

# Hazardous Materials First Responder

## Course Design

2005-2006

### Course Information

<b>Organization</b>	EASTERN ARIZONA COLLEGE
<b>Division</b>	Science & Allied Health
<b>Course Number</b>	FSC 106
<b>Title</b>	Hazardous Materials First Responder
<b>Credits</b>	2
<b>Developed by</b>	Chris Black
<b>Lecture/Lab Ratio</b>	2 Lecture
<b>Transfer Status</b>	Non-transferable to ASU, UofA & NAU
<b>Activity Course</b>	No
<b>CIP Code</b>	43.0203
<b>Assessment Mode</b>	Pre/post test with a possible raw score of 69
<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

None

### Educational Value

Adult learners who are interested in receiving training in Hazardous Materials in order to qualify to take the test for an Arizona Fire Fighters Certificate.

### Goals

- 1 To give the student basic knowledge regarding first on scene responsibilities as they deal with hazardous materials incidents.

### Description

The purpose of this course is to address the behavior and dangers of hazardous materials. Emphasis will be on commonly encountered chemicals and factors which impact a responder's decisions at the scene.

### Textbooks

The International Association of Fire Fighters. *Hazardous Materials for First Responders 2nd Edition*. Edition: 2. Year: 1993. Required

## **Supplies**

None

## **Competencies and Performance Standards**

### **1. Access common alarms for hazardous materials.**

#### **Learning objectives**

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

- a. Describe how various common alarms involve hazardous materials.
- b. Explain why the ability to recognize and identify hazards is important to first responders.
- c. Explain how the locations of an incident may indicate the type and quantity of hazards present.
- d. Discuss some of the hazards involved with specific industries.
- e. Discuss the tasks involved in a standardized approach to incidents involving hazardous materials.

#### **Performance Standards**

*You will demonstrate your competence:*

- o in classroom.

*Performance will be successful when:*

- o learner passes a closed-book exam with a score of 70% or greater.

### **2. Access a fire site for health and safety dangers due to hazardous materials.**

#### **Learning objectives**

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

- a. Describe the three major routes of entry.
- b. Describe the toxic effects that may result from exposure.
- c. List five types of biological hazards.
- d. Define "medical surveillance".
- e. Identify the elements of medical surveillance.
- f. Explain why medical surveillance is important to First Responders.
- g. Discuss the requirements for medical surveillance under the applicable OSHA and EPA standards.

#### **Performance Standards**

*You will demonstrate your competence:*

- o in classroom.

*Performance will be successful when:*

- o learner passes a closed-book exam with a score of 70% or greater.

### **3. Demonstrate a basic knowledge of hazardous materials and principles of chemistry.**

#### **Learning objectives**

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

- a. List four basic clues for identifying hazardous materials.
- b. Describe the DOT system of placarding.
- c. Recognize DOT placards and labels and describe the hazards represented.
- d. Describe the NFPA 704 Marketing System.
- e. Identify highway cargo tanks by shape.
- f. Identify rail tank cars by shape.
- g. Identify tank containers by shape.
- h. List other resources that can be used to identify hazardous materials.
- i. Recognize the states of matter.
- j. Describe the factors affecting the rate of chemical reactions.
- k. State the relationship between the Fahrenheit and Centigrade temperature scales.
- l. Describe how pH scale can be used to assess the hazard of acids and bases.
- m. Discuss three types of radiation and the methods for protecting against radiation exposure.
- n. Define: vapor density, flash point, lower and upper explosive limits, specific gravity, solubility and vapor pressure.

#### **Performance Standards**

*You will demonstrate your competence:*

- o in classroom.

*Performance will be successful when:*

- o learner passes a closed-book exam with a score of 70% or greater.

#### **4. Demonstrate a basic understanding of a planned response.**

##### **Learning objectives**

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

- a. Explain the limitations of structural fire fighting gear.
- b. Describe the types of respiratory equipment.
- c. Explain the limitations of self-contained breathing apparatus (SCBA).
- d. Give overview of decontamination procedures.
- e. Explain when PPE should be inspected.
- f. Describe PPE storage methods.
- g. List the common components of an incident management system.
- h. Briefly describe the functions of sections within the incident.
- i. Define hot, warm and cold zones.
- j. List the areas or functions that might be found within each zone.
- k. Describe the first responder's initial actions on arriving at a hazardous materials incident.
- l. Give overview of termination procedures.
- m. Explain why post-incident analysis and evaluation is a necessary element.

### **Performance Standards**

*You will demonstrate your competence:*

- o in classroom.

*Performance will be successful when:*

- o learner passes a closed-book exam with a score of 70% or greater.

### **Types of Instruction**

Classroom Presentation

### **Grading Information**

#### **Grading Scale**

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