

EASTERN ARIZONA COLLEGE Fire Department Operations I

Course Design

2019-2020

Course Information

Division Allied Health
Course Number FSC 101
Title Fire Department Operations I
Credits 6
Developed by Charles A. Jacobs
Lecture/Lab Ratio 5 Lecture/2 Lab

Transfer Status

ASU	NAU	UA
Non Transferable	Elective Credit	Non Transferable

Activity Course No
CIP Code 43.0203
Assessment Mode Pre/Post Test (50 Questions/50 Points)
Semester Taught Upon Request
GE Category None
Separate Lab No
Awareness Course No
Intensive Writing Course No
Diversity and Inclusion Course No

Prerequisites

None

Educational Value

Adult learners who are interested in receiving training in Fire Department Operations and to prepare for the Arizona Structural Fire Fighter I & II Certificates.

Description

This course is primarily designed for new fire department recruits or students wishing to become structural firefighters. The course covers all aspects of fire department operations including equipment and personnel policies. Preparation for Arizona Structural Fire Fighter certification through the Arizona Center for Fire Service Excellence (ACFSE) using International Fire Service Accreditation Congress (IFSAC) standards and testing.

Supplies

None

Competencies and Performance Standards

1. Describe basic fire department organizational structure and operating procedures and distinguish among the duties and functions of fire department personnel.

Learning objectives

What you will learn as you master the competency:

- a. Match fire department organization principles to their descriptions.
- b. Match fire companies to their functions and duties.
- c. List the primary knowledge and skills needed by a firefighter to function effectively.
- d. List typical duties of a Firefighter I.
- e. Match fire department personnel to primary roles.
- f. Match special operations personnel to their primary responsibilities.
- g. Match fire prevention, emergency medical services, and training personnel to their primary responsibilities.
- h. Select facts about fire department regulations.
- i. Identify the major operational positions within the IMS structure.
- j. Match IMS terms to their definitions.
- k. Select facts about implementing an IMS.
- l. Select facts about fire service interaction with other organizations.

Performance Standards

You will demonstrate your competence:

- o in the classroom and lab
- o by written exam
- o by practical exam

Performance will be successful when:

- o learner has passed the written exam with a score of 70% or greater
- o learner has satisfactorily performed to practical exam

2. Follow basic fire station, apparatus, and safety procedures and guidelines.

Learning objectives

What you will learn as you master the competency:

- a. Select facts about firefighter safety.
- b. List areas in which an employee assistance program can help.
- c. Select facts about an employee assistance program.
- d. Select facts about safety on the apparatus.
- e. Safely mount, use apparatus safety equipment, and dismount apparatus.
- f. Select facts about personal safety in the fire station.
- g. Demonstrate proper lifting techniques.
- h. List general safety procedures for using station shop hand tools and power tools.
- i. List safety rules for using power saws.
- j. Select facts about training safety.
- k. Select facts about emergency scene safety.

Performance Standards

You will demonstrate your competence:

- o in the classroom and lab
- o by written exam
- o by practical exam

Performance will be successful when:

- o learner has passed the written exam with a score of 70% or greater
- o learner has satisfactorily performed to practical exam

3. Predict probable fire behaviors and know the actions necessary to change or prevent these behaviors.

Learning objectives

What you will learn as you master the competency:

- a. Match measurement term to their definitions.
- b. Match types and states of energy to their definitions.
- c. Distinguish among the three methods of heat transfer.
- d. Match properties of matter to their definitions.
- e. State the Law of Conservation of Mass-Energy.
- f. Identify chemical reactions.
- g. Provide examples of oxidation.
- h. Use the fire tetrahedron to explain combustion.
- i. Select fact about oxidation agents.
- j. Select and correct incorrect statements about fuel characteristics.
- k. Explain how fuel gases evolve from solids and liquids.
- l. Provide specific examples of each force of chemical and electrical heat energy.
- m. Describe ways in which mechanical and nuclear heat are generated.
- n. Identify stages of compartment fire development.
- o. List factors that affect fire development.
- p. Explain why thermal layering is critical to firefighting activities.
- q. List signs of possible backdraft.
- r. Select facts about the products of combustion.
- s. Select facts about fire extinguishment theory.
- t. Match fire classes to their descriptions.
- u. Match fire classes to their primary extinguishment methods.

Performance Standards

You will demonstrate your competence:

- o in the classroom and lab
- o by written exam
- o by practical exam

Performance will be successful when:

- o learner has passed the written exam with a score of 70% or greater
- o learner has satisfactorily performed the practical exam

4. Identify structural characteristics of building constructing types and recognize signs and causes of potential building collapse.

Learning objectives

What you will learn as you master the competency:

- a. Match Roman numeral building construction types to their basic structural characteristics.
- b. Match Roman numeral classifications to their building construction descriptions.
- c. Match types of construction to descriptions of the primary fire hazards associated with each.
- d. Distinguish among types of walls.
- e. List firefighting hazards related to construction.
- f. Answer questions about the hazards associated with lightweight and truss construction.
- g. List factors that increase fire risk in buildings being constructed, renovated, or demolished.
- h. List actions to take when imminent building collapse is suspected.

Performance Standards

You will demonstrate your competence:

- o in the classroom and lab
- o by written exam
- o by practical exam

Performance will be successful when:

- o learner has passed the written exam with a score of 70% or greater
- o learner has satisfactorily performed to practical exam

5. Don and doff protective clothing and use a PASS device.

Learning objectives

What you will learn as you master the competency:

- a. Match articles of protective clothing and equipment to their correct functions.
- b. Don and doff articles of protective clothing/equipment.
- c. Select factors about personal protective gear.
- d. List the four hazardous atmospheres that require the firefighter to wear SCBA.
- e. Match toxic atmospheres to their characteristics.
- f. Match toxic atmospheres to their sources.
- g. Match toxic atmospheres to locations in which they are most likely to be found.
- h. Select facts about hazardous substances and atmospheres.

Performance Standards

You will demonstrate your competence:

- o in the classroom and lab
- o by written exam
- o by practical exam

Performance will be successful when:

- o learner has passed written exam with a score of 70% or greater
- o learner has satisfactorily performed the practical exam

6. Safely use, clean, refill, inspect, and store SCBA.

Learning objectives

What you will learn as you master the competency:

- a. List physical, mental, and medical factors that affect the firefighter's ability to use SCBA.
- b. Describe equipment and air-supply limitations of SCBA.
- c. List characteristics of open-circuit and closed-circuit SCBA.
- d. Label the components and safety features of an SCBA.
- e. Match SCBA components to their functions.
- f. Complete precautions for safe SCBA use.
- g. Complete guidelines for correcting emergency situations while wearing SCBA.
- h. Complete recommendations for the use of PASS devices.
- i. Select from a list guidelines general to donning the face piece and doffing all types of SCBA.
- j. Don and doff open-circuit SCBA, using over-the-head and coat methods.
- k. Operate in areas of obscured visibility while wearing SCBA.
- l. Exit a constricted opening while wearing standard SCBA.
- m. Change an SCBA cylinder "on scene".
- n. Select facts about SCBA operation, use, and maintenance.
- o. Clean, sanitize, and inspect an SCBA unit.

Performance Standards

You will demonstrate your competence:

- o in the classroom and lab
- o by written exam
- o by practical exam

Performance will be successful when:

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- o learner has satisfactorily performed the practical exam

7. Identify and properly know, use and maintain various types of rope used in the fire service.

Learning objectives

What you will learn as you master the competency:

- a. Distinguish between life safety and utility rope applications.
- b. List criteria for reusing life safety rope.
- c. Match rope materials to their descriptions.
- d. Select facts about rope construction.
- e. List basic guidelines for rope care and maintenance.
- f. List reasons for removing rope from service.
- g. Inspect rope.
- h. Select facts about rope cleaning and storage.
- i. Coil and uncoil rope.
- j. Label knot elements.
- k. Match knots to their primary applications.

- l. Tie knots commonly used in the fire service.
- m. List hoisting safety considerations.
- n. Tie approved knots and hoist tools and equipment.

Performance Standards

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- o by written exam
- o by practical exam

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- o learner has satisfactorily performed the practical exam

8. Conduct a search rescue in structure operating as a member of a team.

Learning objectives

What you will learn as you master the competency:

- a. Distinguish between rescue and extrication operations.
- b. State the objectives of building search.
- c. Define primary search and secondary search.
- d. Select guidelines for rescue from burning buildings.
- e. Select facts about firefighters who become trapped or disoriented.
- f. List safety guidelines for search operations within buildings.
- g. Select facts about victim removal.
- h. Move an injured victim to safety using appropriate carries, drags, and stretcher.

Performance Standards

You will demonstrate your competence:

- o in the classroom and lab
- o by written exam
- o by practical exam

Performance will be successful when:

- o learner has passed the written exam with a score of 70% or greater
- o learner has satisfactorily performed the practical exam

9. Identify and know appropriate applications and maintenance procedures for forcible entry tools.

Learning objectives

What you will learn as you master the competency:

- a. Identify cutting tools.
- b. Identify prying tools.
- c. Identify pushing pulling tools.
- d. Identify striking tools.
- e. Match selected forcible entry tools to their basic applications.
- f. Identify tools used for through-the-lock forcible entry.

- g. Break a door lock.
- h. Identify tools for breaking padlocks.
- i. Break a padlock.
- j. List forcible entry tool safety rules.
- k. Describe correct methods for carrying forcible entry tools.
- l. List general care and maintenance practices for forcible entry tools.

Performance Standards

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- o in the classroom and lab
- o by written exam
- o by practical exam

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- o learner has satisfactorily performed the practical exam

10. Recognize various types of construction components and use appropriate forcible entry techniques.

Learning objectives

What you will learn as you master the competency:

- a. Identify types of wood swinging doors and jambs.
- b. Match metal swinging doors to their descriptions.
- c. Identify types of sliding, revolving, and overhead doors.
- d. Select facts about fire doors.
- e. Identify locks and locking devices.
- f. Complete safety rules for breaking glass.
- g. Properly break ordinary and tempered plate glass.
- h. Select facts about forcing swinging, sliding, revolving, and overhead doors.
- i. Force doors of different types and mounts.
- j. List methods of forcible entry in special circumstances.
- k. Describe ways of gaining entry passed fences.
- l. Identify types of windows.
- m. Select facts about forcing windows and screened and barred openings.
- n. Force different types of windows.
- o. Select facts about opening floors and walls.
- p. Open a metal wall.
- q. Open a wood floor.

Performance Standards

You will demonstrate your competence:

- o in the classroom and lab
- o by written exam
- o by practical exam

Performance will be successful when:

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- learner has satisfactorily performed the practical exam

11. Identify, carry, raise, climb, inspect, and maintain fire service ground ladders.

Learning objectives

What you will learn as you master the competency:

- a. Label the parts of a fire service ladder.
- b. Identify types of fire service ground ladders.
- c. Clean and inspect a ladder.
- d. List ladder safety rules.
- e. Select facts about selecting the proper ladder for the job.
- f. Demonstrate ladder lifts and carries.
- g. Select facts about ground ladder placement.
- h. Secure a raised ladder.
- i. Demonstrate ladder raises from various carries.
- j. Properly climb and work from ground ladders, with and without a safety harness.
- k. Assist conscious and unconscious victims down ground ladders.

Performance Standards

You will demonstrate your competence:

- in the classroom and lab
- by written exam
- by practical exam

Performance will be successful when:

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- learner has satisfactorily performed the practical exam

12. Apply the principles of ventilation to appropriately ventilate a building.

Learning objectives

What you will learn as you master the competency:

- a. Define ventilation.
- b. Match types of ventilating to their descriptions.
- c. List advantages of ventilation for specific rescue, attack, conservation, and fire control operations.
- d. Identify signs of potential backdraft.
- e. List the primary ventilation method used to prevent backdraft.
- f. List life safety hazards that can affect firefighters and rescue workers in unventilated buildings.
- g. Select from a list of building factors that aid the firefighter in determining whether to use vertical or horizontal ventilation.
- h. List special considerations associated with ventilating windowless buildings and basements.
- i. Select from a list ways in which vertical fire extension occurs.

- j. Select and correct false statements about safety precautions that should be observed when performing vertical ventilation.
- k. Identify roof construction designs.
- l. Discuss the three basic types of roofs as they relate to ventilation operations.
- m. Ventilate pitched and flat roofs.
- n. Describe the way in which horizontal fire extension occurs.
- o. List advantages and disadvantages of forced ventilation.
- p. Demonstrate mechanical positive and negative pressure and hydraulic ventilation.

Performance Standards

You will demonstrate your competence:

- o in the classroom and lab
- o by written exam
- o by practical exam

Performance will be successful when:

- o learner has passed the written exam with a score of 70% or greater
- o learner has satisfactorily performed the practical exam

13. Describe the fundamentals of a water supply system and connect a fire department pumper to various water sources.

Learning objectives

What you will learn as you master the competency:

- a. Match to their correct definitions terms associated with water supply.
- b. List the four fundamental components of a modern water system.
- c. Explain methods of moving water from municipal supply to distribution systems.
- d. Explain the function of a processing or treatment facility and tell what the fire department's main concern is regarding these facilities.
- e. Label the parts of a water distribution system.
- f. State recommended water distribution system pipe sizes for residential, business, and industrial, and long mains.
- g. Identify types of water main valves.
- h. List causes of friction loss in water mains.
- i. Distinguish between wet-barrel and dry-barrel fire hydrants.
- j. Fully open and close a hydrant.
- k. Make soft-sleeve and hard-suction hydrant connections.
- l. Provide examples of alternative static water supply sources.
- m. Select fact about water shuttling and relay pumping.
- n. Deploy a portable water tank.
- o. Connect and place a hard-suction hose for drafting from a static water source.

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- o by practical exam

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14. Couple, load, and roll hose.

Learning objectives

What you will learn as you master the competency:

- a. Match terms associated with fire hose to their definitions.
- b. Match pumper hose sizes and types as required by NFPA 1901 to their correct applications.
- c. Select the proper nozzle and hose for given fire attack situations.
- d. Identify types of hose couplings.
- e. Inspect hose couplings and replace a hose gasket.
- f. List general guidelines for loading hose.
- g. Identify hose loads and finishes.
- h. Match hose loads to their advantages and disadvantages.
- i. Load and unload hose.
- j. Identify hose rolls.
- k. Roll hose.

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- by written exam
- by practical exam

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- learner has satisfactorily performed the practical exam

15. Make hydrant connections from various lays and carry, drag, advance, and handle both charged and uncharged hose lines.

Learning objectives

What you will learn as you master the competency:

- a. Select facts about the properties and extinguishing capabilities of water.
- b. List guidelines for reducing friction loss and preventing water hammer.
- c. List discharge rates for low-volume, handline, and water streams.
- d. Describe the advantages and disadvantages associated with handling solid and fog streams.
- e. Select facts about water fire streams.
- f. Identify types of nozzles.
- g. Operate various fire hose nozzles.
- h. Explain the operation of ball, slide, and rotary control nozzle valves.
- i. List areas to check when maintaining and cleaning nozzles.

Performance Standards

You will demonstrate your competence:

- o in the classroom and lab
- o by written exam
- o by practical exam

Performance will be successful when:

- o learner has passed the written exam with a score of 70% or greater
- o learner has satisfactorily performed the practical exam

16. Identify and operate a given selection of nozzles and tips for water fire streams.

Learning objectives

What you will learn as you master the competency:

- a. Select facts about the properties and extinguishing capabilities of water.
- b. List guidelines for reducing friction loss and preventing water hammer.
- c. List discharge rates for low-volume, handline, and water streams.
- d. Describe the advantages and disadvantages associated with handling solid and fog streams.
- e. Select facts about water fire streams.
- f. Identify types of nozzles.
- g. Operate various fire hose nozzles.
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Types of Instruction

- Classroom Presentation
- On-Campus Lab
- On-Campus Clinical

Grading Information

Grading Rationale

Class participation	10%
Written exam	45%
Practical exam	45%

Grading Scale

A	90%-100%
B	80%-89%
C	70%-79%
D	60%-69%
F	Below 60%