

Program of Instruction

Course Syllabus

Course Title: Industrial Confined Space Rescue Operations – Level I & II

Course Duration: 56 Hours

Program: Industry

Course Prerequisites: None

Course Description: The scope of this course is to prepare local responders to operate as a member or a rescue team within the NIMS that has resulted in the need for a permit-required confined space rescue. Industrial Confined Space Rescue Operations Levels I & II course has been designed in accordance with NFPA & OSHA Standards. The class covers the federal and state regulations, use of specialized equipment for atmospheric monitoring, commercial entry and retrieval systems, and employment of rescuer constructed retrieval systems. Special emphasis will be given to rescuer safety, scene management, patient care and movement, and the construction and operation of retrieval systems. Simulated rescue evolutions involving various rescue problems will be conducted.

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: None

Course Work:

- Attend and participate 100% of the course.
- Complete all homework assignments prior to Day 6 review.
- Completion of the final exam with a score of at least 70%.
- Complete and pass all practical skill tests administered.

Post-Course Work: None

Textbook:

Browne, George J., and Crist, Gus S. Confined Space Levels I and II, 2010
Delmar Publishers.

Reading Assignments:

| | | |
|-------|---|---------------------|
| Day 1 | – | Chapters 1, 2 |
| Day 2 | – | Chapter 11 |
| Day 4 | – | Chapters 3, 4, 7 |
| Day 5 | – | Chapters 5, 6, 8, 9 |

Course Policies:

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. See Safety Rules for Confined Space Courses.

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.

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.

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. Students must obtain a score of 70% or better on the final exam.

Course Content:

Module: 1

Title: Confined Space Orientation

Terminal Learning Objectives:

At the conclusion of this module, the student will identify the applicable requirements and regulations pertaining to confined space rescue.

Module: 2

Title: Safety & Personal Protective Equipment

Terminal Learning Objectives:

At the conclusion of this module, the student will apply safety rules and use the proper protective equipment to perform tasks safely at confined space rescue incidents.

Module: 3

Title: Rope

Terminal Learning Objectives:

At the conclusion of this module, the student will summarize characteristics of rope used in confined space rescue.

Module: 4

Title: Knots

Terminal Learning Objectives:

At the conclusion of this module, the student will summarize characteristics of knots used in confined space rescue.

Module: 5

Title: Webbing

Terminal Learning Objective

At the conclusion of this module, the student will use webbing for conducting confined space rescue operations.

Module: 6

Title: Ancillary Equipment

Terminal Learning Objective

At the conclusion of this module, the student will explain the use of ancillary rope equipment for conducting confined space rescue operations.

Module: 7

Title: Forces

Terminal Learning Objective:

At the conclusion of this module, the student will calculate forces impacting confined space rope rescue operations.

Module: 8

Title: Anchors

Terminal Learning Objective:

At the conclusion of the module, the student will construct anchor systems for confined space rescue.

Module: 9

Title: Belay Systems

Terminal Learning Objective

At the conclusion of this module, the student will operate a belay system.

Module: 10

Title: Haul Systems

Terminal Learning Objective:

At the conclusion of this module, the student will operate haul systems.

Module: 11

Title: Low-angle Operations

Terminal Learning Objective:

At the conclusion of the module, the student will operate a lowering and raising system including a belay system in a low angle environment.

Module: 12

Title: Monitoring

Terminal Learning Objectives:

At the conclusion of this module, students will monitor the atmosphere within a Permit-required confined space.

Module: 13

Title: Ventilation

Terminal Learning Objectives:

At the conclusion of this module, the student will implement the procedures to properly ventilate a confined space.

Module: 14

Title: Isolation

Terminal Learning Objectives:

At the conclusion of this module, the student will isolate any particular hazard at a confined space.

Module: 15

Title: Patient Packaging

Terminal Learning Objectives:

At the conclusion of this module, the student will package a patient involved in a confined space rescue.

Module: 16

Title: Rescue Operations

Terminal Learning Objectives: At the conclusion of this module, the student will use the Incident Management System and related components as it pertains to confined space rescue.

Module: 17

Title: Practical Scenario's

Terminal Learning Objective:

At the conclusion of this module, the students will have conducted simulated rescues using techniques and equipment needed to properly perform confined space rescues.

Module: 18

Title: High-angle Lowering Operations

Terminal Learning Objective:

At the conclusion of the module, the student will operate a lowering system in a high-angle environment including a belay system.

Reference:

Equipment manufacturer's instructions

Browne, George J., and Crist, Gus S. *Confined Space Levels I and II*, 2010
Delmar Publishers.

Emergency Responder Guidelines, *ODP 2002*

Emergency Response to Terrorism-Job Aid, *FEMA 2000*

Emergency Response to Terrorism- Basic Concepts, *FEMA 2002*

IFSI Confined Space Rescue, Field Operation Guide, September 2015

IFSI Rope Rescue Technician, Field Rope Operation Guide, August 2014, 2nd
Edition

NFPA, Fire Protection Guide to Hazardous Materials, 2001 ed.

NFPA 1500 – Protective Clothing and Protective Equipment, 2013 Edition

NFPA 1670 – Standard on Operations and Training for
Technical Search and Rescue Incidents, 2014 Edition

NFPA 1006 – Standard for Technical Rescuer Professional
Qualifications, 2013 Edition

NFPA 1983 – Standard on Life Safety Rope and Equipment for Emergency
Services, 2012 Edition

OSHA 29 CFR 1910.120 – Hazardous Materials

OSHA 29 CFR 1910.146 – Confined Space

OSHA 29 CFR 1910.134 – Respiratory Protection

OSHA 29 CFR 1910.147 – Control of Hazardous Energy (LO/TO)

OSHA 29 CFR 1910.1000 - Air Contaminants

High Angle Rescue Techniques, Third Edition 2004, Tom Vines and Steve
Hudson

High Angle Rope Rescue Techniques Levels I & II, Fourth Edition 2016, Tom
Vines and Steve Hudson

On Rope, New Revised Edition 1996, Allen Padgett and Bruce Smith

The Ashley Book of Knots, Clifford W. Ashley, 1944

Engineering Practical Rope Rescue Systems, Michael G. Brown, 2000

CMC Rope Rescue Manual, Fourth Edition New revised, 2013

U.S. Manual of Cave Rescue, National Speleological Society

Rope Levels I and II, Jeff Matthews 2009

Class Schedule

Day 1

| | | |
|--------------|---|--|
| Module 1 | CS Orientation | 1 hour |
| Module 2 | Safety & Personal Protective Equipment | 30 minutes |
| Module 3 | Rope Rope Inspection Drill 3.1 | 1 hour 30 minutes |
| Module 4 | Knots | 30 minutes |
| Lunch | | |
| Module 4 | Knot Drill 4.1 | 2 hours |
| Module 5 | Webbing Overhand Bend Drill 5.1 Hasty Harness Drill 5.2 | 30 minutes 15 minutes 15 minutes |
| Module 6 | Ancillary Equipment | 1 hour |

Day 2

| | | |
|--|--|----------------------|
| Equipment Review, Knot Practice, & Homework Review | | 30 minutes |
| Module 7 | Forces | 15 minutes |
| Module 8 | Anchors Webbing & Anchor Straps Drill 8.1 | 1 hour 30 minutes |
| Module 9 | Belay | 30 minutes |
| Equipment Handout / Orientation | | 30 minutes |
| Lunch | | |
| Practical Exercises | | |
| | Constructing/Operating belay Drill 9.1 | 45 minutes |
| | Load Releasing Hitch Drill 10.1 | 45 minutes |
| | Belay Drop Drill 9.2 | 1hr 15 min |
| | High-angle Lowering Drill 18.1 | 1hr 15 min |

Day 3

| | | |
|--|--|------------|
| Equipment Review, Knot Practice, & Homework Review | | 30 minutes |
| Module 10 | Haul Systems | 2 hours |
| Practical Exercises | | |
| | 3:1 Inline Block and Tackle Drill 10.2 | 1hr 30 min |

Lunch

| | | |
|---------------------|--|------------|
| Practical Exercises | | |
| | 3:1 Attached Block and Tackle Drill 10.3 | 1hr 30 min |
| | 4:1 Inline 4 pulley B & T Drill 10.4 | 1hr 30 min |
| | Tripod/Ladder Cage Drill 8.2 | 1 hour |

Day 4

| | | |
|--|---------------------------|------------|
| Equipment Review, Knot Practice, & Homework Review | | 30 minutes |
| Module 12 | Monitoring | 45 minutes |
| Module 13 | Ventilation | 45 minutes |
| Module 14 | Isolation | 30 minutes |
| Practical Exercises | | |
| | Monitoring Drill 12.1 | 30 minutes |
| | Ventilation Drill 13.1 | 30 minutes |
| | Isolation Drill 14.1 | 30 minutes |
| | Communications Drill 16.1 | 30 minutes |

Lunch

Day 4 (con't)

Practical Exercises

| | |
|---------------------------------------|---------|
| Entry Procedures Drill 16.2 | 2 hours |
| Vertical Rigging/Non-Entry Drill 10.5 | 2 hours |

Day 5

| | |
|--|------------|
| Equipment Review, Knot Practice, & Homework Review | 30 minutes |
| Module 15 Patient Packaging | 30 minutes |
| Module 16 Rescue Operations | 45 minutes |
| Practical Exercises | |
| Patient Packaging Drill 15.1 | 45 minutes |
| SABA Drill 2.1 | 45 minutes |

Lunch

Practical Exercises

| | |
|---|---------|
| Tank Car – Tripod Drill 10.6 | 2 hours |
| Low-angle Lowering & Raising Drill 11.1 | 2 hours |

Day 6

| | |
|------------------------------------|---------|
| Module 17 Practical Scenarios | |
| Tank Scenario 17.1 | 2 hours |
| Hopper Scenario 17.2 | 2 hours |

Lunch

Practical Evaluations

| | |
|---------------------------|-----------|
| Knot Test | 1 ½ hours |
| Individual Skill Stations | 2 ½ hours |

Day 7

Practical Evaluations

Final Scenarios 17.3

3 hours

Final Scenarios 17.3

3 hours

Lunch

Final Exam and CEQ's

2 hours