COMPUTER AIDED DESIGN AND DRAFTING, ASSOCIATE IN ARTS DEGREE

Banner Code: 2_AA_DRAFT
Control Number: 11434
Financial Aid Eligible

This program prepares students for careers in engineering and architectural drafting disciplines. Courses incorporate analyzation of industry standard manufacturing prints and realistic 3D modeling. Students will apply 2D and 3D CAD software to design projects, 3D-printed prototypes and create a professional portfolio. Opportunities for employment are available in many related industrial disciplines. General education courses are required to obtain an Associate in Arts (A.A.) degree and to transfer to higher education institutions.

Potential careers students may enter upon completion are as follows:

- Mechanical drafting
- Civil drafting
- Electrical drafting
- Industrial drafting
- Architectural drafting
- 3D printing

Program Level Learning Outcomes

Upon completion of this program, students will be able to:

1. Operate 2D CAD computer software and apply the principles of drafting to create industry standard manufacturing prints.
2. Identify dimensioning standards and apply Geometric Dimensioning and Tolerancing.
3. Design solid models, assemblies, and detail drawings using a feature-based parametric design CAD program.
4. Assess cost-efficient use of 3D printing technology.
5. Apply mathematics, measuring conventions, scale and mass property analysis.

Review Graduation Requirements (https://catalog.cccd.edu/golden-west/graduation-requirements/associate-degree/) and General Education (https://catalog.cccd.edu/golden-west/general-education/).

Course	Title	Units
Required Courses		
DRAF G101	Basic Computer Aided Design Drafting	3
DRAF G105	Basic Engineering Drafting I, Computer Aided Drafting	3
DRAF G110	Basic Engineering Drafting II, Computer Aided Drafting	3
DRAF G170	Advanced 3D Mechanical Design	3
Recommended Electives		
Select two of the following:		*6-8*
ART G107	Color and Design: 2D	3
ART G108	Color Theory	3
ART G109	Color and Design: 3D	3
BUS G130	Introduction to Business Writing	3
BUS G139	Business Communication	3
COOP G191C	Cooperative Work Experience - General	1-4
DART G105	Digital 2D Design & Color Theory	3
MATH G115	College Algebra	4
MATH G120	Trigonometry	3
MATH G180	Calculus 1	4
Major Total		**18-20**
GE Pattern (Local, CSU GE-Breadth, or IGETC)		**18-39**
Total Units		**60**

Recommended Program Sequence

These sequences are general course maps for students to finish all major and general education requirements for two-year completion of degrees, completion of short-term certificates, and/or fulfillment of transfer requirements. However, this may not be an appropriate path for all students. The two-year sequence is based on English and Math placement and meeting other course prerequisites. **Students are advised to meet with a GWC Counselor to review course selections and sequences to ensure that completion of this program will meet a student's transfer and career goals.**

Year 1:

Course	Title	Units
Semester 1		
DRAF G101	Basic Computer Aided Design Drafting	3
ENGL G100	Freshman Composition ^	4
Elective coursework for a total of 3 units		3
Area E: Lifelong Understanding and Self-Development or Area A: English Language, Area B: Natural Sciences, Area C: Arts & Humanities, Area D: Social & Behavioral Sciences		3
Units		*13*

Course	Title	Units
Semester 2		
DRAF G105	Basic Engineering Drafting I, Computer Aided Drafting	3
ART G107	Color and Design: 2D	3
or ART G109	Color and Design: 3D	
Area A: English Language, Communication, and Analytical Thinking		3-5
Area C: Arts & Humanities course		3
Units		*12-14*

Year 2:

Course	Title	Units
Semester 3		
DRAF G110	Basic Engineering Drafting II, Computer Aided Drafting	3
Area B: Natural Science course		3-5
Select one of the following or satisfy Math competency (completion of Algebra 2 in High School with a "C" or better): MATH G030, MATH G040, or MATH G080.		
MATH G030	Intermediate Algebra	4

Course	Title	Units
MATH G040	Accelerated Elementary and Intermediate Algebra	5
MATH G080	Pre-Statistics	5
If Math competency is satisfied, take Elective coursework for a total of 3 units		3
Elective coursework for a total of 3-6 units		3-6
Units		*12-17*

Course	Title	Units
Semester 4		
DRAF G170	Advanced 3D Mechanical Design	3
Cultural Diversity requirement [#]		3
Elective coursework to reach a minimum of 60 units		Varies
Units		*13-17*
Total minimum units required		**60**

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Cultural Diversity requirement (https://catalog.cccd.edu/golden-west/general-education/associate-degree/) list of approved courses

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Program sequence may not be recommended for students who self-place into ENGL G100S (https://catalog.cccd.edu/search/?P=ENGL%20G100S). Students should see a Counselor for appropriate advisement.