

Panipat Institute of Engineering & Technology

Department of CSE-AI&DS

LESSON PLAN

Subject: Computer Network

Subject code: ES-CS-AIDS-305

Session: Aug.- Dec 2023-24

Semester: 5th

S.No	Topic	CO Covered	Assignment No.	Teaching Methodology
1	Unit I: Introduction to Computer Networks: Data Communication System and its components	CO1	1	Whiteboard & Marker
2	Data Flow, Computer network and its goals. Types of computer networks: LAN, MAN, WAN	CO1	1	Whiteboard & Marker
3	Wireless and Wired networks. Broadcast and point-to-point networks	CO1	1	Whiteboard & Marker
4	Network topologies, protocols. Interfaces and services.	CO1	1	Whiteboard & Marker
5	ISO- OSI reference model.	CO1	1	Whiteboard & Marker
6	TCP/IP architecture.	CO1	1	Whiteboard & Marker
7	Physical Layer Concept of Analog Digital Signal. Bandwidth, Transmission Impairments: Attenuation, Distortion, Noise	CO2	1	Whiteboard & Marker
8	Multiplexing: Frequency Division, Time Division, Wavelength Division.	CO2	1	Whiteboard & Marker
9	Transmission Media: Twisted pair, Coaxial cable, Fiber optics. Wireless transmission (Radio, microwave, infrared)	CO2	1	Whiteboard & Marker
10	Switching: Circuit Switching, Message Switching, Packet Switching & comparisons. Narrowband ISDN, Broadband ISDN.	CO2	2	Whiteboard & Marker
11	Unit II: Data link layer: Error Control, Types of errors. Framing (Character and Bit stuffing)	CO3	2	Whiteboard & Marker
12	Error detection & correction methods; Flow control	CO3	2	Whiteboard & Marker
13	Protocols: Stop & wait ARQ, Go-Back- N ARQ. Sliding window protocols.	CO3	2	Whiteboard & Marker
14	Medium access sub layer: Point to point protocol. FDDI	CO3	2	Whiteboard & Marker
15	Token bus, token ring, Reservation, polling	CO3	2	Whiteboard & Marker
16	Multiple access protocols: Pure ALOHA, Slotted ALOHA,	CO3	2	Whiteboard & Marker
17	CSMA, CSMA/CD, FDMA, TDMA.	CO4	2	Whiteboard & Marker
18	FDMA, TDMA, CDMA, LLC	CO4	2	Whiteboard & Marker
19	Traditional Ethernet, fast Ethernet. Network devices-Repeaters, Hubs, Switches, Bridges, Router, Gateway	CO4	2	Whiteboard & Marker

20	Unit III: Network layer: Addressing: Internet address, sub-netting	CO4	2	Whiteboard & Marker
21	Routing techniques, static vs. dynamic routing, Routing table.	CO4	3	Whiteboard & Marker
22	DHCP, IEEE standards 802.x	CO4	3	Whiteboard & Marker
23	Routing algorithms: shortest path algorithm, flooding, Distance vector routing, Link state routing	CO5	3	Whiteboard & Marker
24	Protocols: ARP, RARP, IP, ICMP, IGMP, IPV4, IPV6	CO5	3	Whiteboard & Marker
25	Unicast and multicast routing protocols, ATM	CO5	3	Whiteboard & Marker
26	Unit IV: Transport layer: Process to process delivery, UDP; TCP, RPC	CO5	3	Whiteboard & Marker
27	Congestion control algorithm: Leaky bucket algorithm, Token bucket algorithm, choke packets	CO5	3	Whiteboard & Marker
28	Quality of service: techniques to improve QoS	CO6	3	Whiteboard & Marker
29	Application layer: DNS, SMTP, FTP, HTTP & WWW.	CO6	3	Whiteboard & Marker
30	S/MIME, IMAP, Firewalls, Bluetooth, Email	CO6	3	Whiteboard & Marker
31	Network Security: Cryptography, User authentication, Security protocols in internet	CO6	3	Whiteboard & Marker
32	Public key encryption algorithm, Digital Signature.	CO6	3	Whiteboard & Marker