H.N.G. University, Patan
M.Sc.(C.A. & I.T.) SEMESTER - VIII
804 : 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 i n a Public World by Charlie Kamfman, Radia Parolman, Mike Speciner