AMHE27 SECURITY MANAGEMENT, AUDIT ASSURANCE AND RISK MANAGEMENT

UNIT-1 ESSENTIALS OF COMPUTER SECURITY

1.1 Sources of security threats-

1.2 Intruders, Viruses, Worms and related threats

1.3 Threat identification- Threat analysis- Vulnerability identification and Assessment

1.4 Components of Computer Security- Physical security-

1.5 System access control- Goals of Security-

1.6 Efforts to secure computer networks- Ethical issues in Computer Security- Operational issues, Human issues.

UNIT-2 CRYPTOGRAPHY

2.1 Public Key Cryptography- Principles of Public Key Cryptosystems- .

2.2 The RSA Algorithm- Key Management- Authentication- Elements, types and methods-

2.3 Digital Signature- Intrusion Detection System (IDS) - Types and challenges- Intrusion prevention system (IPS)- Firewalls- Design Principles, Scanning, filtering and blocking.

UNIT-3 VULNERABILITIES

3.1 Sources of vulnerabilities,

3.2 Vulnerability identification and Assessment, Cybercrime and Hackers,

3.3 Viruses and content filtering - Security Assessment, Analysis and Assurance

3.4 Computer network security protocol and standards- Security Policies- Integrity policies- confidentiality policies- Security models- Access Control Matrix Model, Take-Grant Protection Model.

UNIT-4 SECURITY MONITORING AND AUDITING

4.1 Assurance and Trust, Need for Assurance, Role of Requirements in Assurance, Audit Assurance in Software Development Phases, Building Secure and Trusted Systems

4.2 Designing an Auditing System, Implementation Considerations, Auditing to Detect Violations of a security Policy, Auditing Mechanisms, and Audit Browsing.

UNIT-5 RISK MANAGEMENT AND SECURITY PLANNING

5.1 Risk management Process Overview- Cost-Benefit Analysis,

5.2 Risk Analysis, Laws and Customs, Human Issues, Organizational issues-

5.3 Information system Risk analysis- System approach to risk management, Threat assessment, Assets and safeguards, modes of risk analysis

5.4 Effective risk analysis, Qualitative Risk analysis, Value analysis

Reference Books

1. Joseph M.Kizza, "Computer Network security", Springer, 2005
2. Matt Bishop, "Introduction to Computer Security", Addison-Wesley Professional, 2005.