

H.N.G. University, Patan
M.C.A – Semester - IV
MCA-45: Computer Security

Unit : 1 **[25%]**

Introduction: What Does "Secure" Mean?, Attacks, The Meaning of Computer Security, Computer Criminals, Methods of Defense.

Cyber Security: Making a Business Case, Quantifying Security, Modeling Cyber-security, Current Research and Future Directions

Unit : 2 **[25%]**

System Security

- Intruders
 - Intruders, Intruders detection, Password management.
- Malicious Software
 - Viruses and Related Threats
- Firewalls
 - Firewalls Design principle, established systems.

Unit : 3 **[25%]**

Cryptography

- Foundations of cryptography and computer security
 - Mathematical foundations, Randomness
 - Symmetric key cryptography
 - Classical Encryption Techniques
 - Block Ciphers and The Data Encryption Standard
 - Advance Encryption Standard
 - Confidentiality Using Symmetric Encryption
 - Public key cryptography
 - Public Key Cryptography And RSA
- Message Authentication and Hash Function

Unit : 4 **[25%]**

Network Security

- Protocols: Digital Signature standards
- Electronics Mail Security - PGP (Pretty Good Privacy) MIME, data Compression technique
- IP Security: Architecture, Authentication Leader, Encapsulating security Payload– Key management
- Web security: -Secure Socket Layer & Transport Layer security, secure electronics transactions

Text Books:

1. Security in Computing, Fourth Edition By Charles P. Pfleeger, Shari Lawrence Pfleeger
Publisher: Prentice Hall.
2. Cryptography and Network Security (2nd edition) William Stallings(Pearson Education).

Reference Books:

1. Computer Security Basics by Debby Russell, G.T. Gangemi (Orielly)
2. Network Security Private Communication in a Public World by Charlie Kamfman, Radia Parolman, Mike Speciner