

BI 0010 - ARCHITECTURAL DRAWING I

Catalog Description

Formerly known as DES 20

Hours: 90 (36 lecture; 54 laboratory which may be scheduled TBA)

Description: Introduction to the fundamentals of residential construction and design documentation. Drawings of a residence are developed and detailed, to include sketches, site plan and floor plans, foundation, elevations, and section views. AutoCAD instruction is incorporated to develop CAD drawings and electronic data sets. (CSU)

Course Student Learning Outcomes

- CSLO #1: Apply appropriate, current and relevant industry standards in preparing technical documentation for the appropriate discipline of their study.
- CSLO #2: Define the five steps in the design process.
- CSLO #3: Demonstrate computer aided drafting practices that conform to business and industry CAD standards.
- CSLO #4: Design complete working drawings in discipline of study for use in manufacturing/building application.

Effective Term

Fall 2022

Course Type

Credit - Degree-applicable

Contact Hours

90

Outside of Class Hours

72

Total Student Learning Hours

162

Course Objectives

This course requires 36 hours lecture and 54 hours laboratory. In some class sections, the 54 hours of laboratory may be scheduled "to be arranged" or "TBA." The TBA hours and objectives are expected of all students enrolled in the course.

Upon successful completion of the course, the student will:

Lecture Objectives:

I. Introduction:

1. Identify the skills and occupations required for the architectural field
2. Describe the required equipment used in architectural firms to produce drawings

II. Sketching:

1. Describe sketching techniques used in computer aided drafting

III. Room Relationships and Size:

1. Analyze the significant information from the traffic flow pattern to determine the design guidelines so that the necessary sketches can be generated to design the floor plan

IV. Site Consideration:

1. Analyze the significant information from the site plan to determine the appropriate design guidelines so that the necessary drawings can be generated of the new residence

V. Floor Plans, Elevations and Sections:

1. Discuss the key differences between floor plans, elevations, and sections and how each is used.

VI. Computer-Aided Design (CAD):

1. Describe the different types of CAD systems and the benefits of each
2. Discuss the impact of CAD on the architecture industry

VII. The Design Environment:

1. Discuss the benefits of prototype and template development to the architectural workplace

Lab Objectives:

I. Sketching:

1. Demonstrate proper technical sketching techniques

II. Room Relationships and Size:

1. Utilize the traffic flow pattern to develop necessary sketches and detail drawings of a floor plan

III. Site Consideration:

1. Utilize information from the site plan to develop the necessary site plan drawing of a new residence

IV. Floor Plans, Elevations and Sections:

1. Develop correct floor plans, elevation and section drawings to reflect and convey the building information for a new residence

V. Computer-Aided Design (CAD):

1. Utilize CAD system (hardware and software) to complete assigned drawings in this course

VI. Working with Digital files:

1. Properly manage electronic data sets and files

VII. The Design Environment:

1. Utilize the design environment tools to execute and manage a set of architectural working drawings

VIII. Basic 2 dimensional entity creation tools

1. Utilize 2 dimensional entity creation tools to develop all components of architectural drawings and data sets

IX. Basic 2 dimensional entity editing tools

1. Properly demonstrate good editing and modifying techniques using appropriate modification tools

General Education Information

- Approved College Associate Degree GE Applicability
- CSU GE Applicability (Recommended-requires CSU approval)
- Cal-GETC Applicability (Recommended - Requires External Approval)
- IGETC Applicability (Recommended-requires CSU/UC approval)

Articulation Information

- CSU Transferable

Methods of Evaluation

- Objective Examinations
 - Example: Q: List the required elements of a site plan.
- Projects
 - Example: The student will produce a complete set of working drawings for a single story residence with a gable roof. The drawings will be evaluated based on their compliance with current industry graphic standards and building codes.
- Skill Demonstrations

- Example: The student will produce a computer generated floor plan with dimensions that conform to current industry codes and regulations. The drawings will be evaluated based on their compliance with current industry graphic standards and building codes.

Repeatable

No

Methods of Instruction

- Laboratory
- Lecture/Discussion
- Distance Learning

Lab:

1. The instructor will demonstrate and guide students in the development of working floor plan drawings that conform to current building codes and industry standards. (Laboratory Objective 5-1)

Lecture:

1. The instructor will discuss during class session the proper development of floor plan drawings with complete documentation. Students are expected to participate in the lecture. (Lecture Objective 5-1)

Distance Learning

1. Students in online classes participate, individually and in groups, in discussion boards and respond to weekly assignments via the Learning Management System. The instructor will provide documented material (including videos) explaining or exploring the course content and provide individual feedback on all assignments. Instructors lecture on Residential single-story construction and design. Students are given the chance to ask questions during an instructor-guided discussion board, through a discussion board for student to student feedback and if privacy is needed through the instructors' email. (Laboratory Objective 3-1)

Typical Out of Class Assignments

Reading Assignments

1. Students will read chapters in the textbook on traffic flows and room layout and then complete a quiz based upon these readings. 2. Students will read articles from professional "AIA Journal" relative to architectural design principles and building material practices. Student will then utilize those principles and practices in problem solving and skill demonstrations of weekly drawings.

Writing, Problem Solving or Performance

1. Write a report on architectural style, or a selected architect's impact on architectural history. 2. Construct drawings, based upon your understanding of current building codes and industrial graphic and CAD standards, demonstrating the weekly-learned objectives. These drawings must have notes applied using proper linguistic format for the architectural discipline.

Other (Term projects, research papers, portfolios, etc.)

Develop a portfolio that contains samples of your semester assignments to demonstrate to potential employers the concepts studied.

Required Materials

- Architectural Drafting and Design
 - Author: Jeffris/Madsen/Madsen
 - Publisher: Delmar Publishing
 - Publication Date: 2016
 - Text Edition: 7th
 - Classic Textbook?: No
 - OER Link:
 - OER:

Other materials and-or supplies required of students that contribute to the cost of the course.