



# GUJARAT TECHNOLOGICAL UNIVERSITY

## Bachelor/Master of Engineering Syllabus

Subject Code : 3174507

Subject Name : Digital Forensics

WEF Academic Year :	2021 - 22
Semester :	7
Category of the Course :	Professional Elective

<b>Prerequisite :</b>	Basic concepts of Operating system, computer network, Computer hardware and software knowledge.
<b>Rationale :</b>	The course focuses on the in-depth study of the digital forensics legislations, digital crime, forensics processes, data acquisition and validation. It focuses to examine digital evidences such as the data acquisition, identification analysis.

### Course Scheme :

Teaching Scheme			Total Credits	Assessment Pattern and Marks				Total Marks
L	T	PR	C	Theory		Practical		
				ESE (E)	PA(M)	ESE (V)	PA (I)	
3	0	2	4	70	30	30	20	150

### Course Content :

Sr. No.	Course Content	No. of Hours	% of Weightage
1	<b>Unit 1 : Introduction</b> Digital Forensics Science: Forensics science, computer forensics and digital forensics, Objective of the Digital Forensics, Computer Forensic-Rules, Procedures and Legal Issues.	4	10
2	<b>Unit 2 : Computer System Forensic and its Investigation Process</b> Understanding of Systems, Disks and Media, Understanding Data Acquisition and Duplication, Principles of Data Acquisition, search and seizure, crime scene management.	6	15
3	<b>Unit 3 : Digital Evidence</b> Digital evidence definition, Digital Forensics examination phases, Sources of digital evidence, Importance of digital evidences in judicial proceeding, Indian Evidence ACT,1872 relevant to digital Evidence, certificate 65(B), chain of custody, Hash Value.	8	20
4	<b>Unit 4 : Network Forensics</b> Network Attacks, Network Forensic, Analysis of network traffic techniques and Investigating Traffics Logs, Investigation of Web attacks, Web attack detection tools, Router Forensics, Documentation Process.	6	15



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4	<b>Unit 5 : Legal Aspects of Digital Forensics</b> Different types of Cyber crime, IT Act 2000 and its Amendment, Digital Personal Data Protection Bill,2023.	8	20
5	<b>Unit 5 : Mobile Forensics</b> Mobile forensics methods and techniques, mobile forensics tools, Challenges in mobile forensic technique. Latest trends and challenges in the digital forensics investigation.	8	20
<b>Total</b>		<b>40</b>	<b>100</b>

### Reference Book :

1. Cyber Security: Understanding Cyber Crimes, Computer Forensics and Legal Perspectives by Nina Godbole, Sunit Bel.
2. John Sammons, The Basics of Digital Forensics, Elsevier.
3. Dr. Nilakshi Jain and Dr. Dhananjay Kalbande, Digital Forensic, Wiley Press John Vacca, Computer Forensics: Computer Crime Scene Investigation, Laxmi Publications.
4. EC-Council. (2016). Computer forensics: Investigating network intrusions and cybercrime (CHFI). Cengage Learning.

### Course Outcome :

After Completion of the Course, Student will able to :

No.	Course Outcomes	RBT Level*
01	To remember the concept of hard disk, operating system process and file system.	RM
02	To understand the legal aspect related to digital forensics	UN
03	To identify and apply appropriate forensics tools to acquire, preserve and analyze system image.	AP

\*RM: Remember, UN: Understand, AP: Apply, AN: Analyze, EL: Evaluate, CR: Create

### Suggested Course Practical List :

- The practical work will be carried out based on the content covered during the academic sessions.

### List of Laboratory/Learning Resources Required :

- Course-related online MOOCs on NPTEL/SWAYAM platform
- Recently Published papers/articles in reputed journals

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