

Program of Instruction

Course Syllabus

Course Title: Hazardous Materials Technician

Course Duration: 80 hours

Program: Hazardous Materials Program

Course Prerequisites:

Hazardous Materials Awareness
Hazardous Materials Operations

OR

Hazardous Materials Awareness and Operations

Course Description: The goal of this 80-hour course is to prepare responders to operate as a local member of a regional hazardous materials response team within the National Incident Management Systems (NIMS) at a CBRNE (Chemical, Biological, Radiological, Nuclear, or Explosive) event requiring a statewide response. The course provides the essential knowledge, skills, and abilities to operate offensively or defensively at an incident involving the release of hazardous materials. The objectives of the course are to teach participants: to classify, identify, and verify known and unknown material by using field survey instruments and equipment; to select and use the proper chemical protective equipment provided to the hazardous materials Technician; to understand hazard and risk assessment techniques for Hazmat and CBRNE environments; to be able to perform advanced control, containment, and/or confinement operations within the capabilities of the resources and personal protective equipment available; and to develop action plans within the parameters of the State plan for statewide response to WMD events.

Course Requirements and/or Recommendations: These can be divided into three categories: those completed prior to arriving in class (Pre-Course Work), those completed during class, such as homework assignments and quizzes (Course Work), and requirements completed after class but prior to receiving a certificate of completion. (Post-Course Work)

Summary of Directions

Pre-Course Work: Hazmat Technician Online Step 1:
Review Tech A Chemical and Physical Terms
Review Completed Site Safety Plan
View 4 videos (A kit, B kit, C kit, and Midland Kit)

Course Work: Complete all reading, homework, and practical assignments prior to the Final Exam.

Post-Course Work: None

Textbook: Noll, Gregory, Michael Hildebrand and James Yvorra. *Hazardous Materials: Managing the Incident 4th Ed.* Jones & Bartlett, 2014

Course Policies:

Attendance Policy: IFSI requires students to attend (100%) or make up all course content that leads to certification. Students are expected to attend on time and to remain in class for the duration of the course. Students **MUST COMPLETE** all portions of a certification course, both classroom and practical, to be eligible to receive their certification.

If a student misses any portion of class with an accumulated absence of 20% or less of scheduled class time, it will be the student's responsibility to arrange the make-up of the missed course content with the instructor(s) or program manager. The student must make up the specific course content that s/he missed, not just the hours. Make-ups are limited to 20% of scheduled class time. Make-ups must be documented on the class roster. If a student's absence is greater than 20% refer to "True Emergences" section of the IFSI Examination Policy.

Safety Policy: Students shall understand and follow all instructions pertaining to operational safety, as stated by instructors or as written in course materials. Instructors and students shall be mindful of safety at all times. Conduct judged to be unsafe shall be grounds for dismissal from the course.

Academic Integrity Policy: IFSI has the responsibility for maintaining academic integrity so as to protect the quality of the education provided through its courses, and to protect those who depend upon our integrity. It is the responsibility of the student to refrain from infractions of academic integrity, from conduct that may lead to suspicion of such infractions, and from conduct that aids others in such infractions. Any violation of the code of conduct is grounds for immediate dismissal from the course.

Grading Policy: Decisions regarding certificates of course completion shall be made solely by the lead instructor of the course. All grading of exams shall be conducted by the Curriculum/Testing Office. All grading of practical exercises shall be based upon the standards set by the regulatory agency referenced in the course material and IFSI.

American Disabilities Act: As guaranteed in the Vocational Rehabilitation Act and in the American Disabilities Act, if any student needs special accommodations they are to notify their instructor and provide documentation as soon as possible so arrangements can be made to provide for the student's needs. If arrangements cannot be made at the class site, the student will test at an alternative time and place where the special accommodations can be made.

Evaluation Strategy: Students will be evaluated with an end of course exam and performance evaluation checklists.

Course Content:

Module: 1

Title: Laws and Regulations

Terminal Learning Objective:

At the conclusion of this module, the student will *explain* the laws, regulations and standards that apply to hazardous materials/WMD incidents.

Module: 2

Title: Response Components

Terminal Learning Objective:

At the conclusion of this module, the student will *explain* the 5-step Isolate to Terminate process and how it affects the hazardous materials response.

Module: 3

Title: Toxicology

Terminal Learning Objective:

At the conclusion of this module, the student will *explain* how hazardous materials enter the body and what their potential effects are.

Module: 4

Title: Collecting & Interpreting Hazard & Response Information

Terminal Learning Objective:

At the conclusion of this module, the student will *utilize* a minimum of three resources to collect and interpret information concerning a hazardous material.

Module: 5

Title: Personal Protective Equipment

Terminal Learning Objective:

At the conclusion of this module, the student will *demonstrate* the proper selection, use, and maintenance of all four EPA ensemble classifications

Drill 1 – Suit Familiarization

Module 6:

Title: First Responder Resiliency

Terminal Learning Objective:

At the conclusion of this module, the student will recognize resiliency and mental health topics as core standards in the proficient training of a first responder.

Module 7:

Title: Chemical and Physical Properties

Terminal Learning Objective

At the conclusion of this module, the student will *apply* chemical and physical properties of a material to predict how hazardous materials will respond in different situations.

Module 8:

Title: Recognition and Identification

Terminal Learning Objective

At the conclusion of this module, the student will *recognize* different types of transportation containers and markings and *determine* the hazards associated with the materials transported or stored within the container.

Module 9:

Title: Decontamination

Terminal Learning Objective

At the conclusion of this module, the student will *demonstrate* proper selection, set-up, operation, and tear down of a decontamination line.

Drill 2 – Decontamination

Module 10:

Title: Control Functions

Terminal Learning Objective:

At the conclusion of this module, the student will *demonstrate* performing control functions, available to the Technician, in support of the Incident Action Plan.

Drill 3 – Control Functions**Module 11:**

Title: Rescue

Terminal Learning Objective:

At the conclusion of this module, the student will *demonstrate* several techniques for removing victims from a hazardous environment in a safe and efficient manner.

Module 12:

Title: Monitoring

Terminal Learning Objective:

At the conclusion of this module, the student will *understand* when and how to employ the use of specialized monitoring techniques at a hazardous materials incident.

Module 13:

Title: Incident Management System

Terminal Learning Objective

At the conclusion of this module, the student will *identify* the positions that make up the Incident Management System and how to use IMS, Unified Command, and NIMS at a hazardous materials/WMD incident.

Drill 4 – Rescue**Drill 5 – Transportation Containers and Railcars****Incident 1 – Sulfuric Acid Pipe Leak / Railcar Incident****Module 14:**

Title: The Big Picture

Terminal Learning Objective:

At the conclusion of this module, the student will *analyze* and incident and be able to decide on a strategy by looking at the Big Picture.

Module 15:

Title :Exposure Guidelines

Terminal Learning Objective:

At the conclusion of this module, the student will *describe* how to use different toxicology guidelines to assist in the development of emergency response protection strategies.

Drill 6 – Advanced Monitoring**Module 16:**

Title: Container Behavior

Terminal Learning Objective

At the conclusion of this module, the student will *identify* factors that determine how hazardous materials containers will behave during an incident and *develop* a strategy for a response based on the analysis of the container and its behavior.

Module 17:

Title: Sampling

Terminal Learning Objective:

At the conclusion of this module, the student will *demonstrate* the procedure for collecting a solid and liquid sample utilizing the State Protocol.

Drill 7 - Sampling**Incident 2 – Chlorine 1-ton incident****Module 18:**

Title: Terrorist and Other Criminal Activities

Terminal Learning Objective

At the conclusion of this module, the student will *classify* terrorist incidents into the five basic categories of Chemical, Biological, Radiological, Nuclear, and Explosive.

Module 19: Radiological EmergenciesTerminal Learning Objective:

At the conclusion of this module, the student will *demonstrate* detecting and operating at a radiological emergency.

Drill 8 – Radiological Monitoring**Incident 3 – Radiological Incident**

Incident 4 – Comprehensive Final Incident

References:

National Fire Protection Association Standard 472 *Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents*, 2013.

National Fire Protection Association Standard 1072 *Standard for Hazardous Materials/Weapons of Mass Destruction Emergency Response Personnel Professional Qualifications*, 2017.

Noll, Gregory, Michael Hildebrand and James Yvorra. *Hazardous Materials: Managing the Incident 4th Ed.* Jones & Bartlett, 2014

United States Department of Homeland Security. *National Incident Management System, 2004.* Washington D.C., 2004.

U.S. Department of Labor, *Code of Federal Regulations: Labor 29 CFR 1910.120.* Washington, D.C., Office of the Federal Register, National Archives and Records Administration, 1996.

U.S. Department of Labor, *Code of Federal Regulations: Transportation 49 CFR Parts 100 to 77.* Washington, D.C., Office of the Federal Register, National Archives and Records Administration, 1995.

Course Schedule

DAY 1

Start Time: 0800

<u>Event</u>	<u>Duration</u>
Orientation, Introductions, Paperwork	1 hour
Module 1: Laws and Regulations	30 minutes
Module 2: Response Components	30 minutes
Module 3: Toxicology	1 hour
Module 4: Collecting and Interpreting	1 hour
Lunch	
Module 5: Personal Protective Equipment	1 hour
Suit Test Demo	30 minutes
Drill 1: Suit Familiarization	2 hour and 30 min
Assignment: Day 1 Homework Assignment	

DAY 2

Start Time: 0800

<u>Event</u>	<u>Duration</u>
Review Homework	15 minutes
Module 6: First Responder Resiliency	1 hour
Module 7: Chemical and Physical Properties	45 minutes
Module 8: Recognition and Identification	2 hours

Lunch

Module 9: Decontamination	1 hour
Drill 2: Decontamination	3 hours

Assignment: Day 2 Homework Assignment

DAY 3

Start Time: 0800

<u>Event</u>	<u>Duration</u>
Review Homework	15 minutes
Module 11: Control Functions (Walk through with Leak Kits)	3 hours and 45 min
Lunch	
Drill 3: Control Functions in Level A	4 hours

DAY 4

Start Time: 0800

<u>Event</u>	<u>Duration</u>
Module 11: Rescue	1 hour
Module 12: Monitoring – Part 1	1 hour
Science Activity	1 hour
Module 13: Incident Management	1 hour
Lunch	
Drill 4: Rescue	4 hours

DAY 5

Start Time: 0800

<u>Event</u>	<u>Duration</u>
Drill 5: Transportation Containers and Railcars	4 hours
Lunch	
Incident 1: Sulfuric Acid Pipe/Railcar	4 hours
Assignment: Day 6 Homework	

DAY 6

Start Time: 08:00

<u>Event</u>	<u>Duration</u>
Module 14: The Big Picture	1 hour
Module 15: Exposure Guidelines	45 minutes
AEGL Activity	15 minutes
Module 12: Monitoring – Part II	2 hours
Lunch	
Drill 6: Advanced Monitoring	3 hours
Module 16: Container Behavior	1 hour

DAY 7

Start Time: 08:00

<u>Event</u>	<u>Duration</u>
Module 17: Sampling	2 hours
Drill 7: Sampling	2 hours
Lunch	
Incident 2: Chlorine 1-ton Incident	4 hours

Day 8

Start Time: 08:00

<u>Event</u>	<u>Duration</u>
Module 18: Terrorist & Other Criminal Activities	1 hour
Module 19: Radiological Emergencies	1 hour
Drill 8: Radiological Monitoring	2 hours
Lunch	
Incident 3: Radiological Incident	4 hours

DAY 9

Start Time: 08:00

<u>Event</u>	<u>Duration</u>
Final Exam	2 hours
Incident 4: Final Incident	6 hours

DAY 10

Start Time: 08:00

Performance Evaluations	8 hours
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