

Computer Networking

Unit – 1 Introduction to LAN

Basic LAN terminology, standards, operation and topology, Network architecture and protocols; Network architecture concepts, Basic concepts of layering, Layers of the OSI Model: application layer, presentation layer, session layer, transport layer, network layer, data link layer, transport layer, Internet layer.

Unit – 2 Data Communication and access technique

Basic concepts, signal encoding techniques, error detection, error correction, data link control. Performance measures and notation, ALOHA; pure ALOHA, slotted ALOHA, carrier sense multiple access; non persistent CSMA, slotted non-persistence CSMA, 1- persistence CSMA, n-persistence CSMA, CSMA with collision detection, control access schemes, polling, token passing, switched access methods. Standard Ethernet, fast Ethernet, its architecture, physical media for 100-Base-T, data encoding for fast Ethernet, network spans using 100-Base-T, Switched Ethernet, Gigabit Ethernet; its architecture, general functions, transmission media, gigabit Ethernet encoding schemes.

Unit – 3

Token Passing LAN, token-ring operation, IEEE-802.5 frame structure, ring configurations, ring management, token-ring performance analysis, dedicated rings, high-speed token rings, FDDI and CDDI; FDDI MAC layer, FDDI Access methods, FDDI physical layer, station management, CDDI/TP-PMD.

Recommended List of Books:

- 1) Forouzen, TCP/IP Protocol Suit, TMH, New Delhi
- 2) William Stallings, Data and Computer Communiactions,
- 3) Gerd Keiser, Local Area Networks, THM, New Delhi
- 4) M A Miller, LAN Troublshooting Hnadbook, BPB Publications, New Delhi
- 5) Tanenbaum, Computer Networks, PHI, New Delhi
- 6) Barry Nawce, Introduction to Networking, Prentice Hall

Advance Networking and Cyber Security

Unit – 1

ATM LAN: ATM fundamentals, its architecture and layers, ATM cell structure, ATM service categories, various ATM Adaptation layers. Wireless LAN: Concepts, its architecture, layers and configuration, MAC layer, operation, services and frame format, Spread-Spectrum Wireless LAN system, frequency- hopping spread spectrum, direct sequence spread spectrum,

Infrared wireless LAN, Physical layer protocols, Wireless PAN; Bluetooth technology, Bluetooth packets, wireless home networking.

Unit – 2

Fiber Channel and SAN: Storage Area Networks (SANs) structure of fiber channel; concept of I/O channel, physical architecture, transmission media, Protocol layers, Fiber channel service classes (class 1,2,3,4,6 services). Internetworking: Internetworking perspective; interconnection methodologies, internet addressing schemes, domain name system, Bridges transparent bridges, source routing bridge, translating bridge, Routers and Switches; router types, interface to the internet, router operations generic switch characteristics, LAN switches layer-3 switching, Virtual LAN; its types and IEEE standards.

Unit – 3

Network Management: Basic network management architecture and its functions; performance management, configuration management, accounting management, fault and security management, LAN element management, Network management protocols (SNMP, RMON, SMON), LAN operation management, network planning and simulation tools.

Network Security: Basic security issues and policies, Cryptography, Firewalls, Access control methods, Public-key Infrastructure, IP security, Virtual private network.

Recommended List of Books:

- 1) Forouzen, TCP/IP Protocol Suit, TMH, New Delhi
- 2) William Stallings, Data and Computer Communiactions,
- 3) Gerd Keiser, Local Area Networks, THM, New Delhi
- 4) M A Miller, LAN Troublshooting Hnadbook, BPB Publications, New Delhi
- 5) Tanenbaum, Computer Networks, PHI, New Delhi
- 6) Barry Nawce, Introduction to Networking, Prentice Hall

Integrated Circuit Technology

Unit – 1

Classification of ICs, Electronic grade silicon, Czochralksi and flot zone, crystal gworing methods, oxygen and carbon in silicon, silicon shaping and wafer preparation, Oxidation-thermal, dry & wet, high pressure and plasma oxidation, lithographs-optical lithography, photo-mask, photo-resist and process, X-ray and ion beam lithography, wet chemical etching, reactive plasma etching, impurity doping, diffusion ion implantation, metallization, its desirable properties and applications, Ohmic contacts

Unit – 2