CSC 548 – DIGITAL FORENSICS

CREDIT HOURS: 3
PREREQUISITES: CSC 302 or 331, 455 or 447; or Instructor Permission. CSC 562 recommended.
GRADE REMINDER: Must have a grade of C or better in each prerequisite course

CATALOG DESCRIPTION

Study of computer and cyber forensics. Learn and demonstrate understanding of different aspects of computer and cyber-crime and ways in which to uncover, protect, exploit, and document digital evidence. Students will be exposed to different types of tools (both software and hardware), techniques and procedures, and be able to use them to study and practice forensic investigations.

PURPOSE OF COURSE

To acquire the hands-on skills necessary for computer forensics through the use of case studies, hands-on exercises, and a final project. To study the perspectives of computer and related legal processes for evidence discovery, collection, and protection. To discuss relevant computer crimes from state and federal law, methods of interaction with law enforcement and prosecutors, admissibility of expert witness testimony and the use of forensic reports in civil, regulatory and internal investigations.

EDUCATIONAL OBJECTIVES

Upon successful completion of the course, students should be able to:

1. Identify the needs for forensic analysis in key critical infrastructure in various segments of our society.
2. Understand the complexity of the networks that make security and forensics a necessity.
3. Distinguish the need for cyber forensics in the use of discovering, protecting, and documenting digital evidence.
4. Demonstrate how to select and utilize appropriate software forensics tools used in forensic analysis.
5. Demonstrate the selection and use of hardware forensics equipment to protect and analyze forensic evidence.

COURSE CALENDAR

This course meets for a minimum of 37.5 lecture contact hours during the semester, including the final exam. Students have significant assignments based on readings from the primary literature, participate in classroom discussions regarding current research topics, complete periodic homework and laboratory/programming assignments, and periodic exams in addition to the final exam. Students are expected to prepare for any class assignments or quizzes over the material covered in class or in the reading material. Successful completion of these activities requires at a minimum six additional hours of outside of classroom work each week.

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The profession and need for forensics
History of forensics

Tools ........................................................................................................................................9
  Current software
  Required hardware

Performing Investigations ........................................................................................................9
  Data Acquisition
  Crime screen processing
  Processing Windows systems
  Processing LINUX and Macintosh file systems
  Virtual machine forensics

Detailed Forensics Applications ............................................................................................9
  Email and Social Media
  Mobile devices
  Cloud forensics

Results .....................................................................................................................................9
  Report writing
  Expert testimony
  Ethics for the expert witness

Exams (plus final) ....................................................................................................................6

TOTAL 45

REFERENCES

