	Northeastern Illinois Public Safety Training Academy	
	Course Syllabus	**302**

Title: Hazardous Materials Technician	**Program Duration:** 80 Hours
Type: Campus Training Program (CTP)	**Coordinator:** P. Jessee

Course Description

NIPSTA's Hazardous Materials Technician program is designed to exceed the requirements outlined by the Illinois Office of the State Fire Marshal "OSFM". This Hazmat Technician program provides students with the advanced knowledge and skills needed to respond to hazardous materials, chemical, biological, radiological, nuclear "CBRN" and weapons of mass destruction "WMD" incidents for the purpose of analyzing or planning actions to protect nearby persons, the environment, or property from the effects of a hazardous material release.

Prerequisites

The purpose of pre-requisite course work is to ensure students have sufficient backgrounds to understand the terminology, tactics and practical applications presented in NIPSTA programs. At a minimum, NIPSTA requires successful completion of the following:

- Member of a Recognized Fire Department or Brigade
- Basic Operations Firefighter
- Hazardous Materials Operations

Attendance

In order to receive a certificate of completion for courses, NIPSTA requires students to be present for all lectures, demonstrations and evolutions.

Safety

NIPSTA Instructors will ensure hazards have been identified and addressed prior to the start of each program. All course safety guidelines are discussed prior to operations. Unsafe actions or behaviors will not be tolerated and will be grounds for dismissal.

Academic Integrity

NIPSTA aspires to the highest possible standards of academic honesty and integrity in all programs as key tenants of the NIPSTA experience. NIPSTA Instructors set forth clear ethical expectations, promote consistency of standards, and encourage reporting of dishonest and unsafe behaviors. While education though participation is the central goal for every NIPSTA program, it is only possible when honesty and integrity are part of the overall mission.

Performance Testing & Evaluation

NIPSTA employs multiple methods of measuring competency subject matter, including cognitive and performance skill testing. Cognitive skills will be measured by utilizing a comprehensive written exam at the conclusion of the course. Students must achieve a minimum 70% score to successfully pass the written exam. Performance skill tests measure an individual's ability to perform specific tasks or applications based on given or known JPRs. Unless otherwise specified, performance skill tests will be measured on a pass or fail basis.

ADA Compliance

Students with a documented disabilities, as that term is used in the American with Disabilities Act (ADA), may qualify for reasonable accomidations as defined in section 504 of the Rehabiltation Act of 1973.

Textbook

The following textbooks is required for NIPSTA's Hazardous Materials Technician course.

- **Title:** Jones and Bartlett Learning, *Managing the Incident*, 4th Edition
  - **ISBN:** 9781449670849

Pre-course Assignments

The purpose of pre-course assignments is to ensure candidates are prepared to succeed at the onset of the program. The pre-course assignments for NIPSTA's Hazardous Materials Technician course are as follows:

- **Read:** Jones & Bartlett Learning, *Managing the Incident*, 4th Edition. Chapters 1, 4 & 8

80hr HazMat Tech Course Content

Course content is grouped into Subject Area Modules "Mods". The following Mods are covered in Hazardous Materials Technician course:

Mod: Orientation & Course Information
Mod: Laws, Regulations, Standards
Mod: Planning and Prevention
Mod: Preparation and Response
Mod: Managing HazMat Incidents
Mod: Incident Command/Control (ICS)
Mod: Incident Staffing and Organization
Mod: Personal Protective Equip (PPE)
Mod: PPE Theory & Considerations
Mod: PPE Levels and Types
Mod: PPE Donning/Doffing
Mod: PPE Inspection & Maintenance
Mod: HazMat Science Worksheets
Mod: Management Response Plans
Mod: Intro to Level A Suits
Mod: Level A Suit Testing
Mod: Exposure and Toxicity Control
Mod: Managing Health and Safety
Mod: Public Protection and Rescue
Mod: Protect-in-Place Operations
Mod: Evacuation Operations
Mod: Occupancy Types
Mod: Containers and Packaging
Mod: Markings, Placards and Labels
Mod: Product Documentation
Mod: Incident Action Planning
Mod: Science Worksheet Development
Mod: IAP Development Exercise
Mod: Level A Donning/Doffing
Mod: Level B Donning/Doffing
Mod: Hazard Assessment Risk Eval
Mod: Physical/Chemical Properties
Mod: Data/Information Sources
Mod: Detection, Monitoring, Sampling
Mod: HazMat Risk Management
Mod: Leak Kit Demo and Application
Mod: Information Management
Mod: Facility Plan Review
Mod: Pre-Incident Planning
Mod: Reference Material Management
Mod: Resource Types & Coordination
Mod: Decontamination Methods
Mod: Contamination Types
Mod: Contaminant Types
Mod: Decon Site and Management
Mod: Field Decon Types
Mod: Incident Command & Control
Mod: Incident Staffing & Organization
Mod: Response Objectives
Mod: Tactics & Strategy
Mod: Rescue & Protection
Mod: Spill Control Containment

Mod: Leak Control Containment
Mod: Fire Control Operations
Mod: Natural Gas Operations
Mod: Product Recovery & Transfer
Mod: Evidence Collection/Preservation
Mod: Clean-up and Close-out
Mod: Terminating the Incident
Mod: Incident Debriefing
Mod: Post-incident Analysis & Review
Mod: Operation Security (OPSEC)
Mod: Large Scale Incident Planning
Mod: HazMat Reference Sources

Mod: Coordinating info & resources
Mod: Pre-incident Tactical Planning
Mod: Over-Packing Exercise (road)
Mod: Product Control Exercise (rail)
Mod: Grounding & Bonding (road)
Mod: Industry Interaction
Mod: Radiation Overview
Mod: Public Safety Sampling
Mod: Radiation Monitoring
Mod: Product Control Exercise
Mod: Requisite Knowledge Testing
Mod: Requisite Skill Testing

Hazardous Materials Technician Schedule

Day 1

Morning

Mod: Orientation & Course Information
Mod: Laws, Regulations, Standards
Mod: Planning and Prevention
Mod: Preparation and Response
Mod: Managing HazMat Incidents
Mod: Incident Command/Control (ICS)
Mod: Incident Staffing and Organization
Mod: Personal Protective Equip (PPE)
Mod: PPE Theory & Considerations
Mod: PPE Levels and Types
Mod: PPE Donning/Doffing
Mod: PPE Inspection & Maintenance

Afternoon

Tabletop Exercises

Mod: Hazmat Science Worksheets
- Research & Information Gathering

Mod: Management Response Plans

Field Exercises

Mod: Intro to Level A Suits
Mod: Level A Suit Testing (on going)

Day 2

Morning

Mod: Exposure and Toxicity Control
Mod: Managing Health and Safety
Mod: Public Protection and Rescue
Mod: Protect-in-Place Operations
Mod: Evacuation Operations
Mod: Occupancy Types
Mod: Containers and Packaging
Mod: Markings, Placards and Labels
Mod: Product Documentation
Mod: Incident Action Planning

Afternoon

Tabletop Exercises

Mod: Science Worksheet Development
- Research & Information Gathering

Mod: IAP Development Exercise

Field Exercises

Mod: Level A Suit Dress-out
- Product Recognition and Identification Exercise

Day 3

Morning

Mod: Hazard Assessment Risk Evaluation
Mod: Physical/Chemical Properties
Mod: Data/Information Sources
Mod: Detection, Monitoring, Sampling
Mod: HazMat Risk Management

Afternoon

Field Exercises

Mod: Detection, Monitoring, Sampling Exercise
Mod: Leak Kit Demo and Application
- A Kit, B Kit, Midland Kit, Leak Monster

Day 4

Morning

Mod: Detection, Monitoring, Sampling (advanced)
Mod: Information Management
Mod: Facility Plan Review
Mod: Pre-Incident Planning
Mod: Reference Material Management
Mod: Resource Types & Coordination

Mod: Decontamination Methods
Mod: Contamination Types
Mod: Contaminant Types
Mod: Decon Site and Management
Mod: Field Decon Types

Afternoon

Field Exercises
Mod: Level B Suit Dress-out
Mod: Field Decon Types
- *Technical, Emergency, Mass*

Mod: Level A Suit Dress-out
- *Product Control Exercise*

Day 5

Morning

Mod: Incident Command & Control
Mod: Incident Staffing & Organization
Mod: Response Objectives
Mod: Tactics & Strategy
Mod: Rescue & Protection
Mod: Spill Control Containment
Mod: Leak Control Containment
Mod: Fire Control Operations
Mod: Natural Gas Operations
Mod: Product Recovery & Transfer
Mod: Evidence Collection/Preservation
Mod: Clean-up and Close-out
Mod: Terminating the Incident
Mod: Incident Debriefing
Mod: Post-incident Analysis & Review
Mod: Operation Security (OPSEC)

Afternoon

Field Exercises
Mod: Level A Suit Dress-out
- Product Control (Fixed Facilities)
- ICS Staffing

Day 6

Morning

Mod: Large Scale Incident Planning
Mod: HazMat Reference Sources
Mod: Coordinating info & resources
Mod: Pre-incident Tactical Planning

Afternoon

Mod: Level A Suit Dress-out
- *Rescue Demo & Application*
- *Vertical, Horizontal, Ladder, "Fridge", and SKED*

Day 7

Morning

Mod: Level B Suit Dress-out
Mod: Over-Packing Exercise (road)
- *Lab Pack Demo & Application*

Mod: Product Control Exercise (rail)
- *Vetter Bag Demo & Application*

Mod: Grounding & Bonding (road)
- *Product Transfer (flammable liquids)*

Mod: Industry Interaction
- *Transportation, fixed facility, etc.*

Day 8

Morning

Mod: Radiation Overview
Mod: Public Safety Sampling

Afternoon

Mod: Radiation Monitoring Demo and Application
Mod: Level B Suit Dress-out
- *Public Safety/Clandestine Lab Sampling Exercise*
- *Evidence Preservation*

Day 9

Morning

Mod: Requisite Knowledge Testing

Afternoon

Mod: Requisite Knowledge Testing
Mod: Product Control Exercise
- *Diking, Damming, Diverting*
- *Pig-putty, Plug-n-Dike, Cromwell Kit, Leak Monster*
- *Drums, Tanks, Totes*

Day 10

Morning

Mod: Course Final

Afternoon

Mod: Practical Skill Evaluation (Final Scenario)

- Equipment Maintenance and Clean-up
- Course Evaluation

Reference List

Noll, G. G., Hildebrand, M. S., Rudner, G. D., & Schnepp, R. (2019). *Hazardous materials: Managing the incident* (4th ed.). Jones & Bartlett Learning.

NFPA 1072 Standard for Hazardous Materials/Weapons of Mass Destruction Emergency Response Personnel Professional Qualifications (2017). Quincy, MA: National Fire Protection Association.

Emergency Response Guidebook: a guidebook for first responders during the initial phase of a dangerous goods/hazardous materials transportation incident. (2024). Washington, D.C.: U.S. Dept. of Transportation, Pipeline and Hazardous Materials Safety Administration.