

**Crafton Hills College
Course Outline**

1. Discipline: Fire Technology
2. Department: Fire Technology
3. Course Title: Building Construction for Fire Protection
4. Course I.D.: **FIRET 116**
5. Prerequisite(s): FIRET 100
FIRET 101

Corequisite(s):None

Departmental Recommendation(s): Eligibility for ENGL 101
Eligibility for Math 090

6. Semester Units: 3
7. Minimum Semester hours:
Lecture: 3 Laboratory: 0 Clinic: 0
8. Need for Course:

This is one of five fundamental CORE courses required for students pursuing a degree in fire technology. The Community College Chancellor's Office funded the development of this and four additional courses. These five courses are part of a statewide uniform fire technology curriculum. This course contains skills and knowledge required for Firefighter I certification. Transfers to CSU.

9. Goals for Course:
 - A. This course is appropriate to the College's mission in that it is a part of a complete vocational education program leading to employment in fire fighting.
 - B. To prepare students with an understanding of basic types of building construction and the requirements of design and construction requirements
 - C. To prepare students with an insight into the relationship between building construction, occupancy requirements and fire protection

10. Catalog Description:

Study of the components of building construction relating to fire safety, and the elements of construction and design of structures as they relate to building

FIRET 116

Page 1 of 5

Last Updated: 2/26/01

Board Approved: 3/15/01

inspection, preplanning fire operation and operating at fires. Study of the development and evolution of building and fire codes.

11. Entrance Skills:

A. Requisite Skills:

Upon entering this course students should be able to:

- a. Identify the basic components of fire as a chemical reaction, the major phases of fire and the main factors that influence fire spread and fire behavior
- b. Identify the types of common fire department apparatus, equipment, and personal safety equipment used for fire fighting
- c. Identify the various applications of computers in the fire service
- d. Define fire fighting strategy and tactics
- e. Identify the basic components of fire as a chemical reaction, the major phases of fire and the main factors that influence fire spread and fire behavior
- f. Identify the types of common fire department apparatus, equipment, and personal safety equipment used for fire fighting
- g. Identify the various applications of computers in the fire service
- h. Define fire fighting strategy and tactics

B. Departmental Recommendations:

Upon entering this course students should be able to:

- a. Write an essay using proper spelling, grammar, and punctuation and construct a coherent paragraph to support a point
- b. Perform the combined arithmetic operations of addition, subtraction, multiplication, and division with fractions, decimals, and percents
- c. Apply principles of geometry to the computation of perimeter, area, and volume. Identify relations between angles formed between parallel lines and a transversal
- d. Begin to generalize arithmetic using algebra in the following ways: perform the four arithmetic operations with signed numbers, use associative, commutative, and distributive properties, combine like terms and solve first degree equations

12. Course Objectives:

Upon completion of the course, students will be able to:

1. Discuss the history of building construction
2. Discuss governmental functions as they pertain to building and fire codes
3. Discuss fire risks and fire protection, fire loss management and life safety, pre-fire planning and fire suppression strategies

4. Define the basic terminology and definition of terms related to building construction
 5. Discuss the characteristics of building materials
 6. Discuss the effects of energy conservation
 7. Identify occupancy designations of the building code
 8. Identify and compare the construction classifications corresponding to designated occupancies
 9. Describe and differentiate between the types of loads placed on a building
 10. List and compare the structural members on various types of construction including wood, ordinary, steel, concrete and high rise
 11. Define flame spread, contributing factors, its hazards and possible solutions
 12. Identify fire inspection practices applicable to individual buildings
 13. Demonstrate the ability to complete a fire inspection
 14. Identify and compare firefighting practices and procedure developed for the different types of construction
 15. Demonstrate the ability, when given a scenario, to analyze, prepare and present a building construction system, including building materials, building construction, occupancy requirements and occupant and fire safety
13. Representative Texts and Instructional Materials:
Required text(s):
Building Construction for the Fire Service, Brannigan, Francis L., 3rd Edition, 1992, National Firefighters Protection Association
- Building Construction Related to the Fire Service**, 2nd edition, 1999, International Fire Service Training Association
14. Course Content:
- I. Introduction
 - A. History of building construction
 - B. Governmental functions, building and fire codes
 - C. Fire risks and fire protection
 - D. Fire loss management and life safety
 - E. Pre-fire planning and fire suppression strategies
 - II. Principles of Construction
 - A. Terminology and definitions
 - B. Building and occupancy classifications
 - C. Characteristics of building materials
 - D. Types and characteristics of fire loads
 - E. Effects of energy conservation
 - III. Building Construction
 - A. Structural Members
 1. Definitions, descriptions and carrying capacities

- 2. Effects of loads
 - B. Structural design and construction methods
 - C. System Failures

- IV. Principle of Fire Resistance
 - A. Standards of construction
 - B. Fire intensity and duration
 - C. Theory vs. reality
- V. Fire Behavior VS. Building Construction
 - A. Flame spread
 - B. Smoke and fire containment
 - 1. construction and suppression systems
 - 2. HVAC systems
 - 3. Rack storage

- VI. Wood Construction
 - A. Definition and elements of construction
 - B. Types of construction
 - C. Fire stopping and fire retardants

- VII. Ordinary Construction
 - A. Definitions and elements of construction
 - B. Structural stability and fire barriers

- VIII. Steel Construction
 - A. Definitions and elements of construction
 - B. Structural stability, fire resistance and fire protection of elements

- IX. Concrete Construction
 - A. Definitions and elements of construction
 - B. Structural stability and fire resistance

- X. High Rise Construction
 - A. Early vs. modern construction
 - B. Vertical and horizontal extension of fire and smoke
 - C. Fire protection and suppression

- 15. Methods of Instruction:
 - A. Required reading
 - B. Lecture
 - C. Video
 - D. Field Trip
 - E. Small group discussion
 - F. Individual participation in class discussions

16. Assignments and Methods of Evaluation:

A.	Written Work, including essays	10 – 30%
B.	Quizzes	10 – 30%
C.	Midterm	20 – 30%
D.	Final Examination	30 - 40%
E.	Field Work	20 – 30%