

DRAF 161: ADVANCED COMPUTER AIDED DESIGN (CAD AND DESIGN TOOLS)

Citrus College Course Outline of Record

Heading	Value
Effective Term:	Fall 2022
Credits:	3
Total Contact Hours:	72
Lecture Hours :	45
Lab Hours:	27
Hours Arranged:	0
Outside of Class Hours:	90
Prerequisite:	DRAF 160.
Strongly Recommended:	DRAF 101.
Transferable to CSU:	Yes
Transferable to UC:	No
Grading Method:	Standard Letter

Catalog Course Description

An advanced computer-aided design (CAD) course developing 2-D and 3-D design projects. Digital design drawing and modeling, tools, skills and concepts actively used in concurrent design studio. Assignments support concurrent design studio activity with an emphasis on sketching, digital modeling for design study, iteration, variation, design illustration and representation with Building Information Modeling (BIM). 45 lecture hours, 27 lab hours.

Course Objectives

- have diversified knowledge of Digital design drawing and modeling, tools, skills and concepts actively used in concurrent design studio and industry.
- apply the commands of 2D and 3D Digital design drawing and modeling, tools, skills and concepts with a emphasis on sketching, digital modeling for design study, iteration, variation, design illustration and representation with Building Information Modeling (BIM).
- formulate and assess solutions to problems in design.

Major Course Content

1. Introduction to advanced 2D and 3D CAD Applications with an emphasis on sketching, digital modeling for design study, iteration, variation, design illustration and representation with Building Information Modeling (BIM).
 - a. Automatic design features
 - b. Automatic routing
 - c. Photo plotting
 - d. Computer aided manufacturing
2. Custom Electronic CAD Menus
 - a. Analysis of special display features
 - b. Screen menu customization
 - c. Tablet menus

- d. Using blocks in custom menus
 - e. Attribute extraction
 - f. Lisp programming
 - g. 3D drawings
3. Custom Symbol Libraries
 - a. Schematic symbols
 - b. Component symbols
 - c. Documentation
 4. Introducing the Autodesk Revit Architecture Interface with an emphasis on sketching, digital modeling for design study, iteration, variation, design illustration and representation with Building Information Modeling (BIM)
 - Walls and Curtain Walls
 - Floors, Roofs, and Ceilings
 - Stairs, Ramps, and Railings
 - Adding Families
 - Modifying Families
 - Schematic Design
 - Rooms and Color Fill Plans
 - Materials, Visualization, Rendering
 - Work sharing
 - Details and Annotations
 - Drawing Sets
 - Work flow and Site Modeling
 - Repetition in Revit

Suggested Reading Other Than Required Textbook

Leonardo Da Vinci's works on perspective and lighting.

Examples of Required Writing Assignments

Lab reports and class assignments.

Example: Write a report for project research for presentation boards.

Examples of Outside Assignments

Students will draw 2D and 3D projects.

Students will explore 3D lighting and shading projects.

Students will develop a final project.

Students will be required to complete the following types of assignments outside of the regular class time: draw, study, answer questions, practice skills, read required materials, solve problems, write essays, research papers, lab reports, and journals.

Students will also observe activities related to course content, participate in activities related to course content.

Instruction Type(s)

Lecture, Lab, Online Education Lecture, Online Education Lab