I. **OVERVIEW**
The following information will appear in the 2010 - 2011 catalog

**FSCI 363**

*Advanced Fire Academy* 9 Units

**Prerequisite:** Satisfactory completion of FSCI 362.

Advanced Fire Academy is the second of two courses of the Fire Academy designed for the individual who desires a career as a professional firefighter. This course includes instruction in ventilation, vehicle extrication, ICS 200, 67-hr. Wildland Firefighting, Confined Space Awareness, Low-Angle Rope Rescue Operations, Hazmat Operations/Decon.

**Materials Fee Required**

Field trips are required. (A-F Only) Lecture /Lab

II. **LEARNING CONTEXT**

Given the following learning context, the student who satisfactorily completes this course should be able to achieve the goals specified in Section III, Desired Learning:

A. **COURSE CONTENT**

1. **Required Content:**

   a. Fire Extinguishers

      i. Types of portable fire extinguishers

      ii. Fire Classifications

      iii. Extinguisher classification system

      iv. Selecting and using fire extinguishers

      v. Extinguishing agent characteristics

   b. Ventilation

      i. Reasons for ventilation

      ii. Ventilation considerations

      iii. Safety considerations

      iv. Vertical ventilation

      v. Horizontal ventilation

      vi. Back-draft and flash-over reduction

      vii. Property conservation

      viii. High Rise ventilation

      ix. Roof coverings
x. Ladder placement

xi. Carrying ventilation tools

xii. Roof collapse indications

xiii. Operating ventilation tools

xiv. Mechanical ventilation

xv. Hydraulic ventilation

c. Salvage

i. Purpose and value

ii. Types of salvage equipment

iii. Salvage cover handling, use and storage

iv. Salvage cover throws

v. Making a catchall

vi. Making a sump

vii. Making a catch basin

viii. Splicing tarps

ix. Making water chutes

x. Improvising with salvage tarps

xi. Improvising with ladders and tarps

xii. Arranging building contents

xiii. Protecting floors, walls and roofs

xiv. Removing water from buildings

d. Overhaul

i. Purpose and value

ii. Personal safety during overhaul

iii. Determining building stability

iv. Atmospheric testing

v. Procedures for detecting hidden fires

vi. Methods to restore property

e. Auto Extrication

i. Principles of auto extrication

ii. Extrication incidents
iii. Accident scene size up and safety
iv. Types of extrication tools
v. Incident command system
vi. Hydraulic and hand tool safety
vii. Hydraulic and hand tool maintenance
viii. Operations with non-powered rescue tools
ix. Operations with powered rescue tools
x. New vehicle safety systems
xi. Air bag function and safety
xii. Using rescue tools on vehicles
xiii. Simulated rescues of trapped victims

f. Fire Investigations
   i. Purpose of fire investigations
   ii. Legal aspects of fire investigations
   iii. Arson laws
   iv. Functions of first arriving Firefighters
   v. Fire cause and origin determination
   vi. Recognition and preservation of evidence
   vii. Indications of arson
   viii. Incendiary devices
   ix. Arson materials and equipment

g. Fire Protection Systems
   i. Types of fire alarms
   ii. Methods of alarm transmission
   iii. Heat and smoke detectors
   iv. Automatic fire protection systems
   v. Indicating valves
   vi. Water supply
   vii. Fire department connections

h. Building Construction
   i. Purpose and value
ii. Construction terminology
iii. Construction classifications
iv. Common building construction materials
v. Basic construction of walls and floor
vi. Basic construction of doors and windows
vii. Residential building construction
viii. Commercial building construction

i. High Rise Firefighting Operations
   i. Importance of building pre-fire planning
   ii. High Rise building construction
   iii. High Rise staffing needs
   iv. High Rise water supply
   v. Smoke removal and ventilation
   vi. High Rise elevator safety
   vii. High Rise life safety issues
   viii. High Rise tactics and strategies
   ix. High Rise incident command systems

j. Confined Space Rescue Awareness
   i. Confined space identification
   ii. Confined space hazards
   iii. Confined space incident command system
   iv. Confined space permit requirements
   v. Introduction to CAL/OSHA
   vi. Confined space atmospheric monitoring
   vii. Confined space Lock-out/Tag-out procedures
   viii. Specialized communications equipment
   ix. Specialized respiratory equipment
   x. Confined space operations

k. Low Angle Rope Rescue Operations
   i. Principles of low angle rescue
   ii. Low angle incidents
iii. Low angle rope rescue equipment
iv. Low angle rescue knots and hitches
v. Low angle rescue anchor systems
vi. Low angle rescuer packaging
vii. Low angle victim packaging

I. Wildland Firefighting
i. Wildland incident command system
ii. Wildland/Urban interface
iii. State fire and rescue mutual aid plans
iv. Factors affecting wildland fires
v. Wildland firefighting terminology
vi. Structure protection triage procedures
vii. Wildland firefighting safety procedures
viii. Fire shelter deployment

m. Emergency Medical Certification Skills
i. Patient assessment
ii. Trauma management
iii. Soft tissue injuries
iv. Neurological emergencies
v. Musculoskeletal injuries
vi. Circulation emergencies
vii. Bleeding control
viii. Shock emergencies
ix. Airway and breathing emergencies
x. Emergency childbirth

n. Fire Department Communications
i. Communication centers
ii. Communication personnel
iii. Methods of receiving alarms
iv. Receiving non-emergency calls
v. Receiving emergency calls
vi. Alerting Fire Departments of emergencies

vii. Fire department radio communications

o. Incident Command System (OCS-200)
   i. Operating requirements
   ii. ICS components
   iii. Common terminology
   iv. Modular organization
   v. Integrated communications
   vi. Unified command
   vii. Consolidated action plans
   viii. Span of control
   ix. Command section
   x. Operations section
   xi. Planning section
   xii. Logistics section
   xiii. Finance section

p. Firefighter Survival/Rapid Intervention Crews
   i. Firefighter injuries and fatalities
   ii. Introduction to rapid intervention crews
   iii. Techniques of self survival
   iv. Firefighter accountability
   v. Distress signals
   vi. Evacuation commands
   vii. Safety officer duties
   viii. Changing your SCBA profile
   ix. Dragging a downed firefighter
   x. Dragging a downed firefighter on stairs
   xi. Removing and SCBA
   xii. Lifting a downed firefighter out a window
   xiii. Carrying a firefighter down a ladder
   xiv. Lifting a firefighter through a hole
2. **Required Lab Content:**

   a. Portable Fire Extinguisherss
      i. Operate a stored pressure water extinguisher
      ii. Operate a dry chemical (ABC) extinguisher
      iii. Operate a carbon dioxide (CO2) extinguisher

   b. Rescue and Extrication
      i. Conduct a primary and secondary search
      ii. Demonstrate victim removals using
          a. Incline drag
          b. blanket drag
          c. webbing drag
      iii. Demonstrate the seat lift/carry-one rescuer method
      iv. Demonstrate the seat lift/carry-two rescuers
      v. Demonstrate the chair lift/carry-two rescuers

   c. Forcible Entry
      i. Clean, inspect, and maintain power tools and equipment
      ii. Clean, inspect, and maintain hand tools and equipment
      iii. Force entry through an inward-swinging door-Two Firefighter method
      iv. Force entry through an outward-swinging door-Wedge-end method
      v. Breach a hardwood floor

   d. Ventilation
      i. Ventilate a flat roof
      ii. Ventilate a pitched roof
      iii. Ventilate a structure using mechanical positive-pressure ventilation
      iv. Ventilate a structure using horizontal hydraulic ventilation

   e. Water Supply
      i. Demonstrate connecting to a fire hydrant and flowing water
      ii. Connect and place a hard-suction hose for drafting from a static water source
f. Fire Streams
   i. Operate a solid-stream nozzle
   ii. Operate a fog-stream nozzle
   iii. Operate a broken stream nozzle

g. Fire Control
   i. Demonstrate attacking a structure fire-Exterior attack
   ii. Deploy and operate a master stream device
   iii. Demonstrate attacking a structure fire (above, below, and grade level) Interior attack

h. Fire Department Communication
   i. Demonstrate handling of business calls and reports of emergencies
   ii. Demonstrate using a portable radio for routine and emergency traffic

i. Operations at Haz Mat Incidents
   i. Perform emergency decontamination
   ii. Perform defensive control functions-absorption, diking, damming, and diversion
   iii. Perform isolation and scene control at Haz Mat incident

3. Recommended Content:

B. **ENROLLMENT RESTRICTIONS**

1. **Prerequisites**
   Satisfactory completion of FSCI 362.

2. **Requisite Skills**
   *Before entering the course, the student will be able to:*
   a. Identify phases, classifications and fire problems
   b. Identify the safety requirements in wildland firefighting.

3. **Health and Safety Skills/Restrictions**
   *Before entering the course, the student must demonstrate the following skill or condition:*
   a. Demonstrate proper use of SCBA.
b. Identify and control confined space scenes.

c. Control a hazardous materials incident and proper decon procedures

d. Set-up and control low-angle rope rescue operations

C. **HOURS AND UNITS**

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D. **METHODS OF INSTRUCTION (TYPICAL)**

Instructors of the course might conduct the course using the following method:

1. Classroom lecture with visual aids
2. Practical demonstrations and hands on skills
3. Instructor-led group discussions
4. Facilitate practical applications with exercises and live firefighting drills

E. **ASSIGNMENTS (TYPICAL)**

1. **EVIDENCE OF APPROPRIATE WORKLOAD FOR COURSE UNITS**

   *Time spent on coursework in addition to hours of instruction (lecture hours)*

   a. Prepare equipment for daily testing on SCBA's and PPE testing Timed.
   b. Study for quizzes given 3 to 4 times per week.
   c. Prepare for mid term test that includes psychomotor and written test.
   d. Prepare for 10-minute oral presentation on fire equipment or fire attack.
   e. Review DMV class "B" drivers license procedures and practice apparatus daily checks.
   f. Prepare for LARs (Low Angle Rope Rescue) and review of all knots used in LAR.
   g. Study Hazmat Operations and DeCon procedures.
   h. Study for final exam.

2. **EVIDENCE OF CRITICAL THINKING**

   *Assignments require the appropriate level of critical thinking*

   a. Scenario: You are responding to an emergency incident. Do any of the following, whichever are appropriate for the incident:

      i. Determine the appropriate legal level of personal protection for emergency operations.
      ii. Identify and use correct fire extinguisher according to a fires classification.
      iii. Collect ventilation equipment and determine location for structure fire ventilation using chain saws and hand tools.
iv. Determine correct methods to salvage property and remove water.

v. Use overhauling procedures to detect hidden fires.

vi. Choose correct extrication tools for auto extrication disentanglement operations.

vii. Safely operate powered and non-powered extrication tools, example (Hurst tolls produce over 32,000 pounds of pressure per square inch and are operated by one firefighter).

viii. Identify indications of arson.

ix. Recognize and preserve evidence of arson.

x. Assess automated fire protection systems for operation.

xi. Identify the five classifications of residential and commercial building construction.

xii. Assess confined space CAL/OSHA restrictions.

xiii. Understand factors affecting Wildland fires and structure protection.

xiv. Perform 10 Emergency Medical Technician skills to National Registry standards.

xv. Use Incident Command System components.

xvi. Evaluate Rapid Intervention Crew and Fire Fighter survival operational needs.

F. TEXTS AND OTHER READINGS (TYPICAL)


III. DESIRED LEARNING

A. COURSE GOAL

As a result of satisfactory completion of this course, the student should be prepared to:

enter the Fire Service as a volunteer or paid firefighter by meeting the employment requirements of most California Fire Departments. The student will use basic firefighter knowledge and skills, with an emphasis on the “hands on” approach to skills development. This course conforms to the standards for certification by the State Board of Fire Services and the Office of State Fire Training.

B. STUDENT LEARNING GOALS

Mastery of the following learning goals will enable the student to achieve the overall course goal.

1. Required Learning Goals

Upon satisfactory completion of this course, the student will be able to:

a. describe common building material.

b. describe construction types and the effect fire has on the structural integrity of the construction type.

c. identify the primary strengths and weaknesses of construction types.

d. identify indicators of building collapse.

e. describe methods by which agents extinguish fire.
f. list mechanisms by which portable extinguishers expel their contents.
g. discuss extinguishers and agents for metal fires.
h. describe the PASS method of application.
i. distinguish between rescue and extrication.
j. summarize safety guidelines for search and rescue personnel operating within a burning building.
k. describe primary search and secondary search.
l. discuss victim removal methods.
m. select appropriate cutting tools for specific applications.
n. describe correct methods for carrying forcible entry tools.
o. describe reasons for fireground ventilation.
p. discuss vertical ventilation.
q. discuss roof covering and using existing roof openings for vertical ventilation.
r. describe trench or strip ventilation.
s. describe dry-barrel and wet-barrel hydrants.
t. summarize potential problems to look for when inspecting fire hydrants.
u. discuss the extinguishing properties of water.
v. describe friction loss.
w. define water hammer.
x. discuss types of streams and nozzles.
y. describe initial factors to consider when suppressing structure fires.
a`. discuss deploying master stream devices.
aa. describe signs and indications of an incendiary fire.
ab. explain firefighter responsibilities after the fire.
ac. describe communication responsibilities of the firefighter.
ad. summarize guidelines for radio communications.
ae. describe information given in arrival and progress reports.
af. describe types of respiratory protection.
ag. describe types of protective clothing.
ah. discuss the management structure at haz mat and terrorist incidents.
ai. explain how the strategic goal of isolation and scene control is achieved.

2. **Lab Learning Goals**

   Upon satisfactory completion of the lab portion of this course, the student will be able to:
a. identify the common materials found in building construction.
b. describe the five types of building construction listed in NFPA 220.
c. discuss the strengths and weaknesses of the five building construction types.
d. describe the actions that should be taken when imminent building collapse is suspected.
e. identify the five classes of fire and what they involve.
f. discuss fires where aqueous film forming foam (AFFF) extinguisher are most effective.
g. describe how carbon dioxide (CO2) portable fire extinguishers work.
h. discuss the four guidelines that should be used by search and rescue personnel operating within a burning building.
i. describe what primary search teams should carry with them.
j. describe powered hydraulic tools used in rescue incidents.
k. discuss how and why the stabilizing vehicles involved in incidents is important.
l. describe the four basic categories of forcible entry tools.
m. discuss why the pick-head axe is often used in structural fire fighting operations.
n. describe what tools are most often used for ventilation purposes.
o. discuss the reasons for fireground ventilation.
p. describe the signs of a potential backdraft.
q. discuss what structures lend themselves to horizontal ventilation.
r. define friction loss, elevation loss/gain, and water hammer.
s. discuss the difference between a solid stream and a fog stream.
t. describe what initial actions firefighters should take when suppressing a structural fire.
u. discuss what the differences are among a direct attack, an indirect attack, and a combination attack.
v. list the three factors to consider in hoseline selection.
w. discuss what observations should be made en route to all incidents.
x. describe what observations should be made during fire fighting operations.
y. discuss what responsibilities individuals may have in a fire investigation.
a’. discuss why the fire department should leave at least one person on the premises of a scene until the investigator arrives.

aa. describe what communication skills are necessary for fire department communications.
ab. identify three basic business telephone courtesies.
ac. discuss what persons trained to the Operations Level are expected to do.
ad. describe the four main routes through which hazardous materials can enter the body.
ae. identify the three incident priorities at all haz mat and terrorist incidents.
af. describe incident level and hazard-control zones.

IV. METHODS OF ASSESSMENT (TYPICAL)

A. FORMATIVE ASSESSMENT

1. Quizzes from textbooks and lectures.
2. Psychomotor skills testing.
4. Face-to-Face physical testing on Wildland Fire Attack.
5. Exam on Confined Space Awareness.
6. Exam on ICS 200, State required.

B. SUMMATIVE ASSESSMENT

1. Face-to-Face testing on Fire Attack and Command.
2. Final psychomotor exam.
3. Final exam.