

# FIRE TECHNOLOGY

## Contact Information

### Division

Business and Technology

### Dean

Susan Lucyga (Interim)

### Associate Dean

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## Overview

The Fire Technology program prepares students for a career in the fire service and provides educational and training opportunities for employed and volunteer firefighters.

The Associate Degree and Certificate programs incorporate the standardized Fire Technology curriculum identified by the offices of the California State Chancellor and State Fire Marshal. Elective courses are those developed under the guidelines of related fire service training and educational programs such as CFSTES (California Fire Service Training and Education System), DOT (Department of Transportation), FEMA (Federal Emergency Management Agency), F.S.T.E.P. (Fire Service Training and Education Program) and NFA (National Fire Academy).

Most Fire Technology courses, up to 30 units, may be transferred to CSU.

## Faculty

### Matthew F. Jewett

#### Professor, Fire Technology

A.S., Allan Hancock College

B.S., California Maritime Academy

### Tim Palmer

#### Professor/Coordinator, Fire Technology

B.S., California State University, Long Beach

## Fire Technology Advisory Committee

- Tim Adams, CTE Works Fire Technology Instructor, Placer County Office of Education, Auburn
- Shelly Allen (Pearce), Chief 2, USFS-Tahoe National Forest, Nevada City
- Brad Chisholm, Captain, Squaw Valley Fire Department
- Tim Crum, Division Chief, CAL FIRE (Retired)
- Mark D'Ambrogio, Chief, Auburn City Fire Department (Retired)
- Ed Horton, Fire Chief, Loomis Fire Department (Retired)
- Jim Hudson, Battalion Chief, CAL FIRE, Auburn
- Matt Lauchner, Battalion Chief, Roseville Fire Department
- Pat Nelson, Battalion Chief, Placer Hills Fire FPD, Placer County Training Officers

- David Ray, Division Chief, Nevada County Consolidated Fire District (Retired)
- Mark Romer, Division Chief, City of Roseville Fire Department (Retired)
- John Ruffcorn, Chief, Auburn City Police and Fire Departments
- Barton Ruud, Emeritus Professor, Sierra College
- Josh Sunde, Battalion Chief, Grass Valley Fire Department

## Firefighter I Academy

The Firefighter I Academy is offered through partnerships with the Placer and Nevada County Fire Chiefs' Associations and The City of Roseville Fire Department. Sierra College is recognized by the California State Fire Marshal and the State Board of Fire Services as an Accredited Regional Training Program.

Required Academy prerequisites are FIRE 0001 and HSCI 0002; both courses must be completed with grades of "C" or better. Students accepted into the Academy must enroll in FIRE 0100 (546.5 hours) and KIN 0097 (80 hours).

The Firefighter I Academy is offered in an extended format (evenings and weekend classes), which enables students to maintain employment while preparing for a career in the fire service. The fall academy is held July through December and the spring academy runs from January through late May or early June. Classes are held Tuesday and Thursday nights and on Saturdays. Classes may also be scheduled on some Friday nights and Sundays. The Physical Training classes meet on Monday and Wednesday nights.

Individuals completing the Academy and passing the certification testing process, which may include written and skills performance tests, may then apply to the State of California for a Firefighter I Certificate after successfully completing the task book and experience requirement, one year as a volunteer or reserve firefighter or six months as a full-time paid firefighter with a California fire department. The California State Fire Marshal's Office is working towards nationally accredited certification approved by the International Fire Service Accreditation Congress (IFSAC) and the National Board on Fire Service Professional Qualifications (Pro Board). Students completing the academy will be eligible to apply for these additional certifications in the future.

Other Certificates of Training awarded upon completion of the Academy include: (subject to change)

- Introduction to the Incident Command System—IS 100
- National Incident Management System (NIMS) IS 700A
- Confined Space Awareness
- Hazardous Materials First Responder—Operational
- Hazardous Materials First Responder—Decontamination
- Fire Control 3B
- Firefighter Survival
- Vehicle Extrication
- CAL FIRE Basic Wildland Firefighter
- S-130 Basic Wildland Firefighter
- S-190 Beginning Fire Behavior
- L-180 Human Factors in the Wildland Fire Service
- S-134 LCES

Acceptance into the Fire Academy is by an application process which includes a physical examination upon acceptance into the Academy.

Applications for the Academy are available in April for the fall academy and October for the spring academy.

#### FIREFIGHTER 1 CERTIFICATION TESTING

This 52 hour course is designed to meet State Fire Training (SFT) requirements for Firefighter 1 (FFI) including capstone knowledge and skills necessary for FFI certification. Upon successful completion, students receive a pass letter from SFT and a FFI pass certificate from the college.

FIRE 101	Firefighter 1 Certification Testing	1
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#### FIREFIGHTER II ACADEMY

This course is designed to meet the State Fire Marshal's training and certification requirements for Firefighter II.

Fire 102	Firefighter II Academy	4.5
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## Fire Company Officer Courses

The following Fire Technology courses are part of the State Fire Marshal's certification track for FIRE OFFICER. These courses are designed for individuals currently employed as professional or volunteer firefighters. Individuals without this experience will be unable to contribute to the educational process and utilize the information in a timely manner.

FIRE 0174	Human Resource Management for Company Officers - CO 2A	2
FIRE 0175	General Administrative Functions for Company Officers - CO 2B	1
FIRE 0176	Fire Inspections and Investigation for Company Officers - CO 2C	2
FIRE 0177	All-Risk Command Operations for Company Officers - CO 2D	1.5
FIRE 0178	Wildland Incident Operations for Company Officers - CO 2E	1.5
FIRE 0179	Instructional Methodology - Instructor I	1.5

## Chief Officer Courses

The following Fire Technology courses are part of the State Fire Marshal's certification track for CHIEF FIRE OFFICER and are currently part of Sierra College's curriculum. These courses are intended for individuals currently employed as professional or volunteer fire officers who hold a Chief Officer position. Individuals without this experience will be unable to contribute to the educational process and utilize the information in a timely manner.

FIRE 0190	Human Resource Management for Chief Fire Officers - 3A	1
FIRE 0191	Budget and Fiscal Responsibilities for Chief Fire Officers - 3B	1
FIRE 0192	General Administrative Functions for Chief Fire Officers - 3C	1
FIRE 0193	Emergency Service Delivery Resp. for Chief Fire Officers - 3D	1

## Incident Command Courses

The following courses are part of the State Fire Marshal's certification track for Company Officer, Chief Fire Officer and Executive Chief Fire Officer. These courses are intended for individuals currently employed as

full-time or volunteers firefighters seeking State Fire Training certification or general knowledge of the Incident Command System.

FIRE 0241	I-200: Incident Command System	0.5
FIRE 0242	I-300: Intermediate ICS for Expanding Incidents	1
FIRE 0243	I-400: Advanced ICS for Complex Incidents	0.5

## Fire Training Instructor Courses

The following courses are intended for firefighters seeking to become certified State Fire Marshal Fire Training Instructors.

FIRE 0179	Instructional Methodology - Instructor I	1.5
FIRE 0180	Instructional Development - Instructor II	1.5

## Fire Investigator Courses

These courses are intended for firefighters seeking to become certified State Fire Marshal Fire Investigators.

FIRE 0154	Fire Investigation 1A - Fire Cause, Origin and Determination	2
FIRE 0155	Fire Investigation 1B - Techniques of Fire Investigation	2

## Degrees/Certificates

### Associate Degree

- Fire Technology (p. 2)

### Certificate of Achievement

- Fire Technology (p. 2)

### Skills Certificate

- Firefighter II (p. 3)

## Fire Technology

### AA or AS and/or Certificate of Achievement

For the degree, students must fulfill the following major requirements with grades of "C" or better, complete a minimum of 60 degree-applicable semester units (12 of which must be completed at Sierra College) with a grade point average of at least 2.0 and complete one of the following three general education patterns:

- Sierra College Associate Degree Requirements (<http://catalog.sierracollege.edu/student-resources/general-education/associate-degree-requirements>);
- California State University General Education Breadth (<http://catalog.sierracollege.edu/student-resources/general-education/california-state-university-general-education-breadth-requirements>) pattern;
- Intersegmental General Education Transfer Curriculum (IGETC). (<http://catalog.sierracollege.edu/student-resources/general-education/intersegmental-general-education-transfer-curriculum-igetc>)

A certificate is designed to provide career technical skills; it is not equivalent to an associate degree.

**Required Courses**

FIRE 0001	Fire Protection Organization	3
FIRE 0003	Fire Behavior and Combustion	3
FIRE 0004	Fire Protection Equipment and Systems	3
FIRE 0005	Fire Prevention Technology	3
FIRE 0008	Building Construction for Fire Protection	3
FIRE 0010	Principles of Fire and Emergency Services Safety and Survival	3

**Select 12 units from the following:** 12

FIRE 0007	Fundamentals of Fire Service Operations	
FIRE 0050	Basic Wildland Firefighter Training	
FIRE 0073	Fire Hydraulics	
FIRE 0074	Fire Apparatus and Equipment	
FIRE 0075	Wildland Fire Control	
FIRE 0078	Fire Tactics and Strategy	
FIRE 0095	Internship in Fire Technology	
FIRE 0098	Fire Technology Career Pathways	
FIRE 0099	Introduction to Fire Academy	
FIRE 0100	Firefighter I Academy	
FIRE 0101	Firefighter I Certification Testing	
FIRE 0102	Firefighter II Training	
FIRE 0154	Fire Investigation 1A - Fire Cause, Origin and Determination	
FIRE 0155	Fire Investigation 1B - Techniques of Fire Investigation	
FIRE 0170	Hazardous Materials - Operational Level	
FIRE 0171	Introduction to Wildland Fire Behavior S-190	
FIRE 0172	Intermediate Wildland Fire Behavior S-290	
FIRE 0173	Hazardous Materials - Incident Commander	
FIRE 0174	Human Resource Management for Company Officers - CO 2A	
FIRE 0175	General Administrative Functions for Company Officers - CO 2B	
FIRE 0176	Fire Inspections and Investigation for Company Officers - CO 2C	
FIRE 0177	All-Risk Command Operations for Company Officers - CO 2D	
FIRE 0178	Wildland Incident Operations for Company Officers - CO 2E	
FIRE 0179	Instructional Methodology - Instructor I	
FIRE 0180	Instructional Development - Instructor II	
FIRE 0190	Human Resource Management for Chief Fire Officers - 3A	
FIRE 0191	Budget and Fiscal Responsibilities for Chief Fire Officers - 3B	
FIRE 0192	General Administrative Functions for Chief Fire Officers - 3C	
FIRE 0193	Emergency Service Delivery Resp. for Chief Fire Officers - 3D	
FIRE 0241	I-200: Incident Command System	

FIRE 0242	I-300: Intermediate ICS for Expanding Incidents	
FIRE 0243	I-400: Advanced ICS for Complex Incidents	
Total Units		30

**Firefighter II****Skills Certificate**

Designed to give students advanced firefighter knowledge and abilities required to enter the workforce. The focus is on the application of advanced skills relative to the field of Fire Technology. This is a specialty skills certificate designed to provide career technical skills; it is not equivalent to an associate degree.

**Required Courses**

FIRE 0098	Fire Technology Career Pathways	2
FIRE 0102	Firefighter II Training	4.5
Total Units		6.5

**Courses**

Understanding course descriptions (<http://catalog.sierracollege.edu/student-resources/course-information/understanding-course-descriptions>)

**FIRE 0001. Fire Protection Organization**

*Units: 3*

Hours: 54 lecture

Provides an overview to fire protection and emergency services; career opportunities in fire protection and related fields; culture and history of emergency services; fire loss analysis; organization and function of public and private fire protection services; fire departments as part of local government; laws and regulations affecting the fire service; fire service nomenclature; specific fire protection functions; basic fire chemistry and physics; introduction to fire protection systems; introduction to fire strategy and tactics; life safety initiatives. (CSU-with unit limitation)

**FIRE 0003. Fire Behavior and Combustion**

*Units: 3*

Advisory: Completion with grade of "C" or better or concurrent enrollment in FIRE 1

Hours: 54 lecture

Theory and fundamentals of how and why fires start, spread, and are controlled; an in-depth study of fire chemistry and physics, fire characteristics of materials, extinguishing agents, and fire control techniques. (CSU-with unit limitation)

**FIRE 0004. Fire Protection Equipment and Systems**

*Units: 3*

Advisory: Completion with grade of "C" or better or concurrent enrollment in FIRE 1

Hours: 54 lecture

Provides information relating to the features of design and operation of fire alarm systems, water-based suppression systems, special hazard fire suppression systems, water supply for fire protection and portable fire extinguishers in accordance with local, state and national guidelines. (CSU-with unit limitation)

**FIRE 0005. Fire Prevention Technology**

*Units: 3*

Advisory: Completion with grade of "C" or better or concurrent enrollment in FIRE 1

Hours: 54 lecture

Fundamental knowledge relating to the field of fire prevention. Topics include: history and philosophy of fire prevention; organization of a fire prevention bureau; use and application of codes and standards; plans review; fire inspections; fire and life safety education; and fire investigation. (CSU-with unit limitation)

**FIRE 0007. Fundamentals of Fire Service Operations**

*Units: 3*

Advisory: Completion with grade of "C" or better or concurrent enrollment in FIRE 1

Hours: 54 lecture

Fundamentals of fire department organization, management, and resources, and the use of those resources to control various emergencies. Includes safety, operational considerations, evaluation of tactics and strategies with a focus on making behavioral changes for positive outcomes. (CSU-with unit limitation)

**FIRE 0008. Building Construction for Fire Protection**

*Units: 3*

Advisory: Completion with grade of "C" or better or concurrent enrollment in FIRE 1

Hours: 54 lecture

Components of building construction related to firefighter and life safety. Elements of construction and design of structures as key factors when inspecting buildings, preplanning fire operations, and operating at emergencies. (CSU-with unit limitation)

**FIRE 0010. Principles of Fire and Emergency Services Safety and Survival**

*Units: 3*

Hours: 54 lecture

Introduces the basic principles and history related to the national firefighter life safety initiatives, focusing on the need for cultural and behavior change throughout the emergency services. (CSU-with unit limitation)

**FIRE 0028. Independent Study**

*Units: 1-3*

Designed for students interested in furthering their knowledge at an independent study level in an area where no specific curriculum offering is currently available. Independent study might include, but is not limited to, research papers, special subject area projects, and research projects. See Independent Study page in catalog. (CSU-with unit limitation)

**FIRE 0050. Basic Wildland Firefighter Training**

*Units: 3*

Hours: 61 (54 lecture, 7 laboratory)

Training in proper techniques to effectively and safely perform as a member of a fire crew in controlling and suppressing wildfire. Includes physics of fire behavior, complexities and inter-relationships of weather, topography, and wildland fuel beds in fire behavior, Incident Management Organization, personal safety, situational awareness and hazard recognition. Meets NWCG S-130, S-190, S-134, L-180 and I-100 requirements. (CSU-with unit limitation)

**FIRE 0073. Fire Hydraulics**

*Units: 3*

Hours: 54 lecture

Investigate the principles and characteristics of water and water flow, water supply systems, fire apparatus and pumps, and fire streams. Review of applied mathematics; hydraulic laws; and application of formulas and mental calculation to hydraulics and water supply problems, as applied to the fire service. (CSU-with unit limitation)

**FIRE 0074. Fire Apparatus and Equipment**

*Units: 3*

Hours: 54 lecture

Principles and techniques for maintaining and operating fire service pumping and other mobile apparatus. Fire service equipment and apparatus troubleshooting; principles and techniques of preventive maintenance; construction and operation of fire service pumps and pump accessories; basic highway operating techniques for fire apparatus; fire apparatus specifications and testing procedures. (CSU-with unit limitation)

**FIRE 0075. Wildland Fire Control**

*Units: 3*

Hours: 54 lecture

Principles and techniques of wildland fire prevention, behavior, control, and suppression. Covers legal areas of wildland fire protection, mutual aid, fire investigating and reporting methods, and ecology factors of wildland and urban interface fires. Complies with S-190, Basic Wildland Fire Behavior certification. (CSU-with unit limitation)

**FIRE 0078. Fire Tactics and Strategy**

*Units: 3*

Prerequisite: Completion of FIRE 0001 with grade of "C" or better or equivalent as determined by the Fire Technology Program Coordinator  
Hours: 54 lecture

Designed for students pursuing a career in the fire service. Provides a comprehensive and concise overview of common firefighting concepts, from fire dynamics to extinguishing agents, incident management, fire fighter safety, building construction, pre-incident planning and post-incident analysis. (CSU)

**FIRE 0095. Internship in Fire Technology**

*Units: 0.5-4*

Designed for advanced students to work in an area related to their educational or occupational goal. Provides new on-the-job technical training under the direction of a worksite supervisor, allowing students to expand knowledge and skills in the chosen field. Mandatory orientation session and faculty approval to determine eligibility. Students may earn up to a total of 16 units in internship courses (any course numbered 95 and PDEV 94). (CSU-with unit limitation)

**FIRE 0098. Fire Technology Career Pathways**

*Units: 2*

Hours: 40 lecture

Career exploration in fire technology. Includes educational planning of available degree programs, labor market research, and the hiring process: development of a resume, background investigations, personal history statements, interview dynamics, and hiring examinations. (not transferable)

**FIRE 0099. Introduction to Fire Academy***Unit: 1*

Advisory: Completion of ENGL A with grade of "C" or better

Hours: 32 (11 lecture, 21 laboratory)

Designed to prepare students with the basic knowledge and skills necessary to succeed in the Firefighter I Academy. Topics include: ropes and knots, donning and doffing SCBA's, fire hose rolls and loads, physical fitness, fire department duties, responsibilities and conduct. (not transferable)

**FIRE 0100. Firefighter I Academy***Units: 16*

Prerequisite: Completion of FIRE 0001 and HSCI 0002 with grades of "C" or better, possession of a current Emergency Medical Technician certificate, and submission of a physician's physical verification, including a spirometry test

Corequisite: concurrent enrollment in KIN 0097

Advisory: Completion of FIRE 0099 with grade of "C" or better

Hours: 546.5 (167 lecture, 379.5 laboratory)

Designed for entry level firefighters. Approved by the California State Board of Fire Services and Fire Marshal's Office. When combined with a specified experience component leads to state certification as a Firefighter I. Includes: fire behavior, control techniques, ground operations, hazardous materials, incident command system, auto extrication, salvage operations, and wildland fire behavior/control. Certificate of Completion issued with grade of "C" or better in both FIRE 0100 and KIN 0097. Physically demanding program. Materials fee required. (not transferable)

**FIRE 0101. Firefighter I Certification Testing***Unit: 1*

Prerequisite: 1) A signed statement by the agency's Fire Chief or designee stating the sponsored student has completed all SFT training requirements and skills sheets for Firefighter-1, or 2) Documentation of approval from the California State Fire Training for a certification retest, or 3) Completion of a Firefighter I academy and applying for certification testing

Hours: 52 (4 lecture, 48 laboratory)

Prepares students to meet the State Fire Training (SFT) requirements for Firefighter I (FFI) including the capstone knowledge and skills necessary to pass FFI. Upon successful completion, students receive a pass letter from SFT and a FFI pass certificate from the college. (pass/no pass grading) (not transferable)

**FIRE 0102. Firefighter II Training***Units: 4.5*

Prerequisite: Certified Firefighter I or equivalent as determined by the Fire Technology Program Coordinator; possession of a current Emergency Medical Technician certificate; and submission of a physician's physical verification, including a spirometry test

Hours: 128 (58 lecture, 70 laboratory)

Provides the skills and knowledge needed for the entry level firefighter to perform his/her duties safely, effectively, and competently. Covers general knowledge germane to the profession, fire department communications, fireground operations, rescue operations, prevention, preparedness and maintenance. (not transferable)

**FIRE 0154. Fire Investigation 1A - Fire Cause, Origin and Determination***Units: 2*

Formerly known as FIRE 62

Hours: 40 lecture

Develop skills to determine the origin and cause of fire, its human and environmental effects and develop interpersonal skills needed to successfully investigate, apprehend, and convict an arsonist. (CSU-with unit limitation)

**FIRE 0155. Fire Investigation 1B - Techniques of Fire Investigation***Units: 2*

Prerequisite: Completion of FIRE 154 with grade of "C" or better or completion of an approved Fire Investigation 1A class

Hours: 40 lecture

Investigation of fire behavior; building construction; techniques required for incendiary, accidental, fatal, vehicle, wildland, and juvenile fire investigations; report writing; and evidence collection and preservation procedures. (CSU-with unit limitation)

**FIRE 0170. Hazardous Materials - Operational Level***Units: 0.5,1*

Formerly known as FIRE 0041

Hours: 16 lecture for 0.5 unit; 24 lecture for 1 unit

First responder course covering common alarms, roles and responsibilities, legal aspects, exposure and response safety, medical surveillance, recognition and identification, basic chemistry, personal protective equipment, scene management, preincident planning and table-top exercises. Meets federal and state training requirements. (CSU-with unit limitation)

**FIRE 0171. Introduction to Wildland Fire Behavior S-190***Units: 0.5*

Hours: 9 lecture

Wildland fire behavior factors important for understanding fire spread principles and applying safe and effective suppression techniques. Meets standards prescribed by the National Wildfire Coordinating Group and the CA Incident Command Certification System for S-190 certification. (not transferable)

**FIRE 0172. Intermediate Wildland Fire Behavior S-290***Unit: 1.5*

Prerequisite: Completion of FIRE 171 with grade of "C" or better or a certified S-190 course as prescribed by the National Wildfire Coordinating Group

Hours: 32 lecture

Covers fire behavior prediction skills and knowledge related to wildland fires. Meets standards prescribed by the National Wildfire Coordinating Group and the CA Incident Command Certification System for S-290 certification. (not transferable)

**FIRE 0173. Hazardous Materials - Incident Commander***Units: 0.5*

Formerly known as FIRE 0202

Prerequisite: Completion of FIRE 241 with grade of "C" or better or a certified Hazardous Materials First Responder Operational course; and I-100 (Basic Incident Command System) or equivalent as determined by the Fire Technology Program Coordinator

Hours: 16 lecture

Recommended for fire service professionals; provides information needed to assume control of an emergency response to a hazardous materials incident. Focuses on how to assess hazards, manage risk, comply with legal requirements and implement protective actions. Instructional methods include class activities, case studies, and table top exercises with emphasis on hands-on decision making. (not transferable)

**FIRE 0174. Human Resource Management for Company Officers - CO 2A***Units: 2*

Prerequisite: Completion of California State Firefighter II educational requirements

Hours: 40 lecture

Designed for firefighters seeking to work in the supervisory role. Provides information on using human resources to accomplish assignments; evaluating member performance; supervising personnel; and integrating health and safety plans, policies, and procedures into both daily fire service activities and emergencies. Part of a series required for Company Officer Certification by California State Fire Training. (CSU-with unit limitation)

**FIRE 0175. General Administrative Functions for Company Officers - CO 2B***Unit: 1*

Prerequisite: Completion of California State Firefighter II educational requirements

Advisory: Completion of FIRE 174 with grade of "C" or better

Hours: 24 lecture

Designed for firefighters seeking to work in the supervisory role. Provides information on general administrative functions and the implementation of department policies and procedures, and addresses conveying the fire department's role, image and mission to the public. This course is part of a series required for Company Officer Certification by California State Fire Training. (CSU-with unit limitation)

**FIRE 0176. Fire Inspections and Investigation for Company Officers - CO 2C***Units: 2*

Prerequisite: Completion of California State Firefighter II educational requirements

Hours: 40 lecture

Designed for working firefighters. Information on conducting inspections; identifying hazards and addressing violations; performing a fire investigation to determine preliminary cause; and securing the incident scene and preserving evidence. Course is one of a series required for Company Officer Certification by California State Fire Training. (CSU-with unit limitation)

**FIRE 0177. All-Risk Command Operations for Company Officers - CO 2D***Unit: 1.5*

Prerequisite: Completion of California State Firefighter II educational requirements; completion of FIRE 173 and FIRE 241 with grades of "C" or better

Hours: 40 (24 lecture, 16 laboratory)

Designed for the working firefighter. Provides information on conducting incident size-up; developing and implementing an initial plan of action involving single and multi-unit operations for various types of emergency incidents to mitigate the situation following agency safety procedures; conducting pre-incident planning; and developing and conducting a post-incident analysis. One of a series of courses required for Company Officer certification by California State Fire Training. (CSU-with unit limitation)

**FIRE 0178. Wildland Incident Operations for Company Officers - CO 2E***Unit: 1.5*

Prerequisite: Completion of California State Firefighter II educational requirements; completion of FIRE 172 and FIRE 177 with grades of "C" or better or provide copies of S-290 (Classroom delivery only) and HAZ MAT Incident Commander certifications, or equivalent as determined by the instructor

Hours: 40 (24 lecture, 16 laboratory)

Designed for the working firefighter, this course provides information on evaluating and reporting incident conditions, analyzing incident needs, developing and implementing a plan of action to deploy incident resources completing all operations to suppress a wildland fire, establishing an incident command post, creating an incident action plan, and completing incident records and reports. This Company Officer course is one of a series required for Company Officer certification by California State Fire Training. (CSU-with unit limitation)

**FIRE 0179. Instructional Methodology - Instructor I***Unit: 1.5*

Advisory: IS-100.B (Introduction to the Incident Command System) and IS-700.A (FEMA - National Incident Management System)

Hours: 40 (24 lecture, 16 laboratory)

Designed for working firefighters, this course provides the skills and knowledge needed for the entry level professional instructor to perform his or her duties safely, effectively, and competently. The curriculum is based on the 2012 edition of NFPA 1041 Standard for Fire Service Instructor Professional Qualifications. At the end of this course, candidates for Instructor I certification are able to teach and deliver instruction from a prepared lesson plan utilizing instructional aids and evaluation instruments. The Instructor I is also able to adapt a lesson plan and complete the reporting requirements to the local jurisdiction. Course is one of a series required for Company Officer Certification by California State Fire Training. (CSU-with unit limitation)

**FIRE 0180. Instructional Development - Instructor II***Unit: 1.5*

Prerequisite: Completion of FIRE 179 with grade of "C" or better  
Advisory: IS-100.B (Introduction to the Incident Command System) and IS-700.A (FEMA - National Incident Management System)

Hours: 40 (24 lecture, 16 laboratory)

This course is designed for those seeking to become fire service instructors and provides the skills and knowledge needed for the intermediate level professional instructor to perform his or her duties safely, effectively, and competently. At the end of this course, candidates for Instructor II certification are able to develop lesson plans and evaluation instruments, teach and deliver instruction, and evaluate and coach other instructors. The Instructor II is also able to analyze resources and formulate a program budget. (CSU-with unit limitation)

**FIRE 0190. Human Resource Management for Chief Fire Officers - 3A***Unit: 1*

Prerequisite: Meet the educational requirements for Company Officer by one of the following: completion of FIRE 174, 175, 176, 177, 178, and 179 with grades of "C" or better; or completion of Office of the State Fire Marshal Company Officer 2A, 2B, 2C, 2D, 2E, and Instructor I courses; or equivalent as determined by the Fire Technology Program Coordinator  
Hours: 26 lecture

Designed for Company Officers advancing to the Chief Officer classification. Provides basic knowledge of human resource requirements related to the roles and responsibilities of a Chief Fire Officer. Includes developing plans for providing employee accommodation, developing hiring procedures, establishing personnel assignments, describing methods of facilitating and encouraging professional development, developing an ongoing education training program, developing promotion procedures, developing proposals for improving employee benefits, and developing a measurable accident and injury prevention program. (not transferable)

**FIRE 0191. Budget and Fiscal Responsibilities for Chief Fire Officers - 3B***Unit: 1*

Prerequisite: Meet the educational requirements for Company Officer by one of the following: completion of FIRE 174, 175, 176, 177, 178, and 179 with grades of "C" or better; or completion of Office of the State Fire Marshal Company Officer 2A, 2B, 2C, 2D, 2E, and Instructor I courses; or equivalent as determined by the Fire Technology Program Coordinator  
Hours: 18 lecture

Provides a basic knowledge of the budgeting requirements related to the roles and responsibilities of a Chief Fire Officer, including developing a budget management system, developing a division or departmental budget, and describing the process for ensuring competitive bidding. (not transferable)

**FIRE 0192. General Administrative Functions for Chief Fire Officers - 3C***Unit: 1*

Prerequisite: Meet the educational requirements for Company Officer by one of the following: completion of FIRE 174, 175, 176, 177, 178, and 179 with grades of "C" or better; or completion of Office of the State Fire Marshal Company Officer 2A, 2B, 2C, 2D, 2E, and Instructor I courses; or equivalent as determined by the Fire Technology Program Coordinator  
Hours: 24 lecture

Provides a basic knowledge of the administration requirements related to the roles and responsibilities of a Chief Fire Officer, including directing a department record management system, analyzing and interpreting records and data, developing a model plan for continuous organizational improvement, developing a plan to facilitate approval, preparing community awareness programs, and evaluating the inspection program of the authority having jurisdiction (AHJ). (not transferable)

**FIRE 0193. Emergency Service Delivery Resp. for Chief Fire Officers - 3D***Unit: 1*

Prerequisite: Meet the educational requirements for Company Officer by one of the following: completion of FIRE 174, 175, 176, 177, 178, and 179 with grades of "C" or better; or completion of Office of the State Fire Marshal Company Officer 2A, 2B, 2C, 2D, 2E, and Instructor I courses; or equivalent as determined by the Fire Technology Program Coordinator  
Hours: 24 lecture

Provides a basic knowledge of the emergency service requirements related to the roles and responsibilities of a Chief Fire Officer, including developing a plan for the integration of fire services resources, developing an agency resource contingency plan, evaluating incident facilities, supervising multiple resources, developing and utilizing an incident action plan, obtaining incident information to facilitate transfer of command, developing and conducting a post-incident analysis, and maintaining incident records. (not transferable)

**FIRE 0241. I-200: Incident Command System***Units: 0.5*

Hours: 12 lecture

Introduction to Incident Command System (ICS) National Training curriculum. Includes principles and features, organization overview, incident facilities, resources, and common responsibilities. ICS 200 certification is the minimum requirement for attending ICS 200 level courses and functioning in a Unit Leader position during an incident. (not transferable)

**FIRE 0242. I-300: Intermediate ICS for Expanding Incidents***Unit: 1*

Prerequisite: Completion of FIRE 241 with grade of "C" or better

Hours: 24 lecture

Covers organization and staffing, incident resources management, organizing for incidents or events, incident and event planning and air operations within the Incident Command System national training curriculum. (pass/no pass grading) (not transferable)

**FIRE 0243. I-400: Advanced ICS for Complex Incidents***Units: 0.5*

Prerequisite: Completion of FIRE 242 with grade of "C" or better

Hours: 16 lecture

Covers command and general staff, unified command, major incident management and area command within the Incident Command System national training curriculum. (pass/no pass grading) (not transferable)

**FIRE 0608. Basic Structural Firefighter***Units: 4.5*

Hours: 150 (55 lecture, 95 laboratory)

Entry-level course for volunteer firefighters. Topics include fire behavior, safety, personal protective equipment, forcible entry, rescue, ground ladders, hoses, fire streams and nozzles, and fire control principles. (pass/no pass grading) (not degree applicable)

**FIRE 0618. Fire Control 4A and 4B-Flammable Gases and Liquids***Units: 0.5*

Hours: 11 (8 lecture, 3 laboratory)

Examines flammable gases and liquids including characteristics, hazards, and tactics, through case studies and field exercises. (pass/no pass grading) (not degree applicable)

**FIRE 0624. CAL FIRE Basic Wildland Firefighter Training***Units: 3.5*

Hours: 80 (58 lecture, 22 laboratory)

Basic firefighting course covering fire physics, vegetation fire terminology, general safety, self-contained breathing apparatus, fireline safety, aircraft safety, mobile equipment, fire equipment, and wildland and structure firefighting. Meets minimum training requirements for CAL FIRE Firefighter I personnel. (pass/no pass grading) (not degree applicable)

**FIRE 0632. Auto Extrication***Units: 0.5*

Hours: 24 (9.5 lecture, 14.5 laboratory)

Provides the knowledge and skills to prepare a firefighter to extricate victim(s) from a common passenger vehicle in a safe and effective manner. (pass/no pass grading) (not degree applicable)

**FIRE 0634. Driver Operator 1A***Unit: 1.5*

Prerequisite: Hold a valid Class C driver's license

Hours: 40 (23 lecture, 17 activity)

Provides information on fire apparatus, preventative maintenance and driving/operating. Topics include routine tests, inspections, and servicing functions; operate, back, maneuver, and turn a fire apparatus in a variety of conditions; and operate all fixed systems and equipment on a fire apparatus. Students must provide full structural personal protective equipment and fire apparatus for the final two days of class. Fulfills the requirements for a Class C Firefighter Endorsement. (pass/no pass grading) (not degree applicable)

**FIRE 0635. Driver/Operator 1B - Pumping Apparatus Operations***Unit: 1.5*

Prerequisite: Completion of FIRE 634 with grade of "C" or better, and completion of Firefighter 1, or equivalent as determined by the Fire Technology Program Coordinator

Hours: 40 (18 lecture, 22 activity)

Provides information on pumping apparatus preventive maintenance and operations. Topics include routine tests, inspections, and servicing functions; producing hand, master, and foam fire streams, relay pump operations; and supplying water to fire sprinkler and standpipe systems. Students must provide full structural personal protective equipment and fire apparatus for the final three days of class. (pass/no pass grading) (not degree applicable)

**FIRE 0637. Confined Space Awareness***Units: 0.5*

Hours: 9 lecture

Instruction in identifying a permit and non-permit required confined space, the hazards associated with confined spaces, target industries and hazards, state regulations, communications and equipment requirements. This course does not qualify participants to make permit required entries. (pass/no pass grading) (not degree applicable)

**FIRE 0638. Low Angle Rope Rescue Operational***Units: 0.5*

Hours: 24 (8 lecture, 16 laboratory)

Designed to equip the student with the techniques and methods for using rope, webbing, hardware friction devices and litters in low angle rescue situations. Areas covered include rope and related equipment, anchor systems, safety lines, stretcher lashing and rigging, mechanical advantage systems and single and two line rescue systems. (pass/no pass grading) (not degree applicable)

**FIRE 0639. Ethical Leadership in the Classroom***Units: 0.5*

Hours: 9 lecture

An examination of fundamental ethical values of fire service instructors by exploring examples of ethical behavior in the classroom environment. Includes basic concepts, terms and theories of ethical decision making, code of ethics, and concepts in ethical leadership. (pass/no pass grading) (not degree applicable)

**FIRE 0640. Hazardous Materials Technician 1A, Basic Chemistry***Units: 2*

Prerequisite: Completion of FIRE 170 with grade of "C" or better or approved Federal/State equivalent course

Hours: 40 lecture

Basic aspects of chemistry and physics related to management of a hazardous materials incident. Covers physical and chemical properties of matter, atomic structure, periodic table, metals and non-metals, salts, hydrocarbons and derivatives, forms of energy, the combustion process, flammable and combustible liquids. Meets standards prescribed by the CA State Fire Marshal, and Office of Emergency Services. (pass/no pass grading) (not degree applicable)

**FIRE 0641. Hazardous Materials Technician 1B, Applied Chemistry***Unit: 1.5*

Prerequisite: Completion of FIRE 640 with grade of "C" or better or approved Federal/State equivalent course(s)

Hours: 40 (24 lecture, 16 laboratory)

Basic terminology and theory of chemistry as it relates to hazardous materials. Covers chemical aspects of the hazard classes, toxicology, including hazard and risk assessment, function and use of detection instruments, monitoring hazardous atmospheres and use of a field identification kit to identify unknown solids and liquids. Meets standards prescribed by the CA State Fire Marshal and Office of Emergency Services. (pass/no pass grading) (not degree applicable)

**FIRE 0642. Hazardous Materials Technician 1C, Incident Considerations***Unit: 1.5*

Prerequisite: Completion of FIRE 641 with grade of "C" or better or approved Federal/State equivalent course(s)

Hours: 40 (26 lecture, 14 laboratory)

Hazardous materials on-scene incident considerations. Covers data research, meteorological considerations, protective actions, personal protective equipment, incident command aspects, site safety concepts, legislative and regulatory measures influencing emergency response and contingency planning. Meets standards prescribed by the CA State Fire Marshal and Office of Emergency Services. (pass/no pass grading) (not degree applicable)

**FIRE 0643. Hazardous Materials Technician 1D, Tactical Field Operations***Unit: 1.5*

Prerequisite: Completion of FIRE 642 with grade of "C" or better or approved Federal/State equivalent course(s)

Hours: 40 (24 lecture, 16 laboratory)

Experience with tactical field operations. Covers confinement, control, hazmat triage and sabotage, performing in chemical protective clothing, preservation of evidence, decontamination, and emergency medical system considerations. Meets standards prescribed by the CA State Fire Marshal and Office of Emergency Services. (pass/no pass grading) (not degree applicable)



**FIRE 0644. Hazardous Materials Specialist 1F***Unit: 1.5*

Prerequisite: Completion of FIRE 643 with grade of "C" or better or approved Federal/State equivalent course(s)

Hours: 40 (32 lecture, 8 laboratory)

Introduction to mitigation techniques. Includes plugging, patching and repairing methods; advanced chemical field identification testing procedures, and fixed facility repair considerations. Part one of a two part series leading to certification as a Hazardous Materials Specialist. Meets requirements of CA Code of Regulations Title 8, Section 519(q). (pass/no pass grading) (not degree applicable)

**FIRE 0645. Hazardous Materials Specialist 1G***Unit: 1*

Prerequisite: Completion of FIRE 644 with grade of "C" or better or approved federal/state equivalent course(s)

Hours: 40 (16 lecture, 24 laboratory)

Covers material presented in Hazardous Materials Courses 1A-1F in an environment of scenario based full scale exercises. Participants evaluated for their ability to perform and be certified as a member of a Hazardous Materials Team. (pass/no pass grading) (not degree applicable)

**FIRE 0650. Rescue Systems I***Unit: 1.5*

Prerequisite: Completion of FIRE 638 with grade of "C" or better or completion of a State Fire Marshal approved Low Angle Rope Rescue Operational course

Hours: 40 (21 lecture, 19 laboratory)

Rescue systems, ropes and related equipment, heavy object operations, breaking and breaching operations, ladder rescues, and emergency shoring. Required for CA Urban Search and Rescue basic and light operational level training. (pass/no pass grading) (not degree applicable)

## Program Student Learning Outcomes (PSLOs)

- Communicate effectively in both oral presentations and written reports and research papers.
- Analyze and evaluate data to solve Fire Technology problems.
- Recognize the importance of ethics and professionalism within the Fire Technology field.
- Analyze and apply measures to resolve problems in areas of suppression, prevention, and EMS.
- Demonstrate technical, cognitive, and psycho-motor skills necessary to achieve and maintain employment in the fire service.