

Las Positas College
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Course Outline for FST 56

FUND OF BLD CONSTR/FIRE PROTEC

Effective: Fall

I. CATALOG DESCRIPTION:

FST 56 — FUND OF BLD CONSTR/FIRE PROTEC — 3.00 units

Study of the components of building construction that relate to fire/life safety. Elements of construction and design of structures are shown to be key factors when inspecting buildings, preplanning fire operations, and operating at fires/collapse emergencies. Development and evolution of building and fire codes will be studies in relationship to past fires/collapses in residential, commercial, and industrial occupancies.

3.00 Units Lecture

Prerequisite

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

Grading Methods:

Letter or P/NP

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:

- Define occupancy designations of the building code;
- Name the construction classification that correspond to designated occupancies;
- Differentiate between the loads that are placed on a building and describe each type of load;
- List and compare the structural members on various types of construction;
- Define flame spread, its hazards, contributing factors and possible solutions;
- Demonstrate fire inspection practices that are applicable to individual buildings;
- Identify firefighting practices and procedures that have developed for different types of construction.

V. CONTENT:

- History of building construction
- Governmental functions
- Fire risks and fire protection
- Fire life safety
- Pre-fire planning and fire suppression strategies
- Principles of construction
 - Terminology and definitions
 - Building and occupancy classification
 - Characteristics of building materials
 - Types and characteristics of fire loads
 - Effects of energy conservation
- Building construction
 - Structural members
 - Definitions, descriptions and carrying capacities
 - Effects of loads
 - Structural design and construction methods
 - System failures
- Principles of fire resistance
 - Standards of construction
 - Fire intensity and duration

3. Theory vs. reality
- I. Fire behavior vs. building construction
 1. Flame spread
 2. Smoke and fire containment
 - a. Construction and suppression systems
 - b. HVAC systems
 - c. Rack storage
- J. Wood construction
 1. Definitions and elements of construction
 2. Types of construction
 3. Fire stopping and fire retardant
- K. Ordinary construction
 1. Definitions and elements of construction
 2. Structural stability and fire barriers
- L. Steel construction
 1. Definitions and elements of construction
 2. Structural stability, fire resistance and fire protection of elements
- M. High rise construction
 1. Early vs. modern construction
 2. Vertical and horizontal extension of fire and smoke
 3. Fire protection and suppression
 4. Compartmentation
- N. Rack storage
 1. Warehouses
 2. Libraries
 3. Fire department actions

VI. METHODS OF INSTRUCTION:

- A. **Lecture** -
- B. Video-taped instruction and observation
- C. Essay
- D. Small group and individual participation in class discussions
- E. Assigned reading and written work

VII. TYPICAL ASSIGNMENTS:

- A. Students will be able to draw a new constructed family residence
- B. Students will be able to present in a group a construction outline of a commercial building
- C. Students will submit a preplan of a fire inspected commercial building

VIII. EVALUATION:

- A. **Methods**
 1. Exams/Tests
 2. Quizzes
 3. Class Performance
- B. **Frequency**

IX. TYPICAL TEXTS:

1. Brannigan, Francis L. *Building Construction for the Fire Service*. 3rd ed., -, 0.
2. - *Building Construction for Fire Suppression Forces: Principles, Wood and Ordinary Construction*., National Fire Academy, National Emergency Training Center, 0.
3. - *Building Construction for Fire Suppression Forces: Non-combustible and Fire Resistive Construction*., C. National Fire Academy, National Emergency Training Center, 0.
4. Dunn, Vincent *Collapse of Burning Buildings: A Guide to Fireground Safety*., -, 0.

X. OTHER MATERIALS REQUIRED OF STUDENTS: