



5055 Santa Teresa Blvd  
Gilroy, CA 95023

### Course Outline

**COURSE:** JFT 20                      **DIVISION:** 50                      **ALSO LISTED AS:**

**TERM EFFECTIVE:** Fall 2023                      **CURRICULUM APPROVAL DATE:** 10/10/2023

**SHORT TITLE:** HAZ MAT First Responder

**LONG TITLE:** HAZ MAT First Responder

| <u>Units</u> | <u>Number of Weeks</u> | <u>Type</u>         | <u>Contact Hours/Week</u> | <u>Total Contact Hours</u> |
|--------------|------------------------|---------------------|---------------------------|----------------------------|
| .5 TO 1      | 18                     | Lecture:            | .3 TO .75                 | 5.4 TO 13.5                |
|              |                        | Lab:                | .59 TO 1.5                | 10.62 TO 27                |
|              |                        | Other:              | 0                         | 0                          |
|              |                        | Total:              | .89 TO 2.25               | 16.02 TO 40.5              |
|              |                        | Total Learning Hrs: | 26.82 TO 67.5             |                            |

### COURSE DESCRIPTION:

This course is designed for fire department personnel who may respond to releases or potential releases of hazardous materials as part of the initial response to the site for the purpose of protecting nearby persons, property, or the environment from the effects of the release. This course will provide defensive tactics to contain the release from a safe distance, keep it from spreading, and prevent exposures without trying to stop the release. Meets and exceeds the requirements for CFR 29 1910.120 and CCR Title 8.

**PREREQUISITE:** JFT 8 - Fire Fighter I Academy.

### PREREQUISITES:

Completion of JFT 8, as UG, with a grade of C or better.

State Fire Marshall certified basic firefighting academy diploma or equivalent as determined by the Dean of Academy Instruction. NOTE: Approval of equivalent training is not a guarantee state regulatory or licensing agencies will also grant equivalency. 2. Prior to beginning this course students must already be familiar with, and be able to demonstrate all of the skills listed below. These will not be taught in the course; rather, they will be the starting point for advanced officer training that builds upon them. These minimum knowledge and skill levels are regarding: Familiarity with Hazardous materials. Knowledge of personal protective equipment. Familiarity with firefighter safety. Knowledge of incident command system (ICS).

### COREQUISITES:

**CREDIT STATUS:** D - Credit - Degree Applicable

## GRADING MODES

L - Standard Letter Grade

REPEATABILITY: N - Course may not be repeated

## SCHEDULE TYPES:

02 - Lecture and/or discussion

03 - Lecture/Laboratory

04 - Laboratory/Studio/Activity

## STUDENT LEARNING OUTCOMES:

By the end of this course, a student should:

1. Recognize a Hazmat incident and safely isolate the scene, deny entry and notify others of a Hazmat event.
2. Describe the equipment and employ procedures needed to conduct a decontamination of a Hazmat incident.

## COURSE OBJECTIVES:

By the end of this course, a student should:

1. Recognize a Hazmat incident and contain the release from a safe distance preventing exposures.

## CONTENT, STUDENT PERFORMANCE OBJECTIVES, OUT-OF-CLASS ASSIGNMENTS

Curriculum Approval Date: 10/10/2023

### LECTURE CONTENT:

#### I. The Hazmat Problem (.25-1 hour)

- a. Hazardous Materials are made, transported, stored and used in every state, city and town
- b. Major elements of the Hazmat problem
- c. Accidents, emergencies and incidents
- d. Three primary risks
- e. Government/ industry roles

#### II. OSHA Hazmat Regulation

- a. Hazmat specifies training for various levels of responders

#### III. OSHA Hazmat Levels

- a. First Responders
- b. Awareness Level
- c. Operations Level
- d. Limits
- e. Other Levels

#### IV. Hazmat Definitions, Terms and Acronyms (.50-1 hour)

- a. hazardous chemical (OSHA)
- b. hazardous material (DOT)
- c. hazardous substance (EPA)
- d. hazardous waste (EPA)
- e. Extremely hazardous substance (EPA)
- f. Highly hazardous chemical (OSHA)
- g. Toxic chemical (EPA)
- h. Classification of hazardous materials

V. Hazmat Commons and Typicals (.25 hour)

- a. Commons
- b. Typicals

VI. Hazmat Tactical Operations Acronym (.50-2 hour)

- a. Safety
- b. Isolate and deny entry
- c. Notifications
- d. Command
- e. Identification and hazard assessment
- f. Action planning
- g. Protective equipment
- h. Countermeasures
- i. Protective actions
- j. Decontamination
- k. Disposal
- l. Documentation

VII. Hazmat Containers and Packages (.50 -2.20 hour)

- a. Physical properties of cargo
- b. Shape of container/package and material it's made of
- c. DOT specification containers for motor vehicle transportation
- d. Radiological containers
- e. Other types of containers
- f. Above-ground storage tanks
- g. Railcars
- h. Intermodal containers
- i. Container-stack car

VIII. USDOT Hazmat Placards and Labels (1-2 hour)

- a. Purpose of system
- b. General marking requirements for transport vehicles or freight containers
- c. Placards
- d. Labels
- e. Hazmat Placard colors/symbols
- f. Specialized placards
- g. Placard limits
- h. When placards are required
- i. Placards versus labels
- j. Other transportation-related markings
- k. Purpose of transportation markings

IX. Special Markings (.25 -1 hour)

- a. NFPA 704
- b. Hazard/Product-specific markings
- c. Location-specific markings
- d. Transportation mode-specific markings
- e. Hazard communication markings (e.g. HMIS?)
- f. Pesticide and consumer product labels

X. Shipping Papers and SDSs (.25 hour)

- a. Preferred Hazmat identification source
- b. Types and location of shipping papers

- c. Shipping papers
  - d. SDS (Safety Data Sheet)
- XI. Basics of Incident Command (1 -3 hour)
- a. Role of FRA
  - b. Purpose of ICS
  - c. Need for ICS
  - d. Benefits of ICS
- XII. Identification Sources (.25 hour)
- a. SDS (Safety Data Sheet)
  - b. DOT placards, labels and markings
  - c. Shipping papers (e.g. Bill of Lading, Way Bill, etc.)
  - d. Pipeline markers (product, owner & emergency number)
- XIII. Assessment Sources (.65 hour)
- a. NFPA 704 warning system
  - b. Pesticide and/or consumer product labeling
  - c. CHEMTREC ? Chemical Transportation Emergency Center
  - d. Other IDHA reference guides
- XIV. DOT Emergency Response Guidebook (ERG) (.25 hour)
- a. ERG purpose
  - b. ERG page border colors and basic organization
  - c. ERG is a good user-friendly basic guide but is limited
  - d. Responders should have ready access to an ERG and other guides

LAB CONTENT:

- I. Multiple Hazards (.50 -1 hour)
- a. DOT regulations are performance standards
  - b. Substances that meet the definition of more than one hazard class are classified according to the highest applicable hazard class
  - c. Shipping papers and placards may not indicate all subsidiary or multiple hazards
- II. Recognizing Hazmat Incidents (1 - 4 hours)
- a. Initial reports may not indicate hazardous materials
- III. Basic Hazmat Recognition Clues (.50 -2 hours)
- a. Occupancy/Location
  - b. Container Shapes
  - c. Markings & Colors
  - d. Placards & Labels
  - e. Shipping Papers and SDS
  - f. Senses
  - g. Other Clues
- IV. Hazmat Outward Warning Signs ( .25 - 1 hours)
- a. General
  - b. Industrial facilities
- V. Hazmat Locations and Occupancies (.50 - 1 hours)
- a. Obvious locations
  - b. Not so obvious locations

## VI. Global Harmonization System (GHS)

- a. International system for classifying, marking and communicating hazards of materials that meet the GHS definition of hazardous
- b. Communicates hazards
- c. Signal words (Indicate severity of hazard)
- d. Hazard statements
- e. Pictograms

## VII. First Operational Thought is Safety (.72 - 2 hours)

- a. Safety
- b. Go slow
- c. Positive safety attitude
- d. Negative safety attitude
- e. Mental Safe Approach Tactic
- f. Hazmat Death & Injury Due to Lack of Safety

## VIII. Safety, Isolation and Notifications (SIN) ( 3-4 hours)

- a. Definition of First Responder
- b. Definition of SIN
- c. Three techniques to ensure safety and a positive safety attitude
- d. Upwind, Upgrade & Upstream
- e. Desired First Responder initial actions
- f. Ten key safety guides on-scene

## IX. The First Operational Priority ? ISOLATION ( 1.25 - 4 hours)

- a. The first operational priority = Isolate and deny entry
- b. Perimeter and Zones
- c. Perimeter and Control Zone terminology
- d. Perimeter Control Objectives
- e. Perimeter Control Tactics

## X. The First Operational Alert ? NOTIFICATIONS (.50 - 2.75 hours)

- a. Three types of Notifications to alert others of a hazmat event
- b. Responsible Party must notify authorities of a hazmat release or potential release
- c. General information needed for mandatory notifications
- d. Resource Request Notification
- e. Report of Conditions Notification

## XII. Identification and Hazard Assessment Process (.25 hours)

- a. -Identification and Hazard Assessment- (IDHA)
- b. Hazard assessment starts immediately
- c. The basic FRA IDHA process
- d. Basic IDHA questions

## XIII. Container System Stress and Behavior ( .90 - 3 hours)

- a. Hazmats are released when their containment system fails
- b. Hazmat release process
- c. Types of container stress
- d. Evaluating container stress
- e. Action planning for FRAs
- f. Types of container failure
- g. Types of product dispersion
- h. Boiling-Liquid Expanding Vapor Explosion (BLEVE)
- i. Rating risks

XIV.IDHA Complications ( .25 - 2 hours)

- a. Many variables will affect hazard assessment and may significantly influence the physical properties
- b. The same material with different variables may significantly change the incident and the way you respond to it
- c. You may not find the answer in a book

XV. Decontamination (1 -2 hour)

- a. Basic responder decontamination
- b. Methods of decontamination
- c. 5 Types of decontamination
- d. 3 Hazmat zones
- e. Control zone layout
- f. Decontamination equipment
- g. General guidance
- h. Managing the decontamination process
- i. decontamination leader

**METHODS OF INSTRUCTION:**

Lecture, discussion and demonstrations will serve as the medium of instruction. Audio-visual aids will be utilized as they facilitate meaningful instruction. Individual guidance will be provided as required.

**OUT OF CLASS ASSIGNMENTS:**

Required Outside Hours 15

Assignment Description

Reading:5 - 15 hours

Review instructor handouts regarding basic hazmat recognition clues, locations and occupancies.

Required Outside Hours 5

Assignment Description

Writing: 3 - 5 hours

List the principles and methods for performing Responder decontamination and safety concerns when dealing with HazMat scenes.

Required Outside Hours 7

Assignment Description

Out of Class 2.8- 7

Practice utilizing personal protective equipment and safety precautions.

**METHODS OF EVALUATION:**

Evaluation Percent 50

Evaluation Description

Skills exam; Students must accurately and effectively demonstrate proper methods for containment, protective actions, decontamination and disposal during HazMat incident scenarios

Evaluation Percent 50

Evaluation Description

Written Exam

Multiple Choice;

True/False

**REPRESENTATIVE TEXTBOOKS:**

Hazardous Materials Managing the Incident, Gregory G. Noll, Jones and Bartlett Learning, 2022.

Reading Level of Text, Grade: 12 Verified by: Doug Achterman

**RECOMMENDED MATERIALS:**

29 CFR 1910.120, Hazardous Waste Operations and Emergency Response California Code of Regulations Title 8, §5192

California Code of Regulations Title 19, §2510-2550 OSHA CPL 02-0259, Inspection Procedures for the Hazardous Waste Operations and Emergency Response Standard, 29 CFR 1910.120 and 1926.65, Paragraph (q): Emergency Response to Hazardous Substance Releases

National Fire Protection Association 472 Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities, 1985, NIOSH/OSHA/USCG/EPA

Commonsense Approach to Hazardous Materials, 2nd Ed., Frank L. Fire

Decontamination for Hazardous Materials Emergencies, Timothy V. Henry

Hazardous Materials: Strategy and Tactic, David M. Lesak

Hazardous Materials Emergencies Involving Intermodal Containers: Guidelines and Procedures, Noll, Hildebrand, and Donahue

**ARTICULATION and CERTIFICATE INFORMATION**

Associate Degree:

CSU GE:

IGETC:

CSU TRANSFER:

Transferable CSU, effective 199870

UC TRANSFER:

Not Transferable

**SUPPLEMENTAL DATA:**

Basic Skills: N

Classification: Y

Noncredit Category: Y

Cooperative Education:

Program Status: 1 Program Applicable

Special Class Status: N

CAN:

CAN Sequence:

CSU Crosswalk Course Department:

CSU Crosswalk Course Number:

Prior to College Level: Y

Non Credit Enhanced Funding: N

Funding Agency Code: Y

In-Service: N

Occupational Course: C

Maximum Hours:

Minimum Hours:

Course Control Number: CCC000525530

Sports/Physical Education Course: N

Taxonomy of Program: 213300