

Imperial Valley College
Fire Technology 102 – Fire Protection Equipment and Systems
Course Syllabus

Course

FT 102 – Fire Protection Equipment and Systems

CRN: 10530

Instructor

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Course Description

This course provides information relating to the features of design and operation of fire alarm systems, water-based fire suppression systems, special hazard fire suppression systems, water supply for fire protection and portable fire extinguishers.

Course Objectives

The students will:

1. Identify and describe various types and uses of fire protection systems.
2. Describe the basic elements of a public water supply system as it relates to fire protection.

Outcomes:

1. Explain the benefits of fire protection systems in various types of structures.
2. Describe the basic elements of a public water supply system including sources, distribution networks, piping and hydrants.
3. Explain why water is a commonly used extinguishing agent.
4. Identify the different types and components of sprinkler, standpipe and foam systems.
5. Review residential and commercial sprinkler legislation.
6. Identify the different types of non-water based fire suppression systems.
7. Explain the basic components of a fire alarm system.
8. Identify the different types of detectors and explain how they detect fire.
9. Describe the hazards of smoke and list the four factors that can influence smoke movement in a building.
10. Discuss the appropriate application of fire protection systems.
11. Explain the operation and appropriate application for the different types of portable fire protection systems.

Required Textbooks

Fire Detection and Suppression Systems (fourth edition) IFSTA ISBN 978-087939398-4

Grading

Your course grade will be based on the following activities:

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|----------------------|-------------------|---------------|
| • Participation | 80 points | 12.5% |
| • Quizzes | 80 points | 12.5% |
| • Presentation | 80 points | 12.5% |
| • Written Assignment | 100 points | 15.625% |
| • Midterm Exam | 100 points | 15.625% |
| • <u>Final Exam</u> | <u>200 points</u> | <u>31.25%</u> |
| • TOTAL | 640 points | 100% |

Participation

- Active participation will enhance the course delivery. Every student is expected to be prepared to discuss the topics covered.

Quizzes

- A quiz shall be administered for each class session chapter.
- Quizzes shall be due at 20 minutes after start of class. Those arriving late will not be given extra time.
- Ten (10) points possible for each quiz.

Presentation

- Each student will present a topic as assigned by the instructor. The presentation time frame will be 10 minutes. Details for completing the assignment will be provided.

Written Assignment

- A three to five page paper will be required to be completed by the 11th class meeting. Details for completing the assignment will be provided.

Final Exam

- A final exam will be given that covers the stated course objectives.

Your final grade will be determined based on the following percentages:

- A 100 – 90
- B 89 – 80
- C 79 – 70
- D 69 – 60
- F 59 – 0

Grading Procedures

The following definitions apply to grades assigned for this course:

- A Performance of the student has been at the highest level, showing sustained excellence in meeting all course requirements and exhibiting an unusual degree of intellectual initiative.

- B Performance of the student has been at a high level, showing consistent and effective achievement in meeting course requirements.
- C Performance of the student has been at an adequate level, meeting the basic requirements of the course.
- D Performance of the student has been less than adequate, meeting only minimum course requirements.
- F Performance of the student has been such that minimal course requirements have not been met. A final grade of “F” may be assigned as the result of cheating or plagiarism.

You are responsible for knowing what is required of you in class. All work assigned must be submitted on the assigned due dates. Late assignments will not be accepted.

Students with disabilities at Imperial Valley College are eligible for educational accommodations related to their disability under Section 504 of the Rehabilitation Act and the Americans with Disabilities Act. Supportive services are provided on an individual basis as students’ needs are identified. These services are offered to provide disabled students with the same opportunities for success that non-disabled students have. If you would like further information regarding these services, please call or visit the Disabled Student Programs and Services in the Mel Wendrick Access Center Building (2100) or call 760-355-6312, or 760-355-4174 (TDD).

| Date | Time | Subject |
|-------------|-------------|---|
| 8/19/13 | 1830-2140 | Fire Protection Equipment and Systems <ul style="list-style-type: none"> • Introductions • Syllabus Review • Textbook/Handout Review • Fire and Emergency Service Higher Education I. Introduction to Fire Protection Systems <ul style="list-style-type: none"> A. Role of Fire Protection Systems in Protecting Life |
| 8/26/13 | 1830-2140 | B. Different Types of Fire Protection Systems C. Role of Codes and Standards II. Water Supply Systems for Fire Protection Systems <ul style="list-style-type: none"> A. Sources of fire protection water supply B. Distribution networks C. Piping D. Hydrants E. Utility company interface with fire department |
| 9/9/13 | 1830-2140 | III. Water Based Fire Suppression Systems <ul style="list-style-type: none"> A. Properties of Water <ul style="list-style-type: none"> 1. Water as an Effective Extinguishing Agent 2. How water extinguishes fire B. Sprinkler systems <ul style="list-style-type: none"> 1. Types of systems and applications 2. Types of sprinklers and applications 3. Piping, valves, hanger, and alarm devices |

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|----------|-----------|---|
| 9/16/13 | 1830-2140 | <ul style="list-style-type: none"> 4. Fire Department operations in buildings with sprinkler systems C. Residential Sprinkler Systems D. Standpipe Systems <ul style="list-style-type: none"> 1. Types and applications 2. Fire Department operation in buildings with standpipes |
| 9/23/13 | 1830-2140 | Field Study- location TBA |
| 9/30/13 | 1830-2140 | <ul style="list-style-type: none"> E. Foam systems F. Water mist systems G. Fire Pumps <ul style="list-style-type: none"> 1. Types 2. Components 3. Operation 4. Fire pump curves |
| 10/7/13 | 1830-2140 | Midterm |
| 10/14/13 | 1830-2140 | <ul style="list-style-type: none"> IV. Non-Water-Based Fire Suppression Systems <ul style="list-style-type: none"> A. Carbon dioxide systems <ul style="list-style-type: none"> 1. Application 2. Extinguishing properties 3. System components B. Halogenated Systems <ul style="list-style-type: none"> 1. Halon 1301 and the environment 2. Halon alternatives 3. Extinguishing properties 4. System components C. Dry/Wet chemical extinguishing systems <ul style="list-style-type: none"> 1. Extinguishing properties 2. Applications 3. UL 300 |
| 10/21/13 | 1830-2140 | <ul style="list-style-type: none"> V. Fire Alarm Systems <ul style="list-style-type: none"> A. Components B. Types of Fire Alarm Systems C. Detectors D. Audible/Visual devices E. Alarm monitoring F. Testing and maintenance of fire alarm systems |
| 10/28/13 | 1830-2140 | Field Study- Location TBA |
| 11/4/13 | 1830-2140 | Project Presentations |

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| 11/18/13 | 1830-2140 | Smoke Management Systems A. Hazards of smoke B. Smoke movement in buildings C. Types of smoke management systems D. Firefighter operations in buildings with smoke management systems |
| 11/25/13 | 1830-2140 | VII. Portable Fire Extinguishers A. Types and applications B. Selection C. Placement D. Maintenance E. Operations Fire protection system selection, design, placement based on occupancy classification |
| 12/2/13 | 1830-2140 | Final Exam |

Rules & Guidelines

1. Three (3) absences result in an automatic drop from the course.
2. You are responsible for dropping yourself from the course. Do not depend on the instructor to do it for you. The result of failing to drop a course you stop attending is an 'F', not an 'Incomplete'.
3. Do not be late. Three (3) tardies equal one (1) absence.
4. Turn cell phones to vibrate, silent, or off. Walk out of classroom to answer, but only answer if it is vitally important.
5. You are responsible for knowing all the assignments in the syllabus.
6. If you miss a test, you have until the following class to take it or you will receive a zero (0) for that test.
7. If you do not submit an assignment on time, you have until the next class meeting to do so at ½ credit. No assignments shall be accepted beyond the last day of class.
8. Tests will be given at the beginning of each class and 20 minutes will be allowed for completion. If you arrive late you will still have to meet the 20 minutes post-class start time to complete the test.

Written Assignment

A written assignment is due at the start of class on 10/31/12. You will be required to complete a 3-5 page paper on any of the following topics:

- Fire Chemistry
- Combustion Processes
- Extinguishing Agents
- Fire Fighting Tactics and Strategies
- Special Concerns in Firefighting
- High-Rise Building Fires
- Wildland Fires
- Transportation Fires and Related Safety Issues
- Hazardous Materials and Warning Systems.

These topics can be expanded upon or other areas of interest that fit into these topics can be chosen. We will review your topic during the class meeting of 9/12 so be prepared to discuss the ideas you have for your paper. You will be given guidance and feedback at this time.