

Course No.	Title of the Course	Credits	Course Structure	Pre-Requisite
ITIT E 602	Digital Forensics	4	3L-0T-2P	Number Theory and Cryptography

COURSE OUTCOMES:

CO1: To understand the fundamentals of digital forensics and different kinds of cyber-crimes.

CO2: To apply different types of data acquisition tools

CO3: To analyze the digital investigation scene

CO4: To learn about the digital forensics software and hardware tools

CO5: To understand the virtual machine and network forensics

Unit No.	Topics
Unit 1	<p>Introduction:</p> <p>Digital Forensics Fundamentals, Computer Crimes, Understanding Digital Investigations, Procedures for Private-Sector High-Tech Investigations, Understanding Data Recovery Workstation and Software, Conducting an Investigation, Investigator's Office and Laboratory</p>
Unit 2	<p>Data Acquisition:</p> <p>Understanding Storage Formats for Digital Evidence, Determining the Best Acquisition Method, Acquisition tools, Validating Data Acquisitions, Performing RAID Data Acquisitions, Remote Network Acquisition Tools, Other Forensics Acquisition Tools</p>
Unit 3	<p>Processing Crimes and Incident Scenes:</p> <p>Identifying Digital Evidence, Collecting Evidence in Private-Sector Incident Scenes, Processing Law Enforcement Crime Scenes, Preparing for a Search, Securing a Digital Incident or Crime Scene, Seizing Digital Evidence at the Scene, Storing Digital Evidence, Obtaining Digital hash, Reviewing case</p>
Unit 4	<p>Current Digital Forensics Tools:</p> <p>Digital Forensics Software Tools, Digital Forensics Hardware Tools, Validating and Testing Forensic Software, Digital Forensics Examination Protocol, Digital Forensics Analysis and Validation,</p>
Unit 5	<p>Virtual Machine and Network Forensics</p> <p>Overview of Virtual Machine Forensics, Live Acquisitions, Network Forensics Overview, Email and Social Media Investigations, Investigating Email Crimes and Violations, Understanding E-Mail Servers, Specialized E-Mail Forensics Tools, Social Media Forensics on Mobile Devices, Forensics Tools for Social Media Investigations</p>

Suggested Readings:

1. Warren G. Kruse II and Jay G. Heiser, "Computer Forensics: Incident Response Essentials", Addison Wesley, 2002.

- 2. Nelson, B, Phillips, A, Enfinger, F, Stuart, C., "Guide to Computer Forensics and Investigations", 2nd edition, Thomson Course Technology, 2006, ISBN: 0-619-21706-5.
- 3. John R. Vacca, Computer Forensics, "Computer Crime Scene Investigation", 2ndEd, Charles River Media, 2005.
- 4. Anthony T. S. Ho and Shujun Li, "Handbook of Digital Forensics of Multimedia Data and Devices", IEEE Press, John Wiley & Sons, 2015.