## COMPUTER AIDED DESIGN AND DRAFTING

### Associate Degrees
- CADD - Computer Aided Drafting and Design (CADD) - Associate in Science

### Certificates
- CADD 3-D - Certificate of Specialization
- CADD - Architectural CADD - Certificate of Specialization
- CADD - AutoDesk - Certificate of Specialization
- CADD - Mechanical Modeling - Certificate of Specialization
- CADD - Digital Prototyping - Certificate of Specialization

### CADD 130 Fundamentals of AutoCAD 2 Units
This course is a Computer-Aided Drafting and Design (CADD) course in which the students will learn the fundamentals of using AutoCAD software. The students will learn basic CADD techniques that are used to draw and edit drawing entities; manipulate screen displays; write text; lay out drawings; print and plot drawings; apply dimensions; and manage drawing files. An introduction to computer use will be included in this course and previous knowledge of computers or computer programming is not required.

- Lecture Hours: None  Lab Hours: 6  Repeatable: No  Grading: O
- Recommended: Basic computer skills
- Advisory Level: Read: 2  Write: 2  Math: 2
- Transfer Status: CSU  Degree Applicable: AA/AS
- CSU GE: None  IGETC: None  District GE: None

### CADD 131 3-D Modeling and Design - Using AutoCAD 2 Units
This course is a computer-aided drafting and design (CADD) course that covers intermediate to advanced applications of AutoCAD software. Specific areas to be covered in this course include working in model and paper space; drawing and viewing in 3-D space; creating 3-D models; using blocks with attributes; working with external references; rendering; understanding user coordinate system; AutoCAD and the Internet; advanced drawing, editing, and configuration procedures; and an introduction to user-level system customization.

- Lecture Hours: None  Lab Hours: 6  Repeatable: No  Grading: O
- Prerequisite: CADD 130 with C or better
- Advisory Level: Read: 2  Write: 2  Math: 2
- Transfer Status: None  Degree Applicable: AS
- CSU GE: None  IGETC: None  District GE: None

### CADD 132 Using AutoCAD Mechanical 2 Units
AutoCAD Mechanical is an integrated CADD package of advanced design tools, and drafting and drawing capabilities that help conceptualize, design, and document mechanical products. This course is an advanced computer-aided drafting and design (CADD) course where students learn to use AutoCAD Mechanical software.

- Lecture Hours: None  Lab Hours: 6  Repeatable: No  Grading: O
- Recommended: CADD 131 or equivalent coursework or work experience
- Advisory Level: Read: 2  Write: 2  Math: 2
- Transfer Status: None  Degree Applicable: AS
- CSU GE: None  IGETC: None  District GE: None

### CADD 133 Fundamentals of Autodesk Inventor 2 Units
Inventor is a feature-based, solid modeling tool intended for people who want to create and develop mechanical designs in a 3-D environment. This course is a computer-aided drafting and design (CADD) course wherein the students will learn the fundamentals of Autodesk Inventor software.

- Lecture Hours: None  Lab Hours: 6  Repeatable: No  Grading: O
- Recommended: Basic Computer Skills
- Advisory Level: Read: 2  Write: 2  Math: 2
- Transfer Status: None  Degree Applicable: AS
- CSU GE: None  IGETC: None  District GE: None

### CADD 134 Advanced Autodesk Inventor 2 Units
This advanced Autodesk Inventor course extends what was learned in the Fundamentals of Autodesk Inventor (CADD 133) by addressing topics that include advanced model creation techniques, sheet metal design, top-down assemblies, use of design elements, and creation of presentations.

- Lecture Hours: None  Lab Hours: 6  Repeatable: No  Grading: L
- Prerequisite: CADD 133 with C or better
- Recommended: Prior Autodesk Inventor training and/or experience is recommended.
- Transfer Status: None  Degree Applicable: AS
- CSU GE: None  IGETC: None  District GE: None

### CADD 135 Design Using AutoCAD Civil-3D 2 Units
This is a CADD course that focuses on the use of Autodesk AutoCAD Civil-3D software. This course is designed for students, civil engineers and surveyors who want to take advantage of AutoCAD Civil-3D's interactive, dynamic design functionality. In this course students will learn techniques enabling them to organize project data, work with points, create and analyze surfaces, model road corridors, create parcel layouts, perform grading and volume calculations tasks, and lay out pipe networks. This course focuses on teaching students the core tasks and workflows that are needed to successfully operate AutoCAD Civil-3D.

- Lecture Hours: None  Lab Hours: 6  Repeatable: No  Grading: L
- Advisory Level: Read: 2  Write: 2  Math: 2
- Transfer Status: None  Degree Applicable: AS
- CSU GE: None  IGETC: None  District GE: None

### CADD 136A Fundamentals of Creo 2 Units
Creo Parametric is an integrated CADD package of advanced 3D modeling tools and 2D drafting/drawing capabilities that help conceptualize, design, and document mechanical products. This course is a basic computer aided drafting and design (CADD) course where the students will use Creo Parametric software.

- Lecture Hours: None  Lab Hours: 6  Repeatable: No  Grading: L
- Advisory Level: Read: 2  Write: 2  Math: 2
- Transfer Status: None  Degree Applicable: AS
- CSU GE: None  IGETC: None  District GE: None

### CADD 136B Fundamentals of Creo Mechanical 2 Units
This advanced Creo Parametric course extends what was learned in CADD 136A by addressing topics that include advanced model creation techniques, sheet metal design, top-down assemblies, use of design elements, and creation of presentations.

- Lecture Hours: None  Lab Hours: 6  Repeatable: No  Grading: O
- Advisory Level: Read: 2  Write: 2  Math: 2
- Transfer Status: None  Degree Applicable: AS
- CSU GE: None  IGETC: None  District GE: None

### CADD 136C Fundamentals of Creo 2 Units
This is a CADD course that focuses on the use of Autodesk AutoCAD Civil-3D software. This course is designed for students, civil engineers and surveyors who want to take advantage of AutoCAD Civil-3D's interactive, dynamic design functionality. In this course students will learn techniques enabling them to organize project data, work with points, create and analyze surfaces, model road corridors, create parcel layouts, perform grading and volume calculations tasks, and lay out pipe networks. This course focuses on teaching students the core tasks and workflows that are needed to successfully operate AutoCAD Civil-3D.

- Lecture Hours: None  Lab Hours: 6  Repeatable: No  Grading: L
- Advisory Level: Read: 2  Write: 2  Math: 2
- Transfer Status: None  Degree Applicable: AS
- CSU GE: None  IGETC: None  District GE: None

### CADD 136D Advanced Creo Parametric 2 Units
This advanced Creo Parametric course extends what was learned in CADD 136A by addressing topics that include advanced model creation techniques, sheet metal design, top-down assemblies, use of design elements, and creation of presentations.

- Lecture Hours: None  Lab Hours: 6  Repeatable: No  Grading: O
- Advisory Level: Read: 2  Write: 2  Math: 2
- Transfer Status: None  Degree Applicable: AS
- CSU GE: None  IGETC: None  District GE: None
CADD 136B  Advanced Creo  2 Units
Creo Parametric is an integrated CADD package of advanced 3D modeling tools and 2D drafting/drawing capabilities that help conceptualize, design, and document mechanical products. This course is an advanced computer-aided drafting and design (CADD) course where the students will use Creo Parametric software to model more complex designs, 3D parts, and assemblies.

Lecture Hours: None  Lab Hours: 6  Repeatable: No  Grading: L
Prerequisite: CADD 136A with C or better
Advisory Level: Read: 2  Write: 2  Math: 2
Transfer Status: None  Degree Applicable: AS
CSU GE: None  IGETC: None  District GE: None

CADD 138  Work Experience  1-8 Units
Occupational Work Experience is designed for students who work or volunteer in a field related to their career major. Students are required to provide evidence that they are enrolled in a career program (e.g., education plan or coursework in a career/occupational subject area). Students can earn one unit of credit for each 60 hours of unpaid volunteer time or 75 hours of paid work during the semester. Students can repeat Career/Occupational Work Experience, combined with General Work Experience, or alone, up to a maximum of 16 units. Internship/job placement is not guaranteed.

Lecture Hours: None  Lab Hours: 2.07  Repeatable: Yes  Grading: O
Corequisite: Be employed or a volunteer at an approved work-site for the minimum number of hours per unit as stipulated for paid and unpaid status.
Advisory Level: Read: 3  Write: 3  Math: None
Transfer Status: CSU  Degree Applicable: AA/AS
CSU GE: None  IGETC: None  District GE: None

CADD 139  Using Solidworks  2 Units
Solidworks is a feature-based, solid modeling tool intended for people who want to create and develop mechanical designs in a 3-D environment. This course is a computer-aided drafting and design (CADD) course wherein the students will learn the fundamentals of Solidworks software.

Lecture Hours: None  Lab Hours: 6  Repeatable: No  Grading: O
Recommended: Basic computer knowledge
Advisory Level: Read: 2  Write: 2  Math: 2
Transfer Status: None  Degree Applicable: AS
CSU GE: None  IGETC: None  District GE: None

CADD 140A  Technical Graphics - Using CAD Tools  2 Units
This course is a beginning level CADD course focusing on standard concepts of technical graphics communication. The fundamental concepts of orthographic projection, sketching, section views, auxiliary views, dimensioning practices, and drawing annotations used in a variety of technical applications will be covered. Students will explore the learning process through a series of design situations, industry scenarios, and projects. Students will be introduced to multiple CAD tools.

Lecture Hours: None  Lab Hours: 6  Repeatable: No  Grading: O
Prerequisite: CADD 130 or equivalent coursework or experience
Advisory Level: Read: 2  Write: 2  Math: 2
Transfer Status: None  Degree Applicable: AS
CSU GE: None  IGETC: None  District GE: None

CADD 140B  Advanced Technical Graphics - Using CAD Tools  2 Units
This is an advanced CADD course focusing on the application of drafting concepts using orthographic projection, dimensioning practices, and geometric tolerancing. Strong emphasis is put on the type of design and industrial applications which can be found in the real world. Creating models, drawings and assembly drawings in CADD programs will be covered in this course. This course also teaches creation of basic multi-part assemblies, constraint-driven assembly animation, and generation of detailed production drawings.

Lecture Hours: None  Lab Hours: 6  Repeatable: No  Grading: O
Prerequisite: CADD 140A with C or better
Advisory Levels: Read: 2  Write: 2  Math: 2
Transfer Status: None  Degree Applicable: AS
CSU GE: None  IGETC: None  District GE: None

CADD 141  Design and Analysis Using Creo Or Solidworks  2 Units
This course is geared towards students who want to learn engineering design while learning 3D modeling using Creo or SolidWorks. This course focuses on applying Creo Parametric or SolidWorks as a design tool. Design steps, geometrical tolerancing, and the creation of detail and assembly drawing documentation will be covered. Analysis of current design practices and/or manufacturing processes will be included through research of standards, catalogs, data sheets, drawings, and other reference sources.

Lecture Hours: None  Lab Hours: 6  Repeatable: No  Grading: O
Recommended: CADD 140A or equivalent coursework or work experience.
Advisory Level: Read: 2  Write: 2  Math: 2
Transfer Status: None  Degree Applicable: AS
CSU GE: None  IGETC: None  District GE: None

CADD 142  Geometrical Dimensioning and Tolerancing  3 Units
This course provides training in modern dimensioning and tolerancing based on ASME Y14.5-2009 standards. Emphasis will be given to geometric dimensioning and tolerancing concepts, tolerance studies, general dimensioning and tolerancing theory and techniques.

Lecture Hours: 2  Lab Hours: 3  Repeatable: No  Grading: L
Recommended: CADD 133 and CADD 134
Advisory Level: Read: 2  Write: 2  Math: 2
Transfer Status: None  Degree Applicable: AS
CSU GE: None  IGETC: None  District GE: None

CADD 144A  Architectural Design and Drafting Using Revit Architecture  2 Units
This course is an architectural drafting and designing course where the students will apply CADD techniques to typical architectural drawing and design problem. Revit Architecture is a powerful architectural design and drafting tool that works the way architects think. From preliminary design through design development, and into construction documents, the program streamlines the design process with a central 3D model. Changes made in one view update across all views and on the printable sheets. This course is designed to teach the students the Revit functionality as well as architectural design process and methods.

Lecture Hours: None  Lab Hours: 6  Repeatable: No  Grading: L
Recommended: Basic computer skills
Advisory Level: Read: 2  Write: 2  Math: 2
Transfer Status: None  Degree Applicable: AS
CSU GE: None  IGETC: None  District GE: None
CADD 144B  Architectural Design and Drafting Using Revit Structure and MEP   2 Units
This course is geared for beginning architectural students or professional architects who want to get a start into 3D parametric modeling for commercial structures. This course is designed to provide the students with a well-rounded knowledge of Autodesk Revit tools and techniques. All three flavors of the Revit platform are introduced in this course. This approach gives the students a broad overview of the Building Parametric Modeling process. This course covers the design integration of most of the building disciplines: Architectural, Interior Design, Structural, Mechanical, Plumbing and Electrical.

Lecture Hours: None Lab Hours: 6 Repeateable: No Grading: L
Recommended: Basic computer skills
Advisory Level: Read: 2 Write: 2 Math: 2
Transfer Status: None Degree Applicable: AS
CSU GE: None IGETC: None District GE: None

CADD 145  Landscaping Design Using CAD Tools   2 Units
This course is an architectural drafting course where the student will apply CADD techniques to typical landscaping design problems. The drawing, detailing and design of landscaping elements of typical residential or commercial architectural sites will be the focus of this course.

Lecture Hours: None Lab Hours: 6 Repeateable: No Grading: L
Recommended: CADD 140A or equivalent coursework or work experience
Advisory Level: Read: 2 Write: 2 Math: 2
Transfer Status: None Degree Applicable: AS
CSU GE: None IGETC: None District GE: None

CADD 146A  AutoCAD Software Updates  0.5-2 Units
CADD 146A is a computer-aided drafting and design course that offers students lab training in the updates and new features included in latest release of AutoCAD software.

Lecture Hours: None Lab Hours: 1.5 Repeateable: Yes Grading: L
Recommended: CADD 130 or CADD 131 or equivalent coursework or work experience
Advisory Level: Read: 2 Write: 2 Math: 2
Transfer Status: None Degree Applicable: AS
CSU GE: None IGETC: None District GE: None

CADD 146B  Inventor Software Updates  0.5-2 Units
CADD 146B is a computer-aided drafting and design course that offers students lab training in the updates and new features included in the latest release of Inventor software.

Lecture Hours: None Lab Hours: 1.5 Repeateable: Yes Grading: O
Recommended: Prior CADD knowledge
Advisory Level: Read: 2 Write: 2 Math: 1
Transfer Status: None Degree Applicable: AS
CSU GE: None IGETC: None District GE: None

CADD 146C  Solidworks Software Updates  0.5-2 Units
CADD 146C is a computer-aided drafting and design course that offers students lab training in the updates and new features included in latest release of Solidworks software.

Lecture Hours: None Lab Hours: 1.5 Repeateable: Yes Grading: O
Recommended: Prior CADD knowledge
Advisory Level: Read: 2 Write: 2 Math: 1
Transfer Status: None Degree Applicable: AS
CSU GE: None IGETC: None District GE: None