National Fire Academy
FESHE
Fire and Emergency Services Higher Education

ASSOCIATE



U.S. Fire Administration
Fire is Everyone's Fight®

National Fire Academy FESHE Model Curriculum

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FEMA

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Fire and Emergency Services Higher Education

Associate Core Courses

Introduction to Fire and Emergency Services (C0273)

Course Description

This course provides an introductory overview of fire and emergency services within the United States.

Prerequisite

None.

Course Learning Outcomes

Upon completion of this course, students will be prepared to:

1. Outline the history and evolution of fire protection in America and explain the current U.S. fire problem.

2. Identify public and private fire and emergency service organizations and describe their purpose, structure and how they operate.

3. Identify fire and emergency services career opportunities, describe the paths to attainment and navigate selection processes.

4. Differentiate training from education, provide examples of each and explain how they fit within the national professional development models for fire and emergency services professionals.

5. Discuss the basic chemistry and physics of fire, and identify the stages of fire, the methods of heat transfer and factors that influence fire behavior.

6. Identify the major types and components of fire protection systems and summarize the primary, secondary and tertiary roles of fire prevention.

7. Explain how planning and incident management systems are applied within fire and emergency services organizations.

8. Provide examples of technology being employed by modern fire and emergency service organizations and perform basic crisis communication functions.

Building Construction for Fire Protection (C0275)

Course Description

This course will provide a foundational knowledge of building construction for fire protection. It will provide a focus on elements of the construction and design structures, and their impact on fire inspection, preplanning and emergency operations.

Prerequisite

None.

Course Learning Outcomes

Upon completion of this course, students will be prepared to:

1. Describe building construction as it relates to firefighter safety, building codes, fire prevention, code inspection, firefighting strategy, tactics and community risk reduction (CRR).

2. List major types of building construction in accordance with a local/model building code.

3. Identify the hazards and tactical considerations associated with various types of building construction and understand the importance of applying risk assessment in the context of CRR.

4. Explain the different loads and stresses that are placed on a building and their interrelationships.

5. Describe the function of each principal structural component in typical building design.

6. Differentiate between fire resistance and flame spread and describe the testing procedures used to establish ratings for each.

7. Identify the role of geographic information systems (GIS) in relation to building construction for fire protection.

Fire Behavior and Combustion (C0276)

Course Description

This course explores the basic theories and fundamentals of fire behavior and combustion. Topics include a review of basic chemistry and physics associated with fire, the combustion process, factors influencing fire behavior and principles of fire suppression.

Prerequisite

None.

Course Learning Outcomes

Upon completion of this course, students will be prepared to:

1. Identify and describe the essential components of fire and the factors that influence fire behavior.

2. Describe ignition, combustion and thermal energy and how they are interrelated.

3. Explain how pressure difference and thermal energy affect fire behavior.

4. Define the physical states of matter and describe the physical and chemical properties associated with fire.

5. Explain the effect that oxygen has on fire and describe the consequences of air movement within the combustion process.

6. List and explain the stages of fire development, the products of combustion and the hazards associated with each.

7. Summarize and discuss the basic characteristics of gaseous, liquid and solid fire fuels; factors that influence their behavior; and the hazards associated with each.

8. Explain the scientific principles of fire suppression, describe and differentiate among the types of agents used to extinguish fires, and discuss their suitability for different types of fires.

Principles of Fire and Emergency Services Safety and Survival (C0281)

Course Description

This course introduces the student to the practice of engaging in a culture of safety within fire and emergency services organizations. Students will examine basic principles of the Firefighter Life Safety Initiatives by the National Fallen Firefighter's Foundation (NFFF) and explore fundamental concepts of organizational behavior, risk management and occupational safety and health. It is designed to provide students with the basic tools necessary to study historical and current trends of safety, injuries and fatalities within fire and emergency services organizations and to influence a positive organizational culture change.

Prerequisite

None.

Course Learning Outcomes

Upon completion of this course, students will be prepared to:

1. Identify potential risks within organizations, assessing their potential for loss and probability of occurrence.

2. Explain the value of historical traditions and how they can be honored while influencing a culture of risk reduction within organizations and the community.

3. Summarize the Firefighter Life Safety Initiatives and identify advocacy strategies for their implementation.

4. Justify the need for a safety-centered culture within fire and emergency services organizations and identify barriers to developing, effecting and maintaining organizational culture change.

5. Explain how effective wellness influences behavioral health, outline the requirements for National Fire Protection Association (NFPA) compliant behavioral health and wellness programs, and present strategies for their implementation.

6. Explain the need for research within fire and emergency services disciplines and describe the fundamentals for conducting, producing and using effective research.

7. Utilize research data and techniques to manage risk and enhance occupational health and safety.

Fire Prevention and the Integration of Community Risk Reduction (C0286)

Course Description

This course provides foundational knowledge of fire prevention, community risk reduction (CRR) and the impact of CRR integration on modern fire prevention strategies.

Prerequisites

None.

Course Learning Outcomes

Upon completion of this course, students will be prepared to:

1. Summarize the U.S. fire problem from past to present, and discuss the evolution of fire prevention and community risk reduction (CRR) initiatives.

2. Provide examples of public and private fire prevention and CRR organizations, discuss their roles, and identify opportunities for partnership.

3. Describe the organizational structure and administration of a public sector fire prevention bureau; summarize the bureau's primary, secondary and tertiary fire prevention objectives; and provide examples of initiatives that support those objectives.

4. Discuss the legal aspects of fire prevention, differentiate codes from standards and explain the process for their development and application to fire prevention and CRR initiatives.

5. Explain the importance of fire service data collection and analysis, describe how evidence-based practitioners use research methodology to guide operational practices and priorities and discuss technology's impact on fire prevention efforts.

6. Define the 5 E's of CRR, explain their role in dealing with community risks and identify strategies that could provide solutions to fire and life safety issues.

7. Explain the six steps of the CRR planning process and participate in a community risk assessment.

8. Participate in the development of a CRR plan, outline the process to implement and evaluate a CRR plan, and identify potential barriers to success.

Fire Protection Systems (C0288)

Course Description

This course provides an in-depth overview of fire protection systems relating to their design, installation, maintenance and operation. Areas of study include both active and passive fire protection strategies, fire detection systems, fire suppression systems, water supply for fire protection systems, and emergency response planning.

Prerequisite

None.

Course Learning Outcomes

Upon completion of this course, students will be prepared to:

1. Discuss the basic principles of fire science and fire behavior relevant to fire protection systems.

2. Identify the main components of fire detection and suppression systems used in different building types.

3. Differentiate the functions of active and passive fire protection systems.

4. Outline the different types and components of sprinkler, standpipe and foam systems.

5. Cite current fire safety codes and standards and explain how they apply to the design, installation, maintenance and operation of different fire protection systems.

6. Describe the basic elements of a public and private water supply system as it relates to fire protection.

7. Summarize the role of fire protection systems in supporting community-wide fire prevention efforts utilizing risk assessments and fire safety plans.

Fire and Emergency Services Higher Education

Associate Elective Courses

Emergency Services and the Law (C0270)

Course Description

This course provides students with foundational knowledge of the legal system and legal authorities affecting fire and emergency services and develops their ability to recognize and apply fundamental legal concepts to emergency services practices.

Prerequisites

None.

Course Learning Outcomes

Upon completion of this course, students will be prepared to:

1. Explain the structure of the U.S. legal system and its relationship to the authority, responsibilities and operations of emergency services organizations.

2. Differentiate between constitutional, statutory, regulatory, administrative, civil and criminal laws as they apply to emergency services.

3. Identify legal issues involving liability, negligence, immunity, consent, documentation and standards of care in fire and emergency services.

4. Describe employment law issues affecting emergency services organizations, including discrimination, harassment, accommodation, discipline, labor practices and employee rights.

5. Describe laws and legal principles governing privacy; records; public information; social media; and the collection, use and disclosure of protected information.

6. Explain legal considerations associated with emergency response activities including inspections, investigations, searches, mutual aid, incident command and interagency operations.

7. Apply legal and ethical decision-making principles to contemporary issues and professional dilemmas encountered by emergency services leaders and personnel.

8. Analyze organizational policies, practices and decisions to identify legal risk and recommend appropriate risk-reduction strategies.

Introduction to Fire and Emergency Services Administration (C0272)

Course Description

This course introduces students to the administrative and leadership responsibilities of frontline leaders within fire and emergency services organizations and their role in the effective delivery of emergency services. Students will develop foundational leadership and management skills and apply those skills to managing people and resources, implementing organizational policies, and making operational decisions that shape safe, effective and accountable emergency services in support of organizational and community objectives.

Prerequisites

None.

Course Learning Outcomes

Upon completion of this course, students will be prepared to:

1. Explain the roles, responsibilities, authority and professional expectations of frontline leaders within fire and emergency services organizations.

2. Apply leadership, supervision, communication and conflict resolution principles to the management of fire and emergency services personnel and interacting with the public.

3. Analyze personnel and organizational issues involving performance, conduct, ethics, policy and workplace relationships.

4. Apply fire and emergency services organizational policies, administrative practices, and resource management principles.

5. Analyze emergency incident conditions and apply appropriate command, risk management, accountability and operational decision-making principles.

6. Apply coaching, mentoring and training principles to support the development of assigned personnel and identify appropriate strategies for improvement.

Introduction to Fire and Emergency Services Administration (C0272) (cont'd)

7. Relate fire prevention, pre-incident planning, community risk reduction (CRR) and public education activities to emergency services operations and efforts to meet community needs.

8. Apply data and information to support problem-solving, decision-making and continuous improvement related to organizational safety, health, wellness and professionalism within fire and emergency services organizations.

Fire Service Hydraulics and Water Supply (C0277)

Course Description

This course provides students with foundational knowledge of the physical and hydraulic principles governing the movement and delivery of water for fire protection. Students will apply mathematical and hydraulic principles to analyze water supply, fire flow requirements, fire service pumping systems, and factors affecting water movement through hose, piping and distribution systems. Students will integrate hydraulic calculations and water supply information to evaluate fire service water delivery requirements and limitations.

Prerequisites

Foundational knowledge in fire protection systems preferred.

Course Learning Outcomes

Upon completion of this course, students will be prepared to:

1. Explain the fundamental mathematical, physical and hydraulic principles associated with fire service water supply and delivery.
2. Apply hydraulic formulas and calculations to fire service water delivery problems.
3. Describe the components, characteristics and functions of municipal and alternative water-supply sources.
4. Explain the principles and characteristics of fire service pumps and pumping systems.
5. Calculate friction loss, pressure, flow, elevation effects and other factors affecting fire protection water delivery.
6. Analyze fire flow demand and available water supply for fire service applications.
7. Interpret flow test, water distribution, pump performance and hydraulic information relevant to fire service.
8. Integrate hydraulic principles, calculations and water supply information to evaluate fire service water-delivery requirements and limitations.

Occupational Safety and Health for Emergency Services (C0278)

Course Description

This course provides students with foundational knowledge of occupational health and safety and prepares them to recognize workplace hazards, assess occupational risk, select appropriate controls and contribute to a culture of safety within fire and emergency services organizations.

Prerequisites

None.

Course Learning Outcomes

Upon completion of this course, students will be prepared to:

1. Explain the principles, purpose, and scope of occupational health and safety within fire and emergency services organizations.

2. Describe the roles and responsibilities of employers, employees, supervisors, safety personnel and organizational leaders in establishing and maintaining a safe and healthy workplace.

3. Identify and categorize occupational hazards encountered in fire and emergency services work, including physical, chemical, biological, ergonomic, environmental and psychosocial hazards.

4. Apply basic risk-assessment principles to identify hazards, evaluate risk and determine appropriate risk-reduction controls.

5. Explain and apply the hierarchy of controls, including engineering, administrative, work-practice and personal protective equipment controls, to reduce occupational risk.

6. Describe the regulatory, standards, policy and organizational frameworks used to establish and maintain occupational health and safety programs.

Occupational Safety and Health for Emergency Services (C0278) (cont'd)

7. Apply occupational health and safety principles to promote the health, safety and well-being of personnel across emergency and non-emergency activities within fire and emergency services organizations.

8. Analyze occupational safety incidents and safety performance information to identify contributing factors, corrective actions and opportunities for organizational improvement.

Strategy and Tactics (C0279)

Course Description

This course provides students with foundational knowledge of strategy and tactics for managing fire and emergency incidents. Students will examine the relationship between community risk reduction (CRR), pre-incident planning, incident conditions, operational priorities and emergency response. Students will apply strategy and tactics principles to develop, implement, evaluate and adapt incident strategies based on risk, resources, capabilities and changing conditions.

Prerequisites

Foundational knowledge in fire and emergency services preferred.

Course Learning Outcomes

Upon completion of this course, students will be prepared to:

1. Explain foundational principles of incident strategy and tactics, including the relationship between incident priorities, objectives, strategies, tactics and tasks.

2. Analyze fire behavior, building construction, occupancy characteristics and fire protection systems to determine their influence on incident operations, tactical decision-making and firefighter safety.

3. Apply community risk reduction (CRR) principles and community risk information to identify target hazards, vulnerable populations, critical infrastructure, public information and other factors affecting prevention, preparedness, pre-incident planning and emergency response.

4. Apply size-up and risk-management principles to evaluate incident conditions, identify hazards, establish operational priorities and support strategic and tactical decision-making.

5. Explain and apply National Incident Management System (NIMS) and Incident Command System (ICS) principles to command, organization, resource coordination, accountability and operational control at fire and emergency incidents.

6. Apply effective incident communication and coordination principles to maintain situational awareness, accountability, command-effectiveness and safe tactical operations.

Strategy and Tactics (C0279) (cont'd)

7. Develop appropriate incident strategies and tactical actions based on incident objectives, life-safety considerations, fire and building conditions, available resources, water supply, community risk factors and operational capabilities.

8. Evaluate changing incident conditions and tactical effectiveness to determine when incident objectives, strategies, tactics or resource assignments should be modified to maintain effective and safe operations.

Foundations of Hazardous Materials (C0282)

Course Description

This course provides students with foundational knowledge for understanding the properties, behavior and hazards of hazardous materials encountered by fire and emergency services. Students will identify and characterize hazardous materials, interpret relevant information, analyze potential hazards and risks, evaluate risk-reduction and mitigation considerations, and support informed response decisions.

Prerequisites

None.

Course Learning Outcomes

Upon completion of this course, students will be prepared to:

1. Explain fundamental chemical and physical principles relevant to understanding hazardous materials.

2. Identify the chemical and physical properties of hazardous materials with respect to predicting their behavior, reactions and consequences.

3. Interpret hazardous material identification, classification and authoritative reference information to characterize materials and support hazard analysis.

4. Apply foundational risk assessment principles to evaluate hazardous material risks based on material properties, behavior, incident conditions and available information.

5. Evaluate risk reduction and mitigation considerations based on identified hazards, risks and incident conditions.

6. Assess hazardous material incidents by integrating chemical, physical and risk-related information to support informed response decisions.

Introduction to Fire Investigation (C0283)

Course Description

This course provides students with foundational knowledge of fire investigation and the principles used to examine fire scenes, preserve and document evidence, and understand factors affecting origin and cause determination. Students will examine the fire investigation process, including the responsibilities, legal considerations, technical factors and safety hazards associated with fire scene investigation.

Prerequisites

Foundational knowledge in building construction and fire dynamics preferred.

Course Learning Outcomes

Upon completion of this course, students will be prepared to:

1. Define the common terms used in fire investigations.
2. Identify the responsibilities of a firefighter when responding to the scene of a fire, including scene security and evidence preservation.
3. Explain the importance of documentation, evidence collection and maintaining scene integrity in fire investigations.
4. Explain the basic elements of fire dynamics, construction and fire protection systems as to how they affect origin and cause determination.
5. Describe the process of conducting fire origin and cause investigation.
6. Describe the implications of legal issues related to fire investigations and evidence.
7. Recognize the types, characteristics and indicators of incendiary devices, explosives and bombs associated with fire investigations.
8. Recognize potential health and safety hazards associated with fire investigations.