I. **OVERVIEW**
The following information will appear in the 2012 - 2013 catalog

**FSCI 312  Fire Investigation 2A**

**2 Units**

*Limitations on Enrollment:* Enrollment limited to students who provide verification of completion of Fire Investigation 1B.

Provides information on conducting an explosive investigation and surveillance operation, preparing a search warrant, testifying as an expert witness, assembling a curriculum vitae, and properly documenting a criminally caused fire.

**Materials Fee Required**

Student may repeat if required by regulation.

Field trips might be required.  (A-F Only) Lecture

II. **LEARNING CONTEXT**

*Given the following learning context, the student who satisfactorily completes this course should be able to achieve the goals specified in Section III, Desired Learning:*

**A.  COURSE CONTENT**

1. **Required Content:**

   a. Chemistry and Physics of Fire

   b. Atoms

   c. Compounds

      i. Inorganic Compounds

      ii. Organic Compounds

   d. Fire Tetrahedron

      i. Heat

      ii. Heat units

      iii. Heat Transfer

   e. Sources of Ignition

   f. Fire Behavior

      i. Phases of Burning

      ii. Time-Temperature Curve

      iii. Productions of Combustion

   g. Explosion Investigation
i. Explosives and Bombs
   a. Explosion
      a. Primary Effects of an Explosion
      b. Speed of Explosions
      c. Diffused or Dispersed Explosion

ii. Detonators and Initiators
   a. Nonelectric blasting cap
   b. electronic blasting cap
   c. Signal or shock tube blasting cap
   d. Time or safety fuse

iii. Improvised Explosive Devices

h. Surveillance Techniques in Arson Cases

i. Fifth Amendment Rights to Remain Silent

j. Interviews and Interrogations in Arson Investigations
   i. Interview Techniques
   ii. Interrogation
   iii. Law Enforcement
   iv. Custody
   v. Exceptions to the Rule

k. Investigation of Structure Fire
   i. Introduction to fire indicators
   ii. Overhaul Operations
   iii. Exterior Examination
   iv. Interior Examination
   v. The indicator of information
   vi. Scene examination

l. Report Writing and Documentation on Fire Scene Investigation
   i. Reports
   ii. Note taking
a. Procedure

iii. Interview

iv. Investigation Reports
   a. Preliminary report
   b. Investigation Narrative report

2. **Recommended Content:**

a. Court Room Demeanor
   i. Trial Preparations
   ii. Court procedures
   iii. Pretrial preparation
   iv. Trial Exhibits
   v. Physical appearance for court
   vi. Testifying
      a. Verbal communication
      b. Nonverbal communication
      c. Direct examination
      d. Cross examination

b. Live Fire Demonstration and Structure Burn Examination
   i. Combustion Explosions and Structural displacement
   ii. Charring and depth of char
   iii. General burn patterns
   iv. Low burn and penetration of the floor
   v. Accelerant and flammable liquids
   vi. Spalling of Materials
   vii. Ghost Marks
   viii. Heat Level/Smoke Patterns
      a. Color and Density of smoke
      b. Level of smoke
c. Resume Reviews

B. ENROLLMENT RESTRICTIONS

1. Limitations on Enrollment

Enrollment limited to students who provide verification of completion of Fire Investigation 1B.

C. HOURS AND UNITS

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D. METHODS OF INSTRUCTION (TYPICAL)

Instructors of the course might conduct the course using the following method:

1. Lecture
2. PowerPoint presentations of Arson and structure fires
3. Guided discussions on Serial Arsonists

E. ASSIGNMENTS (TYPICAL)

1. EVIDENCE OF APPROPRIATE WORKLOAD FOR COURSE UNITS

Time spent on coursework in addition to hours of instruction (lecture hours)

a. Daily studies will be required from technical manual and textbooks.
b. Per term, students will prepare and construct court cases to be used in mock trials.
c. Daily, students will study and investigate causes of electrical fires.
d. Per term students will write a report on Information resource for use on Insurance company record, governmental sources of information.
   i. Clerk's/Recorder's Office
   ii. Treasurer/Tax Collector
   iii. Court Records
   iv. Code Enforcement Departments
   v. Secretary of State
   vi. Bankruptcy Court Records
e. Per term, students will be required to write a report on serial arsonists
   i. Profit/Fraud
   ii. Revenge
   iii. Excitement/Vanity
iv. Vandalism

2. **EVIDENCE OF CRITICAL THINKING**
   *Assignments require the appropriate level of critical thinking*
   
a. Prepare a case report for a preliminary hearing and grand jury proceedings.

b. Review the Theory of Polygraph examination.
   
i. Physiological changes of a deceptive subject.

ii. Investigation of subject prior to examination

iii. Administration of the examination.

c. Sketch and photograph a fire scene.

F. **TEXTS AND OTHER READINGS (TYPICAL)**


III. **DESired LEARNING**

A. **COURSE GOAL**
   *As a result of satisfactory completion of this course, the student should be prepared to:*

   successfully decrease the occurrence of arson through proper prevention, investigation, and evaluation techniques.

B. **STUDENT LEARNING GOALS**
   *Mastery of the following learning goals will enable the student to achieve the overall course goal.*

1. **Required Learning Goals**
   *Upon satisfactory completion of this course, the student will be able to:*

   a. differentiate between the three effects of an explosion

   b. demonstrate techniques to establish an arson corpus after examining a practical fire scene.

   c. examine and determine the appropriate evidence to support a fire cause.

   d. appraise an explosion scene to determine if a criminal act has occurred.

   e. organize their case investigation utilizing proper case reports, court exhibits, and testimony.

   f. differentiate between the U.S. Supreme Court's findings and California State Supreme Court requirements in preparing a search warrant and apply the rules appropriately to a practical situation.

   g. recognize the elements necessary for the ignition and the sustained combustion of fuel and heat in a practical situation.

   h. use the methodology and procedures required for a proper surveillance operation.
IV. METHODS OF ASSESSMENT (TYPICAL)

A. FORMATIVE ASSESSMENT

1. Essay exams
2. Quizzes

B. SUMMATIVE ASSESSMENT

1. Final exam
2. Final project
3. Final state-certified exam