

College of San Mateo
Official Course Outline

1. **COURSE ID:** FIRE 745 **TITLE:** Fire Protection Systems **C-ID:** FIRE 120X

Units: 3.0 units **Hours/Semester:** 48.0-54.0 Lecture hours; and 96.0-108.0 Homework hours

Method of Grading: Letter Grade Only

Recommended Preparation:

Eligibility for ENGL 100 or ENGL 105. FIRE 715

2. **COURSE DESIGNATION:**

Degree Credit

Transfer credit: CSU

3. **COURSE DESCRIPTIONS:**

Catalog Description:

This course provides information relating to the 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.

4. **STUDENT LEARNING OUTCOME(S) (SLO'S):**

Upon successful completion of this course, a student will meet the following 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.

5. **SPECIFIC INSTRUCTIONAL OBJECTIVES:**

Upon successful completion of this course, a student will be able to:

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.

6. **COURSE CONTENT:**

Lecture Content:

1. 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 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
 - a. Water as an Effective Extinguishing Agent
 - b. How Water Extinguishes Fire
 - B. Sprinkler Systems
 - a. Types of Systems and Applications
 - b. Types of Sprinklers and Application
 - c. Piping, Valves, Hangers and Alarm Devices
 - d. Fire Department Operations in Buildings with Sprinkler Systems
 - C. Residential Sprinkler Systems
 - D. Standpipe Systems
 - a. Types and Application
 - b. Fire Department Operations in Buildings with Standpipes
 - E. Foam Systems
 - F. Water Mist Systems
 - G. Fire Pumps
 - a. Types

- b. Components
 - c. Operation
 - d. Fire Pump Curves
- 4. Non-Water-Based Fire Suppression Systems
 - A. Carbon Dioxide Systems
 - a. Applications
 - b. Extinguishing Properties
 - c. System Components
 - B. Halogenated Systems
 - a. Halon 1301 and the Environment
 - b. Halon Alternatives
 - c. Extinguishing Properties
 - d. Systems Components
 - C. Dry/Wet Chemical Extinguishing Systems
 - a. Extinguishing Properties
 - b. Applications
 - c. UL 300
- 5. Fire Alarm Systems
 - A. Components
 - B. Types of Fire Alarm Systems
 - C. Detectors
 - a. Smoke
 - b. Heat
 - c. Flame
 - D. Audible/Visual Devices
 - E. Alarm Monitoring
 - F. 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

7. REPRESENTATIVE METHODS OF INSTRUCTION:

Typical methods of instruction may include:

- A. Lecture
- B. Activity
- C. Discussion

8. REPRESENTATIVE ASSIGNMENTS

Representative assignments in this course may include, but are not limited to the following:

Reading Assignments:

Assigned reading for class session

Other Outside Assignments:

Preparation of oral presentation

9. REPRESENTATIVE METHODS OF EVALUATION

Representative methods of evaluation may include:

- A. Class Participation
- B. Oral Presentation
- C. Quizzes
- D. Written examination

10. REPRESENTATIVE TEXT(S):

Possible textbooks include:

A. IFSTA. *Fire Detection and Suppression Systems*, 5th ed. IFSTA, 2016

B. Jones Jr., A. M.. *Fire Protection Systems*, 3rd ed. Jones & Bartlett Learning, 2021

Origination Date: August 2020

Curriculum Committee Approval Date: October 2020

Effective Term: Fall 2021

Course Originator: Michelle Schneider