Department of Electrical and Computer Engineering

EEE 4XXX – Introduction to Digital Forensics Engineering

Catalog Description

This course will cover the fundamentals of the computer and network forensics and media exploitation techniques and introduces students to computer forensic software and hardware tools. This course also studies cyber-attack prevention, planning, detection, and response with the goals of counteracting cybercrime, cyberterrorism, and cyberpredators, and making them accountable. Students will examine various log files, port scans, and packet sniffers, etc., from different devices and different operating systems including Windows and Linux.

Catalog Objectives

- To give the students an understanding of what Digital Forensics entails

- To give the students a hands-on exposure to the latest tools and techniques to prepare an investigative plan.

- To understand the common artifacts (from the Windows, Mac, and Linux operating systems) to look for during forensic investigation

- To provide exposure to well-known and novel forensic methods using command-line and graphical open-source computer forensics tools for examining a wide range of target systems and artifacts.

Prerequisites

Knowledge of windows operating system.

Textbooks

- The Basics of Digital Forensics: The Primer for Getting Started in Digital Forensics by John Sammons (Mar 9, 2012)
- Digital Forensics with Open Source Tools by Cory Altheide and Harlan Carvey (Apr 28, 2011)

Topics covered

- Ethical Issues
- Windows System Artifacts
- Linux System Artifacts
- Internet Artifacts
- Disk and File System Analysis
- Mobile Device, Network and Virtual Machines Forensics

Class schedule
Twice a week 75 minutes class with hands-on lab as part of the lectures

Contribution of course to meeting the professional component
Engineering science – 90% (math/science required for creative applications)
Engineering design – 10% (decision making process of devising a system, component or process to meet a desired need).

Relationship of course to program outcomes:
In the course EEE 4XXX – Introduction to Digital Forensics Engineering, the student will have to show
   1. An ability to apply knowledge of mathematics, science, and engineering
   2. An ability to design and conduct experiments, as well as to analyze and interpret data
   3. An ability to identify, formulate, and solve engineering problems
   4. An understanding of professional and ethical responsibility
   5. Recognition of the need for, and an ability to engage in life-long learning
   6. Knowledge of contemporary issues
   7. An ability to use the techniques, skills and modern engineering tools necessary for engineering practice

Person who prepared this description and date of preparation:
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