

FIRE 120 : FIRE PROTECTION SYSTEMS

Transcript title

Fire Protection Systems

Credits

3

Grading mode

Standard letter grades

Total contact hours

30

Lecture hours

30

Recommended preparation

FIRE 104 and FIRE 105.

Course Description

Introduces features of design and operation of fire alarm systems, water-based fire suppression systems, special hazard fire suppression systems, water supply for fire protection, and portable fire extinguishers. Apply concepts in field exercises. Fire and Emergency Services Higher Education (FESHE) core requirement equivalent to NFA C0288.

Course learning outcomes

1. Identify and describe various types and uses of fire protection systems.
2. Describe the basic elements of a public water supply system as it relates to fire protection.

Content outline

The course learning outcomes are those of the National Fire Academy (NFA).

1. Introduction to fire protection systems
 - a. The role fire protection systems play in protection 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 and standards in fire protection system design
2. 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
3. Water-based fire suppression systems
 - a. Properties of water
 - i. Water as an effective extinguishing agent
 - ii. How water extinguishes fire
 - b. Sprinklers systems
 - i. Types of systems and applications
 - ii. Types of sprinklers and applications
 - c. Residential sprinkler systems
 - d. Standpipe systems
 - i. Types of applications
 - ii. Fire department operations in buildings with standpipes
 - e. Foam systems
 - f. Water mist systems
 - g. Fire pumps
 - i. Types
 - ii. Components
 - iii. Operation
 - iv. Fire pump curves
4. Non-water-based fire suppression systems
 - a. Carbon dioxide systems
 - i. Applications
 - ii. Extinguishing properties
 - iii. System components
 - b. Halogenated systems
 - i. Halon 1301 and the environment
 - ii. Halon alternatives
 - iii. Extinguishing properties system components
 - c. Dry/wet chemical extinguishing properties
 - i. Extinguishing properties
 - ii. Applications
 - iii. UL 300
5. Fire alarm systems
 - a. Components
 - b. Types of fire alarm systems
 - c. Detectors
 - i. Smoke
 - ii. Heat
 - iii. Flame
 - iv. Audible/visual devices
 - v. Alarm monitoring
 - vi. Testing and maintenance of fire alarm systems
6. 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
7. Portable fire extinguishers
 - a. Types and applications
 - b. Selection
 - c. Placement
 - d. Maintenance
 - e. Portable fire extinguisher operations

Required materials

This course requires students to purchase a textbook.