

**FIRE 284 Course Outline as of Spring 2019****CATALOG INFORMATION**

Dept and Nbr: FIRE 284 Title: TRUCK ACADEMY OPERATIONS

Full Title: Truck Academy Operations

Last Reviewed: 9/10/2018

Units		Course Hours per Week		Nbr of Weeks	Course Hours Total	
Maximum	1.50	Lecture Scheduled	3.00	4	Lecture Scheduled	12.00
Minimum	1.50	Lab Scheduled	17.00	2	Lab Scheduled	68.00
		Contact DHR	0		Contact DHR	0
		Contact Total	20.00		Contact Total	80.00
		Non-contact DHR	0		Non-contact DHR	0

Total Out of Class Hours: 24.00

Total Student Learning Hours: 104.00

Title 5 Category: AA Degree Applicable

Grading: Grade Only

Repeatability: 00 - Two Repeats if Grade was D, F, NC, or NP

Also Listed As:

Formerly:

**Catalog Description:**

An intermediate course designed for veteran firefighters or other interested students who wish to enhance their knowledge and ability as it pertains to fire ground truck operations, tactics and strategy. Basic building and roof construction, vertical and horizontal ventilation, forcible entry, positive and negative ventilation, search and rescue, thermal imaging technology, firefighter safety and survival, rapid intervention tactics, elevator rescue, vehicle extrication and other related truck company operations will be discussed.

**Prerequisites/Corequisites:****Recommended Preparation:****Limits on Enrollment:**

Possession of a State issued Firefighter I Certificate or equivalent as determined by the Dean of Public Safety

**Schedule of Classes Information:**

Description: An intermediate course designed for veteran firefighters or other interested students who wish to enhance their knowledge and ability as it pertains to fire ground truck operations,

tactics and strategy. Basic building and roof construction, vertical and horizontal ventilation, forcible entry, positive and negative ventilation, search and rescue, thermal imaging technology, firefighter safety and survival, rapid intervention tactics, elevator rescue, vehicle extrication and other related truck company operations will be discussed. (Grade Only)

Prerequisites/Corequisites:

Recommended:

Limits on Enrollment: Possession of a State issued Firefighter I Certificate or equivalent as determined by the Dean of Public Safety

Transfer Credit:

Repeatability: Two Repeats if Grade was D, F, NC, or NP

## **ARTICULATION, MAJOR, and CERTIFICATION INFORMATION:**

<b>AS Degree:</b>	<b>Area</b>	<b>Effective:</b>	<b>Inactive:</b>
<b>CSU GE:</b>	<b>Transfer Area</b>	<b>Effective:</b>	<b>Inactive:</b>
<b>IGETC:</b>	<b>Transfer Area</b>	<b>Effective:</b>	<b>Inactive:</b>
<b>CSU Transfer:</b>		<b>Effective:</b>	<b>Inactive:</b>
<b>UC Transfer:</b>		<b>Effective:</b>	<b>Inactive:</b>

**CID:**

**Certificate/Major Applicable:**

Major Applicable Course

## **COURSE CONTENT**

### **Student Learning Outcomes:**

At the conclusion of this course, the student should be able to:

1. Demonstrate an understanding of building construction and the roles of a truck company during a structure fire or other emergency incidents
2. Demonstrate the ability to perform the tasks required of truck company firefighter
3. Describe the safety concerns associated with the role of a truck company firefighter and the procedures that can be used to minimize the risk of injury

### **Objectives:**

At the conclusion of this course, the student should be able to:

1. Describe the role of a truck company and the tactics and safety procedures used during Fires and other emergency incidents.
2. Describe the tools used by truck companies and how they are utilized in the field.
3. Demonstrate an understanding of the different types of building and roof construction and the hazards associated with each.
4. Demonstrate the ability to safely perform vertical and horizontal ventilation using a chainsaw, axe, pike pole and other associated tools.
5. Demonstrate the ability to safely conduct forcible entry on a variety of doors, windows and walls.
6. Demonstrate the proper use of a thermal imaging camera and the ability to use effectively on the fire ground in a number of scenarios.
7. Demonstrate the ability to safely shut down utilities on the fire ground.
8. Describe the basic procedures on how to safely respond to and affect a rescue in a mid

- or high rise building.
- 9. Describe the different types of elevators and identify the correct procedures for safely performing a rescue of trapped individuals in one.
- 10. Describe the situations that cause entrapment and the procedures used by firefighters and Rapid Intervention Crews (RIC) including “Maydays”, breathing techniques, carries, drags and other techniques used for search and rescue in any given scenario.
- 11. Demonstrate the ability to safely perform advanced extrication techniques on a variety of vehicles including those using alternate fuels.

## **Topics and Scope:**

### **I. Course Overview and Pre-Examination**

### **II. The Role of a Truck Company and the Tactics during an Emergency Incident**

- A. Ventilation
- B. Forcible entry
- C. Building search and rescue
- D. Rapid intervention crew (RIC)
- E. Securing utilities
- F. Softening the structure
- G. Elevator rescues
- H. Vehicle extrication

### **III. Tools and Equipment Used in Truck Company Operations**

- A. Ventilation tools
  - 1. Chain saws
  - 2. Rubbish hooks
  - 3. Pike poles
  - 4. Axes
  - 5. Ventilation fans
- B. Forcible entry tools
  - 1. Halligan and flat head axe (irons)
  - 2. Circular (circ) saws & cutting blades
  - 3. Lock slot sets
  - 4. Hydraulic rams
  - 5. Pry bars
  - 6. Wedges
- C. Building search and rescue
  - 1. Thermal imaging cameras (TIC's)
  - 2. Rope bags
- D. Rapid Intervention tools
  - 1. RIC (Rapid Intervention Crew) bag
  - 2. Halligan
  - 3. Axe
- E. Securing utilities
  - 1. Utility keys
  - 2. Specialized wrenches
- F. Structure softening
  - 1. Irons
  - 2. Chain saws
  - 3. Circular saws

### **IV. Building Construction, Roof Types and their Associated Hazards**

- A. Building construction types
  - 1. Type I fire resistive

2. Type II non-combustible
3. Type III ordinary
4. Type IV heavy timber
5. Type V wood frame

#### B. Roof types

1. Panel
2. Trusses
  - a. Open metal
  - b. Parallel cord
  - c. Bowstring
  - d. Wood "I" beam (lightweight)
3. Roofing decks
  - a. Shingle
  - b. Tar and gravel
  - c. Built-up
  - d. Metal

### V. Ventilation Operations

#### A. Vertical ventilation

1. Saw Safety
2. Roof procedures
3. Crew operations
4. Rafter work
5. Residential venting
  - a. Low pitch roof
  - b. High pitch roof
6. Louver venting
7. Dicing
8. Strip venting

#### B. Horizontal ventilation

1. Natural ventilation
2. Mechanical ventilation
  - a. Positive pressure
  - b. Hydraulic ventilation

### VI. Forcible Entry Operations

#### A. Lock entry

1. Conventional locks
2. Deadbolts
3. Hasps

#### B. Door entry

1. Residential doors
2. Commercial doors
3. Roll-up doors

#### C. Window entry

#### D. Wall entry

### VII. Thermal Imaging Camera (TIC) use

#### A. TIC technology

#### B. TIC applications

1. Search and rescue
2. Locating the main body of fire
3. Overhaul
4. Related uses

#### C. TIC limitations

## VIII. Securing Utilities

### 1. Water

- a. Commercial
- b. Residential
- c. Meter types

### 2. Electrical

- a. Commercial
- b. Residential
- c. Industrial
- d. Meter types
- e. Alternate energy power sources
  - i. Solar
  - ii. Batteries
  - iii. Hydro
  - iv. Stand-by generators
  - v. Bio-mass generators

### 3. Gas

- a. Commercial
- b. Residential
- c. Industrial
- d. Meter types

## IX. Mid and High Rise Truck Operations

- A. Incident command structure
- B. Access considerations
- C. Search and rescue considerations
- D. Ventilation practices
- E. Built-in fire protection features
  - 1. Sprinkler systems
  - 2. Stand-pipes
  - 3. Fire Alarms
- F. Systems controls

## X. Elevator Types and Rescues

- A. Elevator types
  - 1. Hydraulic plunger
  - 2. Traction motor
- B. Elevator controls
- C. Rescue procedures
  - 1. Securing the power
  - 2. Securing the car
  - 3. Accessing the car
    - i. Picking the door
    - ii. Using the top hatch

## XI. Entrapment Situations and RIC Procedures

- A. Entrapment situations
  - 1. Importance of situational awareness
  - 2. Collapsed roof or floor
  - 3. Entanglement in wires and cables
  - 4. Separation from hose line, crew or interior walls
  - 5. Low air alarm
  - 6. Rapidly progressing fire
  - 7. "Mayday" procedures
  - 8. Air conservation techniques

- B. RIC procedures
  - 1. Types of search patterns
  - 2. Urban search and rescue standards
  - 3. Safety while searching
  - 4. Building collapse
  - 5. “2 in, 2 out”
- XII. Vehicle Extrication
  - A. Vehicle anatomy
  - B. Alternate powered vehicles
  - C. Restraint systems
  - D. Vehicle stabilization
  - E. Commercial vehicle considerations
  - F. Alternative extrication techniques
  - G. Multi-casualty incidents at vehicle accidents

Topics and Scope pertains to both lab and lecture

### Assignment:

#### Lecture Related Assignments

1. Classroom participation
2. Reading of student textbook
3. Two to three written homework assignments/case studies
4. Summative exam

#### Lab Related Assignments

1. Building construction inspection exercise
2. Field trip to a mid or high rise building and 2-3 rescue exercises
3. Two to three Auto extrication exercises
4. Four to five demonstrations of a variety of truck company tools and operations

### Methods of Evaluation/Basis of Grade:

**Writing:** Assessment tools that demonstrate writing skills and/or require students to select, organize and explain ideas in writing.

Written Homework
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Writing 10 - 15%
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**Problem Solving:** Assessment tools, other than exams, that demonstrate competence in computational or non-computational problem solving skills.

Homework, skills demonstrations activities
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Problem solving 5 - 10%
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**Skill Demonstrations:** All skill-based and physical demonstrations used for assessment purposes including skill performance exams.

Skills performance exercises and demonstrations
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Skill Demonstrations 40 - 60%
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**Exams:** All forms of formal testing, other than skill performance exams.

multiple choice summative exam

Exams  
20 - 30%

**Other:** Includes any assessment tools that do not logically fit into the above categories.

Attendance and Participation

Other Category  
5 - 10%

**Representative Textbooks and Materials:**

Building Construction for the Fire Service. 5th ed. Corbett, Glenn and Brannigan, Francis. Jones and Bartlett. 2016

Truck Company Operations, John Mittendorf. 2nd ed. Fire Engineering Publications. 2016.