

Health Wellness & Public Safety Division
FIRE SCIENCE COURSE SYLLABUS

COURSE

FS 112—Building Construction/3 Credit Hours/45 Theory Hours a Term

INSTRUCTOR'S NAME Mike Kavanaugh
TELEPHONE NUMBER 224-4207
FAX NUMBER 224-4120
E-MAIL ADDRESS kavanaugh@tvi.edu
OFFICE LOCATION T-151
OFFICE HOURS/DAYS By Appointment

REQUIRED TEXTBOOK(s)

Building Construction for the Fire Service, 3rd ed.1993, Francis Brannigan, National Fire Protection Association. ISBN# 0-87765-381-X

COURSE DESCRIPTION

(Prerequisites: ENG 100 or Accuplacer Sentence Skills Score of 85 or equivalent, MATH 100A or Accuplacer Elementary Algebra Score of 76 or equivalent, RDG 100 or Accuplacer Reading Score of 80 or equivalent, or department approval) Introduces building construction with emphasis on structural elements, construction materials, construction techniques, fire loading, fire resistance, fire spread and growth in buildings and fire department operations in various building types.

COURSE OBJECTIVES

❖ **Technical Objectives**

Students will be able to:

- The student will explain the importance of building construction knowledge to the fire fighter performance and effective fire ground operations.
- The student will identify the general principles of building construction.
- The student will identify the specific construction principles, fire behavior, and hazards of wood construction.
- The student will identify the specific construction principles, fire behavior, and hazards of ordinary structures.
- The student will identify the specific construction principles, fire behavior, hazards of garden apartment structures.
- The student will explain the principles of fire resistance including testing procedures, fire resistance rating, and performance issues.
- The student will identify the specific construction principles, fire behavior, and hazards of steel construction.
- The student will identify the specific construction principles, fire behavior, and hazards of concrete construction.

- The student will explain how fire growth and building construction methods and materials are related.
- The students will explain various methods for fire and smoke containment found in structures.
- The student will explain the special construction features used in high-rise buildings and their impact on fire behavior and fire suppression.
- The student will identify the various types of trusses and explain the associated hazards.
- The student will identify the basic types of sprinkler systems and their effect when used in various types of construction/
- The student will identify the special requirements and hazards of high rack storage systems.

❖ **Work Place Objectives**

Students will be able to:

- Develop problem-solving skills.
- Be responsible for attendance and timely arrival in the work environment.
- Define the importance of being a member of a team.
- Recognize the importance of integrity/honesty.
- Recognize the importance of working with men and women from diverse backgrounds.

COURSE REQUIREMENTS/CALENDAR

<u>TOPICS</u>	<u>READING ASSIGNMENTS</u>
Introduction to Building Construction	Chapter 1
Principles of Building Construction	Chapter 2
Exam I	
Wood Construction	Chapter 3
Ordinary Construction	Chapter 4
Garden Apartments and Other Protected Structures	Chapter 5
Exam II	
Principles of Fire Resistance	Chapter 6
Steel Construction	Chapter 7
Concrete Construction	Chapter 8
Exam III	
Fire Growth	Chapter 9
Smoke and Fire Containment	Chapter 10

High-rise Construction	Chapter 11
Truss Construction	Chapter 12
Sprinkler Systems	Chapter 13
Rack Storage Systems	Chapter 14

Final Exam

Key Train/WorkKeys®

The WorkKeys® Assessment and Key Train are required for successful completion of this class. Both are incorporated into the class and are part of your grade. Key Train is computer-based training and is available online.

Key Train:

Key Train is a comprehensive program to practice skills associated with ACT WorkKeys® Testing System. Using Key Train you can assess your potential WorkKeys® Score, review topics in each WorkKeys® skills area and practice problems similar to those an actual WorkKeys® assessment.

Skill Areas

Within KeyTrain you are required to complete one skill area. To complete the skill area you must complete a pretest as well as all lessons associated with this class. A check list is provided below. **The pretest is due within the first week of class; the lessons are to be completed by the tenth week of the semester.**

Applied Mathematics:

Pre-Test Lessons: 1 2 3 4 5 6 7

WorkKeys®

WorkKeys® is an exam that is accredited by ACT. The requirement for WorkKeys® is a test that is given by an approved administrator. For this class you will have one WorkKey® exam.

FINAL GRADE PROCESS

Successful completion of the course requires an overall average of 71 percent. An average of 71 percent is required for prerequisite and transfer credit. In addition to the class lectures outlined above, there will be guest speakers, videos, and local incidents may be reviewed. Attendance at lectures and participation in class discussions is mandatory. Students are encouraged to participate in fire service activities in the Albuquerque area.

ATTENDANCE POLICY:

Guidelines for attendance will follow those listed in the TVI Course Catalog. Attendance and participation in class activities is an important component of the course. Therefore, **one point will be deducted from the final grade for each class date missed.** It is the responsibility of the student to make-up all work missed as a result of absences. Except for emergency situations, make-up examination will be given if pre-arranged with the instructor before the absence. Any questions on attendance should be directed to the instructor for clarification.

GRADING SCALE:

A	91-100	F	Failing
B	81-90	I	Incomplete
C	71-80	AU	Audit
D	61-70	W	Withdrew

Key Train/WorkKeys® 20% of the final grade.

The assignments and building construction project will constitute 30% of the final grade.

Unit examinations will constitute 20% of the final grade

The Final Examination will constitute 30% of the final grade.

DIRECTOR'S APPROVAL

-----ON FILE-----

DATE

Fire Science 112 Building Construction Course Project

The course project for FS-112 is a detailed report on a building outlining the construction features and predicting fire behavior. (Single family residence may not be used for this report) The report must be typed, single spaced with 1" margins. The report should have a cover sheet indicating the student's name, class, date, building name, address, occupancy, and type of construction. The report should be a minimum of five pagers in length and follow correct grammar and spelling etiquette. The evaluation of the report will be based upon presentation and content. The report should contain the following information as a minimum:

- The building address and occupancy characteristics
- A floor plan and site plan of the building identifying major components
- A complete description of the building's construction material and design
- Predicted fire behavior in the building
- Any special features
- Photographs and drawings may be submitted with the report (encouraged)
- Analysis of the building's strengths and weaknesses

Recommendations: A building that is under construction will allow a more in-depth study of its features. Remember to obtain permission to enter a construction site and wear the necessary safety equipment. If a building under construction is used, ensure the building will be mostly complete before the due date of the project.

Have fun, this should be an enjoyable experience.

If you have any questions, please refer them to the instructor or building personnel.

Due Date: