CS637 HIGH SPEED NETWORKS
(Elective –II)

Objectives of the Course:

- To explain local area wireless network technologies (802.11 and Bluetooth) and their security weaknesses.
- To Architect a secure wireless network infrastructure for their organization, including strong encryption and centralized authentication.
- To explain hacker threat and the major techniques hackers use against wireless networks.
- To use various hacking and vulnerability assessment tools to assess the security of their own networks.
- To identify (and fix) vulnerabilities and mis-configurations in major wireless network technologies

UNIT - I
Switching and Data Transmission
ISO-OSI reference model. TCP/IP reference model, Circuit-switched networks, Datagram networks, Virtual-circuit networks, Structure of a switch, Telephone network, Dial-up modems, Digital Subscriber line, Cable TV networks

Data Link Layer
Error Detection and Correction: Introduction, Block coding, Linear Block codes, Cyclic codes, Checksum - Data Link Control: Framing, Flow and Error control, Protocols, Noiseless channels, Noisy channels, HDLC, Point-to-Point Protocol

UNIT - II
Multiple Access: Random Access, Controlled Access, Channelization – Connecting Devices: Connecting LANs, Backbone Networks, Virtual LANs.

High Speed Networks

UNIT - III
Network Layer

Transport Layer and Application Layer
Protocols: Process-to-Process delivery, User Datagram Protocol (UDP), TCP, SCTP - Congestion control: Data traffic, Congestion, Congestion control, Quality of Service
UNIT - IV

Domain Name System: Name space, Domain Name Space, Distribution of Name Space, DNS in the internet, Resolution, DNS messages, E-mail

Needs and Goals for Network Design


UNIT - V

Logical Network Design


Designing Models for Addressing and Naming: Guidelines for Assigning Network Layer Addresses, Using a Hierarchical Model for Assigning Addresses, Designing a Model for Naming.

Selecting Switching and Routing Protocols


TEXT BOOKS:


REFERENCE BOOKS:

5. Computer Communications Networks, Mir, Pearson Education.