

University of Illinois Fire Service Institute

Course Syllabus

Course Title: Rope Rescue Awareness and Operations

Course Duration: 40 Hours

Program: Special Operations Training Program

Course Prerequisites: None

Course Description: The scope of this course is to prepare responders to operate as a member of a team within NIMS at an event requiring the need for low- or high-angle rescue. This course provides personnel with the basic knowledge and skills needed to perform rescues using rope systems. The class will cover the use of rope, rope equipment, hardware, construction of mechanical advantage systems, belay and safety systems, twin-tension lowering systems, anchor systems, patient packaging and care, transport, self-rescue, and rescue litter handling techniques. In addition, course topics include equipment selection, maintenance, and record-keeping.

This course was adapted from the NFPA 1006 standards with information also derived from 1500, 1670, 1858, 1983, and 2500. This course is Pro-Board, NFA, and Illinois OSFM certified. This course is also the prerequisite for all of the other certifications in the NFPA 1006 standard.

Course Requirements and/or Recommendations: These can be divided into three categories: those completed before arriving to class (Pre-Course Work), those completed during class, such as homework assignments and quizzes (Course Work), and requirements completed after class but before receiving a certificate of completion. (Post-Course Work)

Summary of Directions

Pre-Course Work: None

Course Work:

- Attend and participate in 100% of the course.
- 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:

High Angle Rope Rescue Techniques Levels I & II, Fifth Edition 2022, Loui McCurley and Tom Vines

Textbook is listed in the event students want additional information. Students may purchase the book (ISBN 978-1-284-02695-5) or borrow a copy from the IFSI library.

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 the "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. See Safety Rules for Rope Rescue 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.

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: Introduction

Terminal Learning Objective

At the conclusion of this module, the student will explain the purpose of rope rescue operations and the requirements students must fulfill prior to attending the traditional class.

Module: 2

Title: Safety

Terminal Learning Objective

At the conclusion of this module, the student will apply the safety rules to rope rescue operations.

Module: 3

Title: Rope

Terminal Learning Objective

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

Module: 4

Title: Knots

Terminal Learning Objective

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

Module: 5

Title: Webbing

Terminal Learning Objective

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

Module: 6

Title: Auxiliary Equipment

Terminal Learning Objective

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

Module: 7

Title: Forces

Terminal Learning Objective:

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

Module: 8

Title: Anchors

Terminal Learning Objective:

At the conclusion of the module, the student will construct anchor systems for rope 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: Ascending and Descending

Terminal Learning Objective:

At the conclusion of this module, the student will ascend and descend a fixed rope in a low-angle and high-angle environment.

Module: 11

Title: Haul Systems

Terminal Learning Objective:

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

Module: 12

Title: Lowering and Raising Operations

Terminal Learning Objective:

At the conclusion of this module, the student will operate a twin-tension lowering and raising system in a low-angle environment.

Module: 13

Title: Patient Packaging

Terminal Learning Objective:

At the conclusion of this module, the student will package a patient in a litter and transport the patient in a low-angle environment.

Module: 14

Title: Lowering to Hauling Operations

Terminal Learning Objective:

At the conclusion of this module, the student will, in a high-angle environment, give commands and operate a lowering system that will include a twin-tension system with a student, rescue litter, and a packaged manikin. They will then then convert the system to a haul system and move the student, rescue litter and packaged manikin back to its original position.

Reference:

CMC Rope Rescue Technician Manual, 6th Edition, 2021

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

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

High Angle Rope Rescue Techniques Levels I & II, Fifth Edition 2022, Loui McCurley and Tom Vines

NFPA 1006, Standard for Technical Rescue Personnel Professional Qualifications, 2021 Edition

NFPA 1500, Protective Clothing and Protective Equipment, 2021 Edition

NFPA 1670, Standard on Operating and Training for Technical Rescue Incidents, 20 Edition

NFPA 1858, Standard on Selection, Care, and Maintenance of Life Safety Rope and Equipment for Emergency Services, 2018 Edition

NFPA 1983, Fire Service Life Safety Rope and System Components, 2017 Edition

NFPA 2500, Standard for Operations and Training for Technical Search and Rescue Incidents and Life Safety Rope and Rescue Equipment for Emergency Services, 2021 Edition

Office of the State Fire Marshal, Rope Operations Requirements IRM, May, 2004

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

Rope Levels I and II, Jeff Matthews 2009

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

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

Class Schedule

Day 1

Module 1	Introduction and paper work	30 minutes
Module 2	Safety	30 minutes
Module 3	Rope	1 hour
	3.1 Rope Inspection	30 minutes
	Issue Equipment	1 hour 30 minutes
Lunch		
Module 4	Knots	30 minutes
	4.1 Knots	2 hours
Module 5	Webbing	15 minutes
	5.1 Water Knot (Ring Bend)	15 minutes
Module 11	Haul Systems	
	4.1 Load Releasing Hitch	15 minutes
Knot Practice		30 minutes

Day 2

Equipment Review		30 minutes
Module 6	Ancillary Equipment	1 hour
Module 7	Forces	15 minutes
Module 8	Anchors	1 hour
	8.1 Webbing & Anchor Straps	15 minutes
	8.2 Load Distributing Anchors	30 minutes
	8.3 Tensionless Hitch	15 minutes
Anchor Practice		30 minutes

Lunch

Module 9	Belay		30 minutes
	9.1	Constructing/Operating Belay	45 minutes
	9.2	Belay Drop	45 minutes
Module 10	Ascending & Descending		30 minutes
	10.1	Prusik Drill	30 minutes
	10.2	Rack Drill	1 hour
<u>Day 3</u>			
	Equipment Review		30 minutes
	Knot Practice		1 Hour
Module 11	Haul Systems		2 hours
	Haul Systems Overview		1 hour
Lunch			
Module 11	Haul Systems		
	Haul System Overview		30 minutes
	11.1	3:1 Inline Block and Tackle	30 minutes
	11.2	3:1 Attached Block and Tackle	30 minutes
	11.3	4:1 Inline Block and Tackle	30 minutes
	11.4	4:1 Double "J"	30 minutes
	11.5	5:1 Attached Block and Tackle	30 minutes
	11.6	4:1 Attached 3 pulley B&T	30 minutes

Day 4

	Equipment Review		30 minutes
	Knot Practice		30 minutes
Module 13	Patient Packaging		15 minutes
	13.1 Patient Packaging		1 hour
Module 5	Webbing		
	5.3 Hasty Harness		15 minutes
	Module 14		High Angle:
	Lowering to Hauling Operations		1 hour 30 minutes
Lunch			

Module 14	High Angle: Lowering to Hauling Operations and High Angle Descent	2 hours
-----------	--	---------

Day 5

Question and Answer	1 hour
---------------------	--------

Final Exam	1 hour 30 minutes
------------	-------------------

Inventory and Return Equipment	1 hour 30 minutes
--------------------------------	-------------------

Lunch

Individual Skill Stations	4 hours
---------------------------	---------