

# University of Illinois Fire Service Institute

## Course Syllabus

**Course Title:** Vehicle and Machinery Operations

**Course Duration:** 40 hours

**Program:** Vehicular Rescue Program

**Course Prerequisites:** None

**Required for National Certification (ProBoard):**

Rope Rescue Operations – Level I

**Course Description:** The Vehicle and Machinery Operations course is designed to acquaint the student with techniques used in Auto Extrication. More specifically, the student will become familiar with the different classifications and characteristics of vehicles and machines. Students will also become familiar with the different tools used in extrication, stabilization of the vehicle/machine, disentanglement of the patient(s), and initiating patient care. The student will become familiar with initiating the Incident Command System and how to terminate the incident when finished. The majority of the course will be spent working on the various skills/techniques each student will learn during this course.

**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)

Pre-Course Work – Read Chapters 1 – 4 prior to day one

Course Work – Attend and participate in 100% of the course

Read Chapters 5 – 6 prior to the start of day two

Read Chapters 7 – 8 prior to the start of day three

Completion of the final written exam with a score of at least 70%

Complete and pass all practical skill tests administered.

Post-Course Work – None

**Required Textbook:**

IFSTA, Principals of Vehicle Extrication, 4<sup>th</sup> Edition

The student will need to acquire the textbook prior to the start of class.

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## 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 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.

**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.

Retesting: If a student fails to pass an exam, retesting takes place on set dates at regional sites across the state. More information is provided in the course completion e-mail and on the IFSI website.

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**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:** Students will be evaluated with an end of course exam and performance evaluation checklists.

## Course Content:

### Module: 1

Title: Vehicle Incident Safety

#### Terminal Learning Objective:

At the conclusion of this module, the student will explain what it means to be an Awareness level responder to Vehicle and Machinery Extrication responses.

### Module: 2

Title: PPE, Hazards, and Hazard Mitigation

#### Terminal Learning Objective:

At the conclusion of this module, the student will identify the correct safety equipment to be worn on a vehicle incident.

### Module: 3

Title: Incident Command Responsibilities

#### Terminal Learning Objective:

At the conclusion of this module, the student will explain the Incident Command System from a single vehicle incident to a multi-vehicle incident.

### Module: 4

Title: Tools, Equipment, and Machinery Rescue

#### Terminal Learning Objective:

At the conclusion of this module, the student will identify common extrication tools and techniques to mitigate machinery rescue incidents.

### Module: 5

Title: Victim Management

#### Terminal Learning Objective:

At the conclusion of this module, the student will demonstrate administering care, immobilization, packaging, and transfer.

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Module: 6

Title: Passenger Vehicles

Terminal Learning Objective:

At the conclusion of this module, the student will describe basic vehicle anatomy, construction, and technology.

Module: 7

Title: Passenger Vehicle Stabilization

Terminal Learning Objective:

At the conclusion of this module, the student will describe passenger vehicle stabilization equipment and operations.

Module: 8

Title: Victim Disentanglement and Extrication

Terminal Learning Objective:

At the conclusion of this module, the student will demonstrate the removal/manipulation of vehicle components to the removal of a properly packaged victim from a vehicle.

## Reference List:

NFPA 1006, Standard for Rescue Technician Professional Qualifications,  
Chapters 5, 10, 19, 2013 Edition

Office of the State Fire Marshal, Vehicle and Machinery Operations Instructor  
Reference Manual, 2006 Edition

Principles of Vehicle Extrication, 4<sup>th</sup> Edition, IFSTA, Fire Protection Publications  
2017

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## Course Schedule

### DAY ONE

<u>Event</u>	<u>Duration</u>
Module 1: Vehicle Incident Safety	1 hour
Module 2: PPE, Hazards, and Hazard Mitigation	1 hour
Module 3: Incident Command Responsibilities	45 minutes
Module 4: Tools, Equipment, and Machinery	1 hour
<b>Lunch</b>	
Module 5: Victim Management	45 minutes
Module 6: Passenger Vehicles	1 hour
Module 7: Passenger Vehicle Stabilization	1 hour
Module 8: Victim Disentanglement and Extrication	1 hour 30 minutes

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## DAY TWO

<u>Event</u>	<u>Duration</u>
Tool Orientation Struts/Buttress/ Stabilization Heavy hydraulics High pressure lift bags All hand tools Electric/Battery tools	4 hours
<b>Lunch</b>	
Basic Cribbing/Stabilization Car upright Car on roof Car on side Car on barrier Car on car	3 hours 15 minutes
Advanced Stabilization Car upright Car on roof Car on side Car on barrier Car upside down on victim through sunroof	
Clean up and review	45 minutes

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## DAY THREE

<u>Event</u>	<u>Duration</u>
Drill 7.7 – Lift Bags	1 hour
Drill 7.8 – Lift Jacks	30 minutes
Drill 4.8 – Air Chisels	1 hour
Drill 8.10 – Door Removal Hinge Side	45 minutes
Drill 8.16 – Dash Lift	45 minutes
Drill 8.17 – Dash Roll	45 minutes
<b>Lunch</b>	
Drill 8.11 – 5 <sup>th</sup> Door	30 minutes
Drill 8.12 – 3 <sup>rd</sup> Door	30 minutes
Drill 5.9 – Patient Care and Packaging	30 minutes
Clean up	30 minutes

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## DAY FOUR

### Event

### Duration

Disentanglement Practice (All Tools)

4 hours

### **Lunch**

Disentanglement Practice (All tools)

2 hours 30 minutes

Clean up

30 minutes

Course Overview

1 hour

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## DAY FIVE

### Event

### Duration

Final Written Exam

2 hours 30 minutes

### **Lunch**

Final Practical Exam

4 hours

Clean Up & Tool Maintenance

1 hour 30 minutes