

Principles of Fire and Emergency Services

Primary Career Cluster:	Law, Public Safety, Corrections, & Security
Course Content:	CTE.Standards@tn.gov
Course Code(s):	C30H04
Prerequisite(s):	None
Credit:	1
Grade Level:	9-10
Focused Elective Graduation Requirements:	This course satisfies one of three credits required for an elective focus when taken in conjunction with other Law, Public Safety, Corrections, & Security courses.
POS Concentrator:	This course satisfies one out of two required courses that must be taken from a single program of study to meet the Perkins V concentrator definition requirements.
Programs of Study and Sequence:	This is the first course in the <i>Fire Management Services</i> program of study.
Aligned Student Organization:	SkillsUSA: http://tnskillsusa.com/
Coordinating Work-Based Learning:	Teachers are encouraged to use embedded WBL activities such as informational interviewing, job shadowing, and career mentoring. For information, visit https://www.tn.gov/education/career-and-technical-education/work-based-learning.html
Promoted Tennessee Student Industry Credentials:	Credentials are aligned with postsecondary and employment opportunities and with the competencies and skills that students acquire through their selected program of study. For a listing of promoted student industry credentials, visit https://www.tn.gov/education/career-and-technical-education/student-industry-certification.html
Teacher Endorsement(s):	751
Required Teacher Certifications/Training:	Tennessee Fire Commission Firefighter Instructor 1
Teacher Resources:	https://www.tn.gov/education/career-and-technical-education/career-clusters/cte-cluster-law-public-safety.html Best for All Central: https://bestforall.tnedu.gov/

Course-at-a-Glance

CTE courses provide students with an opportunity to develop specific academic, technical, and 21st century skills necessary to be successful in career and in life. In pursuit of ensuring every student in Tennessee achieves this level of success, we begin with rigorous course standards which feed into intentionally designed programs of study.

Students engage in industry relevant content through general education integration and experiences such as career & technical student organizations (CTSO) and work-based learning (WBL). Through these experiences, students are immersed with industry standard content and technology, solve industry-based problems, meaningfully interact with industry professionals, and use/produce industry specific, informational texts.

Using a Career and Technical Student Organization (CTSO) in Your Classroom

CTSOs are a great resource to put classroom learning into real-life experiences for your students through classroom, regional, state, and national competitions, and leadership opportunities. Below are CTSO connections for this course, note this is not an exhaustive list.

- Participate in CTSO Fall Leadership Conference to engage with peers by demonstrating logical thought processes and developing industry specific skills that involve teamwork and project management
- Participate in contests that highlight job skill demonstration; interviewing skills; community service activities, extemporaneous speaking, and job interview
- Participate in leadership activities such as Student2Student Mentoring, National Week of Service, Officer Training, and Community Action Project

For more ideas and information, visit Tennessee SkillsUSA at <http://www.tnskillsusa.com>.

Using Work-based Learning in Your Classroom

Sustained and coordinated activities that relate to the course content are the key to successful work-based learning. Possible activities for this course include the following. This is not an exhaustive list.

- **Standards 1-5** | Participate in a firefighter orientation at a local fire department.
- **Standards 6-9** | Visit a local fire department to work with fire fighters to practice using self-contained breathing apparatus
- **Standards 9-13** | Visit a 911 call center and have students speak with dispatchers about emergency services communications
- **Standards 14-16** | Invite a local fire department to work with students on the use of fire hoses
- **Standards 17-20** | Invite the American Red Cross or American Heart Association to provide Basic Life Support and First Aid training for students
- **Standards 21-23** | Visit local fire training academy to observe demonstrations of the concepts surrounding the science of a fire

For more ideas and information, visit <https://www.tn.gov/education/career-and-technical-education/work-based-learning.html>.

Course Description

Principles of Fire and Emergency Services is the introductory course in the *Fire Management Services* program of study. Students will be introduced to the challenging work of emergency responders in fire management services by learning regulations, health and safety protocol, communications, and operations. Upon completion of this course, if the teacher is a member of the local volunteer fire department, proficient students who are at least 16 years of age will have met the state requirements (T.C.A. 4-24-112) for minimum training of firefighters. Standards in this course are aligned with the National Fire Academy Fire and Emergency Services (FESHE) model.

Program of Study Application

This is the first course in the *Fire Management Services* program of study. For more information on the benefits and requirements of implementing this program in full, please visit the Law, Public Safety, Corrections, & Security website at <https://www.tn.gov/education/career-and-technical-education/career-clusters/cte-cluster-law-public-safety.html>

Course Standards

Career Overview (Firefighter Orientation)

- 1) Prepare a paper or electronic career profile for at least one occupation in the fire services, emergency medical services, and public safety fields, to be added as part of a Law and Public Safety or Health Science portfolio. Draw on print and online sources and/or interviews with health care professionals to capture at minimum the following:
 - a. Job description
 - b. Roles and responsibilities
 - c. Essential knowledge and skills needed for the career
 - d. Program or path of study to reach occupational goals, beginning with high school and proceeding through postsecondary
 - e. Required personality traits for the career
 - f. Licensure and credentialing requirements
 - g. Non-educational job requirements such as physical fitness tests, minimum age, and psychological evaluations
 - h. Required professional attributes (such as teamwork, time management, and leadership)
 - i. National Fire Protection Association (NFPA) 1500 standards for training and National Highway Traffic Safety Administration (NHTSA) training standards (FESHE PES 3, 5, 10, 11)

Foundations of Fire, Emergency Services, and Public Safety (Firefighter Orientation)

- 2) Generate an informational brochure to share with elementary students the scope, purpose, and organizational structure of fire and emergency services. Distinguish among public, private, and volunteer services. (FESHE PES 7)

Health and Safety (Firefighter Safety and Health)

- 3) Investigate National Fire Protection Association 1500 and National Highway Traffic Safety Administration EMS standards related to the health and safety of firefighter and EMS staff. Compare and contrast the regulations of each, including but not limited to regulations regarding the following: training and education of firefighters and EMS personnel; scene safety; electrical safety; standard operating procedures related to safety; and facility safety pertaining to fire and ambulance services. Capture the information in a written, oral, graphic, or digital presentation, citing evidence from the investigation.
- 4) Summarize the dangers associated with careers in fire, emergency response services, and public service; support analysis with examples from actual cases reported in print and digital media. Provide examples of tactics an individual could employ to prevent or mitigate risks, including injury prevention strategies such as emergency escape procedures.
- 5) Investigate critical incidence stress management procedures for professionals in the fire, emergency response, and public service sectors. Identify stressors and stress-inducing situations through interviews with professionals in the field. Collaborate with a team to identify techniques and strategies for managing and alleviating stress. Communicate recommendations in the form of a toolkit, brochure, or fact sheet to support the use of these strategies, citing evidence drawn from the investigation.

Protective Clothing, Protective Equipment, and OSHA Standards (Firefighter Safety and Health)

- 6) Explain the terms personal protective clothing (turnout gear) and personal protective equipment (PPE). Describe the following for each item and demonstrate use:
 - a. Purpose
 - b. Characteristics
 - c. Guidelines for care
 - d. Limitations of each
 - e. Conditions that warrant utilizing each
- 7) Describe in detail the characteristics of effective air management. Distinguish between characteristics of toxic and non-toxic respiratory hazards, identifying physical, medical, and mental factors that affect the firefighter's ability to use respiratory protection effectively. Discuss the limitations of devices and techniques, safety precautions commonly employed by firefighters, and signs and symptoms of oxygen deficiency.
- 8) Compare and contrast the two types of self-contained breathing apparatus (SCBA) used in fire services. Identify the key functions and characteristics of the Personal Alert Safety System (PASS) or Personal Alert Device (PAD) systems and explain why they are required by NFPA 1500 standards. Understand concepts of and perform skills related to SCBA, such as:
 - a. Don SCBA: Over the head method
 - b. Don SCBA: Coat Method
 - c. Don SCBA: Seat-Mount Method
 - d. Doff SCBA
 - e. Inspect SCBA

- f. Clean SCBA
 - g. Fill SCBA cylinder from cascade system
 - h. Controlled Breathing Techniques
 - i. Exit a constricted opening wearing standard SCBA
 - j. Change an SCBA-one person method
 - k. Change an SCBA-two person method
- 9) Interpret OSHA standards followed in fire, emergency, and public service careers. Explain the procedure when an encounter with hazardous waste occurs and what emergency response should be deployed. Cover the following areas in the interpretation and explanation:
- a. Blood-borne pathogen protection
 - b. Eye and face protection
 - c. Respiratory protection
 - d. Head protection
 - e. Foot protection
 - f. Electrical protection
 - g. Hand protection
 - h. Fire brigades
 - i. Don and doff personal protective clothing and personal protective equipment

Emergency Department Communication (Fire Department Communications)

- 10) Research and explain the protocols for handling an emergency call by fire services, emergency services, and public service personnel. Outline the procedure in an informational brochure or public service announcement for community persons. Include basic communication and telecommunication information, types of public alerting systems, and how personnel are notified of an emergency.
- 11) Compare and contrast the various forms of communications within fire services, emergency services, and public safety services or law enforcement at an emergency scene. Explore similarities and differences in radio communications, communication responsibilities of the firefighter, EMT, or police officer at the scene, arrival and progress reports, use of tactile channels, and evacuation signals and personnel accountability reports. Make a claim about the appropriate communication to use in a given situation and strengthen argument with counterclaim(s) and justification.
- 12) Evaluate factors that contribute to effective communication and interview skills with patients/victims/bystanders in an emergency situation, demonstrating sensitivity to cultural differences and other potential barriers to communication. Apply effective communication and interviewing skills within a practicum setting.
- 13) Understand the principles of and practice skills related to the following emergency communication processes:
- a. Handle business calls and reports of emergency
 - b. Use a portable radio for routine traffic
 - c. Use a portable radio for emergency traffic (i.e., call a mayday)
 - d. Create an incident report

Water Supply, Fire Hose, and Fire Streams

- 14) Illustrate visually or graphically the primary aspects of fire hoses, including their construction, descriptions, sizes, and types of couplings. Perform the following Firefighter I skills:
 - a. Make a straight hose roll
 - b. Make a donut hose roll
 - c. Couple a hose - foot-tilt method
 - d. Couple a hose - two-firefighter method
 - e. Uncouple a hose - knee-press method
 - f. Uncouple a hose - two-firefighter method

- 15) Evaluate the NFPA 1961 *Standards on Fire Hose* concerning damage prevention, care for, and maintenance of a fire hose, as well as NFPA 1963 *Standard for Fire Hose Connections* for care of fire hose coupling. Inspect and clean a fire hose and its connections with 100% accuracy.

- 16) Interpret concepts related to hose loads and finishes, preconnected hose loads, and supply hose lays. Perform the following skills related to these concepts:
 - a. Make the accordion hose load
 - b. Make the horseshoe hose load
 - c. Make the flat hose load
 - d. Make the preconnected flat hose load
 - e. Make the triple layer hose load
 - f. Make the minuteman hose load
 - g. Connect to a hydrant using a forward lay
 - h. Make the reverse hose lay

Emergency Operations (Firefighter Safety and Health)

- 17) Analyze traffic laws, regulations for riding in emergency vehicles, wearing seatbelts in emergency vehicles, and driver operation standards.

- 18) Create an electronic presentation outlining the principles associated with the following: Passport System, SCBA Tag System, interior operations, emergency escape, and rapid intervention.

- 19) Understand the principles of and practice skills related to the following emergency operations:
 - a. Scene Size-up with motivation of other agencies
 - b. Mounting and dismounting a fire truck or ambulance
 - c. Setting up a safe work area using traffic and scene control devices

- 20) Successfully perform American Red Cross or American Heart Association Adult, Child, and Infant Basic Life Support for Healthcare Providers and first aid skills.

Fire Behavior

21) Analyze the concepts surrounding the science of a fire, including areas such as:

- a. Physical and chemical properties and changes
- b. Modes of combustion
- c. Classification of fires
- d. Fire triangle and tetrahedron
- e. Heat and transmission of heat
- f. Fuel
- g. Oxygen
- h. Products of combustion

Document findings in a written report linking information in a cohesive manner. (FESHE PES 2)

22) Explain the portable fire extinguisher rating system, then identify the types of portable fire extinguishers and the extinguishing agent characteristics.

23) Understand the concepts of and demonstrate proficiency related to selecting and using portable fire extinguishers:

- a. Given a type of fire, select the proper type of portable fire extinguisher
- b. Operate a portable fire extinguisher using the PASS method of application
- c. Operate a stored pressure water extinguisher
- d. Operate a dry chemical (A B C) extinguisher
- e. Operate a carbon dioxide extinguisher
- f. Inspect a portable fire extinguisher

Standards Alignment Notes

*References to other standards include:

- National Fire Academy Fire and Emergency Services Higher Education (FESHE) Model: [Core Curriculum](#)
 - Note: This course is aligned with the twelve outcomes in Principles of Emergency Services within the FESHE curriculum.
- P21: Partnership for 21st Century Skills [Framework for 21st Century Learning](#)
 - Note: While not all standards are specifically aligned, teachers will find the framework helpful for setting expectations for student behavior in their classroom and practicing specific career readiness skills.