

COURSE TITLE	CYBER SECURITY
COURSE CODE	01AI0509
COURSE CREDITS	4

Objective:

- 1 Objective of this course that provides students basic knowledge and skills in the fundamental theory and practical of Cyber Security.
- 2 -

Course Outcomes: After completion of this course, student will be able to:

- 1 Understanding the basic technical, social and law suits aspect of Cyber Security (Remember)
- 2 Integrate the ethical hacking process and scripting. (Create)
- 3 The students can use basic security tools to enhance cyber security. (Analyse)
- 4 Understand the security management methods and auditing. (Evaluation)
- 5 Apply the security principles to system design. (Apply)

Pre-requisite of course:NA

Teaching and Examination Scheme

Theory Hours	Tutorial Hours	Practical Hours	ESE	IA	CSE	Viva	Term Work
3	0	2	50	30	20	25	25

Contents : Unit	Topics	Contact Hours
1	Introduction Introduction to Cyber Security, Importance and challenges in Cyber Security, Cyberspace, Cyber threats, Cyber warfare, CIA Triad, Cyber Terrorism, Cyber Security of Critical Infrastructure, Cyber security - Organizational Implications	11
2	Hackers and Cyber Crimes: Types of Hackers, Hackers and Crackers, Cyber-Attacks and Vulnerabilities, Malware threats, Sniffing, Gaining Access, Escalating Privileges, Executing Applications, Hiding Files, Covering Tracks, Worms, Trojans, Viruses, Backdoors	11
3	Ethical Hacking and Social Engineering: Ethical Hacking Concepts and Scopes, Threats and Attack Vectors, Information Assurance, Threat Modeling, Enterprise Information Security Architecture, Vulnerability Assessment and Penetration Testing, Types of Social Engineering, Insider Attack, Preventing Insider Threats, Social Engineering Targets and Defence Strategies	12

Contents : Unit	Topics	Contact Hours
4	Cyber Forensics and Auditing Introduction to Cyber Forensics, Computer Equipment and associated storage media, Role of forensics Investigator, Forensics Investigation Process, Collecting Network based Evidence, Writing Computer Forensics Reports, Auditing, Plan an audit against a set of audit criteria, Information Security Management System Management, Introduction to ISO 27001:2013	11
5	Cyber Ethics and Laws Introduction to Cyber Laws, E-Commerce and E-Governance, Certifying Authority and Controller, Offences under IT Act, Computer Offences and its penalty under IT Act 2000, Intellectual Property Rights in Cyberspace	11
Total Hours		56

Suggested List of Experiments:

Contents : Unit	Topics	Contact Hours
1	Practical 1 Install VM Workstation in Ubuntu and set up windows and kali.	2
2	Practical 2 Set up nginx and provide password credentials with Secure Socket Layer.	2
3	Practical 3 Write a program to sniff packet sent over the local network.	2
4	Practical 4 To perform DNS Pharming attack using any method on computers in a LAN Environment.	2
5	Practical 5 Implement system hacking using tools.	2
6	Practical 6 Create virus with python script and implement attack and analyse the effect of various viruses.	2
7	Practical 7 Sniffing Website Credentials using Social Engineering Toolkit.	2
8	Practical 8 Study and Audit Marwadi University IT Infrastructure.	2
Total Hours		16

Textbook :

- Enterprise Cybersecurity -How to Build a Successful Cyberdefense Program Against Advanced Threats , Donaldson, S., Siegel, S., Williams, C.K., Aslam, A. , A-press , -

References:

- 1 Donaldson, S., Siegel, S., Williams, C.K., Aslam, A., Donaldson, S., Siegel, S., Williams, C.K., Aslam, A., Donaldson, S., Siegel, S., Williams, C.K., Aslam, A., A-press, -
- 2 Cyber Security, Cyber Security, Nina Godbole, Sumit Belapure, Willey, -
- 3 Hacking the Hacker, Hacking the Hacker, Roger Grimes, Wiley, -

Suggested Theory Distribution:

The suggested theory distribution as per Bloom's taxonomy is as follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

Distribution of Theory for course delivery					
Remember / Knowledge	Understand	Apply	Analyze	Evaluate	Higher order Thinking / Creative
20.00	0.00	25.00	20.00	15.00	20.00

Supplementary Resources:

- 1 <https://www.netacad.com/courses/introduction-to-cybersecurity>
- 2 <https://www.nist.gov/itl/applied-cybersecurity/nice/resources/online-learning-content>
- 3 <https://www.cybrary.it/free-content>