

FLORIDA STATE COLLEGE AT JACKSONVILLE

COLLEGE CREDIT COURSE OUTLINE

COURSE NUMBER:	FFP 2604
COURSE TITLE:	Origin and Cause
PREREQUISITE(S):	None
COREQUISITE(S):	None
CREDIT HOURS:	3
CONTACT HOURS/WEEK:	3
CONTACT HOUR BREAKDOWN:	
Lecture/Discussion:	3
Laboratory:	
Other _____:	
FACULTY WORKLOAD POINTS:	3
STANDARDIZED CLASS SIZE ALLOCATION:	25
CATALOG COURSE DESCRIPTION:	
<p>This course is designed to enhance the Firefighter and the Fire Inspector's ability to detect and determine the origin and cause of a fire. Specific topics include review of fire behavior, investigation ethics, construction, ignition sources, reading fire patterns, and scene reconstruction. Special topics on electrical, woodland, vehicle, mobile home, RV, and boat/ship fires will be presented. Additional topics will include special emphasis on fire scene documentation, location and preservation of evidence, interrogation of witnesses, arson laws, case preparation, court procedures, and reports and records.</p>	
SUGGESTED TEXT(S):	<p><u>Kirk's Fire Investigation</u>, 4th ed., John D. DeHaan, 1997 Brady-Prentice Hall</p> <p><u>Introduction to Fire Origin and Cause</u>, 2nd ed., 1997, IFSTA</p>
IMPLEMENTATION DATE:	November 14, 1987
REVIEW OR MODIFICATION DATE:	<p>May 1, 1990 Fall Term, 2003 (20041)</p>

COURSE TOPICS

CONTACT HOURS
PER TOPIC

I.	Introduction	3
	A. The Fire Problem	
	B. The Detection of Incendiary Fires	
	C. Analytical Fire Investigation	
II.	The Elementary Chemistry of Combustion	
	A. Atoms, Elements, and Compounds	
	B. Organic Compounds	
	C. State of the Fuel	
III.	The Nature and Behavior of Fire	3
	A. Elements of Combustion	
	B. Flaming Fire	
	C. Glowing Fire	
	D. Explosive Combustion	
	E. Heat	
	F. Sequence of a Room Fire	
	G. Effects of Environmental Conditions	
IV.	Combustion Properties of Liquid and Gaseous Fuels	3
	A. Types of Fuel	
	B. Physical Properties of Fuels	
	C. Hydrocarbon Fuels	
	D. Non-Hydrocarbon Liquid Fuels	
	E. Pyrolysis and Decomposition of Liquids	
V.	Combustion Properties of Solid Fuels	3
	A. Pyrolysis	
	B. Combustion Properties of Wood	
	C. Paper	
	D. Plastics	
	E. Paint	
	F. Metals	
	G. Coal	
	H. Fire Behavior	
VI.	Sources of Ignition	3
	A. Primary Igniters	
	B. The Role of Services and Appliances in Starting Fires	

COURSE TOPICS (CONTINUED)

CONTACT HOURS
PER TOPIC

	C. The Role of Hot/Burning Fragments in Kindling Fires	
	D. Hot Metals	
	E. Mechanical Sparks	
	F. Firearms Residue	
	G. Smoking as a Fire Origin	
	H. The Role of Animals in Igniting Fires	
	I. Misc. Sources of Ignition	
VII.	Structure Fires and Their Investigation	3
	A. Elements of Building Construction	
	B. General Principles of Fire Behavior	
	C. Investigative Information During Suppression	
	D. Examination of Structure Fire Scene	
	E. Documenting the Fire Scene	
	F. Conclusions About the Fire	
VIII.	Grass and Wild land Fires and Their Investigation	3
	A. Fuels	
	B. Fire Behavior	
	C. Determination of Origin	
	D. Sources of Ignition	
	E. Collection and Preservation of Evidence	
IX.	Automobile, Motor Vehicle, and Ship Fires	3
	A. Automobile and Motor Vehicles	
	B. Boats and Ships	
X.	Electrical Causes of Fires	3
	A. Basic Electricity	
	B. Wiring Systems	
	C. Ignition by Electrical Means	
	D. Investigation of Electrical Related Fires	
XI.	Clothing and Fabric Fires	3
	A. Types of Cloth	
	B. Fire Hazards	
	C. Regulations on Flammable Fabrics	
	D. Flammability of Mattresses/Upholstered Furniture	
	E. Flammability Testing	

COURSE TOPICS (CONTINUED)

CONTACT HOURS
PER TOPIC

XII.	Explosions and Explosive Combustion	3
	<ul style="list-style-type: none"> A. Explosive combustion B. Diffuse-Phase Explosions C. Dense-Phase Explosions D. Investigation of Explosions 	
XIII.	Chemical Fires and Hazardous Materials	3
	<ul style="list-style-type: none"> A. Gases B. Liquids C. Solids D. Clandestine Drug Laboratories 	
XIV.	Laboratory Services	3
	<ul style="list-style-type: none"> A. Availability of Laboratory Services B. General Fire Evidence C. Identification of Volatile Accelerants D. Chemical Incendiaries E. Non-Fire Related Criminal Evidence F. Summary: The Expert Witness 	
XV.	Fire Related Deaths - Pathological and Toxicological Examination	3
XVI.	Arson as a Crime	3
	<ul style="list-style-type: none"> A. The Crime of Arson B. Motive C. The Arson Set D. Deductions From the Interpretation of Evidence 	
XVII.	Other Investigative Topics	
	<ul style="list-style-type: none"> A. Arson Law B. Elements of Proof C. Sources of Information D. Chain of Evidence E. Report Writing F. Courtroom Testimony G. Epilogue H. Appendices 	

PROGRAM TITLE: Fire Science Technology
 COURSE TITLE Origin and Cause
 CIP NUMBER: 0743.020100

LIST PERFORMANCE STANDARD ADDRESSED:

NUMBER(S): TITLE(S):

23.0 CONDUCT FIRE INVESTIGATIONS -- The student will be able to:

- 23.01 Identify the requirements, need, and purpose for fire cause determination and fire investigation.
- 23.02 Given photographs, diagrams, and/or sketches, (a) determine the point of origin, (b) describe the procedure used by the authority having jurisdiction to determine loss to structure and contents.
- 23.03 Given photographs, sketches and/or diagrams where an incendiary fire is suspected, (a) describe how personnel would be directed to identify and preserve evidence, (b) describe how personnel would properly collect, remove, and preserve evidence, (c) describe the procedures for preliminary interviewing of witnesses and identification of suspects at the fire scene.
- 23.04 Identify the factors to be considered by the first arriving company on the fire scene that may indicate an incendiary fire.
- 23.05 Given an incendiary fire: (a) describe the procedures used in identifying incendiary fires, (b) describe the procedures used in locating evidence to indicate arson intent, (c) demonstrate the methods of securing and controlling the fire scene until appropriate investigative personnel arrive.
- 23.06 Given a summary of the methods most generally used by persons setting fires, describe how the methods used by arsonists can be detected.
- 23.07 Given a summary of the motives for illegally setting fires, describe how the motives can be used by an investigator to determine a likely suspect.
- 23.08 Identify which local, regional, and/or state agency may assist in fire investigations.
- 23.09 Given a summary of the record system maintained on fire investigations, describe how the record system is used and maintained.

24.0 WRITE REPORTS -- The student will be able to:

- 24.01 Identify the types of report forms used by the authority having jurisdiction at a specific level of responsibility.
- 24.02 Given the report forms and all the pertinent information, complete the reports used by the authority having jurisdiction at a specific level of responsibility.
- 24.03 Given a record keeping system for the officer's area of responsibility, demonstrate: (a) how to maintain the system, (b) how to transmit reports to superior officers.
- 24.03 Demonstrate the ability to complete a narrative report detailing both an emergency and non-emergency incident.