Course Acronym:	CTEC
Course Number:	132
Descriptive Title:	Stair Framing
Division:	Industry and Technology
Department:	Construction Technology
Course Disciplines:	Construction Technology
Catalog Description:	This is an advanced course in construction technology, covering residential stair framing. Topics of instruction include stair design, calculations, layout, construction and California Building Code (CBC). Practical instruction is given in the use of tools and materials through construction laboratory work.
Prerequisite:	Construction Technology 100 or Construction Technology 110 with a minimum grade of C or equivalent
Co-requisite:	
Recommended Preparation:	
Enrollment Limitation:	
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:	
Student Learning Outcomes:	**SLO #1 Stair Framing Materials and Methods** Students will be able to demonstrate a basic application of materials and methods commonly used in residential construction. **SLO #2 Open Stair Stringers** Students will be able to prepare a set of open stair stringers. **SLO #3 Rise to Run Ratio** Students will be able to calculate the appropriate ratio of "rise to run" for a legal staircase.
Course Objectives:	1. Describe the standard materials, methods, dimensions, and procedures associated with the construction of residential stairs. 2. List the CBC requirements for residential stairways. 3. Calculate all necessary dimensions for the construction of stairs with either limited or unlimited runs. 4. Construct a set of stairs in accordance with given plans and specifications. 5. Layout, cut and install a stair skirt to coincide with the angle of the stair stringer. 6. Design and frame a stairwell opening in accordance with CBC headroom requirements.
Major Topics:	**I. OVERVIEW OF STAIR FRAMING (5 hours, lecture)** A. Safety instructions B. Project requirements **II. OVERVIEW OF STAIR 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. STAIR DESIGN (10 hours, lecture)** A. Types of stairways

B. Function

C. Safety

D. Terminology

E. Nomenclature

F. CBC requirements

IV. STAIR DESIGN (25 hours, lab)

A. Types of stairways

B. Function

C. Safety

D. Terminology

E. Nomenclature

F. CBC requirements

V. STAIR LAYOUT (15 hours, lecture)

A. Plan reading

B. Rise: run ratios and equations

C. Stair design calculations

D. Stair carriage layout

E. Stairwell design and layout

VI. STAIR LAYOUT (35 hours, lab)

A. Plan reading

B. Rise: run ratios and equations

C. Stair design calculations

D. Stair carriage layout

E. Stairwell design and layout

VII. STAIR CONSTRUCTION (15 hours, lecture)

A. Framed stairwell openings

	B. Stair carriage cutting and installation C. Riser and tread installation D. Layout and construction of landings E. Stair skirt and trim F. Balustrades **VIII. STAIR CONSTRUCTION (20 hours, lab)** A. Framed stairwell openings B. Stair carriage cutting and installation C. Riser and tread installation D. Layout and construction of landings E. Stair skirt and trim F. Balustrades
Total Lecture Hours:	45
Total Laboratory Hours:	90
Total Hours:	135
Primary Method of Evaluation:	3) Skills demonstration
Typical Assignment Using Primary Method of Evaluation:	Determine both the riser height and tread width for a flight of stairs given a limited run and create a scaled drawing. Submit drawing to the instructor.
Critical Thinking Assignment 1:	Design, layout and construct a flight of stairs per CBC requirements. Consult instructor for evaluation.
Critical Thinking Assignment 2:	Design, layout and construct a stairwell opening to meet the requirement of a stairway with a limited run. Consult instructor for evaluation.
Other Evaluation Methods:	Class Performance Completion Matching Items Multiple Choice Performance Exams True/False Written Homework
Instructional Methods:	Demonstration Guest Speakers Lab Lecture Multimedia Presentations

If other:	
Work Outside of Class:	Problem solving activity Required reading Study Written work (such as essay/composition/report/analysis/research)
If Other:	
Up-To-Date Representative Textbooks:	Leonard Koel. CARPENTRY. American Technical Publishers. 7th edition. 2021
Alternative Textbooks:	
Required Supplementary Readings:	
Other Required Materials:	Pocket calculator Architectural scale Safety glasses Carpenter's nailing apron Appropriate shoes and attire for construction work
Requisite:	Prerequisite
Category:	sequential
Requisite course(s): List both prerequisites and corequisites in this box.	Construction Technology 100 or 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 - Construct a gable roof structure. 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 - Identify and use hand tools and handheld power tools common to the construction industry. CTEC 110 - Frame a standard height wall. **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 - 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 - Prepare and dimension a floor plan. 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 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 - Identify and analyze the procedures for submission of a building permit application. CTEC 110 - Frame a standard height wall.
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.
Requisite course:	
Requisite and Matching skill(s):Bold the requisite skill. List the corresponding course objective under each skill(s).	
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Requisite Skill and Matching skill(s): Bold the requisite skill. List the corresponding course objective under each skill(s). If applicable	
Enrollment Limitations and Category:	
Enrollment Limitations Impact:	
Course Created by:	Tim Meza
Date:	02/01/2001
Original Board Approval Date:	03/19/2001
Last Reviewed and/or Revised by:	Ross Durand
Date:	02/15/2023
Last Board Approval Date:	07/17/2023 effective FALL 2024