

# FIRE SCIENCE TECHNOLOGY

## Associate in Science Degree (CIP# 1743020112)

The Fire Science Technology degree program offers students a scientific understanding of fire and emergency hazards, with emphasis on effective prevention, mitigation, and management. It also provides enhanced opportunities for students to pursue various professional public safety educational pathways. The included general education courses prepare graduates to communicate and solve problems effectively at all levels of their careers.

The curriculum fulfills the requirements for multiple certifications required by the Florida Bureau of Fire Standards and Training for fire service and public safety careers. The program also provides supplemental training for persons previously or currently employed in these occupations. All of Valencia's A.S. degrees will transfer into the Valencia Bachelor of Applied Science (B.A.S.) degree in Business and Organizational Leadership and other degrees offered at state universities.

Students who desire to continue their education in a Bachelor's degree should consult their advisor for acceptance requirements. Students wishing to transfer any credits from this program to another institution must accept responsibility for securing approval from the transfer institution.

Students are strongly encouraged to consult the Fire Rescue Institute Career Program Advisor for assistance in determining the best education plan for their career goals.

Although scheduling may not always provide for the following progression of courses, students should use the course sequence found at <https://valenciacollege.edu/academics/academic-affairs/new-student-experience/documents/start-right-guides-19-20/as/start-right-courses-fire-sciences-as.pdf> as a program planning guide.

All degree-seeking students must satisfy entry testing requirements and satisfactorily complete all mandatory courses in reading, mathematics, English, and English for Academic Purposes in which the student is placed.

## Alternative Ways to Earn Credit

Once a Fire Science student has earned 15 or more college credits at Valencia, they may be eligible for the following award of credits:

- Florida certified firefighters are eligible for up to three credits toward the A.S. degree technical electives upon review.
- Students who are Florida certified EMT and/or Paramedic are eligible for up to 24 credits toward the A.S. degree technical electives upon review.
- Students who possess a recognized Florida State certification as a Fire Officer, Fire Inspector, Fire Investigator, Fire Instructor or Life Safety Educator may also be eligible to receive college credit for specific courses in this program.

For information and requirements, go to <https://valenciacollege.edu/academics/programs/as-degree/credit-industry-certification-agreements.php> to view the award of credit options and complete a request form. To have the credit awarded, students must provide the required documentation to the Fire Science career program advisor for verification and approval.

## Certificate Programs

The Fire Science A.S. degree includes college credit and career certificates. Certificates provide specialized skill sets for entry-level employment or job advancement, which can put students on the fast-track to reaching career goals. All of the fire certificate programs can be completed in less than a year.

- Fire Fighter (minimum standards) (CIP# 0743020304)
- Fire Officer Supervisor (CIP# 0743020111)
- Fire Fighter – Emergency Medical Technician (CIP# 0743020313)

## Start Right

Degree-seeking students enrolling at Valencia for the first time will have a limited range of courses from which to choose for their first 18 college-level credits. Within the first 18 college credit hours, it is suggested to take ENC1101 (3 credits), and if applicable, SLS 1122 (3 credits) and a mathematics or science course appropriate to your selected meta-major (3 credits). The remaining courses will be chosen from the General Education Core Courses in humanities (3 credits), science (3 credits), or social science (3 credits), and/or the introductory courses within the A.S. degree programs. For specific courses see the Foundation Courses on the "Program Requirements" tab. For course sequencing recommendations, see your Career Program Advisor or create an education plan by logging into Atlas, clicking on the LifeMap tab and clicking My Education Plan.

## Potential Careers

- Fire Inspector & Investigator
- Fire Science Technician
- Fire Officer
- Fire Safety Inspector
  - Life-Safety Compliance Specialist
- Fire Assistant
- Building Inspector
- Fire Insurance Investigator/Inspector
- Firefighter

## Salary & Earnings Information

For career information related to this program, please visit O\*Net OnLine (<https://www.onetonline.org/>).

## Contacts

### Future Students

To find out more about this program, contact Enrollment Services at [enrollment@valenciacollege.edu](mailto:enrollment@valenciacollege.edu) or 407-582-1507 or visit [valenciacollege.edu/fire-science-technology/](https://valenciacollege.edu/fire-science-technology/) (<https://net1.valenciacollege.edu/future-students/degree-options/associates/fire-science-technology/>).

### Current Students

Your Career Program Advisor contact information can be found in Atlas. Log into Atlas, click on the Courses tab, and check your Academic Profile information to find a link to your Advisor.

Dan Diehl, Fire Science Director:  
407-582-8230  
[ddiehl5@valenciacollege.edu](mailto:ddiehl5@valenciacollege.edu)

# Fire Science Technology

The Fire Science Technology degree is designed to meet the high level of professional standards that are expected of fire service and fire protection providers, managers, and leaders. The degree is designed to educate the student in up-to-date and cutting-edge technology in the fire science and fire service fields. Students will be highly informed concerning all aspects of fire science technology that are necessary in order to become or enhance skills as a competent and qualified firefighter, fire officer, fire inspector or fire protection practitioner and manager.

Areas such as fire behavior, fire prevention, fire protection systems, building construction, as well as many others, are included in the degree.

Students will gain skills and knowledge in communications, leadership and technology, and other essential skills to be able to work effectively in the fire service, fire prevention, and fire protection industries.

Students are also able to apply the courses in the degree to gain state certifications needed for employment and promotion in the fire service.

Courses in the fire science technology degree program are offered online, in classroom settings, or in a mixed-mode, online/classroom, format.

## Program Outcomes

- Communicate effectively in the fire protection environment
- Apply fire prevention codes, regulations, standards, and practices
- Identify fire science and fire technology principles, concepts, and practices and their application to public and life safety
- Integrate command, management, and leadership principles for emergency and non-emergency situations
- Recognize how the built environment affects fire and life safety
- Examine educational and training principles and ideologies for public and life safety disciplines

## Program Requirements

### General Education

<b>Communications</b>	ENC 1101 <sup>++~</sup>	<b>3</b>
<b>Humanities</b>	See Gen. Ed. Core requirement <sup>~</sup>	<b>3</b>
<b>Mathematics</b>	See Gen. Ed. Core requirement <sup>++~</sup>	<b>3</b>
<b>Science</b>	See Gen. Ed. Core requirement <sup>~</sup>	<b>3</b>
<b>Social Science</b>	POS 2041 or AMH 2020 <sup>~</sup>	<b>3</b>
<b>Total Credit Hours</b>		<b>15</b>

<sup>+</sup> This course must be completed with a grade of C or better.

<sup>\*</sup> This course has a prerequisite; check description in Valencia catalog.

<sup>~</sup> This is a general education course.

<sup>1</sup> Students planning to transfer to UCF should select from these humanities courses: ARH 1000, HUM1020, LIT 1000, ARH 2051, MUL 1010, PHI 2010, REL 2300, and THE 1000.

<sup>2</sup> Students planning to transfer to UCF should select from these math courses: MGF 1106, MAC 1105, MAC 1114, MAC 2233, or STA 2023. Students planning to transfer to UCF should select from these science courses: AST 1002, CHM 1020, PHY 2053C, BSC 1005, EVR 1001, BSC 1010C, and ESC 1000.

<sup>3</sup> Students planning to transfer to UCF should take ECO 2013 or POS 2041.

(GR) Denotes a Gordon Rule course.

### Core Fire Course Requirements

FFP 1000	FIRE SCIENCE FUNDAMENTALS	3
FFP 1505	FIRE PREVENTION <sup>1,3</sup>	3
FFP 1612	FIRE BEHAVIOR AND COMBUSTION	3
FFP 2120	BUILDING CONSTRUCTION FOR THE FIRE SERVICE <sup>1,2,6</sup>	3
FFP 1540	PRIVATE FIRE PROTECTION SYSTEMS I <sup>1,3,6</sup>	3

**Total Credit Hours 15**

Select at least three of the following courses:

FFP 2510	FIRE CODES AND STANDARDS <sup>1</sup>	3
FFP 2521	BLUEPRINT READING AND PLANS REVIEW <sup>1</sup>	3
FFP 2740	FIRE SERVICE COURSE DELIVERY <sup>2,5</sup>	3
FFP 2720	COMPANY OFFICER <sup>2</sup>	3
FFP 2741	FIRE SERVICE COURSE DESIGN <sup>*3</sup>	3
FFP 2541	PRIVATE FIRE PROTECTION SYSTEMS II <sup>*4</sup>	3
FFP 1111	FIRE CHEMISTRY <sup>4,6</sup>	3
FFP 2810	FIRE FIGHTING TACTICS AND STRATEGY I <sup>2</sup>	3
FFP 1793	FIRE AND LIFE SAFETY EDUCATOR <sup>4</sup>	3
FFP 2741	FIRE SERVICE COURSE DESIGN <sup>*3</sup>	3
FFP 2780	FIRE ADMINISTRATION	3
FFP 2811	FIRE FIGHTING TACTICS & STRATEGY II <sup>*3</sup>	3
FFP 2610C	FIRE CAUSE AND ORIGIN DETERMINATION <sup>4,6</sup>	3
FFP 2706	FIRE SERVICE PUBLIC INFORMATION OFFICER <sup>4</sup>	3
FFP 2770	ETHICAL AND LEGAL ISSUES FOR THE FIRE SCIENCE	3
FFP 2930	SELECTED TOPICS IN FIRE SCIENCE	1-3
FFP 1109	FIRE DEPARTMENT OCCUPATIONAL SAFETY AND HEALTH	3
FFP 1301	FIRE PROTECTION HYDRAULICS AND WATER SUPPLY (Total Credits 9)	3

**Total credits 9**

**Total Program Credits 60**

### Footnotes:

<sup>1</sup> FFP1505, FFP1540, FFP2120, FFP 2510 and FFP 2521 are required courses by the Florida Bureau of Fire Standards & Training to test for Certification as a Fire Safety Inspector I.

<sup>2</sup> FFP 2120, FFP 2720, FFP 2740, and FFP 2810 are required courses by the Florida Bureau of Fire Standards & Training to test for certification as a Fire Officer I

<sup>3</sup> FFP2741, 2811, 1505, and 1540 are required courses by the Florida Bureau of Fire Standards & Training to test for Certification as a Fire Officer II

<sup>4</sup> FFP2541, FFP1111, 2610C, and 1793 or 2706 are required courses by the Florida Bureau of Fire Standards & Training to test for Certification as a Fire Inspector II.

<sup>5</sup> FFP2740 is required by the Florida Bureau of Fire Standards & Training to test for Certification as a Fire Service Instructor I

<sup>6</sup> FFP1111, FFP2610, FFP1540, and FFP2120 are required courses by the Florida Bureau of Fire Standards & Training to test for Certification as a Fire Investigator I.

#### Notes:

- It is highly recommended that students consult the School of Public Safety Career Program Advisor prior to registering for courses.
- Students who have earned Florida fire or EMS related certifications such as a Fire Fighter, Fire Safety Inspector, Fire Officer, Fire Investigator, Fire Instructor, EMT, or Paramedic may be awarded elective credits, see School of Public Safety Career Program Advisor.
- Students should check with the Florida Bureau of Fire Standards and Training for current Florida Fire Certification requirements.
- **Electives** can be any academic credit courses not already in the program.
- Expand your career opportunities with a Bachelor's Degree in Business and Organizational Leadership (BASBOL) from Valencia. This degree builds on your skills and prepares you for a supervisory or management role within your respective field. For more information, go to Bachelor's Degree in Business & Organizational Leadership (<http://catalog.valenciacollege.edu/degrees/bachelorofscience/bas/>). Students who wish to continue their education should consult with a Career Program Advisor to determine the best education plan for their career goals.

## Fire Fighter (Minimum Standards)

### Career Certificate

Vocational Credit  
Limited-Access

### Admission Requirements

Admission to this program is limited. Students must meet the following criteria:

- Must be at least 18 years of age
- Possess a high school diploma or a GED
- Have no convictions of felonies or significant misdemeanors
- Be of good moral character
- Must be in good physical condition
- Cannot have a dishonorable discharge from the military

The Fire Fighter I course provides both practical applications and an orientation to the fire service. This course includes many functions required of a fire fighter such as: fire service safety; fire behavior; building construction; protective clothing; SCBA; portable extinguishers; ropes and knots; building search and victim removal; forcible entry tools; constructions techniques; ground ladders; ventilation; water supply; coupling; loading and rolling hose; laying, carrying and advancing hose; water streams; Class A, C, D; vehicle and wildland fire control; sprinkler

system fundamentals; salvage; overhaul and protecting evidence of fire cause; fire department communication; equipment and techniques; fire prevention and public fire education. The course also includes Awareness-Level Hazardous Materials Training. Upon completion of the program and a written state certification examination, the student will receive a Certificate of Competency from the Bureau of Fire Standards and Training as a Firefighter I.

The student must successfully complete the requirements and receive a Certificate of Competency for Fire Fighter I to enter Fire Fighter II. The Fire Fighter II course prepares the student to meet the requirements to become a state certified fire fighter. Course content includes implementing the incident management system; construction materials and building collapse; rescue and extrication tools; vehicle extrication and special rescue; hydrant flow and operability hose; tools and appliances; foam fire systems; ignitable liquid and gas fire control; fire detection; alarm and suppression systems; fire cause and origin; radio communications and incident reports pre-incident survey and wildlife fighting. Students must complete the program to be eligible and to test for certification with the Florida Bureau of Fire Standards and Training for a Fire Fighter II. This exam encompasses both written and practical skills tests. Certification is required in the state of Florida for fire fighters.

### Program Outcomes

- Student must obtain a minimum of 90 clock hours of emergency medicine before receiving the BFST Fire Fighter II certificate.
- Demonstrate knowledge of fire department organization, procedures and responsibilities
- Demonstrate knowledge of personal protective equipment
- Demonstrate knowledge of ventilation practices
- Demonstrate the proper use of ropes, tools and equipment
- Demonstrate proper use of fire hose, nozzles and appliances

Course	Title	Contact Hours	Vocational Credit(s)
FFP 0010	FIREFIGHTING I *	191	6.367
FFP 0020	FIREFIGHTING II *	301	10.003
<b>Total Credit Hours</b>		<b>492</b>	<b>16.370</b>

\* This course has a prerequisite and/or corequisite; check description in Valencia catalog.

## Fire Officer Supervisor

### Technical Certificate

This program offers a sequence of courses that provides coherent and rigorous content aligned with challenging academic standards and relevant technical knowledge and skills needed to prepare for further education and careers in the Fire Service; provides technical skill proficiency, and includes competency-based applied learning that contributes to the academic knowledge, higher-order reasoning and problem-solving skills, work attitudes, general employability skills, technical skills, and occupation-specific skills, and knowledge of all aspects of the Fire Service.

The purpose of this program is to prepare students for employment as Firefighting and Prevention Supervisors (SOC 33-1021) to supervise firefighters who control and extinguish fires, protect life and property, and conduct rescue efforts. The program may also be beneficial to

professionals seeking incentive benefits or career enhancement in the field.

This program does not prepare students for certification as fire fighters. A student must successfully complete the basic recruit program in firefighting to become certified, pursuant to Chapter 633, Florida Statutes.

This program does complete the requirements to be eligible to sit for Bureau of Fire Standards and Training (BFST) Fire Officer I certification exam. A student must contact the Bureau of Fire Standards and Training (BFST) for additional requirements.

### Program Structure

This program is a planned sequence of instruction consisting of 12 credit hours.

### Program Outcomes

After successfully completing this program, the student will be able to perform the following:

- Explore the theories and fundamentals of how and why fires start, spread, and how they are controlled.
- Comprehend the concepts of the components of building construction that relate to fire and life safety.
- Understand 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 relationships of fire prevention with built-in fire protection systems, fire investigation, and fire and life-safety education.
- Discuss fire protection; career opportunities in fire protection and related fields; philosophy and history of fire protection/services; fire departments as part of local government; laws and regulations affecting the fire service; fire service nomenclature; specific fire protection functions.
- Examine the organization and management of a fire department and the relationship of government agencies to the fire service.
- Define risk evaluation and control procedures for fire stations, training sites, emergency vehicles, and emergency situations involving fire, EMS, hazardous materials, and technical rescue .
- Discuss the federal, state, and local laws that regulate emergency services, national standards influencing emergency services, standard of care, tort, liability, and a review of court cases.
- Analyze the principles of fire control through utilization of personnel, equipment, and extinguishing agents on the fire ground.
- Identify the fundamentals and technical knowledge needed for proper fire scene interpretations, including recognizing and conducting origin and cause, preservation of evidence and documentation, scene security, motives of the fire setter, and types of fire causes.
- Describe and discuss methods of instruction involved in planning and conducting an effective training program for adult learners.

FFP 2120	BUILDING CONSTRUCTION FOR THE FIRE SERVICE	3
FFP 2720	COMPANY OFFICER	3
FFP 2740	FIRE SERVICE COURSE DELIVERY	3
FFP 2810	FIRE FIGHTING TACTICS AND STRATEGY I	3
<b>Total Credit Hours</b>		<b>12</b>

## Fire Fighter- Emergency Medical Technician

### Career Certificate Vocational Credit

This program will combine the successful completion of the Fire Fighter Minimum Standards Course and the Emergency Medical (EMT) Course into one Department of Education course completion point. Students wishing to become a fire fighter and EMT will have the opportunity to select this program. This combined program will meet the requirements for financial aid assistance for students who meet the financial aid assistance program.

Please see individual course descriptions for Fire Fighter and EMT for course details.

### Program Outcomes

- Meet the requirements for Fire Fighter I and Fire Fighter II per the Florida Bureau of Fire Standards and Training
- Apply fire sciences theory and suppression techniques to the role of Fire Fighter
- Use the proper techniques, strategies, tools, skills, and equipment employed by the fire services in a safe and efficient manner
- Communicate effectively in a fire service environment
- Apply interpersonal, critical thinking, and problem-solving skills appropriate to the role of Fire Fighter in the classroom, in labs and in other practical application settings.
- Work effectively as part of an inter-professional team with classmates, fire instructors, fire services personnel, other emergency response personnel and special populations
- Perform the necessary duties of a fire fighter in such areas as: fire suppression, emergency patient care, environmental protection, and special rescue operations
- Identify professional attitudes and behaviors consistent with the expectations of a professional fire fighter.
- Perform entry-level skills as described by the scope of practice for EMT.
- Perform effective communication in the pre-hospital healthcare environment.
- Structure a safe environment for patients in the pre-hospital setting.
- Practice professional behaviors in the pre-hospital healthcare setting.
- Execute safe clinical decision making in the pre-hospital environment.

Course	Title	Contact Hours	Vocational Credit(s)
FFP 0010	FIREFIGHTING I	191	6.367
FFP 0020	FIREFIGHTING II	301	10.033
EMS 0110	EMERGENCY MEDICAL TECHNICIAN	300	10.000
<b>Total Credit Hours</b>		<b>792</b>	<b>26.400</b>