FIRE 0643 - HAZARDOUS MATERIALS TECHNICIAN 1D, TACTICAL FIELD OPERATIONS

Catalog Description

Prerequisite: Completion of FIRE 642 with grade of "C" or better or approved Federal/State equivalent course(s)
Hours: 40 (24 lecture, 16 laboratory)
Description: Experience with tactical field operations. Covers confinement, control, hazmat triage and sabotage, performing in chemical protective clothing, preservation of evidence, decontamination, and emergency medical system considerations. Meets standards prescribed by the CA State Fire Marshal and Office of Emergency Services. (not transferable) (not degree applicable) (pass/no pass grading)

Course Student Learning Outcomes

- CSLO #1: Explain the human stresses associated with wearing chemical protective clothing.
- CSLO #2: List the operational situations which may exceed the limitations and capabilities of resources at a hazardous materials emergency.
- CSLO #3: Outline the key principles to manage a hazardous materials emergency.

Effective Term

Fall 2019

Course Type

Credit - Nondegree-applicable

Contact Hours

40

Outside of Class Hours

48

Total Student Learning Hours

88

Course Objectives

Lecture Objectives:
1. Define the term evidence;
2. Assess the importance of chain of custody, search warrants and proper documentation;
3. Compare guidelines regarding the collection of specific types of evidence;
4. Differentiate between environmental, mechanical, physiological and psychological stresses that personnel working in chemical protective clothing are subjected to;
5. Identify the mechanisms by which heat builds up in workers operating in chemical protective clothing and the appropriate measures to take when experiencing a heat related illness;
6. Identify guidelines for dealing with contaminated persons;
7. Evaluate the operational situations which may exceed the capabilities of responders, equipment, training, or technical feasibility;
8. Analyze the relationship between flammability, toxicity and oxygen deficiency, and how these factors impact safety at a hazardous materials incident;
9. Discuss some of the ways in which chemicals could be used in terrorism;
10. Identify problems and resources which must be evaluated in order to triage hazardous materials incidents;
11. Examine the basic principles of containment and factors which may complicate the operation;
12. Compare the two types of dams used to contain hazardous materials and key points regarding dam construction;
13. Identify factors when making a decision to dike a leak and materials which may be used; and
14. Analyze measures which may be used to contain a spill.
Laboratory Objectives:
1. Evaluate procedures by which hazardous materials response personnel will be medically evaluated at incidents;
2. Compare toxicological terms and exposure values with their significance in predicting health hazards;
3. Evaluate the offensive control options that may be utilized at a hazardous materials incident, and describe the purpose of, procedures for, equipment required and appropriate safety precautions;
4. Evaluate decontamination methods, types of decontamination, factors affecting the decon process, and resources needed to set up a Containment Reduction Corridor; and
5. Practice principles covered to safely control, maintain, and eliminate a hazardous material incident.

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

- Not Transferable

Methods of Evaluation

- Objective Examinations
  - Example: 1. Students will take a multiple-choice examination on stopping/controlling product flow at a hazardous materials incident. Standard Grading. Example Question: The construction of a barrier across a waterway to sop the product flow and pick up the liquid or contamination is an example of: A. Retention, B. Damming, C. Diversion, D. Dispersion.
- Reports
  - Example: 1. In a report, compare and contrast the four types of decontamination. 2. In a report, compare and contrast the different types of dams which may be used for containment.
- Skill Demonstrations
  - Example: 1. Students will demonstrate how to properly and safely contain a leak from a 55 gallon drum. Grade based on industry standard.

Repeatable

No

Methods of Instruction

- Laboratory
- Lecture/Discussion

Lab:

1. After lecturing on the procedures for over packing leaking drums, students will be broken into teams and practice the procedures.

Lecture:

1. The instructor will lecture on physical properties of hazardous materials. Students will then work in small groups to identify ways in which chemical and biological toxins can be introduced into the population and describe the means available to detect their presence.

Typical Out of Class Assignments

Reading Assignments

1. Read the chapter on Haz Mat Triage in the textbook and be prepared to discuss in class. 2. Read the chapter in the textbook on containment of hazardous materials. Be prepared to discuss in class how you would contain various types of solid, liquid or gas hazardous material leaks.

Writing, Problem Solving or Performance

1. Prepare a medical monitoring plan for a hazardous material incident. 2. Conduct an informed Identification and Hazard Analysis for the provided hazardous material incident scenario.

Other (Term projects, research papers, portfolios, etc.)

Required Materials

- Hazardous Materials Technician 1D, Tactical Field Operations
  - Author: California Specialized Training Institute
  - Publisher: State of California
  - Publication Date: 2003
  - Text Edition:
  - Classic Textbook?:
  - OER Link:
  - OER:
- Chemistry of Hazardous Materials
  - Author: Eugene Meyer
  - Publisher: Brady
  - Publication Date: 2010
  - Text Edition: 5th
  - Classic Textbook?:
  - OER Link:
  - OER:
- Hazardous Materials, Managing the Incident
  - Author: Gregory G.Noll & Michael S.Hildebrand
  - Publisher: Jones and Bartlett Learning
  - 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.