FIRE SCIENCE TECHNOLOGY

The Fire Science Technology program at Mount Wachusett Community College provides the students with an opportunity to earn an Associate Degree in Fire Science Technology. Upon completion of this program, students have the opportunity to be academically prepared in fire and emergency services. During the course of study, students will develop skills and competencies in fire prevention and suppression, as well as the principles of arson investigation. The National Fire Academy will issue certificates to those students completing core courses of the Associates Degree curriculum.

FIRE SCIENCE TECHNOLOGY DEGREE (FS)

The Fire Science Technology Degree program meets the needs of firefighters by providing relevant coursework in building construction, fire prevention, fire investigation, and more. The Fire Science program accepts certain courses in transfer from the Massachusetts Fire Academy. This program is for those working in the field, as well as those interested in pursuing it. MWCC has adopted the Fire and Emergency Services Higher Education (FESHE) Model curriculum. These courses form a national curriculum with recognition from the National Fire Academy.

Year 1
Fall
- ENG 101: College Writing I (3 credits)
- FST 153: Fire Protection Systems (3 credits)
- FST 159: Fire Behavior and Combustion (3 credits)
- FST 155: Principles Emergency Services (3 credits)
- MAT 126: Topics In Mathematics (or higher) (3 credits)

Spring
- FST 158: Principles of Firefighter Safety and Survival (3 credits)
- FST 157: Fire Prevention (3 credits)
- ENG 102: College Writing II (3 credits)
- FST 151: Building Construction (3 credits)
- FST 154: Hazardous Materials Chemistry (3 credits)
- FST 152: Strategy and Tactics (3 credits)

Year 2
Fall
- FST 162: Fire Hydraulics and Water Supply (3 credits)
- FST 161: Legal Aspects of Emergency Services (3 credits)
- FST 160: Fire and Emergency Services Administration (3 credits)
- HCC 111: Emergency Medical Technician I (Evening Only) (4 credits)
- HCC 112: Emergency Medical Technician II (Evening Only) (4 credits)

Spring
- Humanities Elective ¹ (3 credits)
- Social Science Elective ² (3 credits)
- FST 163: Fire Investigation I (3 credits)
- CIS 121 or 127: Spreadsheet Applications (or Computer Technologies) (3 credits)

Total Credits: 62

¹ Humanities Electives: See Elective Courses by Abbreviation. [http://catalog.mwcc.edu/associateddegreesandcertificatelistandotheroptions/#electivecoursesbyabbreviationtext]
² Social Science Electives: See Elective Courses by Abbreviation [http://catalog.mwcc.edu/associateddegreesandcertificatelistandotheroptions/#electivecoursesbyabbreviationtext].

See Fire Science Technology program student learning outcomes and technical standards

Campus

Fire Science classes are offered online only.

Helpful hints

Many fire departments require the civil service exam. Also, students should consider completing EMT certification, since fire departments respond to non-fire emergencies.
Transfer options
For transfer options, please click here. (http://catalog.mwcc.edu/academicresources/#transferinformationtext) It is recommended that you also consult with your academic advisor.

Special requirements
Technical standards must be met with or without accommodations.

Career options/Earning potential
For career options, please click here. (https://mwcc.emsicareercoach.com/#action=loadSearchResults&Search=fire+science&SearchType=occupation)

PROGRAM STUDENT LEARNING OUTCOMES FOR FS
Upon graduation from this program, students shall have demonstrated the ability to:

• Demonstrate knowledge of the principles of fire prevention.
• Use theory and practice relative to fire hydraulics in relation to fire suppression.
• Articulate fundamental codes and ordinances specific to building construction.
• Demonstrate fundamental knowledge of the principles of arson investigation.
• Use principles of hazardous chemicals in containment of toxic spills.
• Use equipment typical of a traditional fire company.
• Exhibit the use of principles specific to managing a fire or some other type of incident.

TECHNICAL STANDARDS ¹ FOR FS
¹ For general information about technical standards and accommodation, see Technical Standards. (http://catalog.mwcc.edu/academicresources/academicandgradingpolicies/technicalstandards)

Students entering this program must be able to demonstrate the ability to:

• Comprehend textbook material at the 11th grade level.
• Communicate and assimilate information either in spoken, printed, signed, or computer voice format.
• Gather, analyze, and draw conclusions from data.
• Stand for long periods of time.
• Lift a minimum of 100 pounds.
• Traverse small spaces.
• Climb to extended heights.
• Manipulate gauges and valves associated with fire control.

FST 151. Building Construction. 3 Credits.
This course provides the components of building construction related to firefighter and life safety. The elements of construction and design of structures are shown to be key factors when inspecting buildings, preplanning fire operations, and operating at emergencies. Prerequisite: FST 155 or permission of division dean.

FST 152. Strategy and Tactics. 3 Credits.
This course provides the principles of fire ground control through utilization of personnel, equipment, and extinguishing agents. Prerequisite: FST 159.

FST 153. Fire Protection Systems. 3 Credits.
This course provides information relating to the features of design and operation of fire alarm systems, water-based fire suppression systems, special hazard fire suppression systems, water supply for fire protection and portable fire extinguishers. Prerequisites: ENG 098, FYE 101, RDG 098, or placement.

FST 154. Hazardous Materials Chemistry. 3 Credits.
This course provides basic chemistry relating to the categories of hazardous materials including recognition, identification, reactivity, and health hazards encountered by emergency services. Prerequisites: ENG 098, FYE 101, RDG 098, or placement.
FST 155. Principles Emergency Services. 3 Credits.
This course 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. Prerequisites: ENG 098, FYE 101, RDG 098, or placement.

FST 157. Fire Prevention. 3 Credits.
This course provides fundamental knowledge relating to the field of fire prevention. Topics include history and philosophy of fire prevention; organization and operation of a fire prevention bureau; use and application of codes and standards; plans review; fire inspections; fire and life safety education; and fire investigation. Prerequisites: ENG 098, FYE 101, RDG 098, or placement.

FST 158. Principles of Firefighter Safety and Survival. 3 Credits.
This course 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. Prerequisites: ENG 098, FYE 101, RDG 098, or placement.

FST 159. Fire Behavior and Combustion. 3 Credits.
This course explores the theories and fundamentals of how and why fires start, spread, and are controlled. Prerequisites: ENG 098, FYE 101, RDG 098, or placement.

FST 160. Fire and Emergency Services Administration. 3 Credits.
This course introduces the student to the organization and management of a fire and emergency services department and the relationship of government agencies to the fire service. Emphasis is placed on fire and emergency service, ethics, and leadership from the perspective of the company officer. Prerequisite: FST 155.

FST 161. Legal Aspects of Emergency Services. 3 Credits.
The course will address the Federal, State, and local laws that regulate emergency services and include a review of national standards, regulations, and consensus standards. Prerequisites: ENG 098, FYE 101, RDG 098, or placement.

FST 162. Fire Hydraulics and Water Supply. 3 Credits.
This course provides a foundation of theoretical knowledge in order to understand the principles of the use of water in fire protection and to apply hydraulic principles to analyze and to solve water supply problems. Prerequisites: FST 155, MAT 092, or placement.

FST 163. Fire Investigation I. 3 Credits.
This course is intended to provide the student with 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 firesetter, and types of fire causes. Prerequisites: FST 151, FST 155, FST 159, or permission of division dean.