

**J. Sargeant Reynolds Community College  
Course Content Summary**

**Course Prefix and Number: FST 230**

**Credits: 3**

**Course Title:** Fire Investigation

**Course Description (including lecture hours, lab hours, total contacts)**

Provides the student with the fundamentals and technical knowledge needed for proper fire scene interpretations, including recognizing and conducting origin and cause, preservation of evidence and documentation, scene security, motives of the firesetter, and types of fire causes. Lecture 3 hours per week.

**Course Prerequisites/Corequisites** (*Entry-level competencies **required** for enrollment*)

None

**Course Objectives** (Each item should complete the following sentence.)

Upon completing the course, the student will be able to:

1. Identify and explain the responsibilities of the fire department from a firefighter's perspective when responding to the scene of a fire, including the possibility of incendiary devices often encountered.
2. Define criminal law and explain the constitutional amendments (4th, 5th, 6th, 8th, 14th) as they apply to fire investigations.
3. Analyze the precedents set by constitutional law case studies that have affected fire investigations.
4. Define and explain the common terms used in fire investigations.
5. Describe the basic elements of fire dynamics and how they affect cause determination including fire behavior, characteristics of fuels and methods of heat transfer.
6. Analyze the relationship of building construction on fire investigations including types of construction, construction and finish materials.
7. Evaluate fire protection systems and building services and discuss how their installation affects the ignition of fires in buildings.
8. Discuss the basic principles of electricity.
9. Explain the role of the fire investigator in recognizing health and safety concerns including potential hazardous materials awareness.
10. Describe fire scene investigations and the process of conducting investigations using the scientific method.
11. Explain how an investigator determines the point of origin in a room.
12. Identify the types of fire causes and differentiate between accidental and incendiary causes.
13. Describe and explain the basic procedures used for investigating vehicle fires.
14. Identify the characteristics of arson and common motives of the firesetter.
15. Identify and analyze the causes of firefighter deaths in the line of duty related to structural and wildland firefighting, training and research, and the reduction of emergency risks and accidents.

## **Major Topics to be Included**

1. Responsibilities of the fire department when responding to the scene of a fire, including the possibility of incendiary devices often encountered
2. Criminal law and the constitutional amendments (4th, 5th, 6th, 8th, 14th) as they apply to fire investigations
3. Precedents set by constitutional law case studies
4. Common terms used in fire investigations
5. Fire dynamics and how they affect cause determination including fire behavior, characteristics of fuels and methods of heat transfer
6. Relationship of building construction on fire investigations including types of construction, construction and finish materials
7. Fire protection systems and building services and how their installation affects the ignition of fires in buildings
8. Principles of electricity
9. Health and safety concerns including hazardous materials awareness
10. Scientific method in fire scene investigations
11. Determining a fire's point of origin
12. Types of fire causes
13. Investigating vehicle fires
14. Arson
15. Causes involved in line of duty firefighter deaths related to structural and wildland firefighting, training and research, and the reduction of emergency risks and accidents

**Effective Date of Course Content Summary (Month, Date Year):** Oct 1, 2008