

**EL CAMINO COLLEGE**  
**COURSE OUTLINE OF RECORD - Approved**

<b>Course Acronym:</b>	ARCH
<b>Course Number:</b>	251
<b>Descriptive Title:</b>	Construction Documentation I
<b>Division:</b>	Industry and Technology
<b>Department:</b>	Architecture
<b>Course Disciplines:</b>	Architecture
<b>Catalog Description:</b>	This course is an introduction to construction document development. Building codes and zoning codes will be introduced along with the functions of framing members in wood and steel frame construction (Type V). Manual hand drafting techniques, sketching, Computer Aided Drafting (CAD) and Building Information Modeling (BIM) skills will be utilized in developing construction documents.
<b>Prerequisite:</b>	Architecture 170 with a minimum grade of C
<b>Recommended Preparation:</b>	Architecture 171 and Architecture 119
<b>Course Length:</b>	Full Term
<b>Hours Lecture (per week):</b>	2
<b>Hours Laboratory (per week):</b>	4
<b>Outside Study Hours:</b>	4
<b>Total Course Hours:</b>	108
<b>Course Units:</b>	3
<b>Grading Method:</b>	Letter Grade only
<b>Credit Status:</b>	Credit, degree applicable
<b>Transfer CSU:</b>	Yes
<b>Effective Date:</b>	Prior to July, 1992
<b>Transfer UC:</b>	No
<b>Effective Date:</b>	
<b>General Education:</b>	
<b>ECC</b>	
<b>Term:</b>	
<b>Other:</b>	
<b>CSU GE:</b>	
<b>Term:</b>	
<b>Other:</b>	
<b>IGETC:</b>	
<b>Term:</b>	
<b>Other:</b>	

<p><b>Student Learning Outcomes:</b></p>	<p><b>SLO #1 Lines and Lettering</b> Upon completion of a beginning course of study in architecture drawing, a student will develop an architectural drawing technique of Lines and Lettering to create a series of drawings.</p> <p><b>SLO #2 Graphic Instructions</b> Successful students, completing the Architecture Program, following instructions, supervised classroom practice using CADD System; will use proper graphic techniques to complete instructions.</p> <p><b>SLO #3 Spatial Organization</b> Successful students tracking for graduation transfer, and or employment in the architecture field, will create design drawings and design models to show spatial organization.</p>
<p><b>Course Objectives:</b></p>	<ol style="list-style-type: none"> <li>1. Evaluate building and zoning codes and determine how they affect the design of a building.</li> <li>2. Analyze the names and functions of framing members in wood frame construction.</li> <li>3. Create a series of construction documents using hand drafting, CAD and BIM.</li> </ol>
<p><b>Major Topics:</b></p>	<ol style="list-style-type: none"> <li><b>I. CONSTRUCTION DOCUMENTATION OVERVIEW (2 hours, lecture)</b> <ol style="list-style-type: none"> <li>A. Architectural terminology</li> <li>B. Planning code requirements</li> <li>C. Building code requirements</li> </ol> </li> <li><b>II. CONSTRUCTION DOCUMENTATION OVERVIEW (4 hours, lab)</b> <ol style="list-style-type: none"> <li>A. Architectural terminology</li> <li>B. Planning code requirements</li> <li>C. Building code requirements</li> </ol> </li> <li><b>III. DEVELOPMENT OF TECHNIQUES AND FORMAT (1 hour, lecture)</b> <ol style="list-style-type: none"> <li>A. Lines and lettering</li> <li>B. Sketching and drafting</li> <li>C. Dimension and scale</li> <li>D. CAD and BIM</li> </ol> </li> <li><b>IV. DEVELOPMENT OF TECHNIQUES AND FORMAT (2 hours, lab)</b> <ol style="list-style-type: none"> <li>A. Lines and lettering</li> <li>B. Sketching and drafting</li> <li>C. Dimension and scale</li> <li>D. CAD and BIM</li> </ol> </li> <li><b>V. PHOTO PROJECT (3 hours, lecture)</b> <ol style="list-style-type: none"> <li>A. Buildings</li> <li>B. Exterior</li> <li>C. Interior</li> <li>D. Construction techniques</li> </ol> </li> </ol>

**VI. PHOTO PROJECT (6 hours, lab)**

- A. Buildings
- B. Exterior
- C. Interior
- D. Construction techniques

**VI. SITE PLAN (4 hours, lecture)**

- A. Drawing format and layout
- B. Planning and building code requirements
- C. Topographic lines

**VIII. SITE PLAN (8 hours, lab)**

- A. Drawing format and layout
- B. Planning and building code requirements
- C. Topographic lines

**IX. ROOF PLAN (4 hours, lecture)**

- A. Drawing format and layout
- B. Styles and materials
- C. Building code requirements

**X. ROOF PLAN (8 hours, lab)**

- A. Drawing format and layout
- B. Styles and materials
- C. Building code requirements

**XI. FLOOR PLAN (4 hours, lecture)**

- A. Drawing format
- B. Building code requirements
- C. Assembly requirements

**XII. FLOOR PLAN (8 hours, lab)**

- A. Drawing format
- B. Building code requirements
- C. Assembly requirements

**XIII. BUILDING SECTION (4 hours, lecture)**

- A. Drawing format and layout
- B. Framing connections
- C. Building code requirements

**XIV. BUILDING SECTION (8 hours, lab)**

- A. Drawing format and layout
- B. Framing connections
- C. Building code requirements

**XV. EXTERIOR ELEVATION (4 hours, lecture)**

- A. Drawing format and layout
- B. Finish materials
- C. Building code requirements

	<p><b>XVI. EXTERIOR ELEVATION (8 hours, lab)</b></p> <ul style="list-style-type: none"> <li>A. Drawing format and layout</li> <li>B. Finish materials</li> <li>C. Building code requirements</li> </ul> <p><b>XVII. FOUNDATION PLAN (4 hours, lecture)</b></p> <ul style="list-style-type: none"> <li>A. Drawing format and layout</li> <li>B. Principles and components of concrete</li> <li>C. Building code requirements</li> </ul> <p><b>XVIII. FOUNDATION PLAN (8 hours, lab)</b></p> <ul style="list-style-type: none"> <li>A. Drawing format and layout</li> <li>B. Principles and components of concrete</li> <li>C. Building code requirements</li> </ul> <p><b>XIX. FRAMING PLAN (4 hours, lecture)</b></p> <ul style="list-style-type: none"> <li>A. Drawing format and layout</li> <li>B. Load and span of wood</li> <li>C. Building code requirements</li> </ul> <p><b>XX. FRAMING PLAN (8 hours, lab)</b></p> <ul style="list-style-type: none"> <li>A. Drawing format and layout</li> <li>B. Load and span of wood</li> <li>C. Building code requirements</li> </ul> <p><b>XXI. BUILDING DETAILS (2 hours, lecture)</b></p> <ul style="list-style-type: none"> <li>A. Foundations</li> <li>B. Framing</li> <li>C. Lateral bracing</li> </ul> <p><b>XXII. BUILDING DETAILS (4 hours, lab)</b></p> <ul style="list-style-type: none"> <li>A. Foundations</li> <li>B. Framing</li> <li>C. Lateral bracing</li> </ul>
<b>Total Lecture Hours:</b>	36
<b>Total Laboratory Hours:</b>	72
<b>Total Hours:</b>	108
<b>Primary Method of Evaluation:</b>	2) Problem solving demonstrations (computational or non-computational)
<b>Typical Assignment Using Primary Method of Evaluation:</b>	Analyze a given floor plan, identify building code infractions and compliance with natural light, ventilation, emergency escape, and rescue requirements. Make appropriate corrections to the floor plan. Submit floor plan to the instructor.
<b>Critical Thinking Assignment 1:</b>	Using an existing framing plan, create a foundation plan within a three hour time period. Submit foundation plan to the instructor.
<b>Critical Thinking Assignment 2:</b>	Within a three hour time period, create a drawing of a structural section of a building displaying all standard framing members in relationship to each other. Submit drawing to the instructor.

<b>Other Evaluation Methods:</b>	
<b>Instructional Methods:</b>	
<b>If other:</b>	Demonstration Group Activities Laboratory Lecture Multimedia presentations Other (please specify) Model Building and Drafting
<b>Work Outside of Class:</b>	Study Skill practice Problem solving activities Observation of or participation in an activity related to course content Other (specify) Photos
<b>If Other:</b>	
<b>Up-To-Date Representative Textbooks:</b>	Francis D. K. Ching. <u>ARCHITECTURAL GRAPHICS</u> . John Wiley and Sons, 6th edition. 2020 Francis D. K. Ching. <u>BUILDING CONSTRUCTION ILLUSTRATED</u> John Wiley and Sons, 6th edition. 2020
<b>Alternative Textbooks:</b>	
<b>Required Supplementary Readings:</b>	
<b>Other Required Materials:</b>	DRAFTING TOOLS: Lead holder Leads Eraser Erasing shield 30/60 degree triangle 45 degree triangle Architectural scale Brush Drawing tube Vellum Tape Lead pointer Flash drive
<b>Requisite:</b>	Prerequisite
<b>Category:</b>	Sequential
<b>Requisite course(s): List both prerequisites and corequisites in this box.</b>	Architecture 170

<p><b>Requisite and Matching skill(s): Bold the requisite skill. List the corresponding course objective under each skill(s).</b></p>	<p><b>Ability to apply architectural graphic techniques to architectural sketches.</b>  Arch 170 - Differentiate among all graphic tools available to architects for purposes of delineation.  Arch 170 – Assemble various textures that would commonly appear on floor and wall plans.  Arch 170 - In different drawing types, construct lines, shades and shadows that describe how light sources affect a building.  Arch 170 - Compose entourage in plan, elevation and perspective that will support the purpose of the drawing. This includes people, trees, cars, and furniture.</p> <p><b>Ability to create orthographic drawings.</b>  Arch 170 - Understand how to orthographically project the basic architectural drawing conventions (plan, section, and elevation) and apply their use in architectural presentation drawings.</p>
<p><b>Requisite Skill:</b></p>	
<p><b>Requisite Skill and Matching Skill(s): Bold the requisite skill(s). If applicable</b></p>	
<p><b>Requisite course:</b></p>	<p>Architecture 119 and Architecture 171</p>
<p><b>Requisite and Matching skill(s): Bold the requisite skill. List the corresponding course objective under each skill(s).</b></p>	<p><b>Create architectural drawings using AutoCAD.</b>  ARCH 119 - Create architectural construction documents using the commands in AutoCAD.</p> <p><b>Use different software packages to design a building.</b>  ARCH 119 - Compare and contrast different computer software packages that architects use in the design of buildings.</p> <p><b>Create a comprehensive set of construction documents.</b>  ARCH 171 - Translate two dimensional drawings (plan, section, elevation) into various three dimensional drawing types.  ARCH 171 - Construct the properties of a 30 degree isometric grid layout.  ARCH 171 - Construct perspective drawing layout, both one point and two point perspective.</p>
<p><b>Requisite Skill:</b></p>	
<p><b>Requisite Skill and Matching skill(s): Bold the requisite skill. List the corresponding course objective under each skill(s). If applicable</b></p>	
<p><b>Enrollment Limitations and Category:</b></p>	
<p><b>Enrollment Limitations Impact:</b></p>	

<b>Course Created by:</b>	Robert Codey
<b>Date:</b>	11/06/2015
<b>Original Board Approval Date:</b>	09/01/1986
<b>Last Reviewed and/or Revised by:</b>	Dan Richardson
<b>Date:</b>	11/15/2021
<b>Last Board Approval Date:</b>	01/18/2021