

# FIRE TECHNOLOGY

This program prepares students to enter the field of fire technology as a firefighter or administrative assistants to fire chiefs. Firefighters are required to carry out emergency duties such as fire suppression, rescue, first aid, hazardous materials clean up, and related incidents. Non-emergency duties include prevention, training, station maintenance, equipment maintenance, and other related tasks.

## Career Opportunities

### A.S./Certificate Level

Firefighter	Administrative Assistant
Staff Assistant	Fire Protection Engineer

### B.S. Level

Instructor	Fire Chief
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## Faculty

### Full-Time

J. Russ Emory	Gary W. Morgan	James Petersen
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### Part-Time

Gary Aalberts	Massoud Araghi
Darwin Base	Tamara Crudo
Brad Ditto	Ed Foster
Bruce Hodge	Robert Holaway
Stephanie Huhn	Mike Ketaily
David Kromka	Mike LaPlant
Luis Manzano	Nancy Merman
Dana Sullivan	

## ◆ Fire Technology (Pre-Service)

### Associate in Science Degree

#### Certificate of Achievement

This program prepares students to enter the field of fire technology as a firefighter. Firefighters are required to carry out emergency duties such as fire suppression, rescue, first aid, hazardous materials clean up, and related incidents. Non-emergency duties include prevention, training, station maintenance, equipment maintenance, and other related tasks.

#### Required Courses:

		Units
FT R151	Fire Protection Organization	3
FT R152	Fire Prevention Technology	3
FT R154	Fire Behavior and Combustion	3
FT R155	Fire Protection Equipment and Systems	3
FT R161	Building Construction	3

**Total State Fire Marshal's CORE Required Units 15**

#### Required Additional Courses:

FT R153	Fundamentals of Personal Fire Safety and Emergency Actions	3
FT R156	Fundamentals of Fire Protection	3
FT R169A	Emergency Medical Technician I	8

**Total OC Required Units 29**

Complete a minimum of one course from the following:

FT R157	Wildland Fire Control	3
FT R157L	Wildland Fire Control Lab	1½
FT R160	Fire Tactics and Strategy	3
FT R162	Related Codes and Ordinances	3
FT R163	Fire Hydraulics	3
FT R164	Fire Company Organization and Management	3
FT R165	Hazardous Materials	3
FT R167	Fire Apparatus and Equipment	3
FT R168	Fire Investigation	3
ET R100	Introduction to Environmental Technology	3

ET R101	Hazardous Waste Reduction/Treatment	3
ET R102*	Health Effects of Hazardous Materials	3
ET R103	Hazardous Waste Management Applications	4
ET R104	Safety and Emergency Response	4
ET R105	Hazardous Materials Management Application	4

**Total Required Units 32 - 33**

## ◆ Fire Prevention Technology (Pre-Service)

### Associate in Science Degree

#### Certificate of Achievement

This program prepares students to enter the field of the Fire Service as well as the public and private industry as a Fire Prevention Inspector. Fire inspectors are required to carry out general fire inspection practices and procedures including: hazardous and toxic materials, life safety, building construction, alarms, sprinkler and alarm systems, and properly maintained ways of egress. Fire inspectors must also provide code interpretation and applications of legal precedents and must possess good report writing skills.

Students who want to transfer to a four-year college or university should consult a counselor.

#### Required Courses:

		Units
FT R151	Fire Protection Organization	3
FT R152	Fire Prevention Technology	3
FT R154	Fire Behavior and Combustion	3
FT R155	Fire Protection Equipment and Systems	3
FT R161	Building Construction	3

**Total State Fire Marshal's CORE Required Units 15**

#### Required Additional Courses:

FT R156	Fundamentals of Fire Protection	3
FT R162	Related Codes and Ordinances	3
FT R165	Hazardous Materials	3
FT R166	Fire Services Records/Reports	3
FT R168	Fire Investigation	3

**Total OC Required Units 30**

Complete a minimum of one course from the following:

CIS R100	Introduction to Computer Information Processing Systems	3
ET R100	Introduction to Environmental Technology	3
ET R101	Hazardous Waste Reduction/Treatment	3
ET R102*	Health Effects of Hazardous Materials	3
ET R103	Hazardous Waste Management Applications	4
ET R104	Safety and Emergency Response	4
ET R105	Hazardous Materials Management Application	4

**Total Required Units 33 - 34**

\*Course being revised

## ◆ Fire Technology (Administrative Fire Services)

### Associate in Science Degree

#### Certificate of Achievement

The administrative fire services degree is designed to prepare students for careers as administrative assistants to fire chiefs and as staff assistants to fire protection engineers and chief officers, to enable fire department secretaries to upgrade skills in the area of fire protection, and to give persons from other disciplines an opportunity to expand their knowledge of fire services. The program meets requirements of the California Fire Chief's Association Administrative Fire Services Division and college or university preparation.

#### Core Requirements:

		Units
FT R151	Fire Protection Organization	3
CIS R100	Introduction to Computer Information Processing Systems	3
BUS R101A	Principles of Accounting I	3

BUS R111A	Business Law I	3
BUS R121	Introduction to Management	3

**Total CORE Requirements 15**

Students will select ONE of the following options and complete the courses listed:

**Option I—Administration**

FT R166	Fire Services Records/Reports	3
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**Total CORE plus Option I Requirements 18\***

\*Plus one more course, to be determined by the department.

**Option II—Law**

FT R152	Fire Prevention Technology	3
FT R162	Related Codes and Ordinances	3

**Total CORE plus Option II Requirements 21**

**Option III—Communication**

BUS R140	Business Communications	3
BUS R141	Introduction to Public Relations	3
FT R084A	Fire Instructor IA	2½
FT R084B	Fire Instructor IB	2½

**Total CORE plus Option III Requirements 25**

**◆ Fire Technology (In-Service)**

**Associate in Science Degree Certificate of Achievement**

This program is designed for the person who is employed by a recognized fire service (i.e. county fire departments, city fire departments, forestry service). Students completing the following required State Fire Marshal courses will receive certificates of completion from the college and from the state.

Required Courses	Units	
FT R080A	Fire Prevention IA	2½
FT R080B	Fire Prevention IB	2½
FT R080C	Fire Prevention IC	2½
FT R081A/B	Fire Investigation IA/B	2½-2½
FT R082	Fire Management I	2½
FT R083A	Fire Command IA	2½
FT R083B	Fire Command IB	2½
FT R084A	Fire Instructor IA	2½
FT R084B	Fire Instructor IB	2½
FT R165	Hazardous Materials	3
<b>Total Required Units</b>	<b>28</b>	

**Fire Technology Courses**

**FT R069B—Emergency Medical Training I/Recertification 1½ units**

*Prerequisites: FT R169A or equivalent course work. 4 hours lecture for 6 weeks, plus ½ hour per week by arrangement*

Refresher course for EMT/Fire Service recertification. Curriculum designed to present students with updated and new technology in areas of emergency pre-hospital care. Course may be taken four times.

**FT R070—Firefighter I Academy 16 units**

*Prerequisites: FT R169A & FT R151. Advisory: FT R152, FT R154, FT R156 & FT R161. 10 hours lecture, 18 hours lab weekly*

This class provides information about fire service employment opportunities. The following topics are also covered: Technical and manipulative training in basic concepts of fire department apparatus, tools and equipment; tactics and strategy; extinguishers and fire protection equipment; hazardous materials; petroleum fire control; fire service ladders and ladder evolutions; structural ventilation and salvage operations; wildland fire control; inspection and maintenance of fire department stations and equipment; fire characteristics; apparatus and equipment inspection; breathing apparatus; communication systems; and ropes, knots and hitches. All exams require an 80% for

a passing grade for all academic and manipulative tests as per State Fire Marshal requirements. Materials fee is required. Field trips may be required. Course may be taken four times.

**FT R070A—Firefighter I Academy A 8 units**

*Prerequisites: FT R169A and FT R151. Advisory: FT R152, FT R154, FT R156 & FT R161. 5 hours lecture, 9 hours lab weekly*

This class provides information about fire service employment opportunities. The following topics are also covered: technical and manipulative training in basic concepts of fire department apparatus, tools and equipment, hazardous materials, fire service ladders and ladder evolutions, salvage operations, inspection and maintenance of fire department stations, equipment operation, hose, nozzles, fittings, hose evolutions, breathing apparatus, ropes, knots and hitches. All exams require 80% for a passing grade for all academic and manipulative tests as per State Fire Marshal requirements. Materials fee is required. Field trips may be required. Course may be taken four times.

**FT R070B—Firefighter I Academy B 8 units**

*Prerequisites: FT R070A. 5 hours lecture, 9 hours lab weekly*

Class provides information about fire service employment opportunities. The following topics are also covered: tactics and strategy, extinguishers and fire protection equipment, petroleum fire control, structural ventilation, wildland fire control, fire characteristics, apparatus and equipment inspection, fire organization, fire control, salvage, breathing apparatus, communication systems. Materials fee is required. Field trips may be required. Course may be taken four times.

**FT R072—Spanish for Firefighters 2 units**

*2 hours lecture weekly*  
Course develops basic Spanish language communication skills for emergency personnel. It emphasizes elementary structure, correct pronunciation, practical and emergency vocabulary and expressions used in filling out forms, first aid procedures, reassuring victims, crowd control, and responding to emergency calls involving Hispanics with limited English language proficiency. Hispanic culture and sensitivity training are included. Course may be taken two times. (2)

**NOTE: The following courses are State Fire Marshal Courses that can lead to Fire Officer Certificate:**

**FT R080A—Fire Prevention IA 2½ units**

*Advisory: FT R151. 2½ hours lecture weekly*  
General fire inspection practices, inspector's responsibilities, code interpretations and legal precedents, hazardous and toxic materials, hazardous processes, life safety and procedures for correcting fire and life hazards. Materials fee is required. (2)

**FT R080B—Fire Prevention IB 2½ units**

*Prerequisites: FT R080A. 2½ hours lecture weekly*  
Building construction principles, occupancy classifications and fire protection systems as they relate to fire and life safety. Importance of detection, alarm systems, properly maintained ways of egress and emergency evacuation procedures are also stressed. Materials fee is required. (2)

**FT R080C—Fire Prevention IC 2½ units**

*Prerequisites: FT R080A and FT R080B. 2½ hours lecture weekly*  
Key topics include physical properties of flammable liquids and gases, outside storage and handling of bulk flammable liquids and gases, regulations and procedures for the installation of storage tanks and containers, regulations relative to the transportation of flammable liquids and gases, and procedures for controlling compressed and liquefied gas leaks. Materials fee is required. (2)

**FT R081A—Fire Investigation IA** 2½ units  
2½ hours lecture weekly

Course covers fire behavior; building construction; techniques required for incendiary, accidental, fatal, vehicle, wildland and juvenile fire investigation; report writing, evidence collection and proper custodial procedures for evidence. Materials fee is required. (2)

**FT R081B—Fire Investigation IB** 2½ units  
*Prerequisites:* FT R081A.  
2½ hours lecture weekly

Provides advanced training in fire/explosion investigative techniques, evidence preservation, courtroom testimony, interview and interrogation techniques, and fire cause/origin determination. This course provides the necessary job and interpersonal skills necessary to successfully investigate fires, apprehend those responsible, and convict them. Materials fee is required. (2)

**FT R082—Fire Management I** 2½ units  
*Advisory:* FT R151.  
2½ hours lecture weekly

Fundamental course covers such topics as key concepts of supervision and management, decision-making for supervisors, leadership styles and techniques, development of policies and procedures, time management, stress management, and personnel appraisal and counseling guidelines. Materials fee is required. Field trips may be required.

**FT R083A—Fire Command IA** 2½ units  
*Advisory:* FT R151.  
2½ hours lecture weekly

Key topics in this course include: emergency scene management; fire behavior; initial ground resources; tactics and strategy; and fire ground simulation scenarios specifically designed for the first-in officer. Materials fee is required. Field trips may be required.

**FT R083B—Fire Command IB** 2½ units  
*Advisory:* FT R083A.  
2½ hours lecture weekly

This course provides instruction in first-in company level decision making and scene management principles for incidents involving chemicals and hazardous materials. Included are: scene safety procedures; evacuation considerations; and identification of materials by container size, shape and labeling. Materials fee is required. Field trips may be required.

**FT R084A—Fire Instructor IA** 2½ units  
*Advisory:* FT R151.  
2½ hours lecture weekly

Topics include occupational analysis, course outlines, concepts of learning, levels of instruction, behavioral objectives, using lesson plans, the psychology of learning, evaluation of effectiveness, and student teaching demonstrations. Materials fee is required. Field trips may be required.

**FT R084B—Fire Instructor IB** 2½ units  
*Advisory:* FT R084A.  
2½ hours lecture weekly

Topics include preparing course outlines; establishing levels of instruction; constructing behavioral objectives and lesson plans; instructional aid development; fundamentals of testing and measurements; tests planning; evaluation techniques and tools; and student teaching demonstrations. Materials fee is required. Field trips may be required.

**FT R085A—Driver/Operator IA** 2½ units  
2½ hours lecture weekly

Course is designed to provide the student with information on driver techniques for emergency vehicles and techniques of basic inspection and maintenance of emergency vehicles, including actual driving exercises under simulated emergency conditions. Fee required for certification. (2)

**FT R085B—Driver/Operator IB** 2½ units  
2½ hours lecture weekly

Course provides the student with information, theory, methods, and techniques for operating fire service pumps. Subjects include types of pumps, engine and pump gauges, maintenance, unsafe pumping conditions, pressure relief devices, cooling systems, water supplies, drafting, field hydraulics, and pumping operations. Fee required for certification. (2)

**FT R086A—Hazardous Materials IA** 2½ units  
2½ hours lecture weekly

Course provides an intensive introduction to the nature and behavior of inorganic and organic chemicals. Various laws of chemistry are discussed as they apply to organic compounds, flammable liquids and gases and other types of hazardous materials. Fee required for certification. (2)

**FT R086B—Hazardous Materials IB** 2½ units  
*Prerequisites:* FT R086A.  
2½ hours lecture weekly

Course deals with the application of information learned in Module IA. Students will be introduced to field monitoring and detection devices, sample collection equipment, and field identification testing procedures for verifying, identifying and classifying unknown materials. Fee required for certification. (2)

**FT R086C—Hazardous Materials IC** 2½ units  
*Prerequisites:* FT R086B.  
2½ hours lecture weekly

Course provides an introduction to the Hazardous Materials Incident Command System and an in-depth look at protective equipment considerations, use of monitoring equipment and protective actions. Fee required for certification. (2)

**FT R086D—Hazardous Materials ID** 2½ units  
*Prerequisites:* FT R086C.  
2½ hours lecture weekly

Course provides the student with practical “hands on” training in tactical field operations with various tools and specialized equipment. Fee required for certification. (2)

**FT R086E—Hazardous Materials IC/Scene Manager** 2½ units  
2½ hours lecture weekly

Course is designed to provide participants with an increased capability to assume the role of an Incident Commander/Scene Manager during hazardous materials events with specific emphasis on personnel safety and management of the Haz Mat scene. A field exercise emphasizes unified management of a typical Haz Mat incident. This course is targeted and helpful for anyone who may assume an ICS Command or general staff role on a Haz Mat incident. Fee required for certification. (2)

**FT R093A—Fire Command 2A** 2½ units  
*Prerequisites:* FT R083A.  
2½ hours lecture weekly

Course provides the participants with information on how to make the transition from supervisor to manager. It offers sound management principles in preparation for more intensified training in specific disciplines. Topics of discussion include internal and external influences, personality traits of firefighters, managing human relations, group dynamics, conflict solution and more. Materials fee is required. (2)

**FT R094A—Fire Management IIA** 2½ units  
*Advisory:* FT R082.  
2½ hours lecture weekly

This course provides the participants with information on how to make the transition from supervisor to manager. It offers sound management principles in preparation for more intensified training in specific disciplines. Topics of discussion include internal and external influences, personality traits of firefighters, managing human relations, group dynamics, conflict solution and more. Materials fee is required. Field trips may be required. Not applicable for degree credit.

**FT R098—Short Courses in Fire Technology 1-10 units***Lecture and/or lab hours as required by unit formula*

Specialized workshops designed to update fire fighting personnel as required for in-service training requirements in specific subject matter areas. Unit credit determined by length of instruction of the workshop as defined by current credit standards; total workshop credit limited to 10 units. (2)

**\* Required courses for Associate of Science Degree or Fire Technology Certificate. FT R151 not required for those employed in the Fire Service, although the 32-unit college requirement must be met.**

**FT R151—Fire Protection Organization\* 3 units***3 hours lecture weekly*

Provides introduction to fire protection; career opportunities in fire protection and related fields; philosophy and history of fire protection; 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.

*Transfer credit: CSU***FT R152—Fire Prevention Technology\* 3 units***Prerequisites: FT R151.**3 hours lecture weekly*

Provides fundamental information regarding the history and philosophy of fire prevention, organization and operation of a fire prevention bureau, use of fire codes, identification and correction of fire hazards, and the relationship of fire prevention with fire safety education and detection and suppression systems.

*Transfer credit: CSU***FT R153—Fundamentals of Personal Fire Safety and Emergency Action\* 3 units***Prerequisites: FT R151.**3 hours lecture weekly*

Designed to provide basic skills in assessing fire dangers, handling common fire situations in the home and/or industry, basic CPR, and standard first aid.

*Transfer credit: CSU***FT R154—Fire Behavior and Combustion\* 3 units***Prerequisites: FT R151.**3 hours lecture weekly*

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.

*Transfer credit: CSU***FT R155—Fire Protection Equipment/Systems\* 3 units***Prerequisites: FT R151.**3 hours lecture weekly*

Provides information relating to the features of design and operation of fire detection and alarm systems, heat and smoke control systems, special protection and sprinkler systems, water supply for fire protection and portable fire extinguishers.

*Transfer credit: CSU***FT R156—Fundamentals of Fire Protection\* 3 units***Prerequisites: FT R151.**3 hours lecture weekly*

Theory and fundamentals of fire protection including fire protection laws, water systems and public fire protection systems, fire protection in buildings and open areas.

*Transfer credit: CSU***FT R157—Wildland Fire Control 3 units***Prerequisites: FT R151.**3 hours lecture weekly*

Course is designed to provide the employed firefighter or fire technology major with a fundamental knowledge of the factors affecting wildland fire behavior, fire prevention, and fire suppression techniques.

*Transfer credit: CSU***FT R157L—Wildland Fire Control Lab 1½ units***Corequisites: FT R157.**1 hour lecture, 1½ hours lab weekly*

Course covers the practical and hands-on skills required of a Firefighter I, seasonal employee with the California Department of Forestry. Successful completion of FT R157 and FT R157L will result in issuance of a FF-I certificate by C.D.F.

*Transfer credit: CSU***FT R160—Fire Tactics and Strategy 3 units***Prerequisites: FT R151.**3 hours lecture weekly*

Principles of fire control through utilization of firefighters, equipment, and extinguishing agents on the fireground.

*Transfer credit: CSU***FT R161—Building Construction for Fire Protection\* 3 units***Prerequisites: FT R151.**3 hours lecture weekly*

This course covers the fundamentals of building construction as it relates to fire protection. It focuses on classification by occupancy and types of construction, with emphasis on fire protection features, including building equipment, facilities, fire resistive materials and high-rise considerations. Field trips may be required.

*Transfer credit: CSU***FT R162—Related Codes and Ordinances 3 units***Prerequisites: FT R151.**3 hours lecture weekly*

Familiarization and interpretation of national, state, and local codes, ordinances, and laws which influence the field of fire prevention.

*Transfer credit: CSU***FT R163—Fire Hydraulics 3 units***Prerequisites: FT R151.**3 hours lecture weekly*

Review of applied mathematics; hydraulic laws as applied to the fire service; application of formulas and mental calculation to hydraulics and water supply problems.

*Transfer credit: CSU***FT R164—Fire Company Organization and Management 3 units***Prerequisites: FT R151.**3 hours lecture weekly*

Review of fire department organization; planning, organizing, and supervising to meet needs of fire department, with emphasis on company officer's role.

*Transfer credit: CSU***FT R165—Hazardous Materials 3 units***Prerequisites: FT R151.**3 hours lecture weekly*

Introduction to basic fire chemistry and physics; problems of flammability as encountered by firefighters when dealing with fuels and oxidizers; elementary fire fighting practices pertaining to hazardous materials in storage and transit.

*Transfer credit: CSU*

**FT R166—Fire Service Records/Reports** **3 units**

*Advisory: FT R151 or equivalent.*

*3 hours lecture weekly*

Course covers records and report systems in fire service including CFIRS, UFIRS, principles of report writing, pre-fire survey, post-fire analysis and reporting, research and planning.

*Transfer credit: CSU*

**FT R167—Fire Apparatus and Equipment** **3 units**

*Prerequisites: FT R151.*

*3 hours lecture weekly*

Fire apparatus design, specifications, and performance capabilities; effective utilization of apparatus in fire service emergencies.

*Transfer credit: CSU*

**FT R168—Fire Investigation** **3 units**

*3 hours lecture weekly*

Determining cause of fires (accidental, suspicious, and incendiary); types of fires; related laws, introduction to arson and incendiarism; recognizing and preserving evidence; interviewing witnesses and suspects; arrest and detention procedures; court procedures and giving court testimony.

*Transfer credit: CSU*

**FT R169A—Emergency Medical Technician  
Basic\*** **8 units**

*Prerequisites: CPR Certification: AHA "Healthcare Provider" or Red Cross "Professional Rescuer" or equivalent.*

*8 hours lecture weekly*

Course covers the skills necessary for the individual to provide emergency medical care with an ambulance service or other specialized service at the BLS level. This course is approved by the Ventura County Emergency Medical Services Agency and the California State Department of Emergency Services. Upon successful completion of the course and skills testing, the student will be eligible to sit for the written EMT-B certifying examination administered by the County of Ventura Emergency Medical Services. The student, upon successfully completing the skills examination (included in the course) and the certifying examination (not included in the course) will be eligible for EMT-B National Registry Certification. A non-credit 10 hour clinical component is required in addition to the classroom time. Materials fee is required. Field trips may be required. Course may be taken four times.

*Transfer credit: CSU*

**NOTE:** The course listed below has been temporarily suspended. For further information, please contact the Occupational Ed. & Econ. Dev. division office.

FT R071 Reserve Firefighter Academy