## Lesson Plan

Name of the Faculty : Sh. Shashi Bhushan

Discipline : Computer Engg.

Semester : 5th

Subject : **COMPUTER NETWORKS**

Lesson plan duration : (from 01st Sept 2023 to 15th Dec 2023)

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| Week | Theory Days | Syllabus | Practical Days | Practical |
| 1 | 1 | Concept of network, Models of network computing | Day 1 G1 | Recognize the physical topology and cabling (coaxial, OFC, UTP, STP) of a network. |
| 2 | Networking models, Peer-to –peer Network | Day 2 G2 | Recognize the physical topology and cabling (coaxial, OFC, UTP, STP) of a network. |
| 3 | Client-Server Network, LAN, MAN and WAN |
| 2 | 1 | Network Services, Topologies | Day 1 G1 | Recognition and use of various types of connectors RJ-45, RJ-11,BNC and SCST |
| 2 | Techniques Switching | Day 2 G2 | Recognition and use of various types of connectors RJ-45, RJ-11,BNC and SCST |
| 3 | Revision |
| 3 | 1 | OSI model: Definition, Layered Architecture Functions of various layers | Day 1 G1 | Making of cross cable and straight cable |
| 2 | OSI model: Definition, Layered Architecture Functions of various layers | Day 2 G2 | Making of cross cable and straight cable |
| 3 | Comparison between OSI and TCP/IP model |
| 4 | 1 | Concept addressing of physical and logical | Day 1 G1 | Install and configure a network interface card in a workstation. |
| 2 | IPV4 addresses – Address space, Notations | Day 2 G2 | Install and configure a network interface card in a |
| 3 | Classful Addressing- Different IP address |

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|  |  | classes, Classes & Blocks, Net-id & Host-Id, Masks, Address dep |  | workstation. |
| 5 | 1 | Classless Addressing – Address blocks, Masks | Day 1 G1 | Identify the IP address of a workstation and the class of the address and configure the IP Address on a workstation |
| 2 | Special IP Addresses | Day 2 G2 | Identify the IP address of a workstation and the class of the address and configure the IP Address on a workstation |
| 3 | Subnetting and Supernetting |
| 6 | 1 | Loop back concept | Day 1 G1 | Managing user accounts in windows and LINUX |
| 2 | Network Address Translation | Day 2 G2 | Managing user accounts in windows and LINUX |
| 3 | IPV4 Header |
| 7 | 1 | IPV6 Header | Day 1 G1 | Sharing of Hardware resources in the network. |
| 2 | Comparison between IPV4 and IPV6 | Day 2 G2 | Sharing of Hardware resources in the network. |
| 3 | Revision |
| 8 | 1 | Ethernet specification and standardization: 10 Mbps (Traditional Ethernet), 10Mbps(Fast Ethernet) and 1000 Mbps (Gigabit Ethernet) | Day 1 G1 | Use of Netstat and its options. |
| 2 | Ethernet specification and standardization: 10 Mbps (Traditional Ethernet), 10Mbps(Fast Ethernet) and 1000 Mbps (Gigabit Ethernet) | Day 2 G2 | Use of Netstat and its options. |
| 3 | Revision |
| 9 | 1 | Network connectivity Devices | Day 1 G1 | Connectivity troubleshooting using PING, IPCONFIG, IFCONFIG |
| 2 | NICs | Day 2 G2 | Connectivity troubleshooting using PING, IPCONFIG, IFCONFIG |
| 3 | NICs Hubs, Switches, Routers, Repeaters, Modem, Gateway |

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|  |  | Configuration |  |  |
| **10** | 1 | NICs Hubs, Switches, Routers, Repeaters, Modem, GatewayConfiguration | Day 1 G1 | Installation of Network Operating System(NOS) |
| 2 | Routers & Switches | Day 2 G2 | Installation of Network Operating System(NOS) |
| 3 | Routers & Switches |
| **11** | 1 | Network Security Principles, Cryptography, using secure protocols | Day 1 G1 | Visit to nearby industry for latest networking techniques |
| 2 | Trouble Shooting Tools: PING,IPCONFIG, IFCONFIG, NETSTAT,TRACEROOT,Wireshark, Nmap, TCPDUMP, ROUTEPRINT | Day 2 G2 | Visit to nearby industry for latest networking techniques |
| 3 | DHCP Server Workgroup/Domain Networking |
| **12** | 1 | Introduction to wireless LAN , IEEE 802.11, WiMax ad Li-Fi | Day 1 G1 | Create a network of at least 6 computers. |
| 2 | Wireless Security | Day 2 G2 | Create a network of at least 6 computers. |
| 3 | Introduction to bluetooth - architecture, application |
| **13** | 1 | Comparison between bluetooth and Wifi | Day 1 G1 | Create a network of at least 6 computers. |
|  | 2 | Revision | Day 2 G2 | Create a network of at least 6 computers. |
| 3 | Revision |
| **14** | 1 | Revision/Class Test | Day 1 G1 | Revision |
| 2 | Revision/Class Test | Day 2 G2 | Revision |
| 3 | Revision/Class Test |