

COURSE SYLLABUS

LAST REVIEW	Spring 2021
COURSE TITLE	Building Construction for Fire Protection
COURSE NUMBER	FRSC 0113
DIVISION	Health Professions
DEPARTMENT	Fire Science
CIP CODE	43.0203
CREDIT HOURS	3
CONTACT HOURS/WEEK	Class: 3
PREREQUISITES	None
COURSE PLACEMENT	Students must meet the correct placement measure for this course. Information may be found at: https://www.kckcc.edu/admissions/information/mandatory-evaluation-placement.html

COURSE DESCRIPTION

This course provides the components of building construction related to firefighter and life safety. The elements of construction and design of structures are shown to be key factors when inspecting buildings, preplanning fire operations, and operating at emergencies.

PROGRAM LEARNING OUTCOMES

1. Demonstrate physical skills needed for employment as a firefighter.
2. Explain fire behavior.
3. Apply emergency management skills to provide basic emergency medicine in the field.
4. Evaluate strategy and tactics related to fire safety, survival techniques, and fire management.
5. Explain legal issues related to fire services administration.
6. Demonstrate employability skills necessary for completing the job search process.

TEXTBOOKS

<http://kckccbookstore.com/>

METHODS OF INSTRUCTION

A variety of instructional methods may be used depending on content area. These include but are not limited to: lecture, multimedia, cooperative/collaborative learning, labs and demonstrations, projects and presentations, speeches, debates, panels, conferencing, performances, and learning experiences outside the classroom.

Methodology will be selected to best meet student needs.

COURSE OUTLINE

- I. Introduction
 - A. History of Building Construction
 - B. Governmental Functions, Building and Fire Codes
 - C. Fire Risks and Fire Protection
 - D. Fire Loss Management and Life Safety
 - E. Pre-fire Planning and Fire Suppression Strategies

- II. Principles of Construction
 - 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

- III. Building Construction
 - A. Structural Members
 - i. Definitions, Descriptions and Carrying Capacities
 - ii. Effects of Loads
 - B. Structural Design and Construction Methods
 - C. System Failures

- IV. Principles of Fire Resistance
 - A. Standards of Construction
 - B. Fire Intensity and Duration
 - C. Theory versus Reality

- V. Fire Behavior versus Building Construction
 - A. Flame Spread
 - B. Smoke and Fire Containment
 - i. Construction and Suppression Systems
 - ii. HVAC Systems
 - iii. Rack Storage
 - iv. Combustible

- VI. Wood Construction
 - A. Definition and Elements of Construction
 - B. Types of Construction
 - C. Fire Stopping and Fire Retardants
 - D. Modifications/Code Compliance

- VII. Ordinary Construction
 - A. Definitions and Elements of Construction
 - B. Structural Stability and Fire Barriers
 - C. Modifications/Code Compliance

- VIII. Non-Combustible

- IX. Steel Construction
 - A. Definitions and Elements of Construction
 - B. Structural Stability, Fire Resistance and Fire Protection of Elements
 - C. Modifications/Code Compliance

- X. Concrete Construction
 - A. Definitions and Elements of Construction
 - B. Structural Stability and Fire Resistance
 - C. Modifications/Code Compliance

- XI. High Rise Construction
 - A. Early versus Modern Construction
 - B. Vertical and Horizontal Extension of Fire and Smoke
 - C. Fire Protection and Suppression
 - D. Elevators
 - E. Atriums/Lobbies
 - F. Modifications/Code Compliance

- XII. Collapse

COURSE LEARNING OUTCOMES

Upon successful completion of this course, the student will:

- A. Describe building construction as it relates to firefighter safety, buildings codes, fire prevention, code inspection, firefighting strategy, and tactics.
- B. Classify major types of building construction in accordance with a local/model building code.
- C. Analyze the hazards and tactical considerations associated with the various types of building construction.
- D. Explain the different loads and stresses that are placed on a building and their
- E. Interrelationships.

- F. Identify the function of each principle structural component in typical building design.
- G. Differentiate between fire resistance, flame spread, and describe the testing procedures used to establish ratings for each.
- H. Classify occupancy designations of the building code.
- I. Identify the indicators of potential structural failure as they relate to firefighter safety.
- J. Identify the role of GIS as it relates to building construction.

ASSESSMENT OF COURSE LEARNING OUTCOMES

Student progress is evaluated through both formative and summative assessment methods. Specific details may be found in the instructor's course information document.

COLLEGE POLICIES AND PROCEDURES

Student Handbook

<https://www.kckcc.edu/files/docs/student-resources/student-handbook-and-code-of-conduct.pdf>

College Catalog

<https://www.kckcc.edu/academics/catalog/index.html>

College Policies and Statements

<https://www.kckcc.edu/about/policies-statements/index.html>

Accessibility and Accommodations

<https://www.kckcc.edu/academics/resources/student-accessibility-support-services/index.html>.