

FACULTY OF COMPUTER APPLICATIONS
Bachelor of Computer Applications

- **Sem.:** 6
- **Subject Code:** 05BC3606
- **Subject:** Cyber Security Fundamentals
- **Course Objectives:**
 1. Acquire a foundational understanding of cyber security concepts.
 2. Gain insights into the various types of cyber attacks and cybercrimes, recognizing their mechanisms and impacts.
 3. Learn about different cyber attack methodologies and the strategies for their prevention.
 4. Understand the application and effectiveness of diverse tools and technologies in cybercrime prevention and security enhancement.
 5. Understand legal aspect of Cyber Crime and Security.

Prerequisites : Basic knowledge of computers, Internet, operating system and Networking.

Unit No	Topics Covered	No of lectures required
1	Introduction to Cyber Security Cybercrime and origins of the world, Cybercrime and information security, Classifications of cybercrime, Cybercrime and the Indian ITA- 2000, A global Perspective on cybercrimes.	10
2	Cyber offenses How criminal plan the attacks, Social Engineering, Cyber stalking, Cyber café and Cybercrimes, Botnets, Attack vector	08
3	Phishing and Identity Theft Introduction, Phishing: Methods of Phishing, Phishing Techniques, Spear Phishing, Types of Phishing Scams, Phishing Toolkits and Spy Phishing, Phishing Countermeasures Identity Theft (ID Theft): Personally, Identifiable Information (PII), Types of Identity Theft, Techniques of ID Theft, Identity Theft-Countermeasures, How to Protect your Online Identity.	08
4	Systems and Network Vulnerability Scanning	10

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	<p>Overview of vulnerability scanning, Open Port/ Service Identification, Banner / Version Check, Networks Vulnerability Scanning - Netcat, Socat, Network Reconnaissance – Nmap.</p> <p>Tools and Methods Used in Cybercrime</p> <p>Introduction, Proxy Servers and Anonymizers, Password Cracking, Keyloggers, Virus and Worms, Trojan Horses and Backdoors, Steganography, DoS and DDoS Attacks, SQL Injection.</p>	
5	<p>Cybercrimes and Cybersecurity: The Legal Perspectives</p> <p>Introduction, Why Do We Need Cyberlaws: The Indian Context, The Indian IT Act, Challenges to Indian Law and Cybercrime Scenario in India, Consequences of Not Addressing the Weakness in Information Technology Act, Amendments to the Indian IT Act, Cybercrime and Punishment. Digital Personal Data Protection (DPDP) Act, 2023 – Salient Features.</p>	9

Course Outcomes:

1. Demonstrate understanding of basic concepts in cyber security
2. Analyze threats and risks within context of the cyber security architecture.
3. Examine the performance and troubleshoot Network and Cyber security systems.
4. Make use of various tools and methods used in cybercrime
5. Evaluate cyber activities which are considered as crime as per IT Act.

Course Outcomes – Program Outcomes Mapping Table:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1				H		M	M	L	L	L	L
CO2				H		M	M	L	M	L	M
CO3	H	H	H	M		H	M	H	H	M	H
CO4	H	H	H	M		H	M	H	H	M	H
CO5	L			H			M		L	L	L

Text Book:

1. “Cyber Security Understanding Cyber Crimes, Computer Forensics and Legal Perspectives”, Nina Godbole and Sunit Belpure, Wiley Publication, 1st Edition.

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2. “Anti-Hacker Tool Kit (Indian Edition)”, Mike Shema, Mc Graw Hill Publication, 4th Edition.

Reference Book:

1. “Cyber Security Essentials”, James Graham, Richar Howard, Ryan Olson, CRC Press, Tailor and Francis Group, 1st Edition.
2. “Cyber Security and Global Information Assurance: Threat Analysis and Response Solutions”, Kenneth J. Knapp, IGI Global, 2009-1st Edition.
3. Cyber Security and Cyber Laws Paperback”, Alfred Basta, Nadine Basta, Mary Brown, Ravinder Kumar, Cengage publication, 1st Edition.

Web References :

4. <https://www.sans.org/cybersecurity>
5. <https://www.tecmint.com/>
6. <https://www.meity.gov.in/content/cyber-laws>

Syllabus Coverage from Main reference:

Unit #	Chapter Numbers
1	Book 1 Chapter 1
2	Book 1 Chapter 2
3	Book 1 Chapter 5
4	Book 2: Chapter 4: 4.1 and 4.2, Chapter 7, 8, 9 ,10.1 to 10.5
5	Book 1 Chapter 4: 4.1 to 4.10, Chapter 6