Course: FORENSIC FIRE ANALYSIS
Section: ENFP 661 – EF01
Semester: Summer 2016
Day: Tuesdays, Online
Time: 8 to 9 p.m.
Location: Online
Instructors: David J. Icove, PhD, PE  Gerald A. Haynes, MSFPE, PE
dicove@umd.edu  ghaynes1@umd.edu

Description: This course addresses the forensic analysis of structural fire incidents in terms of enclosure fire dynamics and the impact of fire safety subsystems used to prevent or mitigate the consequences of fire. These subsystems include: ignition prevention, material flammability and flame spread, fire detection and alarm, fire suppression, smoke movement and management, structural fire protection and egress systems. Failures in these subsystems are addressed in terms of differences between expected and observed performance. Case studies are used to address and reinforce different types of subsystem failures.

Objectives: Upon completing this course, the student should be able to:

- Understand the techniques used for the forensic analysis of fire dynamics, plume development, smoke movement, and human tenability in enclosure fires;
- Describe how forensic engineers identify causative factors related to the origin and causes of fires and explosions;
- Understand the expected performance of building fire safety subsystems in response to fires and how to analyze this performance;
- Demonstrate the application of computer fire modeling and visualization techniques to realistic case studies using example spreadsheet, zone, and CFD models.


Technology: Personal computer and/or laptop, advanced knowledge of fire dynamics, computer fire modeling

Prerequisite: This is the last course of the Master in Fire Protection Engineering program. It leverages all of the subject matter covered in previous ENFP courses.

Attendance: See: http://faculty.umd.edu/teach/attend_student.html

Academic Integrity: The University of Maryland, College Park, has a nationally recognized Code of Academic Integrity, administered by the Student Honor Council. This code sets standards for academic integrity at Maryland for all undergraduate and graduate students. As a student you are responsible for upholding these standards for this course. It is very important for you to be aware of the consequences of cheating, fabrication, facilitation, and plagiarism. For more information of the Code of Academic integrity of the Student Honor Council, please visit: http://shc.umd.edu/SHC/HonorPledgeInformation.aspx

Resources: See: http://faculty.umd.edu/teach/specialneeds.html

Copyright Policy: All lectures and course materials, including presentations, tests, outlines, and similar materials, are protected by copyright.

Instructors: 

David J. Icove, PhD, PE, CFEI, is a UL Professor of Practice at the University of Tennessee and a faculty member in the Master of Fire Protection Engineering at the University of Maryland. Dr. Icove holds a BS in Fire Protection Engineering from the University of Maryland; a BS and MS in Electrical Engineering, and a PhD in Engineering Science and Mechanics from the University of Tennessee. He is co-author of several textbooks, including Kirk’s Fire Investigation and Forensic Fire Scene Reconstruction. He is a Registered Professional Engineer Certified Fire and Explosions Investigator, and a Board Certified Fellow by the National Academy of Forensic Engineers. His has work experience as a former criminal investigator on the federal, state, and local levels. (Email: dicove@umd.edu)

Gerald Haynes, MS, PE, CFEI, is Vice President, Forensic Fire Analysis, LLC, and a faculty member of the Master of Fire Protection Engineering at the University of Maryland. Mr. Haynes holds BS and MS degrees in Fire Protection Engineering from the University of Maryland, is a Registered Professional Engineer, Certified Fire and Explosions Investigator, and is Board Certified by the National Academy of Forensic Engineers. He the co-author of Forensic Fire Scene Reconstruction and will be the co-author of the 8th edition of Kirk’s Fire Investigation. His work experience includes employment with NIST, ATF, and municipal fire service. (Email: ghaynes1@umd.edu)
Course Schedule: The 10-module course spans 12 weeks. Most of the modules are designed to be completed in one week. As an online course, virtually all communication, materials distribution, and assignment submission will occur online. Students should plan to log in to the course website daily to check for mail, announcements, and participate in discussions.

Canvas is the primary means of communicating with your instructors and students, receiving course notes, submitting completed assignments, and reviewing your grades. You can use the course mail to privately contact the course instructors, another student, or group of students. If you have a question that you feel may be of interest to other students, please use the discussion space to post your question as the reply may benefit others.

The course is divided into the ten modules shown in the following table along with the course schedule and date the assignments are due. Address any questions to the specific instructor assigned to grade that module. Formal class meetings will be every Tuesday from 8 to 9 p.m., Eastern Standard Time.

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<td>Introduction / Overview</td>
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<td>Principles of Reconstruction</td>
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<td>Basic Fire Dynamics</td>
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Course Notes The course notes are available in the course web site. They are organized into "modules" under the Course Content icon on the Homepage. You will be able to view the content section by section. A compiled version for each module will also be available from the 'Compiled Modules' in Student Tools. Each module will become available the week we will cover it and will remain available for the rest of the course.

Announcements: Check the Canvas announcements regularly. This is where announcements will be posted from the instructors and those supporting the course.

Grading: Each module has 10 total points consisting of a group preliminary activity and a detailed assignment. With ten modules, the final grade is computed as the total of 100 points. (Note that there will be several opportunities for bonus points.)

A = 90-100; B = 80-89; C = 70-79; D = 60-69; F < 60;
Each assignment / case study requires the submittal of a report. Some assignments will be individual projects, while others will be group projects. The assignments are projects and case studies that require you to prepare and submit a detailed written report. The written reports will address your review and analysis of the topic being considered. Some of these assignments will be individual assignments while some will be group assignments.

**Student Feedback**

**Course Evals**

We would appreciate any comments about the course, the delivery mechanism, administration or any other issue. Please feel free to send along comments during the term (especially if it is something that could be altered promptly to make an immediate improvement). Otherwise, you are welcome to wait until the end of the term.

For any correspondence to the instructors, whether involving a question about the course material or a comment about the course delivery, we will seek to provide a response within 36 hours. Please use the course internal mail to correspond with me (mail is available on the Communications page of the course).

In addition to individual comments sent directly to the instructors, a midterm and final evaluation will be available for you to complete online. These surveys are completely anonymous and are valuable to us to implement course improvements. You will receive a notice in the course when these become available.