

# FIRE SCIENCE TECHNOLOGY

## Associate in Science Degree (CIP# 1743020112)

The Fire Science Technology degree program offers the student a scientific understanding of fire and emergency hazards, with emphasis on effective prevention, control and management. The program will provide students an enhanced opportunity as current fire fighters and staff to pursue various professional opportunities in Public Safety with multiple educational pathways. General education courses are included to prepare the graduate to communicate and work effectively with all levels of society.

Courses offered through this program also fulfill the requirements of the Florida Division of the State Fire Marshal, Bureau of Fire Standards and Training and will prepare students for enhanced employment opportunities to serve their communities. It also prepares students for certification as Fire Officer Supervisor. In addition, this program can be useful toward other public service careers and provides supplemental training for persons previously or currently employed in these occupations.

All of Valencia's A.S. degrees will transfer into the Bachelor of Applied Science (B.A.S.) degree offered at UCF's regional campuses, as well as other state universities. For students who are interested in pursuing UCF's B.A.S. degree, 36 credit hours of general education courses will be required. Students will also have to fulfill the state's foreign language requirement, which is two years of the same high school foreign language or two semesters of the same college-level foreign language. For more information on UCF's B.A.S. degree, go to [regionalcampuses.ucf.edu/program/applied-science](http://regionalcampuses.ucf.edu/program/applied-science) (<http://regionalcampuses.ucf.edu/program/applied-science>).

Students who desire to continue their education to the Bachelor's Degree should consult their university of choice for acceptance requirements of this degree. 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 as a guide in program planning. This is found at <http://valenciacollege.edu/asdegrees/fire-services/>

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

- Students who are Florida certified Fire Fighters 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 15 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 [valenciacollege.edu/asdegrees/credit\\_alternative.cfm](http://valenciacollege.edu/asdegrees/credit_alternative.cfm) ([http://valenciacollege.edu/asdegrees/credit\\_alternative.cfm](http://valenciacollege.edu/asdegrees/credit_alternative.cfm)) 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 department for verification and approval.

### College Credit Technical Certificates

The Fire Science A.S. degree also offers the following college credit certificate programs. These certificates can put you on the fast-track to reaching your career goals. They are designed to equip you with a specialized skill set for entry-level employment or to upgrade your skills for job advancement. Most can be completed in one year or less, and all of the courses in the certificates are embedded in the A.S. degree. You can earn the certificates as you progress through your A.S. Degree or as a separate, stand-alone credential. Click on the Certificate tab at the top of the page for more information about the certificates that are offered.

- Fire Officer Supervisor (12 credits) (CIP# 0743020111)

### 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, you will be required 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
- Fire Assistant
- Building Inspector
- Fire Insurance Investigator/Inspector
- Fire Fighter

### Salary & Earnings Information

For salary and wage information, visit: [www.floridawages.com](http://www.floridawages.com) (<http://www.floridawages.com>).

## 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/](http://valenciacollege.edu/fire-science-technology/) (<https://net1.valenciacollege.edu/future-students/degree-options/associates/fire-science-technology/>).

### Current Students

Contact the Career Program Advisor below for more information.

Daniel Diehl, Assistant Director. 407-582-8230  
ddiehl5@valenciacollege.edu (jgarces3@valenciacollege.edu)

John Glass, Professor, 407-582-8260  
jglass12@valenciacollege.edu

Lizza Burgos-Reynoso, Career Program Advisor. 407-582-8155  
lburosreynoso@valenciacollege.edu (bjohnson@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

|                        |   |    |
|------------------------|---|----|
| ENC 1101               | FRESHMAN COMPOSITION I <sup>+,*~</sup>  | 3  |
| Humanities             | See Gen. Ed. Requirement <sup>~1</sup>  | 3  |
| Social Science         | See Gen. Ed. Requirements <sup>~*</sup> | 3  |
| Mathematics or Science | See Gen. Ed. Requirement <sup>*~2</sup> | 3  |
| Gen. Ed. Elective      | See Gen. Ed. Requirement <sup>~3</sup>  | 3  |
| Total Credit Hours     |   | 15 |

+ This course must be completed with a grade of C or better.

\* This course has a prerequisite; check description in Valencia catalog.

~ 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           | Bldg Construct For Fire Servic <sup>1,2,6</sup> | 3  |
| FFP 1540           | Private Fire Protection Sys I <sup>1,3,6</sup>  | 3  |
| Total Credit Hours |   | 15 |

Select at least one 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 |

### Total 3 credits

Select at least two of the following courses:

|           |  |   |
|-----------|--|---|
| 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 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 Dept Administration                           | 3 |
| FFP 2510  | FIRE CODES AND STANDARDS <sup>1</sup>              | 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 Informatio <sup>4</sup>        | 3 |
| FFP 2770  | Ethical and Legal Issues Fire                      | 3 |

### Total Credits 6

Electives, any credit courses Total Credits 21

**Total Program 60 Credits**

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.
- Upon earning the Fire Science A.S. degree, you can continue at Valencia to complete the B.A.S. degree in Business & Organizational Leadership (<http://catalog.valenciacollege.edu/degrees/bachelorofscience/bas>). Additional education at the bachelor's level can enhance your skills and create more career opportunities. Students who wish to continue their education should consult with their Career Program Advisor to discuss transfer options and requirements, and determine the best education plan for their career goals. Students wishing to transfer credits from this program to another institution must accept responsibility for securing approval from the transfer institution for acceptance of this degree.

- 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 house; 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 fire 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

**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

| Course             | Title             | Contact Hours | Vocational Credit(s) |
|--------------------|-------------------|---------------|----------------------|
| FFP 0010           | Firefighting I *  | 206           | 6.870                |
| FFP 0020           | Firefighting II * | 192           | 6.400                |
| Total Credit Hours |                   | 398           | 13.270               |

\* 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           | Bldg Construct For Fire Servic       | 3  |
| FFP 2720           | Company Officer                      | 3  |
| FFP 2740           | Fire Service Course Delivery         | 3  |
| FFP 2810           | FIRE FIGHTING TACTICS AND STRATEGY I | 3  |
| Total Credit Hours |                                      | 12 |

## 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.

|                    |                              |     |
|--------------------|------------------------------|-----|
| FFP 0010           | Firefighting I               | 206 |
| FFP 0020           | Firefighting II              | 192 |
| EMS 0110           | Emergency Medical Technician | 300 |
| Total Credit Hours |                              | 698 |