Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore
Shri Vaishnav Institute of Forensic Science
B.Sc. With Major Digital & Cyber Forensics- Batch (2025-29)
SEMESTER-I

BDCF101 INTRODUCTION TO DIGITAL AND CYBER FORENSICS

COURSE CODE	CATEGORY	COURSE NAME	TEACHING & EVALUATION SCHEME								
			THEORY			PRACTICAL		L	T	P	CREDITS
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
BDCF101	Major	Introduction to Digital and Cyber Forensics	60	20	20	60	40	4	0	4	6

Legends: **L** - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **P** – Practical: **C** - Credit; Th. - Theory
***Teacher Assessment** shall be based on following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

COURSE OBJECTIVES
The student will have ability to:
1. Basics of Digital Forensics
2. To know Digital forensics and its significances.
3. Introduction to cyber security.
4. Various types of cybercrimes.

COURSE OUTCOMES
Upon completion of the subject, students will be able to:
1. Basics of digital forensic
2. Understand cyber security.
3. Understand local and global level cybercrimes.
4. Need of cyber security.
5. Various types of cybercrimes and their effect.

COURSE CONTENT

Unit I: Digital Forensic

Definitions, concepts and Scope of forensic science, Branches of forensic science, Development of forensic science in India, Basic principles of forensic science, Definition of Scene of Crime (SOC), Types of scenes of crime, Protection and preservation of crime scene, handling and labelling of evidence. Introduction to digital forensic. Significance of digital forensic in criminal investigation.

Unit II: Cyber Crime-Overview

Introduction to cybercrime. Internal and External Attacks, Attack Vectors. Cybercrimes against Individuals –E-mail spoofing and online frauds, Phishing and its forms, Spamming, Cyber-defamation, Cyberstalking, Cyber Bullying and harassment, Computer Sabotage, Pornographic offenses, Password Sniffing. Keyloggers and Screen loggers. Cyber Crimes against Women and Children.

Unit III Cybercrime against organization

Unauthorized access of computer, Password Sniffing, Denial-of-service (DOS) attack, Backdoors and Malwares and its types, E-mail Bombing, Salami Attack, Software Piracy, Industrial Espionage, Intruder attacks. Security policies violations, Crimes related to social media, ATM, Online and Banking Frauds. Intellectual Property Frauds. Cyber Crimes against Women and Children.

Unit IV A global perspective on cybercrimes

Phases of cyber-attack–Reconnaissance, Passive Attacks, Active Attacks, Scanning, Gaining Access, Maintaining Access, Lateral movement, and Covering Tracks. Detection Avoidance, Types of Attack vectors, Zero-day attack, Overview of Network based attacks.

Unit V Cyberspace and Cybercrime

The World Wide Web, Web Centric Business, e-Business Architecture, Models of e-Business, e-Commerce, Threats to virtual world. Cyber Crimes-Cyber Squatting, Cyber Espionage, Cyber Warfare, Cyber Terrorism, Cyber Defamation. Social Media-Online Safety for women and children, Misuse of Private information.

List of Practical:

1. Review write a report of status of cybercrime in India.
2. Record a dummy crime scene by using appropriate sketching method.
3. Record a dummy crime scene by using appropriate videography method.
4. Search and collect evidence related to digital and cybercrime from a dummy crime scene.
5. Pack, seal and label evidence related to digital and cybercrime from a dummy crime scene.
6. Write a review on organizational setup of forensic science in India.

Suggested readings:

1. Nina Godbole and Sunit Belapore; “Cyber Security: Understanding Cyber Crimes, Computer Forensics and Legal Perspectives”, Wiley Publications, 2011.
2. Shon Harris, “All in One CISSP, Exam Guide Sixth Edition”, McGraw Hill, 2013.
3. Bill Nelson, Amelia Phillips and Christopher Steuart; “Guide to Computer Forensics and Investigations” –3rdEdition, Cengage, 2010 BBS.
4. William Stallings; “Cryptography and Network Security: Principles and Practices”, Fifth Edition, Prentice Hall Publication Inc., 2007.
5. Atul Jain; “Cyber Crime: Issues, Threats and Management”, 2004.
6. Majid Yar; “Cybercrime and Society”, Sage Publications, 2006.
7. Michael E Whiteman and Herbert J Mattord; “Principles of Information Security”, Vikas Publishing House, New Delhi, 2003.
8. Matt Bishop, “Computer Security Art and Science”, Pearson/PHI, 2002.

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SEMESTER-I

BDCF102 COMPUTER ORGANIZATION

COURSE CODE	CATEGORY	COURSE NAME	TEACHING & EVALUATION SCHEME								
			THEORY			PRACTICAL		L	T	P	CREDITS
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
BDCF102	Minor	Computer Organization	60	20	20	60	40	4	0	4	6

Legends: **L** - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **P** – Practical: **C** - Credit; Th. - Theory
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COURSE OBJECTIVES
The student will have ability to:
1. Understand architecture of a computer system.
2. Basic concept of Operating System.
3. concepts of processor management and memory management techniques.
4. Familiar with how operating system works.

COURSE OUTCOMES
Upon completion of the subject, students will be able to:
1. Able to demonstrate operating system structure.
2. Understand the internal design of operating system.
3. Understand scheduling and memory management techniques.
4. Management of a computer system.
5. Register and transfer of data and micro-operations.

COURSE CONTENT

Unit-I
Introduction to Central Processing Unit, General register organization, Stack organization, Instruction formats, Addressing modes. Process concept, process control block, Process states, Processing scheduling. Scheduling criteria, measurement of performance of processor.

Unit-II
Introduction to number system, character codes, logic gates, encoders, decoders, Logical and physical address space, memory management, Contiguous, non-contiguous allocations, Virtual memory.

Unit-III
Thrashing and allocation of frames, various I/O devices, device drivers, Structure of I/O software, operation, secondary storage structure, disc management, swap space management, introduction to disc scheduling algorithms.

Unit-IV

Register Transfer, register transfer language, instruction codes, bus and memory transfer, arithmetic micro-operations, arithmetic logic shift unit, logic micro-operations, arithmetic logic shift unit, shift micro-operations.

Unit-V

Computer registers, computer instructions, instruction codes, instruction cycle, instruction timing, instruction control, memory reference instructions, register reference instructions, input and output instructions.

List of Practical:

1. How to log in and get familiar with linux desktop.
2. Understanding linux shell.
3. Different types of text editors.
4. How to use vi editor.
5. How to correct typing errors.
6. Simple shell commands like date, cal, who, tty, uname, passwd. bc.
7. Use of commands pwd, cd, mkdir, rmdir, ls, pr.
8. How to use commands cat, cp, mv, wc, rm.
9. Working with file attributes.
10. Changing file permissions.
11. Changing ownership of fil

Suggested Reading:

1. V. Krishnamurthy, “Combinatories: Theory and Applications”, 2nd Edition, East-West Press, 2008.
2. Seymour Lipschutz, M. Lipson, “Discrete Mathemataics”,3rd Edition, Tata McGraw Hill, 2009.
3. Behrouz A. Forouzan, “Data communication and Networking”, Fourth Edition, Tata McGraw Hill, 2011.
4. Larry L. Peterson, Peter S. Davie, “Computer Networks”, Fifth Edition, Elsevier, 2012.