Fire Science Student Learning Outcomes

FIRE 100	Fire Protection Organization	1. Apply basic emergency incident management strategies in relationship to incident command systems in public and private fire protection careers. (ILO1, ILO2)
		2. List the educational requirements, duties , and information sources for variou s occupations in fire protection.(ILO4)
		3. Define the basic concepts of fire as a chemical reaction, the major phases of fire, and the main factors that influence fire spread and fire behavior.(ILO2)
		4. Analyze the effects of fire on the environment and the historic al effort s made to protect society against unwanted fire.(ILO2)
		5. Identify the types ofcommon fire department apparatus, equipment, and personal safety equipment used for fire fighting.(ILO4)
		6. Identify the various codes , standards, ordinances, and regulations that affect fire protection and the functions of a fire prevention bureau.(IL02)
		7. Define fire fighting strategy and tactics.
		8. Describe the elements of fire fighter safety and survival(ILO5)
FIRE 101	Fire Prevention Technology	1. Demonstrate knowledge in the spectrum of fire prevention functions and philosophies and their relationships to fire suppression efforts. (IL02)
		2. Identify the laws, rules, codes, and other regulations relevant to fire prevention and the agencies or authority having jurisdiction. (ILO2)
		3. Execute a plan review, apply fire codes and related regulations, and describe the need and process of fire investigation. (ILO3)
		4. Define the national fire problem including causes, damages, and public and firefighter fatalities. (ILO2, ILO3)
		5. Identify the responsibilities and functions of the fire prevention bureau in relationship to the fire department organizational structure. (ILO2)
		6. Identify the minimum professional qualifications at the state and national level for Fire Inspector, Fire Investigator, and Public Educator. (ILO2)
		7. Design a fire prevention media campaign including brochures, advertising, public service announcements and fire prevention collateral materials for adults and children. (ILO2, ILO3, ILO4)
FIRE 102	Fire Protection Equipment and Systems	1. Analyze the relationship between fire prevention efforts and the reduction of life and property loss. (IL02, IL05)
		2. Draw and describe the basic elements of a public water supply system including sources, distribution networks, piping and hydrants. (ILO2, ILO3)
		3. Identify the components of sprinkler, standpipe and foam systems. (ILO2, ILO4)
		4. Identify five different types of non-water based fire suppression systems and describe how these systems extinguish fire (ILO2, ILO4)
		5. Describe fire protection systems in various structures and the history of sprinkler ordinances and legislation. (ILO2)
		6. Describe the components of a fire alarm system and different types of detectors and how they detect fire. (ILO2, ILO4)
		7. Explain the operation and application of portable fire extinguishing systems. (ILO2, ILO3)
		8. Identify and analyze the causes of line of duty firefighter deaths and training and research into the reduction of risk and accidents. (ILO2, ILO3, ILO4)
FIRE 103	Building Construction for Fire Protection	1. Identify major types of building construction. (ILO2)
		2. Analyze the hazards and tactical considerations associated with the various types of building construction. (ILO1, ILO2)
		3. Demonstrate proficiency in building occupany and code enforcement. (ILO2)
		4. Define basic terms and concepts related to fire behavior and chemistry. (ILO2)
		5. Identify states of matter and describe chemical processes associated with combustion. (ILO2, ILO4)
		6. Analyze physical conditions which determine states of matter and influence fire behavior. (ILO2, ILO4)
		7. Describe fire suppression agents and their properties. (ILO2)
		8. Compare and contrast methods and techniques of fire extinguishment. (ILO2, ILO4)
FIRE 104	Fire Behavior Combustion	1. Define basic terms and concepts related to fire behavior and chemistry.(ILO2),
		2. Analyze physical conditions which determine states of matter and influence fire behavior. (ILO2)
		3. Demonstrate how to recall physical and chemical properties of fire.(ILO4)

Fire Science Student Learning Outcomes

FIRE 105	Emergency Medical Technician I	1. Demonstrates the application of a traction splint in proper sequence and using standard precautions. (ILO 2, ILO 3)
		2. Demonstrate the ability to use critical thinking skills to assess and treat patients in emergency settings. (ILO1, ILO2, ILO5)
		3. Demonstrate the use of federal and state laws in relation to on scene emergencies. (ILO1)
		4. Write a narrative report from data supplied in various forms including written input, verbal input, and visual observations. The report will be legible, will have correct spelling and punctuation, and will demonstrate the proper use of grammar.(ILO1)
		5. Complete an assessment of a medical patient, in an oral station, in proper sequence and with proper care, using a National standard check off sheet.(ILO 1, ILO 2)
		6. Complete a patient assessment on a trauma Pt in proper sequence and using standard precautions. This is a Verbal and Hands on skill.(ILO 2, ILO 3, ILO 4)
		7. Demonstrate an ability to recommend appropriate diagnostic and therapeutic procedures. (ILO2)
FIRE 106	First Aid/CPR- Public Safety First Responder	1. Demonstrate correct procedure for cardiopulmonary resuscitation and basic airway management. (ILO2, ILO3, ILO4)
FIRE 107	Emergency Medical Technician I - Refresher	1. Complete a trauma patient assessment and spinal immobilization on a supine patient in simulated setting. (ILO1, ILO2, ILO3, ILO5)
		2. Demonstrate proficiency in federal, state, and/or local regulations with regards to emergency care. (ILO2, ILO3)
FIRE 108	Fire & Emergency Services Safety and Survival	1. Demonstrate and describe the need for cultural and behavioral change within the emergency services relating to safety, incorporating leadership, supervision, accountability and personal responsibility. (ILO2)
		2. Explain the general safety precautions, considerations, strategies, and tactics to implement for all fire survival emergencies. (ILO2, ILO4)
		3. Demonstrate the ability to apply federal and local laws within the context of emergency planning. (ILO2)
FIRE 109	Hazardous Materials for First Responders	1. Demonstrate knowledge and appropriate responses for given incidents involving hazardous materials at the First Responder Operational level. (ILO2)
		2. Articulate the importance of haz mat pre-planning and procedures (ILO1, ILO2)
		3. Recognize physical state of substances and their potential hazards of reactivity as they relate to health and safety of the firefighter and the incident scene.(ILO2, ILO3)
FIRE 117	Auto Extrication	1. Analyze an emergency situation, develop and implement a plan to extricate occupants.(ILO2)
FIRE 121	ICS-200 Basic Incident Command System	1. Describe principles, components, positional responsibilities, and management of incident resources. (ILO2)
		2. Demonstrate proficiency in emergency incident management. (ILO2)
		3. Demonstrate the application of operational strategies. (ILO4)
FIRE 122	Confined Space Awareness	1. Identify a confined space and be familiar with various regulations, safety procedures, equipment, techniques and personnel necessary to operate at a confined space emergency.(ILO2, ILO3, ILO4, ILO5)
FIRE 130	Basic Fire Academy I	1. Define and demonstrate knowledge of fire department organization and culture, and the expectations of entry-level fire department personnel.(ILO1, ILO2)
		2. Demonstrate knowledge of fire department equipment through the selection and application of equipment for given firefighting tasks. (ILO1, ILO2)
		3. Analyze and assess firefighter hazards inherent to the profession. (ILO1, ILO3)
		4. Demonstrate the ability to communicate effectively through multiple methods of communication including: written, electronic, face to face, and radio transmitted messages. (ILO1, ILO2, ILO3, ILO4)
		5. Demonstrate their knowledge of strategies, tactics and incident command through the selection and implementation of firefighting methods, and the application of the Incident Command and Emergency Management Systems. (ILO1, ILO2, ILO3, ILO4)
		6. Demonstrate safe practices by using minimum standard safety procedures compliant with industry standards. (ILO1, ILO2, ILO3, ILO4)

Fire Science Student Learning Outcomes

FIRE 131	Basic Fire Academy II	1. Demonstrate their knowledge of strategies, tactics, and incident command. (ILO2, ILO4)
		2. Demonstrate safe practices by using minimum standard safety procedures. (ILO2, ILO3)
		3. Demonstrate proficiency in selection and implementation of firefighting methods and application of the Incident Command and Emergency Management Systems. (ILO2)
		4. Demonstrate proficiency in ladder manipulation and skils. (ILO2)
		5. Apply firefighting operational knowledge during live fire operations. (ILO1), (ILO2)
		6. Apply knowledge in fire behavior extinguishment tactics. (ILO2)
FIRE 220	Fire Apparatus 1A - Driver	1. Select and use appropriate methods and materials to complete laboratory assignments to standards based on building type, location of fire, and other apparatus responding to scene. (ILO2)
		2. The student shall demonstrate proficiency in apparatus pre-trips. (ILO2)
		3. The student shall demonstrate apparatus manipulation of fire apparatus. (ILO3)
FIRE 221	Fire Apparatus 1B - Pump	1. Select proper engine pressure when pumping multiple liners and knowledge ofthe principles related to operation of pumps from a hydrant and drafting water. (ILO2)
		2. The student will demonstrate knowledge in hydraulic calculations. (ILO2)
		3. The student will demonstrate proficiency in pump operations. (ILO1)
		4. The student will demonstrate proficiency in drafting and mulitple hose line pump operations. (ILO4)
FIRE 222	Fire Investigation 1A	1. Indicate causes of fires, fire behaviors, and explosions for given fire scene scenario.(ILO2)
		2. Demonstrate proficiency in fire behavior patterns. (ILO2)
		3. Apply arson investigation applications to structure fires. (ILO2)
		4. Show proficiency in probable cause and scientific methodology. (ILO3)
FIRE 223	Fire Investigation 1B	1. Analyze, evaluate, and critique past fire investigations in written and oral format. (ILO2)
		2. The student shall demonstrate proficiency in case law applications of arsons. (ILO3)
		3. The student will show proper research methods in fire arson investigation. (ILO4)
		4. The student will apply appropriate code violation for cause and origin. (ILO1)
FIRE 224	Fire Management 1	1. Demonstrate management concepts and practices including decision making, leader styles, personnel evaluations & counseling techniques.(ILO2)
		2. Diagram the management cycle and define each element.(ILO3)
		3. Describe the command principles.(ILO2)
		4. Differentiate between leaders and managers.(ILO2)
		5. Identify internal and external influences on the organization.(ILO2)
		6. Identify leadership styles.(ILO2)
		7. Demonstrate methods and techniques for managing human resources.(ILO2)
		8. Prepare and perform employee evaluations.(ILO1)
		9. Demonstrate techniques utilized for conflict resolution.(IL02)
FIRE 225	Fire Prevention 1A	1. Apply general fire inspection practices and procedures for correcting fire hazards to given scenarios and handling of fire prevention complaints. (ILO2)
		2. Define the functions of a fire prevention bureau.(ILO1)
		3. Analyze the relationship between fire prevention efforts and the reduction oflife and property loss.(ILO3)
		4. Identify, in writing and verbally, the major types offire hazards that could be found during a commercial building fire inspection. (ILO4)
		5. Describe, in writing, the basic hazard correction process used by the modem fire prevention bureau.(ILO3)
		6. Apply codes to a simulated exercise. (ILO2)
FIRE 226	Fire Prevention 1B	1. Apply fire prevention principles to features of sprinkler systems, determine operational readiness of a sprinkler system, and critique for sprinkler system capabilities and limitations. (IL02)
		2. Demonstrate knowledge and application of California Fire Code.(ILO3)
		3. Apply codes to simulated fire prevention inspection violations. (ILO2)
		4. Diagram the judicial process for code violations and litigation. (ILO2)
		5. Describe, in writing, the major types of fire hazards that could be found during a commercial building inspection.(ILO3)
		6. Define the hazard correction process used by the modem fire prevention bureau.(ILO2)
		7. Analyze the impact of fire prevention as it relates to a government's risk management plan.(ILO3)

Fire Science Student Learning Outcomes

FIRE 229	Fire Command 1A	1. Demonstrate pre-fire planning, command and control techniques of the first responding commander when presented with a variety of simulations. (ILO2)
		2. Describe command and control techniques used in emergency management. (ILO3)
		3. Demonstrate communication skills needed for reporting incident conditions and commanding resources at an emergency incident. (ILO2)
		4. Develop and implement a pre-fire plan and training program and how these affect fire command practices. (ILO2)
		5. Describe scene size-up and identify the strategies and tactics used by company officers. (ILO2)
		6. Analyze and assess causes of firefighter fatalities and injuries and safety measures to protect personnel. (ILO2)
		7. Demonstrate critical thinking skills and decision making abilities for managing an emergency.(ILO2)
FIRE 230	Fire Command 1B	1. Demonstrate evacuation, containment, and staging for a variety of simulated hazardous materials incidents.(ILO2)
		2. Demonstrate the ability to make decisions and communicate an action plan for a hazardous materials incident. (ILO2)
		3. Define operational priorities for a hazardous materials incident. (ILO3)
		4. Identify incident command strategies and priorities for hazardous materials incidents. (ILO3)
		5. Identify operations and logistics functions for hazardous materials emergencies. (ILO3)
		6. Identify emergency planning tools as they relate to hazardous materials incidents. (ILO2)
FIRE 231	Incident Command System 300	1. Organize and provide a briefing to incident personnel and develop an Incident Action Plan for a simulated incident. (ILO2)
		2. List ICS positions and duties and describe the positions to the level of deputies.(ILO4)
		3. Diagram the reporting relationships within the ICS organization.(ILO1)
		4. Develop a sample organization around a major event. (ILO2)
		5. Describe how Unified Command functions on a multi-jurisdiction or multi-agency incident.(ILO2)
		6. Identify and tactics utilized to meet incident objectives for a simulated exercise.(ILO3)
		7. Perform tasks associated with incident planning and resource demobilization. (ILO4)
FIRE 232	Public Education 1	1. analyze and implement the five step systematic planning process, determine a strategy to correct a problem, and apply appropriate adn available media. (ILO3)
		2. demonstrate the selection, development, organization, and use of appropriate materials for fire prevention education. (ILO2)
		3. demonstrate proficiency in curriculum development for fire technology courses. (ILO2)
FIRE 233	Fire Command 1C	1. Describe three elements of wildland fire behavior including fuel, weather and topography.(ILO2)
		2. Apply elements of the Incident Command System to a major wildland fire scenario.(ILO3)
		3. Describe the duties and responsibilities of the Strike Team Leader, Division/Group Supervisors and Branch Directors.(ILO3)
		4. Analyze the fundamental elements of size-up as they relate to I-Zone firefighting.(ILO2)
		5. Recognize and recall the safe practices of wildland firefighting (10's, 18'sand LCES). (ILO2)
		6. Compare and contrast structural firefighting strategies and tactics with those of wildland fires.(IL03)
		7. Demonstrate communication as it relates to I-Zone and wildland firefighting.(ILO1)
		8. 1)Describe three elements of wildland fire behavior including fuel, weather and topography and their direct influence on the fire?s behavior.(ILO4)
FIRE 234	Fire Prevention 1C	1. demonstrate an understanding on the storage, handling, and transportation of, as well as the special hazards associated with, flammable and combustible liquids and gases. (ILO2)
		2. demonstrate proficiency in code enforcement for industrial plants. (ILO2)
		3. apply knowledge on evaluating and completing plans review. (ILO2)
FIRE 240	Training Instructor 1A: Cognitive Lesson Delivery	1. Select methods and techniques for educating and training students in accordance with the latest concepts in career education (ILO1, ILO2, ILO3)
		2. Perform and evaluate peers and teaching performances. (ILO1, ILO3)
		3. Demonstrate proficiency in defining measurable objectives for teaching methodology. (ILO2)

Fire Science Student Learning Outcomes

FIRE 241	Training Instructor 1B: Psychomotor Lesson Delivery	1. prepare a syllabus incorporating a number of well-organized lesson plans for instruction of fire technology topics for a longer length course addressing multiple learning styles including multiple appropriate methods for evaluation and satisfactorily execute several of these lesson plans. (ILO2)
		2. apply teaching applications through video based presentations. (ILO2)
		3. develop test and validate testing techniques. (ILO3)
FIRE 242	Training Instructor 1C: Instructional Development Techniques	1. prepare a course outline incorporating audiovisual media and cognitive, psychomotor, and behavioral objectives for instruction of fire technology (ILO2, ILO3, ILO4)
		2. identify and apply appropriate evaluation instruments or tools to a given instructional setting. (ILO2, ILO3)
		3. develop oral, written, and performance test for an identified fire technology course that meets the requirements of the state. (ILO3, ILO4, ILO5)
FIRE 245	Fire Instructor 2A	1. Demonstrate cotemporary applications, methods, and techniques for educating and training students in accordance with the latest concepts in vocational education, through the use of audio visual technology. (ILO2)
		2. The student will demonstrate applicable teaching methods through video technology. (ILO2)
		3. The Student will demonstrate use of evaluation techniques through criteria based validation. (ILO2)
		4. The student will present a set of worksheets, quizzes, for applicable developed curriculum. (ILO4)
		5. The student will demonstrate proficiency managment of grading systems. (ILO3)