

Private Fire Protection Systems 1

Course Title	Private Fire Protection Systems 1
Course Number	ATPC1540
Prerequisite (s)	None
Revision Date	August 19, 2018
College Credit Recommendation	This course has a college recommendation of 3 credits, 45 contact hours
Continuing Education Units (CEU's)	45 CEUs for Firesafety Inspector renewal
Class Days/Time	Online continuing, join anytime
Instructional Supervisor	Ben Rigney (info@jbfires.com)
Class Location	JBFires.com online
Course Description	This is a study of Private Fire Protection and Detection Systems such as sprinkler and standpipe systems, chemical extinguishing systems, and detection systems and devices. Each system is discussed as to its need, construction, preventative maintenance, and individual uses.
Student Learning Outcomes	<p>After the successful completion of this course, the student will be able to do the following:</p> <ol style="list-style-type: none"> 1. Understand fire behavior and its relationship to detection and extinguishment. 2. Describe the development of codes and their relationship to fire protection. 3. Identify the water supply components of a fire protection system. 4. Describe the components and codes relating to standpipes and related hose systems. 5. Describe the components and codes relating to automatic fire sprinkler systems. 6. Describe the components and codes relating to specialized water based fire protection systems. 7. Recognize fire alarm system components and their functions. 8. Identify the requirements for various types of alarm and detection systems. 9. Compare and contrast the components of wet and dry chemical extinguishing systems. 10. Describe gaseous agent extinguishing systems. 11. Describe the various types of portable extinguishers and their uses and operation. 12. Explain the purpose of smoke control and management systems as it relates to life safety. 13. Describe the relationship between property security, emergency response, and fire protection systems.

	14. Discuss new technologies in the field of protection systems.
Required Textbook	Fire Protection Systems; 2 nd Edition, A Maurice Jones Jr. ISBN # 978-1284294170
Required Material	Computer with internet access, textbook
Method of Instruction	Online (Must be logged into the course for a minimum of 40 Hours. The other 5 hours will be utilized for offline research.)
Grading	Passing 70%
Certification(s)	One of six required courses for Fire Officer 2 certification and one of five required courses for Firesafety Inspector I certification
Attendance Policy	Self paced online course to be completed within 1 month. If unable to continue for valid reason, contact instructor for course to be placed on hold or restarted at a later date. No refunds will be given for non completion. All courses completed by the end of the month will receive their final score and certificate by the 15 th of the following month.
Academic Integrity	Academic integrity is crucial to the learning community and indicates respect for the college, the instructor, the course, your classmates, and yourself. Any violation of this trust, including but not limited to cheating, plagiarism, collusion, or using or having any content of an unadministered test, will result in immediate dismissal from the course.
Students with Disabilities	Any student who has a permanent or temporary disability that may require a reasonable accommodation to participate in the course must present documentation of the disability and requested accommodation no later than the beginning of the course.
Enabling Objectives	<p>Chapter 1: Basics of Fire Behavior</p> <ol style="list-style-type: none"> 1. Describe the difference between fire and combustion. 2. Identify and describe the elements of the fire triangle and fire tetrahedron. 3. List and describe the different types of fire. 4. List and describe the different stages of fire. 5. List and describe forms of heat transfer. 6. List and describe methods used to extinguish fires. 7. List and describe the classes of fire and their relationship to extinguishing agents. <p>Chapter 2: Fire Protection Systems and the Model Code Process</p> <ol style="list-style-type: none"> 1. Define the terms code and model code. 2. Name the two most prominent model code organizations. 3. Describe the International Code Council (ICC) model code development process. 4. Describe the National Fire Protection Association (NFPA) model code development process. 5. Define the terms referenced standard and code amendment.

6. Describe the advantages to governments and organizations that adopt model codes.
7. List the two most important code-related conditions that determine the installation requirements for fire protection systems.

Chapter 3: Fire Alarm System Components and Functions

1. Describe a fire alarm system.
2. List five functions fire alarm systems provide.
3. List and describe the three types of fire alarm signals.
4. Discuss the characteristics of conventional fire alarm system technology.
5. Discuss the characteristics of addressable fire alarm system technology.
6. Discuss the functions of a fire alarm control panel and annunciation panel.
7. List and describe the different components that make up a fire alarm system.
8. List and describe devices that interface with a fire alarm system to supervise the condition of other fire protection systems.

Chapter 4: Types of Fire Alarm and Detection Systems

1. List and discuss the different fire alarm system classifications.
2. List and discuss the interface capabilities between fire alarm systems and other building fire protection and life safety systems.
3. List and discuss the different conditions, situations, and circumstances used to determine manual fire alarm and automatic detection system installation requirements.
4. Describe the different acceptance and periodic inspections, tests, and maintenance activities required for fire alarm systems.

Chapter 5: Water Supplies for Fire Protection Systems

1. Define the terms *pressure*, *flow*, and *duration* as they relate to the movement of water.
2. Identify and describe the components of a water supply and distribution network.
3. Discuss the difference between a municipal/public water system and a private water system.
4. Describe how pumped, gravity, and combined supply systems operate.
5. Define friction loss and discuss how it affects water flow.
6. Define the terms *static pressure* and *residual pressure*.
7. List and discuss the characteristics of the two types of NFPA-approved stationary fire pumps.
8. Define the terms *churn*, *rated performance*, and *peak performance* in relation to stationary fire pump testing.

Chapter 6: Standpipe and Hose Systems

1. List and describe the different types of standpipes and the different standpipe classifications.
2. List and describe the different standpipe system components.
3. State when and where standpipes and hose systems are required in buildings.
4. Reference the design and installation standards that apply to standpipes.
5. State the minimum standpipe system design pressure and flow requirements.
6. Reference the inspection, testing, and maintenance requirements.
7. Recognize the possible impairments to standpipe systems.

Chapter 7: Automatic Fire Sprinkler Systems

1. Describe an automatic fire sprinkler system.
2. Discuss the myths and realities associated with automatic fire sprinkler system operation.
3. List and describe the different components that make up an automatic fire sprinkler system.
4. List and describe the different types of automatic fire sprinkler system heads.
5. Describe the different types of automatic fire sprinkler systems and the best applications for those systems.
6. State the factors that determine requirements to install automatic fire sprinkler systems.
7. Discuss the design concepts behind automatic fire sprinkler systems.
8. List and describe different occupancy and commodity classifications.
9. Discuss the inspection and testing requirements for automatic fire sprinkler systems.

Chapter 8: Specialized Water-Based Fire Protection Systems

1. State three reasons why, under certain circumstances, the installation of specialized types of water-based fire protection systems is a better choice than standard automatic fire sprinkler systems.
2. Discuss the characteristics and applications for fixed foam systems.
3. Discuss the characteristics and applications for foam-water sprinkler and foam-water spray systems.
4. Discuss the characteristics and applications for water spray fixed systems.
5. Discuss the characteristics and applications for water mist systems.
6. Discuss the inspection and test requirements for acceptance of specialized water-based fire protection systems.

7. Recognize the possible impairments to specialized water-based fire protection systems.

Chapter 9: Fixed Wet and Dry Chemical Extinguishing Systems

1. Describe the characteristics of fixed wet and dry chemical extinguishing systems.
2. Discuss the hazards fixed wet and dry chemical extinguishing systems most likely protect.
3. Describe how fixed wet and dry chemical agents control and extinguish fire.
4. Describe a pre-engineered system.
5. List the major components that make up fixed wet and dry chemical extinguishing systems.
6. Describe the types of fixed wet and dry chemical extinguishing systems.
7. Discuss the various acceptance and periodic inspection, testing, and maintenance requirements for fixed wet and dry chemical extinguishing systems.

Chapter 10: Gaseous Agent Extinguishing Systems

1. Describe the physical characteristics of carbon dioxide.
2. Describe the four application methods for delivery of carbon dioxide.
3. Describe the physical characteristics of halogenated hydrocarbons (halons).
4. Explain the halon numbering identification system.
5. Describe the physical characteristics of halocarbons and inert gases (clean agents).
6. Discuss the two categories of clean agents.
7. Explain the difference between the two types of aerosol generators.
8. Discuss the various acceptance and periodic inspections and tests that are required to certify and maintain gaseous agent extinguishing systems.

Chapter 11: Portable Fire Extinguishers

1. Discuss the fire extinguisher classification system.
2. List the different extinguishing agents and their applications.
3. Discuss the fire extinguisher rating system and identify which classifications of extinguishers it applies.
4. Explain why a certain extinguisher classification requires a conductivity test.
5. Describe the different types of fire extinguishers and how they operate.
6. Explain the acronym PASS in relation to fire extinguisher operation.
7. Discuss the inspection, testing, and maintenance procedures for portable fire extinguishers.

Chapter 12: Smoke Control and Management Systems

	<ol style="list-style-type: none"> 1. Define the terms <i>smoke control</i> and <i>smoke management</i>. 2. State the design goals for smoke control and smoke management systems. 3. Name the three general methods used to control smoke movement. 4. Describe the four pressure differential methods used to control smoke. 5. Describe five design requirements or operational characteristics of smoke control systems. 6. List the different life safety and fire protection systems that interface with smoke control systems and describe how they interact. 7. Discuss the importance of the acceptance testing and annual retesting of smoke control and management systems. <p style="color: red;">Chapter 13: Property Security, Emergency Response, and Fire Protection Systems</p> <ol style="list-style-type: none"> 1. Identify and describe the three components of a means of egress. 2. List and describe the override requirements for exit stairway doors in high-rise buildings. 3. List and describe the requirements for delayed egress locks. 4. List and describe the requirements for access-controlled egress doors. 5. List and describe the requirements for electrically controlled and electromagnetically locked egress doors. 6. Describe the purpose of an emergency building entrance system. 7. List what is typically found inside an emergency building entrance system. 8. List and describe the different methods of property access through security gates and vehicle barriers.
<p>Practical Applications</p>	<p>Final project: Go out into your fire district and locate three types of fire sprinkler systems. Take pictures of the system and identify their components. You will also be required to locate one fire alarm control panel. Take a picture of this alarm and list the steps of how to silence this panel.</p> <p>(If you are not presently working within a fire district, choose a building in your community.)</p>
<p>Class Participation</p>	<p>Your class participation grade will consist of 1 discussion post along with 1 response to your classmates for each lesson. The recommended wordcount is 100 words for your initial post and 20 words for each response. Your grade will be based off of the quality of your posts.</p>
<p>Grading Scale</p>	<p>Quizzes 20% Class participation 20% Course project 20% Midterm exam 20%</p>

	Final exam 20%
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