Mr. Maulik D Trivedi | A.Y.: 2023-24 | Sem./Year: 5 | Course: 2101CS501 - Computer Network | Slot Type: Lab | Division: CSE-5A			
No.	**Course Content**	**Planning Title**	**Planning Description**
1	Introduction to computer networks and Internet	Study of basic networking commands and IP configuration.	1. ping 2. ipconfig / ifconfig 3. getmac 4. hostname 5. systeminfo 6. nslookup 7. tracert / traceroute 8. pathping 9. netstat 10. arp
2	Introduction to computer networks and Internet	Study of Transmission Media, Connectors and Crimping a LAN.	1. Study different types of network cables & connectors and practically implement the cross-wired cable using a crimping tool. 2. Study different types of network cables & connectors and practically implement the straight-through cable using a crimping tool.
3	The Link layer and Local area networks	Study of various networking devices.	1. Hub 2. Switch 3. Router 4. Bridge 5. Gateway 6. Modem (DSL and ADSL) 7. Ethernet Card
4	Introduction to computer networks and Internet	Installation of Network Simulator (Packet Tracer) and Implement different LAN topologies.	1. Point-to-Point Connection and Client-Server Connection 2. Bus 3. Ring 4. Star 5. Tree 6. Mash

5	Network Layer	Study of IP Addressing and sub-netting.	1. Find default subnet marks, network bits, host bits, hosts per subnet, no of subnets, subnet number, 1st valid IP address, last valid IP address, and broadcast address. a) 8.1.4.5/16 b) 130.4.102.1/24 c) 199.1.1.1/24 d) 130.4.102.1/22 e) 199.1.1.100/27 2. Determining the Subnet for Devices A and B: • Device A: 172.16.17.30/20 • Device B: 172.16.28.15/20
6	The Link layer and Local area networks	Study the concept of VLAN using packet tracer.	Implement the different network structures in VLAN and VLAN trunking.
7	Network Layer	Study the concept of routing using packet tracer.	1. Connect the two different networks based on the calculated IP addresses and subnet using a packet tracer. (Static & Dynamic Routing). 2. Connect the three different networks based on the calculated IP addresses and subnet using a packet tracer. (Static & Dynamic Routing).
8	Network Layer	To develop network using distance vector routing protocol and link state routing protocol.	1. C Program: Distance Vector Routing Algorithm using Bellman Ford's Algorithm. 2. C Program: Link state routing algorithm.
9	Application Layer	Study the application layer protocol DNS, DHCP, FTP.	Implement the application layer protocol DNS, DHCP, and FTP.
10	Transport Layer	Study Client-Server Socket programming - TCP & UDP.	Implement Client-Server Socket programming using C language.
11	Transport Layer	Study Packet capture and header analysis by wire-shark (TCP,UDP,IP)	Study Packet capture and header analysis by wire-shark (TCP, UDP and IP)
12	The Link layer and Local area networks	Study & survery of Institute organization network infrastructure.	Visit your Institute server room and various places where racks and servers are installed, identify various network components, and collect information about the installation of necessary hardware and software.