

# Fire Science Management (FSMT)

## **FSMT102 Fire Behavior and Combustion (3 semester hours)**

This course explores the theories and fundamentals of how and why fires start, spread, and are controlled. The student can expect to identify physical properties of the three states of matter; categorize the components of fire; recall the physical and chemical properties of fire; describe and apply the process of burning; define and use basic terms and concepts associated with the chemistry and dynamics of fire; discuss the various materials and their relationship to fires as fuel; demonstrate knowledge of the characteristics of water as a fire suppression agent; articulate other suppression agents and strategies; and compare other methods and techniques of fire extinguishments. View the course schedule (<https://www.apus.edu/course-schedule/details.html?c=FSMT102>) to find out details about each course including prerequisites, course objectives, course materials, a snapshot of the syllabi, and session dates.

## **FSMT188 Fire Prevention (3 semester hours)**

This course provides fundamental information regarding the history and philosophy of fire prevention, organization and operation of a fire prevention bureau, use of fire codes, identification and correction of fire hazards, and the relationships of fire prevention with built-in fire protection systems, fire investigations, and fire and life safety education. Students can expect to define the national fire problem and its main issues; recognize the need for fire prevention as part of the overall mix of fire protection; recognize the need for fire prevention organizations, review minimum professional qualifications at state and national levels for fire inspectors, investigators, and public educators; define the elements of a plan review program; identify the laws, rules, codes, and other regulations regarding fire prevention; and discuss training, media, and public education programs for fire prevention. View the course schedule (<https://www.apus.edu/course-schedule/details.html?c=FSMT188>) to find out details about each course including prerequisites, course objectives, course materials, a snapshot of the syllabi, and session dates.

## **FSMT201 Fire Protection Systems (3 semester hours)**

This course addresses the study of suppression systems and their critical components as well as their application to selected fire protection problems. It will cover the duties, responsibilities and ethical aspects of the Fire Protection Engineer with focus on contract drawings and their relationship to contract specifications, and an actual survey of a large building. It will include the philosophy, history and fundamentals of public and private fire protection, and relations with other disciplines including architecture and the building industry, and will extend to the application of hydraulic theory to a range of design considerations. View the course schedule (<https://www.apus.edu/course-schedule/details.html?c=FSMT201>) to find out details about each course including prerequisites, course objectives, course materials, a snapshot of the syllabi, and session dates.

## **FSMT210 Fundamentals of Fire Protection (3 semester hours)**

This course is an overview of fire protection and its related fields. It also covers the philosophy and history of fire protection/service, fire loss analysis, organization and function of public and private fire protection services, fire departments as part of local government, laws and regulations affecting the fire service, fire service nomenclature, specific fire protection functions, basic fire chemistry and physics, introduction to fire protection systems, and introduction to fire strategy and tactics. Students can expect to describe and discuss components of the history and philosophy of the modern fire service; analyze the basic components of fire as a chemical reaction, examine the major fire phases, and examine the main factors that influence fire spread and behavior; list and describe major emergency response services and illustrate how they interrelate; synthesize roles of national, state, and local support organizations in fire and emergency services; describe the scope of fire and emergency services organization; describe the common fire facilities, equipment, and apparatus; analyze management concepts for emergency situations; and explain fire prevention including code enforcement, public information, and public and private fire protection systems. View the course schedule (<https://www.apus.edu/course-schedule/details.html?c=FSMT210>) to find out details about each course including prerequisites, course objectives, course materials, a snapshot of the syllabi, and session dates.

## **FSMT281 Principles of Fire and Emergency Services Safety and Survival (3 semester hours)**

This course introduces the basic principles and history related to the national firefighter life safety initiatives. The course focuses on the need for cultural and behavior change throughout the emergency services. View the course schedule (<https://www.apus.edu/course-schedule/details.html?c=FSMT281>) to find out details about each course including prerequisites, course objectives, course materials, a snapshot of the syllabi, and session dates.

**FSMT287 Fire Protection in Building Construction (3 semester hours)**

This course is a study in building construction components that relate to fire and life safety, to include a major focus on firefighter safety. The elements of construction and design of structures are shown to be key factors when inspecting buildings, pre-planning fire operations, and operating in emergencies. The student can expect to demonstrate an understanding of building construction as it relates to firefighter safety, building codes, fire prevention, code inspection, and firefighting strategy and tactics; classify major types of building construction; analyze the hazards and tactical considerations associated with the various types of building construction; explain the different loads and stresses that are placed on a building and their interrelationships; identify the principle structural components of buildings and demonstrate an understanding of each function; differentiate between fire resistance and flame spread, and describe the testing procedures used to establish ratings for each; classify occupancy designations of the building code; and identify the indicators of potential structural failure as they relate to firefighting safety.

View the course schedule (<https://www.apus.edu/course-schedule/details.html?c=FSMT287>) to find out details about each course including prerequisites, course objectives, course materials, a snapshot of the syllabi, and session dates.

**FSMT288 Community Risk Reduction for the Fire and Emergency Services (3 semester hours)**

This course provides a theoretical framework for the understanding of the ethical, sociological, organizational, political, and legal components of community risk reduction, and a methodology for the development of a comprehensive community risk reduction plan.

View the course schedule (<https://www.apus.edu/course-schedule/details.html?c=FSMT288>) to find out details about each course including prerequisites, course objectives, course materials, a snapshot of the syllabi, and session dates.

**FSMT289 Fire Protection Hydraulics and Water Supply (3 semester hours)**

This course is a theoretical study to understand the principles of the use of water in fire protection and to apply hydraulic principles to analyze and solve water supply problems. The student can expect to apply the application of math and physics to the movement of water in fire suppression activities; comprehend the design principles of fire service pumping apparatus; analyze the community fire flow demand criteria; and demonstrate understanding of hydraulics, water characteristics, fluid pressure, hydrokinetics, Bernoulli's formula, nozzle reaction, friction loss in water conductors, nozzle pressure equation, water distribution systems, Hazen-Williams equation, fire flow tests, determination of required fire flow, fire service pump design and testing, friction loss calculations, engine and nozzle pressure, Underwriter's formula, parallel lines, Wyed lines, aerial stream calculations, relay pumping, mobile water supply, fire streams, four hydraulic laws of friction loss, and firefighting foams and foam systems. View the course schedule (<https://www.apus.edu/course-schedule/details.html?c=FSMT289>) to find out details about each course including prerequisites, course objectives, course materials, a snapshot of the syllabi, and session dates.

**FSMT299 Sophomore Seminar in Fire Science (3 semester hours)**

This course is a culminating course for the Associate of Science in Fire Science degree. It is designed to allow the student to review, analyze and integrate the work the student has completed toward a degree in Fire Science. The student will complete an approved academic project or paper that demonstrates their grasp of the fire science field. This is a culminating course to be taken after all other Associate of Science in Fire Science courses have been satisfactorily completed. Student must have SOPHOMORE standing to register. Prerequisite: This course is to be taken as the LAST course in the AS in the Fire Science Program.

View the course schedule (<https://www.apus.edu/course-schedule/details.html?c=FSMT299>) to find out details about each course including prerequisites, course objectives, course materials, a snapshot of the syllabi, and session dates.

**FSMT311 Fire Dynamics (3 semester hours)**

This course focuses on fire behavior and includes topics such as fire chemistry, science, interaction with the environment, and reaction to chemical and/or natural elements involved in a response. The student will be able to understand the fundamental principles related to structural fire protection, building furnishings, and fire protection systems. physical properties of the three states of matter. The components and dynamics of fire, the process of burning, suppression agents and strategies, and the methods and techniques of fire extinguishment will be covered in the course.

View the course schedule (<https://www.apus.edu/course-schedule/details.html?c=FSMT311>) to find out details about each course including prerequisites, course objectives, course materials, a snapshot of the syllabi, and session dates.

**FSMT320 Fire Protection Structure and System Design (3 semester hours)**

This course examines design principles involved in structural fire protection and automatic suppression systems, including fire resistance and endurance, flame spread evaluation, smoke control, alarm systems, sprinkler innovations, evaluation of sprinkler system designs, and specialized suppression systems. Advanced fire suppression systems must be properly designed and the occupants must be properly trained to react in concert with the life safety systems and the fire department. Knowing how the different design systems function and how they protect a space or process aids in the interaction with owners, engineers, architects, and contractors. The importance of a good relationship between the authority having jurisdiction and those charged with the enforcement of the code is considered.

View the course schedule (<https://www.apus.edu/course-schedule/details.html?c=FSMT320>) to find out details about each course including prerequisites, course objectives, course materials, a snapshot of the syllabi, and session dates.

**FSMT321 Community Fire Mitigation and Protection (3 semester hours)**

This course is a study of the leading theory and practice associated with community fire mitigation, planning, protection, response, and recovery. Topics of the course include fire-community relations, community outreach, volunteerism and fire protection, strategic community planning, inter-organizational responses, and other issues. Concepts in Code enforcement, investigations, and the historical, social, and cultural influences on fire prevention are discussed. The students will look at the economic, and governmental and departmental influences on fire prevention. Fire prevention programs will be evaluated and prepared.

View the course schedule (<https://www.apus.edu/course-schedule/details.html?c=FSMT321>) to find out details about each course including prerequisites, course objectives, course materials, a snapshot of the syllabi, and session dates.

**FSMT340 Incendiary Fire Analysis and Investigation (3 semester hours)**

This course is designed to meet the levels of mastery established by the National Fire Academy, NFPA 1021 and NFPA 1033. These standards are agreed upon by professionals across the fire service community as the foundational benchmarks that all individuals should know at the completion of this course. This course examines technical, investigative, legal, and managerial approaches to the arson problem, including principles of incendiary fire analysis and detection, environmental and psychological factors of arson, gang-related arson, legal considerations and trial preparations, managing the fire investigation unit, intervention and mitigation strategies, and shaping the future.

View the course schedule (<https://www.apus.edu/course-schedule/details.html?c=FSMT340>) to find out details about each course including prerequisites, course objectives, course materials, a snapshot of the syllabi, and session dates.

**FSMT362 Fire Administration and Finance (3 semester hours)**

This course examines the relationship of fire administration and the role of executive fire administrators in the administration of complex issues in a dynamic environment. The course covers political, legal, financial, and ethical issues faced by fire administrators within the context of public administration. Topics include examination of the effects, influences, challenges, and opportunities of public and private fire functions and roles.

View the course schedule (<https://www.apus.edu/course-schedule/details.html?c=FSMT362>) to find out details about each course including prerequisites, course objectives, course materials, a snapshot of the syllabi, and session dates.

**FSMT405 Fire Safety and Risk Regulation (3 semester hours)**

This course establishes the foundation of history, knowledge, and processes to assist the Risk Manager or Fire Department Safety Officer achieve their goal in preventing firefighter injury and death. The Safety Officer is a position mandated in Hazmat and Terrorism/Homeland Defense responses and it is a good idea for all responses to keep the safety of responders in first place as well as the community. The course includes a study of the leading theories and practices associated with risk management and emergency scene safety. This course focuses on citizen and responder fire safety and risk reduction through prevention, response, and recovery phases of fire operations. Topics include risk reduction planning, equipment, communications, and procedure, among others.

View the course schedule (<https://www.apus.edu/course-schedule/details.html?c=FSMT405>) to find out details about each course including prerequisites, course objectives, course materials, a snapshot of the syllabi, and session dates.

**FSMT410 Fire Regulation, Policy, and Law (3 semester hours)**

This course introduces the student to many areas of fire laws and regulations. The main purpose of this course is to introduce you to the laws and regulations that will impact your work. This course enables the student to acquire a basic knowledge of the law in each of the specified subject areas that directly or indirectly affect fire services by providing a basic knowledge of the methodology through which to locate, read and comprehend the various statutes and regulations surrounding fires. This course focuses on public policy, law, and regulation concerning fire mitigation, response, and recovery. Legal issues and risk are addressed as topics in the course, as are general and specific national, state, and local fire regulations and public law.

View the course schedule (<https://www.apus.edu/course-schedule/details.html?c=FSMT410>) to find out details about each course including prerequisites, course objectives, course materials, a snapshot of the syllabi, and session dates.

**FSMT475 Applications of Fire Research (3 semester hours)**

This course focuses on the rationale for conducting fire research, various fire protection research activities, and research applications, including fire test standards and codes structural fire safety, automatic detection and suppression, life safety, and fire fighter health and safety. This course examines tools and techniques of rational decision making in fire departments, including databases, statistics, probability, decision analysis, utility modeling, resource allocation, cost-benefit analysis, and linear programming. This course involves selecting a fire-related topic, developing research objectives, a proposal, and a plan using a quantitative or qualitative research design for the completion of a final research paper.

View the course schedule (<https://www.apus.edu/course-schedule/details.html?c=FSMT475>) to find out details about each course including prerequisites, course objectives, course materials, a snapshot of the syllabi, and session dates.

**FSMT498 Senior Seminar in Fire Science (3 semester hours)**

This senior capstone course allows students majoring in fire science to analyze specific program related issues and problems using the knowledge and understanding gained by completing the required courses in the program and a significant number of the major courses.

Prerequisite: Completion of a minimum of 106 credit hours towards your program.

View the course schedule (<https://www.apus.edu/course-schedule/details.html?c=FSMT498>) to find out details about each course including prerequisites, course objectives, course materials, a snapshot of the syllabi, and session dates.