

COURSE SYLLABUS

LAST REVIEW	Spring 2021
COURSE TITLE	Fire Protection Systems
COURSE NUMBER	FRSC 0117
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

Comprehensive and concise overview of the design and operation of the various types of fire protection systems, including fire alarm and detection systems, automatic fire sprinkler system, Special hazard fire protection systems, smoke control and management systems, and security and emergency response systems.

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 to Fire Protection Systems
 - A. The Role Fire Protection Systems Play in Protecting the Life, Safety, and Welfare of the General Public and Firefighters
 - B. Overview of the Different Types of Fire Protection Systems
 - C. The Role of Codes & Standards in Fire Protection System Design

- II. Water Supply Systems for Fire Protection Systems
 - A. Sources of Fire Protection Water Supply
 - B. Distribution Networks
 - C. Piping
 - D. Hydrants
 - E. Utility Company Interface with the Fire Department

- III. Water-Based Fire Suppression Systems
 - A. Properties of Water
 1. Water as an Effective Extinguishing Agent
 2. How Water Extinguishes Fire
 - B. Sprinkler Systems
 1. Types of Systems & Applications
 2. Types of Sprinklers & Applications
 3. Piping, Valves, Hangers & Alarm Devices
 4. Fire Department Operations in Buildings with Sprinkler Systems
 - C. Residential Sprinkler Systems
 - D. Standpipe Systems
 1. Types & Applications
 2. Fire Department Operations in Buildings with Standpipes
 - E. Foam Systems
 - F. Water Mist Systems
 - G. Fire Pumps
 1. Types
 2. Components
 3. Operation
 4. Fire Pump Curves

IV. Non-Water-Based Fire Suppression Systems

- A. Carbon Dioxide Systems
 - 1. Applications
 - 2. Extinguishing Properties
 - 3. System Components
- B. Halogenated Systems
 - 1. Halon 1301 and the Environment
 - 2. Halon Alternatives
 - 3. Extinguishing Properties
 - 4. System Components
- C. Dry/Wet Chemical Extinguishing Systems
 - 1. Extinguishing Properties
 - 2. Applications
 - 3. UL 300

V. Fire Alarm Systems

- A. Components
- B. Types of Fire Alarm Systems
- C. Detectors
 - 1. Smoke
 - 2. Heat
 - 3. Flame
- D. Audible/Visual Devices
- E. Alarm Monitoring
- F. Testing & Maintenance of Fire Alarm Systems

VI. Smoke Management Systems

- A. Hazards of Smoke
- B. Smoke Movement in Buildings
- C. Types of Smoke Management Systems
- D. Firefighter Operations in Buildings with Smoke Management Systems

VII. Portable Fire Extinguishers

- A. Types & Applications
- B. Selection
- C. Placement
- D. Maintenance
- E. Portable Fire Extinguisher Operations

COURSE LEARNING OUTCOMES

Upon successful completion of this course, the student will:

- A. Explain the benefits of fire protection systems in various types of structures.
- B. Describe the basic elements of a public water supply system including sources, distribution networks, piping and hydrants.
- C. Explain why water is a commonly used extinguishing agent.
- D. Identify the different types and components of sprinkler, standpipe, and foam systems.
- E. Review residential and commercial sprinkler legislation.
- F. Identify the different types of non-water based fire suppression systems.
- G. Explain the basic components of a fire alarm system.
- H. Identify the different types of detectors and explain how they detect fire.
- I. Describe the hazards of smoke, and list the four factors that can influence smoke movement in a building.
- J. Discuss the appropriate application of fire protection systems.
- K. Explain the operation and appropriate application for the different types of portable fire protection systems.

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>.