



5055 Santa Teresa Blvd
Gilroy, CA 95023

Course Outline

COURSE: JFT 18A **DIVISION:** 50 **ALSO LISTED AS:**

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

SHORT TITLE: HAZMAT 1A

LONG TITLE: HazMat 1A Basic Chemistry of Hazardous Materials

<u>Units</u>	<u>Number of Weeks</u>	<u>Type</u>	<u>Contact Hours/Week</u>	<u>Total Contact Hours</u>
1	18	Lecture:	.78	14.04
		Lab:	1.46	26.28
		Other:	0	0
		Total:	2.24	40.32
		Total Learning Hrs:	68.4	

COURSE DESCRIPTION:

Designed to provide the students with a basic foundation in chemistry and physics as they relate to hazardous materials incidents. Topics include an overview of chemical and physical properties, chemical structures and formulas, covalent and ionic bonding, safety, personal protective equipment, operational procedures, Periodic Table of Elements, different types of chemical compounds, and the combustion process as it relates to hazardous materials. **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

P - Pass/No Pass

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. Identify and explain how chemistry affects the hazardous materials response.
2. Identify and classify unknown materials

COURSE OBJECTIVES:

By the end of this course, a student should:

1. Identify the hazards of hazardous products and chemicals.

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

Curriculum Approval Date: 10/10/2023

LECTURE CONTENT:

- I. Chemistry of Hazardous Material (11 hours)
 - A. Chemical and Physical Properties
 - B. Periodic Table of Elements
 - C. Covalent and Ionic Bonding
 - D. Chemical Compounds
 - E. Combustion Process
 - F. Field Monitoring
 - G. Detection Devices
 - H. Sample Collection Equipment
 - I. Effect on Hazardous Material Response
- II. Course Review and Final Exam (3 hours)

LAB CONTENT:

- I. Field Testing (10 hours)
 - A. Procedures for Identifying and Classifying Unknown Materials
- II. Personal Protection (6 hours)
 - A. Safety
 - B. Working with Chemicals
 - C. Personal Protective Equipment
- III. Technical Foundation (10 hours)
 - A. Operational Strategies
 - B. Exposure Limits

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 10

Assignment Description

Review procedures for Identifying and Classifying Unknown Materials.

Required Outside Hours 18

Assignment Description

Study the chemistry of hazardous materials, list chemical and physical properties and chemical compounds discussed in class.

You will analyze chemical and physical properties to support risk-based response and decision-making and share that information.

METHODS OF EVALUATION:

Evaluation Percent 50

Evaluation Description

Written Test/Demonstration: Proper utilization of Personal Protective Equipment

Evaluation Percent 50

Evaluation Description

Written Test/Demonstration: Multiple Choice; True/False

REPRESENTATIVE TEXTBOOKS:

State Fire Training Procedures Manual , State Fire Training , Sate Fire Training , 2020 or a comparable textbook/material.

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

RECOMMENDED MATERIALS:

Hazardous Materials handout , Instructor, 2023.

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

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: CCC000325251

Sports/Physical Education Course: N

Taxonomy of Program: 213300