VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT

T.Y. BSc

Electronics

IDS : Computer Networking

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, LAN protocols; IEEE 802, LLC,MAC sub layer.

DATA COMMUNICATION :

Basic concepts, signal encoding techniques, error detection, error detection, error correction, data link control, transmission media multiplexing.

LAN ACCESS TECHNIQUES :

Performance measures and notation, ALOHA ; pure ALOHA, slotted ALDHA, carrier sense multiple access ; non persistent CSMA, slotted non-persistence CSMA, 1-persistance CSMA, n-persistence CSMA, CSMA with colliation detection, control access schemes, polling, token passing, switched access methods.

ETHERNET :

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.

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.

ATM 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.

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 brides, 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.

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 polices, Cryptography, Firewalls, Access control methods, Public-key Infrastructure, IP security, Virtual private network.

LIST OF RECOMMENDED BOOKS

1. Gerd Keiser, Local Area Networks, 2nd Ed, TMH,New Delhi.
2. Mark A Miller, LAN Troubleshooting Handbook, 2nd Ed, BPB Publication, New Delhi.
3. Tanenbaum, Computer Network, 3rd ED, PHI, New Delhi
4. Barry Nawce, Introductiobn to networking, prentice Hill
5. William Stallings, Data and Computer Communications.