

Program of Instruction

Course Syllabus

Course Title: Structural Collapse Rescue Technician – Level II

Course Duration: 45 hours

Program: Special Operations Training Program

Course Prerequisites: Collapse Operations

Required for National Certification (ProBoard):

Rope Rescue Operations – Level I

Course Description: The scope of this course is to prepare responders to operate as a local member of a regional team within the NIMS at a CBRNE (Chemical, Biological, Radiological, Nuclear, or Explosive) WMD event requiring statewide response that has resulted in the failure of a building constructed of steel, concrete, or masonry. This course is extensively hands-on and prepares the student to operate safely and efficiently at a building collapse incident involving WMD. It offers practice in cutting, breaching, lifting, stabilizing, searching, shoring, packaging, and removing victims from a simulated collapse environment. This course is intense and physically demanding, but the competence and confidence that is gained is worth the sweat that is lost.

Course Requirements and/or Recommendations: 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: None

Course Work: Attend and participate in all lectures and practicals

Post-Course Work: None

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:

Written and practical skill testing is conducted at the completion of the course. In addition, simulated rescue evolutions involving various rescue problems are conducted throughout the course.

Course Content:

Module: C-1

Title: Force Types

Terminal Learning Objective:

At the conclusion of this module, the student will distinguish the types of forces that are exerted on materials used in building construction.

Module: C-2

Title: Structural Members and Load Systems

Terminal Learning Objective:

At the conclusion of this module, the student will categorize the fundamental concepts of structural members as they are used in building construction.

Module: C-3

Title: Material Properties

Terminal Learning Objective:

At the conclusion of this module, the student will summarize the properties of materials used in building construction

Module: C-4

Title: Building Types

Terminal Learning Objective:

At the conclusion of this module, the student will *relate* general characteristics, hazards, principal weaknesses, and properties of the various building types.

Module: C-5

Title: Search and Recon

Terminal Learning Objective:

At the conclusion of this module, the student will identify the components and characteristics of search and reconnaissance.

Module: C-6

Title: Building Assessment

Terminal Learning Objective:

At the conclusion of this module, the student will *apply* building assessment principles to a collapsed structure.

Module: C-7

Title: Marking Systems

Terminal Learning Objective:

At the conclusion of this module, the student will use the different marking systems utilized during a structural collapse incident.

Module: C-8

Title: Tools

Terminal Learning Objective:

At the conclusion of this module, the student will *explain* the proper use of various tools used at a structural collapse incident.

Module: C-9

Title: Concrete

Terminal Learning Objective:

At the conclusion of this module, the student will relate the characteristics of concrete to operations at a structural collapse incident.

Module: C-10

Title: Calculating Weights

Terminal Learning Objective:

At the conclusion of this module, the student will determine the weights of various building materials.

Module: C-11

Title: Rigging and Anchoring

Terminal Learning Objective:

At the conclusion of this module, the student will explain the use of rigging and anchoring at a structural collapse incident.

Module: C-12

Title: Lifting and Moving

Terminal Learning Objective:

At the conclusion of this module, the student will summarize the appropriate techniques used for lifting / moving heavy objects.

Module: C-13

Title: Crane Operations

Terminal Learning Objective:

At the conclusion of this module, the student will coordinate the use of a crane to move various objects to a safe zone.

Module: C-14

Title: WMD

Terminal Learning Objective:

At the conclusion of this module, the student will *summarize* the considerations at a WMD incident.

Module: P-15

Title: Specialty Tools

Terminal Learning Objective:

At the conclusion of this module, the student will demonstrate the use of various specialty tools that may be utilized during a structural collapse rescue.

Module: P-16

Title: Breaching and Breaking

Terminal Learning Objective:

At the conclusion of this module, the student will demonstrate the proper operation for completing a breach for entry.

Module: P-17

Title: Gas Powered Saws

Terminal Learning Objective:

At the conclusion of this module, the student will demonstrate the proper and safe use of the various gas-powered tools utilized for cutting concrete.

Module: P-18

Title: Anchoring

Terminal Learning Objective:

At the conclusion of this module, the student will *demonstrate* the use of anchors and hardware that may be utilized during a structural collapse rescue.

Module: P-19

Title: Hydraulic Saws

Terminal Learning Objective:

At the conclusion of this module, the student will demonstrate the proper and safe use of the hydraulic-powered saws utilized for cutting concrete.

Module: P-20

Title: Hydraulic Tools

Terminal Learning Objective:

At the conclusion of this module, the student will *demonstrate* the proper use of various hydraulic tools that may be used at a structural collapse incident.

Module: P-21

Title: Metal Cutting and Burning

Terminal Learning Objective:

At the conclusion of this module, the student will *demonstrate* the use of various tools utilized for metal cutting.

Module: P-22

Title: Rescue Shoring

Terminal Learning Objective:

At the conclusion of this module, the student will utilize various shoring systems to stabilize a collapsed structure.

Module: P-23

Title: Bridge Beam

Terminal Learning Objective:

At the conclusion of this module, the student will lift and stabilize the selected object.

Module: P-24

Title: Crane Ops

Terminal Learning Objective:

At the conclusion of this module, the student will use the proper hand signals directing a crane operator during operations.

Module: P-25

Title: Stitch Cut

Terminal Learning Objective:

At the conclusion of this module, the student will be able to perform a stitch cut.

Module: P-26

Title: Dirty Breaches

Terminal Learning Objective:

At the conclusion of this module, the student will be able to conduct a Dirty Breach.

Module: P-27

Title: Lifting and Moving

Terminal Learning Objective:

At the conclusion of this module, the student will lift, stabilize and move a heavy section of concrete.

Module: P-28

Title: Breaking and Breaching in a confined space

Terminal Learning Objective:

At the conclusion of this module, the student will *create* a series of breaches large enough and so configured for entry.

Module: P-29

Title: Deck of Cards

Terminal Learning Objective:

At the conclusion of this module, the student will be able to estimate, lift, move, stabilize and realign sections of concrete to a predetermined order with each section of concrete intersecting each other.

Module: P-30

Title: Horizontal Liftouts

Terminal Learning Objective:

At the conclusion of this module, the student will breach a concrete floor by means of cutting a large square section and lifting out the section to perform a rescue of victims trapped directly below.

References:

Emergency Response to Terrorism Basic Concepts-Student Manual FEMA 2002

FEMA National Urban Search and Rescue Response System: Incident Command System for Structural Collapse Incidents

FEMA National Urban Search and Rescue Response System: National US&R Response System Operational Systems Description US&R Safety Program and Search Procedures

FEMA National Urban Search and Rescue Response System: Rescue Specialist Training Manual, Vol. 1 and 2.

FEMA National Urban Search and Rescue Response System: US&R Safety Program and Search Procedures

Illinois Office of the State Fire Marshal: Structural Collapse Operations
Structural Collapse Operations Practical Skills Sheets

IUOE Local 150, Apprenticeship and Skill Improvement Program: Safe Rigging Procedures for Emergency Responders

National Fire Protection Association Standards 1006 *Standard for Rescue Technician Professional Qualifications*

National Fire Protection Association Standards 1670 *Standard on Operations and Training for Technical Search and Rescue Incidents*

Office for Domestic Preparedness, Emergency Responder Guidelines, 2002.

United States Army Corps of Engineers: *Urban Search and Rescue Structures Specialist Field Operations Guide*

Course Schedule

DAY ONE

Start Time: 0800

<u>Event</u>	<u>Duration</u>
Module C-1 Force Types	20 minutes
Module C-2 Structural Members and Load Systems	20 minutes
Module C-3 Material Properties	1 hour
Module C-4 Building Types	1 hour
Break	
Module C-5 Search and Recon	1 hour
Module C-6 Building Assessment	20 minutes
Module C-7 Marking Systems	20 minutes
Module C-8 Tools	20 minutes
Lunch	
Module C-9 Concrete	1 hour
Module C-10 Calculating Weights	30 minutes
Module C-11 Rigging and Anchoring	1 hour
Break	
Module C-12 Lifting and Moving	1 hour 20 minutes
Module C-13 Crane Operations	1 hour
Module C-14 WMD	30 minutes

DAY TWO

Start Time: 0800

<u>Event</u>	<u>Duration</u>
Module P-15 Specialty Tools	1 hour
Module P-16 Breaching and Breaking	1 hour
Module P-17 Gas Powered Saws	1 hour
Module P-18 Anchoring	1 hour
Lunch	
Module P-19 Hydraulic Saws	1 hour 15 min
Module P-20 Hydraulic Tools	1 hour 15 min
Module P-21 Metal Cutting and Burning	1 hour 15 min
Module P-22 Rescue Shoring	1 hour 15 min

DAY THREE

Start Time: 0800

<u>Event</u>	<u>Duration</u>
Module P-23 Bridge Beam	2 hours
Module P-24 Crane Operations	2 hours
Lunch	
Module P-25 Stitch Cuts	1 hour 30 min
Module P-26 Dirty Breaches	1 hour 30 min
Module P-27 Lifting and Moving	3 hours

DAY FOUR

Start Time: 0800

<u>Event</u>	<u>Duration</u>
Exam	
Module P-28 Breaking and Breaching in a Confined Space	4 hours
Lunch	
Module P-29 Deck of Cards	2 hours
Module P-30 Horizontal Liftouts	2 hours

DAY FIVE

Start Time: 0800

<u>Event</u>	<u>Duration</u>
Final Scenario	8 hours