

University of Illinois Fire Service Institute

Course Syllabus

Course Title: Hazardous Materials Awareness and Operations (470 – Ch 7, 9.2, 9.6)

Course Duration: 40 hours

Program: Hazardous Materials Program

Course Prerequisites: None

Course Description: This course provides to those who are or will be operating as a member of a fire department, law enforcement agency, EMS agency, emergency management agency, or other first responder agency, the basic skills needed to evaluate and work defensively at an incident involving the release of hazardous materials. The objectives of the course are to teach participants: basic hazards and risk-assessment techniques for Hazmat and CBRNE environments; selecting and using proper personal protective equipment provided to the first responder at the Operations level; performing basic control, containment and/or confinement operations within the capabilities of the resources and personal protective equipment available; an understanding of the types of CBRNE and WMD events that may be presented to the first responder; and an understanding of the relevant standard operating guidelines and termination procedures. The course meets the requirements of NFPA 470, Hazardous Materials/Weapons of Mass Destruction (WMD) Standard for Responders, 2022 Edition Chapters 7, 9.2, and 9.6.

Course Requirements and/or Recommendations:

Prerequisite – None	0 hours
Pre-Course Work – Optional Online Step 1 Work	0 hours
Course Work – Practical exercises, scenarios, exam	40 hours
Post-Course Work – None	<u>0 hours</u>
<u>Minimum documented OSFM hours:</u>	40 hours

Required Textbook:

Hazardous Materials Awareness and Operations, Jones & Bartlett Learning, 4th Edition.

The textbook is loaned to the student by IFSI for the duration of the class.

Reading Assignments:

Day 1: p. 4-17, 33-57, 63-87, 137-139, 193-207

Day 2: p. 29-64, 90-104, 271-294

Day 3: p. 132-162, Chapter 11

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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 Emergencies" 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.

Retesting: If a student fails to pass an exam, retesting takes place on set dates at regional sites across the state. More information is provided in the course completion e-mail and on the IFSI website.

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.

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Evaluation Strategy: Written homework and practical skills testing are completed throughout the course. A written test and final practical incident are conducted at the completion of the course. In addition, several simulated evolutions and tabletop scenarios are used throughout the course.

Course Content:

Module: 1

Title: Laws, Regulations, & Standards

Terminal Learning Objective:

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

Module: 2

Title: Response Components

Terminal Learning Objective:

At the conclusion of this module, the student will determine the strategic objectives to be completed at all hazardous materials/WMD incidents.

Module: 3

Title: Chemical and Physical Properties

Terminal Learning Objective:

At the conclusion of this module, the student will predict how the chemical and physical properties of a product will affect response to a hazardous materials/WMD incident.

Module: 4

Title: Health and Safety

Terminal Learning Objective:

At the conclusion of this module, the student will relate health hazards with an associated material and its container.

Module: 5

Title: Product Control

Terminal Learning Objective:

At the conclusion of this module, the student will confine hazardous materials to a certain area.

Module: 6

Title: Foam

Terminal Learning Objective:

At the conclusion of this module, the student will use foam to suppress vapors.

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Module: 7

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: 8

Title: Recognition and Identification of Transportation Containers

Terminal Learning Objective:

At the conclusion of this module, the student will determine the hazards associated with the materials stored within transportation containers.

Module: 9

Title: Fixed Facilities and Hazardous Materials Identification

Terminal Learning Objective:

At the conclusion of this module, the student will identify the hazards associated with the materials stored at a fixed facility.

Module: 10

Title: Incident Management

Terminal Learning Objective:

At the conclusion of this module, the student will describe the different roles in the incident management system (IMS).

Module: 11

Title: Intelligence & Resources

Terminal Learning Objective:

At the conclusion of this module, the student will interpret intelligence and resource information as it relates to the hazardous materials/WMD response.

Module: 12

Title: Personal Protective Equipment

Terminal Learning Objective:

At the conclusion of this module, the student will work in each type of personal protective equipment (PPE) available to the operations trained responder.

Module: 13

Title: Monitoring

Terminal Learning Objective:

At the conclusion of this module, the student will monitor an atmosphere for unknown material.

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Module: 14

Title: Decontamination

Terminal Learning Objective:

At the conclusion of this module, the student will operate a decontamination line.

Module: 15

Title: Incident Analysis

Terminal Learning Objective:

At the conclusion of this module, the student will describe procedures for predicting the release of a material from its container.

Reference List:

Federal Emergency Management Agency. www.fema.gov.

Hazardous Materials Awareness and Operations, 4th Ed., Jones and Bartlett, 2023

NFPA 470 Hazardous Materials/Weapons of Mass Destruction (WMD) Standard for Responders, 2022

Schnepp, Rob. Hazardous Materials Awareness and Operations 3rd Ed. Jones and Bartlett Publishers, Sudbury, MA, 2019.

United States Department of Homeland Security. www.dhs.gov.

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, 2019.

U.S. Department of Labor, Code of Federal Regulations: Transportation 49 CFR Parts 100 to 177. Washington, D.C., Office of the Federal Register, National Archives and Records Administration, 10/1/2011.

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Course Schedule

DAY ONE

<u>Event</u>	<u>Duration</u>
Course Introduction & Paperwork	45 minutes
Module 1 – Laws, Regulations, & Standards	15 minutes
Module 2 – Response Components	30 minutes
Module 3 – Chemical & Physical Properties	1 hour
Module 4 – Health & Safety	45 minutes
Module 5 – Product Control	30 minutes
Lunch	
Module 6 – Foam	1 hour
Practical – Foam and Product Control	2 hours
Module 7 – Terrorist and Other Criminal Activities	1 hour
Review of Materials from the Day	15 minutes

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DAY TWO

<u>Event</u>	<u>Duration</u>
Review Day 1 Homework	30 minutes
Module 8 – Recognition and Identification	1 hour
Module 9 – Fixed Facilities and Haz. Mat. Identification	2 hours
Practical – ERG	15 minutes
Lunch	
Module 10 – Incident Management	1 hour
Module 11 – Intelligence & Resources	1 hour
Module 12 – PPE	1 hour
Review of Materials from the Day	15 minutes

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DAY THREE

<u>Event</u>	<u>Duration</u>
Review Day 2 Homework	45 minutes
Practical – PPE Practical – Science Activity	3 hours
Module 13 – Monitoring	30 minutes
Lunch	
Practical – Monitoring	1 hour 15 minutes
Module 14 – Decontamination	1 hour 15 minutes
Module 15 – Incident Analysis	1 hour
Review of Materials from the Day	15 minutes

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DAY FOUR

<u>Event</u>	<u>Duration</u>
Review Day 3 Homework	45 minutes
Decontamination Set-up and Demo	1 hour
1st Practical – Decontamination & Tabletop	2 hours
Lunch	
2nd Practical – Decontamination & Tabletop	2 hours
Dry Decontamination Demonstration	2 hours
Review of Materials from the Day	15 minutes

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DAY FIVE

<u>Event</u>	<u>Duration</u>
Review Homework and Objectives	1 hour
Performance Evaluations	3 hours
Lunch	
Performance Evaluations	2 hours
Final Exam	1 hour 45 minutes
Course Closing and Equipment Breakdown	1 hour 15 minutes
