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## Course Outline for FST 11

### ARTP FIREFIGHTER I ACADEMY

Effective: Spring 2019

#### I. CATALOG DESCRIPTION:

FST 11 — ARTP FIREFIGHTER I ACADEMY — 16.00 units

This course provides the skills and knowledge needed for the entry-level firefighter, career or volunteer, to perform his/her duties safely, effectively, and competently. The curriculum is based on the NFPA 1001 Standards for Fire Fighter Professional Qualifications, the NFPA 1051 Standard for Wildland Fire Fighter Professional Qualifications, and the NFPA 472 Standard for Competence of Responder to Hazardous Materials/Weapons of Mass Destruction Incidents. The seven overarching themes of the California State Fire Fighter I curriculum are: general knowledge germane to the profession, fire department communications, fire ground operations, rescue operations, preparedness and maintenance, wildland suppression activities, and hazardous materials/WMD. The course emphasizes the requirements of the California State Board of Fire Services Certified Firefighter I training, International Fire Service Accreditation Congress (IFSAC) standards, Professional Qualifications (ProBoard) requirements, and Cal Fire Wildland Firefighter-Basic training. This course, combined with Firefighter I Academy Skills Review and Certification, satisfies all training requirements for the IFSAC Firefighter I certification. Certificates of Completion for Fire Fighter I Academy and Cal Fire Basic Firefighter issued with a grade "C" or better.

9.00 Units Lecture 7.00 Units Lab

#### Prerequisite

EMS 30 - Emergency Medical Responder  
with a minimum grade of C

FST 50 - Fire Protection Organization  
with a minimum grade of C

FST FSC1 - Fire Service Conditioning & Physical Agility Development 1  
with a minimum grade of C

#### Grading Methods:

Letter Grade

#### Discipline:

- Fire Technology

	<b>MIN</b>
<b>Lecture Hours:</b>	162.00
<b>Expected Outside of Class Hours:</b>	324.00
<b>Lab Hours:</b>	378.00
<b>Total Hours:</b>	864.00

#### II. NUMBER OF TIMES COURSE MAY BE TAKEN FOR CREDIT: 1

#### III. PREREQUISITE AND/OR ADVISORY SKILLS:

**Before entering the course a student should be able to:**

- A. EMS30
- B. FST50

1. Describe the components and development of the fire and emergency services.
2. Recognize and illustrate the history of the fire service.
3. Recognize careers in fire and emergency services.
4. Illustrate and explain the history and culture of the fire service.
5. Analyze the basic components of fire as a chemical chain reaction, the major phases of fire, and examine the main factors that influence fire spread and fire behavior.
6. Differentiate between fire service training and education and explain the value of higher education to the professionalization of the fire service.
7. List and describe the major organizations that provide emergency response service and illustrate how they relate.
8. Identify fire protection and emergency-service careers in both public and private sector.

9. Define the role of national, state and local support organizations in fire service and emergency services.
  10. Discuss and describe the scope, purpose, and organizational structure of fire and emergency services.
  11. Describe the common types of fire and emergency service facilities, equipment and apparatus.
  12. Compare and contrast effective management concepts for various emergency situations.
  13. Identify the primary responsibilities of fire prevention personnel including, code enforcement, public information, public and private protection systems.
  14. Recognize the components of career preparation and goal setting.
  15. Describe the importance of wellness and fitness as it relates to emergency services.
  16. Identify different programs to ensure equitable access and opportunities in fire and emergency services
  17. Describe equitable work environments and what constitutes discrimination and a hostile work environment.
- C. FSTFSC1
1. Explain the importance of warm-ups and downs
  2. Discuss the benefits of maintaining a regular exercise program
  3. Explore exercise programs for flexibility, strength, endurance and cardiovascular development
  4. Develop increased aerobic fitness, muscular strength and endurance, and improved agility
  5. Improve recovery time after exercise
  6. Identify appropriate lifestyle modification techniques
  7. Develop elementary wellness practices: healthy nutrition, stress reduction and coping skills, and adequate rest
  8. Discuss the psychological affect of mental fatigue
  9. Perform proper lifting and carrying techniques with "Tools of the Trade"
  10. Identify health risk factors
  11. Demonstrate proper cardio-respiratory control with use of an SCBA while under physical exertion
  12. Demonstrate appropriate techniques for "CPAT" and traditional "Physical Agility" testing requirements

#### IV. MEASURABLE OBJECTIVES:

**Upon completion of this course, the student should be able to:**

- A. Don a structural personal protective ensemble so that all elements of the ensemble are worn according to manufacturer's guidelines, within 60 seconds.
- B. Don and activate a self-contained breathing apparatus (SCBA) within 60 seconds, and demonstrate the ability to use the SCBA during emergency operations.
- C. Respond on apparatus to an emergency scene, correctly mount and dismount the apparatus, use seatbelt while the vehicle is in motion, and correctly use other personal protective equipment.
- D. Establish and operate in work areas at emergency scenes, following procedures while wearing protective equipment, and establish attempted work areas as directed using traffic and scene control devices.
- E. Demonstrate the ability to receive a telephone call using correct procedures for answering the phone and relaying information.
- F. Initiate the response to a reported emergency, obtain all necessary information, correctly operate all communications equipment, and properly and accurately relay information to the dispatch center.
- G. Transmit and receive messages via the fire department radio and relay accurate, clear information within a required time established.
- H. Describe the history, features, principles, and organizational structure of the Incident Command System. Explain the relationship between ICS and the National Incident Management System (NIMS). Use ICS to manage an incident or event. Describe the purpose of the NIMS components and describe the purpose and response doctrine established by the National Response Framework.
- I. Tie designated knots appropriate for hoisting tools securely and as directed.
- J. Safely transport, operate, and maintain forcible entry equipment.
- K. Illuminate designated areas of the emergency scene and operate fire service electrical equipment within the manufacturer's listed safety precautions.
- L. Clean and maintain ladders, ventilation equipment, SCBA, ropes, salvage equipment, and hand tools according to manufacturer's or departmental guidelines, record equipment maintenance, and place equipment in a ready state or report otherwise.
- M. Describe common building materials and construction types, and identify dangerous building conditions created by fire.
- N. Identify and mitigate dangerous fire behavior conditions, while ensuring firefighter safety.
- O. Choose the correct extinguisher and follow the correct handling techniques to completely extinguish incipient Class A, Class B, and Class C fires.
- P. Connect a fire department engine to a water supply, ensuring tight connections and an unobstructed water flow, as a member of a team.
- Q. Shut off building utilities in order to safely complete an assignment.
- R. Setup ground ladders, assess hazards, ensure ground ladders are stable and their angles are correct for climbing, extend extension ladders to the necessary height and locked their fly(s), place the tops of the ladders against reliable structural components, and accomplish the assignment.
- S. Remove barriers and produce an opening that is safe and ready for use by forcing entry into a structure using tools as designed.
- T. Operating as a member of a team, conduct search and rescue in a structure, maintain team integrity, correctly place ladders when used, search all assigned areas, locate and remove all victims, and avoid compromising team members safety, including respiratory protection.
- U. Operating as a member of a team, attack an interior structure fire, maintain team integrity, deploy the attack line for its advancement, correctly placed ladders when used, gain access into the fire area, effectively apply water, correctly approach the fire using attack techniques to facilitate suppression given the level of the fire, locate and control hidden fires, maintain the correct body posture, recognize and manage hazards, and bring the fire under control.
- V. Perform horizontal ventilation on a structure, free ventilation openings of obstructions, use tools as designed, place ladders and ventilation devices correctly, and clear structure of smoke.
- W. Perform vertical ventilation on a structure, position ladders for ventilation, create a specified opening, remove all ventilation barriers, avoid compromising structural integrity, release products of combustion from the structure, and retreat from the area when ventilation is accomplished.
- X. Conserve property so that building and its contents are protected from further damage.
- Y. Overhaul of fire scene without compromising structural integrity, discover all hidden fires, preserve fire cause evidence, and extinguish the fire.
- A@. Activate an emergency call for assistance and exit the hazardous area without endangering others while maintaining team integrity.
- AA. Extinguish fires in exterior Class A materials, protect exposures, stop the spread of fire, avoid collapse hazards, effectively applied water, extinguish the fire, and preserve signs of the origin area(s) and arson.
- AB. Attack a passenger vehicle fire, avoid hazards, identifying control leaking flammable liquids, maintain protection from flash fires, overhaul all vehicle compartments, and extinguish the fire, while operating as part of a team.
- AC. Assemble and prepare for a wildland response so that arrival at the incident with the required personnel and equipment meets agency guidelines.
- AD. Don wildland personal protective clothing and shelter according to the manufacturer's guidelines within 60 seconds. Deploy a new generation fire shelter within 30 seconds. Ensure serviceability and availability on the fire line, and recognize defects and report them to a supervisor.
- AE. Recognize defects on wildland tools and equipment and report them to a supervisor, and maintain assigned suppression hand tools and equipment so that assigned equipment may be serviced.
- AF. Describe basic wildland fire behavior.
- AG. Recognize hazards and unsafe situations, promptly communicate hazard(s) and unsafe conditions to a supervisor, and take appropriate action.

- AH. Construct a fire line that conforms to Cal Fire construction standards.
- AI. Locate and abate burning materials and unburned fuels that threaten the fire line's integrity.
- AJ. Describe methods of reducing the threat of fire exposure to improved properties in order to protect them.
- AK. Mop up fire area, locating and extinguishing burning fuels that threatened escape.
- AL. Patrol and maintain control of the fire area.
- AM. Recognize the presence of hazardous materials and the indicators of a hazardous materials incident, correctly identify the materials involved, take personal protective actions, initiate the appropriate notification process, and secure the area.
- AN. Protect persons, property, and the environment from further harm, initiate the appropriate communications process, and secure the area.
- AO. Perform emergency decontamination procedures, use appropriate personal protective equipment based on hazard, protect exposures, avoid hazards, decontaminate victims and responders, and identify contaminated items and products of contamination for subsequent control.
- AP. Perform basic control, containment, and confinement techniques to control hazardous materials release, and protect emergency responders from contamination.
- AQ. Complete California capstone certification for IFSAC/ProBoard Fire Fighter I, Wildland Fire Fighter I, and Hazardous Materials First Responder Operations Level.

## V. CONTENT:

### A. Lecture

1. Orientation and Administration
  - a. Facility requirements
  - b. Classroom requirements
  - c. Equipment and uniform requirements
2. General Knowledge Requirements
  - a. Organization of the fire department
    1. Equal Employment Opportunity
    2. Harassment
    3. Discrimination
    4. Diversity
  - b. Role of the Fire Fighter I in the organization
  - c. Mission of the fire service
  - d. Fire Department standard operating procedures and rules and regulations as they apply to the Fire Fighter I
  - e. Role of other agencies as they relate to the fire department
  - f. Aspects of the fire department's member assistance program
  - g. Locate information in departmental documents and standard or code materials
3. Structural Personal Protective Ensemble (PPE)
  - a. Review of components and protection provided by structural PPE
  - b. Importance of standards for structural PPE
  - c. Limitations of structural PPE
  - d. Inspecting, cleaning, and maintaining structural PPE
4. Self-Contained Breathing Apparatus (SCBA)
  - a. Review conditions requiring respirator protection
    1. NFPA 1500
    2. Code of Federal Regulations, 29CFR1910.134
    3. California Code of Regulations, Title 8, 5144k
  - b. Potential long-term consequences of exposure to products of combustion
  - c. Uses and limitations of SCBA
  - d. Review components of SCBA
  - e. Indications for and emergency procedures used with SCBA
  - f. Review physical requirements of SCBA user.
5. Responding on an Apparatus
  - a. Mounting and dismounting procedures for riding within an apparatus
  - b. Hazards associated with riding within an apparatus and ways to avoid them
  - c. Prohibited practices
  - d. Types of department personal protective equipment and their uses
    1. Hearing protection
    2. Seatbelts
    3. Safety gates
6. Operating at an Emergency Scene
  - a. Potential hazards involved in operating on emergency scenes including:
    1. Vehicle traffic
    2. Utilities
    3. Environmental conditions
  - b. Proper procedures for mounting and dismounting an apparatus in traffic
  - c. Procedures for safe operation at emergency scenes
  - d. PPE available for members safety on emergency scenes and work zone designations
7. Operating a Phone in a Non-Emergency Situation
  - a. Fire department procedures for answering non-emergency phone calls
  - b. Proper ways of answering a business phone at a fire station
8. Initiating a Response to an Emergency
  - a. Procedures for reporting an emergency
  - b. Department standard operating procedures for taking and receiving alarms
  - c. Radio codes, procedures, and clear text for communications
  - d. Information needs of dispatch center
  - e. Types of fire department communications equipment
9. Operating Fire Department Radios
  - a. Review fire department procedures and etiquette for radio traffic
    1. Routine
    2. Emergency Traffic
    3. Emergency radio evacuation signals
  - b. Basic types and operations of fire department radios
10. Incident Command Systems
  - a. IS-100.b Introduction to the Incident Command Systems (ICS 100)
    1. ICS features and principles
    2. Incident commander and command staff functions
    3. General staff functions
    4. Unified command and coordination
  - b. IS-200.b ICS for Single Resources and Initial Action Incidents
    1. Leadership and management

- 2. Delegation of authority and management by objectives
  - 3. Functional areas and positions
  - 4. Briefings
  - 5. Organizational flexibility
  - 6. Transfer of command
- c. IS-700.a National Incident Management Systems (NIMS), An Introduction
  - 1. Understanding NIMS
  - 2. NIMS preparedness
  - 3. NIMS communications and information management
  - 4. NIMS resource management
  - 5. NIMS command and management
  - 6. Additional NIMS elements and resources
- d. IS-800.b NIMS National Response Framework, AN Introduction
  - 1. Roles and responsibilities
  - 2. Response actions
  - 3. Response organization
  - 4. Planning
  - 5. Additional resource and summary
- 11. Ropes and Knots
  - a. Review types and uses of ropes and knots
  - b. Reasons for placing ropes out of service
  - c. Types of knots use for:
    - 1. Tools
    - 2. Ropes
    - 3. Situations
  - d. Hoisting methods for tools and equipment
  - e. Use of rope(s) to support response activities
- 12. Mechanical Advantage
  - 1. Six basic machines
  - 2. Manual, pneumatic, and hydraulic systems
  - 3. Pneumatic systems
- 13. Hand and Power Tools
  - a. Types and uses for hand tools
  - b. Types and uses for power tools
- 14. Portable Electric and Lighting Equipment
  - a. Safety principles and practices for portable electrical equipment
  - b. Power supply capacity and limitations
  - c. Light deployment methods
- 15. Maintenance
  - a. Cleaning methods for:
    - 1. Ladders
    - 2. SCBA's
    - 3. Ventilation equipment
    - 4. Hand tools
    - 5. Salvage equipment
    - 6. Ropes
  - b. Use of cleaning solvents
  - c. Manufacturer or departmental guidelines for cleaning equipment and tools, and removal from service
- 16. Building Construction and Related Hazards
  - a. Common building materials and construction types
  - b. Effects of each construction type and elapsed time under fire conditions on structural integrity
  - c. Dangerous building conditions created by fire
  - d. Basic construction of typical doors, windows, walls, and roofs within the department's community or service area.
- 17. Fire Behavior
  - a. Physical states of matter in which fuels are found
  - b. Stages of fire
  - c. Classifications of fire
  - d. Methods of heat transfer
  - e. Relationship of oxygen concentration to life safety and fire growth
  - f. Fire behavior in a structure
    - 1. Energy efficient buildings
    - 2. High-rise structures
    - 3. Below grade structures
    - 4. Wind driven environments
  - g. Principles of thermal layering within a structure fire
  - h. Products of combustion found in a structure fire
  - i. Signs, causes, effects, and prevention of backdraft/smoke explosion
  - j. Signs, causes, effects, and prevention of flashover
- 18. Fire Extinguishers
  - a. Types of, rating systems for, and risks associated with, each class of fire extinguisher
  - b. Operating methods and limitations of portable extinguishers
- 19. Water Supply Systems
  - a. Types and components of municipal and rural water systems
  - b. Loading and off loading procedures for mobile water supply apparatus
  - c. Fire hydrant operations
  - d. Suitable static water supply sources
  - e. Procedures and protocols for connecting to various water sources
- 20. Fire Hose
  - a. Review of fire streams
  - b. Types, design, operation, nozzle pressure effects, and flow capacities of nozzles
  - c. Review of types and uses of fire hose
  - d. Review of fittings, tools, and appliances
  - e. Application of each size and type of attack line
  - f. Types of hose rolls, loads, and deployments
  - g. Departmental procedures for inspecting a hose according to the manufacturer's guidelines, noting any defects, and removing it from service
  - h. Cleaning and maintenance methods
    - 1. Hose
    - 2. Nozzle
    - 3. Appliances

- i. Precautions to be followed when advancing hose lines to a fire
  - j. Observable results that a fire stream has been properly applied
  - k. Preventing water hammer when shutting down nozzles
- 21. Utility Control at Emergencies
  - a. Properties and principles of, and safety concerns for, electricity systems
    - 1. Primary electrical service
    - 2. Secondary electrical service
    - 3. Alternative energy services
  - b. Properties and principles of, and safety concerns for, gas systems
  - c. Properties and principles of, and safety concerns for, water systems
  - d. Utility disconnect methods and associated dangers
  - e. Use of required safety equipment
  - f. Utility control devices
- 22. Ground Ladder Operations
  - a. Types, parts, and construction features of ground ladders
  - b. Uses of ground ladders
  - c. Types of lifts and carries
  - d. Methods used to secure ground ladders
  - e. Proper climbing techniques
  - f. Safety limits to the degree of angulation
  - g. Different angles for various tasks
  - h. Methods to safely work off ground ladders
  - i. Hazards associated with setting up ground ladders
  - j. Stable foundation for ladder placement
  - k. Reliable structural components for top placement
- 23. Forcible Entry
  - a. Basic construction of typical doors, windows, and walls within the department's community or service area
    - 1. Residential
    - 2. Commercial
  - b. Types and uses of hand and power tools used in forcible entry
  - c. Operation of doors, windows, and locks
  - d. Dangers associated with forcing entry through doors, windows, and walls
- 24. Structure Fire Search and Rescue Operations
  - a. Primary and secondary search techniques
  - b. Use of thermal imaging cameras and other search tools
  - c. Team members roles and goals in structure search and rescue operations
  - d. Considerations related to respiratory protection
  - e. Methods related to area tenability
  - f. Methods to use and indicators of finding victims
  - g. Psychological effects of operating in obscured conditions and ways to manage them
  - h. Use of forcible entry tools during rescue operations
- 25. Structural Fire Fighting Operations
  - a. Precautions when advancing hose lines to a fire
  - b. Principles of exposure protection
    - 1. Exterior
    - 2. Interior
  - c. Role of the backup team in fire attack situations
  - d. Attack and control techniques for below, at, or above grade level fires
  - e. Methods for locating and exposing hidden fires
- 26. Horizontal Ventilation Operations
  - a. Principles, advantages, limitations, and effects of horizontal ventilation
    - 1. Natural
    - 2. Mechanical
    - 3. Hydraulic
  - b. Safety considerations when venting a structure
- 27. Vertical Ventilation Operations
  - a. Principles, advantages, limitations, and effects of vertical ventilation
  - b. Techniques and safety precautions for venting flat roofs, pitched roofs, and basements
  - c. Effects of construction type and elapsed time under fire conditions on structural integrity
  - d. Basic indicators of potential collapse or roof failure
  - e. Advantages and disadvantages of vertical and trench/strip ventilation
  - f. Parapet roof ventilation
    - 1. Size-up considerations
    - 2. Ladder Placement
- 28. Property Conservation
  - a. Purpose of property conservation and its value to the public
  - b. Methods used to protect property
  - c. Types and uses for salvage covers
  - d. Operations at properties protected with automatic sprinkler systems
  - e. Main control valves on an automatic sprinkler system
  - f. Procedures for protecting possible areas of origin and potential evidence
  - g. Forcible entry issues related to salvage
- 29. Overhaul
  - a. Purpose and methods of overhaul
  - b. Types of fire attack lines and water application devices most effective for overhaul
  - c. Water application methods for extinguishment that limit water damage
  - d. Types of tools and methods used to expose hidden fires
    - 1. Senses
    - 2. Hand and power tools
    - 3. Thermal imaging cameras
  - e. Dangers associated with overhaul
    - 1. Air monitoring
    - 2. Need for respiratory protection
  - f. Reasons for protecting a fire scene
  - g. Obvious signs of area of origin, cause, or arson
  - h. Techniques for the preservation of fire cause evidence
- 30. Fire Fighter Survival
  - a. Personal accountability systems
  - b. Development of fire fighter survival attitudes
  - c. Emergency communication procedures

- d. Emergency procedures for loss of air supply
  - e. Emergency evacuation methods for fire fighter survival
  - f. Safe haven considerations
  - g. Elements that create or indicate a hazard
- 31. Suppression of Fires Outside of a Structure
  - a. Types of exterior fires
  - b. Types of attack lines and water streams appropriate for attacking stacked, piled materials, and outdoor fires
  - c. Water application methods for exposure protection and fire extinguishment
  - d. Dangers associated with stacked and piled materials (e.g., collapse)
  - e. Extinguishing agents and their effects on different material configurations
  - f. Tools and methods used in breaking up various types of materials
  - g. Difficulties related to complete extinguishment of stacked and piled materials
  - h. Dangers associated with storage building and container fires (e.g., exposure to toxic hazardous materials)
  - i. Inherent hazards related to material configuration
- 32. Passenger Vehicle Fires
  - a. Principles of fire streams as they relate to fighting passenger vehicle fires
  - b. Precautions to be followed when advancing hose lines toward a passenger vehicle fire
  - c. Observable results that a fire stream has been properly applied
  - d. Hazards associated with alternative fuels in passenger vehicle fires
  - e. Dangerous conditions created during a passenger vehicle fire
  - f. Common types of accidents or injuries related to fighting passenger vehicle fires and how to avoid them
  - g. Accessing locked passenger, trunk, and engine compartments
  - h. Methods for overhauling a passenger vehicle fire
  - i. Passenger vehicle fuel types
- 33. Wildland Response
  - a. Equipment requirements
  - b. Agency time standards
  - c. Special transportation considerations (weight limitations)
  - d. Agency safety response guidelines
  - e. Operational procedures for various transportation modes
- 34. Wildland Personal Protective Equipment
  - a. Use and limitations of required wildland personal protective clothing
  - b. Use, limitations, inspection, and care of new generation fire shelter
  - c. Inspection of wildland personal protective clothing
  - d. Unserviceable items among wildland personal protective clothing
  - e. Maintenance of wildland personal protective clothing
  - f. Agency policy on fire shelter use
- 35. Wildland Tools and Equipment
  - a. Tools and equipment
    - 1. Fusees
    - 2. Road flares
    - 3. Drip torches
    - 4. Backpack pumps
    - 5. Round point shovel
    - 6. Pulaski
    - 7. Mcleod
    - 8. Brush Hook
    - 9. Single and double bit axe
    - 10. Wire broom
    - 11. Rhino tool
    - 12. Combi tool
    - 13. Thau claw
    - 14. Fireline flagging
  - b. Uses for wildland fire fighting tools and equipment
  - c. Inspection of tools
  - d. Maintenance and care of tools and equipment
  - e. Inspection of assigned suppression equipment
  - f. Recognition of unserviceable items
- 36. Wildland Fire Behavior
  - a. Basic wildland fire behavior
  - b. Influence of weather on fire behavior
  - c. Seven wildland fire environment factors
- 37. Wildland Fire Safety
  - a. Basic wildland fire safety
    - 1. 10 standard fire orders
    - 2. 18 watch-out situations
    - 3. LCES
    - 4. Common denominators
    - 5. Downhill line construction
    - 6. Avoiding fire entrapment
    - 7. Using a vehicle or a structure as refuge
  - b. Hazards associated with working around aircraft
  - c. Hazards associated with working around heavy equipment
- 38. Human Factors on the Fireline
  - a. Basic verbal communication
  - b. Effect of human factors
    - 1. Fireline safety
    - 2. Crew cohesion
- 39. Wildland Suppression
  - a. Basic wildland strategy and tactics
  - b. Basic wildland suppression methods
    - 1. Hose lays
    - 2. Hand line construction
    - 3. Dozer line construction
    - 4. Retardant line construction
    - 5. Mobile attack
- 40. Reinforcing a Fireline
  - a. Line improvement techniques
  - b. Safety considerations when burning out
  - c. Types of basic ignition devices

41. Wildland Urban Interface
  - a. Wildland fire behavior within the wildland urban interface
  - b. Wildland fuel removal for structure preparation
  - c. Structure defense methods
  - d. Equipment and personnel capabilities within the wildland urban interface
42. Mop-Up Operations
  - a. Principles, techniques, and standards for mop-up
    1. Dry mop-up
    2. Wet mop-up
  - b. Basic tools
43. Conducting Patrols
  - a. Principles
  - b. Techniques
  - c. Standards
44. Cal Fire FC-214F-2013 Safety Employee Orientation and Training
  - a. Cal Fire Mission and organization
  - b. Employee rules of conduct and annual director expectations
  - c. Working with California inmate crews
  - d. Procedures to clean and sanitize SCBA
  - e. Safety vest
  - f. Cal Fire safety program
  - g. Fire blankets
  - h. Fire curtains
    1. One piece
    2. Two piece
  - i. Bulldozer safety
  - j. Cal Fire hydration policy
  - k. Cal Fire burn care and treatment
  - l. Basic chainsaw awareness
  - m. Introduction to Cal Fire firefighting aircraft
  - n. Rotary wing aircraft
  - o. Fire apparatus identification
  - p. Mobile equipment warning devices
  - q. Chock blocks, seat belts, and roll bars
  - r. Backing hand signals
  - s. Ladders - raising and lowering the 16/20 foot extension ladder
  - t. Life hazard zones in remote locations
  - u. Cal Fire EEO
  - v. Communicable disease refresher
  - w. DGS defensive driving
  - x. Cal Fire wildland firefighter safety and survival level 1
45. Recognizing Hazardous Materials Weapons of Mass Destruction (WMD)
  - a. Define hazardous materials
  - b. Risks associated with hazardous materials
  - c. Recognition and presence of hazardous materials in an emergency
  - d. Hazardous materials identification
    1. Placards
    2. Labels
    3. Containers
  - e. Recognition of presence of weapons of mass destruction
  - f. Procedures in the event of a WMD incident
  - g. Potential outcomes associated with an emergency when hazardous materials are present
  - h. Types of additional resources for a hazardous materials response
    - i. Mandatory notifications
    - j. Role of the fire fighter in the emergency response plan, including site security and control zones
    - k. Components of the Department of Transportation (DOT) Emergency Response Guidebook (ERG) or equivalent guide
    - l. Shipper/manufacturer papers and contents
  - m. Hazardous materials identification using Safety Data Sheets (SDS)
    1. Potential hazards
    2. Appropriate personal protective actions
  - n. Process to preserve evidence
46. Identifying/Analyzing Hazardous Materials WMD Incidents
  - a. Basic hazardous materials terms
  - b. Health hazards physical and chemical properties of hazardous materials
  - c. Basic hazard and risk assessment techniques
  - d. Procedures for initial hazardous materials/WMD incidents
  - e. Incident Command Systems (ICS) used in hazardous materials incidents
  - f. Standard operating procedures according to the authority having jurisdiction (AHJ)
  - g. Containers and materials identification involved using the DOT ERG or equivalent guide
  - h. Damaged containers and the effects of release
    - i. Process of evacuation and/or shelter in place
    - j. Determining if materials have been released
  - k. Evaluating the status of each incident response objective at a hazardous materials/WMD incident
47. Emergency Decontamination
  - a. Capabilities and limitations of personal protective equipment provided by the AHJ
  - b. Ways that people, personal protective equipment, apparatuses, tools, and equipment become contaminated
  - c. Importance and limitations of emergency decontamination procedures
  - d. Standard operating procedures for emergency decontamination
  - e. Emergency decontamination area preparation
48. Mitigating a Hazardous Materials/WMD Incident
  - a. Product control operations
    1. Absorption
    2. Adsorption
    3. Damming
    4. Diking
    5. Dilution
    6. Retention
    7. Remote valve shutoff
    8. Vapor dispersion
  - b. Tools and equipment for product control

- c. Technical decontamination process
  - d. Basic control, containment, and confinement operations within the capabilities of the AHJ's resource and personal protective equipment
- 49. Confined Space Awareness (CA Code of Regulations, Title 8, Section 5157)
  - a. Introduction to Cal-OSHA Code, Confined Space Identification & Dangers
  - b. Atmospheric hazards and air monitors
  - c. Physical and engulfment hazards
  - d. Lock-out/tag-out procedures and entry permits
  - e. Ventilation equipment and techniques
  - f. Respiratory equipment and techniques
  - g. Communications equipment and techniques
  - h. Entrant retrieval equipment
  - i. Confined space operational positions and responsibilities
- 50. Fire Fighter I Entry Level Assessment
  - a. Resume development
  - b. Oral appraisal board seminar
  - c. IFSAC/ProBoard capstone testing preparation
- B. Laboratory
  - 1. Structural Personal Protective Ensemble (PPE)
    - a. Don structural PPE
    - b. Doff structural PPE and prepare for reuse
  - 2. Self-Contained Breathing Apparatus (SCBA)
    - a. Don and doff SCBA, including facepiece
      - 1. From apparatus seat mount
      - 2. Over-the-head method
      - 3. Sling coast method
    - b. Use SCBA during emergency operations
    - c. Operational inspection of SCBA
    - d. Replace SCBA air cylinder
    - e. Demonstrate controlled breathing techniques
    - f. Refill SCBA from a cascade system
    - g. Clean SCBA
    - h. Emergency procedures in the event of SCBA failure or air depletion
  - 3. Responding on an Apparatus
    - a. Respond to an emergency scene on an apparatus
    - b. Mount and ride apparatus
    - c. Dismount a stopped apparatus
  - 4. Operating at an Emergency Scene
    - a. Use SCBA
    - b. Deploy traffic and scene control devices
    - c. Don a safety reflective vest
    - d. Operate within a protected work area as directed
  - 5. Operating a Phone in a Non-Emergency Situation
    - a. Receive a telephone call
    - b. Operate a fire station phone and intercom system
  - 6. Initiating a Response to an Emergency
    - a. Initiating a response to a simulated emergency
    - b. Operate fire department communications equipment to record and relay information
  - 7. Operating Fire Department Radios
    - a. Transmit information
    - b. Operate radio equipment
  - 8. Ropes and Knots
    - a. Tie knots with rope
      - 1. Review overhand, square knot, bowline, clove hitch, half hitch, figure-8 stopper, and figure-8 on a bight
      - 2. Becket bend (rope to chain)
      - 3. Figure-8 follow through
      - 4. Handcuff knot
    - b. Tie knots with web strap
      - 1. Overhand bend (water knot)
      - 2. Cow hitch/lark's foot (around hose)
      - 3. Clove hitch to balcony railing or ladder beam
    - c. Hoist tools
      - 1. AXE
      - 2. Pike Pole
      - 3. Roof ladder
      - 4. Charged hoseline
      - 5. Uncharged hoseline
    - d. Rope rescue operations
      - 1. Rappel and belay system
      - 2. Applied knots
      - 3. Rescue basket operations
      - 4. Lower and hauling system
  - 9. Transport and Operate Hand and Power Tools
  - 10. Portable Electric and Lighting Equipment
    - a. Operate department power supply and lighting equipment
    - b. Deploy cords and connectors
    - c. Reset ground fault interrupter (GFI) devices
    - d. Locate lights for best effect
  - 11. Maintenance
    - a. Clean and check equipment
    - b. Select correct tools to maintain various parts and pieces of equipment
    - c. Complete recording and reporting procedures
  - 12. Fire Extinguishers
    - a. Operate portable fire extinguishers
      - 1. Stored water pressure
      - 2. Dry chemical
      - 3. Carbon dioxide (CO2)
    - b. Select an appropriate extinguisher based on the size and type of fire
    - c. Safely carry portable fire extinguishers
    - d. Approach fire with portable fire extinguishers



13. Water Supply Systems
  - a. Perform forward hose lay
  - b. Deploy portable water tanks and the equipment necessary to transfer water and draft from them
  - c. Hand lay a supply hose
  - d. Connect and place hard suction hose for drafting operations
  - e. Operate a fire hydrant and fully open and close the hydrant
  - f. Connect supply hose to a hydrant
  - g. Attach hose to a four-way hydrant valve
14. Fire Hose
  - a. Open, close, and adjust nozzle flow patterns
    1. Operate a smooth bore nozzle
    2. Operate a fog stream nozzle
  - b. Couple and uncouple various handline connections
    1. Coupling hose - One fire fighter foot tilt method
    2. Coupling hose - Two fire fighters
    3. Uncoupling hose knee press
    4. Uncoupling hose - Two fire fighter stiff arm
  - c. Roll hose
    1. Single roll
    2. Donut roll
    3. Twin donut roll
    4. Self-locking twin donut roll
  - d. Carry hose
    1. Deploy minute-man load
    2. Deploy triple fold
    3. Deploy preconnected flat load
    4. Deploy working line drag method
    5. Deploy shoulder load method
    6. Deploy hose bundle method (agency specific)
    7. Deploy wyed lines
  - e. Reload hose
    1. Flat load
    2. Minute-man load
    3. Triple fold
    4. Accordion
    5. Hose bundle (agency specific)
  - f. Replace burst hose section
  - g. Hand lay a supply hose
  - h. Connect a supply hose to a hydrant
  - i. Make hydrant-to-engine hose connections for forward and reverse lays
  - j. Connect and place hard suction hose for drafting operations
  - k. Clean different types of hose
  - l. Operate hose washing and drying equipment
  - m. Replace coupling gaskets
  - n. Mark defective hose
  - o. Drain hose
  - p. Advance hose line
    1. Up a stairwell
    2. Down a stairwell
    3. Up a ladder (uncharged)
  - q. Connect hose to a fire department connection
  - r. Connect and advance an attack line from a standpipe
15. Utility Control at Emergencies
  - a. Control utilities
  - b. Operate control valves or switches
  - c. Assess for related hazards
16. Ground Ladder Operations
  - a. Lift and carry ladders
    1. High shoulder - single fire fighter
    2. Low shoulder - single/two/three fire fighter
    3. Flat shoulder method - three/four fire fighters
    4. Suitcase or arms length carry - single/two fire fighters
  - b. Raise and move ladders
    1. Flat raise - single/two/three/four fire fighters
    2. Beam raise - single/two/three fire fighters
    3. High shoulder - single fire fighter
  - c. Judge extension ladder height requirement
  - d. Determine that a wall and roof will support a ladder
  - e. Extend and lock fly
  - f. Place ladder avoiding obvious hazards
  - g. Tie off halyard
  - h. Secure ground ladder
  - i. Proper climbing techniques
  - j. Use a leg lock to safely work off a ground ladder
  - k. Deploy a roof ladder
  - l. Climb a ladder while carrying a tool
  - m. Ladder confidence operations
17. Forcible Entry
  - a. Force entry into/through door
    1. Inward opening
    2. Outward opening
    3. Rollup
    4. Sliding
  - b. Open an overhead garage door
  - c. Force entry through a window
    1. Wooden double hung
    2. Casement
    3. Projected
    4. Sliding
  - d. Force entry using specialized equipment

1. K-tool
2. A-tool
- e. Force entry by unscrewing the lock
- f. Breach entry through
  1. Wood frame wall
  2. Masonry wall
  3. Floor
18. Structure Fire Search and Rescue Operations
  - a. Assess area to determine tenability
  - b. Conduct search operations
    1. Primary
    2. Secondary
  - c. Perform walking assist
    1. One person
    2. Two person
  - d. Remove victim using various carry techniques
    1. Two-person extremity carry
    2. Two-person seat carry
    3. Two person chair carry
    4. Cradle in arms carry
    5. Firefighter carry
  - e. Remove victims using various drag techniques
    1. Blanket drag
    2. Clothes drag
    3. Standing drag
    4. Webbing sling drag
  - f. Use ladder to rescue victim from elevated locations
    1. Balcony
    2. Fire escape
    3. Roof
    4. Window
  - g. Remove victim down ladder
    1. Conscious
    2. Unconscious
  - h. Remove victim using long backboard rescue
  - i. Rescue a person who has no respiratory protection
  - j. Rescue a firefighter
    1. With functioning respiratory protection
    2. Without respiratory protection
19. Structural Fire Fighting Operations
  - a. Perform interior fire attack techniques
    1. Grade level
    2. Above grade level
    3. Below grade level
  - b. Locate and suppress fires
    1. Interior wall
    2. Sub floor
  - c. Apply water using various fire stream attack methods
    1. Direct
    2. Indirect
    3. Combination
  - d. Advance charged hose lines of 1 1/2 inch diameter or larger
    1. Up an interior stairwell
    2. Up an exterior stairwell
    3. Up a ladder
  - e. Advance uncharged hand line of 1 1/2 inch diameter or larger
    1. Down an interior stairwell
    2. Down an exterior stairwell
  - f. Operate charged hand lines of 1 1/2 inch diameter or larger while secured to a ground ladder
  - g. Operate large hand line
    1. One fire fighter method
    2. Two fire fighter method
  - h. Operate a deck gun
20. Horizontal Ventilation Operations
  - a. Transport and operate tools, equipment, and ground ladders for horizontal ventilation
  - b. Break glass and remove obstructions
    1. Using hand tools
    2. Using a ladder
  - c. Horizontally ventilate a structure
    1. Negative pressure
    2. Positive pressure
    3. Hydraulic pressure
21. Vertical Ventilation Operations
  - a. Select, carry, deploy, and secure ground ladders for ventilation activities
  - b. Deploy a roof ladder on a pitched roof while secured to a ground ladder for vertical ventilation
  - c. Deploy a roof ladder over a parapet wall to a flat roof while secured to a ground ladder for vertical ventilation
  - d. Carry ventilation-related tools and equipment while ascending and descending ladders
  - e. Hoist ventilation tools to a roof
  - f. Sound a roof for integrity
  - g. Power saws
    1. Perform readiness check
    2. Operate
    3. Maintain
  - h. Make cuts with saw
    1. Rectangular or square
    2. Louvre
    3. Triangle
    4. Peak
  - i. Cut roofing material for ventilation
    1. On a pitched roof

- 2. On a flat roof
  - j. Cut flooring material to ventilate in a basement
  - k. Clear an opening with hand tools
- 22. Property Conservation
  - a. Perform salvage of room and contents
    - 1. Cluster furniture
    - 2. Deploy covering materials
    - 3. Perform a one person salvage cover roll
    - 4. Perform a one person shoulder toss
    - 5. Perform a balloon toss
  - b. Roll and fold salvage covers for reuse
    - 1. One firefighter roll
    - 2. One firefighter fold
    - 3. Two firefighter fold
  - c. Remove water from the interior of a structure
    - 1. Construct a water chute
    - 2. Construct a catch-all
    - 3. Remove water using suction equipment
  - d. Cover building openings
    - 1. Doors
    - 2. Windows
    - 3. Floor openings
    - 4. Roof openings
  - e. Control the flow of water from a sprinkler system
    - 1. Use a sprinkler stop
    - 2. Use a sprinkler wedge
    - 3. Operate a main control valve on an automatic sprinkler system
    - 4. Operate a post indicator valve
- 23. Overhaul a Fire Scene
  - a. Deploy and operate an attack line for overhaul
  - b. Apply water for maximum effectiveness
  - c. Expose and extinguish hidden fires
    - 1. Walls
    - 2. Ceilings
    - 3. Subfloor spaces
  - d. Remove structural material to expose void spaces without compromising structural integrity
    - 1. Flooring
    - 2. Ceiling material
    - 3. Wall components
  - e. Recognize and preserve obvious signs of area of origin and arson
  - f. Separate, remove, and relocate charred material to a safe location while protecting the area of origin for cause determination
  - g. Evaluate an area for complete extinguishment
- 24. Fire Fighter Survival
  - a. Initiate a mayday or call for help
  - b. Perform a self rescue
  - c. Locate a door or window for emergency exit
  - d. Open a wall to escape
  - e. Escape from entanglement
  - f. Operate as a team member in vision obscured conditions
  - g. Locate and follow a guideline or hose out of a hazard area
  - h. Don SCBA and exit through a restricted passage
  - i. Evaluate areas for hazards and identify a safe haven
  - j. Ability to use other methods of emergency calls for assistance
  - k. Exit a hazard area as a team and determine a safe haven and initiate a call for emergency assistance
- 25. Suppression of Fires Outside of a Structure
  - a. Exterior fire attack
    - 1. Large handline operations - one fire fighter
    - 2. Operate portable master stream
    - 3. Large handline operations - two fire fighter
    - 4. Operate fixed master stream
  - b. Recognize inherent hazards related to materials configuration
  - c. Break up material using hand tools or water streams
  - d. Evaluate for complete extinguishment
  - e. Operate hose lines and other water application devices
  - f. Evaluate and modify water application for maximum penetration
  - g. Search for and expose hidden fires
  - h. Assess patterns for origin determination
- 26. Attack Passenger Vehicle Fires
  - a. Advance a 1 1/2 inch or larger diameter attack line on a passenger vehicle fire
  - b. Apply water for maximum effectiveness while maintaining flash fire protection
  - c. Expose hidden fires by opening all passenger vehicle compartments
  - d. Identify automobile fuel types
  - e. Assess and control fuel leaks
- 27. Wildland Responses
  - a. Assemble for response
  - b. Prepare for response
- 28. Wildland Personal Protective Equipment
  - a. Don and doff wildland personal protective equipment
  - b. Deploy fire shelter
    - 1. Standing to sitting method
    - 2. Standing drop-down method
    - 3. Laying down method
  - c. Inspect and maintain wildland personal protective equipment
  - d. Assemble, attach, and maintain a head lamp (required S-130 skill)
  - e. Proper cleaning procedures for wildland personal protective clothing
- 29. Wildland Tools and Equipment
  - a. Inspect, use, maintain, and sharpen tools and equipment
    - 1. Brush hook
    - 2. Shovel

- 3. Single axe
  - 4. Pulaski
  - 5. McLeod
  - 6. Thau claw
  - 7. Rhino tool
  - 8. Combi tool
- b. Inspect, use, maintain a wire broom
  - c. Assemble and use backpack pump
- 30. Wildland Fire Safety
  - a. Assume the safe position for an airtanker drop
  - b. Use the Incident Response Pocket Guide (IRPG)
  - c. Use fireline flagging
- 31. Human Factors on the Fireline - Basic Verbal Communications
- 32. Wildland Suppression
  - a. Use and carry wildland tools
    - 1. Brush hook
    - 2. Pulaski
    - 3. Single and double bit axe
    - 4. Round point shovel
    - 5. McLeod
    - 6. Thau claw
    - 7. Wire broom
    - 8. Rhino tool
    - 9. Combi tool
    - 10. Procedures for passing hand tools
  - b. Construct handline
    - 1. Build a control line using the bump up or one lick method
    - 2. Build a cup or trench while constructing handline
  - c. Perform mobile attack
  - d. Perform a simple hose lay - single person 300'
  - e. Perform a progressive hose lay - two person minimum
  - f. Retrieve hose
    - 1. Single-section drain and carry
    - 2. Figure 8 drain and carry
  - g. Demonstrate fire stream practices
    - 1. Water use
    - 2. Agent application
- 33. Reinforcing a Fireline
  - a. Ignite and extinguish road flares and fusees
  - b. Assemble and use a drip torch
  - c. Perform follow-up procedures
    - 1. Wet line
    - 2. Retardant line
    - 3. Treated area
- 34. Wildland Urban Interface
  - a. Prepare a structure for structure defense
  - b. Conduct structure defense within the wildland urban interface
- 35. Mop-Up Considerations
  - a. Perform wet mop-up
  - b. Perform dry mop-up
  - c. Use basic tools
- 36. Conduct Patrols
  - a. Perform patrol principles
  - b. Perform patrol techniques according to standards
- 37. Cal Fire FC-214F-2013 Safety Employee Orientation and Training
  - a. Use and deploy fire blanket
  - b. Use chock blocks and seat belts
  - c. Use backing hand signals
  - d. Scott SCBA - don and remove (over the head)
  - e. Deploy New Generation fire shelter (lying down method)
  - f. Two person 500' progressive hoselay
  - g. Raise and lower 20 foot extension ladder
- 38. Recognizing Hazardous Materials/WMD
  - a. Identify hazardous materials, their potential hazards and appropriate personal protective equipment
  - b. Identify container size, product or site identification number
  - c. Initiate protective actions to secure an area during a hazardous materials/WMD incident
  - d. Use DOT ERG
  - e. Use safety data sheets to identify hazardous materials, their hazards, personal protective equipment, and protective actions
  - f. Make appropriate notifications as directed by the AHJ
- 39. Identifying/Analyzing Hazardous Materials/WMD Incidents
  - a. Implement a hazardous materials response
  - b. Initiate the ICS
  - c. Establish and enforce scene control procedures
  - d. Establish control zones
  - e. Establish evidence preservation
  - f. Evaluate the status of the actions taken in accomplishing response objectives
- 40. Emergency Decontamination
  - a. Perform emergency decontamination
  - b. Perform mass decontamination
  - c. Perform technical decontamination
- 41. Mitigating a Hazardous Materials/WMD Incident
  - a. Don, work in, and doff chemical protective clothing
  - b. Perform containment operations
    - 1. Absorption
    - 2. Damming
    - 3. Diking
    - 4. Dilution
    - 5. Diversion
    - 6. Retention

7. Vapor dispersion
8. Vapor suppression
- c. Perform remote valve shut off
- d. Demonstrate the application of foam or agent on a spill or fire involving hazardous materials/WMD
42. Confined Space Rescue - Awareness Level (CA Code of Regulations, Title 8, Section 5157)
  - a. Confined space rescue tabletop exercise
  - b. Entry and recovery scenario
43. Fire Fighter I Entry Level Assessment
  - a. Physical ability assessment
  - b. Mock oral interview
  - c. Fire Fighter I capstone test
    1. Written examination
    2. 10 SFT FFI required psychomotor skill
    3. 7 SFT FFI random assigned psychomotor skills

#### VI. METHODS OF INSTRUCTION:

- A. **Lecture** -
- B. **Field Trips** -
- C. **Demonstration** -
- D. **Lab** -
- E. **Simulations** -
- F. **Individualized Instruction** -
- G. **Discussion** -
- H. **Classroom Activity** -
- I. **Audio-visual Activity** -

#### VII. TYPICAL ASSIGNMENTS:

- A. Reading Assignments
  1. The students will read the assigned material on fire technology education and the firefighter selection process in the text. They will then develop a personal educational plan.
  2. The students will read provided material on the proper procedures and processes for a response to an unknown hazardous material spill.
    - a. They will break in to small groups, after which they will be provided with scenarios of hazardous materials spills.
    - b. The groups will outline proper response procedures and present their plans to the class.
- B. Writing, Problem Solving or Performance
  1. Given written scenarios, prepare a written response on how to manage an auto extrication rescue incident, applying information presented in class and from assigned text.
  2. Working in groups using provided scenarios, solve problems related to fire suppression techniques in wildland incidents and present conclusions to the class.
- C. Complete all quizzes with a minimum 80% accuracy.
- D. Don Structural personal protective equipment ensemble (PPE) within 60 seconds, and doff PPE while inspecting and preparing for reuse.

#### VIII. EVALUATION:

##### Methods/Frequency

- A. Exams/Tests
 

Three sumative exams required by State Fire Training. (Hazardous Materials, Wildland, Fire Fighter)
- B. Quizzes
 

Weekly quizzes based on subject area.
- C. Field Trips
 

Off site visits: Sprinkler fitters Union Chevron Fire Training Facility Local Downtown (Livermore & Pleasanton) Pleasanton Recreational Ridge Park
- D. Simulation
 

Simulated fire ground operations. Subject areas to include fire fighting, search, rescue, forcible entry, ventilation, salvage, and overhaul operations.
- E. Class Participation
 

Daily participation is required. Attendance is mandatory unless excused.
- F. Class Work
 

Required course work.
- G. Home Work
 

Daily homework assignments on topic areas discussed in class.
- H. Final Class Performance
 

Final family demonstration on knowledge, skills, and abilities learned throughout the Academy.
- I. Final Public Performance
 

Formal graduation on campus.

#### IX. TYPICAL TEXTS:

1. Jones and Bartlett. *Fundamentals of Fire Fighter Skills*. 3rd ed., Jones and Bartlett Learning, 2017.
2. IAFC and NFPA. *Hazardous Materials: Awareness and Operations*. 3rd ed., Jones and Bartlett, 2017.
3. Teie, William. *Firefighters Handbook on Wildland Firefighting*. 3rd ed., Deer Valley Press, 2005.
4. Corbett, Glenn. *Fire Engineering's Handbook for Fire Fighter 1 and Fire Fighter 2*. 2013 ed., Pennwell, 2013.
5. Stowell, Frederick. *Essentials of Fire Fighting and Fire Department Operations*. 6th ed., IFSTA Brady, 2013.

#### X. OTHER MATERIALS REQUIRED OF STUDENTS:

- A. Navy blue uniform pant
- B. black braided belt with silver buckle
- C. Academy t-shirts (6)
- D. Navy blue Academy hat
- E. Black steel toe and steel shank polishable work boots
- F. Light blue uniform shirt
- G. 1 drinking water bottle (8oz clear hard plastic)