Course Outline

**COURSE:** JFT 225  
**DIVISION:** 50  
**ALSO LISTED AS:** JFT 8

**TERM EFFECTIVE:** Fall 2020  
**CURRICULUM APPROVAL DATE:** 04/14/2020

**SHORT TITLE:** FIRE FIGHTER I ACAD

**LONG TITLE:** Fire Fighter I Academy

<table>
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<th>Units</th>
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<th>Type</th>
<th>Contact Hours/Week</th>
<th>Total Contact Hours</th>
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**COURSE DESCRIPTION:**

This academy includes instruction on basic firefighting skills, laws and regulations affecting the fire service. The course will provide the student with knowledge and skills to safely perform, under minimal supervision, essential and advanced fire ground tasks, basic rescue, basic fire prevention and fire investigation task and to use, inspect, and maintain firefighting and rescue equipment. This course also includes mandated field trips to cover all the material. Previously listed as JFT 8.

**PREREQUISITES:**

**COREQUISITES:**

**CREDIT STATUS:** D - Credit - Degree Applicable

**GRADING MODES**

L - Standard Letter Grade

**REPEATABILITY:** N - Course may not be repeated

**SCHEDULE TYPES:**

02 - Lecture and/or discussion
03 - Lecture/Laboratory
04 - Laboratory/Studio/Activity
STUDENT LEARNING OUTCOMES:
By the end of this course, a student should:
1. Explain the theory and fundamentals of heat transfer, fundamentals of combustion, elements of fire and describe how the removal of any one of the elements will result in the extinguishment of the fire.

2. Coordinate the type of personal protective equipment needed for different exposures and locate the equipment on the engine.

3. Compare the different types and applications of portable fire extinguishers for successful extinguishment of small fires.

4. Identify the fire attack methods to combat fires as safely and efficiently as possible and a systematic approach to the fire fighting operations to eliminate confusion and inconsistency on the fire ground.

5. Operate and practice with the components, accessories and functions of self-contained breathing apparatus.

6. Identify the steps a fire fighter needs to take as a first responder to remove or mitigate safety hazards that may further threaten victims, bystanders, and public safety personnel while observing information to provide to the investigators that is pertinent to the investigation.

7. Demonstrate the techniques for inspecting, coupling and uncoupling hoseline during loading operations

CONTENT, STUDENT PERFORMANCE OBJECTIVES, OUT-OF-CLASS ASSIGNMENTS
Curriculum Approval Date: 04/14/2020

Lecture Content:
Curriculum Approval Date: 04/14/2020
1. The Orientation and History of the Fire Service
   a. Intro
      i. Training to Become a Fire Fighter
      ii. Fire Suppression
   b. Fire Fighter Guidelines
      i. Safety
      ii. Follow Orders
      iii. Teamwork
      iv. Golden Rule
   c. Firefighter Qualifications
      i. Age, Education, Medical, Physical Fitness, and Emergency Medical Care Requirements
   d. Roles and Responsibilities of Fire Fighter
      i. Fire Fighter I
      ii. Fire Fighter II
   e. Roles within the Fire Department
      i. General Roles
      ii. Specialized Response Roles
   f. Working with Other Organizations
   g. Incident Command System
   h. Agencies called upon for Large-Scale Incidents
   i. Fire Department Governance
i. Governance
h. The Organization of the Fire Service
i. Company Types
ii. Other Views of Fire Service Organization
iii. Chain of Command
iv. Source of Authority
v. Basic Principles of Organization
i. The History of the Fire Service
i. History of Fire Science
ii. The American Fire Service
iii. Building Codes
iv. Training and Education
v. Fire Equipment
vi. Communications
vii. Paying for Fire Service
j. Fire Service in the United States
i. Intro to Fire Service
2. Fire Fighter Safety
a. Causes of Fire Fighter Deaths and Injuries
i. Heart Attack and Stroke
ii. Vehicle Collisions
iii. Injuries
b. Injury Prevention
i. Standards and Procedures
ii. Personnel
iii. Training
iv. Equipment
v. Reducing Fire Fighter Injuries and Deaths
c. Safety and Health
i. Intro to Safety and Health
ii. EAPs (Employee Assistance Program)
d. Safety During Training
i. Training
e. Safety During Emergency Response
i. Emergency Response
f. Safe Driving Practices
i. Laws and Regulations Governing Emergency Vehicle Operation
ii. SOPs for Personal Vehicles
iii. Safe Driving Begins with You
iv. Vehicle Collision Prevention
v. The Importance of Vehicle Maintenance
g. Safety at Emergency Incidents
i. Teamwork
ii. Accountability
iii. Incident Scene Hazards
iv. Using Tools and Equipment Safely
v. Electrical Safety
vi. Lifting and Moving
vii. Adverse Weather Conditions
viii. Rehabilitation
ix. Violence at the Scene
x. Mental Well-Being
h. Safety at the Fire Station
i. The Fire Station
i. Safety Outside Your Workplace
i. Outside Your Workplace
4. Fire Service Communications
a. The Communications Center
i. Telecommunications
ii. Communications Facility Requirements
iii. Communications Center Equipment
iv. Computer-Aided Dispatch (CAD)
v. Voice Recorders and Activity Logs
vi. Call Response and Dispatch
b. Communications Center Operations
i. Receiving and Dispatching Emergency Calls
ii. Call Receipt
iii. Location Validation
iv. Call Classification and Prioritization
v. Unit Selection
vi. Dispatch
vii. Operational Support and Coordination
viii. Status Tracking and Deployment Management
ix. Touring the Communications Center
c. Radio Systems
i. Radio Equipment
ii. Radio Operation
iii. Using a Radio
d. Taking Calls: Emergency, Non-emergency, and Personal Calls
i. Using Telephone and Intercom System
ii. Personal Calls
iii. Department Greeting
iv. Prompt, Polite, Professional, and Concise
v. Skill Drill
5. Incident Command System (ICS)
a. History of the ICS
b. Characteristics of the ICS
i. Jurisdictional Authority
ii. All-Risk and All-Hazard System
iii. Everyday Applicability
iv. Unity of Command
v. Span of Control
vi. Modular Organization
vii. Common Terminology
viii. Integrated Communications
ix. Consolidated IAPs
x. Designated Incident Facilities

xi. Resource Management

c. The ICS Organization
i. Command
ii. General Staff Functions

d. Standard ICS Concepts and Terminology
i. Single Resources and Crews
ii. Divisions and Groups
iii. Branches
iv. Location Designators

v. Task Forces and Strike Teams

e. Implementing the ICS
i. ICS Role
ii. Standard Position Titles

f. Working Within the ICS
i. What ICS is and How it Works
ii. Responsibilities of First-Arriving Fire Fighters

iii. Conferring the Command
iv. Transfer of Command

6. Fire Behavior

a. The Chemistry of Fire
i. Fire
ii. States of Matter
iii. Fuels
iv. Types of Energy
v. Conservation of Energy

vi. Conditions Needed for Fire
vii. Chemistry of Combustion
viii. Products of Combustion

ix. Fire Spread
x. Methods of Extinguishment

b. The Classes of Fire
i. Five Classes of Fire

c. Characteristics of Solid-Fuel Fires
i. Solid Fuels
ii. Solid-Fuel Fire Development
iii. Characteristics of a Room-and-Contents Fire

iv. Special Considerations
d. Fire Behavior in Modern Structures
i. Two Major Changes in Modern Structures
ii. Fire in Modern Structure Progresses to the Fully Developed Phase Quickly
e. Wind Effect
i. Wind Influences Behavior of Fire

ii. Potential Wind
f. Characteristics of Liquid Fuel Fires
i. Characteristics
g. Characteristics of Gas Fuel Fires

i. Vapor Density
ii. Flammability Limits
iii. BLEVE
h. Smoke Reading
i. Smoke Reading
ii. Determining Key Attributes to Smoke
iii. Determining what is Influencing Key Attributes
iv. Rate of Change
v. Predict the event
vi. Smoke Reading through a Door

7. Building Construction
a. Occupancy
i. How Building is Being Used
b. Contents
c. Types of Construction Materials
i. Materials Used
ii. Masonry
iii. Concrete
iv. Steel
v. Other Metals
vi. Glass
vii. Gypsum Board
viii. Wood
ix. Plastics
d. Types of Construction
i. Five Types of Building Construction
ii. Fire Resistant
iii. Noncombustible
iv. Ordinary
v. Heavy Timber
vi. Wood Frame
e. Building Components
i. Foundations
ii. Floors and Ceilings
iii. Roofs
iv. Trusses
v. Walls
vi. Doors and Windows
vii. Interior Finishes and Floor Coverings
viii. Manufactured Housing
ix. Buildings under Construction or Demolition
f. Pre-incident Planning and Incident Size-Up
i. Information Needed

15. Ventilation
a. Definition and Components
b. Fire Behavior and Ventilation
i. Ventilation combined with fire attack and water saves lives and reduces property damage
ii. Products of Combustion
iii. Convection
iv. Spread of Products of Combustion
v. Mushrooming
vi. Products of Combustion Trapped in a Structure
c. Benefits of Proper Ventilation
d. Backdraft and Flashover Conditions
i. Backdraft
ii. Flashover
e. Factors Affecting Ventilation
i. Fire fighters must consider how fire behavior dictates the movement of the products of combustion
ii. Creating Openings
iii. Convection
iv. Mechanical Ventilation
v. Wind and Atmospheric Forces
f. Building Construction Considerations
i. Effects on Ventilation
ii. Fire-Resistive Construction
iii. Ordinary Construction
iv. Wood-frame Construction
g. Tactical Priorities
i. Three Tactical Priorities
ii. Life Safety-First Priority
iii. Contain Fire and Gain Control- Second Priority
iv. Property Conservation- Third Priority
h. Locations and Extent of Smoke and Fire Considerations
i. When ventilation is needed and where it should be provided
i. Types of Ventilation
ii. Two Basic Types of Ventilation Openings
ii. Contaminated Atmosphere
iii. Clean Air
iv. Horizontal Ventilation
v. Mechanical Ventilation
vi. Vertical Ventilation
j. Basic Indicators of Roof Collapse
k. Roof Construction
i. Roof Support Structures
ii. Roof Coverings
iii. Effects of Roof Construction on Fire Resistance
iv. Solid-Beam vs. Truss Construction
v. Roof Designs
l. Vertical Ventilation Techniques
i. Types of Openings that Provide Vertical Ventilation
ii. Objective of Roof Ventilation Operations
iii. Tools Used in Vertical Ventilation
iv. Power saws will effectively cut through most roof coverings
v. Types of Roof Cuts
m. Special Considerations
i. Obstacles
ii. Ventilating Concrete Roofs
iii. Ventilating Metal Roofs
iv. Ventilating Basements
v. Ventilating High-rise Buildings
vi. Ventilating Windowless Buildings
vii. Ventilating Large Buildings
n. Equipment Maintenance

28. Hazardous Materials Overview
   a. What Is a Hazardous Material?
      i. Introduction to hazardous material
   b. Levels of Training: Regulations and Standards
      i. Regulations
      ii. Standards
      iii. Levels of Training
   c. Other Hazardous Materials Laws, Regulations, and Regulatory Agencies
      i. Government agencies
      ii. Laws
      iii. Local Emergency Planning Committees (LEPCs)
   iv. State Emergency Response Commission
d. Difference Between Hazardous Materials Incidents and Other Types of Emergencies
   i. Overview
e. Planning a Response
   i. Overview

29. HazMat Properties and Effects
   a. Characteristics of Hazardous Materials
      i. Physical and chemical changes
      ii. Boiling point
      iii. Flash point, fire point, ignition (autoignition) temperature, and flammable range
   iv. Vapor Density
   v. Vapor pressure
   vi. Specific gravity
   vii. Water miscibility
   viii. Corrosivity (pH)
   ix. Toxic products of combustion
   x. Radiation
   b. Hazard Exposure and Contamination
      i. Hazard and exposure
      ii. Contamination
      iii. Secondary contamination
      i. Introduction to weapons of mass destruction (WMDs)
      ii. Nerve Agents
      iii. Blister agents
   iv. Cyanide
   v. Choking agents
   vi. Irritants (Riot Control Agents)
   vii. Convulsants
d. Harmful Substances’ Routes of Entry Into the Human Body
   i. Introduction to routes of entry
ii. Inhalation
iii. Absorption
iv. Ingestion
v. Injection
e. Chronic Versus Acute Health Effects
i. Chronic health hazard
ii. Acute health effect
f. Using the Emergency Response Guidebook
i. Divided into four major sections
30. Hazardous Materials: Recognizing and Identifying the Hazards
a. Recognizing a Hazardous Materials Incident
i. Introduction to recognizing a hazardous materials incident
ii. Occupancy and location
b. Containers
i. Definition
ii. Container Type
iii. Container volume
iv. Nonbulk storage vessels
c. Transporting Hazardous Materials
i. Introduction to transporting hazardous materials
ii. Railroad transportation
iii. Pipelines
d. Facility and Transportation Markings and Colorings
i. DOT system
ii. Labels and placards
iii. NFPA 704 marking system
iv. Military hazardous material/WMD markings
e. Other Reference Sources
i. MSDS
ii. CHEMTREC
iii. NCR
f. Radiation
i. Recognition
ii. Radiation Safety Officer
iii. Type-A Packaging
iv. Type-B Packaging
g. Potential Terrorist Incident
i. Chemical vs. Biological Incident
ii. Chemical Agents
iii. Biological agents
iv. Radiological agents
v. Illicit laboratories
vi. Explosives
vii. Indicators of Secondary Devices
36. Fire Prevention and Public Education
a. Fire Prevention
i. Enactment of fire codes
ii. Inspection and code enforcement
iii. Public fire and life-safety education
iv. Stop, Drop, and Roll
v. EDITH
vi. Smoke alarms
vii. Residential Fire Sprinkler Systems
viii. Selection and Use of Portable Fire Extinguishers
b. Fire Cause Determination
c. Conducting a Fire Safety Survey in a Private Dwelling
   i. conducting a fire safety survey
   ii. Getting started
   iii. Outside hazards
iv. Inside Hazards
d. Conducting Fire Station Tours
37. Behavioral Health and Cancer Awareness
   a. Recognition of Behavioral Health Stressors
      i. Post-Crisis Management and Coping Mechanisms
      ii. Recognizing and Addressing High-Risk Behaviors
      iii. Building Personal Resiliency
   iv. Building and Utilizing Peer Networks
   v. Family Support
   b. Cancer Awareness
      i. Occupational Cancer Awareness
      ii. The Role of PPE and Decontamination
      iii. Primary Prevention Measures

Lab Content
3. Personal Protective Equipment and Self Contained Breathing Apparatus (SCBA)
   a. Personal Protective Equipment (PPE)
      i. PPE
      ii. Structural Fire Fighting Ensemble
      iii. Donning Personal Protective Clothing
   iv. Doffing Personal Protective Clothing
   v. Care of Personal Protective Clothing
   vi. Specialized Protective Clothing
   b. Respiratory Protection
      i. Respiratory Hazards of Fire
      ii. Other Toxic Environments
      iii. Conditions that Require Respiratory Protection
   iv. Types of Breathing Apparatus
   v. SCBA Standards and Regulations
   vi. Uses and Limitations of SCBA
vii. Components of SCBA
viii. Pathway of Air Through a SCBA
ix. Skip Breathing Technique
x. Mounting Breathing Apparatus
xi. Donning SCBA
xii. Safety Precautions for SCBA
xiii. SCBA Use During Emergency Operations
xiv. Doffing SCBA
c. Putting it All Together: Donning the Entire PPE Ensemble
i. Putting it All Together
ii. SCBA Inspection and Maintenance
d. Inspection of SCBA
i. Operational Testing Checks the Functioning Parts of SCBA
ii. Annual Inspection
iii. Servicing SCBA Cylinders
iv. Replacing SCBA Cylinders
v. Cleaning and Sanitizing SCBA
8. Portable Fire Extinguishers
a. Purposes of Fire Extinguishers
i. Purpose and Primary Uses
ii. Use of Portable Fire Extinguishers in Incipient Fires
iii. Special Extinguishing Agents
b. Classes of Fires
i. Match Appropriate Type of Extinguisher to Type of Fire
ii. Class A Fires
iii. Class B Fires
iv. Class C Fires
v. Class D Fires
vi. Class K Fires
c. Classification of Fire Extinguishers
i. Characteristics and Capabilities
ii. Standards, Classification, and Rating System
iii. Letters and Numbers Classification System
iv. Standard Test Fires to Rate Effectiveness of Fire Extinguishers
d. Labeling of Fire Extinguishers
i. Labeling
ii. Traditional Lettering System
iii. Pictograph Labeling System
e. Fire Extinguisher Placement
i. Classifying Area Hazards
ii. Determining Placement
f. Methods of Fire Extinguishment
i. Cooling the Fuel
ii. Cutting off the Supply of Oxygen
iii. Interrupting the Chain Reactions
g. Types of Extinguishing Agents
i. Water
ii. Dry Chemical
iii. Carbon Dioxide
iv. Foam
v. Wet Chemical
vi. Halogenated Agents
vii. Dry Powder
h. Fire Extinguisher Design
i. Use of Pressure to Expel Contents
ii. Portable Fire Extinguisher Components
iii. Wheeled Fire Extinguishers
i. Fire Extinguisher Characteristics
i. Water Extinguishers
ii. Dry Chemical Extinguishers
iii. Carbon Dioxide Fire Extinguishers
iv. Class B Foam Extinguishers
v. Wet Chemical Extinguishers
vi. Halogenated-Agent Extinguishers
vii. Dry Powder Extinguishing Agents
j. Use of Fire Extinguishers
i. Simple to Operate
ii. Locating a Fire Extinguisher
iii. Selecting Proper Fire Extinguisher
iv. Transporting a Fire Extinguisher
v. Basic Steps of Fire Extinguisher Operation
vi. Ensure your Personal Safety
k. Care of Fire Extinguishers
   i. Inspection
   ii. Maintenance
   iii. Recharging
iv. Hydrostatic Testing
9. Fire Fighter Tools and Equipment
   a. General Considerations
      i. Hand Tools and Power Tools
      ii. Safety
      iii. Conditions of Use/ Operating Conditions
iv. Effective Use
b. Functions
   i. Engine or Truck Company
   ii. Rotating Tools
   iii. Pushing/ Pulling Tools
iv. Prying/Spreading Tools
v. Striking Tools
vi. Cutting Tools
vii. Multiple Function Tools
viii. Special-Use Tools
c. Phases of Use
   i. Process of Extinguishing a Fire
   ii. Basic Steps
   iii. Response and Size-Up
   iv. Forcible Entry
v. Interior Fire Fighting Tools and Equipment
vi. Search and Rescue Tools and Equipment
vii. Rapid Intervention Tools and Equipment
viii. Ventilation Tools and Equipment
ix. Overhaul Tools and Equipment
d. Tool Staging
i. Necessary Equipment

e. Maintenance
i. Manufacturer’s Instructions
ii. Cleaning and Inspecting Hand Tools
iii. Cleaning and Inspecting Power Equipment and Tools
iv. Steps for Cleaning and Inspecting Power Tools

10. Ropes and Knots
a. Types of Rope
i. Three primary types of rope
ii. Life Safety Rope
iii. Escape Rope
iv. Utility Rope
b. Rope Materials
i. Natural Fibers
ii. Synthetic Fibers
c. Rope Construction
i. The best choice of rope construction depends on the specific application
ii. Twisted Rope
iii. Braided Rope
iv. Kernmantle Rope
v. Dynamic and Static Rope
vi. Dynamic and Static Kernmantle Ropes
d. Technical Rescue Hardware
i. Carabiner or a Snap Link
ii. Harness
iii. Rope Rescue
iv. Rope Rescue Incidents
v. Trench Rescue
vi. Confined Space Rescue
vii. Water Rescue
e. Rope Maintenance
i. Four Parts to Maintenance Formula
ii. Care for the Rope
iii. Clean the Rope
iv. Inspect the Rope
v. Store the Rope
f. Knots
i. Types of Knots
ii. Tying Knots
iii. Using knots
iv. Terminology
v. Safety Knot
vi. Hitches
vii. Loop Knots
viii. Bends
g. Hoisting
i. Hoisting an Axe
ii. Hoisting a Pike Pole
iii. Hoisting a Ladder
iv. Hoisting a Dry Hose Line
v. Hoisting Other Tools and Equipment

11. Response and Size-Up
a. Response
i. Response Preparation
ii. Alarm Receipt
iii. Riding the Apparatus
iv. Emergency Response
v. Prohibited Practices
vi. Dismounting a Stopped Apparatus
vii. Traffic Safety on the Scene

b. Arrival at the Incident Scene
i. After arriving, SOPs and the incident management system must guide all actions
ii. Personnel Accountability System
iii. Controlling Utilities
c. Size-Up
i. Definition
ii. Managing Information
Resources

d. Incident Action Plan
i. Five Basic Fire-Ground Priorities
ii. Rescue
iii. Exposure Protection
iv. Confinement
v. Extinguishment
vi. Salvage and Overhaul

12. Forcible Entry
   a. Forcible Entry Situations
      i. Required at emergency incidents where time is a critical factor
      ii. Point of Entry and Method to be Used
      iii. “Try Before You Pry”
   b. Forcible Entry Tools
      i. General Tool Safety
      ii. General Carrying Tips
      iii. General Maintenance Tips
      iv. Types of Forcible Entry Tools
   c. Doors
      i. Basic Door Construction
      ii. Construction Material
      iii. Types of Doors
   d. Windows
      i. Windows
      ii. Safety
      iii. Glass Construction
   iv. Frame Designs
   e. Locks
      i. Parts of a Door Lock
      ii. Parts of a Padlock
      iii. Safety
      iv. Types of Locks
   v. Forcing Entry through Security Gates and Windows
   f. Breaching Walls and Floors
i. Last Resort
ii. Load Bearing/Non-Load Bearing Walls
iii. Exterior Walls
iv. Interior Walls
v. Floors
vi. Vehicle Entry
g. Systematic Forcible Entry
i. Issues that Need to be Evaluated Before Taking Action
h. Forcible Entry and Salvage
i. Before Entry
ii. After Entry
13. Ladders
a. Functions of a Ladder
i. Primary Functions
ii. Secondary Functions
b. Ladder Construction
i. Basic Ladder Components
ii. Beams
iii. Rail
iv. Truss Block
v. Rung
vi. Tie Rod
vii. Tip
viii. Butt
ix. Butt Spurs
x. Butt Plate
xi. Roof Hooks
xii. Heat Sensor Label
xiii. Protection Plates
xiv. Extension Ladder Components
c. Types of Ladders
i. Aerial Apparatus
ii. Portable Ladders
d. Inspection, Maintenance, and Service Testing of Portable Ladders
i. Inspection
ii. Maintenance
iii. Cleaning
iv. Service Testing
e. Ladder Safety
i. Hazards
ii. Standards Procedure and Manufacturer’s Recommendations
iii. General Safety Requirements
iv. Lifting and Moving Ladders
v. Placement of Ground Ladders
vi. Working on a Ladder
vii. Rescue Operations
viii. Ladder Damage
f. Using Portable Ladders
i. Ladder Selection
ii. Removing Ladders from Apparatus
iii. Lifting Ladders
iv. Carrying Ladders
v. Placing Ladders
vi. Raising Ladders
vii. Securing Ladders
viii. Climbing Ladders
ix. Dismounting Ladders
x. Working from Ladders
xi. Placing Roof Ladders
g. Inspect a Chimney
i. General Safety Rules for Practicing Skills
14. Search and Rescue
a. Search and Rescue Operations
i. Coordinating Search and Rescue Operations with Fire Suppression
ii. Search and Rescue Size-Up
iii. Search Coordination
iv. Search Priorities
b. Primary Search
i. Types of Searches
ii. Primary Search
c. Search Techniques
i. Standard Search Techniques
ii. Radio
iii. Search Patterns
iv. Thermal Imaging Devices
v. Search Ropes
vi. Officer-Led Search
vii. Vent-Entry-Search
viii. Conducting a Primary Search
ix. Secondary Search
d. Search Safety
i. Risk Management
ii. Search and Rescue Equipment
iii. Methods to Determine Whether an Area is Tenable
e. Rescue Techniques
i. Shelter-in-Place
ii. Exit Assist
iii. Simple Victim Carries
iv. Emergency Drags
v. Assisting a Person Down a Ground Ladder
vi. Removal of Victims by Ladders
16. Water Supply
a. Rural Water Supplies
i. Wells or Cisterns
ii. No Fire Hydrants
iii. Static Sources of Water
iv. Mobile Water Supply Apparatus
v. Portable Tanks
vi. Tanker Shuttles
b. Municipal Water Systems
i. Systems
ii. Water Sources
iii. Water Treatment Facilities
iv. Water Distribution System
c. Types of Fire Hydrants
   i. Wet-Barrel Hydrants
   ii. Dry-Barrel Hydrants
d. Fire Hydrant Locations
   i. Located according to local standards and nationally recommended practices
   ii. Placed a certain distance apart
   iii. Requirements
e. Fire Hydrant Operation
   i. Department Procedure
   ii. Standard Operating Procedure (SPOs)
   iii. Shutting Down a Hydrant
f. Maintaining Fire Hydrants
   i. Inspecting Fire Hydrants
   ii. Testing Fire Hydrants
g. Fire Hydraulics
   i. Fire Hydraulics
   ii. Flow
   iii. Pressure
iv. Friction
v. Elevation
vi. Water Hammer
h. Fire Hoses
   i. Supply Hoses or Attack Hoses
   ii. Sizes
   iii. Hose Construction
iv. Hose Couplings
v. Attack Hose
vi. Supply Hose Use
   i. Hose Care, Maintenance, and Inspection
   ii. Factors that Cause Damage
   iii. Mechanical Damage
   iii. Heat and Cold
iv. Chemicals
v. Mildew
vi. Cleaning Hoses
vii. Hose Inspection
j. Hose Appliances
i. Wye
ii. Water Thief
iii. Siamese Connection
iv. Adapters
v. Reducer
vi. Hose Jacket
vii. Hose Roller
viii. Hose Clamp
ix. Valves
k. Hose Rolls
i. Transportation
ii. Ways to Roll Hose
l. Fire Hose Evolutions
i. Supply Line Operations
ii. Loading Supply Hose
iii. Connecting a fire department engine to a water supply
iv. Supply Hose Carries and Advances
v. Connecting Supply Hose Lines to Standpipe and Sprinkler Systems
vi. Replacing a Defective Section of Hose
vii. Draining and Picking Up Hose
viii. Unloading Hose

17. Fire Attack and Foam
a. Attack Hose
i. Intro to Attack Hoses
ii. Sizes of Attack Lines
b. Attack Line Evolutions
i. Definition
ii. Pre-connected Attack Lines
iii. Wyed lines
iv. Advancing Attack Lines
v. Extending an Attack Line
vi. Advancing an Attack Line from a Standpipe Outlet
vii. Replacing a Defective Section of Hose
c. Nozzles
i. Purpose
ii. Classifications
iii. Nozzle Shut-offs
iv. Smooth-bore nozzles
v. Fog-Stream Nozzles
vi. Other Types of Nozzles
vii. Nozzle Maintenance and Inspection
d. Foam
i. Intro to Foam
ii. Foam Classifications
iii. Foam Concentrates
iv. Foam Equipment
v. Foam Application
vi. Foam Application Techniques
vii. Back-up Resources
viii. Foam Apparatus
18. Fire Fighter Survival
a. Risk–Benefit Analysis
i. Introduction to Risk-Benefit Analysis
b. Hazard Indicators
i. Introduction to Hazard Indicators
c. Safe Operating Procedures
i. Rules of Engagement for Fire Fighter Survival
ii. Team Integrity
iii. Personnel Accountability System
iv. Emergency Communications Procedures
v. Initiating a Mayday
vi. Rapid Intervention Company/Crew
d. Fire Fighter Survival Procedures
i. Safety
ii. Maintaining Orientation
e. Self-Rescue
i. Techniques
f. Safe Locations
g. Air Management
h. Rescuing a Downed Fire Fighter
i. Rescue Techniques and Considerations
i. Rehabilitation
i. Purpose
ii. Personnel Accountability System
j. Counseling and Critical Incident Stress
i. Fire fighters are often exposed to very stressful situations
ii. Normal Coping Mechanisms
iii. Negative Reactions to Critical Incidents
iv. Reactions
v. Counseling and Critical Incident Stress Management (CISM)
19. Salvage and Overhaul
a. Lighting
i. Lighting
ii. Safety Principles and Practices
iii. Lighting Equipment
iv. Battery-Powered Lights
v. Electrical Generators
vi. Lighting Methods
vii. Cleaning and Maintenance
b. Salvage Overview
i. Salvage
ii. Safety
iii. Salvage Tools
c. Using Salvage Techniques to Prevent Water Damage
i. Best way to prevent water damage is to limit water application
ii. Deactivating Sprinklers
iii. Removing Water
d. Using Salvage Techniques to Limit Smoke and Heat Damage
   i. Limiting smoke and heat damage
   ii. Salvage Covers
   iii. Salvage Cover Maintenance
   iv. Floor Runners
   v. Other Salvage Operations

e. Overhaul Overview
   i. Overhaul
   ii. Safety Considerations During Overhaul
   iii. Coordinating Overhaul with Fire Investigators
   iv. Where to Overhaul

f. Overhaul Techniques
   i. Overhaul Techniques
   ii. Overhaul Tools
   iii. Opening walls and ceilings

20. Fire Fighter Rehabilitation
   a. Emergency Incident Rehabilitation
   b. Factors, Cause, and Need for Rehabilitation
      i. Stresses of firefighting
      ii. Personal protective equipment (PPE)
      iii. Dehydration
   iv. Energy consumption
   v. Tolerance for stress
   vi. Rehabilitation allows the fire fighter to rest and recover from fatigue and stress
   c. Types of Incidents Affecting Fire Fighter Rehabilitation
      i. Rehabilitation should be addressed at all incidents
      ii. Extended fire incidents
      iii. Other types of incidents requiring rehabilitation
   d. How Does Rehabilitation Work
      i. Model of rehabilitation consists of seven parts
      ii. Relief from climatic conditions
      iii. Rest and recovery
      iv. Active or Passive Cooling and Warming
      v. Rehydration and calorie replacement
vi. Medical monitoring
vii. Member accountability
viii. Release and reassignment
e. Personal Responsibility in Rehabilitation
i. Safety
ii. Personal Limits
iii. Participation in Rehabilitation
21. Wildland and Ground Fires
a. Wildland and Ground Fires and the Fire Triangle
i. Fire Triangle: Fuel, Oxygen, and Heat
ii. Fuel
iii. Other fuel characteristics
iv. Oxygen
v. Heat
b. Other Factors that Affect Wildland Fires
i. Weather
ii. Topography
c. Extinguishing Wildland Fires
i. Anatomy of a wildland fire
ii. Methods of extinguishment
iii. Types of attack
d. Priorities of Attack
i. Incident Commander
ii. Fire Apparatus Used for Wildland Fires
iii. Safety in wildland firefighting
iv. PPE
v. Fire Shelters
e. The Challenge of the Wildland–Urban Interface
i. Problem of Mixing of Wildlands and Developed Areas
ii. Wildland-Urban Interface
iii. Efforts geared at reducing loss from wildland fires needs to be directed at prevention
f. Wildland Fire Safety
i. Ten standard Fire Fighting Orders
22. Fire Suppression
a. Offensive versus Defensive Operations
   i. Introduction to offensive versus defensive operations
   ii. Command Considerations
b. Operating Hose Lines
   i. Introduction to operating hose lines
   ii. Fire streams
   iii. Interior fire attack
   iv. Large handlines
   v. Master stream devices
c. Protecting Exposures
   i. Preventing fire spread
d. Ventilation
e. Specific Fire-Ground Operations
   i. Concealed-space fires
   ii. Basement fires
   iii. Fires above ground level
   iv. Fires in large buildings
   v. Fires in buildings during construction, renovation, or demolition
   vi. Fires in lumberyards
   vii. Fires in stacked or piled materials
   viii. Trash container and rubbish fires
   ix. Confined spaces
f. Vehicle Fires
   i. Attacking vehicle fires
   ii. Alternative-fuel vehicles
   iii. Fire in the passenger area
   iv. Fire in the engine compartment
   v. Overhauling vehicle fires
g. Flammable-Liquid Fires
   i. Introduction to Flammable-Liquid Fires
   ii. Hazards
   iii. Suppression
23. Pre-incident Planning
   a. Pre-incident Plan
1. Overview
2. Target Hazards
3. Developing a Pre-incident Plan
   a. Conducting a Pre-incident Survey
      i. Introduction to conducting a pre-incident survey
      ii. Pre-incident planning for response and access
      iii. Pre-incident planning for scene size-up
   b. Tactical Information
      i. Considerations for water supply
      ii. Utilities
      iii. Pre-incident Planning for Search and Rescue
   c. Pre-incident Planning for Forcible Entry
   d. Pre-incident Planning for Ladder Placement
   e. Pre-incident Planning for Ventilation
4. Tactical Information
   a. Considerations for water supply
   b. Utilities
   c. Pre-incident Planning for Search and Rescue
   d. Pre-incident Planning for Forcible Entry
   e. Pre-incident Planning for Ladder Placement
   f. Pre-incident Planning for Ventilation
5. Occupancy Considerations
   a. High-rise buildings
   b. Assembly occupancies
   c. Healthcare facilities
   d. Detention and correctional facilities
   e. Residential occupancies
6. Locations Requiring Special Considerations
   a. Introduction to locations requiring special considerations
   b. Special hazards
7. Fire and Emergency Medical Care
   a. Overview
   b. The Importance of EMS to the Fire Service and the Community
      i. Introduction to the importance of EMS to the fire service and the community
   c. Levels of Service
      i. BLS (Basic Life Saving)
      ii. ALS (Advanced Life Saving)
   d. Training
      i. BLS training
      ii. ALS
      iii. Training Agencies
iv. Continuing medical education (CME)
e. EMS Delivery Systems
i. Introduction to EMS delivery systems
ii. Types of systems
iii. Operational considerations
f. Interactions
i. Patients
ii. Medical Director
iii. Hospital Personnel
g. Confidentiality
i. EMS providers are subject to the provisions of the HIPAA
ii. Protecting the privacy of the people you serve is an ethical responsibility
25. Emergency Medical Care
a. Infectious Diseases and Standard Precautions
i. Introduction to infection control
ii. Bloodborne pathogens
iii. Airborne pathogens
iv. Direct Contact
v. Standard precautions
vi. Immunizations
b. Airway Management
i. Airway care and rescue breathing
ii. Anatomy and function of the respiratory system
iii. “A” is for airway
iv. Correct the blocked airway
v. Check for fluids, foreign bodies, or dentures
vi. Correct the airway using finger sweeps or suction
vii. Suctioning
viii. Maintain the airway
ix. Recovery position
x. Airway Adjuncts
xi. “B” is for breathing
xii. Check breathing
xiii. Correct the breathing
xiv. Performing rescue breathing on children and infants
xv. Foreign-body airway obstruction
xvi. Types of Airway Obstruction
xvii. Management of foreign-Body Airway Obstructions
xviii. Oxygen administration
xix. Special considerations
c. Anatomy and Function of the Circulatory System
i. Anatomy
ii. Components of CPR
iii. The cardiac chain of survival
iv. When to start CPR
v. When to stop CPR
vi. External cardiac compression
vii. Adult CPR
viii. Infant CPR
ix. One-Rescuer and Two-Rescuer Child CPR
x. Signs of Effective CPR
xi. Complications of CPR
d. Creating Sufficient Space for CPR
i. Fire fighters may frequently be alone with a victim in cardiac arrest
e. Early Defibrillation by Fire Fighters
i. Heart Disease
f. Bleeding and Shock
i. Standard precautions and soft-tissue injuries
ii. Parts and Function of the Circulatory System
iii. Shock
g. Bleeding
i. Controlling external blood loss
ii. Standard Precautions and bleeding control
h. Wounds
i. Closed Wounds
ii. Open Wounds
iii. Principles of wound treatment
iv. Dressing and Bandaging Wounds
i. Burns
ii. Skin is a Barrier
iii. Burn depth
iv. Extent of burns
v. Cause or type of burns
j. Injuries to the Spine
i. Introduction to injuries to the spine
ii. Stabilizing the cervical spine
k. Triage
i. Triage
ii. Triage Priorities
l. Violent Situations
i. Introduction to violent situations
ii. Behavioral emergencies

26. Vehicle Rescue and Extrication
a. Types of Vehicles
i. Conventional vehicles
ii. Alternative-powered vehicles
iii. Electric-powered vehicles
iv. Hybrid vehicles
b. Vehicle Anatomy
i. Parts of a Motor Vehicle
ii. Motor Vehicle Frames
c. Alternative-Powered Vehicles
i. Alternative-powered vehicles
ii. Blended Liquid Fuel-Powered Vehicles
iii. Compressed gas-powered vehicles
iv. Hybrid and electric vehicles
v. Fuel cell-powered vehicles
d. Responding to the Scene
i. The first step in the extrication process is response
e. Arrival and Size-Up
i. Traffic Hazards
ii. Fire Hazards
iii. Electrical Hazards
iv. Other Hazards
f. Stabilization of the Scene
i. Traffic Hazards
ii. Fire Hazards
iii. Electrical Hazards
iv. Other Hazards
v. Cribbing
vi. Rescue Lift Air Bags
g. Principles of Gaining Access and Disentangling the Victim
i. Use these techniques to gain access to a trapped victim
h. Tools Used for Extrication
i. Overview
ii. Gaining Access to the Victim
i. Open the Door
ii. Break Tempered Glass
iii. Force the Door
iv. Provide Initial Medical Care
j. Disentangling the Victim
i. Intro to Disentangling the Victim
ii. Displace the Seat
iii. Remove the Windshield
iv. Remove the Steering Wheel
v. Displace the Dashboard
vi. Displace the Roof
k. Removing and Transporting the Victim
i. Stabilization and Packaging of Victim for Removal
ii. Plan for Victim Removal
iii. Transportation of Patient
l. Terminating an Incident
i. Securing the Scene
27. Assisting Special Rescue Teams
a. Overview
b. Types of Rescues Encountered by Fire Fighters
i. Variety of special rescue situations

c. Guidelines for Operations
   i. Be Safe
   ii. Follow Orders
   iii. Work as a Team
   iv. Golden Rule of Public Service

d. Steps of Special Rescue
   i. Preparation
   ii. Response
   iii. Arrival and Size-Up
   iv. Stabilization
   v. Access
   vi. Disentanglement
   vii. Removal
   viii. Transport

e. Post Incident Duties
   i. Security of the Scene and Preparation for the Next Call
   ii. Post Incident Analysis

f. General Rescue Scene Procedures
   i. Safety
   ii. Approaching the Scene
   iii. Dealing with Utility Hazards
   iv. Providing Scene Security
   v. Using Protective Equipment
   vi. Using the Incident Command System (ICS)

vii. Ensuring Accountability

viii. Making Victim Contact

g. Assisting Rescue Crews
   i. Overview
   ii. Vehicles and machinery
   iii. Tools Used
   iv. Confined Space
   v. Rope Rescue
   vi. Trench and excavation collapse
vii. Structural collapse
viii. Water and ice rescue
ix. Wilderness SAR
x. Hazardous materials incidents

31. Hazardous Materials: Implementing a Response
   a. Introduction
      i. Who to Contact
      ii. What to report
   b. Plan an Initial Response
      i. Safety
      ii. Initial Call for Help
      iii. Type of Material Involved
      iv. Characteristics of the Affected Area
   c. Response Objectives
      i. Defensive actions
      ii. Proper Personal Protective Equipment (PPE)
      iii. Emergency decontamination procedures
   d. Gauging the Potential Harm or Severity of the Incident
      i. Factors to Consider
      ii. Resources for determining the size of the incident
      iii. Reporting the Size and Scope of the Incident
      iv. Concentration of a Released Hazardous Material
   e. Secondary Attacks
      i. Recognition
      ii. Primary Attack May be Used to Draw Responders to Scene
      iii. Signs of Secondary Devices
   f. Incident Command System
      i. Introduction to the ICS
      ii. The ICP

32. Hazardous Materials: Personal Protective Equipment, Scene Safety, and Scene Control
   a. Overview
   b. Levels of Damage Caused by Chemicals to Humans
      i. Damage Depends on the Material’s TLV
      ii. TLV/Short-Term Exposure Limit (TLV-STEL)
iii. TLV/Time-Weighted Average (TLV-TWA)
iv. TLV/Ceiling (TLV-C)
v. TLV/Skin
vi. Permissible Exposure Limit
vii. IDLH
viii. Training and Equipment
ix. Exposure Guidelines
x. Three Basic Atmospheres at a Hazardous Materials Emergency
c. Personal Protective Equipment
i. Purpose
d. Hazardous Materials—Specific Personal Protective Equipment
i. Street clothing and work uniforms
ii. Structural firefighting protective clothing
iii. High-Temperature-Protective Clothing
iv. Chemical-Protective Clothing and Equipment
v. Respiratory protection
e. Chemical-Protective Clothing Ratings
i. Level A
ii. Level B
iii. Level C
iv. Level D
f. Skin Contact Hazards
i. Principle Dangers
ii. Skin Absorption
iii. Corrosives
g. Safety Precautions
i. Excessive heat disorders
ii. Cooling techniques
iii. Cold-temperature exposures
iv. Physical capability requirements
h. Response Safety Procedures
i. response safety procedures
ii. Control zones
iii. Isolation techniques
iv. The buddy system and backup personnel

33. Hazardous Materials: Response Priorities and Actions
   a. Introduction
      i. Safety
      ii. Incident Commander
   b. Exposures
      i. Protective actions
      ii. Evacuating the Exposed Area
   c. Detecting the Hazard
      i. Steps to Monitor the Atmosphere for Potential Hazards
   d. Search and Rescue
      i. Protection of Life
      ii. Process
      iii. Incident Commander (IC)
   e. Exposure Protection
      i. Exposures can be Protected in Different Ways
      ii. Confinement and containment
      iii. Flammable Liquids Vapor Control and Fire Extinguishment
      iv. Pressurized-Gas Cylinder Vapor Control and Fire Extinguishment
   f. Hazardous Materials Control Activities
      i. Defensive Control Activities
      ii. Absorption/adsorption
      iii. Diking, damming, diversion, and retention
      iv. Dilution
      v. Vapor dispersion and suppression
      vi. Remote shut-off
   g. Decision to Withdraw
      i. IC Decisions
   h. Recovery
      i. The recovery phase
      i. When to Terminate the Incident
      i. Decision Made by IC
   j. Crime or Terrorist Incident
      i. Precautions
ii. Actions to Ensure Safety
iii. Measures to Preserve Incident Evidence
iv. Use of Photography
v. Number of Responders Working Within the Area

34. Hazardous Materials: Decontamination Techniques
   a. Contamination
      i. Cross-Contamination
   b. Types of Decontamination
      i. Emergency decontamination
      ii. Gross decontamination
      iii. Technical decontamination
   iv. Mass decontamination
   c. Methods of Decontamination
      i. Absorption
      ii. Adsorption
      iii. Dilution
   iv. Disinfection
   v. Disposal
   vi. Solidification
   vii. Emulsification
   viii. Vapor dispersion
   ix. Removal
   x. Vacuuming
   d. The Decontamination Process
      i. Steps in decontamination
      ii. Medical follow-up

35. Terrorism Awareness
   a. Fire service response to terrorist incidents
   b. Potential Targets and Tactics
      i. Infrastructure targets
      ii. Symbolic targets
      iii. Civilian targets
      iv. Ecoterrorism
      v. Agroterrorism
vi. Cyberterrorism
c. Agents and Devices
i. Explosives and incendiary devices
ii. Chemical agents
iii. Biological agents
iv. Radiological agents
d. Operations
i. Initial actions
ii. Interagency coordination
iii. Decontamination
iv. Mass casualties
v. Additional resources
37. Fire Detection, Protection, and Suppression Systems
a. Fire Alarm and Detection Systems
i. Fire alarm system components
ii. Residential fire alarm systems
iii. Alarm-initiating devices
iv. Alarm notification appliances
v. Other fire alarm functions
vi. Fire alarm annunciation systems
vii. Fire department notification
b. Fire Suppression Systems
i. Automatic sprinkler systems
ii. Standpipe systems
iii. Specialized extinguishing systems
iv. Dry chemical and wet chemical extinguishing systems
v. Clean agent extinguishing systems
vi. Fire fighters must use SCBA protection
38. Fire Cause Determination
a. Who Conducts Fire Investigations
i. Fire Department
ii. Law Enforcement Authority
iii. Investigation Assistance
b. Causes of Fires
i. Point of Origin
ii. Fire Cause Statistics
iii. Accidental fire causes
c. Determining the Origin and Cause of a Fire
i. Identifying the point of origin
ii. Digging Out
iii. Collecting and Processing Evidence
iv. Identifying Witnesses
d. Observations During Fire-Ground Operations
i. Fire Investigator
ii. Dispatch and response
iii. Arrival and size-up
iv. Entry
v. Search and rescue
vi. Ventilation
vii. Suppression
viii. Overhaul
ix. Injuries and fatalities
e. Securing and Transferring the Property
f. Incendiary Fires
i. Indications of Arson
g. Cause Determination
h. Arsonists
i. Pyromaniacs
ii. Juvenile Fire-Setters
iii. Arsonist Motives
METHODS OF INSTRUCTION:
Lecture, discussion and documentations/simulations will serve as the medium of instruction. Audio-visual aids will be utilized as they facilitate meaningful instruction. Regular assignments will be made for out-of-class study and research. Individual guidance will be provided as required. Skills demonstration and skill exercises.

OUT OF CLASS ASSIGNMENTS:
Required Outside Hours:
Assignment Description:
Writing:
Students will write reports based on simulated fire investigations as required by State Fire Training. Given pictures of various containers, the students will identify the proper container size, product contained within and/or specific site identification numbers in written assignment, evaluated by instructor to SFT standards.

Required Outside Hours:
Assignment Description:
Reading:
Students will review fire behavior, point of origin, and cause determination in Fundamentals of Fire Fighter Skills.
Students will review hazardous materials, potential hazards, the appropriate personal protective equipment, isolation distances and the appropriate emergency response actions in in the Emergency Response Guidebook.

Required Outside Hours:
Assignment Description:
Outside:
Students will practice donning personal protective equipment and tying knots and hitches. Students will perform inspections and maintenance on tools and personal protective equipment.

METHODS OF EVALUATION:
Writing assignments
Percent of total grade: 20.00 %
Written Homework; Fire Reports
Problem-solving assignments
Percent of total grade: 30.00 %
Homework Problems; Lab Reports; Quizzes; State Fire Training Exams
Skill demonstrations
Percent of total grade: 30.00 %
Class Performance/s; State Fire Training Performance Exams
Objective examinations
Percent of total grade: 20.00 %
State Fire Training Multiple Choice; True/False
REPRESENTATIVE TEXTBOOKS:
State Fire Training Fire Fighter I Academy Text Book
ISBN: 1284098214
Reading Level of Text, Grade: 12

Recommended Other Texts and Materials
State Fire Training Fire Fighter I Curriculum 2019 o http://osfm.fire.ca.gov/training/firefighter
CSTI Hazardous Materials / First Responder Operational o http://www.caloes.ca.gov/for-schools-educators/training/csti-training-support-compliance/hazardous-materials-outreach-training-program
Department of Transportation / Emergency Response Guide 2019
The New Generation Fire Shelter, NFES 2710,
IS-100 Introduction to Incident Command System, I-100, Instructor Guide
NWCG ? S130 NF2730 o https://onlinetraining.nwcg.gov/node/177
NWCG ? S190 NFES2901 o https://onlinetraining.nwcg.gov/node/169
SFT Fire Control 6 ? Wildland Fire Fighting Essentials o State Fire Training download
IS-100 Introduction to Incident Command System, I-100, Instructor Guide o http://training.fema.gov/EMIweb/IS/is100lst.asp
IS-700 National Incident Management System, An Introduction, Instructor Guide o (http://training.fema.gov/EMIWeb/is/is700alst.asp)
IS 800 National Incident Management System o https://training.fema.gov/is/courseoverview.aspx?code=IS-800.b
IS 800 National Incident Management System o https://training.fema.gov/is/courseoverview.aspx?code=IS-800.b
Cal Fire ? Handbooks o http://calfireweb.fire.ca.gov/library/handbooks/ o Section 4300 Wildland Fire Training Sections
Firefighter Functional Fitness o http://firefighterfunctionalfitness.com/
ARTICULATION and CERTIFICATE INFORMATION

Associate Degree:
CSU GE:
IGETC:
CSU TRANSFER:
    Not Transferable
UC TRANSFER:
    Not Transferable

SUPPLEMENTAL DATA:
Basic Skills: N
Classification: Y
Noncredit Category: Y
Cooperative Education:
Program Status: 1 Program Applicable
Special Class Status: N
CAN:
CAN Sequence:
CSU Crosswalk Course Department:
CSU Crosswalk Course Number:
Prior to College Level: Y
Non Credit Enhanced Funding: N
Funding Agency Code: Y
In-Service: N
Occupational Course: C
Maximum Hours:
Minimum Hours:
Course Control Number: CCC000587522
Sports/Physical Education Course: N
Taxonomy of Program: 213300