COURSE INFORMATION FORM

DISCIPLINE  Fire Science
COURSE TITLE  Hazardous Materials Awareness and Operations

CR.HR  3  LECT HR  3  LAB HR  \_
CLIN/INTERN HR  \_
CLOCK HR  \_

CATALOG DESCRIPTION

This course is designed to provide instruction in the handling of hazardous materials in an emergency situation. Upon successful completion of this program and the state Exam, the student will become state certified in Hazardous Materials Awareness and Operations.

PREREQUISITES

None

EXPECTED STUDENT OUTCOMES IN THE COURSE (ESO)

Upon completion of this course, the student will be able to:

1. Identify responsibilities of awareness first responders and describe the difference between hazardous materials incidents and regular emergencies.

2. Describe various legislation that affects hazardous material standards of care.

3. Identify and recognize hazardous materials including placarding, labeling, container shapes, and use of current Emergency Response Book.

4. Describe various routes of exposure in which hazardous materials may affect the responder.

5. Identify and explain the use of hazardous materials by terrorists.

6. To demonstrate the role of a first responder operations level.

7. Survey the incident to identify the containers, and materials involved, determine whether hazardous materials have been released, and evaluate the surrounding conditions.

8. Successfully collect hazard and response information using materials safety data sheets, CHEMTREC/CANUTEC/SETIZ, and contacts with the shipper/manufacturer.

9. Predict the likely behavior of a material release based on identifying materials and containers.

10. Develop a plan of action based on hazardous material release and identify decontamination procedures.

11. Identify and don and doff protective equipment utilized for the hazardous material incident.

12. Identify and demonstrate proper monitoring of a hazardous material incident, and describe the likely hazard assessment and damage based on the scenario given.
3 Lifelong Learning

B. Personal and Professional Development
   • Pursue structured learning opportunities, certification, and/or degrees (1-12)

C. Attributes of an Awareness of the Convergence of Knowledge
   • Synthesize information to facilitate application (1-12)
PROGRAM-LEVEL OUTCOMES

CAREER AND TECHNICAL EDUCATION PROGRAM OUTCOMES
Specify which Career and Technical program outcomes, if any, are substantially addressed by the course by completing the “Career and Technical Education template” to show the relationship between course and program outcomes to assessment measures.

The student will be able to explain and demonstrate the safety and health procedures/requirements set by the National Fire Protection Association
  • Recognize the appropriate use and care of personal protective equipment, (Bunker gear, SCBA)
  • Develop effect skills used for self-rescue in emergency operations
  • Identify the National Fire Protection Administration’s standard on fire service health and safety (NFPA 1500)

The student will explain the history and origins of the Fire and Emergency Services
  • Demonstrates the use of fire service communications during emergency and non-emergency operations

The student will be able to explain and demonstrate the ability to recognize, analyze, isolate, and mitigate hazardous materials incidents
  • Accurately interprets Haz-Mat placards, labels, markers, and transport vehicles
  • Recognize the appropriate action for containment and mitigation of Hazardous Materials
  • Demonstrates the ability to construct a hasty and mass decontamination site

The student will demonstrate the ability to develop and maintain professionalism in the field of Public Safety
  • Demonstrate the ability to conduct the duties as a fire fighter in professional manner

CLASS-LEVEL ASSESSMENT MEASURES
Student accomplishment of expected student outcomes will be assessed using the following measures. (Identify which measures are used to assess which outcomes.)

Written Examinations (1, 2, 3, 4, 5, 9)
Practical Evolutions (7, 11, 12)
Classroom Exercises (6, 8, 10)
Individual instructors may order this outline as fits the needs of their individual courses. In addition, they may place more emphasis on some areas than on others. What is assured is that this particular list is covered in the course. Other topics may be added to a course as the instructor sees fit, and as time and interest allow. An *asterisk can be used to mark an item as optional.

I. Introduction to hazardous materials
   A. Overview of hazardous materials
   B. Responsibilities of first responders
   C. Hazardous materials v. regular emergencies

II. Laws, standards and regulations
    A. Legislation affecting hazardous materials
    B. OSHA 29 CFR

III. Gathering and analyzing information
     A. Recognizing and identifying hazardous materials
     B. Placarding, labeling
     C. Container shapes
     D. 2000 Emergency response guidebook

IV. Initiating protective actions
    A. Exposures that may affect first responder
    B. Personal protective equipment

V. Criminal and terrorist events
    A. Reasons terrorists use hazardous materials
    B. Terrorist attacks and measures for first responders

VI. Roles and responsibilities of the first responder operations
    A. General procedures
    B. Role of the first responder
    C. Response cycle

VII. Physical properties, harm and toxicology of hazardous materials

VIII. Health and physical hazards – Types of harm

IX. Utilizing the recognition and identification

X. Personal protective equipment
   A. Respiratory protection
   B. Physical and mental requirements
   C. Structural fire fighting gear

XI. Monitoring
    A. Why monitor
    B. Personal safety
    C. Hazardous atmospheres

XII. Mitigation - Absorption, dike, dam, divert, retain
XIII. Decontamination
   A. Strategies
   B. Tactics

XIV. Incident management
   A. Responsibilities
   B. Levels