

## Fire Science Technology

Gainful Employment	Program Name	Program Type	Area of Study
	Fire Science Technology (9640) , AAS ( <a href="https://catalog.lakelandcc.edu/degree-certificate-programs/fire/9640/">https://catalog.lakelandcc.edu/degree-certificate-programs/fire/9640/</a> )	Degree	FIRE
	Fire Science Technology Certificate (6401) ( <a href="https://catalog.lakelandcc.edu/degree-certificate-programs/fire/6401/">https://catalog.lakelandcc.edu/degree-certificate-programs/fire/6401/</a> )	Certificate	FIRE

### **FIRE 1100 Introduction to Fire and Emergency Services**

**(TAG) 3 Credits**

This course provides students with an overview of the fire service. It introduces students to the various types of fire organizations, issues concerning fireground management and firefighter safety, the major types of apparatus and equipment employed, and the most current techniques and extinguishing agents used in fighting fires. Students will also examine the numerous public and private sector employment opportunities.  
(3 contact hours)

### **FIRE 1120 Fire Organization and Administration**

**2 Credits**

This course provides students with an understanding of contemporary management principles and practices as they apply to the fire service, and discusses administrative methods for managing the public organization. Students will gain an understanding of the decisions and challenges facing today's fire service administrators. Topics include planning, organizing, staffing, directing, and budgeting for a typical fire department. This course provides instruction commensurate with many sections of NFPA 1021, also known as the standard for Fire Officer Professional Qualifications.  
(2 contact hours)

### **FIRE 1150 Firefighter Orientation**

**1 Credit**

This course provides students with a basic orientation to fire service mission, standards, and firefighter personal protective equipment. Additionally, basic instruction is provided in the areas of incident management, fire behavior, ventilation, ladders, hose streams, entry, rescue, and overhaul.  
(1 contact hour)

### **FIRE 1170 Fire Protection and Detection Systems**

**(TAG) 2 Credits**

This course introduces students to the principles and practices involved in the proper installation of private fire protection and detection systems, and the selection of the appropriate extinguishing agents and detectors based upon the hazards encountered. The course includes the study of sprinkler systems, total flood and local application types of special suppression systems, several styles of fire detection and annunciation, and several other systems. This course provides instruction commensurate with selected recommendations of various National Fire Protection Association (NFPA) standards for Professional Qualifications.  
(2 contact hours)

### **FIRE 1260 Fire Prevention Practice**

**(TAG) 3 Credits**

This course provides students with a study of the fire codes, their relation to building construction, and maintenance of fire and life safety systems. The course examines various techniques for recognition and correction of fire code violations. Special emphasis is placed on application of knowledge gained regarding the codes and on simulated field inspection. Topics include fire hazard recognition, types of codes and standard, types of inspections, special occupancies, and the need for public relations. This course addresses selected recommendations of NFPA Standard 1031, Professional Qualifications for Fire Inspector, Levels I and II.  
(3 contact hours)

### **FIRE 1290 Building Construction for Fire and Life Safety**

**3 Credits**

This course provides, through the use of slides and construction plans, advanced training in building construction; plan review to ensure code compliance; and relative resistance of construction elements to fire, flame spread, and structural failure. Topics include construction principles for each major type of building, structural elements, and current issues facing the construction industry. This course addresses selected recommendations of NFPA Standard 1031, Professional Qualifications for Fire Inspector, Levels I and II.  
(3 contact hours)

### **FIRE 1340 Hazardous Materials for First Responders**

**1 Credit**

This course provides instruction in the recognition and identification of hazardous materials and defensive emergency options available to the first responder. This course meets most recommendations for requirements of NFPA Standard 472, OSHA 20CFR1910.120, and U.S. EPA 40CFR311, Awareness and Operations levels. Topics include recognition and identification of hazardous materials, placards and labels, containment systems, inter-modal transportation, and first responder decontamination.  
(1 contact hour)

**FIRE 1350 Public Sector Community Relations and Customer Service****2 Credits**

This course details the public education planning process and the importance of effective community and media relations in carrying out the mission of public agencies. It places special emphasis on handling customer service and customer relations issues, research, ethics, and communication. The culmination of this course may be a tour of a media facility such as a television or radio station, or a newspaper production facility, an interview with a media reporter, or another appropriate activity. This course provides instruction commensurate with most recommendations of NFPA Standard 1041, Public Fire and Life Safety Educator, Levels I and II, and FEMA's Public Information Officer program. This course is cross-listed as FIRE 1350 Public Sector Community Relations and Customer Service and EMGT 1350 Public Sector Community Relations and Customer Service. Students who have taken the course under the alternative course ID should not take this course.

(2 contact hours)

**FIRE 1360 Fire Company Tactical Operations****2 Credits**

This course, designed for non-fire science students, provides essential information needed to effectively carry out the strategies selected by the Fireground Commander. Special emphasis is placed on the entire pre-emergency planning process, incident sizeup, tactical decision making, tactical operations, and task assignments.

(2 contact hours)

**FIRE 1800 Fire Science Guided Study****1-4 Credits**

*Prerequisite: approval of Guided Studies Committee and Fire Science Technology program director.*

This course provides a student or group of students an opportunity to pursue in-depth study in an area of fire science under the guidance of a faculty member. The content may include issues of current relevance not covered in other coursework, or issues not covered in detail in other fire science courses. Students must obtain the consent of a faculty member who will serve as their advisor. Consulting with this sponsoring faculty member, students must prepare a prospectus explaining the area of interest, how the area will be studied, when the study will be completed, and the procedure for evaluating the results of the study. The sponsoring faculty member will determine the credit hours for the experience and assign the final grade. Students may accrue a maximum of four credit hours by enrolling in this course multiple times, each with a different guided studies activity. Before registering for this course, students must obtain approval from the Guided Studies Committee and the Fire Science program director for each proposal.

**FIRE 2150 Advanced Firefighter****3 Credits**

*Prerequisite: FIRE 1150 or Firefighter 1 Certification or permission of instructor.*

This course provides students with an advanced examination of the fire and emergency services. It expands the students' knowledge and skills in subject areas such as communications, reporting, tools, structural stability, safety, pre-emergency planning, and community education.

(3 contact hours)

**FIRE 2200 Fire Investigation Methods****3 Credits**

This course presents a systematic approach to the investigation of fires through determination of cause and origin. Topics include the legal aspects of fire investigation and scene searches, chain of evidence requirements, witness interviews, and preparation of court cases. The course also covers proper investigation of both accidental and incendiary fires. This course provides instruction commensurate with many recommendations of NFPA Standard 1033, the Standard for Fire Investigator Professional Qualifications.

(3 contact hours)

**FIRE 2205 Fire Service Hydraulics****2 Credits**

This course introduces students to the principles, practices, and calculations involved in the safe and efficient delivery of an uninterrupted supply of water, foam, and other extinguishing agents to the fireground. Topics include drafting water, velocity and discharge, friction loss, engine and nozzle pressures as they relate to fire streams, and fire pump testing. This course provides instruction commensurate with selected portions of NFPA Standard 1001, the standard on Firefighter Professional Qualifications.

(2 contact hours)

**FIRE 2210 Public Sector Supervision and Leadership****2 Credits**

This course provides students with an overview of the principles of supervision and leadership as they apply to work in the public sector. Particular emphasis is made on supervising, motivating, and developing personnel in public safety organizations, including discussion of civil service, public liability issues, and command as an element of a quasi-military organizational structure. This course covers general supervisory/leadership principles and topics available to all public safety employees in Fire, Police, and Emergency Medical Service Departments. This course is cross-listed as FIRE 2210 Public Sector Supervision and Leadership and EMGT 2210 Public Sector Supervision and Leadership. Students who have taken the course under the alternative course ID should not take this course.

(2 contact hours)

**FIRE 2280 Fireground Strategy and Tactics****3 Credits**

This course provides students with the knowledge needed to effectively plan fireground strategy and determine effective tactics that can be utilized to carry out strategy. Special emphasis is placed on the Incident Command System and the use of various operational levels within the Incident Command structure available to effect proper span of control and safe fireground operations. The culmination of this course is practical application of the materials by simulating a major fireground operation. This course provides instruction commensurate with selected topics of NFPA 1021, Fire Officer Professional Qualifications.

(3 contact hours)

**FIRE 2330 Combustion Processes and Fire Behavior****(TAG) 2 Credits**

This course applies the principles of fire chemistry to the science of fire and fire extinguishment. Students will learn how to adapt basic chemistry concepts to effective fire extinguishment. Topics include hydrocarbon and non-hydrocarbon fuels, properties of various materials, chemicals and chemical reactions, as they apply to firefighting techniques. Although it is not a prerequisite for this course, students will benefit from having taken CHEM 1050 Chemistry in the Everyday World prior to taking this course. This course provides instruction commensurate with the recommendations of NFPA Standard 1001, the Firefighter Professional Qualifications standard.

(2 contact hours)

**FIRE 2340 Hazardous Materials Operations and Command****3 Credits**

This course provides students with instruction in the identification of hazardous materials, chemical reactions, and the proper handling of hazardous materials incidents. It includes instruction in the implementation of the appropriate multilevel and interagency Incident Command process required to effectively handle such incidents. The course culminates with case studies and simulated incidents. The course content meets most recommendations of NFPA Standard 472, OSHA 29CFR1920.120 and U.S. EPA 40CFR311, Awareness and Operations levels and selected portions of NFPA Standard 472, Technician and Incident Commander levels. This course is cross-listed as FIRE 2340 Hazardous Materials Operations and Command and EMGT 2340 Hazardous Materials Operations and Command. Students who have taken the course under the alternative course ID should not take this course.

(3 contact hours)

**FIRE 2380 Emergency Services Safety and Survival****(TAG) 2 Credits**

This course introduces the basic concepts of risk management, occupational health and occupational safety and their relationship to emergency services organizations. Some major course topics include classic risk management, pre-incident planning, incident scene safety, and post-incident analysis.

(2 contact hours)

**FIRE 2390 Fire Field Service Seminar****2 Credits**

*Prerequisite: second year standing in Fire Science Technology program and permission of program director.*

Under the direction of qualified personnel, students will have the opportunity of experiencing first hand the agency's role, dynamics, functions, and relationship to the community served. At the conclusion of the course, students will prepare a report discussing the differences and similarities among the four or more fire departments within which they have been placed.

(2 contact hours)

**FIRE 2490 Fire Service Problem Analysis****2 Credits**

*Prerequisite: second year standing in Fire Science Technology program or permission of instructor.*

This course provides in-service students with the opportunity to apply the knowledge gained through this and other courses. Students will examine problems and current issues facing the fire service and propose a solution to one of these problems/issues. While some topics may vary from year to year, typical issues discussed include hiring practices, motivation and discipline, needs assessment and planning, legal issues, current legislative issues, and unfunded mandates. This course provides instruction commensurate with selected portions of NFPA 1021, the Fire Officer Professional Qualifications standard. This course is cross-listed as EMGT 2490 Emergency Management Problem Analysis and FIRE 2490 Fire Service Problem Analysis. Students who have taken the course under the alternative course ID should not take this course.

(2 contact hours)

**FIRE 2900 Current Issues in the Fire Service****1-3 Credits**

*Prerequisite: FIRE 1100 or permission of program director.*

These specialized courses provide in-depth examinations of fire service topics and current issues not covered in detail elsewhere in the curriculum.

(1-3 contact hours)