

Program Name	B. Tech. (Computer Engineering)	Semester – VII
Course Code	R4CO4002T	
Course Title	Cyber Security	
Prerequisite	Computer Network	

COURSE OUTCOMES: Students will be able to

1.	Identify cybercrimes, and respective cyber laws
2.	Build the secure Network infrastructure and reduce the risk of attacks.
3.	Reduce the risk of data theft and web application attacks.
4.	Explore the Security and Forensic Best Practices in Advanced Domain.

COURSE CONTENTS

	Hrs	CO
1. Cyber Threats and Attacks and laws: What is Cyber Security, its needs, Security Parameters, Vulnerabilities, cybercrimes and stalking, Hacking Phases, Investigation of Cyber Crimes And evidential aspects of cyber laws, IT Acts-2000 and cybercrimes, IPR, Media Law, IPC for cyber-crimes, CrPC and IT Act 2000, International cyber laws, Cyber-crime case studies.	4	1,2
2. TCP/IP Stack: Vulnerabilities and attacks on TCP/IP stack- DOS: R2L, U2R, probing, Vulnerabilities and Attack on Application Layer Protocols, Transport Layer (TCP/UDP), Internet Layer. Data communication/ Link Layer Attacks and Defense Mechanisms, Cryptanalysis Techniques and building robust algorithms of cryptography.	7	1,2
3. TCP/IP Routing and security Protocols: Vulnerabilities and Attacks On TCP/IP routing protocols and security protocols and their defense mechanisms.	7	1,2
4. Secure Network Design; Networking Scanning- secure Network Architecture design, Network Security Devices-firewall's, intrusion prevention systems, router attacks and defense mechanism, network analysis Tools-wire shark and NMAP., Case Studies	7	2,3
5. Web Application Attacks and Security- Web program security, OWASP And Defense Mechanism, access control hardening LINUX OS for cyber security- Web Server and data base servers' attacks and security and forensic, digital payments and dangers to credit cards on Net-SET	7	3
6. Advances in domain- Hand Held Devices and cloud attacks, security and forensic. Security and Forensic Best practices, Case Studies	7	3,4

TEXTBOOKS

1. Dr. B.B. Meshram, Ms K.A. Shirsath, “TCP/IP and Network Security: Attacks and Defense Mechanisms with Open-Source Tools”, Shroff Publishers & Distributors PVT. LTD, 1st edition, 2017
2. William Stallings, “Cryptography and Network Security”, Pearson Education/PHI, 2006.

RECOMMENDED READING

- 1 Digital Forensics, DSCI - Nasscom, 2012.
- 2 Cyber Crime Investigation, DSCI - Nasscom, 2013
- 3 Charles Pfleeger, “Security in Computing”, 4th Edition, Prentice Hall of India, 2006.
- 4 Joakim Kävrestad, “Fundamentals of Digital Forensics: Theory, Methods, and Real-Life Applications”, Springer