

COURSE OUTLINE

Fire Investigation

Course Description: FS 180. Fire Investigation, 3 hour credit, Prerequisite: FS 100 or department consent. This course will enable the student to have a good understanding of arson and incendiarism, legal aspects of arson, and methods of setting incendiary fires. This course will also enable the student to have a knowledge of the various causes of fire, techniques for recognizing and preserving evidence, and means for interviewing and detaining witnesses. Procedures utilized in handling juveniles, court procedures and the giving of court testimony are also covered.

Course Relevance: The principles learned in this course will enable the student to understand the function and operation of fire and arson investigation process. An understanding of fire investigation is critical to those who are pursuing a career in firefighting.

Required Materials:

Kirk, P. L. (2001). Fire Investigation. New York: John Wiley and Sons, Inc.

Learning Outcomes:

1. Demonstrate an understanding of the investigation methods for determining causes of fire and the ability to apply these methods.
2. Demonstrate an understanding of combustion properties of fuels, types of explosives, and incendiary devices.
3. Demonstrate an understanding of various types of fires and patterns.
4. Identify fire fatalities and causes.

Learning PACT

Through the student involvement in this course, the student will develop and document his/her achievement of the following PACT skills:

Primary skills (developed and documented):

1. Problem solving
 - Through analysis of information provided generate response to specific problems
2. Historical Interpretation
 - Relate information from prior emergency situations and fire Investigation as it relates to current trends in the industry
3. Speaking
 - Provide effective communication in classroom setting regarding

specific assignments relating to fire behavior and investigation

4. Field Related Technology
 - Through a variety of projects and assignments provide information relating to fire and arson investigation.

Secondary skills (developed but not documented):

Internet Use,
Computer Literacy
Reading
Critical Thinking

Assessment Tasks:

These learning outcomes and primary Learning PACT skills will be demonstrated by:

1. Assignments on specific topics related to fire and arson investigation
2. Demonstrate determination of acceptable responses to specific equipment used in fire and arson investigations
3. Verbalize proper action to be taken at various emergency situations in regard to fire investigation

Course Content:

- I. Themes - Key recurring concepts that run throughout this course:
 - A. Placement of arson/fire investigation within law enforcement
 - B. Importance of arson/fire investigation to the fire service
- II. Issues - Key issues that will be addressed in this course: areas of conflict that must be understood in order to achieve the intended outcome:
 - A. Need for arson/fire investigation
 - B. Use of information from arson/fire investigations
- III. Concepts – Key concepts that must be understood to address the issues:
 - A. Importance of arson/ fire investigation on the fire service
 - B. Use of information from arson/fire investigations
- IV. Skills / Competencies - Actions that are essential to achieve the course outcomes:
 - A. Identity various types of arson
 - B. Research past major fire loss records
 - C. Prepare written report of an arson/fire investigation

Learning Units:

- I. Introduction to fire investigation
- II. Elementary chemistry of combustion
- III. Nature and behavior of fire
- IV. Combustion properties of non-solid fuels

- V. Role of pyrolysis
- VI. Fire patterns of structural fires
- VII. Sources of ignition
- VIII. Automobile fires
- IX. Practical investigation of structural fires
- X. Arson
- XI. The legal aspect of arson
- XII. Carbon monoxide asphyxiation
- XIII. Explosions associated with fires
- XIV. Fire fatalities

Learning Activities:

Learning activities will be geared to class discussion, lecture, and outside assignments. Outside assignments include requiring written reports and verbal delivery to the class with explanation.

Grade Determination:

The student will be graded on satisfactory completion of assessment tasks (learning activities), attendance, adequate participation (discussion) and the final project.