COURSE INFORMATION FORM

DISCIPLINE      Fire Science
COURSE TITLE    Fire Investigation II

CR.HR.  3    LECT HR.  3    LAB HR.  _______    CLIN/INTERN HR.  _______    CLOCK HR.  _______

CATALOG DESCRIPTION

This course is intended to provide the student with advanced technical knowledge on the rule of law, fire scene analysis, fire behavior, evidence collection and preservation, scene documentation, case preparation and court-room testimony.

PREREQUISITES

FSTE 175 or instructor approval

EXPECTED STUDENT OUTCOMES IN THE COURSE (ESO)

Upon completion of this course, the student will be able to:

1. Explain the rule of law as it pertains to arrest, search and seizure.

2. Interpret a fire scene.

3. Describe the chemistry of combustion.

4. Explain the nature and behavior of fire.

5. Identify the combustion properties of liquid, gaseous, and solid fuels.

6. Analyze electrical causes of fires.

7. List the procedures for fingerprinting and evidence collection/preservation.

8. Evaluate the use of incendiary devices, explosives, and bombs.

9. List the procedures for fire scene documentation.

10. Analyze fire-related deaths and injuries.

11. Discuss interviewing techniques.

12. Explain the role of the fire investigator in courtroom demeanor and testifying.

13. List the sources and technology available for fire investigations.

14. Describe procedures for conducting background investigations.
GENERAL EDUCATION OUTCOMES (ESO)
Specify which general education outcomes, if any, are substantially addressed by the course. Numbers in parentheses identify the Expected Student Outcomes linked to the specific General Education Outcome.

2. Critical Thinking
   A. Formulate a hypothesis:
      • Generate relevant questions (2, 14)
      • Provide supporting arguments, evidence, and/or experimentation (2, 14)
      • Construct and verify logically sound arguments (2, 14)
      • Assess the value of the hypothesis (2, 14)

3. Lifelong Learning

   B. Personal and Professional Development
      • Pursue structured learning opportunities, certification, and/or degrees (1-14)

   C. Attributes of an Awareness of the Convergence of Knowledge
      • Apply learned skills to real world interactions (2, 14)
PROGRAM-LEVEL OUTCOMES

CAREER AND TECHNICAL EDUCATION PROGRAM OUTCOMES
Specify which Career and Technical program outcomes, if any, are substantially addressed by the course by completing the “Career and Technical Education template” to show the relationship between course and program outcomes to assessment measures.

The student will be able to explain and demonstrate the safety and health procedures/requirements set by the National Fire Protection Association

- Recognize the appropriate use and care of personal protective equipment, (Bunker gear, SCBA)
- Identify the National Fire Protection Administration’s standard on fire service health and safety (NFPA 1500)

The student will be able to explain fire behavior and demonstrate the ability to extinguish class A, B, C, & D fires

- Recognize the elements of fire behavior and growth, the transfer of heat and energy, and The control theories if fire extinguishment
- Demonstrate the handling, care, and testing of fire service hose, nozzles and appliances
- Demonstrate the handling, care, and testing of fire service extinguishers
- Recognize the elements of building construction and its relationship to fire spread and behavior
- Demonstrate the use of, care of, and testing of fire service water supply systems
- Demonstrate the ability to remove fire byproducts including smoke, heat and toxic gasses from structures
- Demonstrate the use of various fire streams in the extinguishment of fires

The student will be able to explain and demonstrate the ability to Investigate a fire scene as to its cause and origin

- Recognize the responsibilities of the firefighter and fire department as it relates to fire investigations
- Recognize the laws, statues', case studies and standards (NFPA 921) that apply to fire investigations
- Demonstrate the ability to evidence preservation on collection related to fire investigations

CLASS-LEVEL ASSESSMENT MEASURES
Student accomplishment of expected student outcomes will be assessed using the following measures. (Identify which measures are used to assess which outcomes.)

Students will be evaluated for mastery of learning objectives by written examination, online discussions, and assignments
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I. Rule of Law
   A. Arrest Procedures
   B. Search and Seizure
   C. Warrant Searches

II. Interpretations of Fire Scenes
   A. Structure Fires
   B. Vehicle Fires
   C. Ship Fires
   D. Explosions
   E. Wildland Fires
   F. Hazardous Materials Fires

III. Chemistry of Combustion
   A. Atoms
   B. Elements
   C. Compounds
   D. Organic Compounds

IV. Behavior of Fire
   A. Heat
   B. Flame Plumes
   C. Sequence of a Room Fire
   D. Effects of Environmental Conditions

V. Combustion Properties
   A. Liquids
   B. Gases
   C. Solids

VI. Electrical Causes of Fires
   A. Wiring Systems
   B. Ignition Sources
   C. Investigation of Fires

VII. Collection of Evidence
   A. Photography Procedures
   B. Sketching Procedures and Techniques
   C. Fingerprint Lifting and Collection Techniques
   D. Preservation of Evidence

VIII. Incendiary Systems
   A. Basic Incendiary Devices
   B. Explosives
   C. Bombs

IX. Documentation of Fire Scene
X. Investigation of Fire-related Deaths and Injuries
   A. Homicide Fire Investigation
   B. Scene Security
   C. Scene Examination and Search
   D. Scene Documentation
   E. Autopsy Report

XI. Interview Techniques
   A. Interviewing
   B. Questioning
   C. Advising of Rights
   D. Exceptions to the Rule
   E. Waiver of Rights

XII. Courtroom Demeanor
   A. Court Procedures
   B. Pre-trial Preparation
   C. Trial Exhibits
   D. Physical Appearance
   E. Testifying
   F. Court Decisions

XIII. Court Decisions
   A. Daubert Decision
   B. Benfield Decision
   C. Kuhmo/Carmichael Decision

XIV. Sources of Information
   A. Local
   B. State
   C. Federal
   D. Website