

## Fire Technology Internship (Grades 10, 11, 12)



Industry Sector: [Public Services](#)

Pathway: Emergency Response

The Fire Technology Internship is a Career Technical Education (CTE) pathway that is designed to teach students the skills needed in the public service sector, with an emphasis on the fire service and emergency medical response. The Fire Technology internship is designed and structured to replicate a full time paid fire academy. Over the course of three years, students will master fire behavior, fire suppression, fire fighting techniques, and emergency medical response. Students will have the opportunity to gain an in-depth knowledge of all the skills needed in the emergency response field. Students will test on academics as well as manipulative skills to further ensure the mastery of the course content. Upon completion of the program, students graduate with certifications which make them qualified for positions in the emergency response field, ranging from volunteer, part-time and full-time paid positions.

**Last Revised:** August 11, 2017

Program Information	CTE Certification Elements
<p><b>Industries / Pathways:</b> Public Services Industry, Emergency Response Pathway</p> <p><b>K-12 Subjects:</b> Physical/Health Education</p> <p><b>Grade Levels:</b> 10, 11, 12</p> <p><b>CSU/UC Approval:</b> No</p> <p><b>Community College Course:</b> No</p> <p><b>Pathway Sequence(s) That Include This Course:</b></p>	<p><b>Course Level:</b> Concentrator</p> <p><b>CALPADS Pathway:</b> PUB-233</p> <p><b>CALPADS Course Title:</b> Fire Technology Internship</p> <p><b>State Course ID:</b> 8421</p> <p><b>Total Hours:</b> 90</p> <p><b>Course Length:</b> 1 Semester</p> <p><b>Local Course Number:</b> ER7201</p>

**Emergency Response Pathway Course Sequence:**

Introduction to Health and Human Service Careers or  
Health Professions and Organizations  
First Aid, Emergency Response and CPR  
Career Explorations  
Anatomy and Physiology  
Fire Science and Technology I and II  
*Fire Technology Internship (Grades 10-11-12)*  
CPR Recertification  
Fire Technology III

**Board Approval:** Pending Board Action on 12/7/17**Labor Market Demand:** High**Course Type:** Career-Technical Preparation

## Competencies / Outcomes

1. Don and Doff Firefighter Personal Protective Equipment
2. Don and Doff Self Contained Breathing Apparatus.
3. Demonstrate different techniques for fire fighter ground ladders, including carrying, raising and lowering.
4. Perform hose lays and advance hose lines for fire suppression.
5. Produce a variety of knots and hitches
6. Employ search and rescue techniques and recover victims
7. Manipulate fire suppression apparatus and equipment
8. Practice regular physical activity including, stretching, cardiovascular, weightlifting using appropriate techniques.

## Standards

### California's 2013 CTE Standards

1. CTE.PS.A.1.9 [Understand the characteristics and benefits of teamwork, leadership, and citizenship in the school, community, and workplace settings.](#)
2. CTE.PS.A.1.10 [Understand how loyalty, duty, honor, integrity, selfless service, and personal courage play an important role in many public safety occupations.](#)
3. CTE.PS.A.1.11 [Understand how to interact with others in ways that demonstrate respect for persons, property, individual lifestyle choices, and cultural differences.](#)
4. CTE.PS.A.1.12 [Compile a personal portfolio specific to the expectations for employment in a public safety career.](#)
5. CTE.PS.A.2.2 [Describe the public safety agency role in saving lives, protecting lives and property, reducing the vulnerability of critical infrastructure, identifying key resources, and maintaining order.](#)

6. CTE.PS.A.2.5 [Analyze information to make prompt, effective, and appropriate decisions.](#)
7. CTE.PS.A.2.6 [Use conflict-resolution and anger-management skills and procedures to resolve problems.](#)
8. CTE.PS.A.2.7 [Apply critical-thinking skills to manage emergency response situations.](#)
9. CTE.PS.A.2.8 [Survey the history of public safety agencies in the United States and their influence on the current systems.](#)
10. CTE.PS.B.1.1 [Understand the responsibilities, requirements, and advancement opportunities in emergency response careers.](#)
11. CTE.PS.B.1.2 [List the standards for emergency response employee qualifications, training, and certification.](#)
12. CTE.PS.B.1.3 [Outline a realistic program of study \(education plan\) based on career choice, job-entry requirements, and personal commitment.](#)
13. CTE.PS.B.1.4 [Describe the roles and responsibilities of emergency response agencies.](#)
14. CTE.PS.B.1.5 [Summarize the laws, regulations, and organizational protocols that define the guidelines governing selected emergency agencies and services.](#)
15. CTE.PS.B.2.1 [Describe the mechanisms by which emergency management stakeholder agencies and resources are coordinated for mutual aid.](#)
16. CTE.PS.B.2.2 [Understand the importance of an organized Command and Control System to provide for interoperability, efficiency, and effectiveness.](#)
17. CTE.PS.B.2.3 [Understand the core set of basic concepts, principles, terminology, and technologies of emergency response management.](#)
18. CTE.PS.B.2.4 [Recognize multiagency coordination; unified command, training, identification and management of resources; qualification and certification; and the collection, tracking, evaluation, and dissemination of information.](#)
19. CTE.PS.B.2.5 [Describe the principles and responsibilities of the Incident Command System \(ICS\) and the National Incident Management System \(NIMS\).](#)
20. CTE.PS.B.2.7 [Design an emergency plan for an earthquake in a major metropolitan area that has shut off access from all directions.](#)
21. CTE.PS.B.3.1 [Identify the characteristics of successful teams, including leadership, cooperation, collaboration, and effective decision-making skills as applied in emergency services.](#)
22. CTE.PS.B.3.2 [Understand the characteristics and benefits of teamwork, leadership, and citizenship in community and workplace settings.](#)
23. CTE.PS.B.3.3 [Employ active listening, concise reporting, and familiarity with emergency response communication equipment to interact efficiently and effectively.](#)
24. CTE.PS.B.3.4 [Describe emergency response techniques and methods of active listening to obtain and clarify information in oral communications.](#)
25. CTE.PS.B.3.5 [Demonstrate a variety of appropriate and effective methods of communicating with the public, including techniques such as professional demeanor, active listening, empathy, projecting a confident tone of voice, paraphrasing, and the proper use of nonverbal body language.](#)
26. CTE.PS.B.3.6 [Adhere to Health Insurance Portability and Accountability Act \(HIPAA\) regulations and agency guidelines regarding public and media communications.](#)
27. CTE.PS.B.3.7 [Use appropriate terminology in clear, concise, and legible report entries when preparing and submitting required reports.](#)
28. CTE.PS.B.3.8 [Use and maintain a variety of communication equipment, understanding the importance of using current and up-to-date technology and communication equipment.](#)
29. CTE.PS.B.3.9 [Practice verbal and nonverbal emergency terminology and communication techniques to be used when interacting with emergency response personnel in a variety of emergency situations.](#)
30. CTE.PS.B.3.10 [Gather information and ideas from primary and secondary sources accurately and coherently.](#)
31. CTE.PS.B.4.1 [Describe the basic elements of safety and survival for emergency response personnel.](#)

32. CTE.PS.B.4.2 [Know and use the appropriate personal protective equipment \(PPE\) required for emergency services duties.](#)
33. CTE.PS.B.4.3 [Know how to establish situational awareness, identify hazards, and assess personal, team, or environmental risks.](#)
34. CTE.PS.B.4.4 [Understand and adhere to comprehensive and systematic risk management strategies to reduce injury and fatalities for self, team, and community.](#)
35. CTE.PS.B.4.5 [Demonstrate strategies to identify and eliminate hazards.](#)
36. CTE.PS.B.4.6 [Complete certification in emergency care as appropriate—for example, cardiopulmonary resuscitation \(CPR\), automated external defibrillator \(AED\), and first aid.](#)
37. CTE.PS.B.5.1 [Understand that physical fitness and proper nutrition are needed to perform the duties of emergency response personnel.](#)
38. CTE.PS.B.5.2 [Recognize the different physical strength and agility assessments required for entrance into emergency response employment.](#)
39. CTE.PS.B.5.3 [Apply the skills and techniques necessary for success in strength and agility testing.](#)
40. CTE.PS.B.5.4 [Design and implement a personal plan for achieving and maintaining an acceptable level of nutrition, strength and agility, and a lifetime fitness mindset.](#)
41. CTE.PS.B.5.5 [Recognize and understand the importance of maintaining psychological health and well-being in emergency response occupations.](#)
42. CTE.PS.B.6.1 [Describe steps for each potential catastrophic event.](#)
43. CTE.PS.B.6.2 [Analyze the history and outcomes of catastrophic events and the appropriate emergency responses.](#)
44. CTE.PS.B.6.4 [Prepare an emergency preparedness and response plan that includes the roles of emergency response personnel for a potential catastrophic event in the community.](#)
45. CTE.PS.B.7.2 [Describe the hazardous materials labeling system and identify definitions associated with various hazardous materials.](#)
46. CTE.PS.B.7.3 [Describe the type of damage and injury that can occur if hazardous materials are handled improperly.](#)
47. CTE.PS.B.7.4 [Explain the steps taken, including appropriate personnel and safety measures, for a hazardous-material release.](#)
48. CTE.PS.B.8.1 [Understand the history, organization, and operation of fire services.](#)
49. CTE.PS.B.8.2 [Describe the skills and knowledge necessary for an entry-level firefighter to safely perform the tasks required of the job.](#)
50. CTE.PS.B.8.3 [Explain the fundamentals and scientific principles of fire behavior, combustible materials, extinguishing agents, hazardous and toxic materials, forms of energy, and fire prevention/suppression techniques for all types of fires and conditions.](#)
51. CTE.PS.B.8.4 [Demonstrate the operation of fire protection equipment and systems.](#)
52. CTE.PS.B.8.5 [Demonstrate the skills necessary to perform fire suppression and basic rescue operations using firefighting techniques and rescue equipment.](#)
53. CTE.PS.B.8.6 [Identify structural characteristics of building construction types as they relate to fire protection and suppression, and recognize the signs and causes of potential building collapse and other hazards.](#)
54. CTE.PS.B.8.7 [Apply principles of proper body mechanics, including ergonomics, equipment use, and techniques to prevent personal injury.](#)
55. CTE.PS.B.8.8 [Participate in public education aimed at reducing loss of life and property, through programs and activities on fire prevention and safety as well as other injury-prevention education.](#)
56. CTE.PS.B.9.1 [Understand and use medical terminology and related knowledge of anatomy, physiology, diseases, diagnoses, pharmacology, therapeutics, and common abbreviations necessary for emergency medical services.](#)
57. CTE.PS.B.9.2 [Know the common acronyms used in fire and emergency services.](#)
58. CTE.PS.B.9.3 [Perform technical skill and equipment use required for emergency response occupations—for example, airway, oxygen, and ventilation procedures; suction; bleeding control; shock management; cardiac arrest management; immobilization techniques; traction; splinting; transport; defibrillation; and wound management.](#)

59. CTE.PS.B.9.4 [Follow instructions for immediate care procedure as transmitted by an emergency medical dispatcher during transport.](#)
60. CTE.PS.B.9.5 [Demonstrate administration of a limited number of drugs appropriate to the scope of practice.](#)
61. CTE.PS.B.9.7 [Execute protocols in emergency management response when working with an on-scene accident.](#)
62. CTE.PS.B.9.6 [Manage an incident scene as the first responder, using emergency response skills appropriate to training and certification.](#)
63. CTE.PS.B.9.8 [Demonstrate the ability to assess the nature and extent of an illness or injury to establish and prioritize medical response.](#)
64. CTE.PS.B.9.9 [Communicate with treatment-center staff to arrange reception of victims and to get instructions for further treatment.](#)
65. CTE.PS.B.9.10 [Demonstrate the ability to receive and provide patient-care information to other medical providers.](#)
66. CTE.PS.B.9.11 [Describe the function of emergency vehicles, use of medical and communication equipment, and the necessity of maintaining inventory as required for emergency services practices and procedures.](#)
67. CTE.PS.B.10.1 [Describe wildland firefighter safety and survival preparations.](#)
68. CTE.PS.B.10.2 [Explain the role of fire personnel in wildland fires, structure fires, auto accidents, medical aid, swift-water rescue, civil disturbances, search and rescue operations, hazardous material spills, train wrecks, floods, and earthquakes.](#)
69. CTE.PS.B.10.3 [Describe fire prevention and planning procedures to save wildland structures during a forest fire.](#)
70. CTE.PS.B.10.7 [Recognize factors that influence the start and spread of wildland fires.](#)
71. CTE.PS.B.10.8 [Describe and evaluate the importance of the various types of equipment used to control and/or extinguish wildland fires.](#)
72. CTE.PS.B.10.9 [Build a plan describing processes and procedures to follow prior to, during, and after a wildfire event.](#)

## Common Core Standards for Literacy in History/Social Studies, Science and Technical Subjects

### Reading

1. RST.9-10.3 (9th and 10th) [Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks, attending to special cases or exceptions defined in the text.](#)
2. RST.11-12.3 (11th and 12th) [Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text.](#)
3. RST.9-10.9 (9th-10th) [Compare and contrast findings presented in a text to those from other sources \(including their own experiments\), noting when the findings support or contradict previous explanations or accounts.](#)
4. RST.11-12.9 (11th and 12th) [Synthesize information from a range of sources \(e.g., texts, experiments, simulations\) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.](#)

### Writing

1. WHST.9-10.4, WHST.11-12.4 (9-10 & 11-12) [Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.](#)

# Units

## Unit 1: Nutrition (Grade 10)

### Description

This unit covers personal nutrition. Lessons include creating a balanced meal preparation and portion control for each student. Lesson's also include the importance of water hydration. The intended learning objective is directing students towards healthy lifestyles for active services.

### Key Topics/Activities

Upon successful completion of this unit, students will be able to:

1. Distinguish between facts and myths regarding nutrition practices, products, and physical performance. 1.1.N
2. Research and discuss the practical use of current research-based guidelines for a nutritionally balanced diet. 1.2.N
3. Explain the importance of variety and moderation in food selection and consumption. 1.3.N
4. Describe dietary guidelines, food groups, nutrients, and serving sizes for healthy eating habits. 1.4.N
5. Describe the relationship between poor eating habits and chronic diseases such as heart disease, obesity, cancer, diabetes, hypertension, and osteoporosis. 1.5.N
6. Explain how to keep food safe through proper food purchasing, preparation, and storage practices. 1.6.N
7. Describe nutrition practices that are important for the health of a pregnant woman and her baby. 1.7.N
8. Describe the prevalence, causes, and long-term consequences of unhealthy eating. 1.8.N
9. Analyze the relationship between physical activity and overall health. 1.9.N
10. Evaluate various approaches to maintaining a healthy weight. 1.10.N
11. Identify the causes, symptoms, and harmful effects of eating disorders. 1.11.N
12. Explain why people with eating disorders need professional help. 1.12.N
13. Describe the amounts and types of physical activity recommended for teenagers' overall health and for the maintenance of a healthy body weight. 1.13.N
14. Analyze the harmful effects of using diet pills and anabolic steroids. 1.14.N
15. Explain the physical, academic, mental, and social benefits of physical activity and the relationship between a sedentary lifestyle and chronic disease. 1.15.N

Key concepts will be assessed through performance of skills, written and oral examinations.

## Unit 2: History of the Fire Services (Grade 10)

### Description

This unit covers the basic historical background and development of the fire service. Lessons describe both the culture and organizational structures of the fire service. Lessons also cover basic information on department regulations and policies.

### Key Topics/Activities

Upon successful completion of this unit, students will be able to:

1. Summarize the history of the fire service.
2. Explain the organizational characteristics, cultural challenges, and cultural strengths that influence the fire service.
3. Describe the mission of the fire service. [NFPA® 1001, 5.1.1]
4. Describe the organization of fire departments. [NFPA® 1001, 5.1.1]
5. Distinguish among functions of fire companies. [NFPA® 1001, 5.1.1]
6. Summarize primary knowledge and skills the firefighter must have to function effectively. [NFPA® 1001, 5.1.1, 6.1.1]
7. Distinguish among the primary roles of fire service personnel. [NFPA® 1001, 5.1.1, 6.1.1]
8. Describe fire department organizational principles. [NFPA® 1001, 5.1.1]
9. Locate information in departmental documents and standard or code materials. [NFPA® 1001, 5.1.2]
10. Distinguish between fire department SOPs and rules and regulations. [NFPA® 1001, 5.1.1]
11. Explain the ways the fire service may interact with other organizations. [NFPA® 1001, 5.1.1]

Key concepts will be assessed through performance of skills, written and oral examinations.

## Unit 3: Fire Behavior (Grade 10)

### Description

This unit covers fire behavior and describes the science of fire, various physical states fuel can be found in, classification of fires, and the stages of fire development. The relationship between fire behavior and fire fighting operations is also explored.

### Key Topics/Activities

Upon successful completion of this unit, students will be able to:

1. Explain the science of fire as it relates to energy, forms of ignition, and modes of combustion. [NFPA® 1001, 5.3.11]
2. Describe the impact of thermal energy on heat, temperature, and heat transfer. [NFPA® 1001, 5.3.12]
3. Recognize the physical states of fuel. [NFPA® 1001, 5.3.10]
4. Explain the relationship between oxygen and life safety. [NFPA® 1001, 5.3.11]
5. Identify the products of self-sustained chemical reactions. [NFPA® 1001, 5.3.11]
6. Explain the factors that affect fire development. [NFPA® 1001, 5.3.11]
7. Describe the stages of fire development. [NFPA® 1001, 5.3.11]
8. Recognize signs, causes, and effects of rapid fire development. [NFPA® 1001, 5.3.11]
9. Describe the methods through which fire fighting operations can influence fire behavior. [NFPA® 1001, 5.3.11, 5.3.12]

Key concepts will be assessed through performance of skills, written and oral examinations.

## Unit 4: Fire Academy Drills and Ceremony Preparation (Grade 10)

### Description

This unit covers Fire Academy drills and ceremony preparation. Students learn different formational drills and procedures expected in the Fire Academy. Students also learn the maintenance and upkeep of uniform.

### Key Topics/Activities

Upon successful completion of this unit, students will be able to:

1. Maintain a standard of uniform that holds up to Fire Academy regulations.
2. Understand proper maintenance of clothing and dress.
3. Exhibit proper hair and facial hair protocol that reflects Fire Academy regulations.
4. Perform in proper ceremony drills through formation and practice.

Key concepts will be assessed through performance of skills, written and oral examinations.

## Unit 5: Portable Fire Extinguishers (Grade 10)

### Description

After completing this lesson, the student will be able to select, use, and correctly maintain portable fire extinguishers.

### Key Topics/Activities

Upon successful completion of this lesson, students will be able to:

1. Explain portable fire extinguisher classifications. [NFPA® 1001, 5.3.16]
2. Describe types of portable fire extinguishers. [NFPA® 1001, 5.3.16]
3. Define the ratings in a portable fire extinguisher rating system. [NFPA® 1001, 5.3.16]
4. Explain the considerations taken when selecting and using portable fire extinguishers. [NFPA® 1001, 5.3.16]
5. Identify procedures used for the inspection, care, and maintenance of portable fire extinguishers. [NFPA® 1001, 5.3.16, 5.5.1]
6. Operate a stored pressure water extinguisher. [NFPA® 1001, 5.3.16; Skill Sheet 7-I-1]
7. Operate a dry chemical (ABC) extinguisher. [NFPA® 1001, 5.3.16; Skill Sheet 7-I-2]
8. Operate a carbon dioxide (CO<sub>2</sub>) extinguisher. [NFPA® 1001, 5.3.16; Skill Sheet 7-I-3]

Key concepts will be assessed through performance of skills, written and oral examinations.

## Unit 6: Fire Apparatus (Grade 10)

### Description

This unit covers various fire apparatus and basic information about the various types of equipment and how it can protect firefighters.

### Key Topics/Activities

Upon successful completion of this unit, students will be able to:

1. Describe the purpose of personal protective equipment. [NFPA® 1001, 5.1.1, 5.3.3]
2. Describe characteristics of each type of personal protective equipment. [NFPA® 1001, 5.3.2]
3. Summarize guidelines for the care of personal protective clothing. [NFPA® 1001, 5.1.1, 5.3.3, 5.5.1]
4. Explain safety considerations for personal protective equipment. [NFPA® 1001, 5.3.1]
5. Identify respiratory hazards. [NFPA® 1001, 5.3.1]
6. Identify types of respiratory protection equipment. [NFPA® 1001, 5.3.1]

7. Describe the limitations of respiratory protection equipment. *[NFPA® 1001, 5.3.1]*
8. Explain methods for storing respiratory protection equipment. *[NFPA® 1001, 5.5.1]*
9. Describe general donning and doffing considerations for protective breathing apparatus. *[NFPA® 1001, 5.3.1, 5.3.2]*
10. Summarize general considerations for protective breathing apparatus inspections and care. *[NFPA® 1001 5.1.1, 5.5.1]*
11. Summarize safety precautions for refilling SCBA cylinders. *[NFPA® 5.5.1]*
12. Explain procedures for replacing SCBA cylinders. *[NFPA® 1001 5.3.1]*
13. Explain safety precautions for SCBA use. *[NFPA® 1001 5.3.1]*
14. Describe non-emergency and emergency exit indicators. *[NFPA® 5.3.1]*
15. Describe non-emergency exit techniques. *[NFPA® 1001 5.3.1]*
16. Demonstrate the method for donning structural personal protective clothing for use at an emergency. *[NFPA® 1001, 5.1.2, 5.3.1, 5.3.2, 5.3.3, Skill Sheet 6-I-1]*
17. Demonstrate the over-the-head method of donning an SCBA with structural personal protective clothing in place. *[NFPA® 1001 5.3.1, 5.3.2, 5.3.3, Skill Sheet 6-I-2]*
18. Demonstrate the coat method of donning an SCBA with structural personal protective clothing in place. *[NFPA® 1001 5.3.1, 5.3.2, 5.3.3, Skill Sheet 6-I-3]*
19. Demonstrate the method for donning an SCBA while seated with structural personal protective clothing in place. *[NFPA® 1001 5.3.1, 5.3.2, 5.3.3, Skill Sheet 6-I-4]*
20. Doff personal protective equipment, including respiratory protection, and prepare for reuse. *[NFPA® 1001 5.1.2, 5.3.2, 5.3.3, Skill Sheet 6-I-5]*
21. Demonstrate the steps for inspecting an SCBA. *[NFPA® 1001 5.3.2, 5.5.1; Skill Sheet 6-I-6]*
22. Demonstrate the steps for cleaning and sanitizing an SCBA. *[NFPA® 1001 5.3.2, 5.5.1; Skill Sheet 6-I-7]*
23. Demonstrate the method for filling an SCBA cylinder from a cascade system, wearing appropriate PPE, including eye and ear protection. *[NFPA® 1001 5.3.1; Skill Sheet 6-I-8]*
24. Demonstrate the method for filling an SCBA cylinder from a compressor/purifier system wearing appropriate PPE, including eye and ear protection. *[NFPA® 1001 5.3.1; Skill Sheet 6-I-9]*
25. Demonstrate the one-person method for replacing an SCBA cylinder. *[NFPA® 1001 5.3.1; Skill Sheet 6-I-10]*
26. Demonstrate the two-person method for replacing an SCBA cylinder. *[NFPA® 1001 5.3.1; Skill Sheet 6-I-11]*

Key concepts will be assessed through performance of skills, written and oral examinations.

## Unit 7: Recap of Fire Tech 1 Fundamentals (Grade 11)

### Description

In this unit, students recall the fundamentals of Fire Tech year 1. Lessons include a recap of units, and an accelerated refresher of skills.

### Key Topics/Activities

Upon successful completion of this unit, students will be able to demonstrate knowledge of the following:

1. Healthy eating habits and exercise (Nutrition).
2. The historical information surrounding the creation of the Fire Services (History of Fire Service)
3. The habits and behavior of Fire (Fire Behavior)
4. Marching drills and ceremony etiquettes (Fire Academy Drills and Ceremony)
5. Proper use and maintenance of Portable Fire Extinguishers (Fire Extinguishers)
6. The use and maintenance of different apparatus used by emergency responders (Fire Apparatus)

Key concepts will be assessed through performance of skills, written and oral examinations.

## Unit 8: Personal Protective Equipment (PPE) (Grade 11)

### Description

After completing this unit, the student will be able to properly use and care for personal protective equipment (PPE) as well as describe how it can protect firefighters. Students will understand how the limitations of PPE impact the need to select equipment appropriate for the incident in order to take advantage of this protection. Lessons teach basic information about the various types of equipment and how it can protect firefighters, PPE limitations, selection of PPE based on proposed use, as well as care and maintenance.

### Key Topics/Activities

Upon successful completion of this unit, students will be able to:

1. Describe the purpose of personal protective equipment. [*NFPA® 1001, 5.1.1, 5.3.3*]
2. Describe characteristics of each type of personal protective equipment. [*NFPA® 1001, 5.3.2*]
3. Summarize guidelines for the care of personal protective clothing. [*NFPA® 1001, 5.1.1, 5.3.3, 5.5.1*]

4. Explain safety considerations for personal protective equipment. *[NFPA® 1001, 5.3.1]*
5. Identify respiratory hazards. *[NFPA® 1001, 5.3.1]*
6. Identify types of respiratory protection equipment. *[NFPA® 1001, 5.3.1]*
7. Describe the limitations of respiratory protection equipment. *[NFPA® 1001, 5.3.1]*
8. Explain methods for storing respiratory protection equipment. *[NFPA® 1001, 5.5.1]*
9. Describe general donning and doffing considerations for protective breathing apparatus. *[NFPA® 1001, 5.3.1, 5.3.2]*
10. Summarize general considerations for protective breathing apparatus inspections and care. *[NFPA® 1001 5.1.1, 5.5.1]*
11. Summarize safety precautions for refilling SCBA cylinders. *[NFPA® 5.5.1]*
12. Explain procedures for replacing SCBA cylinders. *[NFPA® 1001 5.3.1]*
13. Explain safety precautions for SCBA use. *[NFPA® 1001 5.3.1]*
14. Describe non-emergency and emergency exit indicators. *[NFPA® 5.3.1]*
15. Describe non-emergency exit techniques. *[NFPA® 1001 5.3.1]*
16. Demonstrate the method for donning structural personal protective clothing for use at an emergency. *[NFPA® 1001, 5.1.2, 5.3.1, 5.3.2, 5.3.3, Skill Sheet 6-I-1]*
17. With structural personal protective clothing in place, demonstrate the over-the-head method of donning an SCBA. *[NFPA® 1001 5.3.1, 5.3.2, 5.3.3, Skill Sheet 6-I-2]*
18. With structural personal protective clothing in place, demonstrate the coat method of donning an SCBA. *[NFPA® 1001 5.3.1, 5.3.2, 5.3.3, Skill Sheet 6-I-3]*
19. With structural personal protective clothing in place, demonstrate the method for donning an SCBA while seated. *[NFPA® 1001 5.3.1, 5.3.2, 5.3.3, Skill Sheet 6-I-4]*
20. Doff personal protective equipment, including respiratory protection, and prepare for reuse. *[NFPA® 1001 5.1.2, 5.3.2, 5.3.3, Skill Sheet 6-I-5]*
21. Demonstrate the steps for inspecting an SCBA. *[NFPA® 1001 5.3.2, 5.5.1; Skill Sheet 6-I-6]*
22. Demonstrate the steps for cleaning and sanitizing an SCBA. *[NFPA® 1001 5.3.2, 5.5.1; Skill Sheet 6-I-7]*
23. Demonstrate the method for filling an SCBA cylinder from a cascade system, wearing appropriate PPE, including eye and ear protection. *[NFPA® 1001 5.3.1; Skill Sheet 6-I-8]*
24. Demonstrate the method for filling an SCBA cylinder from a compressor/purifier system wearing appropriate PPE, including eye and ear protection. *[NFPA® 1001 5.3.1; Skill Sheet 6-I-9]*
25. Demonstrate the one-person method for replacing an SCBA cylinder. *[NFPA® 1001 5.3.1; Skill Sheet 6-I-10]*
26. Demonstrate the two-person method for replacing an SCBA cylinder. *[NFPA® 1001 5.3.1; Skill Sheet 6-I-11]*

Key concepts will be assessed through performance of skills, written and oral examinations.

## Unit 9: Self Contained Breathing Apparatus (SCBA) (Grade 11)

### Description

After completing this unit, students will be able to properly use and care for self contained breathing apparatus (SCBA) as well as describe how it can protect firefighters. Students will understand how the limitations of SCBA impact the need to select equipment appropriate for the incident in order to take advantage of this protection. Lessons describe basic information about the various types of equipment and how it can protect firefighters, SCBA limitations, selection of SCBA based on proposed use, as well as care and maintenance.

### Key Topics/Activities

1. Describe general donning and doffing considerations for protective breathing apparatus. *[NFPA® 1001, 5.3.1, 5.3.2]*
2. Summarize general considerations for protective breathing apparatus inspections and care. *[NFPA® 1001 5.1.1, 5.5.1]*
3. Summarize safety precautions for refilling SCBA cylinders. *[NFPA® 5.5.1]*
4. Explain procedures for replacing SCBA cylinders. *[NFPA® 1001 5.3.1]*
5. Explain safety precautions for SCBA use. *[NFPA® 1001 5.3.1]*

Key concepts will be assessed through performance of skills, written and oral examinations.

## Unit 10: Ladders (Grade 11)

### Description

After completing this unit, student will be able to recognize ground ladders used in the fire service and select the appropriate ladder for the task presented. Students will also be able to carry and deploy fire service ground ladders. Lessons include ground ladder construction, ladder types, inspection and maintenance, ladder deployment and procedures for working from a ladder.

### Key Topics/Activities

Upon successful completion of this unit, students will be able to:

1. Describe different construction types of ground ladders. *[NFPA® 1001, 5.3.6, 5.3.11, 5.3.12]*
2. Identify the parts of a ladder including markings and labels. *[NFPA® 1001, 5.3.6, 5.3.11, 5.3.12]*
3. Recognize the types of ladders used in the fire service. *[NFPA® 1001, 5.3.6, 5.3.11, 5.3.12]*

4. Explain the considerations addressed by ladder inspection, cleaning, and maintenance. *[NFPA® 1001, 5.5.1]*
5. Describe safety guidelines used when handling ladders. *[NFPA® 1001, 5.3.6, 5.3.11, 5.3.12]*
6. Explain considerations taken when selecting, lifting, and lowering a ladder. *[NFPA® 1001, 5.3.6, 5.3.11, 5.3.12]*
7. Describe various methods for ladder carries. *[NFPA® 1001, 5.3.6, 5.3.11, 5.3.12]*
8. Identify basic considerations and requirements for ground ladder placement. *[NFPA® 1001, 5.3.6, 5.3.11, 5.3.12]*
9. Describe various methods for ladder raises. *[NFPA® 1001, 5.3.6, 5.3.11, 5.3.12]*
10. Compare procedures for moving ground ladders. *[NFPA® 1001, 5.3.6, 5.3.11, 5.3.12]*
11. Explain the methods used to secure ladders. *[NFPA® 1001, 5.3.6, 5.3.11, 5.3.12]*
12. Describe ladder climbing considerations. *[NFPA® 1001, 5.3.6, 5.3.11, 5.3.12]*
13. Indicate what methods can be used to work from a ladder. *[NFPA® 1001, 5.3.6, 5.3.11, 5.3.12]*
14. Explain methods used for assisting a victim down a ladder. *[NFPA® 1001, 5.3.6, 5.3.11, 5.3.12]*
15. Clean, inspect, and maintain a ladder. *[NFPA® 1001, 5.5.1; Skill Sheet 12-I-1]*
16. Carry a ladder – One-firefighter low-shoulder method. *[NFPA® 1001, 5.3.6, 5.3.11, 5.3.12; Skill Sheet 12-I-2]*
17. Carry a ladder – Two-firefighter low-shoulder method. *[NFPA® 1001, 5.3.6, 5.3.11, 5.3.12; Skill Sheet 12-I-3]*
18. Carry a ladder – Three-firefighter flat-shoulder method. *[NFPA® 1001, 5.3.6, 5.3.11, 5.3.12; Skill Sheet 12-I-4]*
19. Carry a ladder – Three-firefighter flat-arm's length method. *[NFPA® 1001, 5.3.6, 5.3.11, 5.3.12; Skill Sheet 12-I-5]*
20. Carry a ladder – Two-firefighter arm's length on-edge method. *[NFPA® 1001, 5.3.6, 5.3.11, 5.3.12; Skill Sheet 12-I-6]*
21. Tie the halyard. *[NFPA® 1001, 5.3.6, 5.3.11, 5.3.12; Skill Sheet 12-I-7]*
22. Raise a ladder – One-firefighter method. *[NFPA® 1001, 5.3.6, 5.3.11, 5.3.12; Skill Sheet 12-I-8]*
23. Raise a ladder – Two-firefighter flat raise. *[NFPA® 1001, 5.3.6, 5.3.11, 5.3.12; Skill Sheet 12-I-9]*
24. Raise a ladder – Two-firefighter beam raise. *[NFPA® 1001, 5.3.6, 5.3.11, 5.3.12; Skill Sheet 12-I-10]*
25. Raise a ladder – Three- or four-firefighter flat raise. *[NFPA® 1001, 5.3.6, 5.3.11, 5.3.12; Skill Sheet 12-I-11]*
26. Deploy a roof ladder – One-firefighter method. *[NFPA® 1001, 5.3.6, 5.3.11, 5.3.12; Skill Sheet 12-I-12]*
27. Pivot a ladder – Two-firefighter method. *[NFPA® 1001, 5.3.6, 5.3.11, 5.3.12; Skill Sheet 12-I-13]*
28. Shift a ladder – One-firefighter method. *[NFPA® 1001, 5.3.6, 5.3.11, 5.3.12; Skill Sheet 12-I-14]*
29. Shift a ladder – Two-firefighter method. *[NFPA® 1001, 5.3.6, 5.3.11, 5.3.12; Skill Sheet 12-I-15]*
30. Heel a ground ladder. *[NFPA® 1001, 5.3.6, 5.3.11, 5.3.12; Skill Sheet 12-I-16]*
31. Leg lock on a ground ladder. *[NFPA® 1001, 5.3.6, 5.3.11, 5.3.12; Skill Sheet 12-I-17]*
32. Assist a conscious victim down a ground ladder. *[NFPA® 1001, 5.3.9; Skill Sheet 12-I-18]*
33. Assist an unconscious victim down a ground ladder. *[NFPA® 1001, 5.3.9; Skill Sheet 12-I-19]*

Key concepts will be assessed through performance of skills, written and oral examinations.

## Unit 11: Search and Rescue (S/R) (Grade 11)

### Description

After completing this unit, students will be able to describe, as well as perform, search and victim removal methods to use during structural search and rescue. Students will also be able to explain and perform firefighter survival skills used during structural search and rescue. This is the unit covers structural search, victim removal, and firefighter survival. Lessons teach basic structural search methods, explains victim removal methods, and details firefighter survival methods and skills.

### Key Topics/Activities

Upon successful completion of this unit, students will be able to:

1. Summarize the impact of building construction and floor plans on structural search techniques. *[NFPA® 1001, 5.3.9]*
2. Explain size-up and situational awareness considerations during structural searches. *[NFPA® 1001, 5.3.9]*
3. Summarize safety guidelines for structural search and rescue. *[NFPA® 1001, 5.3.9]*
4. Differentiate between primary and secondary search techniques. *[NFPA® 1001, 5.3.9]*
5. Recognize basic search methods. *[NFPA® 1001, 5.3.9]*
6. Describe victim removal methods. *[NFPA® 1001, 5.3.5, 5.3.9]*
7. Explain firefighter survival methods. *[NFPA® 1001, 5.3.1, 5.3.5, 5.3.9]*
8. Explain what survival actions firefighters can take when needed. *[NFPA® 1001, 5.3.1, 5.3.5]*
9. Describe the actions of a rapid intervention crew or team (RIC/RIT) when locating a downed firefighter. *[NFPA® 1001, 5.3.5, 5.3.9]*
10. Demonstrate the procedure for conducting a primary search. *[NFPA® 1001, 5.3.9; Skill Sheet 9-I-1]*
11. Demonstrate the procedure for conducting a secondary search. *[NFPA® 1001, 5.3.9; Skill Sheet 9-I-2]*
12. Demonstrate the incline drag. *[NFPA® 1001, 5.3.9; Skill Sheet 9-I-3]*
13. Demonstrate the webbing drag. *[NFPA® 1001, 5.3.9; Skill Sheet 9-I-4]*
14. Demonstrate the cradle-in-arms lift/carry — One-rescuer method. *[NFPA® 1001, 5.3.9; Skill Sheet 9-I-5]*
15. Demonstrate the seat lift/carry — Two-rescuer method. *[NFPA® 1001, 5.3.9; Skill Sheet 9-I-6]*
16. Demonstrate the extremities lift/carry — Two-rescuer method. *[NFPA® 1001, 5.3.9; Skill Sheet 9-I-7]*
17. Demonstrate the actions required for transmitting a MAYDAY report. *[NFPA® 1001, 5.2.4, 5.3.5, 5.3.9; Skill Sheet 9-I-8]*
18. Demonstrate the proper procedures for an SCBA air emergency. *[NFPA® 1001, 5.3.1, 5.3.5, 5.3.9; Skill Sheet 9-I-9]*
19. Demonstrate the actions required for withdrawing from a hostile environment with a hoseline. *[NFPA® 1001, 5.3.5, 5.3.9; Skill Sheet 9-I-10]*
20. Demonstrate low profile maneuvers without removing SCBA – Side technique. *[NFPA® 1001, 5.3.1, 5.3.5, 5.3.9; Skill Sheet 9-I-11]*
21. Perform low profile maneuvers without removing SCBA – SCBA- first technique. *[NFPA® 1001, 5.3.1, 5.3.5, 5.3.9; Skill Sheet 9-I-12]*
22. Demonstrate the method for breaching an interior wall. *[NFPA® 1001, 5.3.5, 5.3.9; Skill Sheet 9-I-13]*
23. Demonstrate the steps for disentangling from debris or wires. *[NFPA® 1001, 5.3.5, 5.3.9; Skill Sheet 9-I-14]*

Key concepts will be assessed through performance of skills, written and oral examinations.

## Unit 12: Ropes and Knots (Grade 11)

### Description

After completing this lesson, the student will be able to appropriately select rope and webbing based on proposed use. The student will also be able to select and tie the appropriate knot for the task presented. This lesson teaches basic information for use and care of ropes and webbing; including rope types, selection of ropes and knots based on proposed use, as well as care and maintenance.

### Key Topics/Activities

Upon successful completion of this lesson, students will be able to:

1. Compare and contrast the characteristics of life safety rope and utility rope. *[NFPA® 1001, 5.3.2]*
2. Summarize basic guidelines for rope maintenance. *[NFPA® 1001, 5.5.1]*
3. Explain reasons for placing rope out of service. *[NFPA® 1001, 5.3.20]*
4. Describe webbing and webbing construction. *[NFPA® 1001, 5.3.20]*
5. Describe parts of a rope and considerations in tying a knot. *[NFPA® 1001, 5.1.2, 5.3.20]*
6. Describe knot characteristics and knot elements. *[NFPA® 1001, 5.1.2, 5.3.20]*
7. Describe characteristics of knots commonly used in the fire service. *[NFPA® 1001, 5.1.2, 5.3.20]*
8. Select commonly used rope hardware for specific applications. *[NFPA® 1001, 5.1.2, 5.3.20]*
9. Summarize hoisting safety considerations. *[NFPA® 1001, 5.1.2, 5.3.20]*
10. Inspect, clean, and store rope. *[NFPA® 1001 5.5.1; Skill Sheet 8-I-1]*
11. Tie an overhand knot. *[NFPA® 1001 5.3.20; Skill Sheet 8-I-2]*
12. Tie a bowline knot. *[NFPA® 1001 5.3.20; Skill Sheet 8-I-3]*
13. Tie a clove hitch. *[NFPA® 1001 5.3.20; Skill Sheet 8-I-4]*
14. Tie a clove hitch around an object. *[NFPA® 1001 5.3.20; Skill Sheet 8-I-5]*
15. Tie a handcuff (rescue) knot. *[NFPA® 1001 5.3.20; Skill Sheet 8-I-6]*
16. Tie a figure-eight knot. *[NFPA® 1001 5.3.20; Skill Sheet 8-I-7]*
17. Tie a figure-eight bend. *[NFPA® 1001 5.3.20; Skill Sheet 8-I-8]*
18. Tie a figure-eight on a bight. *[NFPA® 1001 5.3.20; Skill Sheet 8-I-9]*
19. Tie a figure-eight follow through. *[NFPA® 1001 5.3.20; Skill Sheet 8-I-10]*
20. Tie a Becket bend. *[NFPA® 1001 5.3.20; Skill Sheet 8-I-11]*
21. Tie a water knot. *[NFPA® 1001 5.3.20; Skill Sheet 8-I-12]*
22. Hoist an axe. *[NFPA® 1001 5.1.2, 5.3.20; Skill Sheet 8-I-13]*
23. Hoist a pike pole. *[NFPA® 1001 5.1.2, 5.3.20; Skill Sheet 8-I-14]*
24. Hoist a roof ladder. *[NFPA® 1001 5.1.2, 5.3.20; Skill Sheet 8-I-15]*

25. Hoist a dry hoseline. *[NFPA® 1001 5.1.2, 5.3.20; Skill Sheet 8-I-16]*
26. Hoist a charged hoseline. *[NFPA® 1001 5.1.2, 5.3.20; Skill Sheet 8-I-17]*
27. Hoist a power saw. *[NFPA® 1001 5.1.2, 5.3.20; Skill Sheet 8-I-18]*

Key concepts will be assessed through performance of skills, written and oral examinations.

## Unit 13: Forcible Entry (Grade 11)

### Description

After completing this lesson, the student will be able to explain, as well as perform, forcible entry into a structure or structural components. Students will also be able to explain and perform forcible entry methods and breaching operations.

### Key Topics/Activities

Upon successful completion of this lesson, the student will be able to:

1. Explain the basic principles of forcible entry. *[NFPA® 1001, 5.3.4]*
2. Describe considerations a firefighter must take when using forcible entry tools. *[NFPA® 1001, 5.3.4]*
3. Indicate steps needed to care for and maintain forcible entry tools. *[NFPA® 1001, 5.5.1]*
4. Explain the ways to force entry through various types of doors. *[NFPA® 1001, 5.3.4]*
5. Identify considerations that need to be taken when forcing entry through locks, padlocks, overhead doors, and fire doors. *[NFPA® 1001, 5.3.4]*
6. Describe forcible entry methods used for windows. *[NFPA® 1001, 5.3.4]*
7. Explain considerations firefighters must take when forcing entry through miscellaneous types of windows and covers. *[NFPA® 1001, 5.3.4]*
8. Describe forcible entry methods for breaching walls. *[NFPA® 1001, 5.3.4]*
9. Explain forcible entry methods for breaching floors. *[NFPA® 1001, 5.3.4]*
10. Indicate methods for forcing fences and gates. *[NFPA® 1001, 5.3.4]*
11. Clean, inspect, and maintain hand tools and equipment. *[NFPA® 1001, 5.5.1; Skill Sheet 11-I-1]*
12. Clean, inspect, and maintain power tools and equipment. *[NFPA® 1001, 5.5.1; Skill Sheet 11-I-2]*
13. Force entry through an inward-swinging door – Two-firefighter method. *[NFPA® 1001, 5.3.4, 5.3.14; Skill Sheet 11-I-3]*
14. Force entry through an inward-swinging door – Cutting the lock out of the door method. *[NFPA® 1001, 5.3.4, 5.3.14; Skill Sheet 11-I-4]*

15. Force entry through an outward-swinging door – Removing hinge-pins method. *[NFPA® 1001, 5.3.4, 5.3.14; Skill Sheet 11-I-5]*
16. Force entry through an outward-swinging door – Wedge-end method. *[NFPA® 1001, 5.3.4, 5.3.14; Skill Sheet 11-I-6]*
17. Force entry using the through-the-lock method. *[NFPA® 1001, 5.3.4, 5.3.14; Skill Sheet 11-I-7]*
18. Force entry using the through-the-lock method using the K-tool. *[NFPA® 1001, 5.3.4, 5.3.14; Skill Sheet 11-I-8]*
19. Force entry using the through-the-lock method using the A-tool. *[NFPA® 1001, 5.3.4, 5.3.14; Skill Sheet 11-I-9]*
20. Force entry through padlocks. *[NFPA® 1001, 5.3.4, 5.3.14; Skill Sheet 11-I-10]*
21. Cut a padlock with a rotary saw. *[NFPA® 1001, 5.3.4, 5.3.14; Skill Sheet 11-I-12]*
22. Force entry through a window (glass pane). *[NFPA® 1001, 5.3.4, 5.3.14; Skill Sheet 11-I-13]*
23. Force entry through a wood-framed wall. (Type V construction) with hand tools. *[NFPA® 1001, 5.3.4, 5.3.14; Skill Sheet 11-I-16]*
24. Force entry through a wood wall. (Type V construction) with a rotary saw or chain saw. *[NFPA® 1001, 5.3.4, 5.3.14; Skill Sheet 11-I-17]*
25. Force entry through a masonry wall with hand tools. *[NFPA® 1001, 5.3.4, 5.3.14; Skill Sheet 11-I-19]*
26. Force entry through a metal wall with power tools. *[NFPA® 1001, 5.3.4, 5.3.14; Skill Sheet 11-I-20]*
27. Breach a hardwood floor. *[NFPA® 1001, 5.3.4, 5.3.14; Skill Sheet 11-I-21]*
28. Bridge a fence with a ladder. *[NFPA® 1001, 5.3.4, 5.3.14; Skill Sheet 11-I-22]*

Key concepts will be assessed through performance of skills, written and oral examinations.

## Unit 14: Recap of Fundamentals of Fire Technology I and II (Grade 12)

### Description

After completing this unit students will be able to recall fundamentals of Fire Technology years 1 and 2. Upon successful completion of this lesson, the student shall be able to demonstrate knowledge of the following:

### Key Topics/Activities

#### Year 1

1. Healthy eating habits and exercise (Nutrition).
2. The historical information surrounding the creation of the Fire Services (History of Fire Service)
3. The habits and behavior of Fire (Fire Behavior)
4. Marching drills and ceremony etiquettes (Fire Academy Drills and Ceremony)
5. Proper use and maintenance of Portable Fire Extinguishers (Fire Extinguishers)
6. The use and maintenance of different apparatus used by emergency responders (Fire Apparatus)

## Year 2

1. The use and maintenance of equipment used in first responding (Personal Protective Equipment).
2. The use and maintenance of breathing apparatus used in first response (Personal Protective Equipment).
3. The construction and maintenance of various ground ladders (Ladders).
4. Proper techniques for safety during search and rescue in different scenarios (Search and Rescue)
5. The necessary maintenance of ropes and proper knot tying techniques (Ropes and Knots)
6. The use and maintenance of using various Fire Technology tools (Fire Tech Tools)

Key concepts will be assessed through performance of skills, written and oral examinations.

## Unit 15: Ventilation (Grade 12)

### Description

After completing this unit, students will be able to apply tactical ventilation knowledge and practices following the policies and procedures set forth by the authority having jurisdiction (AHJ). Lessons cover tactical ventilation, other types of ventilation, reasons for ventilation, and considerations that should be taken into account when performing ventilation. Lessons also cover the effects of building systems on tactical ventilation.

### Key Topics/Activities

Upon successful completion of this lesson, students will be able to:

1. Describe reasons for tactical ventilation. *[NFPA® 1001, 5.3.11]*
2. Identify considerations that affect the decision to ventilate. *[NFPA® 1001, 5.3.11, 5.3.12]*
3. Explain the critical fire behavior indicators present during tactical ventilation. *[NFPA® 1001, 5.3.11]*
4. Define horizontal and vertical ventilation. *[NFPA® 1001, 5.3.11]*
5. Explain the means for achieving horizontal and vertical ventilation. *[NFPA® 1001, 5.3.11, 5.3.12]*
6. Describe the types of horizontal ventilation. *[NFPA® 1001, 5.3.11, 5.3.12]*
7. Describe the types of vertical ventilation. *[NFPA® 1001, 5.3.11, 5.3.12]*
8. Recognize other types of ventilation situations. *[NFPA® 1001, 5.3.11]*
9. Explain the effects of building systems on tactical ventilation. *[NFPA® 1001, 5.3.11, 5.3.12]*
10. Ventilate using mechanical negative pressure in a window. *[NFPA® 1001, 5.3.11, 5.3.12; Skill Sheet 13-I-1]*

11. Ventilate using mechanical negative pressure in a doorway. *[NFPA® 1001, 5.3.11, 5.3.12; Skill Sheet 13-I-2]*
12. Ventilate using mechanical positive pressure. *[NFPA® 1001, 5.3.11, 5.3.12; Skill Sheet 13-I-3]*
13. Perform horizontal hydraulic ventilation. *[NFPA® 1001, 5.3.11, 5.3.12; Skills Sheet 13-I-4]*
14. Demonstrate the procedure for sounding a roof. *[NFPA® 1001, 5.3.12; Skill Sheet 13-I-5]*
15. Ventilate using a rotary saw to cut an opening. *[NFPA® 1001, 5.3.12; Skill Sheet 13-I-6]*
16. Ventilate using an axe to cut an opening. *[NFPA® 1001, 5.3.12; Skill Sheet 13-I-7]*
17. Demonstrate the procedure for opening a flat roof. *[NFPA® 1001, 5.3.12; Skill Sheet 13-I-8]*
18. Perform the steps for opening pitched roofs. *[NFPA® 1001, 5.3.12; Skill Sheet 13-I-9]*
19. Demonstrate the procedure for making a trench cut using a rotary saw. *[NFPA® 1001, 5.3.12; Skill Sheet 13-I-10]*

Key concepts will be assessed through performance of skills, written and oral examinations.

## Unit 16: Recap of Fundamentals of Fire Technology I and II (Grade 12)

### Description

After completing this unit students will be able to recall fundamentals of Fire Technology, years 1 and 2.

### Key Topics/Activities

Upon successful completion of this lesson, students will be able to demonstrate knowledge of the following:

#### Year 1

1. Healthy eating habits and exercise (Nutrition).
2. The historical information surrounding the creation of the Fire Services (History of Fire Service)
3. The habits and behavior of Fire (Fire Behavior)
4. Marching drills and ceremony etiquettes (Fire Academy Drills and Ceremony)
5. Proper use and maintenance of Portable Fire Extinguishers (Fire Extinguishers)
6. The use and maintenance of different apparatus used by emergency responders (Fire Apparatus)

#### Year 2

1. The use and maintenance of equipment used in first responding (Personal Protective Equipment).
2. The use and maintenance of breathing apparatus used in first response (Personal Protective Equipment).
3. The construction and maintenance of various ground ladders (Ladders).
4. Proper techniques for safety during search and rescue in different scenarios (Search and Rescue)

5. The necessary maintenance of ropes and proper knot tying techniques (Ropes and Knots)
6. The use and maintenance of using various Fire Technology tools (Fire Tech Tools)

Key concepts will be assessed through performance of skills, written and oral examinations.

## Unit 17: Auto Extrication (Grade 12)

### Description

After completing this unit, students will be able to maintain extrication and rescue tools and equipment. The student will also be able to perform basic vehicle extrication skills as well as describe the role of a Firefighter II in supporting specialized technical rescue teams.

### Key Topics/Activities

Upon successful completion of this unit, students will be able to:

1. Explain considerations for maintenance of electric generators and lighting equipment. [NFPA® 1001, 6.4.2, 6.5.4]
2. Describe the types of rescue tools and equipment. [NFPA® 1001, 6.4.2, 6.5.4]
3. Explain the uses and limitations of each type of rescue tool. [NFPA® 1001, 6.4.1, 6.4.2, 6.5.4]
4. Identify the role of a fire department during vehicle extrication. [NFPA® 1001, 6.4.1]
5. Describe safety considerations that must be identified and mitigated during vehicle extrication. [NFPA® 1001, 6.4.1]
6. Explain the use of cribbing material during vehicle extrication. [NFPA® 1001, 6.4.1]
7. Describe the methods used for gaining access to victims during vehicle extrication. [NFPA® 1001, 6.4.1]
8. Prevent horizontal movement of a vehicle using wheel chocks. [NFPA® 1001, 6.4.1; Skill Sheet 10-II-2]
9. Stabilize a vehicle using cribbing. [NFPA® 1001, 6.4.1; Skill Sheet 10-II-3]
10. Stabilize a vehicle using a system of ropes and webbing. [NFPA® 1001, 6.4.1; Skill Sheet 10-II-5]
11. Remove a windshield in an older model vehicle. [NFPA® 1001, 6.4.1; Skill Sheet 10-II-7]
12. Remove a tempered glass side window. [NFPA® 1001, 6.4.1; Skill Sheet 10-II-8]
13. Remove a roof from an upright vehicle. [NFPA® 1001, 6.4.1; Skill Sheet 10-II-9]
14. Remove a roof from a vehicle on its side. [NFPA® 1001, 6.4.1; Skill Sheet 10-II-10]

Key concepts will be assessed through performance of skills, written and oral examinations.

## Unit 18: Search and Rescue (S/R) (Grade 12)

### Description

After completing this unit, students will be able to describe, as well as perform, search and victim removal methods to use during structural search and rescue. Students will also be able to explain and perform firefighter survival skills used during structural search and rescue. This unit covers structural search, victim removal, and firefighter survival. Lessons describe basic structural search methods, explains victim removal methods, and details firefighter survival methods and skills.

### Key Topics/Activities

Upon successful completion of this lesson, students will be able to:

1. Summarize the impact of building construction and floor plans on structural search techniques. *[NFPA® 1001, 5.3.9]*
2. Explain size-up and situational awareness considerations during structural searches. *[NFPA® 1001, 5.3.9]*
3. Summarize safety guidelines for structural search and rescue. *[NFPA® 1001, 5.3.9]*
4. Differentiate between primary and secondary search techniques. *[NFPA® 1001, 5.3.9]*
5. Recognize basic search methods. *[NFPA® 1001, 5.3.9]*
6. Describe victim removal methods. *[NFPA® 1001, 5.3.5, 5.3.9]*
7. Explain firefighter survival methods. *[NFPA® 1001, 5.3.1, 5.3.5, 5.3.9]*
8. Explain what survival actions firefighters can take when needed. *[NFPA® 1001, 5.3.1, 5.3.5]*
9. Describe the actions of a rapid intervention crew or team (RIC/RIT) when locating a downed firefighter. *[NFPA® 1001, 5.3.5, 5.3.9]*
10. Demonstrate the procedure for conducting a primary search. *[NFPA® 1001, 5.3.9; Skill Sheet 9-I-1]*
11. Demonstrate the procedure for conducting a secondary search. *[NFPA® 1001, 5.3.9; Skill Sheet 9-I-2]*
12. Demonstrate the incline drag. *[NFPA® 1001, 5.3.9; Skill Sheet 9-I-3]*
13. Demonstrate the webbing drag. *[NFPA® 1001, 5.3.9; Skill Sheet 9-I-4]*
14. Demonstrate the cradle-in-arms lift/carry — One-rescuer method. *[NFPA® 1001, 5.3.9; Skill Sheet 9-I-5]*
15. Demonstrate the seat lift/carry — Two-rescuer method. *[NFPA® 1001, 5.3.9; Skill Sheet 9-I-6]*
16. Demonstrate the extremities lift/carry — Two-rescuer method. *[NFPA® 1001, 5.3.9; Skill Sheet 9-I-7]*
17. Demonstrate the actions required for transmitting a MAYDAY report. *[NFPA® 1001, 5.2.4, 5.3.5, 5.3.9; Skill Sheet 9-I-8]*
18. Demonstrate the proper procedures for an SCBA air emergency. *[NFPA® 1001, 5.3.1, 5.3.5, 5.3.9; Skill Sheet 9-I-9]*
19. Demonstrate the actions required for withdrawing from a hostile environment with a hoseline. *[NFPA® 1001, 5.3.5, 5.3.9; Skill Sheet 9-I-10]*
20. Demonstrate low profile maneuvers without removing SCBA – Side technique. *[NFPA® 1001, 5.3.1, 5.3.5, 5.3.9; Skill Sheet 9-I-11]*
21. Perform low profile maneuvers without removing SCBA – SCBA- first technique. *[NFPA® 1001, 5.3.1, 5.3.5, 5.3.9; Skill Sheet 9-I-12]*
22. Demonstrate the method for breaching an interior wall. *[NFPA® 1001, 5.3.5, 5.3.9; Skill Sheet 9-I-13]*
23. Demonstrate the steps for disentangling from debris or wires. *[NFPA® 1001, 5.3.5, 5.3.9; Skill Sheet 9-I-14]*

Key concepts will be assessed through performance of skills, written and oral examinations.

## Unit 19: Fire Attack (Grade 12)

### Description

After completing this unit, students will be able to discuss fire control of fires in structures, in Class C fires, in Class D fires, vehicle fires, and ground cover fires and be able to perform various skills related to fire attack. Lessons cover fire control; describe fire control in structures, stored Class A materials, ground cover, vehicles, Class C materials, and Class D materials.

### Key Topics/Activities

Upon successful completion of this lesson, students will be able to:

1. Describe initial factors to consider when suppressing structure fires. *[NFPA® 1001, 5.3.8, 5.3.10]*
2. Summarize considerations taken when making entry. *[NFPA® 1001, 5.3.8, 5.3.10]*
3. Describe direct attack, indirect attack, combination attack, and gas cooling techniques. *[NFPA® 1001, 5.3.8, 5.3.10]*
4. Describe safety considerations that must be identified for upper level structure fires. *[NFPA® 1001, 5.3.8, 5.3.10]*
5. Explain actions taken when attacking belowground structure fires. *[NFPA® 1001, 5.3.8, 5.3.10]*
6. Discuss methods of fire control through exposure protection and controlling building utilities. *[NFPA® 1001, 5.3.18]*
7. Describe steps taken when supporting fire protection systems at protected structures. *[NFPA® 1001, 5.3.8, 5.3.10, 5.3.14]*
8. Explain considerations taken when deploying, supplying, and staffing master stream devices. *[NFPA® 1001, 5.3.8]*
9. Describe situations that may require suppression of Class C fires. *[NFPA® 1001, 5.3.8, 5.3.10]*
10. Identify hazards associated with suppressing Class C fires. *[NFPA® 1001, 5.3.8, 5.3.10]*
11. Describe actions associated with suppressing Class D fires. *[NFPA® 1001, 5.3.8, 5.3.10]*
12. Explain actions taken when suppressing a vehicle fire. *[NFPA® 1001, 5.3.7]*
13. Compare methods used to suppress fires in stacked and piled materials, small unattached structures, and trash containers. *[NFPA® 1001, 5.3.8]*
14. Summarize the main influences on ground cover fire behavior. *[NFPA® 1001, 5.3.19]*
15. Compare types of ground cover fires. *[NFPA® 1001, 5.3.19]*
16. Describe elements that influence ground cover fire behavior. *[NFPA® 1001, 5.3.19]*
17. Identify the parts of a ground cover fire. *[NFPA® 1001, 5.3.19]*
18. Describe protective clothing and equipment used in fighting ground cover fires. *[NFPA® 1001, 5.3.19]*
19. Describe methods used to attack ground cover fires. *[NFPA® 1001, 5.3.19]*
20. Summarize safety principles and practices when fighting ground cover fires. *[NFPA® 1001, 5.3.19]*
21. Attack a structure fire using a direct, indirect, or combination attack. *[NFPA® 1001, 5.3.8, 5.3.10, 5.3.13; Skill Sheet 17-I-1]*
22. Attack a structure fire above, below, and at ground level – Interior attack. *[NFPA® 1001, 5.3.8, 5.3.10, 5.3.13; Skill Sheet 17-I-2]*
23. Turn off building utilities. *[NFPA® 1001, 5.3.18; Skill Sheet 17-I-3]*

24. Connect supply fire hose to a fire department connection. *[NFPA® 1001, 5.3.8, 5.3.10, 5.3.14; Skill Sheet 17-I-4]*
25. Operate a sprinkler system control valve. *[NFPA® 1001, 5.3.8, 5.3.10, 5.3.14, 5.3.15; Skill Sheet 17-I-5]*
26. Stop the flow of water of an activated sprinkler. *[NFPA® 1001, 5.3.8, 5.3.10, 5.3.14; Skill Sheet 17-I-6]*
27. Deploy and operate a portable master stream device. *[NFPA® 1001, 5.3.8; Skill Sheet 17-I-7]*
28. Attack a passenger vehicle fire. *[NFPA® 1001, 5.3.7; Skill Sheet 17-I-8]*
29. Attack a fire in stacked or piled materials. *[NFPA® 1001, 5.3.8; Skill Sheet 17-I-9]*
30. Attack a fire in a small unattached structure. *[NFPA® 1001, 5.3.8; Skill Sheet 17-I-10]*
31. Extinguish a fire in a trash container. *[NFPA® 1001, 5.3.8; Skill Sheet 17-I-11]*
32. Attack a ground cover fire. *[NFPA® 1001, 5.3.19; Skill Sheet 17-I-12]*

Key concepts will be assessed through performance of skills, written and oral examinations.

## Unit 20: Symposium - (Grade 12)

### Description

After completing three years of Fire Technology Internship, students will demonstrate proficiency and mastery of all skills learned in two ways, a comprehensive written final and manipulative skills performance.

### Key Topics/Activities

Students will take a comprehensive written final. There are three versions of the exam and each is multiple choice consisting of 100 questions. After successfully completing the exam, students will be tasked with completing numerous manipulative skills. The instructor will task groups of students or engine companies of four, to successfully demonstrate and complete manipulative skills which have been learned. The manipulative skills include and are not limited to fire behavior, fire suppression, fire fighting techniques, and emergency medical response. The students will showcase these skills at the Health Sciences High Middle College Annual Symposium which occurs at the end of the school year. The annual Symposium is a community event in which families, friends, business', and local partners attend to support and gain insight into the Fire Technology Program.

Key concepts will be assessed through performance of skills, written and oral examinations.