

## MCPE2017 NETWORK SECURITY (3-0-0)

### Course Objective:

This course provides an essential study of network security issues and methods in networking systems.

**Module 1:** Introduction to Network security, Model for Network security, Model for Network access security, Real-time Communication Security: Introduction to TCP/IP protocol stack, Implementation layers for security protocols and implications, IPsec: AH and ESP, IPsec: IKE.

**Module 2:** Media- Based-Vulnerabilities, Network Device Vulnerabilities, Back Doors, Denial of Service (DoS), Spoofing, Man-in-the-Middle, and replay, Protocol -Based Attacks, DNS Attack, DNS Spoofing, DNS Poisoning, ARP Poisoning, TCP/IP Hijacking, Virtual LAN (VLAN), Demilitarization Zone (DMZ) , Network Access Control (NAC), Proxy Server, Honey Pot, Network Intrusion Detection Systems (NIDS) and Host Network Intrusion Prevention Systems Protocol Analyzers, Internet Content Filters, Integrated Network Security Hardware.

**Module 3:** Authentication: Kerberos, X.509 Authentication Service, Scanning: Port Scanning, Port Knocking-Advantages, Disadvantages. Peer-to-peer security. Electronic Mail Security: Distribution lists, Establishing keys, Privacy, source authentication, message integrity, non-repudiation, proof of submission, proof of delivery, message flow confidentiality, anonymity, Pretty Good Privacy (PGP)

**Module 4:** Firewalls and Web Security: Packet filters, Application-level gateways, Encrypted tunnels, Cookies. Assignments on the latest network security techniques, Security applications in wireless sensor networks and wireless Communication networks.

### Course Outcome:

Students can get knowledge about the network security, implementation and requirements after the successful completion of the course

### Text Book:

William Stallings, "Cryptography and Network Security – Principles and Practices", Prentice Hall of India, Third Edition, 2003.

### References:

1. Saadat Malik, Saadat Malik. "Network Security Principles and Practices (CCIE Professional Development)". Pearson Education. 2002. (ISBN: 1587050250).
2. Cisco: Fundamentals of Network Security Companion Guide (Cisco Networking Academy Program).
3. Mark Ciampa "Security + Guide to Network Security Fundamentals/Edition 3" Cengage Learning publisher, ISBN-10: 1428340661, ISBN-13: 978-1428340664.