

COURSE OUTLINE

Fire Technology 105
Fire Protection Systems

I. Catalog Statement

Fire Technology 105 presents the methods, techniques and practical application of portable fire extinguishing equipment, sprinkler systems, protection systems for special hazards, and fire alarm and detection systems. Fire Technology 105 meets or exceeds the California State Fire Marshal's Office core requirement for Fire 3.

Total Lecture Units: 3.0

Total Course Units: 3.0

Total Lecture Hours: 48.0

Total Faculty Contact Hours: 48.0

Prerequisite: Fire Technology 101 or equivalent.

II. Course Entry Expectations

Skills Levels Ranges: Reading 5; Writing 5; Listening/Speaking 5; Math 3.

Prior to enrolling in the course, the student should be able to:

1. describe and discuss the components of the history and philosophy of the modern day fire service;
2. analyze the basic components of fire as a chemical reaction, the major phases of fire, and examine the main factors that influence fire spread and behavior;
3. differentiate between fire service training and education; fire protection certificate program and a fire service degree program; and explain the value of education in the fire service;
4. list and describe the major organizations that provide emergency response service and illustrate how they interrelate;
5. identify fire protection and emergency-service careers in both the public and in the private sector;
6. synthesize the role of national, state and local support organizations in fire protection and emergency services;
7. discuss and describe the scope, purpose, and organizational structure of fire and emergency services;
8. describe the common types of fire and emergency services facilities, equipment, and apparatus;

9. compare and contrast effective management concepts for various emergency situations;
10. identify and explain the components of fire prevention including code enforcement, public information, and public and private fire protection systems.

III. Course Exit Expectations

Upon successful completion of the required coursework, the student should be able to:

1. explain the basic types of fire protection equipment and systems;
2. identify equipment, design functions, and installation requirements based on OSHA standards;
3. describe fire protection systems and operating requirements.

IV. Course Content

Total Faculty Contact Hours = 48

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| A. Portable Fire Extinguisher | 8 hours |
| 1. Description and classification | |
| 2. Installation | |
| 3. Standard types | |
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| B. Sprinkler Protection | 12 hours |
| 1. Performance records | |
| 2. Installations | |
| 3. Types | |
| 4. Exposure protection | |
| 5. Special automatic installations | |
| 6. Water supply | |
| 7. Automatic sprinklers | |
| 8. Special service conditions | |
| 9. Dry-pipe system and quick-opening devices | |
| 10. Water flow alarm and supervision | |
| 11. Deluge and preaction valves | |
| 12. Self-contained system | |
| 13. Care and maintenance | |
| 14. Leakage | |
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| C. Protection Systems for Special Hazards | 8 hours |
| 1. Carbon dioxide | |
| 2. Dry chemical | |
| 3. Foam | |
| 4. Water spray | |
| 5. Inert | |
| 6. Explosion venting and suppression | |
| 7. Static electricity | |
| 8. Lighting | |

- D. Detection, Alarm, and Watchman Services 10 hours
1. Municipal fire alarm facilities
 2. Automatic signaling system
 3. Watchman time recording system
 4. Flammable and combustible gas detection

- E. Water Supplies and Services 10 hours
1. Water for community fire protection
 2. Connections for fire protection from public water systems
 3. Piped systems
 4. Water tanks
 5. Stationary fire pumps

V. Methods of Instruction

The following methods of instruction may be used in the course:

1. lecture;
2. demonstration;
3. films;
4. simulations.

VI. Out of Class Assignments

The following out of class assignments may be used in the course:

1. individual projects (i.e. written assignments, reading reports);
2. group projects (i.e. homework problems, problem solving demonstrations, discussion on textbook topics).

VII. Methods of Evaluation

The following methods of evaluation may be used in the course:

1. quizzes;
2. midterm examination;
3. final examination.

VIII. Textbooks

Handouts will be provided for the students.

IX. Student Learning Outcomes

1. Student will be able to explain the basic types of fire protection equipment and systems.
2. Student will be able to identify equipment, design functions, and installation requirements based on OSHA standards.
3. Student will be able to describe fire protection systems and operating requirements.

