**The University of Akron**
**College of Health & Human Sciences**
**Fire Protection Technology**

**Course Name:** Fire Investigation Methods
**Course Number:** 2230:104
**Course Credit:** 4 credit hours
**Prerequisite:** None

**Course Description:**
History and philosophy of fire investigation: public and private sector investigation of fire based on accepted scientific principles and scientific research.

**Program Outcomes:**
Upon successful completion of this course, the student will be able to:

1. Identify the responsibilities of a firefighter when responding to the scene of a fire.
2. Describe the implications of constitutional amendments as they apply to fire investigations.
3. Identify key case law decisions that have affected fire investigations.
4. Define common terms used in fire investigations.
5. Compare the types of building construction on fire progression.
6. Recognize potential health and safety hazards.
7. Discuss interviewing techniques.
8. Analyze electrical causes of fires.
9. List the sources of technology available for fire investigations.
10. Describe procedures for conducting background investigations.

**COURSE OUTLINE:**

Topic 1 Administration
- a. Introduction
- b. NFPA 921
- c. NFPA 1033
- d. Development of NFPA Documents
- e. NFPA 921 Definitions

Topic 2 Chapter 2 Basic Fire Methodology
- a. Scientific Method
- b. Fire Investigation and the Scientific Method
- c. The Basic Methods of Fire Investigation

Topic 3 Basic Fire Science

a. Fire Chemistry
b. Products of Combustion
c. Fire Dynamics
d. Fuel Items and Fuel Packages
e. Ignition
f. Flame Spread
g. Compartment Fire Spread
h. Witness Statements

Topic 4 Fire Patterns

a. Fire Effects and Fire patterns
b. Fire Effects
c. Fire Patterns
d. Pattern location
e. Irregular Patterns
f. Pattern Geometry
g. Fire Pattern Analysis

Topic 5 Building Systems

a. Building Systems Overview
b. Design, Construction, and Structural Elements
c. Types of Building Construction
d. Construction Assemblies
e. Effects of Weather on Building Systems

Topic 6 Electricity and Fire

a. Basic Electricity
b. Building Electrical Systems
c. Ignition by Electrical Energy
d. Interpreting Damage to Electrical Systems
e. Static Electricity

Topic 7 Fuel Gas Systems

a. Fuel gas Systems
b. Characteristics of Fuel Gases
c. Gas Systems
d. Common Fuel Gas System Components
e. Common Piping in Buildings
f. Investigating Fuel Gas Systems

Topic 8 Fire Related Human Behavior

a. General Considerations of human Behavior Response
b. The Station Nightclub Fire
c. Factor Related to Fire Ignition
d. Children and Fire
e. Recognition and Response to Fires

Topic 9 Legal Considerations

a. Legal Considerations During Investigation
b. Investigator as Trial Witness
c. Types of Evidence
d. Arson
e. Other Fire-Related Criminal Acts
f. Civil Litigation

Topic 10 Safety

a. Responsibility for Safety at a Fire Scene
b. Hazard and Risk Assessment
c. Safety Clothing and Equipment
d. Personal Health and Safety
e. Factors Influencing Scene Safety
f. Criminal Acts or Acts of Terrorism
g. Communications
h. OSHA

Topic 11 Sources of Information

a. Legal Considerations
b. Forms of Information
c. Government Sources of Information
d. Private Sources of Information

**Assessment**

The University of Akron and specifically the Fire Protection program assesses student learning at several levels. The goal of these assessment activities is to improve student learning. As a student in this course, you will participate in various assessment activities. Grades and work samples may be selected to gather learning outcome data to be measured and tracked over several years. Student names or indicators are not used in data analysis. Students have an active role in course and program assessment projects. Generated data will direct any changes made in the curriculum which is designed to strengthen and constantly improve student learning and educational outcomes.

***Grading Scale:***

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|---|---|
| **A 100-97%** | **C 77-75%** |
| **A- 96-94%** | **C-74-72%** |
| **B+ 93-90%** | **D 71-70%** |
| **B 89-86%** | **D-71-70%** |
| **85-82%** | **D-69%** |
| **C+ 81-78%** | **F<68%** |