



El Camino College
COURSE OUTLINE OF RECORD – Official

Course Acronym:	FTEC
Course Number:	6
Descriptive Title:	Building Construction for Fire Protection
Division:	Health Sciences and Athletics
Department:	Fire and Emergency Technology
Course Disciplines:	Fire Technology
Catalog Description:	This course is the study of the components of building construction that relate to fire safety. The elements of construction and design of structures are shown to be key factors when inspecting buildings, pre-planning fire operations and operating at fires. The development and evolution of building and fire codes will be studied in relationship to past fires in residential, commercial and industrial occupancies.
Prerequisite:	
Co-requisite:	
Recommended Preparation:	Fire and Emergency Technology 1 and eligibility for English 1A
Enrollment Limitation:	
Hours Lecture (per week):	3
Hours Laboratory (per week):	0
Outside Study Hours:	6
Total Course Hours:	54
Course Units:	3
Grading Method:	Letter Grade only
Credit Status:	Credit, degree applicable
Transfer CSU:	Yes
Effective Date:	Prior to July 1992
Transfer UC:	No
Effective Date:	
General Education:	
ECC	
Term:	
Other:	

CSU GE:	
Term:	
Other:	
IGETC:	
Term:	
Other:	
Student Learning Outcomes:	<p>SLO #1 Types of Building Construction</p> <p>The student will be able to identify the 5 types of building construction.</p> <p>SLO #2 Pre-1933 Building Construction Indicators</p> <p>The student will be able to identify the indicators of pre-1933 building construction.</p> <p>SLO #3 Under-Construction Hazards</p> <p>The student will be able to identify the hazards encountered in buildings that are under construction.</p>
Course Objectives:	<ol style="list-style-type: none"> 1. Categorize the occupancy designations of the building code. 2. Examine the construction classifications that correspond to designated occupancies. 3. Differentiate between the loads that are placed on a building and describe each type of load. 4. Compare and contrast the structural members on various types of construction. 5. Analyze flame spread in buildings, its hazards, contributing factors and possible solutions. 6. Differentiate between fire inspection practices applicable to various individual buildings. 7. Compare and contrast firefighting practices and procedures developed for different types of building construction.
Major Topics:	<p>I. OVERVIEW OF BUILDING CONSTRUCTION (6 hours, lecture)</p> <p>A. History of building construction</p> <p>B. Governmental functions, building and fire codes</p> <p>C. Fire risks and fire protection</p> <p>D. Fire loss management and life safety</p> <p>E. Pre-fire planning and fire suppression strategies</p> <p>II. CONSTRUCTION BASICS (3 hours, lecture)</p> <p>A. Building failure points</p> <p>B. Inherent construction risks</p> <p>III. PRINCIPLES OF CONSTRUCTION (6 hours, lecture)</p>

- A. Terminology and definitions
- B. Building and occupancy classifications
- C. Characteristics of building materials
- D. Types and characteristics of fire loads
- E. Effects of energy conservation

IV. BUILDING CONSTRUCTION (6 hours, lecture)

- A. Structural members
- B. Definitions, descriptions and carrying capacities
- C. Effects of loads
- D. Structural design and construction
- E. System failures

V. PRINCIPLES OF FIRE RESISTANCE (5 hours, lecture)

- A. Standards of construction
- B. Fire intensity and duration
- C. Theory versus reality

VI. FIRE BEHAVIOR VERSUS BUILDING CONSTRUCTION (6 hours, lecture)

- A. Flame spread
- B. Smoke and fire containment
 - 1. Construction and suppression systems
 - 2. Heating Ventilating Air Conditioning (HVAC) systems
 - 3. Rack storage

VII. WOOD CONSTRUCTION (4 hours, lecture)

- A. Definitions and elements of construction
- B. Types of construction
- C. Fire stopping and fire retardants

VIII. ORDINARY CONSTRUCTION (4 hours, lecture)

- A. Definitions and elements of construction

	<p>B. Structural stability and fire barriers</p> <p>IX. STEEL CONSTRUCTION (4 hours, lecture)</p> <p>A. Definitions and elements of construction</p> <p>B. Structural stability, fire resistance and fire protection of elements</p> <p>X. CONCRETE CONSTRUCTION (4 hours, lecture)</p> <p>A. Definitions and elements of construction</p> <p>XI. HIGH-RISE CONSTRUCTION (6 hours, lecture)</p> <p>A. Early versus modern construction</p> <p>B. Vertical and horizontal extension of fire and smoke</p> <p>C. Fire protection and suppression systems</p>
Total Lecture Hours:	54
Total Laboratory Hours:	0
Total Hours:	54
Primary Method of Evaluation:	1) Substantial writing assignments
Typical Assignment Using Primary Method of Evaluation:	Write a three-page report which analyzes the need for fire suppression personnel to have knowledge of building construction in conducting pre-fire planning and fire suppression strategy sessions. Submit report to the instructor.
Critical Thinking Assignment 1:	Generate a three-page report which compares and contrasts the five major types of building construction, citing at least one local example of each type. Submit report to the instructor.
Critical Thinking Assignment 2:	Given a simulated emergency incident in which a high-rise building is involved in fire on a given floor, analyze the incident and participate in a discussion regarding the potential associated problems. Each participant will compose a one-page written evaluation of the problems and suggested solutions. Submit evaluation to the instructor.
Other Evaluation Methods:	Completion, Essay Exams, Fieldwork, Homework Problems, Matching Items, Multiple Choice, Other Exams, Quizzes, Term or Other Papers, Written Homework
Instructional Methods:	Field trips, Group Activities, Lecture, Multimedia presentations
If other:	
Work Outside of Class:	Answer questions, Observation of or participation in an activity related to course content (such as theatre event, museum, concert, debate, meeting), Problem solving activity, Required reading, Study, Written work (such as essay/composition/report/analysis/research)
If Other:	

Up-To-Date Representative Textbooks:	International Fire Service Training Association, <u>BUILDING CONSTRUCTION RELATED TO THE FIRE SERVICE</u> , Fire Protection Publications, 4th edition, 2016. (Discipline Standard)
Alternative Textbooks:	
Required Supplementary Readings:	
Other Required Materials:	
Requisite:	
Category:	
Requisite course(s): List both prerequisites and corequisites in this box.	
Requisite and Matching skill(s): Bold the requisite skill. List the corresponding course objective under each skill(s).	
Requisite Skill:	
Requisite Skill and Matching Skill(s): Bold the requisite skill(s). If applicable	
Requisite course:	Fire and Emergency Technology 1
Requisite and Matching skill(s): Bold the requisite skill. List the corresponding course objective under each skill(s).	Knowledge of basic fire department operations in buildings. FTEC 1 - Identify the major organizations that contribute to fire protection. FTEC 1 - Define and describe the purpose and scope of fire departments.
Requisite Skill:	Eligibility for English 1A

<p>Requisite Skill and Matching skill(s): Bold the requisite skill. List the corresponding course objective under each skill(s). If applicable</p>	<p>Student's success in this course will be enhanced with their ability to read and effectively analyze college level texts and fire department manuals, and be able to write a paper that persuasively proves an original thesis.</p> <p>Summarize, analyze, evaluate and synthesize college-level texts.</p> <p>Write a well-reasoned, well-supported expository essay that demonstrates application of the academic writing process.</p>
<p>Enrollment Limitations and Category:</p>	
<p>Enrollment Limitations Impact:</p>	
<p>Course Created by:</p>	<p>Craig Neumann</p>
<p>Date:</p>	<p>02/01/1988</p>
<p>Original Board Approval Date:</p>	
<p>Last Reviewed and/or Revised by:</p>	<p>Kevin Huben</p>
<p>Date:</p>	<p>10/12/2018</p>
<p>Last Board Approval Date:</p>	<p>12/19/2022</p>