

AMHE20 ADVANCED COMPUTER NETWORKS

UNIT-1 FUNDAMENTALS OF COMMUNICATION NETWORKS

- 1.1 Layers and standards
- 1.2 Packet and circuit switching
- 1.3 Protocols TCP/IP-Ipv6 addressing and routing.
- 1.4 Technical background- Signals and interference
- 1.5 Modulation and encoding-Switching and Multiplexing,
- 1.6 Coding and error control.

UNIT-2 NETWORK SECURITY

- 2.1 Requirement
- 2.2 Encryption- Decryption-
- 2.3 Message authentication and digital signature
- 2.4 Security in IP- QoS principles and protocols
- 2.5 Differential Service-RSVP and MPLS

UNIT-3 INTERNETWORKING

- 3.1 VLAN-Addressing and routing-network layer protocols-unicast and multicast routing
- 3.2 Mobile IP routing-Ad hoc networks routing
- 3.3 Evolution in the Ethernet-Switched and fast Ethernet-Infrastructure-Scaling to Gigabit architectures
- 3.4 Performance consideration-Physical components and wire protocols.

UNIT-4 OPTICAL NETWORKS

- 4.1 Optical layers
- 4.2 Services and interfacing
- 4.3 Photonic packet switching-
- 4.4 Access networks-Network survivability- Protection-
- 4.5 Optical IP- OTN/SONET/SDH layers structure and design relation to 10 Gigbps Ethernet.

UNIT-5 ADVANCED TOPICS

- 4.1 SAN (Storage Area Networks) and InfiniBand architectures
- 4.2 Home networking
- 4.3 DSL cable modems- Zero copy systems
- 4.4 Intelligent networks-Future directions

Reference Books:

1. Ramaswami R and Sivarajan K, "Optical Networks: A Practical Perspective", Morgan Kaufmann, 2001.
2. Clark T, "IP SANs", Addison Wesley, 2002.
3. Kurose J.F, Ross K.W, "Computer Networking, Top-down Approach Featuring the Internet", Addison Wesley, 2005.