

# FIRE 0170 - HAZARDOUS MATERIALS - OPERATIONAL LEVEL

## Catalog Description

Formerly known as FIRE 41

Hours: 16 lecture for 0.5 unit; 24 lecture for 1 unit

Description: First responder course covering common alarms, roles and responsibilities, legal aspects, exposure and response safety, medical surveillance, recognition and identification, basic chemistry, personal protective equipment, scene management, preincident planning and table-top exercises. Meets federal and state training requirements. (CSU with unit limitation)

## Course Student Learning Outcomes

- CSLO #1: Propose initial actions for a safe response, scene isolation, and required notifications regarding a hazardous material event/incident.
- CSLO #2: Describe implementation of the Incident Command System to manage a hazardous material event.
- CSLO #3: Apply proper and safe responses for first responders regarding hazardous materials events.

## Effective Term

Fall 2019

## Course Type

Credit - Degree-applicable

## Contact Hours

16,24

## Outside of Class Hours

36,48

## Total Student Learning Hours

54,72

## Course Objectives

The student will:

1. Analyze how various types of alarms may affect a first responder's health and safety.
2. Analyze the toxic effects that may occur from exposure to the various types of hazardous materials.
3. Distinguish the difference in transportation placards using background color, hazard class identifiers, and symbols.
4. Differentiate between DOT placards and labels and describe the hazards represented.
5. Evaluate the National Fire Protection Association marking system for the haz mats at fixed sites.
6. Evaluate the use of the Department of Transportation Emergency Response Guide (DOT ERG) in order to initiate basic action planning.
7. Assess various types of personal protective clothing and

equipment including selection criteria, limitations, inspection, decontamination, and storage.

8. Propose initial actions for a safe response, scene isolation, and required notifications regarding a hazardous material event/incident.
9. Describe implementation of the Incident Command System (ICS) to manage a hazardous material event.
10. Diagram appropriate information flow from the First Responder-Operational to the Incident Commander.
11. Prepare proper documentation requirements during a hazardous material event.
12. Propose identification and hazard assessment techniques to design a basic action plan.
13. Given written exercises depicting hazardous material events, apply proper and safe responses for first responders - operational level.
14. Given a written exercise, identify a hazardous material event from basic clues, warning signs, placards, labels, and shipping papers.
15. Identify and outline types of toxins including response and exposure to each.

## General Education Information

- Approved College Associate Degree GE Applicability
- CSU GE Applicability (Recommended-requires CSU approval)
- Cal-GETC Applicability (Recommended - Requires External Approval)
- IGETC Applicability (Recommended-requires CSU/UC approval)

## Articulation Information

- CSU Transferable

## Methods of Evaluation

- Objective Examinations
  - Example: Students will take a multiple-choice examination on protective clothing. Standard Grading. Example Question: The IC decides that the entry team will wear a level of protection that consists of a chemical-resistant suit, boots, gloves, and SCBA. Which of the following classifications best describes this level of protection? A. Level A, B. Level B, C. Level C, D. Level D
- Problem Solving Examinations
  - Example: 1. Using a DOT Emergency Response Guidebook, students will determine proper isolation/evacuation areas for a specified toxic material. Grade will be based on accurate distances as recommended in the DOT ERG. 2. From an instructor provided scenario, evaluate the types of personal protective equipment to be used while mitigating a hazardous material incident. Grade will be determined by accurately selecting the correct PPE for the chemical hazard.

## Repeatable

No

## Methods of Instruction

- Lecture/Discussion
- Distance Learning

Lecture:

1. The instructor will lecture on the basic principles of chemistry. Instructor will divide students into groups to respond to and manage a simulated tabletop hazardous material incident.(Objectives 1 & 3)

2. The instructor will lead a discussion on the concept of isolate-identify-deny entry. Students will then be provided scenarios and will determine how they will implement this concept and will be graded on the probability of success based on the criteria previously discussed.

#### Distance Learning

1. Online instructor lecture on Department of Transportation (DOT) placards, followed by a student generated report differentiating DOT placards and labels and describing the hazards represented.

## Typical Out of Class Assignments Reading Assignments

1. Read the chapter in the textbook covering protective equipment and first responder limitations and then list the minimum personal protective equipment (PPE) that needs to be available to a first responder. 2. Identify the health, flammability and reactivity hazards of a substance by reviewing a Material Safety Data Sheet and outline a proper response to a spill of the substance.

## Writing, Problem Solving or Performance

1. Identify the hazards of a substance by reviewing a Material Safety Data Sheet, placarding and labels. 2. Determine the minimum initial isolation/evacuation distances for selected hazardous substances using provided reference materials and manuals.

## Other (Term projects, research papers, portfolios, etc.) Required Materials

- Hazardous Materials -Awareness and Operations
  - Author: Rob Schnepf
  - Publisher: Jones and Bartlett
  - Publication Date: 2010
  - Text Edition:
  - Classic Textbook?:
  - OER Link:
  - OER:
- Hazardous Materials Training For First Responders - Operational Level
  - Author: State of California
  - Publisher: California Specialized Training Institute
  - Publication Date: 2004
  - Text Edition:
  - Classic Textbook?:
  - OER Link:
  - OER:
- Fundamentals of Fire Fighter Skills
  - Author: National Fire Protection Agency (NFPA) and the International Association of Fire Chiefs (IAFC)
  - Publisher: Jones and Bartlett
  - Publication Date: 2014
  - Text Edition: 3rd
  - Classic Textbook?:
  - OER Link:
  - OER:

- Hazardous Materials, Managing the Incident
  - Author: Gregory G. Noll and Michael S. Hildebrand
  - Publisher: Jones and Bartlett
  - Publication Date: 2014
  - Text Edition: 4th
  - Classic Textbook?:
  - OER Link:
  - OER:

## Other materials and-or supplies required of students that contribute to the cost of the course.