



VIZIANAGARAM
VIZIANAGARAM – 535 003, Andhra Pradesh, India
B.Tech CSE (R23-COURSE STRUCTURE & SYLLABUS)

IV Year I Semester	CYBER SECURITY (OPEN ELECTIVE-III)	L	T	P	C
		3	0	0	3

Course Objective:

1. To introduce keywords and jargons involved in securing browser
2. Understanding network basic and familiarize on security of network protocols
3. Awareness and understanding on cyber-attacks and data privacy

Course Outcomes:

By the end of this course, the student will be able to

1. Understand the basics and need for information security
2. Identify, analyze, and evaluate infrastructure and network vulnerabilities.
3. Understand and analyze different access control and authentication methods.
4. Identify and assess current and anticipated security risks and vulnerabilities with vulnerability assessment and auditing methods.
5. Learn the fundamentals of cryptography and how cryptography serves as the central language of information security.

UNIT-I:

Introduction to Security: Challenges of Securing Information, Definition of Information Security, Attackers, Attacks and Defenses.

Systems Threats and Risks: Software-Based Attacks, Hardware-Based Attacks, Attacks on Virtualized Systems, Hardening the Operating System, Preventing Attacks that Target the Web Browser, Hardening Web Servers, Protecting Systems from Communications-Based Attacks, Applying Software Security Applications.

UNIT-II:

Network Vulnerabilities and Attacks: Network Vulnerabilities, Categories of Attacks, Methods of Network Attacks.

Network Defenses: Crafting a Secure Network, Applying Network Security Devices, Host and Network Intrusion Prevention Systems (HIPS/NIPS), Protocol Analyzers, Internet Content Filters, Integrated Network Security Hardware.

UNIT-III:

Access Control: Access Control Models and Practices, Logical Access Control Methods, Physical Access Control.

Authentication: Definition of Authentication, Authentication Credentials, Extended Authentication Protocols, Remote Authentication and Security.



VIZIANAGARAM
VIZIANAGARAM – 535 003, Andhra Pradesh, India
B.Tech CSE (R23-COURSE STRUCTURE & SYLLABUS)

UNIT-IV:

Vulnerability Assessment: Risk Management, Assessment, and Mitigation, Identifying Vulnerabilities.

Security Audit: Privilege Auditing, Usage Auditing, Monitoring Methodologies and Tools.

UNIT-V:

Cryptography: Introduction to Cryptography, Cryptographic Algorithms, Using Cryptography on Files and Disks, Digital Certificates, Public Key Infrastructure, Key Management.

Text Book:

- i. Security+ Guide to Network Security Fundamentals, Third Edition, Mark Ciampa, Cengage Learning.

References:

- i. Principles of Information Security, Michael E. Whitman and Herbert J. Mattord, Cengage Learning.
- ii. Information Security: The Complete Reference, Rhodes-Ousley, Mark, Second Edition, McGraw-Hill.
- iii. Information Security: Principles and Practices, Mark S. Merkow, Jim Breithaupt, 2nd Edition, Pearson Education.