COMPUTER NETWORKS

Course Code: CI43

Credits: 3:0:0

Pre requisites: Nil

Contact Hours: 42L

Course Coordinator: Dr. XYZ

Unit I

Network layer: Logical addressing IPV4 addresses, Address space, notations, classful and classless addressing with problem solving, NAT, IPV6 addresses; Network layer: Internet protocol - IPV4 datagram, fragmentation, checksum and options; IPV6 packet format, advantages and extension headers; Transition from IPV4 to IPV6.

Unit II

Address mapping, Error reporting, & Multicasting - Address mapping, ARP, RARP, BOOTP and DHCP; ICMP, IGMP. Network layer: Delivery, Forwarding, & Routing Direct Vs Indirect delivery, Forwarding Techniques, Forwarding Process, Routing Table; Unicast routing protocols with problem solving Optimization, Intra and Inter domain routing, distance vector routing, link state rout routing, path vector routing.

Unit III

Multicast routing protocols Introduction, applications, unicast routing vs multicast routing, source based tree routing, group shared tree routing, multicast distance vector. Transport Layer - Process-to-Process delivery, User Datagram Protocol, Transmission Control Protocol, SCTP- services, features.

Unit IV

Congestion control & QOS - Data traffic, Congestion, Congestion control, Two examples congestion control in TCP and Frame Relay, Quality of Service, Techniques to improve QOS. Application Layer: Domain Name System - Namespace, Domain name space, Distribution of Name space, DNS in internet, Resolution;

COMPUTER NETWORKS

Remote logging TELNET; Electronic mail Architecture, User Agent, Message Transfer Agent: SMTP; File transfer - File transfer protocol (FTP).

Unit V

Network Management: SNMP - Network management system; Simple Network Management Protocol concept, management components. Network Security - Security Services, Message confidentiality, Message integrity, Message Authentication, Digital Signature, Entity Authentication.