3 UNITS

Pass/No Pass or Grade is Allowed

Fee: \$2

Recommended Preparation: ART 192 or equivalent.

Lecture 2 hours, laboratory 4 hours

Offered: ALL

Introduces 3ds Max and development of 3D models and scenes for use in architectural, engineering, film production, game development, and product marketing fields. Covers polygon modeling and the Graphite Modeling Tools. Explores creation of materials using the Slate Material Editor. Includes lighting design and rendering. [D; CSU]

CAD 277
TECHNICAL COMPUTER IMAGING AND ANIMATION II
3 UNITS

Pass/No Pass or Grade is Allowed

Fee: \$2

Recommended Preparation: CAD 276 or equivalent; CIS 125 or equivalent.

Lecture 2 hours, laboratory 4 hours

Offered: ALL

Introduces 3D animation using 3ds max for architectural, engineering, film production, game development, multimedia, and product marketing fields. Explores key frame animation techniques, motion paths, animation controllers, and building of object hierarchies. Covers output of animation sequences in multiple formats. [D; CSU]

CAD 299
INDEPENDENT STUDY
1-3 UNITS

Pass/No Pass or Grade is Allowed

Limitation on Enrollment: Eligibility for independent study.

Lecture 3 hours

Offered: ALL

Individual study or research in some area of computer aided design of particular interest to the student and not included in regular courses of the college. [D; CSU]