

# Fire Department Operations II

## Course Design

2005-2006

### Course Information

<b>Organization</b>	EASTERN ARIZONA COLLEGE
<b>Division</b>	Science & Allied Health
<b>Course Number</b>	FSC 102
<b>Title</b>	Fire Department Operations II
<b>Credits</b>	5
<b>Developed by</b>	Chris Black
<b>Lecture/Lab Ratio</b>	3 Lecture/4 Lab
<b>Transfer Status</b>	Non-transferable to ASU and UofA; transferable as elective to NAU
<b>Activity Course</b>	No
<b>CIP Code</b>	43.0203
<b>Assessment Mode</b>	Pre/Post test with possible score of 106
<b>Semester Taught</b>	Offered Upon Request
<b>GE Category</b>	None
<b>Separate Lab</b>	No
<b>Awareness Course</b>	No
<b>Intensive Writing Course</b>	No

### Prerequisites

Prior or concurrent enrollment in FSC 101 required

### Educational Value

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

### Goals

- o To teach the student the information and skills needed to meet the standards for firefighter Level I & II as outlined in NFPA 10001 Fire Fighter Professional Qualifications, 1997 Chapter 3.

### Description

This is the advanced firefighting course, primarily designed for new fire department recruits. Emphasis is on the chemistry of fire, building construction, administrative policies, and techniques of firefighting. Preparation for State Fire Marshall's Fire Fighter certification.

## **Textbooks**

Richard Hall and Barbara Adams. *Essentials of Fire Fighting 4th Edition*. Publisher: OK State University. Year: 3/1998. Required

Cindy Pickering. *Study Guide for Essentials of Fire Fighting 4th Edition*. Publisher: OK State University. Year: 03/1998. Required

## **Supplies**

None

## **Competencies and Performance Standards**

### **1. Identify and use portable fire extinguishers to extinguish small Class A, B, and C fires.**

#### **Learning objectives**

*What you will learn as you master the competency:*

- a. Identify types of portable fire extinguishers.
- b. Select facts about the portable fire extinguisher rating system.
- c. Match extinguisher symbol shapes to fire classification letters.
- d. Match extinguisher pictographs to the extinguisher's intended applications.
- e. List factors for selecting the proper portable extinguisher.
- f. List general guidelines for portable extinguisher operation.
- g. Extinguish small Class A, B, and C fires with the proper portable fire extinguishers.

#### **Performance Standards**

*Competence will be demonstrated:*

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

*Criteria - Performance will be satisfactory when:*

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

### **2. Operate as part of a team to control and/or extinguish interior and exterior Classes A,C and D fires, passenger vehicle fires and wildland fires.**

#### **Learning objectives**

*What you will learn as you master the competency:*

- a. Select facts about suppressing Class A (structural) fires.
- b. Distinguish among direct, indirect, and combination attacks on Class A fires.
- c. Select facts about deploying and operating a master stream device.
- d. Deploy and operate a master stream device.
- e. Select facts about Class C fire control.
- f. List safety guidelines for electrical emergencies.

- g. Select facts about Class D fire control.
- h. Select facts about company tactics for fire control.
- i. Control and/or Extinguish a Class A fire within a structure.
- j. List guidelines for controlling passenger vehicle fires.
- k. Identify hazards associated with controlling passenger vehicle fires.
- l. Attack a passenger vehicle fire.
- m. Extinguish a fire in a trash container.
- n. Select facts about fires and emergencies in confined spaces.
- o. Select facts about wildland fires.
- p. Label the parts of a wildland fire.
- q. List standard fire order for wildland fire fighting.
- r. Analyze wildland fire scenarios.

**Performance Standards**

*Competence will be demonstrated:*

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

*Criteria - Performance will be satisfactory when:*

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

**3. Perform basic operations at properties protected by automatic sprinklers.**

**Learning objectives**

*What you will learn as you master the competency:*

- a. Label the parts of a sprinkler head.
- b. Identify automatic sprinkler head release mechanisms.
- c. Describe pendant, upright, and sidewall sprinkler designs.
- d. Manually stop the flow of water from a sprinkler head.
- e. Identify the main control valve on an automatic sprinkler system.
- f. Identify sprinkler system control valves.
- g. Operate a sprinkler system control valve.
- h. Select facts about a sprinkler system's fire department connection.
- i. Connect hoseline to a sprinkler system FDC.
- j. Select facts about guidelines for operations at sprinkler-protected properties.

**Performance Standards**

*Competence will be demonstrated:*

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

- o by practical exam.

*Criteria - Performance will be satisfactory when:*

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

**4. Safely and efficiently perform salvage and overhaul at a fire scene while protecting evidence for fire cause determination.**

***Learning objectives***

*What you will learn as you master the competency:*

- List the benefits of losses control to the public and the fire department.
- State the purpose of salvage.
- State the purposes of overhaul.
- Select facts about salvage planning and procedures.
- Select facts about salvage tools, equipment, and materials.
- Fold and roll salvage covers.
- Spread salvage covers from various folds and rolls.
- Clean, inspect, and repair salvage covers.
- Construct and splice water chutes.
- Cover or close building openings,
- Match correctly tools & equipment used overhaul.
- Select facts about overhaul safety and methods.
- List the four basic methods of detecting hidden fires.
- Use an infrared scanner.
- Pull a ceiling.
- Remove debris and route water from a structure.
- Provide examples of information that should be noted/reported en route to, arrival at, and during fire fighting.
- Select facts about preserving and protecting evidence during overhaul.

***Performance Standards***

*Competence will be demonstrated:*

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

*Criteria - Performance will be satisfactory when:*

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

**5. Identify and properly use various fire service communications system and equipment.**

***Learning objectives***

*What you will learn as you master the competency:*

- a. Select facts about telecommunications center personnel.
- b. Select facts about fire department telecommunications equipment.
- c. Select from a list proper etiquette for receiving a non-emergency call.
- d. List basic procedures for answering emergency calls.
- e. Handle business calls and reports of emergencies.
- f. Select facts about public alerting systems.
- g. List procedures for reporting a fire/emergency.
- h. List methods of alerting fire department personnel.
- i. List guidelines for proper two-way radio use and etiquette.
- j. Analyze and correct two-way radio transmissions.
- k. Roll-play transmitting arrival and progress reports based on scenario information.
- l. Use prescribed fire department radio procedures.

**Performance Standards**

*Competence will be demonstrated:*

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

*Criteria - Performance will be satisfactory when:*

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

**6. Identify residential fire hazards, conduct a fire station tour and residential fire safety survey, and make and document a fire and life safety presentation.**

**Learning objectives**

*What you will learn as you master the competency:*

- a. Define the terms fire safety survey, fire safety inspection, pre-incident survey and residential fire safety survey.
- b. List types of fuel hazards and heat source hazards.
- c. Distinguish among common fire hazards, special fire hazards, personal hazards, and target hazards.
- d. List the main objectives of a residential fire safety survey.
- e. Select from a list of guidelines for conducting a residential fire safety survey.
- f. List the most common causes of residential fires.
- g. State aspects to check for interior residential survey concerns.
- h. State aspects to check for outside residential survey concerns.
- i. Conduct a residential fire safety survey.
- j. Explain the main parts of a fire and life safety presentation.
- k. Select facts about fire and life safety presentation topics.

- l. Make and document a fire and life safety presentation.
- m. Select facts about fire station tour procedures.
- n. Conduct a fire station tour.

**Performance Standards**

*Competence will be demonstrated:*

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

*Criteria - Performance will be satisfactory when:*

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

**7. Implement and maintain an Incident Management System and transfer of command.**

**Learning objectives**

*What you will learn as you master the competency:*

- a. List questions that the first person arriving at an emergency should answer.
- b. Determine the need for command.
- c. List the priorities of an Incident Action Plan.
- d. Organize and maintain an Incident Management System until command is transferred.
- e. Select facts about the transfer of command.
- f. List information that should be included in a situation status report.
- g. Function within an assigned role in the Incident Management System.
- h. List aspects of response resources that should be tracked.
- i. Assume and transfer command within an Incident Management System.
- j. State the purpose of incident termination.

**Performance Standards**

*Competence will be demonstrated:*

- o in the class and lab.
- o by written exam.
- o by practical exam.

*Criteria - Performance will be satisfactory when:*

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

**8. Identify the effects of fire and fire suppression activities on structures and list actions to take when imminent building materials.**

**Learning objectives**

*What you will learn as you master the competency:*

- a. Complete statements about the effects of fire and fire suppression activities on selected

- building material.
- b. List signs of structural instability and potential building collapse.
- c. Describe ways in which fire suppression activities may create dangerous building conditions.
- d. Determine developing hazardous building or fire conditions.
- e. List actions to take when imminent building collapse is suspected.

**Performance Standards**

*Competence will be demonstrated:*

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

*Criteria - Performance will be satisfactory when:*

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

**9. Identify and safely use various rescue and extracation tools.**

**Learning objectives**

*What you will learn as you master the competency:*

- a. Match facts about power plants to the equipment to which they apply.
- b. Describe guidelines for maintaining power plants and lighting equipment.
- c. Safely set up fire service lighting equipment.
- d. Service and maintain portable power plants and lighting equipment.
- e. Identify rescue and extraction tools and equipment.
- f. Match manual jacks and cribbing to their purposes.
- g. List jacking and cribbing safety guidelines.
- h. Use manual jacks and cribbing.
- i. Match pneumatic rescue and extracation tools to their purposes.
- j. List pneumatic tool safety guidelines.
- k. Use pneumatic chisel/hammer.
- l. Use a truck-mounted winch.
- m. Use air lifting bag.
- n. Use block and tackle.
- o. Use various power saws.

**Performance Standards**

*Competence will be demonstrated:*

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

*Criteria - Performance will be satisfactory when:*

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

**10. Assist a rescue operation team, work as a member of a team to extricate a victim trapped in a motor vehicle, and perform special rescue operations.**

***Learning objectives***

*What you will learn as you master the competency:*

- a. List considerations to be made when sizing up a vehicle accident.
- b. List concerns of rescuers who assess the situation at automobile accidents.
- c. State the purpose of vehicle stabilization.
- d. Distinguish between laminated glass and tempered glass.
- e. Remove automotive window glass.
- f. Match vehicle roof posts to their letter designations.
- g. Dismantle vehicle body using various power tools.
- h. Match types of building collapse to their descriptions.
- i. List the two types of hazard associated with structural collapse rescue operations.
- j. Select facts about rescue operations.
- k. Describe the methods for performing a electricity, water, ice, elevator, escalator and industrial extrication rescue.
- l. Assist rescue teams.

***Performance Standards***

*Competence will be demonstrated:*

- o Classroom and Lab
- o Written exam
- o By practical exam

*Criteria - Performance will be satisfactory when:*

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

**11. Test the operability of and flow from a fire hydrant.**

***Learning objectives***

*What you will learn as you master the competency:*

- a. Match to their correct definitions terms associated with water flow and pressure.
- b. Select from a list of conditions that reduce hydrant effectiveness.
- c. Measure and record hydrant flow pressures.

***Performance Standards***

*Competence will be demonstrated:*

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

- o by practical exam.

*Criteria - Performance will be satisfactory when:*

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

## **12. Identify and use hose tools and appliances and service test hose.**

### ***Learning objectives***

*What you will learn as you master the competency:*

- Identify types of valves and valve devices.
- Match types of valves to their functions.
- Identify hose fitting appliances.
- Identify tools used with hose.
- Match hose applications and tools to their uses in specific fireground situations.
- Select adapters and appliances for given fireground situations.
- Use hose tools and appliances.
- Select facts about service testing hose.
- List safety guidelines for service testing hose.
- Service test hose.

### ***Performance Standards***

*Competence will be demonstrated:*

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

*Criteria - Performance will be satisfactory when:*

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

## **13. Mix foam concentrate and assemble and operate a foam fire stream system.**

### ***Learning objectives***

*What you will learn as you master the competency:*

- Describe the basic methods by which foam prevents or controls a hazard.
- Classify flammable liquids as hydrocarbon or polar solvent fuels.
- Explain how foam is generated.
- Describe the components of foam production.
- List factors that affect foam expansion.
- Classify foams by their expansion ratios.
- Distinguish between characteristics of Class A and Class B foams.
- List factors that affect Class B foam application rates.

- i. Select facts about proportioning.
- j. Select foams for specific fire situations.
- k. Match types of handline foam nozzles to their uses.
- l. Select nozzles for specific fire situations.
- m. List reasons for poor foam generation.
- n. Match foam application methods to their uses.
- o. List types of hazards associated with foam use.
- p. Install an in-line foam eductor and operate a high-expansion foam generator.

**Performance Standards**

*Competence will be demonstrated:*

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

*Criteria - Performance will be satisfactory when:*

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

**14. Operate as part of a team to coordinate an interior attack and to control and /or extinguish ignitable liquid fires and flammable gas cylinder fires.**

**Learning objectives**

*What you will learn as you master the competency:*

- a. Distinguish between flammable liquids and combustible liquids.
- b. Select facts about suppressing Class B fires.
- c. Describe signs and effects of BLEVE.
- d. List the FOUR ways that water can be used to attack a Class B fire.
- e. List methods of identifying tank contents.
- f. Select facts about techniques for suppressing bulk transport vehicle fires.
- g. Use water to control an ignitable liquid fire in an open pan.
- h. Distinguish between the characteristics of natural gas and liquid petroleum gas.
- i. Control and /or extinguish a flammable gas cylinder fire.
- j. Determine actions to take, including retreat, when dealing with specific Class B fire conditions.

**Performance Standards**

*Competence will be demonstrated:*

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

*Criteria - Performance will be satisfactory when:*

- o learner has passed the written exam with a score of 70%.

- o learner has satisfactorily performed the practical exam.

**15. Discuss the operation of typical automatic fire detection and suppression systems and identify the components of typical automatic sprinkler systems and to inspect those systems.**

***Learning objectives***

*What you will learn as you master the competency:*

- a. Match types of alarm-initiating devices to their descriptions.
- b. Select facts about smoke detectors.
- c. Select facts about smoke detectors.
- d. Complete statements about flame detectors.
- e. Complete statements about fire-gas detectors.
- f. State the reason for having a variety of alarm-indicating devices.
- g. Match types of automatic alarm systems to their descriptions.
- h. Select facts about supervising fire alarm systems.
- i. List auxiliary services provided by fire detection and alarm systems.
- j. Complete statements about water flow alarms.
- k. Match sprinkler system applications to their descriptions.
- l. Identify components of fire suppression systems.
- m. Inspect protected property fire suppression systems.

***Performance Standards***

*Competence will be demonstrated:*

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

*Criteria - Performance will be satisfactory when:*

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

**16. Identify responsibilities in fire cause determination and protect evidence of fire cause and origin.**

***Learning objectives***

*What you will learn as you master the competency:*

- a. List responsibilities of a fire investigator.
- b. Select facts about conduct and statements at the scene.
- c. Select facts about securing the scene and legal considerations.
- d. Select facts about protecting and preserving evidence.
- e. Protect evidence of fire cause and origin.
- f. Assess the origins and causes of fires.

### **Performance Standards**

*Competence will be demonstrated:*

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

*Criteria - Performance will be satisfactory when:*

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

## **17. Complete a basic incident report and communicate the need for team assistance.**

### **Learning objectives**

*What you will learn as you master the competency:*

- a. Select facts about making calls for additional response.
- b. List information that should be included in incident reports.
- c. List information that should be included in incident reports.
- d. Identify appropriate incident report codes.
- e. Proofread incident reports.
- f. Create incident reports using department equipment.

### **Performance Standards**

*Competence will be demonstrated:*

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

*Criteria - Performance will be satisfactory when:*

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

## **18. Conduct a pre-incident survey, working as a member of a team.**

### **Learning objectives**

*What you will learn as you master the competency:*

- a. Provide examples of personal traits and skills required of personnel who conduct fire safety surveys.
- b. Provide examples of the type of equipment required to conduct fire safety surveys.
- c. List goals of pre-incident surveys.
- d. Provide examples of the types of information that a pre-incident survey can provide.
- e. Match standard map symbols to their correct meanings.
- f. Make field sketch and report drawings.
- g. List objectives of the exit interview during a pre-incident survey.
- h. Perform a pre-incident survey and complete related documentation.

### **Performance Standards**

*Competence will be demonstrated:*

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

*Criteria - Performance will be satisfactory when:*

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

### **Types of Instruction**

Classroom Presentation

On Campus Laboratory and Clinicals

### **Grading Information**

#### **Grading Scale**

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