

Las Positas College
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Course Outline for FST 54

FIRE PREVENTION TECHNOLOGY

Effective: Fall

I. CATALOG DESCRIPTION:

FST 54 — FIRE PREVENTION TECHNOLOGY — 3.00 units

Provides fundamental information regarding the history and philosophy of fire prevention, organization and operation of a fire prevention bureau, use of fire codes, identification and correction of fire hazards, and the relationships of fire prevention with built-in fire protection systems, fire investigation and fire safety education. Provides skills necessary for California Fire Service Training and Education System, Certified Firefighter I and Fire Inspector I.

3.00 Units Lecture

Prerequisite

FST 50 - Fire Protection Organization
with a minimum grade of C

Grading Methods:

Letter Grade

Discipline:

	<u>MIN</u>
Lecture Hours:	54.00
Total Hours:	54.00

II. NUMBER OF TIMES COURSE MAY BE TAKEN FOR CREDIT: 1

III. PREREQUISITE AND/OR ADVISORY SKILLS:

Before entering the course a student should be able to:

A. FST50

IV. MEASURABLE OBJECTIVES:

Upon completion of this course, the student should be able to:

- A. Describe the origin and history of fire prevention efforts in the United States;
- B. Identify the basic fire prevention functions of a fire department;
- C. Identify the responsibility and authority for fire prevention inspections and related activities;
- D. Explain and identify principles and procedures to correct fire hazards;
- E. Identify occupancies and building construction principles;
- F. Identify records management skills needed in fire prevention;
- G. Explain basic exiting requirements;
- H. Identify basic electrical fire hazards;
- I. Identify the relationship between fire safety education and fire prevention;
- J. Describe basic principles of fire cause determination as they relate to fire prevention and investigation;
- K. Identify principles of placement, operation and inspection of portable fire extinguishers;
- L. Identify operational deficiencies of fire detection and alarm systems;
- M. Identify operational deficiencies of standpipe systems;
- N. Identify hazards of use, storage and transfer of flammable liquids, gases and other toxic materials;
- O. Identify operational deficiencies in sprinkler systems and special hazard fixed fire protection systems.

V. CONTENT:

- A. History and development of fire prevention
- B. Fire prevention organizations
 - 1. Public
 - 2. Federal
 - 3. State
 - 4. Local
- C. Private
 - 1. Insurance organizations
 - a. Testing laboratories
 - b. Member organizations
- D. Fire prevention through regulations
 - 1. Code administration

- a. Responsibilities of fire prevention personnel
 - b. Understanding reading and using the uniform fire code
 - c. Legally established responsibilities and empowerment
 - d. IFCI code development process
 - e. ICBO code development process
- 2. Inspection
 - a. Fire incident reporting awareness
 - b. Factors relating to life safety
 - c. General fire inspection practices
 - d. Procedure for correcting fire hazards and modification of requirements
 - e. Fire drills and emergency evacuation
 - f. Handling fire prevention complaints
- E. Fire prevention through public education
 - 1. Basic instruction techniques for public education
 - 2. Teaching children about fire safety
 - 3. Teaching adults about fire safety
 - 4. Teaching the public about fire safety issues
 - 5. Teaching the public about fire and burn prevention
 - 6. Juvenile firesetter awareness
- F. General fire safety and electrical safety
 - 1. General fire safety
 - 2. Basic electrical theory
 - 3. Electrical fire hazards and safety devices
 - 4. Reference sources related to electrical codes and safety
- G. Building construction for fire prevention
 - 1. Classification of occupancies
 - 2. Building construction classifications
 - 3. Relationship of fire protection to building construction and occupancy
 - 4. Types and classifications of roof coverings
 - 5. Purpose and location of fire rated building construction
 - 6. Fire doors and windows
 - 7. Inspecting kitchen cooking equipment
 - 8. Fire safety requirements for decorative materials and furnishings
- H. Exiting and life safety
 - 1. The life safety issue
 - 2. Exit requirements
 - 3. Determination of adequate Egress
 - 4. Maintenance of exits
 - 5. Enclosed exit stairwells and smokeproof enclosures
- I. High piled combustible stock
- J. Fire protection equipment and systems
 - 1. Portable fire extinguishers
 - 2. Distribution and location of portable fire extinguishers
 - 3. Inspection of fire extinguishers
 - 4. Features of fixed fire protection systems
 - 5. Inspection of fixed fire protection systems
 - 6. Inspection of kitchen cooking systems
 - 7. Private water supply systems
 - 8. Standpipe and hose systems
 - 9. Inspection of standpipe systems
 - 10. Types of fire sprinkler systems
 - 11. Principles and features of sprinkler systems
 - 12. Inspection of dry and wet pipe sprinkler systems
 - 13. Conduct tests on dry and wet pipe sprinkler systems
 - 14. Capabilities, limitations and design of sprinkler systems
 - 15. Local fire alarm systems
 - 16. Classification of fire alarm systems
 - 17. Inspection of fire alarm systems
 - 18. Features of fire alarm systems
 - 19. Fire alarm panels and other equipment
- K. Properties of hazardous materials
 - 1. Sources of technical information on hazardous materials
 - 2. Basic classes of flammable and combustible liquids
 - 3. Properties of flammable and combustible liquids
 - 4. Characteristics of common oxidizing materials and organic peroxides
 - 5. Characteristics of common radioactive materials
 - 6. Characteristics of common toxic materials
 - 7. Characteristics of unstable (reactive) materials
 - 8. Characteristics of combustible metals
 - 9. Characteristics of combustible dust
 - 10. Characteristics of corrosives
 - 11. Classification of explosive
 - 12. Technical information on explosive
 - 13. Fire hazards of plastics
 - 14. D.O.T. regulatory labeling and placarding
- L. Storage and use of hazardous materials
 - 1. Recommended practices and procedures for inside storage of flammable and combustible materials
 - 2. Recommended practices and procedures for outside storage of flammable and combustible liquids
 - 3. Acceptable containers for flammable and combustible liquids
 - 4. Transferring flammable and combustible liquids, use, dispensing and mixing
 - 5. Control of ignition sources and explosive atmospheres
 - 6. Properties of compressed, cryogenic and liquefied gases
 - 7. Fire hazards of compressed and liquefied gases
 - 8. Storage and transfer practices of compressed and liquefied gases
 - 9. Regulations for storage, handling, and use of natural and synthetic fibers
 - 10. Describe hazards of explosives/fireworks and the need for security
 - 11. Describe sources of technical information on explosive and fireworks
- M. Fire investigation
 - 1. Determine cause and origin
 - 2. Accidental fires

- 3. Arson fires
- N. Plan review
 - 1. Building
 - 2. Fire protection systems
 - 3. Water supplies
 - 4. Underground flammable liquid tanks
 - 5. Life safety systems
 - 6. Residential subdivisions
- O. Records and reports
 - 1. Property loss, death and injury reports
 - 2. Record keeping for inspection reports
 - 3. Fire investigation reports
 - 4. Computerized record keeping
 - 5. Fire prevention bureau effectiveness reports

VI. METHODS OF INSTRUCTION:

- A. **Lecture** -
- B. Visual aids
- C. **Field Trips** -
- D. Case studies
- E. Group discussion and assignments

VII. TYPICAL ASSIGNMENTS:

- A. Essay explaining and identifying principles and procedures to correct fire hazards
- B. Presentation by groups describing basic principles of fire cause determination

VIII. EVALUATION:

- A. **Methods**
 - 1. Exams/Tests
 - 2. Quizzes
 - 3. Research Projects
 - 4. Papers
 - 5. Group Projects
 - 6. Other:
- B. **Frequency**

IX. TYPICAL TEXTS:

- 1. Diamantes, D *Fire Prevention, Inspection and Code Enforcement.*, Delmar Publisher, 1997.
- 2. - *Student Manual, Fire Prevention IA.*, California Fire Service Training and Education System, 0.
- 3. - *Fire Inspection and Code Enforcement.* 5th ed., International Fire Service Training Association, 0.

X. OTHER MATERIALS REQUIRED OF STUDENTS:

- A. Fire Protection Handbook, 18th edition, National Fire Protection Association
- B. Uniform Fire Code, latest edition
- C. Uniform Building Code, latest edition