

### Basic Course Information

Semester	<b>Spring 2017</b>	Instructor Name	<b>Kenneth Herbert</b>
Course Title & #	<b>Fire Protection Equipment and Systems</b>	Email	<b>kenneth.herbert@imperial.edu</b>
CRN #	<b>CRN: 20888</b>	Webpage (optional)	
Room	<b>411</b>	Office	<b>By appointment</b>
Class Dates	<b>12 Feb 2018- 8 Jun 2018</b>	Office Hours	<b>By appointment</b>
Class Days	<b>Tuesday</b>	Office Phone #	<b>760-545-4517</b>
Class Times	<b>6:00-9:10pm</b>	Office contact if student will be out or emergency	<b>Message or text to 760-545-4517</b>
Units	<b>3</b>		

### Course Description

This course provides information relating to the features of design and operation of fire detection and alarm systems, heat and smoke control systems, special protection and sprinkler systems, water supply for fire protection, and portable fire extinguishers.

This is one of six CORE courses required for an associate degree in Fire Technology. (CSU)

### Student Learning Outcomes

Upon course completion, the successful student will have acquired new skills, knowledge, and or aptitudes as demonstrated by being able to:

1. Analyze the relationship between fire prevention efforts and the reduction of life and property loss. (ILO2, ILO5)
2. Draw and describe the basic elements of a public water supply system including sources, distribution networks, piping and hydrants. (ILO2, ILO3)
3. Identify the components of sprinkler, standpipe and foam systems. (ILO2, ILO4)
4. Identify five different types of non-water based fire suppression systems and describe how these systems extinguish fire (ILO2, ILO4)
5. Describe fire protection systems in various structures and the history of sprinkler ordinances and legislation. (ILO2)
6. Describe the components of a fire alarm system and different types of detectors and
7. Explain the operation and application of portable fire extinguishing systems. (ILO2, ILO3)
8. Identify and analyze the causes of line of duty firefighter deaths and training and research into the reduction of risk and accidents. (ILO2, ILO3, ILO4)

### Course Objectives

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

1. Demonstrate a working knowledge of fire cause and effect, including hazards of materials, building construction, and heat and smoke control with an overall exam score of 70%.
2. Demonstrate a working knowledge of portable fire extinguishers, including description and classification, effectiveness rating, distribution, installation, and the application, operation,

- inspection, and maintenance of various types with an overall exam score of 70%.
3. Demonstrate a working knowledge of the characteristic of protection systems and equipment for special hazards with an overall score of 70%.
  4. Demonstrate a working knowledge of public and private water supplies, equipment, and services for fire protection with an overall exam score of 70%.
  5. Demonstrate a working knowledge of sprinkler protection, including types of systems, installation requirements, hazards and installation conditions, exposure protection, plans review procedure, inspection and testing procedures, and residential systems with an overall exam score of 70%.
  6. Demonstrate a working knowledge of protective signaling systems with an overall exam score of 70%.
  7. Demonstrate a working knowledge of standpipe systems with an overall exam score of 70%.
  8. Demonstrate a working knowledge of heat and smoke control systems with an overall exam score of 70%.
  9. Participate in the following and receive an overall score of 70%: Within a given scenario, analyze, prepare, and present a fire protection system that demonstrates complete coverage with regards to sprinkler, hood and duct, and special application protection of the following: A). Residential B). Commercial C). Industrial D). School

### Textbooks & Other Resources or Links

*Fire Protection Systems* 1st. IFSTA ISBN: 978-1401862626.  
Private Fire Protection and Detection, IFSTA

### Course Requirements and Instructional Methods

In addition to in course work the student must complete a written assignment and prepare a presentation. Blackboard will be utilized for all test, quizzes, and to post supplemental information. Students must have access to Blackboard.

Out of Class Assignments: The Department of Education policy states that one (1) credit hour is the amount of student work that reasonably approximates not less than one hour of class time and two (2) hours of out-of-class time per week over the span of a semester. WASC has adopted a similar requirement.

### Course Grading Based on Course Objectives

Your course grade will be based on the following activities:

• 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 prior to the start of the next class. Late quizzes will not receive credit.
- 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 12<sup>th</sup> 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

### Attendance

- A student who fails to attend the first meeting of a class or does not complete the first mandatory activity of an online class will be dropped by the instructor as of the first official meeting of that class. Should readmission be desired, the student's status will be the same as that of any other student who desires to add a class. It is the student's responsibility to drop or officially withdraw from the class. See [General Catalog](#) for details.
- Regular attendance in all classes is expected of all students. A student whose continuous, unexcused absences exceed the number of hours the class is scheduled to meet per week may be dropped. For online courses, students who fail to complete required activities for two consecutive weeks may be considered to have excessive absences and may be dropped.
- Absences attributed to the representation of the college at officially approved events (conferences, contests, and field trips) will be counted as 'excused' absences.

### Classroom Etiquette

- **Electronic Devices:** Cell phones and electronic devices must be turned off and put away during class, unless otherwise directed by the instructor.
- **Food and Drink** are prohibited in all classrooms. Water bottles with lids/caps are the only exception. Additional restrictions will apply in labs. Please comply as directed by the instructor.
- **Disruptive Students:** Students who disrupt or interfere with a class may be sent out of the room and told to meet with the Campus Disciplinary Officer before returning to continue with coursework. Disciplinary procedures will be followed as outlined in the [General Catalog](#).
- **Children in the classroom:** Due to college rules and state laws, only students enrolled in the class may attend; children are not allowed.

## Online Netiquette

- What is netiquette? Netiquette is internet manners, online etiquette, and digital etiquette all rolled into one word. Basically, netiquette is a set of rules for behaving properly online.
- Students are to comply with the following rules of netiquette: (1) identify yourself, (2) include a subject line, (3) avoid sarcasm, (4) respect others' opinions and privacy, (5) acknowledge and return messages promptly, (6) copy with caution, (7) do not spam or junk mail, (8) be concise, (9) use appropriate language, (10) use appropriate emoticons (emotional icons) to help convey meaning, and (11) use appropriate intensifiers to help convey meaning [do not use ALL CAPS or multiple exclamation marks (!!!!)].

## Academic Honesty

Academic honesty in the advancement of knowledge requires that all students and instructors respect the integrity of one another's work and recognize the important of acknowledging and safeguarding intellectual property.

There are many different forms of academic dishonesty. The following kinds of honesty violations and their definitions are not meant to be exhaustive. Rather, they are intended to serve as examples of unacceptable academic conduct.

- Plagiarism is taking and presenting as one's own the writings or ideas of others, without citing the source. You should understand the concept of plagiarism and keep it in mind when taking exams and preparing written materials. If you do not understand how to "cite a source" correctly, you must ask for help.
- Cheating is defined as fraud, deceit, or dishonesty in an academic assignment, or using or attempting to use materials, or assisting others in using materials that are prohibited or inappropriate in the context of the academic assignment in question.

Anyone caught cheating or plagiarizing will receive a zero (0) on the exam or assignment, and the instructor may report the incident to the Campus Disciplinary Officer, who may place related documentation in a file. Repeated acts of cheating may result in an F in the course and/or disciplinary action. Please refer to the [General Catalog](#) for more information on academic dishonesty or other misconduct. Acts of cheating include, but are not limited to, the following: (a) plagiarism; (b) copying or attempting to copy from others during an examination or on an assignment; (c) communicating test information with another person during an examination; (d) allowing others to do an assignment or portion of an assignment; (e) using a commercial term paper service.

## Additional Student Services

Imperial Valley College offers various services in support of student success. The following are some of the services available for students. Please speak to your instructor about additional services which may be available.

- CANVAS LMS. Canvas is Imperial Valley College's main Learning Management System. To log onto Canvas, use this link: [Canvas Student Login](#). The [Canvas Student Guides Site](#) provides a variety of

support available to students 24 hours per day. Additionally, a 24/7 Canvas Support Hotline is available for students to use: 877-893-9853.

- **Learning Services.** There are several learning labs on campus to assist students through the use of computers and tutors. Please consult your [Campus Map](#) for the [Math Lab](#); [Reading, Writing & Language Labs](#); and the [Study Skills Center](#).
- **Library Services.** There is more to our library than just books. You have access to tutors in the [Study Skills Center](#), study rooms for small groups, and online access to a wealth of resources.

### **Disabled Student Programs and Services (DSPS)**

Any student with a documented disability who may need educational accommodations should notify the instructor or the [Disabled Student Programs and Services \(DSP&S\)](#) office as soon as possible. The DSP&S office is located in Building 2100, telephone 760-355-6313. Please contact them if you feel you need to be evaluated for educational accommodations.

### **Student Counseling and Health Services**

Students have counseling and health services available, provided by the pre-paid Student Health Fee.

- **Student Health Center.** A Student Health Nurse is available on campus. In addition, Pioneers Memorial Healthcare District provide basic health services for students, such as first aid and care for minor illnesses. Contact the IVC [Student Health Center](#) at 760-355-6128 in Room 1536 for more information.
- **Mental Health Counseling Services.** Short-term individual, couples, family and group counseling services are available for currently enrolled students. Services are provided in a confidential, supportive, and culturally sensitive environment. Please contact the IVC Mental Health Counseling Services at 760-355-6310 or in the building 1536 for appointments or more information..

### **Veteran's Center**

The mission of the [IVC Military and Veteran Success Center](#) is to provide a holistic approach to serving military/veteran students on three key areas: 1) Academics, 2) Health and Wellness, and 3) Camaraderie; to serve as a central hub that connects military/veteran students, as well as their families, to campus and community resources. Their goal is to ensure a seamless transition from military to civilian life. The Center is located in Building 600 (Office 624), telephone 760-355-6141.

### **Extended Opportunity Program and Services (EOPS)**

The Extended Opportunity Program and Services (EOPS) offers services such as priority registration, personal/academic counseling, tutoring, book vouchers, and community referrals to qualifying low-income students. EOPS is composed of a group of professionals ready to assist you with the resolution of both academic and personal issues. Our staff is set up to understand the problems of our culturally diverse population and strives to meet student needs that are as diverse as our student population.

Also under the umbrella of EOPS our CARE (Cooperative Agency Resources for Education) Program for single parents is specifically designed to provide support services and assist with the resolution of issues that are particular to this population. Students that are single parents receiving TANF/Cash Aid assistance may qualify for our CARE program, for additional information on CARE please contact Lourdes Mercado, 760-355- 6448, [lourdes.mercado@imperial.edu](mailto:lourdes.mercado@imperial.edu).

EOPS provides additional support and services that may identify with one of the following experiences:

- Current and former foster youth students that were in the foster care system at any point in their lives
- Students experiencing homelessness
- Formerly incarcerated students

To apply for EOPS and for additional information on EOPS services, please contact Alexis Ayala, 760-355-5713, [alexis.ayala@imperial.edu](mailto:alexis.ayala@imperial.edu).

### **Student Equity Program**

- The Student Equity Program strives to improve Imperial Valley College’s success outcomes, particularly for students who have been historically underrepresented and underserved. The college identifies strategies to monitor and address equity issues, making efforts to mitigate any disproportionate impact on student success and achievement. Our institutional data provides insight surrounding student populations who historically, are not fully represented. Student Equity addresses disparities and/or disproportionate impact in student success across disaggregated student equity groups including gender, ethnicity, disability status, financial need, Veterans, foster youth, homelessness, and formerly incarcerated students. The Student Equity Program provides direct supportive services to empower students experiencing insecurities related to food, housing, transportation, textbooks, and shower access. We recognize that students who struggle meeting their basic needs are also at an academic and economic disadvantage, creating barriers to academic success and wellness. We strive to remove barriers that affect IVC students’ access to education, degree and certificate completion, successful completion of developmental math and English courses, and the ability to transfer to a university. Contact: 760.355.5736 or 760.355.5733 Building 100.
- The Student Equity Program also houses IVC’s Homeless Liaison, who provides direct services, campus, and community referrals to students experiencing homelessness as defined by the McKinney-Vento Act. Contact: 760.355.5736 Building 100.

### **Student Rights and Responsibilities**

Students have the right to experience a positive learning environment and to due process of law. For more information regarding student rights and responsibilities, please refer to the IVC [General Catalog](#).

## Information Literacy

Imperial Valley College is dedicated to helping students skillfully discover, evaluate, and use information from all sources. The IVC [Library Department](#) provides numerous [Information Literacy Tutorials](#) to assist students in this endeavor.

## Anticipated Class Schedule/Calendar

Date	Time	Subject
2/13	6-9:10pm	<ul style="list-style-type: none"> <li>• Introductions</li> <li>• Syllabus Review</li> <li>• Text book and handouts</li> <li>• Canvas access for quizzes and assignments</li> </ul> <p>1) Introduction to Fire Protections Systems</p> <p>a) Role of Fire Protection Systems in Protecting Life</p>
2/20	6-9:10pm	<p>b) Different types of systems</p> <p>c) Role of codes and standards</p> <p>2) Water supply systems for fire protection</p> <p>a) Sources of fire protection water supply</p> <p>b) Distribution networks</p> <p>c) Piping</p> <p>d) Hydrants</p> <p>e) Utility company interface with FD</p>
2/27	6-9:10pm	<p>3) Water Based Fire Suppression Systems</p> <p>a) Properties of water</p> <p>i) As extinguishing agent</p> <p>ii) How water extinguishes fire</p> <p>b) Sprinkler systems</p> <p>i) Types of systems and applications</p> <p>ii) Types of sprinklers and applications</p> <p>iii) Piping, valves, hangers, and alarm devices</p>
3/6	6-9:10pm	<p>iv) Fire Department Operations in buildings with sprinkler systems</p> <p>c) Residential sprinkler systems</p>
3/13	6-9:10pm	<p>d) Standpipe systems</p> <p>i) Types and applications</p> <p>ii) Fire Department operations in buildings with standpipes</p>
3/20	6-9:10pm	<p>e) Foam systems</p> <p>f) Water mist systems</p> <p>g) Fire pumps</p>

		<ul style="list-style-type: none"> <li>i) Types</li> <li>ii) Components</li> <li>iii) Operation</li> <li>iv) Fire pump curves</li> </ul>
<b>3/27</b>	<b>6-9:10pm</b>	<b>4) Non-water based fire suppression systems</b> <ul style="list-style-type: none"> <li>a) Carbon dioxide systems <ul style="list-style-type: none"> <li>i) Application</li> <li>ii) Extinguishing properties</li> <li>iii) System components</li> </ul> </li> <li>b) Halogenated systems <ul style="list-style-type: none"> <li>i) Halon 1301 and the environment</li> <li>ii) Halon alternatives</li> <li>iii) Extinguishing properties</li> <li>iv) System components</li> </ul> </li> <li>c) Dry/wet chemical extinguishing systems <ul style="list-style-type: none"> <li>i) Extinguishing properties</li> <li>ii) Applications</li> <li>iii) UL 300</li> </ul> </li> </ul>
<b>4/3</b>	<b>6-9:10pm</b>	<b>Spring Break</b>
<b>4/10</b>	<b>6-9:10pm</b>	<b>5) Fire alarm systems</b> <ul style="list-style-type: none"> <li>a) Components</li> <li>b) Types of fire alarm systems</li> <li>c) Detectors</li> <li>d) Audible and visual devices</li> <li>e) Alarm monitoring</li> <li>f) Testing and maintenance of fire alarm systems</li> </ul>
<b>4/17</b>	<b>No class</b>	<b>Midterm</b>
<b>4/24</b>	<b>6-9:10pm</b>	<b>Field Study- Location TBD</b>
<b>5/1</b>	<b>6-9:10pm</b>	<b>Written assignment due</b> <ul style="list-style-type: none"> <li><b>6) Smoke management systems</b> <ul style="list-style-type: none"> <li>a) Hazards of smoke</li> <li>b) Smoke movement in buildings</li> <li>c) Types of smoke management systems</li> </ul> </li> </ul>
<b>5/8</b>	<b>6-9:10pm</b>	<b>Project Presentations</b>



		<b>d) Firefighter operations in buildings with smoke management systems</b>
<b>5/15</b>	<b>6-9:10pm</b>	<b>Project Presentations</b> <b>7) Portable fire extinguishers</b> <b>a) Types and applications</b> <b>b) Selection</b> <b>c) placement</b>
<b>5/22</b>	<b>6-9:10pm</b>	<b>Project Presentations</b> <b>d) maintenance</b> <b>e) operations</b>
<b>5/29</b>	<b>6-9:10pm</b>	<b>Project presentations (late-last chance to present)</b> <b>8) Fire Protection system selection, design, placement based on occupancy classification</b> <b>Final Review (final opens)</b>
<b>6/5</b>	<b>6-9:10pm</b>	<b>Final-last day to take final is 6/5(midnight)</b>

**\*\*\*Tentative, subject to change without prior notice\*\*\***