

## FIRE114 : Hazardous Materials

### General Information

Author:	<ul style="list-style-type: none"><li>Tracy Rickman</li></ul>
Course Code (CB01) :	FIRE114
Course Title (CB02) :	Hazardous Materials
Department:	FIRE
Proposal Start:	Spring 2025
TOP Code (CB03) :	(2133.00) Fire Technology
CIP Code:	(43.0201) Fire Prevention and Safety Technology/Technician.
SAM Code (CB09) :	Clearly Occupational
Distance Education Approved:	No
Will this course be taught asynchronously?:	No
Course Control Number (CB00) :	CCC000548655
Curriculum Committee Approval Date:	05/22/2024
Board of Trustees Approval Date:	07/16/2024
Last Cyclical Review Date:	05/22/2024
Course Description and Course Note:	FIRE 114 is an introduction to hazardous materials and the levels of incident management. Students will learn the problems of flammability as encountered by firefighters when dealing with toxic substances, as well as concerns tied to fuels, explosives, oxidizers and radioactive materials. Students will review firefighting practices and procedures pertaining to hazardous materials response.
Justification:	Mandatory Revision
Academic Career:	<ul style="list-style-type: none"><li>Credit</li></ul>
Mode of Delivery:	
Author:	Tracy Rickman
Course Family:	

### Academic Senate Discipline

Primary Discipline:	<ul style="list-style-type: none"><li>Fire Technology</li></ul>
Alternate Discipline:	No value
Alternate Discipline:	No value

## Course Development

### Basic Skill Status (CB08)

Course is not a basic skills course.

Allow Students to Gain Credit by Exam/Challenge

### Course Special Class Status (CB13)

Course is not a special class.

### Pre-Collegiate Level (CB21)

Not applicable.

### Grading Basis

- Grade with Pass / No-Pass Option

### Course Support Course Status (CB26)

Course is not a support course

## General Education and C-ID

### General Education Status (CB25)

Not Applicable

### Transferability

Transferable to CSU only

### Transferability Status

Approved

## Units and Hours

### Summary

**Minimum Credit Units (CB07)** 3

**Maximum Credit Units (CB06)** 3

**Total Course In-Class (Contact) Hours** 54

**Total Course Out-of-Class Hours** 108

**Total Student Learning Hours** 162

### Credit / Non-Credit Options

#### Course Type (CB04)

Credit - Degree Applicable

#### Noncredit Course Category (CB22)

Credit Course.

#### Noncredit Special Characteristics

No Value

#### Course Classification Code (CB11)

Credit Course.

Variable Credit Course

#### Funding Agency Category (CB23)

Not Applicable.

Cooperative Work Experience

Education Status (CB10)

### Weekly Student Hours

	In Class	Out of Class
Lecture Hours	3	6
Laboratory Hours	0	0
Studio Hours	0	0

### Course Student Hours

<b>Course Duration (Weeks)</b>	18
<b>Hours per unit divisor</b>	0
<b>Course In-Class (Contact) Hours</b>	
Lecture	54
Laboratory	0
Studio	0

**Total** 54

**Course Out-of-Class Hours**

Lecture 108

Laboratory 0

Studio 0

**Total** 108

**Time Commitment Notes for Students**

No value

**Units and Hours - Weekly Specialty Hours**

Activity Name	Type	In Class	Out of Class
No Value	No Value	No Value	No Value

**Pre-requisites, Co-requisites, Anti-requisites and Advisories**

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**Advisory**

ESL141 - Grammar And Writing IV

**Objectives**

- Compose a 400 to 450-word thesis-based essay which: (a) summarizes and cites appropriately a reading passage provided as a prompt, (b) includes a clear thesis statement, (c) uses evidence to support the thesis, (d) shows clear organization into an introduction, body, and conclusion, and (e) uses appropriate rhetorical modes such as comparison/contrast, cause/effect, and persuasion in order to support a thesis.

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**OR**

**Advisory**

ENGL101 - Introduction to College Reading and Composition

**Objectives**

- Develop varied and flexible strategies for generating, drafting, and revising essays.
  - Integrate the ideas of others through paraphrasing, summarizing, and quoting without plagiarism.
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## Entry Standards

Entry Standards

## Course Limitations

Cross Listed or Equivalent Course

## Specifications

### Methods of Instruction

Methods of Instruction                      Lecture

Methods of Instruction                      Multimedia

Methods of Instruction                      Collaborative Learning

Methods of Instruction                      Demonstrations

### Out of Class Assignments

- Reading case studies of hazardous materials incidents
- Write essays on individual events as provide by instructor pertaining to hazardous materials

### Methods of Evaluation

### Rationale

Exam/Quiz/Test	Quizzes
Exam/Quiz/Test	Midterm examination
Exam/Quiz/Test	Final examination

### Textbook Rationale

No Value

### Textbooks

Author	Title	Publisher	Date	ISBN
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**Other Instructional Materials (i.e. OER, handouts)**

No Value

**Materials Fee**

No value

**Learning Outcomes and Objectives****Course Objectives**

Compare and contrast the dangers of hazardous materials, hazardous waste, and hazardous substances.

Discuss basic procedures for safe emergency incident control measures as they relate to the release of hazardous materials.

Explain tactical and safety operations of a fire department through the phases of a hazardous materials incident.

List and compare the safety considerations of a fire department hazardous material response team pertaining to downwind evacuation plans.

Describe the legal mandates as they relate to the responsible party financial obligations of any hazardous material release.

**SLOs**

**Explain and define the levels of hazardous material first responder levels, starting with the awareness level and ending at specialist.**

Expected Outcome Performance: 70.0

<i>ILOs</i> Core ILOs	Demonstrate depth of knowledge in a course, discipline, or vocation by applying practical knowledge, skills, abilities, theories, or methodologies to solve unique problems.
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<i>FIRE</i> Verdugo Recruit Fire Academy	Discuss the skills required for fire-fighting tactics and strategy
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<i>FIRE</i> Verdugo Fire Academy - Certificate	discuss the skills required for fire-fighting tactics and strategy.
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<i>FIRE</i> Fire Technology - Certificate	discuss the skills required for fire-fighting tactics and strategy.
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<i>FIRE</i> Fire Technology - A.S. Degree Major	discuss the skills required for fire-fighting tactics and strategy.
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**Define the 9 united nation placards and describe their individual hazards.**

Expected Outcome Performance: 70.0

*ILOs*  
Core ILOs Demonstrate depth of knowledge in a course, discipline, or vocation by applying practical knowledge, skills, abilities, theories, or methodologies to solve unique problems.

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*FIRE*  
Verdugo Recruit Fire Academy Discuss the skills required for fire-fighting tactics and strategy

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**Define the term caution, warning and danger as they relate to labels and place in proper order of hazard, lowest to highest.**

Expected Outcome Performance: 70.0

*ILOs*  
Core ILOs Analyze and solve problems using critical, logical, and creative thinking; ask questions, pursue a line of inquiry, and derive conclusions; cultivate creativity that leads to innovative ideas.

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Demonstrate depth of knowledge in a course, discipline, or vocation by applying practical knowledge, skills, abilities, theories, or methodologies to solve unique problems.

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**Compare the safety considerations of a hazardous material response, as compared to other fire emergencies.**

Expected Outcome Performance: 70.0

*ILOs*  
Core ILOs Analyze and solve problems using critical, logical, and creative thinking; ask questions, pursue a line of inquiry, and derive conclusions; cultivate creativity that leads to innovative ideas.

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Demonstrate depth of knowledge in a course, discipline, or vocation by applying practical knowledge, skills, abilities, theories, or methodologies to solve unique problems.

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## Additional SLO Information

**Does this proposal include revisions that might improve student attainment of course learning outcomes?**

No

**Is this proposal submitted in response to learning outcomes assessment data?**

No

**If yes was selected in either of the above questions for learning outcomes, explain and attach evidence of discussions about learning outcomes.**

No Value

**SLO Evidence**

No Value

## Course Content

### Lecture Content

#### **Chemistry and Physics of Fire (10 hours)**

- Introduction to chemical terms and units of measure
- Matter, energy, and electron structure
- The naming and forming of compounds
- Chemical prefixes and suffixes
- Organic and inorganic
- Chemical equations
- Introduction to some pertinent laws of chemistry
- Response options

#### **Properties of Flammable Liquids (8 hours)**

- Flammable liquids and their chemical structure
- Bulk flammable liquids
- Classification
- Hazards and firefighting techniques

#### **Pressurized Industrial Techniques (8 hours)**

- General principles
- Natural gas
- Anesthetics
- Firefighting techniques
- Labeling and placarding
- Acetylene gases
- Hydrogen/gases

#### **Liquefied Gases (8 hours)**

- Liquefied petroleum
- Refrigerants
- Cryogenics
- Hazards and firefighting techniques
- Labeling and placarding

#### **Flammable Solids (6 hours)**

- Volatile solids
- Flammable elements and compounds
- Hazards and firefighting techniques

#### **Combustible Metals (4 hours)**

- Magnesium and alkaline-earth metals
- Use and storage
- Hazards and firefighting technique

#### **Toxic Combustion Products & Hazard Classes and Response (10 hours)**

- Identification of poisons
- Cyanides, arsenic, mercury, and lead
- Insecticides and Poisonous Gases

- NFPA and other standards
- United Nations Hazards Classes (1-9)
- 3rd party fiscal responsibilities

**Total hours: 54**

## Additional Information

Is this course proposed for GCC Major or General Education Graduation requirement? If yes, indicate which requirement in the two areas provided below.

No

**GCC Major Requirements**

No Value

**GCC General Education Graduation Requirements**

No Value

**Repeatability**

Not Repeatable

**Justification (if repeatable was chosen above)**

No Value

## Resources

**Did you contact your departmental library liaison?**

No

**If yes, who is your departmental library liaison?**

No Value

**Did you contact the DEIA liaison?**

No

**Were there any DEIA changes made to this outline?**

No Value

**If yes, in what areas were these changes made:**

No Value

**Will any additional resources be needed for this course? (Click all that apply)**

No Value



If additional resources are needed, add a brief description and cost in the box provided.

No Value