

**FIRE 284.1 Course Outline as of Fall 2020****CATALOG INFORMATION**

Dept and Nbr: FIRE 284.1 Title: RESIDENTIAL TRUCK ACAD.

Full Title: Residential Truck Academy

Last Reviewed: 3/9/2020

| Units   |      | Course Hours per Week |       | Nbr of Weeks | Course Hours Total |       |
|---------|------|-----------------------|-------|--------------|--------------------|-------|
| Maximum | 1.00 | Lecture Scheduled     | 8.00  | 1            | Lecture Scheduled  | 8.00  |
| Minimum | 1.00 | Lab Scheduled         | 32.00 | 1            | Lab Scheduled      | 32.00 |
|         |      | Contact DHR           | 0     |              | Contact DHR        | 0     |
|         |      | Contact Total         | 40.00 |              | Contact Total      | 40.00 |
|         |      | Non-contact DHR       | 0     |              | Non-contact DHR    | 0     |

Total Out of Class Hours: 16.00

Total Student Learning Hours: 56.00

Title 5 Category: AA Degree Applicable

Grading: Grade or P/NP

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

Also Listed As:

Formerly:

**Catalog Description:**

An intensive course designed for firefighters who wish to enhance their knowledge and ability as it pertains to residential fire ground truck operations, tactics and strategy. Topics covered include basic building and roof construction, fire behavior, reading smoke, establishing incident priorities, vertical and horizontal ventilation, forcible entry, building search and live fire exercises.

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

Completion of an accredited Firefighter I Academy.

**Schedule of Classes Information:**

Description: An intensive course designed for firefighters who wish to enhance their knowledge and ability as it pertains to residential fire ground truck operations, tactics and strategy. Topics covered include basic building and roof construction, fire behavior, reading smoke, establishing incident priorities, vertical and horizontal ventilation, forcible entry, building search and live fire

exercises. (Grade or P/NP)

Prerequisites/Corequisites:

Recommended:

Limits on Enrollment: Completion of an accredited Firefighter I Academy.

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>          | Effective: | Inactive: |
| <b>CSU GE:</b>    | <b>Transfer Area</b> | Effective: | Inactive: |

|               |                      |            |           |
|---------------|----------------------|------------|-----------|
| <b>IGETC:</b> | <b>Transfer Area</b> | Effective: | Inactive: |
|---------------|----------------------|------------|-----------|

|                      |            |           |
|----------------------|------------|-----------|
| <b>CSU Transfer:</b> | Effective: | Inactive: |
|----------------------|------------|-----------|

|                     |            |           |
|---------------------|------------|-----------|
| <b>UC Transfer:</b> | Effective: | Inactive: |
|---------------------|------------|-----------|

**CID:**

**Certificate/Major Applicable:**

Both Certificate and Major Applicable

## **COURSE CONTENT**

**Student Learning Outcomes:**

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

1. Demonstrate an understanding of residential building construction and the roles of a truck company during a structure fire or other emergency incident
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:**

Students will be able to:

1. Demonstrate an understanding of the course expectations.
2. Describe the role of a truck company and the tactics and safety procedures used during Fires and other emergency incidents.
3. Demonstrate an understanding of the principles of fire behavior.
4. Demonstrate the ability to read smoke to predict fire behavior.
5. Demonstrate an understanding of the different types of building and roof construction and the hazards associated with each.
6. Demonstrate the ability to safely operate and control a fire in a live fire environment
7. Demonstrate the ability to safely conduct forcible entry on a variety of doors, windows and walls.
8. Demonstrate the ability to safely use ground ladders on a fire scene.
9. Demonstrate the ability to safely perform vertical and horizontal ventilation using a chainsaw, axe, pike pole and other associated tools.
10. Describe the basic procedures on how to safely respond to and affect a rescue in a structure fire.
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 shut down utilities on the fire ground.

## **Topics and Scope:**

### **I. Course Overview and Student Expectations**

- A. Physical fitness/demands
- B. Safety
- C. Truck company firefighter operations

### **II. The Role of a Truck Company and the Tactics and Priorities 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

### **III. Fire Behavior**

- A. Phases of fire
  1. Ignition
  2. Growth
  3. Fully developed
  4. Decay
- B. Specific phenomena
  1. Thermal layering
  2. Flame-over
  3. Flashover
  4. Backdraft
- C. Ventilation effects
- D. Flow path

### **IV. Reading Smoke**

- A. Smoke color
- B. Smoke volume
- C. Smoke velocity
- D. Smoke density

### **V. Residential building construction, roof types and their associated hazards**

- A. Residential building construction
  1. Type III ordinary
  2. Type IV heavy timber
  3. Type V wood frame
  4. Conventional (platform) framing
  5. Balloon framing
- B. Roof types
  1. Panel
  2. Trusses
    - a. Wood
    - b. Wood “I” beam (lightweight)
  3. Roofing decks
    - a. Shingle
    - b. Tar and gravel

- c. Built-up
- d. Metal

## VI. Live Fire Exercises

- A. Room set-up
- B. Fuel crib
  - 1. Vertical crib
  - 2. Pallet crib
- C. Communications
- D. Briefing/speaking points
  - 1. Burn room walk through
  - 2. Evacuation symbol
  - 3. Anticipated fire behavior
  - 4. Factors influencing fire behavior
    - a. Amount of fuel
    - b. Type of fuel
    - c. Fuel arrangement

## VII. Forcible Entry Operations

- A. 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
- B. Lock entry
  - 1. Conventional locks
  - 2. Deadbolts
  - 3. Hasps
- C. Door entry
- D. Window entry
- E. Wall entry

## VIII. Ground Ladder Use

- A. Laddering windows
- B. Laddering roofs
- C. Roof ladder use

## IX. Ventilation

- A. Ventilation tools
  - 1. Chain saws
  - 2. Rubbish hooks
  - 3. Pike poles
  - 4. Axes
  - 5. Ventilation fans
- B. Vertical ventilation guidelines
  - 1. Saw Safety
  - 2. Roof procedures
  - 3. Crew operations
  - 4. Rafter work
- C. Ventilation operations
  - 1. Low pitch roof
  - 2. High pitch roof
  - 3. Louver venting
  - 4. Dicing

- 5. Strip venting
- D. Horizontal ventilation
  - 1. Natural ventilation
  - 2. Mechanical ventilation
    - a. Positive pressure
    - b. Hydraulic ventilation
- X. Building Search and Rescue
  - A. Building search and rescue tools
    - 1. Thermal imaging cameras (TIC's)
    - 2. Rope bags
    - 3. Halligan
    - 4. Axe
  - B. Search and rescue procedures
    - 1. Primary search
    - 2. Secondary search
    - 3. TIC use
      - a. TIC technology
      - b. TIC application
        - i. Search and rescue
        - ii. Locating the main body of fire
        - iii. Overhaul
        - iv. Related uses
        - v. TIC limitations
- XI. RIC Procedures and Entrapment Situations
  - A. Rapid Intervention tools
    - 1. RIC (Rapid Intervention Crew) bag
    - 2. Halligan
    - 3. Axe
    - 4. TIC
  - 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"
    - 6. Structure softening
  - C. 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
- XII. Utilities
  - A. Tools to secure utilities
    - 1. Utility keys
    - 2. Specialized wrenches
  - B. Securing utilities
    - 1. Water
      - a. Residential

- b. Meter types
- 2. Electrical
  - a. Residential
  - b. Meter types
  - c. Alternate energy power sources
    - i. Solar
    - ii. Batteries
    - iii. Stand-by generators
    - iv. Bio-mass generators
- 3. Gas
  - a. Commercial
  - b. Residential
  - c. Industrial
  - d. Meter types

Topics and Scope pertains to both lab and lecture

**Assignment:**

Lecture-Related Assignments

1. Classroom participation
2. Reading of student textbook
3. Written homework assignments/case studies
4. Summative exam

Lab-Related Assignments

1. Forcible entry activities (4 - 5)
2. Live fire exercises
3. Rescue exercises (2 - 3)
4. Ladder exercises (2 - 3)
5. Demonstrations of a variety of truck company tools and operations (4 - 5)

**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 assignments/case studies |  |
|---|--|

|                     |
|---------------------|
| Writing<br>10 - 15% |
|---------------------|

**Problem Solving:** Assessment tools, other than exams, that demonstrate competence in computational or non-computational problem solving skills.

|      |  |
|------|--|
| None |  |
|------|--|

|                           |
|---------------------------|
| Problem solving<br>0 - 0% |
|---------------------------|

**Skill Demonstrations:** All skill-based and physical demonstrations used for assessment purposes including skill performance exams.

Forcible entry activities; live fire exercises; rescue exercises; ladder exercises; demonstrations of a variety of truck company tools and operations

Skill Demonstrations  
45 - 65%

**Exams:** All forms of formal testing, other than skill performance exams.

Summative exam

Exams  
20 - 30%

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

Classroom participation; reading of student textbook

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. 2nd ed. Mittendorf, John. Delmar. 2010 (classic)