SNS COLLEGE OF TECHNOLOGY

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COIMBATORE-641 035, TAMIL NADU

COURSE NAME : 23CAE707 – Ethics in Information Technology

I YEAR / II SEMESTER

UNIT – II

Topic: Computer Security Measures

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Introduction

What is Computer Security?

- Computer security, also known as **cyber security**, refers to the protection of computer systems, networks, and data from unauthorized access, cyber attacks, theft, damage, or disruption. It involves implementing security measures such as encryption, firewalls, authentication mechanisms, and intrusion detection systems to ensure the confidentiality, integrity, and availability of digital assets.

Types of Security Threads

- Malware (Viruses, Worms, Trojans, Ransomware, Spyware)
- Phishing Attacks
- Hacking & Unauthorized Access
- Data Breaches
- Denial of Service (DoS) Attacks
- Insider Threats

Authentication and Access Control

- Strong Password Policies
- Multi-Factor Authentication (MFA)
- Role-Based Access Control (RBAC)
- Biometrics and Security Tokens

Network Security Measures

- Firewalls and Intrusion Detection Systems (IDS)
- Virtual Private Networks (VPNs)
- Secure Wi-Fi configurations
- Network segmentation

Endpoint Security

- Antivirus and Anti-Malware Software
- Regular Software Updates and Patching
- Secure Device Configurations
- Data Encryption on Endpoints

Data Protection Strategies

- Data Encryption (AES, RSA, SSL/TLS)
- Backup and Disaster Recovery Plans
- Secure Cloud Storage Practices
- Data Loss Prevention (DLP) Techniques

Cybersecurity Awareness & Best Practices

- Regular Security Training for Employees
- Recognizing Phishing and Social Engineering Attacks
- Safe Internet and Email Practices
- Secure File Sharing & Remote Work Security

Incident Response and Recovery

- Steps to Handle a Security Breach
- Reporting and Investigating Cyber Incidents
- Implementing Corrective Actions
- Continuous Monitoring and Threat Intelligence

Legal and Ethical Considerations

- Cyber Laws and Regulations (GDPR, IT Act 2000, HIPAA, PCI-DSS)
- Ethical Hacking and White-Hat Security Practices
- Organizational Compliance Requirements

Data Protection Strategies