# 2012 Mississippi Curriculum Framework

## Postsecondary Fire Protection Technology

(Program CIP: 43.0203 – Fire Science/Fire-Fighting)

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# Acknowledgments


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| **Professional Curriculum Advisory Team** | Advisory team at Meridian Community College, Meridian, MS |

Standards in this document are based on information from the following organizations:

| | |
|---|---|
| **Standards for Mississippi Postsecondary Fire Protection Technology** | Standards referenced by the Mississippi Fire Personnel Minimum Standards and Certification Board and the Mississippi Fire Academy, National Fire Protection Association and the United State Fire Administration. |
| **Related Academic Standards** | CTB/McGraw-Hill LLC. (2005). *Tests of adult basic education, forms 9 and 10.* Monterey, CA: Author. Reproduced with permission of CTB/McGraw-Hill LLC. TABE is a registered trademark of The McGraw-Hill Companies, Inc. Copyright 2005 by CTB/McGraw-Hill LLC. Reproduction of this material is permitted for educational purposes only. |
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# Preface

## Fire Protection Technology Research Synopsis

The Fire Protection Technology program provides training and knowledge to individuals interested in firefighting and responding to other public emergencies. Individuals that complete these programs are trained in a variety of tasks, skills, and knowledge.

### Needs of the Future Workforce

Fire protection occupations are projected to grow faster than average in the United States, 17%, and the growth rate will be a little more in Mississippi, 19% (EMSI, 2011). Job prospects will be best for individuals with (U.S. Bureau of Labor Statistics, 2011).

***Fire Protection Employment Projections and Earnings***

| Region | 2011 Jobs | 2021 Jobs | Change | % Change | Openings | 2010 Median Hourly Earnings |
|---|---|---|---|---|---|---|
| MS Total | 4,398 | 5,234 | 836 | 19% | 2,345 | $14.68 |
| National Total | 441,497 | 516,380 | 74,883 | 17% | 225,990 | $22.39 |

### Curriculum

The following national standards were referenced in each course of the curriculum:

- CTB/McGraw-Hill LLC *Tests of Adult Basic Education, forms 9 and 10* Academic Standards
- 21st Century Skills

Industry and instructor comments, along with current research, were considered by the curriculum revision team during the revision process, and changes were made as needed and appropriate. Many of the skills and topics noted in the research were already included in the curriculum framework. Specific changes were made to the curriculum at the November 1-3, 2011.

### Program Exceptions

None at this time.

### Assessment

Fire Protection Technology students will be assessed using certifications offered at the Mississippi Fire Academy or other approved fire and emergency service training institutions in other states. http://www.mid.ms.gov/fireacad/RegistrationCourseInfo/CourseListing.html

If there are questions regarding assessment of this program, please contact the instructional design specialist at the Research and Curriculum Unit at 662.325.2510.

### Professional Learning

It is suggested that instructors participate in professional learning related to the following concepts:

- How to use the program Blackboard
- Differentiated instruction – To learn more about differentiated instruction, please go to http://www.paec.org/teacher2teacher/additional_subjects.html and click on Differentiated Instruction. Work through this online course and review the additional resources.

- 21st Century Skills – To learn more about 21st Century Skills, please go to http://www.p21.org/ and click on Overview – 21st Skills Framework.
- Related Academics – To learn more about Related Academics, please go to http://www.ctb.com/ctb.com/control/main?p=home and click on the TABE logo and learn about the most updated standards of the TABE exam.

**Articulation**

Articulation credit for Fire Science Technology does not exist at this time.

| **Articulated Secondary Course** | **Articulated Postsecondary Course** |
|---|---|
| NONE AT THIS TIME | NONE AT THIS TIME |

# Foreword

As the world economy continues to evolve, businesses and industries must adopt new practices and processes in order to survive. Quality and cost control, work teams and participatory management, and an infusion of technology are transforming the way people work and do business. Employees are now expected to read, write, and communicate effectively; think creatively, solve problems, and make decisions; and interact with each other and the technologies in the workplace. Career–technical programs must also adopt these practices in order to provide graduates who can enter and advance in the changing work world.

The curriculum framework in this document reflects these changes in the workplace and a number of other factors that impact local career–technical programs. Federal and state legislation calls for articulation between high school and community college programs, integration of academic and career skills, and the development of sequential courses of study that provide students with the optimum educational path for achieving successful employment. National skills standards, developed by industry groups and sponsored by the U.S. Department of Education and Labor, provide career and technical educators with the expectations of employers across the United States. All of these factors are reflected in the framework found in this document.

Referenced throughout the courses of the curriculum are the 21st Century Skills, which were developed by the Partnership for 21st Century Skills, a group of business and education organizations concerned about the gap between the knowledge and skills learned in school and those needed in communities and the workplace. A portion of the 21st Century Skills addresses learning skills needed in the 21st century, including information and communication skills, thinking and problem-solving skills, and interpersonal and self-directional skills. Another important aspect of learning and working in the 21st century involves technology skills. The International Society for Technology in Education, developer of the National Educational Technology Standards (NETS), was a strategic partner in the Partnership for 21st Century Skills.

Each postsecondary program of instruction consists of a program description and a suggested sequence of courses that focus on the development of occupational competencies. The MS-CPAS2 blueprints are based upon the suggested course sequences to allow for Career Certificate (Y1) and Technical Certificate (Y2) assessments for all exit options. Please refer to the blueprint online. Each career–technical course in this sequence has been written using a common format, which includes the following components:

- Course Name – A common name that will be used by all community and junior colleges in reporting students
- Course Abbreviation – A common abbreviation that will be used by all community and junior colleges in reporting students
- Classification – Courses may be classified as the following:

  - Career–technical core – A required career–technical course for all students
  - Area of concentration (AOC) core – A course required in an area of concentration of a cluster of programs
  - Career–technical elective – An elective career–technical course
  - Related academic course – An academic course that provides academic skills and knowledge directly related to the program area
  - Academic core – An academic course that is required as part of the requirements for an associate's degree

- Description – A short narrative that includes the major purpose(s) of the course and the recommended number of hours of lecture and laboratory activities to be conducted each week during a regular semester

- Prerequisites – A listing of any courses that must be taken prior to or on enrollment in the course

- Corequisites – A listing of courses that may be taken while enrolled in the course

- Competencies and Suggested Objectives – A listing of the competencies (major concepts and performances) and the suggested student objectives that will enable students to demonstrate mastery of these competencies

The following guidelines were used in developing the program(s) in this document and should be considered in compiling and revising course syllabi and daily lesson plans at the local level:

- The content of the courses in this document reflects approximately 75% of the time allocated to each course. The remaining 25% of each course should be developed at the local district level and may reflect the following:
  - Additional competencies and objectives within the course related to topics not found in the state framework, including activities related to specific needs of industries in the community college district
  - Activities that develop a higher level of mastery on the existing competencies and suggested objectives
  - Activities and instruction related to new technologies and concepts that were not prevalent at the time the current framework was developed or revised
  - Activities that include integration of academic and career–technical skills and course work, school-to-work transition activities, and articulation of secondary and postsecondary career–technical programs
  - Individualized learning activities, including work-site learning activities, to better prepare individuals in the courses for their chosen occupational areas

- Sequencing of the course within a program is left to the discretion of the local district. Naturally, foundation courses related to topics such as safety, tool and equipment usage, and other fundamental skills should be taught first. Other courses related to specific skill areas and related academics, however, may be sequenced to take advantage of seasonal and climatic conditions, resources located outside of the school, and other factors. Programs that offer an Associate of Applied Science Degree must include all of the required Career Certificate

courses, Technical Certificate courses **AND** a minimum of 15 semester hours of General Education Core Courses. The courses in the General Education Core may be spaced out over the entire length of the program so that students complete some academic and Career Technical courses each semester. Each community college specifies the actual courses that are required to meet the General Education Core Requirements for the Associate of Applied Science Degree at their college. The following 2012 SACS standard applies.

- *Section 2.7.3 For degree completion in associate programs, the component constitutes a minimum of 15 semester hours or the equivalent. These credit hours are to be drawn from and include at least one course from each of the following areas: humanities/fine arts, social/behavioral sciences, and natural science/mathematics.*

In order to provide flexibility within the districts, individual courses within a framework may be customized by doing the following:

- Adding new competencies and suggested objectives to complement the existing competencies and suggested objectives in the program framework.
- Revising or extending the suggested objectives for individual competencies
- Adjusting the semester credit hours of a course to be up 1 hour or down 1 hour (after informing the Mississippi Community College Board [MCCB] of the change)

In addition, the curriculum framework as a whole may be customized by doing the following:

- Sequencing courses within the suggested course sequence reflecting the new assessment format
- Developing and adding a new course that meets specific needs of industries and other clients in the community or junior college district (with MCCB approval)
- Adding courses listed in the "Approved Career and Technical Electives List" as local certificate and degree completion requirements to meet specific needs of industries and other clients in the community. The "Approved Career and Technical Electives" are currently approved in the Uniform Course Numbering Book; therefore, MCCB approval is not required.

# Table of Contents

## Program Description

Fire Protection Technology is an instructional program that prepares individuals to provide firefighting and basic emergency care. Firefighters also function as a part of the EMS response, providing skills and knowledge in a variety of emergencies. Fire Protection Technology may be taught as a Career Certificate, Technical Certificate, or Associate of Applied Science (AAS) degree. Courses taken as part of the Career Certificate can be transferred to the Technical Certificate and the AAS degree program. Students who complete the program are eligible to take certification courses at the Mississippi Fire Academy.

The certification courses are based on professional qualification standards referenced by the Mississippi Fire Personnel Minimum Standards and Certification Board and the Mississippi Fire Academy (http://www.mid.state.ms.us/fireacad/) as developed by the National Fire Association, National Fire Protection Association (http://www.nfpa.org/), and the United States Fire Administration (http://www.usfa.fema.gov/).

# Suggested Course Sequence

## Fire Protection Technology

## Career Certificate Option

A Career Certificate will be awarded upon completion of the required courses for the Career Certificate option in Fire Science Technology.

| | | |
|---|---|---|
| FFT 1113 | FFT 1113 Introduction to Fire Science | **3 sch: 3 hr lecture** |
| FFT 1123 | FFT 1123 Introduction to Fire Prevention | **3 sch: 3 hr lecture** |
| FFT 1213 | FFT 1213 Firefighting Principles and Practices | **3 sch: 3 hr lecture** |
| FFT 1223 | FFT 1223 Fire Apparatus and Hydraulics | **3 sch: 3 hr lecture** |
| FFT 2313 | FFT 2313 Disaster Management | **3 sch: 3 hr lecture** |
| FFT 2323 | FFT 2323 Building Construction | **3 sch: 3 hr lecture** |
| FFT 2333 | FFT 2333 Fire Fighter Safety | **3 sch: 3 hr lecture** |
| FFT 2413 | FFT 2413 Strategy and Tactics | **3 sch: 3 hr lecture** |
| FFT 2423 | FFT 2423 Incident Management Systems | **3 sch: 3 hr lecture** |
| FFT 2433 | FFT 2433 Special Problems in Fire Protection | **3 sch: 3 hr lecture** |
| | **Total Semester Credit Hours for a Career Certificate** | **30 sch** |

Students who lack entry level skills in math, English, science, etc. will be provided related studies.

# Technical Certificate Options

A Technical Certificate will be awarded upon completion of all required Career Certificate courses **AND** the following required Technical Certificate courses in the Fire Science Technology program.

Fire Administration Technical Certificate Option

| | | |
|---|---|---|
| | Career Certificate | 30 sch |
| FFT 1813 | FFT 1813 Fire Law | **3 sch: 3 hr lecture** |
| FFT 2813 | FFT 2813 Fire Department Management | **3 sch: 3 hr lecture** |
| FFT 2823 | FFT 2823 Fire Service Supervision | **3 sch: 3 hr lecture** |
| FFT 2833 | FFT 2833 Financial Management | **3 sch: 3 hr lecture** |
| | Approved Elective | **3 sch** |
| | **Total Semester Credit Hours for a Technical Certificate** | **45 sch** |

Community Fire Risk Management Technical Certificate Option

| | | |
|---|---|---|
| | Career Certificate | 30 sch |
| FFT 1913 | Planning for Fire and Emergency Services | **3 sch: 3 hr lecture** |
| FFT 2913 | Delivery of Fire and Emergency Services | **3 sch: 3 hr lecture** |
| FFT 2923 | Community Risk Management I | **3 sch: 3 hr lecture** |
| FFT 2933 | FFT 2933 Community Risk Management II | **3 sch: 3 hr lecture** |
| | Approved Elective | **3 sch** |
| | **Total Semester Credit Hours for a Technical Certificate** | **45 sch** |

# Associate of Applied Science Degree Option

To receive the Associate of Applied Science Degree in Fire Science Technology, a student must complete all of the required Career Certificate courses, Technical Certificate courses **AND** a minimum of 15 semester hours of General Education Core Courses. The courses in the General Education Core may be spaced out over the entire length of the program so that students complete some academic and Career Technical courses each semester. Each community college specifies the actual courses that are required to meet the General Education Core Requirements for the Associate of Applied Science Degree at their college. The following 2012 SACS standard applies.

Section 2.7.3 For degree completion in associate programs, the component constitutes a minimum of 15 semester hours or the equivalent. These credit hours are to be drawn from and include at least one course from each of the following areas: humanities/fine arts, social/behavioral sciences, and natural science/mathematics.

A student must complete the following minimum credit requirements for the AAS Degree Option:

| | |
|---|---|
| Career Certificate | 30 credits minimum |
| Technical Certificate | 15 credits minimum |
| General Education Core Courses | 15 credits minimum |
| Total Semester Credit Hours for the Associate of Applied Science Degree | 60 credits minimum hours earned as a compilation of Career, Technical, and Academic credit hours. |

Approved Career–Technical elective courses have been included to allow community colleges and students to customize programs to meet the needs of industries and employers in their area.

In order to provide flexibility within the districts, individual courses within a framework may be customized by doing the following:

- Adding new competencies and suggested objectives to complement the existing competencies and suggested objectives in the program framework.
- Revising or extending the suggested objectives for individual competencies
- Adjusting the semester credit hours of a course to be up 1 hour or down 1 hour **(after informing the Mississippi Community College Board [MCCB] of the change)**

In addition, the curriculum framework as a whole may be customized by doing the following:

- Sequencing courses within the suggested course sequence to reflecting the new assessment format
- Developing and adding a new course that meets specific needs of industries and other clients in the community or junior college district **(with MCCB approval)**
- Adding courses listed in the "Approved Career and Technical Electives List" as local certificate and degree completion requirements to meet specific needs of industries and other clients in the

community. The "Approved Career and Technical Electives" are currently approved in the Uniform Course Numbering Book; therefore, MCCB approval is **not** required.

# APPROVED CAREER AND TECHNICAL ELECTIVES

| | | |
|---|---|---|
| FFT 1813 | Fire Law | 3 sch: 3 hr lecture |
| FFT 2813 | Fire Department Management | 3 sch: 3 hr lecture |
| FFT 2823 | Fire Service Supervision | 3 sch: 3 hr lecture |
| FFT 2833 | Financial Management | 3 sch: 3 hr lecture |
| FFT 1913 | Planning for Fire and Emergency Services | 3 sch: 3 hr lecture |
| FFT 2913 | Delivery of Fire and Emergency Services | 3 sch: 3 hr lecture |
| FFT 2923 | Community Risk Management I | 3 sch: 3 hr lecture |
| FFT 2933 | Community Risk Management II | 3 sch: 3 hr lecture |
| Computer Elective – (CPT 1113 Fundamentals of Microcomputer Applications or other computer elective approved by the instructor) | | |
| | | |
| **Other instructor approved electives that are listed in the MCCB approved CTE Uniform Course Numbering document.** | | |

# APPROVED ACADEMIC ELECTIVES

| |
|---|
| Written Communication Elective |
| Oral Communication Elective |
| **Other instructor approved electives that are listed in the MCCB approved Academic Uniform Course Numbering document.** |

# Fire Protection Technology Courses

**Course Name:** Introduction to Fire Science

**Course Abbreviation:** FFT 1113

**Classification:** Career–Technical Core (Certificate and Associate Degree)

**Description:** An orientation to the fire service, this course explores department structure and organization, operations and responsibilities, and the history of the fire services and changes that are currently remolding traditional fire services. (3 sch: 3-hr lecture)

**Prerequisite:** None

**Competencies and Suggested Objectives**

1. Explain the many areas of fire science. DOK1, FP1, FP2, FP3, FP4
   a. Describe the components of the history and philosophy of the modern-day fire service.
   b. Analyze and examine the basic components of fire as a chemical reaction, the major phases of fire, and the main factors that influence fire spread and fire behavior.
   c. Describe the differences between fire service training and education, a fire protection certificate program, and a fire service degree program; explain the value of education in the fire service.
   d. Identify and describe the major organizations that provide emergency response service and illustrate how they interrelate.
   e. Identify fire protection and emergency-service careers in both the public and in the private sector.
   f. Describe the role of national, state, and local support organizations in fire protection and emergency services.
   g. Identify and describe the scope, purpose, and organizational structure common to the fire and emergency services.
   h. Describe the common types of fire and emergency services facilities, equipment, and apparatus.
   i. Compare and contrast effective management concepts for various emergency situations.
   j. Identify and explain the components of fire prevention, including code enforcement, public information, and public and private fire protection systems.
   k. Identify a specific problem related to a fire science concept and apply research information toward the development of a proposed solution.

## STANDARDS

*Standards for Fire Protection Technology*

FP1 United States Fire Administration
FP2 National Fire Association
FP3 Mississippi Fire Academy
FP4 National Fire Protection Association

**Course Name:** Introduction to Fire Prevention

**Course Abbreviation:** FFT 1123

**Classification:** Career–Technical Core (Certificate and Associate Degree)

**Description:** This course introduces students to modern approaches of fire prevention. An overview of current fire prevention methods is provided, including codes and standards, company-based inspections, public fire education, interdiction programs, and legislation affecting fire prevention activities. (3 sch: 3-hr lecture)

**Prerequisite:** None

| **Competencies and Suggested Objectives** |
|---|
| 1. Read, analyze, and determine the importance of regulations, fire prevention, and organizations. DOK1, FP1, FP2, FP3, FP4<br>a. Define the national fire problem and main issues relating to the accidental causes of fire.<br>b. Describe the need, responsibilities, and importance of fire prevention as part of an overall mix of fire protection.<br>c. Describe the need, responsibilities, and importance of fire prevention organizations.<br>d. Determine the minimum professional qualifications at the state and national level for Fire Inspector, Fire Investigator, and Fire and Life Safety Educator.<br>e. Define the purpose and elements of an effective plan review program.<br>f. Identify the laws, rules, codes, and other regulations relevant to fire protection of the authority having jurisdiction.<br>g. Define the purpose and elements of an effective fire and life safety education program.<br>h. Define the purpose and elements of an effective media campaign used to promote fire prevention.<br>i. Discuss the major programs for public education.<br>j. Identify a specific problem related to fire prevention and apply research information toward the development of a proposed solution. |

## STANDARDS

*Standards for Fire Protection Technology*

FP1 United States Fire Administration
FP2 National Fire Association
FP3 Mississippi Fire Academy
FP4 National Fire Protection Association

**Course Name:** Firefighting Principles and Practices

**Course Abbreviation:** FFT 1213

**Classification:** Career–Technical Core (Certificate and Associates Degree)

**Description:** A basic fire fighting tactical course, this class provides information about the major principles and practices conducted at fire and emergency scenes. Concentrating on activities of rescue, ventilation, salvage, overhaul, offensive and defensive attack methods, and firefighter safety, students explore various operations that must be conducted in a coordinated manner. (3 sch: 3-hr lecture)

**Prerequisite:** None

| **Competencies and Suggested Objectives** |
|---|
| 1. Explore the conditions conducive to fires and firefighting strategies. DOK1, FP1, FP2, FP3, FP4<br>a. Identify physical properties of the three states of matter.<br>b. Identify the fundamental components of fire and describe the burning process.<br>c. Describe the physical and chemical properties of fire.<br>d. Discuss various materials and their relationship to fires as fuel.<br>e. Describe the methods used to classify various fuels and burning criteria.<br>f. Define the basic terminology associated with the chemistry and describe the dynamics of fire as a chemical reaction.<br>g. Demonstrate knowledge of the characteristics of water as a fire suppression agent.<br>h. Identify and describe the extinguishing action of other alternative suppression agents and strategies.<br>i. Describe the common methods and techniques of fire suppression and the conditions that indicate their most efficient use in an emergency situation.<br>k. Identify a specific problem related to fire suppression and apply research information toward the development of a proposed solution. |

## STANDARDS

*Standards for Fire Protection Technology*

FP1 United States Fire Administration
FP2 National Fire Association
FP3 Mississippi Fire Academy
FP4 National Fire Protection Association

**Course Name:** Fire Apparatus and Hydraulics

**Course Abbreviation:** FFT 1223

**Classification:** Career–Technical Core (Certificate and Associate Degree)

**Description:** Engines, pumps, operating procedures, maintenance techniques, and equipment specifications are discussed while providing a working knowledge and understanding of various types of apparatus and equipment used by the fire service. (3 sch: 3-hr lecture)

**Prerequisite:** None

| **Competencies and Suggested Objectives** |
|---|
| 1. Discuss fire services and equipment. DOK2, FP1, FP2, FP3, FP4<br>a. Identify and describe the common types of fire and emergency services facilities.<br>b. Identify and describe the common types and uses of rescue and forcible entry equipment.<br>c. Identify and describe the common types and uses of fire suppression equipment.<br>d. Identify and describe the common types and uses of fire apparatus including those used for rescue, wildland fire protection, aircraft fire fighting, and aerial access.<br>e. Describe the design principles of fire service pumping apparatus.<br>f. Apply mathematics and physics to the movement of water in fire suppression activities.<br>g. Analyze water-flow demand criteria to meet specific fire suppression requirements.<br>h. Demonstrate the application of mathematical principles used to calculate the physical forces that affect water at rest and in motion.<br>i. Identify a specific problem related to fire apparatus, equipment, or water supply and apply research information to the development of a proposed solution. |

## STANDARDS

*Standards for Fire Protection Technology*

FP1 United States Fire Administration
FP2 National Fire Association
FP3 Mississippi Fire Academy
FP4 National Fire Protection Association

**Course Name:** Fire Law

**Course Abbreviation:** FFT 1813

**Classification:** Career-Technical Core for Fire Administration Technical Certificate and Associate Degree and Career-Technical Elective for other options

**Description:** An analysis of public law that affects the fire service is the basics of this class. From laws related to codes and standards, administrative and management practices, to those related to the fire ground, students learn the fundamentals of fire department operations and management. (3 sch: 3-hr lecture)

**Prerequisite:** None

| **Competencies and Suggested Objectives** |
|---|
| 1. Research and explain laws and legal issues as they relate to fires and fire departments. DOK3, FP1, FP2, FP3, FP4<br>a. Discuss the federal, state, and local laws that regulate the fire department and influence the methods by which emergency services are delivered.<br>b. Identify potential legal and political issues that commonly place fire department leaders at risk.<br>c. Given a series of case studies, describe the legal lessons learned from recent cases, and identify best practices to avoid legal liability.<br>d. Interpret relevant laws and apply political and legal conclusions towards complying with such laws.<br>e. Locate and apply recent legal and legislative online resources.<br>f. Define the different types of laws and explain how each is created and applied to a democratic society.<br>g. Explain the role and purpose of national codes and standards concerning their legal influence.<br>h. Demonstrate an understanding of how legal decisions and opinions can or will affect the fire service.<br>i. Discuss the organization and legal structure of the fire department.<br>j. Define the potential sources of liability and legal duties of emergency service personnel.<br>k. Explain the legal concept of negligence in an emergency setting.<br>l. Define discrimination and identify areas of potential discrimination in the emergency service.<br>m. Explain the purpose and application of federal labor and employment laws.<br>n. Identify a specific problem related to a legal or political issue within the fire and service and apply research information to the development of a proposed solution. |

## STANDARDS

*Standards for Fire Protection Technology*

FP1 United States Fire Administration
FP2 National Fire Association
FP3 Mississippi Fire Academy
FP4 National Fire Protection Association

**Course Name:** Planning for Fire and Emergency Services

**Course Abbreviation:** FFT 1913

**Classification:** Career-Technical Core for Community Fire Risk Management Technical Certificate and Associate Degree and Career-Technical Elective for other options

**Description:** With emphasis on the identification and evaluation of problems common to the management of public-safety resources, this course explores the planning, training, and logistical concerns needed to maintain organizational readiness and community preparedness. (3 sch: 3-hr lecture)

**Prerequisite:** None

| **Competencies and Suggested Objectives** |
|---|
| 1. Describe and assess the organization aspects of fires and fire departments. DOK3, FP1, FP2, FP3, FP4<br>a. Explain how a fire and emergency service organization articulates a vision and defines its mission.<br>b. Describe the components of project planning and identify the steps of the planning cycle.<br>c. Describe how a cultural assessment works to determine potential strategic issues and the direction of an organization.<br>d. Assess the organizational relationship between budgeting, operational plans, and strategic plans.<br>e. Describe the purpose, function, and current and future security concerns of working document publication, storage, and integrity.<br>f. Assess the impact that training and education can have on the organization's ability to carry out its stated mission.<br>g. Describe common methods used to collect local response data and how such information can be analyzed to improve organizational capabilities.<br>h. Demonstrate the ability to write fire-related research objectives<br>i. Research, evaluate, and discuss various sources from which external, fire-related research information is available.<br>j. Identify a specific problem related to planning for fire and emergency services and apply research information toward the development of a proposed solution. |

## STANDARDS

*Standards for Fire Protection Technology*

FP1 United States Fire Administration
FP2 National Fire Association
FP3 Mississippi Fire Academy
FP4 National Fire Protection Association

**Course Name:** Disaster Management

**Course Abbreviation:** FFT 2313

**Classification:** Career–Technical Core (Certificate and Associate Degree)

**Description:** A study in the fundamental principles of preparing for and responding to local disasters. This course focuses on analyzing resources, developing and implementing response plans, and starting the recovery process. (3 sch: 3-hr lecture)

**Prerequisite:** None

**Competencies and Suggested Objectives**

1. Describe and differentiate local, state, and national responses to disasters. DOK2, FP1, FP2, FP3, FP4
    a. Define the phases of a disaster and explain the common tasks associated with preparation, mitigation, response, and recovery.
    b. Describe the fire department's role in responding to a community disaster and explain the concepts of mutual aid and automatic aid.
    c. Differentiate the availability of disaster resources from local, state, federal, and private agencies or organizations.
    d. Identify communications issues that commonly occur among the various levels of government that respond in times of disaster.
    e. Explain how public communication systems can fail during times of disaster and any alternate/redundant methods used to limit the impact of such failures.
    f. Explain the stages of the damage assessment process and the reporting requirements following a local disaster.
    g. Describe the various federal, state, and local assistance programs available to disaster victims during the recovery phase.
    h. Evaluate the roles and responsibilities of key state and federal personnel in responding to a declared major disaster.
    i. Determine some typical responses that may be anticipated in disaster survivors and responders.
    j. Explain the importance of crisis counseling and stress management programs during disaster response and recovery operations.
    k. Describe the various types of public sheltering systems and their common limitations during times of disaster.
    1. Identify a specific problem related to disaster management and apply research information toward the development of a proposed solution.

## STANDARDS

*Standards for Fire Protection Technology*

FP1 United States Fire Administration

FP2 National Fire Association
FP3 Mississippi Fire Academy
FP4 National Fire Protection Association

**Course Name:** Building Construction

**Course Abbreviation:** FFT 2323

**Classification:** Career–Technical Core (Certificate and Associate Degree)

**Description:** Why do buildings burn? What are the danger areas of various types of construction? This course investigates building construction from the standpoint of the fire service. A basic overview of building codes and construction methods is used to familiarize students with building components and construction types. (3 sch: 3-hr lecture)

**Prerequisite:** None

**Competencies and Suggested Objectives**

1. Analyze and understand building codes and their relationship to fires and fire hazards. DOK3, FP1, FP2, FP3, FP4
   a. Demonstrate an understanding of the components of building construction that relate to fire and life safety.
   b. Demonstrate an understanding of building codes, fire prevention, code inspection, and firefighting strategy and tactics.
   c. Classify the major types of building construction and occupancy designations according to recognized building codes.
   d. Analyze the hazards and tactical considerations associated with the various types of building construction.
   e. Explain the different loads and stresses that are placed on a building and their interrelationships.
   f. Identify the principle structural components of buildings and demonstrate an understanding of the function of each.
   g. Differentiate between fire resistance and flame spread and describe the testing procedures used to establish ratings for each.
   h. Identify the indicators of potential structural failure as they relate to firefighter safety.
   i. Identify and analyze the causes involved in the line of duty firefighter deaths related to structural firefighting, training and research and the reduction of emergency risks and accidents.
   j. Identify a specific problem related to structural fire fighting operations and apply research information toward the development of a proposed solution.

## STANDARDS

*Standards for Fire Protection Technology*

FP1 United States Fire Administration
FP2 National Fire Association
FP3 Mississippi Fire Academy
FP4 National Fire Protection Association

**Course Name:** Fire Fighter Safety

**Course Abbreviation:** FFT 2333

**Classification:** Career–Technical Core (Certificate and Associate Degree)

**Description:** This course provides an overview of safety practices for the emergency service worker. Covering the individual and team from "in the station," through the emergency scene, and return back to service, this course is essential for those who participate in emergency service activities. (3 sch: 3-hr lecture)

**Prerequisite:** None

| **Competencies and Suggested Objectives** |
|---|
| 1. Identify and describe safety practices for emergency service workers. DOK1, FP1, FP2, FP3, FP4<br>a. Describe the history of health and safety program and the impact of occupational health safety programs in the modern fire service.<br>b. Identify the national standards and federal regulations that impact fire service health and safety programs.<br>c. Explain the concepts associated with risk identification and risk evaluation.<br>d. Describe the components of an effective response safety plan.<br>e. Describe the components of the preincident planning process.<br>f. Describe the considerations for safety in fire stations and emergency response vehicles.<br>g. Describe the components of an accountability system in emergency operations.<br>h. Describe the methods of controlling hazards associated with responding to emergency medical, hazardous material, and technical rescue incidents.<br>i. Explain the need for and the process used for post-incident analysis and critical incident management programs.<br>j. Describe the responsibilities of individual responders, supervisors, safety officers, incident commanders, safety program managers, safety committees, and fire department managers as they relate to health and safety programs.<br>k. Describe the components of a fire department wellness plan, fitness plan, and member assistance program.<br>l. Identify a specific problem related to firefighter health or incident safety and apply research information to the development of a proposed solution. |

## STANDARDS

*Standards for Fire Protection Technology*

FP1 United States Fire Administration
FP2 National Fire Association
FP3 Mississippi Fire Academy
FP4 National Fire Protection Association

**Course Name:** Strategy and Tactics

**Course Abbreviation:** FFT 2413

**Classification:** Career–Technical Core (Certificate and Associate Degree)

**Description:** Strategy and tactics used in a variety of situations faced by the fire service are explored. Covering different situations from small everyday occurrences to massive conflagrations, this course makes use of simulations and case histories in exploring necessary strategy and tactical endeavors. (3 sch: 3-hr lecture)

**Prerequisite:** None

| **Competencies and Suggested Objectives** |
|---|
| 1. Describe and apply strategies and tactics. DOK2, FP1, FP2, FP3, FP4<br>a. Analyze the principles of fire control through the proper utilization of personnel, equipment, and extinguishing agents.<br>b. Explain the impact of fire behavior and fire chemistry to the selection and application of appropriate extinguishing agents.<br>c. Describe the main components of preincident planning and identify the steps to conduct an effective preincident plan review.<br>d. Explain the basics of building construction and how they interrelate to preincident planning.<br>e. Describe the major steps taken during size-up and identify the order in which they will take place at an incident.<br>f. Recognize and articulate the importance of fire ground communications.<br>g. Identify and define the main functions within the ICS system and how they interrelate during an incident.<br>h. Given different scenarios, outline an incident command system that applies the appropriate resources to meeting all critical incident objectives.<br>i. Identify and analyze the major causes involved in line-of-duty firefighter deaths related to health, wellness, fitness, and vehicle operations.<br>j. Identify a specific problem related to the evaluation and selection of proper strategies or tactics and apply research information to the development of a proposed solution. |

## STANDARDS

*Standards for Fire Protection Technology*

FP1 United States Fire Administration
FP2 National Fire Association
FP3 Mississippi Fire Academy
FP4 National Fire Protection Association

**Course Name:** Incident Management Systems

**Course Abbreviation:** FFT 2423

**Classification:** Career–Technical Core (Certificate and Associate Degree)

**Description:** This course is a study of incident management systems used for handling situations from the smallest incidents to the largest. A variety of methods are discussed with emphasis placed on the National Incident Management Systems (3 sch: 3-hr lecture)

**Prerequisite:** None

| **Competencies and Suggested Objectives** |
|---|
| 1. Explain and utilize incident management systems. DOK2, FP1, FP2, FP3, FP4<br>a. Identify and define the main functions within the ICS system and how they interrelate during an incident.<br>b. Explain the relationship between effective ICS and the use of incident objectives (life safety, incident stabilization, and property conservation).<br>c. Describe how the fire service uses ICS to maintain safe and effective communication channels during emergency and nonemergency incidents.<br>d. Explain the ICS concept *span of control* and describe how it can influence personnel accountability.<br>e. Explain the ICS concept *unified command* and describe how it can be adapted to work in multijurisdictional and multiagency situations.<br>f. Describe the process of sectoring and how it provides a uniform method of geographical identification for specific points within an incident area.<br>g. Explain how ICS can be modified to deal with immediate threats to response personnel and other on-scene emergency procedures.<br>h. Given case studies of large-scale disasters, identify the short-range and long-range planning methods used to forecast logistical needs.<br>i. Describe the process of staging and how to effectively manage and deploy incoming resources.<br>j. Explain the importance of responder rehabilitation and the ICS procedures for providing on-scene rehabilitation services.<br>k. Explain the use of resource typing and common terminology within ICS to improve interoperability and communications.<br>l. Describe the process of demobilization and how ICS is used to effectively reduce the number of on-scene resources.<br>m. Identify a specific problem related to the effective management of incident resources and apply research information to the development of a proposed solution. |

## STANDARDS

*Standards for Fire Protection Technology*

FP1 United States Fire Administration
FP2 National Fire Association
FP3 Mississippi Fire Academy
FP4 National Fire Protection Association

**Course Name:** Special Problems in Fire Protection

**Course Abbreviation:** FFT 2433

**Classification:** Career–Technical Core (Certificate and Associate Degree)

**Description:** This course provides selected problems aimed at local fire-service needs. Students utilize critical thinking and perform the necessary research to develop effective solutions. (3 sch: 3-hr lecture)

**Prerequisite:** None

| **Competencies and Suggested Objectives** |
|---|
| 1. Identify and investigate issues to local fire service departments. DOK3, FP1, FP2, FP3, FP4<br>a. Identify and investigate various issues that pose a special concern or unique threat to the delivery of fire and emergency services.<br>b. Identify areas of ongoing fire-related research and the organizations or programs that have developed applications to reduce hazardous situations.<br>c. Investigate, evaluate, and interpret research in the areas of fire service operations, fire dynamics, and fire prevention.<br>d. Investigate, evaluate, and interpret research in the area of fire test standards and code development.<br>e. Explain current trends that indicate future developments in fire-related research.<br>f. Demonstrate the ability to utilize various informational and media resources to collect data related to a specific fire or emergency service problem.<br>g. Complete a formal research proposal on a problematic fire or emergency service topic and apply a recognized method of investigation, organization, and presentation. |

## STANDARDS

*Standards for Fire Protection Technology*

FP1 United States Fire Administration
FP2 National Fire Association
FP3 Mississippi Fire Academy
FP4 National Fire Protection Association

**Course Name:** Fire Department Management

**Course Abbreviation:** FFT 2813

**Classification:** Career-Technical Core for Fire Administration Technical Certificate and Associate Degree and Career-Technical Elective for other options

**Description:** This course introduces students to management. Particular attention is paid to the management process as it relates to both nonemergency and emergency aspects of the fire officer's role. (3 sch: 3-hr lecture)

**Prerequisite:** None

| **Competencies and Suggested Objectives** |
|---|
| 1. Examine management techniques and issues in nonemergency and emergency situations.<br>a. Examine the organization and management of a fire department and the relationship of government agencies to the fire service. DOK3, FP1, FP2, FP3, FP4<br>b. Identify career-development opportunities and strategies for employee success.<br>c. Describe the concepts of span and control, effective delegation, and division of labor.<br>d. Explain how effective appraisals and progressive disciplinary action can impact employee behavior.<br>e. Examine the history and development of fire service management and supervision.<br>f. Evaluate methods of managing available resources and identify the roles and responsibilities of leaders within the fire department.<br>g. Identify and assess personnel safety needs for both emergency and nonemergency situations.<br>h. Identify the importance of ethics as they apply to fire department supervisors.<br>i. Identify the role of a company officer in establishing an effective incident command system (ICS).<br>j. Describe the need and benefits of consistent and accurate documentation within the fire service.<br>k. Identify and analyze the major causes of firefighter line-of-duty injuries and deaths.<br>l. Identify a specific problem related to the management of fire and emergency service resources and apply research information to the development of a proposed solution. |

## STANDARDS

*Standards for Fire Protection Technology*

FP1 United States Fire Administration
FP2 National Fire Association
FP3 Mississippi Fire Academy
FP4 National Fire Protection Association

**Course Name:** Fire Service Supervision

**Course Abbreviation:** FFT 2823

**Classification:** Career-Technical Core for Fire Administration Technical Certificate and Associate Degree and Career-Technical Elective for other options

**Description:** Focusing specifically on supervising and managing personnel involved with fire protection, this course provides students with information on developing effective supervisory techniques, the role of the supervisor, dealing with problem situations, and other areas relating to personnel in fire science and individual work groups. (3 sch: 3-hr lecture)

**Prerequisite:** None

| **Competencies and Suggested Objectives** |
|---|
| 1. Identify and explain supervising and managing personnel. DOK2, FP1, FP2, FP3, FP4<br>a. Identify and explain contemporary management issues that occur due to variations in fire department demographics.<br>b. Explain the collective rules, procedures, laws, and policies that impact personnel management issues.<br>c. Describe the most common personnel management issues that affect the recruitment of emergency service personnel.<br>d. Compare and contrast the traits of effective and ineffective supervision and management styles.<br>e. Discuss the components and styles of leadership.<br>f. Explain the principles associated with organizational development and the leadership structures commonly seen throughout the fire service.<br>g. Describe the managerial relationships that exist between financial, human, facilities, equipment, and information resources.<br>h. Explain the importance of public access to government and fire department operations.<br>i. Describe the key elements of successful communication to meet both internal and external customer needs.<br>j. Explain the need for effective personnel evaluation procedures and how such data can be applied to organizational improvement.<br>k. Identify a specific problem related to the supervision of fire and emergency service personnel and apply research information to the development of a proposed solution. |

## STANDARDS

*Standards for Fire Protection Technology*

FP1 United States Fire Administration
FP2 National Fire Association
FP3 Mississippi Fire Academy
FP4 National Fire Protection Association

**Course Name:** Financial Management

**Course Abbreviation:** FFT 2833

**Classification:** Career-Technical Core for Fire Administration Technical Certificate and Associate Degree and Career-Technical Elective for other options

**Description:** Budgeting and financial management are the primary concerns of this course. Various methods of budgeting are discussed as well as budgetary tracking methods and evaluation procedures. An applied project requires the development of a model budget for the student's fire service organization. (3 sch: 3-hr lecture)

**Prerequisite:** None

| **Competencies and Suggested Objectives** |
|---|
| 1. Describe and apply techniques of budgeting and financial management. DOK1, FP1, FP2, FP3, FP4<br>a. Describe the typical sources of income used to fund fire department operations.<br>b. Explain the purpose and need for an effective budgeting process.<br>c. Identify and define the types of budgets commonly used to guide fire department financial management.<br>d. Describe the use of regular budget analysis and its potential influence on setting fire department spending priorities.<br>e. Explain the impact personnel costs can have on the overall fire department budget.<br>f. Describe how funds can be divided to accommodate different training needs and resources.<br>g. Explain the typical interaction between the fire department and other governmental departments as it relates to the budgeting process.<br>h. Identify the laws and regulations common to purchasing vehicles, equipment, supplies, and services with public funds.<br>i. Explain the process of predicting and budgeting for capital needs to meet fire department objectives.<br>j. Identify the common sources of grant funding and how grants can impact fire department operations.<br>k. Describe the most common procedures for auditing the use of public funds and how chief fire executives can be held accountable for spending decisions.<br>l. Explain the options available to chief fire executives for managing a reduction in funding.<br>m. Identify a specific problem related to the funding of fire and emergency service activities and apply research information to the development of a proposed solution. |

## STANDARDS

*Standards for Fire Protection Technology*

FP1 United States Fire Administration
FP2 National Fire Association

FP3 Mississippi Fire Academy
FP4 National Fire Protection Association

**Course Name:** Delivery of Fire and Emergency Services

**Course Abbreviation:** FFT 2913

**Classification:** Career-Technical Core for Community Fire Risk Management Technical Certificate and Associate Degree and Career-Technical Elective for other options

**Description:** The proper deployment of adequate resources is often the most critical aspect of an effective response. This course emphasizes methods for interpreting data and making sound tactical decisions to manage local emergency situations and other large-scale incidents. (3 sch: 3-hr lecture)

**Prerequisite:** None

| **Competencies and Suggested Objectives** |
|---|
| 1. Identify and explain proper deployment techniques of adequate resources in fighting fires and incidents. DOK1, FP1, FP2, FP3, FP4<br>a. Describe the role of the fire department as a part of the community government and comprehensive public safety plan.<br>b. Explain the importance of a good working relationship with public officials and the community as a whole.<br>c. Describe the methods used to assess the relationship between the fire department and the community.<br>d. Identify the various local, state, and national organizations that are beneficial to the fire department.<br>e. Identify, name, and understand the basic chemistry and hazards involved with the nine U.S. Department of Transportation hazard classes and their divisions.<br>f. Explain the correlation between effective resource deployment and the need for rapid response times.<br>g. Define minimum staffing and explain how changes can impact the delivery of fire suppression and rescue services.<br>h. Describe the nonsuppression services that are often assigned to the fire department and how they can impact personnel, training, and resources.<br>i. Explain the process used to alert and dispatch fire department resources and the various systems used to carry out this task.<br>j. Identify a specific problem related to the delivery for fire and emergency services and apply research information to the development of a proposed solution. |

## STANDARDS

*Standards for Fire Protection Technology*

FP1 United States Fire Administration
FP2 National Fire Association
FP3 Mississippi Fire Academy
FP4 National Fire Protection Association

**Course Name:** Community Risk Management I

**Course Abbreviation:** FFT 2923

**Classification:** Career-Technical Core for Community Fire Risk Management Technical Certificate and Associate Degree and Career-Technical Elective for other options

**Description:** This course facilitates the analysis of local-area hazard data and threat control principles relating to personal and environmental risks. Investigation techniques, inspection methodologies, and prevention programs essential to public safety are emphasized. (3 sch: 3-hr lecture)

**Prerequisite:** None

| **Competencies and Suggested Objectives** |
|---|
| 1. Research and analyze hazards and threats to safety. DOK3, FP1, FP2, FP3, FP4<br>a. Identify and explain the responsibilities of the fire department to investigate incidents and attempt to determine a reasonable cause.<br>b. Define criminal law and explain the constitutional amendments (4th, 5th, 6th, 8th, and 14th) as they apply to fire investigations.<br>c. Analyze the precedents set by constitutional law case studies that have affected fire investigations.<br>d. Define and explain the common terms used in fire investigations.<br>e. Identify the types of fire causes and differentiate between accidental and incendiary causes.<br>f. Analyze the relationship of building construction on fire investigations including types of construction, construction, and finish materials.<br>g. Evaluate fire protection systems and building services and discuss how their installation affects the ignition of fires in buildings.<br>h. Discuss the basic principles of electricity as a potential source of ignition.<br>i. Explain the role of the fire investigator in recognizing health and safety concerns including potential hazardous materials awareness.<br>j. Describe fire-scene investigations and the process of conducting investigations using the scientific method.<br>k. Describe and explain the basic procedures used for investigating vehicle fires.<br>l. Compare and contrast the characteristics of arson and common motives of adult and juvenile fire-setters.<br>m. Identify a specific problem related to the investigation of accident data and apply research information to the development of a proposed solution. |

## STANDARDS

*Standards for Fire Protection Technology*

FP1 United States Fire Administration
FP2 National Fire Association

FP3 Mississippi Fire Academy
FP4 National Fire Protection Association

**Course Name:** Community Risk Management II

**Course Abbreviation:** FFT 2933

**Classification:** Career-Technical Core for Community Fire Risk Management Technical Certificate and Associate Degree and Career-Technical Elective for other options

**Description:** A continuation of the principles addressed in Community Risk Management I, this course requires the analysis of a specific hazard and the application of specialized mitigation and control measures. The use of various codes, standards, and regulations related to such activities serves as the focal point of this course. (3 sch: 3-hr lecture)

**Prerequisite:** None

**Competencies and Suggested Objectives**

1. Analyze hazards and the application of specialized mitigation and control measures. DOK3, FP1, FP2, FP3, FP4
    a. Identify potential problems and solutions related to issues of community fire risk management.
    b. Define risk management as it applies to the concepts of fire hazard reduction and fire prevention.
    c. Explain the importance of organized and effective leadership to community fire risk management.
    d. Describe the role risk management and community awareness plays within the fire department's mission.
    e. Explain how effective risk management is primarily a community-based strategy.
    f. Describe the history of fire code development and the process used in the United States to write, revise, and implement such codes.
    g. Define the various fire codes available to the fire service and the geopolitical significance of each code-making organization.
    h. Identify and describe the methods used to measure a community's risk potential from fire.
    i. Describe the importance of preincident planning to support an effective fire risk management program.
    j. Describe the importance of plans review and continuous inspection to support an effective fire risk management program.
    k. Identify a specific problem related to the examination and inspection of community fire hazards and apply research information to the development of a proposed solution.

## STANDARDS

*Standards for Fire Protection Technology*

FP1 United States Fire Administration
FP2 National Fire Association
FP3 Mississippi Fire Academy

FP4 National Fire Protection Association

# Appendix A: Course References

All of the Fire Protection Technology references listed under General Resources are used for all courses. Course-specific references are listed under the appropriate course number and name.

## General Resource

United States Fire Administration. (2012) USFA for the fire service. Retrieved May 7, 2012, from http://www.usfa.fema.gov/fireservice/

## FFT 1113 Introduction to Fire Science

Fire Engineering Publications. *Fire behavior–Know the enemy*. Retrieved May 17, 2011, from http://www.fireengineering.com/articles/2010/08/fire-behavior-enemy.html

Fortney, J. (2004). *Fire service orientation and terminology* (4th ed.). Stillwater, OK: IFSTA Fire Protection Publications.

Klinoff, R. (2012). *Introduction to fire protection* (4th ed.). Independence, KY: Cengage.

Knightlite. (2004). Signal 102 fire fighter I/II: Study guide, Student CD-ROM [Computer software] Stillwater, OK: Author.

## FFT 1123 Introduction to Fire Prevention

Eversole, J. (2003). *The Fire chief's handbook* (6th ed.). Tulsa, OK: Fire Engineering Publications.

Knightlite. (2004). Signal 102 fire fighter I/II: Study guide, Student CD-ROM [Computer software] Stillwater, OK: Author.

Robertson, J. (2009). *Introduction to fire prevention* (7th ed.). Upper Saddle River, NJ: Prentice Hall.

## FFT 1213 Firefighting Principles and Practices

Clark, W. (2009). *Fire fighting principles and practices* (2nd ed.). Tulsa, OK: Fire Engineering Publications.

Eversole, J. (2003). *The fire chief's handbook* (6th ed.). Tulsa, OK: Fire Engineering Publications.

Knightlite. (2004). Signal 102 fire fighter I/II: Study guide, Student CD-ROM [Computer software] Stillwater, OK: Author.

### FFT 1223 Fire Apparatus and Hydraulics

Eversole, J. (2003). *The fire chief's handbook* (6th ed.). Tulsa, OK: Fire Engineering Publications.

Knightlite. (2004). Signal 102 fire fighter I/II: Study guide, Student CD-ROM [Computer software] Stillwater, OK: Author.

Petters, W. (1994). *Fire apparatus purchasing handbook* (1st ed.). Tulsa, OK: Prentice Hall.

### FFT 1813 Fire Law

Bennett, L. (2007). *Fire service law* (1st ed.). Upper Saddle River, NJ: Prentice Hall.

Eversole, J. (2003). *The fire chief's handbook* (6th ed.). Tulsa, OK: Fire Engineering Publications.

Knightlite. (2004). Fire and emergency service company officer: Study guide, Student CD-ROM [Computer software] Stillwater, OK: Author.

### FFT 1913 Planning for Fire and Emergency Services

Bruegman, R. (2011). *Advanced fire administration* (1st ed.). Upper Saddle River, NJ: Prentice Hall.

Eversole, J. (2003). *The fire chief's handbook* (6th ed.). Tulsa, OK: Fire Engineering Publications.

Knightlite. (2004). Fire and emergency service company officer: Study guide, Student CD-ROM [Computer software] Stillwater, OK: Author.

### FFT 2313 Disaster Management

Eversole, J. (2003). *The fire chief's handbook* (6th ed.). Tulsa, OK: Fire Engineering Publications.

Knightlite. (2004). Signal 102 fire fighter I/II: Study guide, Student CD-ROM [Computer software] Stillwater, OK: Author

Kramer, W. (1994). *The fire officer's guide to disaster control* (2nd ed.). Tulsa, OK: Prentice Hall.

### FFT 2323 Building Construction

Corbett, G. (2010). *Brannigan's building construction for the fire service* (4th ed.). Burlington, MA: Jones and Bartlett.

Eversole, J. (2003). *The fire chief's handbook* (6th ed.). Tulsa, OK: Fire Engineering Publications.

Knightlite. (2004). Signal 102 fire fighter I/II: Study guide, Student CD-ROM [Computer software] Stillwater, OK: Author.

**FFT 2333 Fire Fighter Safety**

Dunn, V. (1992). *Safety and survival on the fireground* (1st ed.). Tulsa, OK: Fire Engineering Publications.

Eversole, J. (2003). *The fire chief's handbook* (6th ed.). Tulsa, OK: Fire Engineering Publications.

Knightlite. (2004). Signal 102 fire fighter I/II: Study guide, Student CD-ROM [Computer software] Stillwater, OK: Author.

**FFT 2413 Strategy and Tactics**

Avillo, A. (2008). *Fireground strategies* (2nd ed.). Tulsa, OK: Fire Engineering Publications.

Eversole, J. (2003). *The fire chief's handbook* (6th ed.). Tulsa, OK: Fire Engineering Publications.

Knightlite. (2004). Signal 102 fire fighter I/II: Study guide, Student CD-ROM [Computer software] Stillwater, OK: Author.

**FFT 2423 Incident Management Systems**

Coleman, W. (2008). *Incident command for the street smart fire officer* (2nd ed.). Tulsa, OK: Fire Engineering Publications.

Eversole, J. (2003). *The fire chief's handbook* (6th ed.). Tulsa, OK: Fire Engineering Publications

Knightlite. (2004). Fire and emergency service company officer: Study guide, Student CD-ROM [Computer software] Stillwater, OK: Author.

**FFT 2433 Special Problems in Fire Protection**

Eversole, J. (2003). *The fire chief's handbook* (6th ed.). Tulsa, OK: Fire Engineering Publications.

Norman, J. (2009). *Fire department special operations* (1st ed.). Tulsa, OK: Fire Engineering Publications.

Knightlite. (2004). Fire and emergency service company officer: Study guide, Student CD-ROM [Computer software] Stillwater, OK: Author.

**FFT 2813 Fire Department Management**

Carter, H. (2007). *Management in the fire service* (1st ed.). Burlington, MA: Jones and Bartlett Publications.

Eversole, J. (2003). *The fire chief's handbook* (6th ed.). Tulsa, OK: Fire Engineering Publications.

Knightlite. (2004). Fire and emergency service company officer: Study guide, Student CD-ROM [Computer software] Stillwater, OK: Author.

**FFT 2823 Fire Service Supervision**

Edwards, S. (2009). *Fire service personnel management* (3rd ed.). Upper Saddle River, NJ: Prentice Hall.

Eversole, J. (2003). *The fire chief's handbook* (6th ed.). Tulsa, OK: Fire Engineering Publications.

Knightlite. (2004). Fire and emergency service company officer: Study guide, Student CD-ROM [Computer software] Stillwater, OK: Author.

**FFT 2833 Financial Management**

Eversole, J. (2003). *The fire chief's handbook* (6th ed.). Tulsa, OK: Fire Engineering Publications

IAFC. (2005). *Chief fire officer's desk reference* (1st ed.). Burlington, MA: Jones and Bartlett.

Knightlite. (2004). Fire and emergency service company officer: Study guide, Student CD-ROM [Computer software] Stillwater, OK: Author.

**FFT 2913 Delivery of Fire and Emergency Services**

Bruegman, R. (2008). *Fire administration* (1st ed.). Upper Saddle River, NJ: Prentice Hall.

Eversole, J. (2003). *The fire chief's handbook* (6th ed.). Tulsa, OK: Fire Engineering Publications.

Knightlite. (2004). Fire and emergency service company officer: Study guide, Student CD-ROM [Computer software] Stillwater, OK: Author.

## FFT 2923 Community Risk Management I

De Haan, J. (2011). *Kirk's fire investigation* (7th ed.). Burlington, MA: Brady-Prentice Hall.

Eversole, J. (2003). *The fire chief's handbook* (6th ed.). Tulsa, OK: Fire Engineering Publications.

Knightlite. (2004). Fire and emergency service company officer: Study guide, Student CD-ROM [Computer software] Stillwater, OK: Author.

## FFT 2933 Community Risk Management II

Eversole, J. (2003). *The fire chief's handbook* (6th ed.). Tulsa, OK: Fire Engineering Publications.

IFSTA. (2009). *Fire inspection and code enforcement* (7th ed.). Stillwater, OK: Fire Protection Publications.

Knightlite. (2004). Fire and emergency service company officer: Study guide, Student CD-ROM [Computer software] Stillwater, OK: Author.

# Appendix B: Standards for Fire Protection Technology

The certifications are based on professional qualification standards referenced by the Mississippi Fire Personnel Minimum Standards and Certification Board and the Mississippi Fire Academy (http://www.mid.state.ms.us/fireacad/) as developed by the, National Fire Association, National Fire Protection Association (http://www.nfpa.org/) and the United States Fire Administration (http://www.usfa.fema.gov/).

FP1 United States Fire Administration

FP2 National Fire Association

FP3 Mississippi Fire Academy

FP4 National Fire Protection Association

# Appendix C: Related Academic Standards[1]

| Related Academic Standards | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Course | FFT 1113 | FFT 1123 | FFT 1213 | FFT 1223 | FFT 1813 | FFT 1913 | FFT 2313 | FFT 2323 | FFT 2333 |
| **21st Century Standards** | | | | | | | | | | |
| R1 | | X | X | X | X | X | X | X | | |
| R2 | | X | X | X | X | X | X | X | | |
| R3 | | X | X | X | X | X | X | X | | |
| R4 | | X | X | X | X | | | X | | |
| R5 | | X | X | X | X | X | X | X | | |
| M1 | | X | X | X | X | | X | X | | |
| M2 | | X | X | X | X | X | X | X | | |
| M3 | | | X | X | X | X | X | X | | |
| M4 | | | | X | X | X | X | X | | |
| M5 | | | | X | X | X | X | X | | |
| M6 | | | | X | X | X | X | X | | |
| M7 | | X | X | X | X | X | X | X | | |
| M8 | | X | | X | X | | X | X | | |
| M9 | | | X | X | X | | | | | |
| A1 | | X | X | X | X | X | X | X | | |
| A2 | | | | X | X | X | X | X | | |
| A3 | | X | X | X | X | X | X | X | | |
| A4 | | | | X | X | X | X | | | |
| A5 | | X | X | X | X | | X | X | | |
| A6 | | X | | X | X | X | X | X | | |
| A7 | | X | X | X | X | X | X | X | | |
| A8 | | X | X | | X | X | | X | | |
| L1 | | X | X | X | X | X | X | X | | |
| L2 | | X | X | X | X | X | X | X | | |
| L3 | | X | X | X | X | X | X | X | | |
| L4 | | X | X | X | X | X | X | X | | |
| L5 | | X | X | X | X | X | X | X | | |
| L6 | | X | X | X | X | X | X | X | | |
| S1 | | X | | | | | | X | | |
| S2 | | X | | | | | | X | | |

[1] **CTB**/McGraw-Hill LLC. (2005). *Tests of adult basic education, forms 9 and10.* Monterey, CA: Author. Reproduced with permission of CTB/McGraw-Hill LLC. TABE is a registered trademark of The McGraw-Hill Companies, Inc. Copyright 2005 by CTB/McGraw-Hill LLC. Reproduction of this material is permitted for educational purposes only.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| S3 | | X | | | | | | X | | |

## Related Academic Standards

| | Course | FFT 2413 | FFT 2423 | FFT 2433 | FFT 2813 | FFT 2823 | FFT 2833 | FFT 2913 | FFT 2923 | FFT 2933 |
|---|---|---|---|---|---|---|---|---|---|---|
| **21st Century Standards** | | | | | | | | | | |
| R1 | | X | X | X | X | X | X | X | | |
| R2 | | X | X | X | X | X | X | X | | |
| R3 | | X | X | X | X | X | X | X | | |
| R4 | | X | X | X | X | | | X | | |
| R5 | | X | X | X | X | X | X | X | | |
| M1 | | X | X | X | X | | X | X | | |
| M2 | | X | X | X | X | X | X | X | | |
| M3 | | | X | X | X | X | X | X | | |
| M4 | | | | X | X | X | X | X | | |
| M5 | | | | X | X | X | X | X | | |
| M6 | | | | X | X | X | X | X | | |
| M7 | | X | X | X | X | X | X | X | | |
| M8 | | X | | X | X | | X | X | | |
| M9 | | | X | X | X | | | | | |
| A1 | | X | X | X | X | X | X | X | | |
| A2 | | | | X | X | X | X | X | | |
| A3 | | X | X | X | X | X | X | X | | |
| A4 | | | | X | X | X | X | | | |
| A5 | | X | X | X | X | | X | X | | |
| A6 | | X | | X | X | X | X | X | | |
| A7 | | X | X | X | X | X | X | X | | |
| A8 | | X | X | | X | X | | X | | |
| L1 | | X | X | X | X | X | X | X | | |
| L2 | | X | X | X | X | X | X | X | | |
| L3 | | X | X | X | X | X | X | X | | |
| L4 | | X | X | X | X | X | X | X | | |
| L5 | | X | X | X | X | X | X | X | | |
| L6 | | X | X | X | X | X | X | X | | |
| S1 | | X | | | | | | X | | |
| S2 | | X | | | | | | X | | |
| S3 | | X | | | | | | X | | |

Reading

R1 Interpret Graphic Information (forms, maps, reference sources)

R2 Words in Context (same and opposite meaning)

R3 Recall Information (details, sequence)
R4 Construct Meaning (main idea, summary/paraphrase, compare/contrast, cause/effect)
R5 Evaluate/Extend Meaning (fact/opinion, predict outcomes, point of view)

Mathematics Computation
M1 Addition of Whole Numbers (no regrouping, regrouping)
M2 Subtraction of Whole Numbers (no regrouping, regrouping)
M3 Multiplication of Whole Numbers (no regrouping, regrouping)
M4 Division of Whole Numbers (no remainder, remainder)
M5 Decimals (addition, subtraction, multiplication, division)
M6 Fractions (addition, subtraction, multiplication, division)
M7 Integers (addition, subtraction, multiplication, division)
M8 Percents
M9 Algebraic Operations

Applied Mathematics
A1 Numeration (ordering, place value, scientific notation)
A2 Number Theory (ratio, proportion)
A3 Data Interpretation (graph, table, chart, diagram)
A4 Pre-Algebra and Algebra (equations, inequality)
A5 Measurement (money, time, temperature, length, area, volume)
A6 Geometry (angles, Pythagorean theory)
A7 Computation in Context (whole numbers, decimals, fractions, algebraic operations)
A8 Estimation (rounding, estimation)

Language
L1 Usage (pronoun, tense, subject/verb agreement, adjective, adverb)
L2 Sentence Formation (fragments, run-on, clarity)
L3 Paragraph Development (topic sentence, supporting sentence, sequence)
L4 Capitalization (proper noun, titles)
L5 Punctuation (comma, semicolon)
L6 Writing Conventions (quotation marks, apostrophe, parts of a letter)

Spelling
S1 Vowel (short, long)
S2 Consonant (variant spelling, silent letter)
S3 Structural Unit (root, suffix)

# Appendix D: 21st Century Skills[2]

| | Courses | FFT 1113 | FFT 1123 | FFT 1213 | FFT 1223 | FFT 1813 | FFT 1913 | FFT 2313 | FFT 2323 | FFT 2333 |
|---|---|---|---|---|---|---|---|---|---|---|
| **21st Century Standards** | | | | | | | | | | |
| CS1 | | X | X | X | X | X | X | X | X | X |
| CS2 | | X | X | X | X | X | X | X | X | X |
| CS3 | | X | X | X | X | X | X | X | | X |
| CS4 | | X | X | X | X | X | X | X | X | X |
| CS5 | | X | X | X | X | X | X | X | X | X |
| CS6 | | X | X | X | X | X | | X | X | |
| CS7 | | X | X | X | X | X | X | X | X | X |
| CS8 | | X | X | X | X | X | X | X | | X |
| CS9 | | X | X | X | X | X | X | X | | X |
| CS10 | | | | X | X | | X | X | | X |
| CS11 | | | | | | | | | | |
| CS12 | | X | X | X | X | X | X | X | | X |
| CS13 | | X | X | X | X | X | X | X | | X |
| CS14 | | X | X | X | X | X | | X | | X |
| CS15 | | X | X | X | X | X | X | X | | X |
| CS16 | | X | X | X | X | X | X | X | | X |

[2] *21st century skills.* (n.d.). Washington, DC: Partnership for 21st Century Skills.

| 21st Century Crosswalk for Fire Science Technology | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | **Courses** | FFT 2413 | FFT 2423 | FFT 2433 | FFT 2813 | FFT 2823 | FFT 2833 | FFT 2913 | FFT 2923 |
| **21st Century Standards** | | | | | | | | | |
| CS1 | | X | X | X | | X | X | X | X |
| CS2 | | X | X | X | | X | X | X | X |
| CS3 | | X | | X | X | X | X | X | X |
| CS4 | | X | X | X | X | X | X | X | X |
| CS5 | | X | X | X | | X | X | X | X |
| CS6 | | X | X | X | X | | X | X | X |
| CS7 | | X | X | X | X | X | X | X | X |
| CS8 | | X | X | X | X | X | X | | |
| CS9 | | X | X | X | X | X | X | | |
| CS10 | | X | | | | X | X | | |
| CS11 | | | | | | X | | X | X |
| CS12 | | X | X | X | X | X | | X | X |
| CS13 | | X | X | X | X | X | X | X | X |
| CS14 | | X | X | X | X | X | X | X | X |
| CS15 | | X | X | X | X | X | X | X | X |
| CS16 | | X | X | X | X | X | X | X | X |

## CS1 Global Awareness

1. Using 21st century skills to understand and address global issues
2. Learning from and working collaboratively with individuals representing diverse cultures, religions and lifestyles in a spirit of mutual respect and open dialogue in personal, work, and community contexts
3. Understanding other nations and cultures, including the use of non-English languages

## CS2 Financial, Economic, Business and Entrepreneurial Literacy

1. Knowing how to make appropriate personal economic choices
2. Understanding the role of the economy in society
3. Using entrepreneurial skills to enhance workplace productivity and career options

## CS3 Civic Literacy

1. Participating effectively in civic life through knowing how to stay informed and understanding governmental processes
2. Exercising the rights and obligations of citizenship at local, state, national and global levels
3. Understanding the local and global implications of civic decisions

### CS4 Health Literacy

1. Obtaining, interpreting and understanding basic health information and services and using such information and services in ways that enhance health
2. Understanding preventive physical and mental health measures, including proper diet, nutrition, exercise, risk avoidance, and stress reduction
3. Using available information to make appropriate health-related decisions
4. Establishing and monitoring personal and family health goals
5. Understanding national and international public health and safety issues

### CS5 Environmental Literacy

1. Demonstrate knowledge and understanding of the environment and the circumstances and conditions affecting it, particularly as relates to air, climate, land, food, energy, water and ecosystems
2. Demonstrate knowledge and understanding of society's impact on the natural world (e.g., population growth, population development, resource consumption rate, etc.)
3. Investigate and analyze environmental issues and make accurate conclusions about effective solutions
4. Take individual and collective action towards addressing environmental challenges (e.g., participating in global actions, designing solutions that inspire action on environmental issues)

### CS6 Creativity and Innovation

1. Think Creatively
2. Work Creatively with Others
3. Implement Innovations

### CS7 Critical Thinking and Problem Solving

1. Reason Effectively
2. Use Systems Thinking
3. Make Judgments and Decisions
4. Solve Problems

### CS8 Communication and Collaboration

1. Communicate Clearly
2. Collaborate with Others

### CS9 Information Literacy

1. Access and Evaluate Information
2. Use and Manage Information

### CS10 Media Literacy

1. Analyze Media
2. Create Media Products

### CS11 ICT Literacy

1. Apply Technology Effectively

### CS12 Flexibility and Adaptability

1. Adapt to change
2. Be Flexible

### CS13 Initiative and Self-Direction

1. Manage Goals and Time
2. Work Independently
3. Be Self-directed Learners

### CS14 Social and Cross-Cultural Skills

1. Interact Effectively with others
2. Work Effectively in Diverse Teams

### CS15 Productivity and Accountability

1. Manage Projects
2. Produce Results

## CS16 Leadership and Responsibility

1. Guide and Lead Others
2. Be Responsible to Others