

**APTECH 59 Course Outline as of Fall 2023****CATALOG INFORMATION**

Dept and Nbr: APTECH 59 Title: ARCHITECTURAL CAD

Full Title: Architectural CAD

Last Reviewed: 2/6/2023

Units		Course Hours per Week		Nbr of Weeks	Course Hours Total	
Maximum	2.00	Lecture Scheduled	1.50	17.5	Lecture Scheduled	26.25
Minimum	2.00	Lab Scheduled	1.50	6	Lab Scheduled	26.25
		Contact DHR	0		Contact DHR	0
		Contact Total	3.00		Contact Total	52.50
		Non-contact DHR	0		Non-contact DHR	0

Total Out of Class Hours: 52.50

Total Student Learning Hours: 105.00

Title 5 Category: AA Degree Applicable

Grading: Grade Only

Repeatability: 00 - Two Repeats if Grade was D, F, NC, or NP

Also Listed As:

Formerly:

**Catalog Description:**

In this course, students will learn about and create standard residential construction drawings typically required for a building permit including plans, sections, elevations, schedules, forms, and details using Autodesk AutoCAD. Students will also develop an understanding of the role of building codes and design criteria in the development of an Accessory Dwelling Unit (ADU).

**Prerequisites/Corequisites:**

Course Completion of APTECH 46

**Recommended Preparation:****Limits on Enrollment:****Schedule of Classes Information:**

Description: In this course, students will learn about and create standard residential construction drawings typically required for a building permit including plans, sections, elevations, schedules, forms, and details using Autodesk AutoCAD. Students will also develop an understanding of the role of building codes and design criteria in the development of an Accessory Dwelling Unit (ADU). (Grade Only)

Prerequisites/Corequisites: Course Completion of APTECH 46

Recommended:

Limits on Enrollment:

Transfer Credit: CSU;

Repeatability: Two Repeats if Grade was D, F, NC, or NP

## **ARTICULATION, MAJOR, and CERTIFICATION INFORMATION:**

<b>AS Degree:</b>	<b>Area</b>	Effective:	Inactive:
<b>CSU GE:</b>	<b>Transfer Area</b>	Effective:	Inactive:
<b>IGETC:</b>	<b>Transfer Area</b>	Effective:	Inactive:
<b>CSU Transfer:</b>	Transferable	Effective: Spring 2002	Inactive:
<b>UC Transfer:</b>		Effective:	Inactive:

**CID:**

**Certificate/Major Applicable:**

Both Certificate and Major Applicable

## **COURSE CONTENT**

### **Student Learning Outcomes:**

At the conclusion of this course, the student should be able to:

1. Apply building codes and proper construction practices to the design and development of an ADU.
2. Utilize Autodesk AutoCAD software to produce architectural working drawings for an ADU.

### **Objectives:**

At the conclusion of this course, the student should be able to:

1. Research and apply building codes relevant to the given project.
2. Select appropriate construction materials relevant to the given project.
3. Identify appropriate construction practices that govern project design.
4. Use industry accepted CAD standards and file organization.
5. Produce working drawings using the AutoCAD software program.
6. Identify the role of stakeholders and professional consultants in the construction industry.

### **Topics and Scope:**

#### **I. Scope of Project**

- A. Existing site and/or construction documents
- B. Client's requirements
- C. Client's monetary budget
- D. Timeline for project development and completion of working drawings

#### **II. Schematic Development**

- A. Researching pertinent building codes, local regulations and project information
- B. Developing rough diagrams of site and floor plans

#### **III. Project Refinement**

- A. Architectural style

- B. Pertinent construction practices and materials
- IV. AutoCAD Drawing Conventions
  - A. Template drawing environment and settings
  - B. Modelspace and Paperspace
  - C. External reference use (XREF)
  - D. National CAD Standard (NCS) use for drafting, layer, and printing conventions
  - E. Printing overview
- V. Construction Drawings
  - A. Site plan
  - B. Floor plan
  - C. Foundation and floor framing plan
  - D. Ceiling and roof framing plan
  - E. Building sections
  - F. Exterior elevations
  - G. Detail drawings
  - H. Utility plan
- VI. Sheet Sets
  - A. Setup and organization
  - B. Printing and publishing
  - C. Archiving
- VII. Building Permits
  - A. Submittal process
  - B. Plan check
  - C. Revisions
- VIII. Project Design Stakeholders and Professional Consultants
  - A. The client
  - B. The project users
  - C. Governmental agencies including city and county planning and building departments
  - D. Consulting design professionals including geotechnical, civil, structural, electrical, and mechanical engineers, and energy consultants

All topics are covered in both the lecture and lab portions of this course.

**Assignment:**

Lecture:

1. Reading assignments (5-15 pages per week)
2. Project presentations (1-2)
3. Quiz(zes) (1-4)
4. Final exam and/or final project presentation

Lab:

1. CAD working drawings (6-12 sheets)

**Methods of Evaluation/Basis of Grade:**

**Writing:** Assessment tools that demonstrate writing skills and/or require students to select, organize and explain ideas in writing.

None, This is a degree applicable course but assessment tools based on writing are not included because problem solving assessments are more appropriate for this course.

Writing  
0 - 0%

**Problem Solving:** Assessment tools, other than exams, that demonstrate competence in computational or non-computational problem solving skills.

CAD working drawing sheets

Problem solving  
50 - 60%

**Skill Demonstrations:** All skill-based and physical demonstrations used for assessment purposes including skill performance exams.

None

Skill Demonstrations  
0 - 0%

**Exams:** All forms of formal testing, other than skill performance exams.

Quiz(zes), final exam and/or final; project presentation

Exams  
30 - 40%

**Other:** Includes any assessment tools that do not logically fit into the above categories.

Participation

Other Category  
0 - 10%

**Representative Textbooks and Materials:**

Residential Design Using AutoCAD 2023. Stine, Daniel John. SDC Publications. 2022.  
Instructor prepared materials