



SILVER OAK UNIVERSITY
Silver Oak College of Computer Application
Master of Science Cyber Security & Digital Forensics
Course Name: Cyber Crime Investigation & Forensics
Course Code: 1040147202
Semester: 3rd

Prerequisite: Basic knowledge of system and mobile devices, Social Networking platforms, Types of web application functionality

Course Objective: To train the students about various types of Cyber Crimes and their investigation methodology, basic concepts of Cyber Law and use of Forensics tools for data processing.

Teaching Scheme:

Teaching Scheme				
L	T	P	Contact Hours	Credit
3	1	0	4	4

Contents:

Unit No.	Course Contents	Teaching Hours	% Weightage
1	Introduction to Cyber Crime Investigation & Cyber Forensics: Cyber Crime Investigation - Cyber Warfare, Terrorism & Social Networking, Cyber Forensics and Incident Handling, Case Study, Cyber Forensic Basics, Storage Fundamentals, File System Concepts	8	20
2	Investigating Real World Cyber Crimes: Investigating Social Media Profile, Impersonation cases, Phishing Cases, Data Theft Cases, Corporate Espionage Cases, Email Fraud Cases, Credit Card Fraud Cases, Cyber Pornography Cases, Denial of Service Attacks Cases, Cyber defamation Cases, Real Life Case Studies	10	24
3	IT ACT, Offenses and Penalties: Offences under the Information and Technology Act 2000, Penalty and adjudication, Punishments for contraventions under the Information Technology Act 2000 (Case Laws, Rules and recent judicial pronouncements to be discussed), Limitations of Cyber Law	12	28
4	Data Recovery Tools: Process and Ethics & Cyber Forensics, Investigation, Gathering Evidence, Precautions, Preserving and safely handling original media for its admissibility, Document a Chain of Custody and its	6	14

	importance, Complete timeline analysis of computer files based on file creation - file modification and file access - Data Protection and Privacy.		
5	Capstone Project: Real-World Cyber Forensics Case Study: An in-depth investigation and analysis of a real-world cyber crime case, integrating all the knowledge and skills acquired throughout the course. Emerging Technologies and Future Trends in Cyber Forensics: Exploration of the latest technologies in digital forensics, such as AI and machine learning applications, blockchain forensics, and advancements in forensic tools and techniques.	6	14

Course Outcomes:

Sr. No.	CO Statement	Unit No
CO-1	Define cybercrime investigation and cyber warfare, identifying the roles they play in contemporary security landscapes.	1
CO-2	Apply principles of cyber forensics and incident handling to analyze and respond to cybercrime incidents effectively.	2
CO-3	Develop strategies for handling cybercrime investigations based on case studies, incorporating ethical considerations.	3
CO-4	Apply knowledge of cyber laws to assess the limitations of cyber law in addressing contemporary cyber threats and challenges.	4
CO-5	Analyze a real-world cyber crime case, applying skills in digital evidence collection, analysis, and presentation.	5

Teaching & Learning Methodology:

1. The course includes a laboratory, where students have an opportunity to build an appreciation for the concepts being taught in lectures.
2. Lectures with live practical example using Projector and Computer
3. Experiments shall be performed in the laboratory related to course contents

List of Tutorials:

Total Hours: 14

Sr. No.	Tutorial Name
1.	Performing method to create image of hard disk and removable storage media.
2.	Performing Deleted File Recovery & Formatted Partition Recovery.
3.	Performing Recovery of Internet Usage Data
4.	Performing forensic investigation using Encase Forensic Edition.
5.	Working with a Forensic Toolkit.
6.	Performing tracking on EMail, IP Tracking, EMail Recovery

7.	Password Cracking, Cracking with GPU Systems (Hashcat).
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Major Equipment:

1. Computer System
2. LAN cable

Books Recommended:

1. Lindsay, "International Domain Name Law:ICANN and the UDRP", Oxford: Hart Publishing
2. Sharma J. P & Kanojia S., "Cyber Laws", New Delhi:Ane Books Pvt. Ltd
3. Duggal P., "Cyber Laws", Universal Law Publishing
4. Kamath N., "Law relating to computers, internet and e-commerce: A guide to Cyber Laws and the IT Act,2000 with rules, regulations and notifications" Delhi: Universal Law Publishing Co.
5. Prosis C., "Incident response & computer forensics", McGraw-Hill Companies

CO-PO-PSO MATRIX:

Co. No	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
CO-1	2	2	3	1	2	1	2	2	2
CO-2	2		3	1			2	2	3
CO-3	2	1	2	3	2	1	2	3	1
CO-4	3	2		3			3	1	1
CO-5	2	1	2	2				2	2