

# EL CAMINO COLLEGE

## COURSE OUTLINE OF RECORD

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### I. Course Information

**Course Acronym:\***

CTEC

**Course Number:\*** 122

**Descriptive Title:\*** Rough Framing

**Division:** Industry and Technology

**Department:\***

Construction Technology

**Course Disciplines:** Construction Technology

**Catalog Description:\***

This is an advanced course in construction technology covering rough framing. Topics of instruction include materials and methods of residential rough frame construction, rough lumber estimating and California Building Code (CBC) requirements. Practical instruction is given in the use of tools and materials through construction laboratory work.

### **Conditions of Enrollment:**

**Prerequisite:**

Construction Technology 100 or Construction Technology 110 with a minimum grade of C in prerequisite or equivalent

**Co-requisite:**

**Recommended Preparation:**

**Enrollment Limitation:**

**Course Length:** Full Term

**Hours Lecture (per week):** 2.5

**Hours Laboratory (per week):** 5

**Outside Study Hours:\*** 5

**Total Course Hours:\*** 135

**Course Units:**\* 4

**Grading Method:** Letter Grade only

**Credit Status:** Credit, degree applicable

**Transfer CSU:** Yes

**Effective Date:** 04/16/2001

**Transfer UC:** No

**Effective Date:**

**General Education:**  
ECC

**Term:**

**Other:**

**CSU GE:**

**Term:**

**Other:**

**IGETC:**

**Term:**

**Other:**

## **II. Outcomes and Objectives**

**A. Student Learning Outcomes (SLOs)** (The course student learning outcomes are listed below.)  
***SLO revisions are completed via the SLO Change Form available on the College Curriculum Committee website.***

**Student Learning Outcomes:**

**SLO #1 Rough Framing Materials and Methods**

Students will be able to demonstrate a basic application of materials and methods commonly used in residential construction.

**SLO #2 Hold-Down Alignment**

Students will be able to align a "hold-down" for use in a sheer wall assembly.

**SLO #3 Framing Lumber**

Students be able to crown and mark framing lumber.

**B. Course Objectives** (The major learning objective for in this course are listed below.)

**Course Objectives:**

1. Describe the standard materials, methods, dimensions, CBC and procedures associated with the installation of a residential raised floor system.
2. Calculate the quantities and prepare estimates, from working drawings and written descriptions, for raised floor framing members.
3. Construct a raised floor system as per CBC requirements.
4. Describe the standard materials, methods, dimensions, CBC requirements and procedures associated with the construction of platform framed and rake walls.
5. Calculate the quantities and prepare estimates for wall framing members using working drawings and written descriptions.
6. Layout and construct a single story framed structure to industry standards following plans and specifications.

**III. Outline of Subject Matter**

(Topics should be detailed enough to enable an instructor to determine the major areas that should be covered to ensure consistency from instructor to instructor and semester to semester.)

Example:

- I. Main Topic (3 hours, lecture)
  - A. Sub topics
  - B. Sub topics
    1. Super sub topic
    2. Super sub topic

**Major Topics:**

- I. OVERVIEW OF ROUGH FRAMING (5 hours, lecture)**
  - A. Safety instructions
  - B. Project requirements
- II. OVERVIEW OF ROUGH FRAMING (10 hours, lab)**
  - A. Safety test
  - B. Tour of lab
    - 1. Material storage
    - 2. Building sites
    - 3. Safety equipment
    - 4. Large tool storage
  - C. Toolroom
- III. FLOOR SYSTEM (15 hours, lecture)**
  - A. CBC requirements
  - B. Conventional floor system framing
  - C. Estimating materials
  - D. Layout and construction processes
- IV. FLOOR SYSTEM (20 hours, lab)**
  - A. CBC requirements
  - B. Conventional floor system framing
  - C. Estimating materials
  - D. Layout and construction processes
- V. PLATFORM WALL FRAMING (15 hours, lecture)**
  - A. CBC requirements
  - B. Floor plan, door and window schedules
  - C. Methods of wall framing

D. Layout and construction process for platform framing

E. Special framing:

1. Sizing headers for two story residential structures
2. Backing for cabinets and special items
3. Framing around plumbing fixtures and pipes, shear panels and arches
4. Estimating materials

**VI. PLATFORM WALL FRAMING (30 hours, lab)**

A. CBC requirements

B. Floor plan, door and window schedules

C. Methods of wall framing

D. Layout and construction process for platform framing

E. Special framing:

1. Sizing headers for two story residential structures
2. Backing for cabinets and special items
3. Framing around plumbing fixtures and pipes, shear panels and arches
4. Estimating materials

**VII. RAKE AND WALL FRAMING (5 hours, lecture)**

A. Layout: chalk line method versus mathematical method

B. Construction process

**VIII. RAKE AND WALL FRAMING (20 hours, lab)**

A. Layout: chalk line method versus mathematical method

B. Construction process

**IX. CEILING SYSTEM (5 hours, lecture)**

A. CBC requirements

B. Layout and construction

C. Estimating materials

**X. CEILING SYSTEM (10 hours, lab)**

A. CBC requirements

B. Layout and construction

C. Estimating materials

**Total Lecture Hours:** 45

**Total Laboratory Hours:** 90

**Total Hours:** 135

**IV. Primary Method of Evaluation and Sample Assignments**

**A. Primary Method of Evaluation (choose one):**

1) Substantial writing assignments

2) Problem solving demonstrations (computational or non-computational)

3) Skills demonstrations

**Primary Method of Evaluation:** 3) Skills demonstration

**B. Typical Assignment Using Primary Method of Evaluation**

**Typical Assignment Using Primary Method of Evaluation:** Completely layout and frame a rake wall to CBC requirements. Consult instructor for evaluation.

**C. College-level Critical Thinking Assignments**

**Critical Thinking Assignment 1:** Given a set of working drawings, prepare a complete one-page cutting list for the items listed below:

- a. Headers
- b. Rough sills
- c. Upper cripple studs
- d. Lower cripple studs
- e. Trimmers

Submit cutting list to the instructor.

**Critical Thinking  
Assignment 2:**

Given a set of working drawings, create a one-page estimate documenting the quantity, size, and length of materials to order for each of the following:

- a. Plates
- b. Studs
- c. Headers
- d. Wall braces

Submit list to the instructor.

**D. Other Typical Assessment and Evaluation Methods**

**Examples:** Class Performance, Objective Exam, Clinical Evaluation, Oral Exams, Completion, Other Exams, Embedded Questions, Performance Exams, Essay Exams, Presentation, Fieldwork, Quizzes, Homework Problems, Reading Reports, Journal kept throughout course, Term or Other Papers, Laboratory Reports, True/False, Matching Items, Written Homework, Multiple Choice, Other (specify)

**Other Evaluation  
Methods:**

Performance exams  
Written homework  
Class Performance  
Multiple Choice  
Completion  
Matching Items  
True/False

**V. Instructional Methods**

**Examples:** Lecture, Group Activities, Lab, Role play/simulation, Discussion, Guest Speakers, Multimedia presentations, Field trips, Demonstration, Other (specify)

**Instructional  
Methods:**

Demonstration  
Discussion  
Group Activities  
Guest Speakers  
Internet Presentation/Resources  
Laboratory  
Lecture  
Multimedia presentations  
Other (please specify)

STUDENT RESEARCH ROUGH FRAMING PRESENTATIONS

**If other:**

**Note: In compliance with Board Policies 1600 and 3410, Title 5 California Code of Regulations, the Rehabilitation Act of 1973, and Sections 504 and 508 of the Americans with Disabilities Act, instruction delivery shall provide access, full inclusion, and effective communication for students with disabilities.**

## VI. Work Outside of Class

**Work Outside of Class:\***

Study

Required reading

Problem solving activities

Written work

**If Other:**

## VII. Texts and Materials

### **A. Up-to-date Representative Textbooks: Please use the following format(s):**

**Printed Text** - Author, Title, Edition, Publisher, Year.

**Digital Text (OER Text)** - Author (last name first). Title. Edition or Version (if beyond 1st). Publisher, Publication year or Revision date. URL. License.

*Sample: Dillon, Dave. Blueprint for Success in College and Career. Version 1.3. Rebus Community, 2018. [press.rebus.community/blueprint2/](http://press.rebus.community/blueprint2/). Licensed under CC BY 4.0.*

**If you wish to list a text that is more than 5 years old, please annotate it as a “discipline standard”.**

*\*Multiple textbooks may be listed.*

**Up-To-Date Representative Textbooks:**

Leonard Koel. CARPENTRY. American Technical Publishers. 7th edition. 2021

### **B. Alternative Textbooks: Please use the following format(s): if applicable**

**Printed Text** - Author, Title, Edition, Publisher, Year.

**Digital Text (OER Text)** - Author (last name first). Title. Edition or Version (if beyond 1st). Publisher, Publication year or Revision date. URL. License.

*Sample: Dillon, Dave. Blueprint for Success in College and Career. Version 1.3. Rebus Community, 2018. [press.rebus.community/blueprint2/](http://press.rebus.community/blueprint2/). Licensed under CC BY 4.0.*

**If you wish to list a text that is more than 5 years old, please annotate it as a “discipline standard”.**

*\*Multiple textbooks may be listed.*

**Alternative Textbooks:**

### **C. Required Supplementary Readings**

**Required Supplementary**



#### **D. Other Required Materials**

**Other Required Materials:** Pocket calculator  
Architectural scale  
Safety glasses  
Carpenter's nailing apron  
Appropriate shoes and attire for construction work

### **VIII. Conditions of Enrollment**

#### **A. Requisites (Course Prerequisites and Corequisites) Skills needed without which a student would be highly unlikely to succeed.**

**Requisite:** Prerequisite

**Category:** sequential

**Requisite course(s):** Construction Technology 100 or  
**List both prerequisites and corequisites in this box.** Construction Technology 110

**Requisite and Matching skill(s):** **Bold the requisite skill.**  
**List the corresponding course objective under each skill(s).**

**Ability to use hand tools and hand-held power tools in residential construction work.**

CTEC 100 - Construct a standard height wall including doors and windows.

CTEC 100 - Step-off rafter lengths using a framing square.

CTEC 100 - Identify and use hand tools common to the construction industry.

CTEC 100 - Identify and use hand held power tools common to the construction industry

CTEC 110 - Frame a standard height wall.

CTEC 110 - Mix, place and finish a concrete slab.

CTEC 110 - Identify and use hand tools and handheld power tools common to the construction industry.

**Command of construction nomenclature.**

CTEC 100 - Calculate header and cripple lengths for standard doors and windows.

CTEC 100 - Identify components in a structural Type V residential.

CTEC 100 - Compute rafter lengths.

CTEC 100 - Step-off rafter lengths using a framing square.

CTEC 100 - Identify and define a list of construction terms.

CTEC 100 - Identify and use hand tools common to the construction industry.

CTEC 100 - Identify and use hand held power tools common to the construction industry.

CTEC 110 - Determine quantities of concrete needed for various concrete pours.

CTEC 110 - Identify structural framing members.

CTEC 110 - Identify and define a list of construction terms.

CTEC 110 - Identify and use hand tools and handheld power tools common to the construction industry.

CTEC 110 - Interpret architectural blueprints.

CTEC 110 - Identify and analyze the procedures for submission of a building permit application.

**Knowledge of construction materials and methods.**

CTEC 100 - Calculate header and cripple lengths for standard doors and windows.

CTEC 100 - Identify components in a structural Type V residential.

CTEC 100 - Construct a standard height wall including doors and windows.

CTEC 100 - Compute rafter lengths.

CTEC 100 - Step-off rafter lengths using a framing square.

CTEC 100 - Construct a gable roof structure.

CTEC 100 - Identify and define a list of construction terms.

CTEC 100 - Identify and use hand tools common to the construction industry.

CTEC 100 - Identify and use hand held power tools common to the construction industry.

CTEC 110 - Mix, place and finish a concrete slab.

CTEC 110 - Determine quantities of concrete needed for various concrete pours.

CTEC 110 - Identify structural framing members.

CTEC 110 - Identify and define a list of construction terms.

CTEC 110 - Identify and use hand tools and handheld power tools common to the construction industry.

CTEC 110 - Prepare and dimension a floor plan.

CTEC 110 - Identify and analyze the procedures for submission of a building permit application.

CTEC 110 - Frame a standard height wall.

**B. Requisite Skills: (Non-Course Prerequisite and Corequisites) Skills needed without which a student would be highly unlikely to succeed.**

**Requisite Skill:** or equivalent

**Requisite Skill and Matching Skill(s):  
Bold the requisite skill(s). If applicable**

If a student has taken Construction Technology 100 or 110 at another college or has experience in building fundamentals or additions and remodeling, they will be prepared to enroll in this course. If students do not have some form of construction building experience, they will not succeed in this course.

**C. Recommended Preparations (Course) (Skills with which a student's ability to succeed will be strongly enhanced.)**

**Requisite course:**

**Requisite and Matching skill(s):** **Bold the requisite skill.**  
List the corresponding course objective under each skill(s).

**D. Recommended Preparation (Non-Course) (Skills with which a student's ability to succeed will be strongly enhanced.)**

**Requisite Skill:**

**Requisite Skill and Matching skill(s):**  
**Bold the requisite skill.** List the corresponding course objective under each skill(s). If applicable

**E. Enrollment Limitations**

**Enrollment Limitations and Category:**

**Enrollment Limitations Impact:**

**Course Created by:** Tim Meza

**Date:** 09/01/2001

**Original Board Approval Date:** 04/16/2001

**Last Reviewed and/or Revised by:** Ross Durand

**Date:** 02/15/2023

**Last Board Approval Date:** 07/17/2023 effective FALL 2024