



International Urban Search & Rescue TNG-91Z

Program of Instruction

Updated: August 2009

Texas Engineering Extension Service
Urban Search and Rescue

TEEX is a member of the
National Domestic Preparedness Consortium

Course Details

Course Length: Ten days long, ten training hours each day (100 total training hours). Class is from 0700 to 1800 each day.

Delivery Location: Delivered in [Disaster City®](#), TX near College Station, TX or equivalent training facility.

Cost: Tuition varies based on the requested course configuration. Contact TEEEX US&R for a price quote based on your training requirements. The student is responsible for hotel, travel, meals and the required equipment listed below or TEEEX can be contracted to provide these services as part of the course.

Certificate: TEEEX certificate of completion

Jurisdictions must contact TEEEX US&R to discuss the prerequisites associated with this course. Depending on the level of knowledge that participants have, TEEEX US&R can tailor the modules at the beginning of the course to ensure all participants are prepared for further modules and exercises. Additionally, TEEEX US&R can facilitate enrollment in other TEEEX courses such as [Rope Rescue](#), [Confined Space Rescue](#), and [Trench Rescue](#).

Target Audience:

This course has been developed for international jurisdictions, cities, or regions that are required to perform structural collapse duties at natural or terrorist incidents. Course participants include emergency responders from the following three disciplines/services:

- Fire Service (FS)
- Law Enforcement (LE)
- Military (MT)
- Civil Defense (CD)
- Hazardous Materials (HazMat)
- Industrial Customers (IND)

Mission Area: Respond

Level of Training: Performance – Offensive

Required Equipment:

This course requires students to bring with them specific equipment. The course participants should arrive with the following items, or TEEEX can provide them as a part of the contract for the course:

- Helmet with headlamp
- Steel toe safety boots
- Eye protection
- Work gloves and knee pads
- Standard work/duty clothing including long sleeve shirts for every day of class
- Raingear suitable for search and rescue operations. Class is conducted rain or shine

NOTE: N-95 dust masks and ear plugs will be provided by TEEEX

Course Overview

Course Background

This course is a combination of our 80 hour [Structural Collapse Technician 2](#) course and additional US&R related modules selected to meet your specific training requirements. The original Structural Collapse Technician course designed in the United States was Rescue Systems 1 and Rescue Systems 2, both of which were later used as the root documents for the 80 hour Structural Collapse Technician 2 course. The Structural Collapse Technician 2 course was designed to mirror the FEMA 80 hour Structural Collapse Technician course currently taught to members of the national FEMA US&R teams.

Course Description

This course is designed to provide students with the knowledge, skills and abilities to perform search rescue at structural collapse scenes due to natural disaster or terrorist incidents. This course builds onto the [Structural Collapse Technician 2](#) course by adding 16 hours of additional US&R related modules. These modules are:

[Search Operations and Mapping](#) – This 4 hour module provides classroom and practical applications of how to use a compass and map during search and rescue operations.

[Global Positioning Satellite \(GPS\) Operations](#) – This 4 hour module provides classroom and practical application of how to use global positioning system devices during search and rescue operations.

[Canine Search](#) – This 2 hour module provides an awareness of the capabilities of search canine teams and how to effectively utilize their unique capabilities.

[Search Cameras](#) – This 2 hour module provides classroom and practical application of how to use visual inspection devices during search and rescue operations.

[Listening Devices](#) – This 4 hour module provides classroom and practical application of how to use acoustic listening devices during search and rescue operations.

[Additional Modules](#) – TEEX US&R can create additional custom modules based on your training needs and requirements.

Course Purpose

The purpose of the International Urban Search and Rescue course is to provide international jurisdictions with the same training received by the FEMA US&R Structural Collapse Technicians. This course has significant hands on training in the Technical Skills Training Area (TSTA) and Disaster City® to ensure that students received the necessary knowledge, skills and abilities to perform exterior shoring and interior shoring operations, breaching, breaking, cutting, and burning operations, and lifting and moving techniques at structural collapse incidents. First responders completing this course will be prepared to work as a part of a team to respond to rescue situations involving structural collapses or terrorist incidents.

Course Overview (continued)

Course Format

Classes will begin at 7:00 a.m. each day. Participants should plan travel to arrive the night before classes begin. For the purpose of making hotel arrangements, participants could make reservations in the cities of Bryan, TX or College Station, TX. Course delivery consists of didactic instruction, participant activities, and hands-on task-oriented practical exercises. Course delivery consists of 15 percent didactic classroom presentations and lectures, and 85 percent hands-on and task-oriented practical training in both the Technical Skills Training Area (TSTA) and Disaster City®.

Students can attend the [International Search & Rescue Course](#) only as a contract class. This course will be provided exclusively for an international jurisdiction or region. These courses must have a minimum of 10 and can have a maximum of 48 participants. When conducting contract classes, TEEX can add additional curriculum to meet specific requirements of the sponsoring jurisdiction.

Course Scope

Additional Courses

TEEX US&R can provide additional courses related to search and rescue at Disaster City® or on-site at your jurisdiction:

International US&R Program:

1. [International Urban Search and Rescue](#)
2. [International Structural Collapse Rescue](#)

US&R Search Program:

1. [Disaster Technical Search Specialist](#)
2. [Disaster Canine Search Specialist](#)
3. [Disaster Canine Workshop](#)
4. [Wilderness Search and Rescue](#)
5. [Wide Area Search](#)
6. [Canine Emergency Medical Care](#)

US&R Rescue Program:

1. [Structural Collapse - Awareness](#)
2. [Collapse Rescue Operations](#)
3. [Structural Collapse Technician 2](#)
4. [Advanced Structural Collapse 3](#)
5. [Advanced Structural Collapse 4](#)
6. [Medical Considerations for the Rescue Technician](#)
7. [Rescue in a Contaminated Environment \(RICE\)](#)

US&R Hazardous Materials Specialist Program:

1. [WMD – Enhanced US&R Operations](#)
2. [WMD Considerations for US&R Hazardous Materials Specialists](#)

Swift Water & Flood Rescue Program:

1. [Swift Water Rescue – Awareness](#)
2. [Swift Water Rescue – Operations](#)
3. [Swift Water Rescue – Technician](#)
4. [Swift Water Rescue – Technician Refresher](#)

US&R Medical Program:

1. [Disaster Medical Specialist](#)
2. [WMD Considerations for the Medical Specialist](#)
3. [Medical Effects of Primary Blast Injuries](#)
4. [EMS Operations & Planning for WMD](#)

US&R Command Staff Program:

1. [Search and Rescue Plans Officer](#)
2. [Search and Rescue Safety Officer](#)
3. [Search and Rescue Communications Specialist](#)
4. [Disaster Logistics Specialist](#)
5. [ICS for Structural Collapse Incidents](#)
6. [Developing a State/Regional CBRNE Task Force](#)

US&R Full-Scale Exercise Program

Course Scope (continued)

Resource Requirements

The following items are provided by TEEX for the delivery of this course:

- Student Manuals (one copy each per student)
- [Shoring Operations Guide](#) (one per student)
 - Army Corps of Engineers – 1st Edition, 2nd Printing – March 2008
- [Structural Specialist - Field Operations Guide](#) (one per student)
 - Army Corps of Engineers – 5th Edition, 2nd Printing – March 2008
- All tools, equipment, and supplies required to complete field exercises
- All lumber and concrete required to complete field exercises

Module Summary

Module #	Module Title	Time Allocation
Day One		
Module 1a	Administration & Introduction	30 minutes
Module 1b	Safety and Security	1 hour
Module 1c	Structural Engineering Systems Part 1 – Building Materials & Structural Systems	1.5 hours
Module 1c	Structural Engineering Systems Part 2 – Collapse Patterns	1 hour
Module 1c	Structural Engineering Systems Part 3 – Hazard Identification & Building Monitoring	1 hour
Admin 0.3	Lunch	1 hour
Module 1c	Structural Engineering Systems Part 4 – US&R Strategy & Structure Sizeup	1 hour
Module 1d	Tool Lab & Rope Rescue Review	4 hours
Day Two		
	Optional modules selected by the jurisdiction	5 hours
Admin 0.1	Lunch	1 hour
	Optional modules selected by the jurisdiction	5 hours
Day Three		
	Optional modules selected by the jurisdiction	5 hours
Admin 0.2	Lunch	1 hour
	Optional modules selected by the jurisdiction	5 hours
Day Four		
Rotation One – Day One		
Module 2a	Shoring Basics	1.5 hours
Module 2b	US&R Shoring Construction	1.5 hours
Skills Stations	Shoring Construction in Technical Skills Training Area	2 hours
Admin 0.4	Lunch	1 hour
Skills Stations	Shoring Construction in Technical Skills Training Area	5 hours
Day Five		
Rotation One – Day Two		
Skill Stations	Shoring Construction in Technical Skills Training Area	5 hours
Admin 0.5	Lunch	1 hour
Skill Stations	Shoring Construction in Technical Skills Training Area	5 hours

Module Summary (continued)

Module #	Module Title	Time Allocation
Day Six	Rotation Two – Day One	
Module 3	Breaching, Breaking, Cutting, and Burning	2 hours
Skills Stations	Breaching, Breaking, Cutting, and Burning in TSTA	3 hours
Admin 0.6	Lunch	1 hour
Skill Stations	Breaching, Breaking, Cutting, and Burning in TSTA	5 hours
Day Seven	Rotation Two – Day Two	
Skill Stations	Breaching, Breaking, Cutting, and Burning in TSTA	5 hours
Admin 0.7	Lunch	1 hour
Skill Stations	Breaching, Breaking, Cutting, and Burning in TSTA	5 hours
Day Eight	Rotation Three – Day One	
Module 4	Lifting and Moving	3.5 hours
Skill Stations	Lifting and Moving in Technical Skills Training Area	1.5 hours
Admin 0.8	Lunch	1 hour
Skills Station	Lifting and Moving in Technical Skills Training Area	5 hours
Day Nine	Rotation Three – Day Two	
Skill Stations	Lifting and Moving in Technical Skills Training Area	5 hours
Admin 0.9	Lunch	1 hour
Skill Stations	Lifting and Moving in Technical Skills Training Area	5 hours
Day Ten	Final Exercise	
Module 5	Final Exercise in Disaster City®	5 hours
Admin 0.10	Lunch provided by TEEX in Disaster City®	1 hour
Module 5	Final Exercise in Disaster City®	3 hours
Module 5	Written Exam & End of Course Evaluations	2 hour
TOTAL COURSE HOURS		100 hours

Module 1a: Administration & Introduction

Summary: The students will become familiar with the general overview of the course. The instructors will explain the goal of the course, and describe the course outline and structure. Students will also complete all registration and class rosters forms.

Instructional Resources Required:

- Module 1a presentation slides
- Participant Manual
- Computer
- Projector

Terminal Learning Objective: Upon the completion of this module, participants will have received all information regarding course administration and operation requirements for successful completion.

Enabling Objective: Upon the conclusion of this module, participants will be able to:

- 1a-1 Students shall receive an introduction to all Instructors and support staff;
- 1a-2 Students shall receive instructions on starting times and attendance requirements for successful completion of the course;
- 1a-3 Students shall receive information and the necessary paperwork to complete all administrative processes required for successful completion;
- 1a-4 Students shall receive a review of the information they were sent to pre-study prior to arrival at the course;
- 1a-5 Students shall receive an overview of the criteria for successful completion of the course;
- 1a-6 Students shall receive an overview of the Student manual and its contents;
- 1a-7 Students shall be broken into six person squad for operational periods. Multiple squads shall be assigned to a division for rotation periods;
- 1a-8 Students shall have the opportunity to introduce themselves if applicable;
- 1a-9 Students shall receive a schedule of events and rotation times, course agenda and locations of specific events.

Duration: 30 minutes

Method of Instruction: Facilitated seminar format in a classroom environment

Instructor Ratio: 1:8

Required Reading: None

Special Instructions: None

Module 1b: Safety & Security

Summary: This module discusses proper safety procedures at a structural collapse incident. This course focuses on extended operations during complex urban search and rescue incidents, such as a multistory concrete building collapse that entombs large numbers of victims. Regardless of the collapse scenario encountered, first responders must be familiar with a variety of safety hazards and associated issues. Effective rescue operations at a structural collapse will only be possible if rescuers are fully aware of the hazards involved and the methods necessary to mitigate those hazards. In order for rescuers to perform at an optimum level of safety they will be able to describe:

Instructional Resources Required:

- Module 1b presentation slides
- Participant Manual
- Computer
- Projector

Terminal Learning Objective: Upon the successful completion of this module, participants will understand the importance of including sound safety practices in all phases of the planning and rescue operations.

Enabling Objective: Upon conclusion of the module, participants will be able to:

- 1b-1 Understand the importance of safety during all phases of a mission;
- 1b-2 Understand the importance of recognizing and mitigating safety hazards;
- 1b-3 Understand the importance of incorporating safety into rescue planning and briefing;
- 1b-4 Adopt and employ the concept of “LCES: (Lookouts, Communications, Escape routes, and Safe zones);
- 1b-5 Be able to perform a risk hazard analysis for a specific event and suggest actions to minimize risks and/or eliminate hazards;
- 1b-6 Understand issues related to personal safety and team security zones, as a planning tool;
- 1b-7 Understand the importance of safety risk and hazard identification.

Duration: 1 hour

Method of Instruction: Facilitated seminar format in a classroom environment

Instructor Ratio: 1:8

Required Reading: None

Special Instructions: None

Module 1c: Structural Engineering Systems Part 1 – Building Materials & Structural Systems

Summary: This module discusses the basic building materials that rescue specialists will encounter during a structural collapse incident and the behavior of those materials under forces not normally applied to these materials. Additionally, this module discusses the ductile and brittle behavior of building materials and the vertical and lateral load resisting systems of buildings.

Instructional Resources Required:

- Module 1c Part 1 presentation slides
- Participant Manual
- Computer
- Projector

Terminal Learning Objective: Upon the successful completion of this module, participants shall understand the essential material and components of structures, and how they behave when subjected to normal and extreme loading.

Enabling Objective: Upon the conclusion of this module, participants will be able to:

- 1c-1 Understand the tension, compression, bending, and shear forces that are exerted on building materials, and how they behave;
- 1c-2 Understand the concepts of ductile and brittle behavior;
- 1c-3 Introduce the concept of Vertical Load Path and Vertical Load Resisting Systems;
- 1c-4 Discuss Lateral Load Resisting Systems, including Box, Moment Frame, and Diagonally Braced Frame Systems;
- 1c-5 Define and discuss structural redundancy.

Duration: 1.5 hours

Method of Instruction: Facilitated seminar format in a classroom environment

Instructor Ratio: 1:8

Required Reading: None

Special Instructions: None

Module 1c: Structural Engineering Systems Part 2 – Collapse Patterns

Summary: This module provides students with the opportunity to identify and understand the classification of buildings, and the types of collapse patterns specific to the different classifications.

Instructional Resources Required:

- Module 1c Part 2 presentation slides
- Participant Manual
- Computer
- Projector

Terminal Learning Objective: Upon the successful completion of this module, participants shall understand how building structures can be separated into specific types that exhibit unique collapse patterns when subjected to extreme forces due to earthquakes, wind, and explosions and be able to recognize their unique collapse patterns.

Enabling Objective: At the conclusion of this module, the participants will be able to:

- 1c-6 Understand the extreme environment and man caused forces that effect structures;
- 1c-7 Define and understand how buildings are classified by engineers based on their construction materials and lateral load resisting systems;
- 1c-8 Discuss the most common collapse patterns that have been observed as a result of earthquake, winds, and explosions.

Duration: 1 hour

Method of Instruction: Facilitated seminar format in a classroom environment

Instructor Ratio: 1:8

Required Reading: None

Special Instructions: None

Module 1c: Structural Engineering Systems Part 3 – Hazard Identification & Building Monitoring

Summary: This module discusses the appropriate hazard identification marking system, the specific markings to place on the outside or inside of collapsed structures and the need to constantly monitor the buildings structural integrity during rescue operations to ensure the safety of continuing rescue operations.

Instructional Resources Required:

- Module 1c Part 3 presentation slides
- Participant Manual
- Computer
- Projector

Terminal Learning Objective: Upon the completion of this module, participants will understand the most common signs of distress exhibited by damaged structures and the most common hazards found in damaged structures, and methods that have been used to mitigate them.

Enabling Objective: At the conclusion of this module, the participants will be able to:

- 1c-9 Understand the importance of the various types of cracks in concrete and masonry structures;
- 1c-10 Understand the common hazardous conditions that occur in light frame, heavy wall, and heavy floor and precast buildings.
- 1c-11 Discuss the common methods and equipment used to mitigate structure hazards.

Duration: 1 hour

Method of Instruction: Facilitated seminar format in a classroom environment

Instructor Ratio: 1:8

Required Reading: None

Special Instructions: None

Module 1c: Structural Engineering Systems Part 4 - US&R Strategy & Structural Sizeup

Summary: This module discusses the initial components of a large disaster including a structural collapse incident and the appropriate strategies that are required for a safe, effective and efficient response. The module discusses a method of rating structures to determine which have the highest probability of viable rescues and potential survivability.

Instructional Resources Required:

- Module 1c Part 4 presentation slides
- Participant Manual
- Computer
- Projector

Terminal Learning Objective: Upon the completion of this module, participants will understand the phases of a large disaster and how the US&R Task Force most commonly is deployed to perform its initial tasks and the most appropriate strategies to be used to effect rescues in various types of structures.

Enabling Objective: At the conclusion of this module, the participants will be able to:

- 1c-12 Understand what normally occurs during the initial phases of Task Force Deployment;
 - Structure Triage
 - Building I.D. and Marking Systems
- 1c-13 Understand the basic strategies that should be employed to produce the best results for most structures;
- 1c-14 Discuss strategies that should produce best results of specific types of buildings;
 - Search
 - Hazard Reduction
 - Victim access including the cutting of concrete
- 1c-15 Learn from the presentation of examples from previous incidents.

Duration: 1 hour

Method of Instruction: Facilitated seminar format in a classroom environment

Instructor Ratio: 1:8

Required Reading: None

Special Instructions: None

Module 1d: Tool Lab

Summary: This module provides the participants the opportunity to familiarize themselves with the safe operation, inspection, and maintenance of various tools utilized during a structural collapse response.

Instructional Resources Required:

- Module 1d presentation slides
- Participant Manual
- Computer
- Projector
- Tools, equipment, and supplies required to complete field exercises
- Lumber required to complete field exercises

Terminal Learning Objective: Upon the completion of this module, participants shall demonstrate proficiency in the inspection, operation, maintenance of and the safe use of all power tools.

Enabling Objective: At the conclusion of this module, the participants will be able to:

- 1d-1 Understand the operator's influence on tool performance;
- 1d-2 Understand electrical power sources, the electrical loads, and tool safety;
- 1d-3 Understand the tool assessment criteria;
- 1d-4 Be able to perform a pre-use inspection of all gas and electrical power tools;
- 1d-5 Be able to demonstrate the proper procedure in mounting and/or changing the cutting/breaking device to the tool;
- 1d-6 Be able to demonstrate the procedure for the field maintenance of all power tools;
- 1d-7 Be able to demonstrate the proper operation of all power tools.

Duration: 4 hours

Method of Instruction: Facilitated seminar format in a classroom environment and hands-on skill station tool lab rotations in the Technical Skills Training Area (TSTA).

Instructor Ratio: 1:8

Required Reading: None

Special Instructions: None

Module 2a: Shoring Basics

Summary: This module provides the participants the opportunity to familiarize themselves with the basics of shoring operations, including the design and purpose of various types of shoring.

Instructional Resources Required:

- Module 2a presentation slides
- Participant Manual
- Computer
- Projector

Terminal Learning Objective: Upon the completion of this module, participants shall understand the function and capacity of the various types of shoring used in US&R to support damaged and collapsed structures and why these shores are constructed in their specific configurations.

Enabling Objective: At the conclusion of this module, the participants will be able to:

- 2a-1 Understand the types and amount of load that needs to be supported in emergency shoring;
- 2a-2 Understand what needs to be considered when selecting shoring to support damaged structures.

Duration: 1.5 hours

Method of Instruction: Facilitated seminar format in a classroom environment and hands-on skill station tool lab rotations in the Technical Skills Training Area (TSTA).

Instructor Ratio: 1:8

Required Reading: None

Special Instructions: None

Module 2b: US&R Shoring Construction

Summary: This module provides the participants the opportunity to construct various wooden and pneumatic shoring systems utilized during a structural collapse response to ensure the safety of the responder and the patient.

Instructional Resources Required:

- Module 2b presentation slides
- Participant Manual
- Computer
- Projector
- Tools, equipment, and supplies required to complete field exercises
- Lumber required to complete field exercises

Terminal Learning Objective: Upon the completion of this module, participants will learn how to maintain the integrity of all structurally unstable elements and how to properly transmit or redirect the collapse loads to stable ground or other suitable structural elements capable of handling additional loads.

Enabling Objective: At the conclusion of this module, the participants will be able to:

- 2b-1 Have a basic understanding of how to conduct a proper shoring size-up;
- 2b-2 Be able to identify locations for proper shoring placement;
- 2b-3 Understand the shoring team concept and identify positions and purpose;
- 2b-4 Understand the different types of shoring components and equipment.

Duration: 18.5 hours

Method of Instruction: Facilitated seminar format in a classroom environment and hands-on skill station tool lab rotations in the Technical Skills Training Area (TSTA).

Instructor Ratio: 1:8

Required Reading: None

Special Instructions: None

Module 3: Breaching, Breaking, Cutting, Burning

Summary: This module provides the participants the opportunity to familiarize and operate the various essential tools and equipment utilized when breaching, breaking, cutting, and burning through rubble and building material during a structural collapse response to gain access to a patient or provide room for the construction of shoring systems.

Instructional Resources Required:

- Module 3 presentation slides
- Participant Manual
- Computer
- Projector
- Tools, equipment, and supplies required to complete field exercises
- Lumber required to complete field exercises

Terminal Learning Objective: Upon the completion of this module, participants shall properly breach, break, cut and burn to gain access through concrete, steel or other structural components during rescue operations in heavy floor, heavy wall, steel and concrete structures.

Enabling Objective: At the conclusion of this module, the participants will be able to:

- 3-1 Correctly identify types of concrete and their components;
- 3-2 Identify concrete components and their importance to systems design;
- 3-3 Understand their importance during collapse rescue operations;
- 3-4 Identify concrete construction types;
- 3-5 Understand the properties, strength and weaknesses of concrete and its components;
- 3-6 Correctly select tools or tool packages for rescue operations;
- 3-7 Identify functional parts of an exothermic torch;
- 3-8 Identify functional parts of an oxy-acetylene or map gas torch;
- 3-9 Identify components of gasoline (Petrogen) torch;
- 3-10 Effectively trouble shoot each tool as needed.

Duration: 20 hours

Method of Instruction: Facilitated seminar format in a classroom environment and hands-on skill station tool lab rotations in the Technical Skills Training Area (TSTA).

Instructor Ratio: 1:8

Required Reading: None

Special Instructions: None

Module 4: Lifting and Moving

Summary: This module provides the participants the opportunity to familiarize and operate the various tools, equipment and techniques utilized for lifting and moving rubble and building material during a structural collapse response. Participants will learn how to utilize the tools and equipment to lift and move rubble so they may perform a rescue, place shoring, or further breach the structure to gain access to a patient.

Instructional Resources Required:

- Module 4 presentation slides
- Participant Manual
- Computer
- Projector
- Tools, equipment, and supplies required to complete field exercises
- Lumber required to complete field exercises

Terminal Learning Objective: Upon the completion of this module, participants will understand the relationship of gravity and movement as they apply to urban search and rescue operations.

Enabling Objective: At the conclusion of this module, the participants will be able to:

- 4-1 Understand the basic physics as they relate to mass, gravity, and center of gravity;
- 4-2 Understand Moment of Force considerations as they relate to the movement of stationary objects;
- 4-3 Explain the concepts of Energy, Work, and Power;
- 4-4 Describe what determines the efficiency of mechanical advantage;
- 4-5 Explain the three classes of levers;
- 4-6 Describe the efficiency of inclined planes;
- 4-7 Describe the two types of pulley configurations;
- 4-8 Explain the effective use of high pressure air bags.

Duration: 20 hours

Method of Instruction: Facilitated seminar format in a classroom environment and hands-on skill station tool lab rotations in the Technical Skills Training Area (TSTA).

Instructor Ratio: 1:8

Required Reading: None

Special Instructions: None

Module 5: Field Exercises

Summary: This module requires participants to demonstrate individual and team skills during an evaluation or field exercise. Additionally, the participants must complete a one hundred question written exam. Participants are also provided the opportunity to complete an end of course instructor and facility evaluations.

Instructional Resources Required:

- Module 5 presentation slides
- Participant Manual
- Computer
- Projector
- Tools, equipment, and supplies required to complete field exercises
- Lumber and concrete panels required to complete field exercises

Terminal Learning Objective: Upon the completion of this module, participants will understand the most common signs of distress exhibited by damaged structures and the most common hazards found in damaged structures, and methods that have been used to mitigate those hazards.

Enabling Objective: At the conclusion of this module, the participants will be able to:

- 5-1 Demonstrate proficiency at the safe and effective use of the various tools and equipment available to conduct structural collapse rescue operations;
- 5-2 Demonstrate proficiency at proper selection, placement and construction of shoring systems;
- 5-3 Demonstrate proficiency at the proper selection and use of tools necessary for safe and effective breaching and breaking operations;
- 5-4 Demonstrate proficiency at the proper procedures and techniques for safely and effectively lifting and moving heavy objects;
- 5-5 Demonstrate proficiency at the proper procedures and techniques for rope rescue operations;
- 5-6 Demonstrate proficiency at the proper procedures and techniques for confined space rescue operations;
- 5-7 Apply appropriate safety practices and procedures during Structural Collapse Rescue operations;
- 5-8 Work as a Squad to plan and execute various Strategies and tactics during Structural Collapse Rescue Operations.

Duration: 10 hours

Method of Instruction: Field based US&R structural collapse exercise and hands-on skill demonstrations in Disaster City®.

Instructor Ratio: 1:8

Required Reading: None

Special Instructions: None

Module 6: Canine Search

Summary: This module provides the participants the opportunity to familiarize with a canine search team, how they operate, their capabilities and limitations, and discusses the effective use of canine search teams during an incident response.

Instructional Resources Required:

- Module 6 presentation slides
- Participant Manual
- Computer
- Projector
- Canine Search Team

Terminal Learning Objective: Upon the completion of this module, participants will be able to utilize both the basic capabilities of a disaster search canine deployed in a collapsed structure environment and the FEMA Disaster Search Canine Readiness and Evaluation Process.

Enabling Objective: At the conclusion of this module, the participants will be able to:

- 6-1 Explain how a disaster canine detects scent;
- 6-2 Describe how scent moves through a collapsed structure;
- 6-3 Observe the behavior change and indication of a disaster canine detecting live human scent;
- 6-4 Express the difference between detection of scent and the location of a victim;
- 6-5 Discuss the FEMA Disaster Search Canine Readiness and Evaluation Process; and
- 6-6 Explain the use of other types of Search and Rescue Canines.

Duration: 2 hours

Method of Instruction: Facilitated seminar format in a classroom environment and hands-on skill station tool lab rotations in Disaster City®.

Instructor Ratio: 1:16

Required Reading: None

Special Instructions: None

Module 7: Global Positioning Satellite (GPS) Operations

Summary: This module provides the participants the opportunity to familiarize with global positioning satellite devices, how to use the device, the GPS receiver capabilities and limitations, and requires the effective use of the GPS device during a field exercise.

Instructional Resources Required:

- Module 7 presentation slides
- Participant Manual
- Computer
- Projector
- GPS devices, maps, equipment, and supplies required to complete field exercises

Terminal Learning Objective: Upon the completion of this module, participants will be able to operate portable GPS devices.

Enabling Objective: At the conclusion of this module, the participants will be able to:

- 7-1 Discuss the basic principles of the global positioning system;
- 7-2 Identify the principle applications and performance of portable GPS devices;
- 7-3 Describe the capabilities and limitations of portable GPS devices;
- 7-4 Set up, program, and operate a Garmin™ “GPS V” receiver; and
- 7-5 Navigate through a series of coordinates.

Duration: 4 hours

Method of Instruction: Facilitated seminar format in a classroom environment and hands-on skill station tool lab rotations in Disaster City®.

Instructor Ratio: 1:16

Required Reading: None

Special Instructions: None

Module 8: Search Cameras

Summary: This module provides the participants the opportunity to familiarize with visual inspection devices, how to use the device, search camera capabilities and limitations, and discusses the effective use of search cameras during an incident response.

Instructional Resources Required:

- Module 8 presentation slides
- Participant Manual
- Computer
- Projector
- Tools, equipment, and supplies required to complete field exercises

Terminal Learning Objective: Upon the completion of this module, participants will be able to operate search cameras and use search cameras for victim location.

Enabling Objective: At the conclusion of this module, the participants will be able to:

- 8-1 Discuss the applications and performance of search cameras;
- 8-2 Describe the capabilities and limitations of search cameras;
- 8-3 Operate various types of search cameras;
- 8-4 Use a search camera to identify various items in a debris pile void space; and
- 8-5 Use a search camera to locate a victim in a debris pile.

Duration: 2 hours

Method of Instruction: Facilitated seminar format in a classroom environment and hands-on skill station tool lab rotations in Disaster City®.

Instructor Ratio: 1:16

Required Reading: None

Special Instructions: None

Module 9: Search Operations and Mapping

Summary: This module provides the participants the opportunity to learn procedures for conducting search and mapping operations during an incident response and discusses the effective deployment of a search and recon team.

Instructional Resources Required:

- Module 9 presentation slides
- Participant Manual
- Computer
- Projector
- Tools, equipment, and supplies required to complete field exercises

Terminal Learning Objective: Upon the completion of this module, participants will be able to function as a member of a search and reconnaissance team as it relates to the US&R system.

Enabling Objective: At the conclusion of this module, the participants will be able to:

- 9-1 Identify the primary positions, required by FEMA/DHS, assigned to a Search and Reconnaissance team;
- 9-2 Discuss the importance of safety and risk analysis associated with search and reconnaissance operations;
- 9-3 Describe the difference between detection and location strategies as they relate to acoustic sensor systems;
- 9-4 Describe the three primary response operational models for search team operations;
- 9-5 Gather operations site intelligence;
- 9-6 Complete a simple site sketch map;
- 9-7 Prepare a site intelligence briefing statement; and
- 9-8 Discuss issues related to personal and team security, as a planning tool.

Duration: 4 hours

Method of Instruction: Facilitated seminar format in a classroom environment and hands-on skill station tool lab rotations in Disaster City®.

Instructor Ratio: 1:16

Required Reading: None

Special Instructions: None

Module 10: Listening Devices

Summary: This module provides the participants the opportunity to familiarize with listening devices, how to use the device, listening device capabilities and limitations, and discusses the effective use of listening devices during an incident response.

Instructional Resources Required:

- Module 10 presentation slides
- Participant Manual
- Computer
- Projector
- Tools, equipment, and supplies required to complete field exercises

Terminal Learning Objective: Upon the completion of this module, participants will be able to operate acoustic listening devices for victim location and discuss issues associated with the use of acoustic listening devices.

Enabling Objective: At the conclusion of this module, the participants will be able to:

- 10-1 Identify the principle applications and performance of acoustic listening devices;
- 10-2 Describe the capabilities and limitations of acoustic listening devices;
- 10-3 Discuss the importance and relationship of various sensor sweep patterns;
- 10-4 Use a listening device to map a search area;
- 10-5 Set up and operate a Delsar Life Detector, victim location device;
- 10-6 Operate in any of the team positions required to use a Life Detector; and
- 10-7 Operate in a team environment to locate a victim in both a structure and debris pile setting.

Duration: 4 hours

Method of Instruction: Facilitated seminar format in a classroom environment and hands-on skill station tool lab rotations in Disaster City®.

Instructor Ratio: 1:16

Required Reading: None

Special Instructions: None