

Mt. San Jacinto College
Integrated Course Outline of Record

Form B

Submitted by:	Jason Fox	Date:	03/14/2019
---------------	-----------	-------	------------

Department	Subject	Course Number	Title
Fire Technology	Fire Technology FIRE	117	Hazardous Materials First Responder Operational

Units/Hours

Each lecture unit requires 1 hour per week of class time, and 2 hours per week of study outside of class.
Each laboratory unit requires 3 hours per week of class time.
Each activity unit requires 2 hours per week of class time and 1 hour per week of study outside of class.

Lecture Units	Total Units
1.00	1.00
Lecture Contact Hours	Total Contact Hours
16.00 - 18.00	16.00 - 18.00
Lecture Homework Hours	
32.00 - 36.00	

Stand Alone:

Program Applicable

AA/AS Degree General Ed Breadth Area(s):

-none-

General Education Justification:

--

Maximum Enrollment:	40
Maximum Enrollment Justification:	Course requires significant individualized instruction or assessment – check all that apply: * Course relies on small group dynamics as a means of instruction or assessment. Justification: small groups are needed for hands on and table top exercises; groups must be monitored.

Grading Method:

Letter Grade or P/NP

TOP code:

2133.00*

Can be Taken

1

time(s) for credit (max 4)

- Visual or Performing Arts course that is required to meet major requirements for UC/CSU

- Intercollegiate athletics course

- Academic/vocational competition course

Catalog Description:

(Please do not refer to transferability or degree, certificate, or employment concentration applicability. Please only describe the course).
(75 words or less in gray box below).

This course provides public safety workers and first responders with an improved capability to respond to Hazardous Materials events in a safe and competent manner.

Schedule Description:

(Please do not refer to transferability or degree, certificate, or employment concentration applicability. Please only describe the course).
(25 words or less in gray box below).

This course provides the participants with an operational level of training for response to emergency hazardous materials events.

Need for the course:

This course provides a fundamental knowledge of hazardous materials response. Identification and mitigation of hazardous materials is essential to modern fire suppression technology. This course will be added as an elective to the Fire Technology certificate.

Prerequisite(s):

Prerequisites go through a separate approval process. See Forms E1-E6 for details.
(For further clarification, contact the Prerequisite Subcommittee)

-none-

Corequisite(s):

Corequisites go through a separate approval process. See Forms E1-E6 for details.

-none-

Recommend Preparation:

Recommended Preparation goes through a separate approval process. See Forms E1-E6 for details.

-none-

Other Enrollment Criteria:

-none-

Learning Objectives:

(please number each objective and express in behavioral terms)
Upon the completion of the course the student will be able to do the following:

1. Discover and recognize what Hazardous Materials (HazMat) are, the problems they pose and potential risks to responders.
2. Compare the HazMat first responder's awareness level versus operational role.
3. Evaluate a HazMat event through basic clues, warning signs, placards, labels, shipping manifests, and materials safety data sheets.
4. Scrutinize the safe approach tactic upon recognition of a HazMat event.
5. Analyze first responder awareness actions to include the need for safety, isolating the scene, and making notifications to mitigate the incident.
6. Examine the basic Incident Command System structure used to manage a HazMat event.
7. Assess and describe the proper protective action options available to first responders within their capabilities and resources.
8. Formulate the need for appropriate field decontamination of initial victims, emergency response personnel and equipment.
9. Analyze the reasons for proper disposal and documentation during a Haz Mat response.
10. Acknowledge the health effects Hazardous Materials present to the first responder's life safety.
11. Describe the proper safety response to a HazMat event including establishing initial safety perimeters with proper protective clothing.

Course Content:

(please number the outline of main topics and subtopics)

1. Introduction to Hazardous Materials at the First Responder Operational Level
 1. The Haz Mat Problem
 2. UN Haz Mat Classes and Examples
 3. Multiple Hazards and Health Effects of Each Class
 4. The First Responders Role
 5. Haz Mat Definitions, Terms and Acronyms
2. Hazardous Materials Recognition and Safety
 1. Recognizing Haz Mat Incidents
 2. Haz Mat Recognition Clues
 3. Haz Mat Outward Warning Signs and Locations
 4. D.O.T. Haz Mat Placarding and Labels
 5. Safety and Death and Injury Due to a Lack of Safety Guidelines
3. Safety, Isolation, Notification Procedures
 1. Safe Approach and Assessment
 2. First on Scene Initial Actions
 3. General Safety Precautions and Do's/Don'ts
 4. Haz Mat Release Requirements for Notification
4. Command and Introduction to Scene Management
 1. Common Scene Management System
 2. ICS's General Premise and Basic Concepts
 3. Implementing and Expanding ICS
5. Hazard Assessment and Action Plans
 1. Chemical Identification Resources – D.O.T. Emergency Response Guidebook and CHEMTREC
 2. Components of a Hazard Assessment
 3. Chemical Terms
 4. Action Planning
6. Protective Clothing and First Responder Limitations
 1. Identifying the need for Protective Clothing
 2. Routes of Entry for Human Exposure
 3. On-Scene Hazards and Protective Clothing Levels
 4. Need for Respirators and Breathing Apparatus
 5. Environmental Monitoring
 6. Limits of Protective Clothing

- 7. Contamination and Protective Actions
 - 1. Three Strategies for Release
 - 2. Methods of Contamination
 - 3. Protective Actions
 - 4. Evacuation Verses Shelter-in-Place Considerations
- 8. Decontamination, Disposal, and Documentation Techniques
 - 1. Purpose and Procedures for Decontamination
 - 2. Location, Placement, Set-up and Layout for Decontamination
 - 3. Decontamination Team Personnel, Roles, and Responsibilities
 - 4. Funding and Disposal Requirements
 - 5. Haz Mat Documentation and Reporting
 - 6. Chemical Exposure Records
- 9. Agency Coordination
 - 1. Typical First Responder Agencies
 - 2. Other Local Haz Mat Agencies
 - 3. Key State Haz Mat Agencies
 - 4. Key Federal Haz Mat Agencies
 - 5. Private Sector Haz Mat Resources
 - 6. Enhancing Agency Coordination and Communication
- 10. Pre-Event and Event Specific Planning
 - 1. Purpose of Planning
 - 2. Value and Benefit of Good Planning
 - 3. Key Steps/Components of a Plan
 - 4. Pre-Event Verses Event Specific Plans
- 11. Toxicology
 - 1. Understanding Toxicology
 - 2. Definition of Toxicology and Poisons
 - 3. Routes of Entry/Exposure
 - 4. Acute Verses Chronic Exposures and Effects
 - 5. Responder Documentation and Exposure Records
 - 6. Dose-Response Relationship
- 12. The Haz Mat Response Process
 - 1. The Need and Basics of Process
 - 2. The “Acronym” Process
 - 3. The “Checklist” Process
 - 4. The “Risk Verses Gain” Process
 - 5. “Applying” the Process
- 13. Exercise, Critique, and First Responder Exercise Briefing
 - 1. The Value and Purpose of Exercise
 - 2. “Exercise” Defined
 - 3. Why Exercise
 - 4. Four Types of Exercise
 - 5. Need for Follow-Up
- 14. Media and Hazardous Materials Legal Aspects
 - 1. Use and Legal Role of the Media
 - 2. State and Federal Haz Mat Legislation
 - 3. Basic Legal Concepts
 - 4. Legal Aspects for First Responder Operational

Methods of Instruction:

Methods of instruction may include, but are not limited to the following:

- **Method:** Lecture
- **Integration:** Lecture presentation and classroom discussion will be on hazardous materials response,

identification, decontamination, and safety procedures.

- **Method:** PowerPoint and Media
Integration: PowerPoint slides and other forms of media will be used to enhance and illustrating a variety class activities to include discussion how to handle a transportation or fixed facility incident involving a hazardous material.
- **Method:** Activity
Integration: Hands-on activities will include illustrating proper form completion, in-class group discussions and research assignments to analyze a variety of case situations.
- **Method:** Tabletop Exercises
Integration: Tabletop exercises will be used to evaluate the students understanding of the materials taught including safety, hazard identification, scene management, action plan preparation, proper use of protective clothing, containment, decontamination, documentation, and disposal.

Methods of Evaluation:

A student's grade shall be determined by the instructor using multiple measures of performance related to the course objectives. Methods of evaluation may include but are not limited to the following:

- **Method:** Class Participation
Integration: Participation in class discussions and simulated group exercises. Students will be judged on participation and correct application of procedures.
- **Method:** Exams/Tests
Integration: Quizzes and a final examination will be given to test for content understanding of terminology, knowledge of subject matter, and ability to contrast and evaluate the first responder’s role and responsibilities during a hazardous materials incident.
- **Method:** Role-playing/Simulation
Integration: Demonstrations on proper safe first responder actions, on any given simulated hazardous materials event, will be performance based and graded against the industry standard for the safe handling of hazardous materials.

Examples of Assignments:

Students will be expected to understand and critique college level texts or the equivalent. Reading and writing, as well as out of class assignments are required. These assignments may include but are not limited to the following:

1. Explain, both in writing and verbally, how to recognize what Hazardous Materials are; the problems they pose; the risks and outcomes Haz Mat events present; and identify the Haz Mat First Responder’s Awareness verses Operational Role.
2. Prepare, with a group, a written and oral analysis on how to recognize a Hazardous Material event through basic clues, warning signs, placards, labels, shipping papers and materials safety data sheets researched by the group. The student will demonstrate an ability to operate within a team environment to research and present information.
3. Given a simulated incident involving a hazardous material release, describe identification and hazard assessment techniques and demonstrate the use of the North American Emergency Response Guidebook to initiate basic action planning.
4. Given a hazardous materials event, demonstrate the proper safe first responder actions (including deciding proper safe containment and protective clothing options); describe effective safety, isolation and notifications; identifying and assessing the hazard; and demonstrating proper information flow from the first responder to the Incident Commander at a Command Post.

Textbooks:

- Department of Transportation (2016). *Emergency Response Guidebook (Latest Version)* J. J. Keller & Associates. ISBN: 9781680080742

International Fire Service Training Association (2018). *Hazardous Materials for First Responders, 5th Edition*
IFSTA. ISBN: 97801348073893

Other Resources:

Minimum Qualification

- Fire Technology