

ARIZONA WESTERN COLLEGE
SYLLABUS

FSC 148 FIRE ACADEMY 1

Credit Hours: 12 Lec 10 Lab 5**PREREQUISITES:**

1. High school diploma or GED.
2. Meet the minimum written test requirements.
3. Minimum age requirement of 18 years.
4. Meet the medical requirements of NFPA 1582.
5. Complete a liability waiver.
6. Meet the minimum physical fitness requirements
7. Permission of the Academy Coordinator or Public Safety Institute Director

NOTE: There is an additional fee for this course.

COURSE DESCRIPTION

Knowledge and practical skills necessary for certification as an entry-level Firefighter I. Successful completion qualifies the student to sit for the Firefighter I and II certification examination conducted by the Office of the Arizona State Fire Marshall.

1. COURSE GOALS

- 1.1 Provide the student with an introduction to the AWC fire-training academy.
- 1.2 Provide the student with an orientation to the history and mission of the fire service.
- 1.3 Familiarize the student with modern fire department organization systems.
- 1.4 Familiarize the student with safety factors associated with the fire service.
- 1.5 Introduce the student to personal protective equipment, it's operation, and care.
- 1.6 Provide the student with information and skills covering basic aspects of SCBA operation, care, cleaning, and maintenance.
- 1.7 Familiarize the student with the various types and ratings of commercial fire extinguishers.
- 1.8 Educate the student in the proper, safe operation of the various fire extinguishers.
- 1.9 Familiarize the student with safety factors associated with SCBA and extinguishers.
- 1.10 Provide the student with information and skills covering fire service ropes and knots, their operation, care, cleaning, and maintenance.
- 1.11 Familiarize the student with the techniques of rescue and extrication in the fire service.
- 1.12 Provide practical experience in techniques of rescue and extrication.
- 1.13 Provide the student with information and skills covering fire service hose.
- 1.14 Familiarize the student with the techniques of fire streams and fire control and use.
- 1.15 Provide practical experience in techniques of fire control.
- 1.16 Provide the student with information on the access and use of various water supply sources.
- 1.17 Provide the student with information on the tools and techniques of forcible entry.
- 1.18 Provide the student with information on fire service ground ladders, their use, care, and maintenance.
- 1.19 Provide the student with information on building materials, methods, and features.
- 1.20 Provide the student with information on the techniques of fire incident ventilation.
- 1.21 Provide the student with information on fire sprinkler systems.
- 1.22 Provide the student with practical experience in fire incident ventilation.
- 1.23 Provide the student with information on the techniques of salvage and overhaul.
- 1.24 Provide the student with information on fire service hose evolutions.
- 1.25 Provide the student with practical experience in fire service hose evolutions.

- 1.26 Provide the student with information concerning fire prevention.
- 1.27 Provide the student with information concerning fire alarms and fire service communications.
- 1.28 Provide the student with practical experience in the techniques of rope use and forcible entry.
- 1.29 Provide the student with information on fire control.
- 1.30 Provide the student with information on water supply sources and techniques.
- 1.31 Provide the student with practical experience in fire stream use for fire control.
- 1.32 Provide the student with information on basic first aid.
- 1.33 Provide the student with information on the techniques of fire service search and rescue operations.
- 1.34 Provide practical experience in the skills of an entry level fire fighter.
- 1.35 Provide the student with information on OSHA blood borne pathogen compliance.
- 1.36 Provide the student with information on the fire service accountability system.
- 1.37 Provide the student with practical experience integrating the skills of the entry level fire fighter.
- 1.38 Evaluate and improve student competency in all aspects of basic fire ground operations in a simulated setting.
- 1.39 Evaluate and improve student skill and knowledge of rope use and care.
- 1.40 Provide practical experience and review of water supply techniques.
- 1.41 Provide practical experience and review of ventilation techniques.
- 1.42 Provide the student with an introduction to hazardous materials.
- 1.43 Educate the student in hazardous materials terminology.
- 1.44 Educate the student in identification of hazardous materials.
- 1.45 Orient the student to the use of the Emergency Response Guidebook.
- 1.46 Familiarize the student with the awareness level responder's role in a hazardous materials emergency.
- 1.47 Familiarize the student with the Operations level responder's role in the hazardous materials emergency.
- 1.48 Familiarize the student with hazardous materials protective clothing and equipment.
- 1.49 Educate the student to identify vehicles transporting hazardous materials.
- 1.50 Familiarize the student with the control zone system.
- 1.51 Familiarize the student with decontamination procedures.
- 1.52 Familiarize the student with incident termination procedures.
- 1.53 Review the basic concepts and knowledge base of the entry level fire fighter.
- 1.54 Allow testing of all qualified students
- 1.55 Acclimatize the student to the disciplinary regimen and conduct standards of the fire service.

2. OUTCOMES

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

ORGANIZATION

- 2.1 describe the organization of the fire department.
- 2.2 explain the Firefighter I's role as a member of the organization.
- 2.3 explain the mission of the fire service and of the local fire department.
- 2.4 explain the function of a standard operating procedure.
- 2.5 explain fire department rules and regulations that apply to the position of fire-fighter.
- 2.6 explain the basic components of incident management and the firefighter's role within the local incident management system
- 2.7 explain the role of other agencies that may respond to emergencies.
- 2.8 describe the components of member assistance.
- 2.9 explain the Firefighter II's role as a member of the organization.
- 2.10 explain the responsibilities of the fire fighter in assuming and transferring command within an incident management system.

SAFETY

- 2.11 describe the responsibilities of a firefighter as required by NFPA 1500, Standard on Fire Department Occupational Safety and Health Program and adopted by the authority having jurisdiction.
- 2.12 describe the elements of a personnel accountability system and demonstrate the application of the system at an incident.
- 2.13 identify dangerous building conditions created by fire.
- 2.14 demonstrate techniques for action when trapped or disoriented in a fire situation or in a hostile environment.
- 2.15 explain hazards related to electrical emergencies.
- 2.16 demonstrate safety procedures when using fire service lighting equipment, given the following:
 - (a) power supply (portable or mounted),
 - (b) lights,
 - (c) cords,
 - (d) connectors,
 - (e) ground fault interrupter (GFI).
- 2.17 demonstrate the use of seat belts, noise barriers, and other safety equipment provided for protection while riding on apparatus.
- 2.18 demonstrate safety procedures when mounting, dismounting, and operating around fire apparatus.
- 2.19 shut off the utility service to a building.
- 2.20 identify a minimum of three common types of accidents or injuries, and their causes, which occur in the following locations:
 - (a) fire ground,
 - (b) responding or returning,
 - (c) training,
 - (d) none fire emergencies,
 - (e) other on duty locations.
- 2.21 identify safety procedures for ensuring a safe station/facility environment.
- 2.22 identify potential long-term consequences of exposure to products of combustion.
- 2.23 identify applicable local, state/provincial and federal laws and regulations related to occupational health and safety.

TOOLS

- 2.24 demonstrate the service and maintenance of portable power plants and lighting equipment.
- 2.25 safely operate a total of 12 types of hand and power tools used for forcible entry, rescue, and ventilation.

ALARMS AND COMMUNICATIONS

- 2.26 explain the procedures for a citizen to report a fire or other emergency.
- 2.27 explain the procedures for receiving an alarm from dispatch or a report of an emergency from the public and then demonstrate appropriate action.
- 2.28 define the purpose and function of all alarm receiving instruments and personnel-alerting equipment provided to the department and its members.
- 2.29 identify procedures required for receipt and processing of business and personal calls.
- 2.30 define and demonstrate prescribed fire department radio procedures, including:
 - (a) routine traffic,
 - (b) emergency traffic,
 - (c) emergency evacuation signals.
- 2.31 define the policy and demonstrate the procedures concerning the ordering and transmitting of multiple alarms of fire and calls for special assistance from the emergency scene.
- 2.32 identify supervisory alarm equipment provided in the fire station and the prescribed action to be taken upon receipt of designated signals.
- 2.33 identify fire location indicators provided to direct fire fighters to specific locations in protected public or private properties.

FIRE BEHAVIOR

- 2.34 define fire.
- 2.35 define the fire triangle and tetrahedron.
- 2.36 identify the following conditions and explain their associated hazards and appropriate actions:
 - (a) incipient fire,
 - (b) roll over,
 - (c) not smoldering fire,
 - (d) flash over,
 - (e) steady state burning,
 - (f) back draft.
- 2.37 identify three products of combustion commonly found in structural fires that create a life hazard.
- 2.38 define the three methods of heat transfer.
- 2.39 define the three stages of matter in which fuels are commonly found.
- 2.40 define the relationship of the concentration of oxygen to combustibility and life safety.
- 2.41 describe the process of thermal layering that occurs in structural fires and how to avoid disturbing the normal layering of heat.
- 2.42 define the following units of heat measurement:
 - (a) British thermal unit (Btu),
 - (b) Fahrenheit (F),
 - (c) Celsius (C),
 - (d) Calorie (c).
- 2.43 define the hazard of finely divided fuels as they relate to the combustion process.
- 2.44 define flash point, fire point, and ignition temperature.
- 2.45 identify 2 chemicals, mechanical and electrical energy heat sources.

EXTINGUISHERS

- 2.46 identify the classification of types of fire as they related to the use of portable extinguishers.
- 2.47 explain the portable extinguishers rating system.
- 2.48 identify the appropriate extinguishers and the application procedures for the various classes of fire, given a group of differing extinguishers.
- 2.49 extinguish Class A and B fires using the appropriate fire extinguishers.

PROTECTIVE EQUIPMENT

- 2.50 identify the function of the following articles of protective equipment:
 - (a) helmet (with eye shield),
 - (b) hood,
 - (c) boots,
 - (d) gloves,
 - (e) protective coat,
 - (f) protective trousers,
 - (g) self-contained breathing apparatus (SCBA),
 - (h) personal alert safety system (PASS),
 - (I) eye protection.
- 2.51 identify and demonstrate the care, use, inspection, maintenance, and limitations of the protective clothing and equipment assigned or available for use.
- 2.52 demonstrate the donning and doffing of all protective equipment.

SELF CONTAINED BREATHING APPARATUS

- 2.53 identify the hazardous environments requiring the use of respiratory protection.
- 2.54 identify the physical requirements of an SCBA wearer.
- 2.55 describe the uses and limitations of SCBA.
- 2.56 identify each component and safety feature of the SCBA.
- 2.57 describe the function of each component of the SCBA.
- 2.58 demonstrate donning and doffing the SCBA while wearing protective clothing.

- 2.59 demonstrate that the SCBA is in a safe condition for immediate use.
- 2.60 demonstrate the use of SCBA in conditions of obscured visibility.
- 2.61 demonstrate the use of SCBA in conditions of restricted passage.
- 2.62 demonstrate the following emergency procedures to be used in the event of SCBA failure:
 - (a) use of the emergency by-pass or purge valve,
 - (b) conservation of air,
 - (c) breathing from the breathing tube or regulator in the event of a face piece failure.
- 2.63 demonstrate techniques for maximizing the air capacity of a SCBA under work conditions.
- 2.64 replace an expended cylinder on a SCBA assembly with a full cylinder.
- 2.65 demonstrate and document routine maintenance for SCBA, including inspection, cleaning, sanitizing, and cylinder recharging.
- 2.66 demonstrate rescue procedures for the following, without compromising the rescuer's respiratory protection:
 - (a) a fire fighter with functioning respiratory protection,
 - (b) a fire fighter without functioning respiratory protection,
 - (c) a civilian without respiratory protection.

FORCIBLE ENTRY

- 2.67 identify materials and construction features of doors, windows, and walls and the danger associated with forcing entry through each.
- 2.68 force entry through at least 3 different types each of doors, windows, and walls.
- 2.69 identify materials and construction features of door and window locking devices.
- 2.70 identify the method and demonstrate procedures of through-the-lock entry for doors and windows.
- 2.71 identify methods and procedures for cleaning, maintaining, and inspecting hand tools used for forcible entry.
- 2.72 identify and safely carry at least 1 of the following:
 - (a) cutting tool,
 - (b) prying tool,
 - (c) pulling tool,
 - (d) striking tool.

VENTILATION

- 2.73 define the principles of ventilation, and identify the advantages and effects of proper ventilation.
- 2.74 identify the safety considerations and precautions to be taken while ventilating a structure.
- 2.75 explain the advantages and disadvantages of the following types of ventilation:
 - (a) vertical,
 - (b) horizontal,
 - (c) trench/strip,
 - (d) mechanical,
 - (e) mechanical pressurization,
 - (f) hydraulic.
- 2.76 identify the signs, causes, and effects of backdraft explosions.
- 2.77 identify methods of preventing a backdraft explosion.
- 2.78 identify the types of tools used during ventilation.
- 2.79 explain the characteristics of, and list necessary precautions when ventilating at least the following roof types:
 - (a) flat,
 - (b) shed,
 - (c) pitched,
 - (d) arched.
- 2.80 demonstrate how to determine the integrity of a roof system by sounding.
- 2.81 describe how the following factors are used to determine the integrity of a roof system:
 - (a) construction,
 - (b) visual observation,
 - (c) elapsed time of fire.

- 2.82 define procedures for the types of ventilation referred to in 3-9.3.
- 2.83 demonstrate opening various types of windows from inside and outside, with and without the use of tools.
- 2.84 demonstrate breaking window or door glass and removing obstructions.
- 2.85 demonstrate the ventilation of both pitched and flat roofs using both hand and power tools.
- 2.86 identify the manual and automatic venting devices found within structures.
- 2.87 describe the operations and considerations necessary to control the spread of smoke and fire through duct systems, including:
 - (a) determining location & routing of ducts,
 - (b) shutting down systems to prevent spread of heat and smoke,
 - (c) examining duct system after thorough ventilation,
 - (d) checking false ceilings or framing enclosing duct systems,
 - (e) checking duct system outlets,
 - (f) determining if duct system has opening, smoke dampers, or smoke detectors.
- 2.88 identify considerations that must be made when determining the location and size of a ventilation opening, including:
 - (a) availability of natural openings,
 - (b) location of the fire,
 - (c) direction in which the fire will be drawn,
 - (d) type of building construction,
 - (e) wind direction,
 - (f) progress of the fire,
 - (g) condition of the building,
 - (h) obstructions,
 - (I) relative efficiency of large vs. small openings.
- 2.89 identify the location of the opening, the method to be used, and the precautions to be taken when ventilating a basement.
- 2.90 identify fire ground situations where forced ventilation procedures may be required.

ROPES AND KNOTS

- 2.91 explain the uses of and tie a bowline knot, a clove hitch, figure of eight on the bight, a becket or sheet bend, overhand safety knot, and half hitch, given the proper size and amount of rope.
- 2.92 tie an approved knot and hoist any selected forcible entry tool, pike pole/hook, ground ladder, hoseline, extinguisher, or appliance to a height of at least 12 ft (3.7 m) given the proper rope.
- 2.93 demonstrate the procedures of inspecting, maintaining, and storing rope.
- 2.94 use a rope to tie ladders, hose, and other objects to secure them.
- 2.95 identify the reasons for placing a rope out of service.
- 2.96 distinguish between life safety and utility ropes.
- 2.97 select the appropriate size, strength, type, and length of rope to accomplish a fire fighting or rescue task requiring the use of rope.
- 2.98 select an appropriate knot, given a fire fighting or rescue task requiring the use of rope.

LADDERS

- 2.99 identify and describe the use of the following types of ladders:
 - (a) folding/attic,
 - (b) roof,
 - (c) extension,
 - (d) straight/well,
 - (e) aerial devices.
- 2.100 carry, position, raise, and lower the following ground ladders:
 - (a) 14 ft (4.3 m) single or wall ladder,
 - (b) 24 ft (7.3 m) extension ladder,
 - (c) 35 ft (10.7 m) extension ladder,
 - (d) folding/attic ladder.

- 2.101 demonstrate the procedures of working from ground or aerial ladders with tools and appliances, with and without a safety harness.
- 2.102 climb the full length of each type of ground and aerial ladder available to the authority having jurisdiction and demonstrate:
 - (a) carrying fire fighting tools or equipment while ascending and descending,
 - (b) bringing an injured person down the ladders.
- 2.103 demonstrate the deployment of a roof ladder on a pitched roof.
- 2.104 identify the materials used in ladder construction.
- 2.105 identify the load capacities established by NFPA 1931, Standard on design of and Design Verification Tests for Fire Dept. Ground Ladders, and NFPA 1904, standard for Aerial Ladder & Elevating Platform Fire Apparatus, for ground and aerial ladders.
- 2.106 demonstrate the procedures for cleaning ladders.
- 2.107 demonstrate inspection and maintenance procedures for different types of ground and aerial ladders.
- 2.108 describe the annual service test for ground ladders.

HOSE

- 2.109 describe the application of each size and type of hose on a pumper as required to be carried by NFPA 1901, Standard for Pumper Fire Apparatus.
- 2.110 demonstrate the use of nozzles, adapters, and hose appliances and tools on a pumper as required to be carried by NFPA 1901 Standard for Pumper Fire Apparatus.
- 2.111 advance uncharged and charged attack lines of two different sizes, 1 1/2 inch (38 mm) or larger, from a pumper, given the necessary equipment and operating as a member of a team for the following evolutions:
 - (a) into a structure.
 - (b) up a ladder to a second floor landing,
 - (c) up an inside stairway to an upper floor,
 - (d) up an outside stairway to an upper floor,
 - (e) down an inside stairway to a lower floor,
 - (f) down an outside stairway to a lower floor,
 - (g) to an upper floor by hoisting.
- 2.112 demonstrate the following, given fire hose used for fire attack (minimum of 1 1/2 in- 38mm) and water supply (minimum of 2 1/2 in- 65mm):
 - (a) three types of hose loads and finishes,
 - (b) three types of hose rolls,
 - (c) coupling and uncoupling tow lengths,
 - (d) two hose carries,
 - (e) extending hose lines,
 - (f) replacing burst sections of hose.
- 2.113 demonstrate operation of a charged attack line 1 1/2 in (38 mm) or larger from a ground ladder.
- 2.114 carry a 100 ft (30 m) attack line 1 1/2 in (38mm) or larger into a building, connect it to a standpipe, and advance the line from the standpipe.
- 2.115 hand lay 300 ft (90 m) of supply line 2 1/2 in (65 mm) or larger from a pumper to a water source.

FIRE STREAMS

- 2.116 define a fire stream.
- 2.117 define water hammer and at least one method for its prevention.
- 2.118 demonstrate how to open and close a nozzle and how to adjust its stream pattern and flow setting, when applicable.
- 2.119 identify the type, design, operation, required nozzle pressure, and flow of a given selection of nozzles and tips.
- 2.120 define the following methods of water application.
 - (a) direct,
 - (b) indirect,
 - (c) combination.

- 2.121 identify precautions to be followed while advancing hose lines to a fire.
- 2.122 identify 3 observable results that are obtained when the proper application of a fire stream is accomplished.
- 2.123 select the proper nozzle and hose for fire attack, given 3 different fire situations.
- 2.124 select adapters and appliances to be used in 3 specific fire ground situations.
- 2.125 demonstrate the procedures for cleaning and maintaining fire hose, couplings, and nozzles and inspecting for damage.
- 2.126 demonstrate an annual service test for fire hose.
- 2.127 describe and demonstrate the operation of fog and solid stream nozzles.
- 2.128 identify the rate of water flow necessary to control fire in a room of specified volume.
- 2.129 describe the advantages and disadvantages of solid and fog streams.
- 2.130 assemble and operate a foam fire stream arrangement given the appropriate equipment.
- 2.131 demonstrate the methods for applying a foam stream.
- 2.132 define the 4 methods by which foam prevents or controls a hazard.
- 2.133 define the principle by which foam is generated.
- 2.134 define common causes for the poor generation of foam and identify the procedures for correcting each.
- 2.135 define the difference between hydrocarbon and polar solvent fuels and identify the type of foam concentrate required for each fuel.
- 2.136 define the advantages, characteristics, and precautions for use of the following types of foam:
 - (a) protein,
 - (b) fluoroprotein,
 - (c) film forming Fluoroprotein (FFFP),
 - (d) aqueous film forming foam (AFFF),
 - (e) hazardous materials vapor mitigating foam,
 - (f) medium and high expansion foam,
 - (g) class A foams.
- 2.137 define the precautions that must be taken when using high expansion foam to attack structural fires.

LIVE FIRE TRAINING

- 2.138 extinguish or control the following live fires working as a member of a team and using appropriate protective equipment, fire fighting tools, and extinguishing agents:
 - (a) piles/stacks of Class A combustible materials (exterior),
 - (b) open pans of combustible liquids (exterior),
 - (c) vehicle fires,
 - (d) storage containers (exterior dumpster/trash bin),
 - (e) class A combustible materials within a structure (interior attack).
- 2.139 explain the procedures for extinguishing ground cover fires.
- 2.140 extinguish or control the following live fires working as a member of a team and using appropriate protective equipment, fire fighting tools, extinguishing agents:
 - (a) an exterior combustible liquids fire of at least 100 sq. ft. using a foam fire stream,
 - (b) a fire in an elevated location within a structure (e.g. upper level floor, attic),
 - (c) a hidden fire within a structure (e.g. within walls, crawl space),
 - (d) a fire involving a flammable gas cylinder (exterior),
 - (e) a fire in a below grade area or other location requiring initial attack from above.

SALVAGE AND OVERHAUL

- 2.141 identify the purpose of salvage and its value to the public and the fire department.
- 2.142 demonstrate 2 folds and rolls for salvage covers.
- 2.143 demonstrate 2 methods of deploying salvage covers to cover property.
- 2.144 demonstrate the construction and use of a water chute.
- 2.145 demonstrate the construction and use of a water catch-all.
- 2.146 demonstrate the covering and closing of building openings, including doors, windows, floors, and roofs.

- 2.147 demonstrate the removal of debris and the removal and routing of water from a structure.
- 2.148 demonstrate the procedures of inspection, cleaning, and maintaining salvage equipment.
- 2.149 identify the purpose of overhaul.
- 2.150 explain at least 4 indicators of hidden fires.
- 2.151 expose hidden fires by opening ceilings, walls, and floors and by pulling apart burned materials.
- 2.152 separate, remove, and relocate charred materials to a safe location while protecting the area of origin for determination of cause.
- 2.153 define duties of fire fighters left at the fire scene for fire and security surveillance.
- 2.154 identify the procedures and safety precautions to follow during overhaul.
- 2.155 list 5 indicators of structure instability.
- 2.156 identify and preserve evidence of fire cause and origin.
- 2.157 identify the procedures for restoration of the premises after a fire.

INFECTION CONTROL

- 2.158 define the principles of infection control and universal blood and body fluid precautions as prescribed for public safety workers by the Center for Disease Control in Guidelines for Prevention of Transmission of Human Immunodeficiency Virus and Hepatitis B Virus to Health-Care and Public-Safety Works.
- 2.159 demonstrate the use, decontamination, disinfection, and disposal of personal protective equipment used for protection from infection.

EMERGENCY MEDICAL CARE

- 2.160 perform the following procedures as defined in the Journal of American Medical Association, Standards and Guidelines for Cardiopulmonary Resuscitation (CPR) and Emergency Cardiac Care (ECC):
 - (a) single rescuer CPR.
 - 1. adult,
 - 2. child,
 - 3. infant.
 - (b) two rescuer CPR on an adult.
 - (c) management of an obstructed airway.
 - 1. conscious and unconscious adult,
 - 2. conscious and unconscious child,
 - 3. conscious and unconscious infant.
- 2.161 demonstrate the use of a resuscitation mask in the performance of single- and two-rescuer CPR.
- 2.162 demonstrate a primary survey for life threatening injuries.
- 2.163 identify 3 types of external bleeding and the characteristics of each type.
- 2.164 demonstrate 3 procedures for controlling external bleeding.
- 2.165 identify characteristics and emergency medical care of thermal burns according to degree and severity.
- 2.166 demonstrate emergency medical care for chemical burns, including chemical burns of the eyes.
- 2.167 identify the symptoms and demonstrate emergency medical care of traumatic shock.
- 2.168 identify the symptoms and demonstrate emergency medical care for ingested poisons and drug overdoses.
- 2.169 identify the method of contacting the poison control center that serves the local jurisdiction.

SEARCH AND RESCUE

- 2.170 define and demonstrate primary and secondary search procedures under fire conditions:
 - (a) with a rope or hose line,
 - (b) without a rope or hose line.
- 2.171 don a life safety harness that meets the requirements of NFPA 1983, Standard on Fire Service Life Safety Rope, Harnesses, and Hardware.
- 2.172 inspect a life safety harness and identify the conditions that would require its removal from service.

- 2.173 demonstrate the removal of injured persons from an immediate hazard by the use of carries, drags, and stretchers.
- 2.174 describe the techniques and safety procedures as they apply to the following rescue activities:
 - (a) structural collapses,
 - (b) trench collapses,
 - (c) caves and tunnels,
 - (d) water and ice emergencies,
 - (e) elevators and escalators,
 - (f) emergencies involving energized electrical lines,
 - (g) industrial accidents,
 - (h) other hazards particular to the local jurisdiction.
- 2.175 demonstrate the use of the following rescue tools:
 - (a) cribbing and shoring material,
 - (b) block and tackle,
 - (c) hydraulic devices,
 - (d) pneumatic devices,
 - (e) ratchet device.
- 2.176 demonstrate the following evolutions, which may be required to extricate an entrapped victim of a motor vehicle accident by displacing:
 - (a) vehicle roof,
 - (b) vehicle door,
 - (c) vehicle windshield,
 - (d) steering wheel,
 - (e) steering column and dashboard.
- 2.177 raise and lower a person a maximum of 20 vertical ft (6 m) with a rope rescue system.

WATER SUPPLY

- 2.178 connect a supply hose to a hydrant and fully open and close the hydrant.
- 2.179 demonstrate hydrant-to-pumper hose connections for forward and reverse hose lays.
- 2.180 assemble and connect the equipment necessary for drafting from a static water supply source.
- 2.181 describe the deployment of a portable water tank.
- 2.182 describe the assembling of equipment necessary for the transfer of water between portable water tanks.
- 2.183 describe loading and off-loading of tanks on mobile water supply apparatus.
- 2.184 identify the water distribution system and other water sources in the local community.
- 2.185 identify the following parts of a water distribution system:
 - (a) distributors,
 - (b) primary feeders,
 - (c) secondary feeders.
- 2.186 explain the operation of a:
 - (a) dry barrel hydrant,
 - (b) wet barrel hydrant.
- 2.187 define the following terms as they relate to water supply:
 - (a) static pressure,
 - (b) normal operating pressure,
 - (c) residual pressure,
 - (d) flow pressure.
- 2.188 identify the following types of water main valves:
 - (a) indicating,
 - (b) nonindicating.
- 2.189 describe how the following conditions reduce hydrant effectiveness:
 - (a) obstructions to use of hydrant,
 - (b) direction of hydrant outlets to suitability of use,
 - (c) mechanical damage,
 - (d) rust and corrosion,

- (e) failure to open the hydrant fully,
- (f) susceptibility to freezing.
- 2.190 identify the apparatus, equipment, and appliances required to provide water at rural locations by relay pumping or a mobile water supply apparatus shuttle.
- 2.191 Identify and explain the 4 fundamental components of a modern water system.
- 2.192 given a Pitot tube and gauge, read and record flow pressures from three different size orifices.
- 2.193 identify the pipe sizes used in water distribution systems for residential, business and industrial districts.
- 2.194 identify 2 causes of increased resistance or friction loss in water mains.

SPRINKLER SYSTEMS

- 2.195 define the value of automatic sprinklers in providing safety to the occupants of a structure.
- 2.196 identify a fire department sprinkler connection and water motor alarm.
- 2.197 connect hose line(s) to a fire department connection of a sprinkler or standpipe system.
- 2.198 explain how the automatic sprinkler head activates and releases water.
- 2.199 stop the flow of water from a sprinkler head using a wedge or stopper.
- 2.200 identify the main control valve on an automatic sprinkler system.
- 2.201 operate a main control valve on an automatic sprinkler system from open to closed and then back to open.
- 2.202 identify the sources of water supply for sprinkler systems including:
 - (a) public water systems,
 - (b) gravity tank,
 - (c) pressure tanks,
 - (d) pumps,
 - (e) fire department connections.
- 2.203 describe how the direction of water flow through a fire department connection check valve can be determined, including:
 - (a) arrows,
 - (b) pivot casting.
- 2.204 identify the location and appearance of the control and operating valves of a sprinkler system, including:
 - (a) outside screw and yoke (OS & Y),
 - (b) post indicator,
 - (c) wall post indicator.
- 2.205 identify the main drain valve on an automatic sprinkler system.
- 2.206 open and close a main drain valve on an automatic sprinkler system.
- 2.207 identify and define the dangers of the premature closure of a sprinkler main control valve and of using hydrants to supply hose streams when the same water system is supplying the automatic sprinkler system.
- 2.208 identify the difference between an automatic sprinkler system that affords complete coverage and a partial sprinkler system.
- 2.208 Describe the following types of sprinkler systems:
 - (a) wet pipe,
 - (b) dry pipe,
 - (c) deluge,
 - (d) residential.
- 2.209 read and record the indicated pressures on all gauges provided on a standard wet pipe automatic sprinkler system and identify each gauge.
- 2.210 read and record the indicated pressures on all gauges provided on a standard dry pipe automatic sprinkler system and identify each gauge.
- 2.211 define the reliability of automatic sprinkler systems and give 8 reasons for unsatisfactory performance.

HAZARDOUS MATERIALS: FIRST RESPONDER AWARENESS AND OPERATIONS

- 2.212 meet the requirements defined in NFPA 472, Standard for Professional Competence of Responders to Hazardous Materials Incidents, Section 2-2, First Responder Awareness Level.
- 2.213 meets the requirements defined in NFPA 472, Standard for Professional Competence of Hazardous Materials Incidents, Chapter 3, First Responder Operational Level.

PREVENTION

- 2.214 identify 5 common causes of fires and their prevention.
- 2.215 define the importance of inspection and public fire education programs to fire department public relations and the community.
- 2.216 demonstrate inspection procedures for private dwellings.
- 2.217 present a prepared program to an identified audience, given a lesson plan, time allotment, and instructional materials for the following topics:
 - (a) stop, drop and roll,
 - (b) crawl low in smoke,
 - (c) escape planning,
 - (d) alerting others,
 - (e) calling the fire department,
 - (f) fire station tour,
 - (g) residential smoke detector placement and maintenance.
- 2.218 document the presentation of a program covered in 2.217, given a reporting form that includes:
 - (a) program title,
 - (b) number of participants,
 - (c) evaluations.
- 2.219 prepare a prefire plan that includes diagrams or sketches of a building to record the location of items of concern.
- 2.220 complete a basic fire incident report and describe the importance of this information.
- 2.221 conduct a building fire safety survey and prepare a written report summarizing the results.
- 2.222 identify school exit drill procedures.
- 2.223 identify life safety programs for the home.
- 2.224 identify common fire hazards and make recommendations for their correction.
- 2.225 identify responsibilities of the fire fighter in determining the point of origin, cause, and protection of evidence in fires.
- 2.226 inspect fire protection standpipe systems for readiness, including visual inspection of hose (where provided), nozzles, hose outlet, threads, and fire department connections.
- 2.227 identify smoke, flame and heat-detection alarm systems.
- 2.228 identify the fire hazards commonly found in manufacturing, commercial, residential, and public assembly occupancies.

BUILDING CONSTRUCTION

- 2.229 identify standard types of chimneys and flues and recognize deficiencies likely to cause fires.
- 2.230 describe the basic structural characteristics of the following types of building construction:
 - (a) wood frame,
 - (b) ordinary,
 - (c) heavy timber,
 - (d) non-combustible,
 - (e) fire resistant.
- 2.231 identify the general fire behavior expected with each type of building construction, including the spread of fire and the safety of the building, occupants and fire fighters.
- 2.232 describe at least 3 hazards associated with truss and lightweight construction.
- 2.233 identify dangerous building conditions created by fire and fire suppression activities.
- 2.234 identify 5 indicators of building collapse.
- 2.235 describe the effects of fire and fire suppression activities on the following building materials:
 - (a) wood,
 - (b) masonry (brick, block, stone),

- (c) cast iron,
 - (d) steel,
 - (e) reinforced concrete,
 - (f) gypsum wall board,
 - (g) glass,
 - (h) plaster on lath.
- 2.236 define the following terms as they relate to building construction:
- (a) veneer wall (exterior),
 - (b) party wall,
 - (c) fire wall,
 - (d) partition wall,
 - (e) cantilever or unsupported wall,
 - (f) load bearing.

CONDUCT AND DISCIPLINE

- 2.237 demonstrate the discipline required of an entry-level fire fighter.
- (a) apply the behavioral characteristics required of an entry level fire fighter.

3. METHODS OF INSTRUCTION

- 3.1 Lecture and class discussion
- 3.2 Practical skill demonstration
- 3.3 Textbook and supplemental audiovisual materials
- 3.4 Group activity
- 3.5 Live fire training

4. LEARNING ACTIVITIES

- 4.1 Lectures and audiovisual materials
- 4.2 Class discussions
- 4.3 Individual and group activities requiring oral and physical presentation to the class
- 4.4 Role-playing
- 4.5 Physical training and teambuilding exercises
- 4.6 Simulated field exercises.
- 4.7 Specially designed fire fighting exercises

5. EVALUATION

- 5.1 Exams
- 5.2 Assignments
- 5.3 Participation

6. STUDENT RESPONSIBILITIES

- 6.1 Under AWC Policy, students are expected to attend every session of class in which they are enrolled.
- 6.2 If a student is unable to attend the course or must drop the course for any reason, it will be the responsibility of the student to withdraw from the course. Students who are not attending as of the 45th day of the course may be withdrawn by the instructor. If the student does not withdraw from the course and fails to complete the requirements of the course, the student will receive a failing grade.
- 6.3 Americans with Disabilities Act Accommodations: Arizona Western College provides academic accommodations to students with disabilities through AccessABILITY Resource Services (ARS). ARS provides reasonable and appropriate accommodations to students who have documented disabilities. It is the responsibility of the student to make the ARS Coordinator aware of the need for accommodations in the classroom prior to the beginning of the semester. Students should

follow up with their instructors once the semester begins. To make an appointment call the ARS front desk at (928) 344-7674 or ARS Coordinator at (928) 344-7629, in the College Community Center (3C) building, next to Advising.

- 6.4 Academic Integrity: Any student participating in acts of academic dishonesty—including, but not limited to, copying the work of other students, using unauthorized “crib notes”, plagiarism, stealing tests, or forging an instructor’s signature—will be subject to the procedures and consequences outlined in AWC’s Student Code of Conduct.
- 6.5 Texts and Notebooks: Students are required to obtain the class materials for the course.
- 6.6 Arizona Western College students are expected to attend every class session in which they are enrolled. To comply with Federal Financial Aid regulations (34 CFR 668.21), Arizona Western College (AWC) has established an Attendance Verification process for “No Show” reporting during the first 10 days of each semester.
- Students who have enrolled but have never attended class may be issued a “No Show” (NS) grade by the professor or instructor and receive a final grade of “NS” on their official academic record. An NS grade may result in a student losing their federal financial aid.
- For online classes, *student attendance in an online class is defined as the following* (FSA Handbook, 2012, 5-90):
- Submitting an academic assignment
 - Taking an exam, an interactive tutorial or computer-assisted instruction
 - Attending a study group that is assigned by the school
 - Participating in an online discussion about academic matters
 - Initiating contact with a faculty member to ask a question about the academic subject studied in the course