LESSON PLAN (PVPSIT/ACD/01)

ACADEMIC YEAR : 2023-24

SUBJECT CODE & NAME : Computer Networks (20CS3503)

YEAR & SEMESTER : III B. Tech / I Semester / S2 / PVP20 Regulation

FACULTY NAME : Dr. S.Madhavi

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| **CO** | **COURSE OUTCOMES** | **LEVEL** |
| **CO1** | **Understand the basic concepts and protocols of different layers.** | **L2** |
| **CO2** | **Apply Error Correction or MAC Protocol mechanism for a given scenario.** | **L3** |
| **CO3** | **Apply various Addressing mechanisms /Routing protocols for a given network.** | **L3** |
| **CO4** | **Apply appropriate Transport & Application layer protocol for a given context.** | **L3** |
| **CO5** | **Analyze the given scenario and use appropriate methods/mechanisms/protocols for designing a network.** | **L4** |

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| **Unit No.** | **Topic of Syllabus to be covered** | **Learning outcomes** | **Teaching Mode** | **Hours Required** | | **Total No. of Hours**  **(Cumulative)** | **Expected date of completion (for each unit)** | **Review / Remarks (By HOD)** | | |
| **L** | **T** |
| I | **Introduction: -**Networks,  Network Types,  Network Models:  The Protocol Layering | Able to Understand different types of networks, introduces networks and able to define the criteria and structures. Able to understand four different network topologies, concepts of protocol layering,  Able to identify two principles upon which the protocol layering is based L2(CO1, CO3) | BB/LCD | 1 |  | 1 |  | |  |
| I | TCP/IP Protocol Suite, The OSI Model | Able to understand the functioning of the five layers of the TCP/IP protocol suite, and OSI model L2(CO1, CO3) | BB/LCD | 1 |  | 2 |  | |  |
| I | **Physical Layer :-**Transmission Media - Guided Media, Un-Guided Media | Summarize various types of Transmission media L2(CO1, CO3) | BB/LCD | 1 |  | 3 |  | |  |
| I | Data-Link Layer: Introduction to DLC: Introduction | Able to understand the DLL Nodes and links, services ,categories of links and two sub layers L2 (CO1, CO3) | BB/LCD | 1 |  | 4 |  | |  |
| I | Link Layer Addressing | Able to understand and Apply ARP protocol on an example (CO1, CO3) L3  Understand basic Link Layer Addressing L2 | LCD | 1 |  | 5 |  | |  |
| I | Error Detection and Correction  Introduction | Able to Recognize various the Types of Errors and Able Apply CRC Error Detection and Correction method on a given example (CO1, CO3) L3 | BB/LCD | 3 |  | 8 |  | |  |
| I | Data Link Control: DLC Services | Able to Understand the services provided by DLC L2  Able to implement Framing service of DLC on a given example L3 (CO1, CO3) | LCD | 1 |  | 9 |  | |  | | |
| I | Media Access Control (MAC) | Able to understand how to handle access to a shared link L2  Able to identify and calculate the network performance using the various protocols in Media access control sublayer such as Random Access and Controlled Access. L3 (CO1,CO3) | LCD | 2 |  | 11 | 04-08-23 | |  | | |
| II | Network Layer : Introduction, Network Layer Services, Packet Switching | Able to understand various services provided by network layer L2 (CO1, CO2) | LCD | 1 |  | 12 |  | |  | | |
| II | Network Layer Performance | Able to Calculate the performance of the given Network L3 (CO1, CO2) | BB/LCD | 1 |  | 13 |  | |  | | |
| II | IPv4 Addresses | Understand about the address space of the IPv4 and two address distribution mechanisms: classful and classless addressing and develop the network model using the classful and classless addressing mechanisms L3 (CO1, CO2) | BB/LCD | 2 |  | 15 |  | |  | | |
| II | DHCP and NAT | Apply DHCP protocol to find the IP address corresponding to domain name. Apply NAT to find public address and private address L3 (CO1, CO2) | Seminar Method | 1 |  | 16 |  | |  | | |
| II | **Next Generation IP-** IPv6 Addressing, The IPv6 Protocol. | Apply to find next generation internet protocol and IPV6 addressing, L3 (CO1, CO2) | LCD | 2 |  | 18 | 18-08-23 | |  | | |
| III | Network Layer Protocols: Internet Protocols(IP) | Identify the fields of IPv4 Datagram and fragmentation mechanism used  in IPv4 L3(CO1, CO2, CO4) | BB/LCD | 2 |  | 20 |  | |  | | |
| III | ICMPv4 | Able to understand the functionality of ICMPv4 protocol and its messages L2 (CO1,CO2, CO4) | LCD | 1 |  | 21 |  | |  | | |
| III | UNICAST Routing Protocols | Apply the unicast routing algorithms such as DVR & LSR for any given network L3 (CO1, CO2, CO4) | BB/LCD | 3 |  | 24 |  | |  | | |
| III | Next Generation IP: IPv6  Addressing | Illustrate the addressing mechanism  used in IPv6 (CO1, CO2, CO4) | LCD | 1 |  | 25 |  | |  | | |
| III | The IPv6 Protocol | Able to understand the functionality of IPv6 and able to identify the Ipv6 frame L3 (CO1, CO2, CO4) | LCD | 1 |  | 26 | 8-09-23 | |  | | |
| IV | Transport Layer: Introduction to Transport Layer | Identify the services provided by TL  L3 (CO1, CO3) | LCD | 1 |  | 27 |  | |  | | |
| IV | Transport Layer Protocols | Analyze the working of  elementary and sliding window Protocols L3 (CO1, CO3) | BB/LCD | 3 |  | 30 |  | |  | | |
| IV | User Datagram Protocol (UDP) | Able to identify the Services, Port  Numbers fields of UDP Header, L3 (CO1, CO3) | LCD | 1 |  | 31 |  | |  | | |
| IV | Transmission Control Protocol (TCP) | Able to Identify the Services and Features of TCP,Able to understand about the TCP , Segment, L3,l4,(CO1, CO3) | BB/LCD | 3 |  | 34 |  | |  | | |
| IV | Transmission Control Protocol (TCP) | Able to analyze the TCP Connection, Flow Control, Error Control, Congestion Control, concepts in TCP L3,l4  (CO1, CO3) | BB/LCD | 4 |  | 38 |  | |  | | |
| IV | Transmission Control Protocol (TCP) | Able to understand about TCP Timers and Options fields L2,(CO1, CO3) | BB/LCD | 3 |  | 41 | 20-10-23 | |  | | |
| V | Application Layer: World Wide Web, Hyper Text Transfer Protocol (HTTP) | Able to understand the Application layer protocols like WWW & HTTP L2 (CO1, CO3) | LCD / FC | 2 |  | 43 |  | |  | | |
| V | File Transfer Protocol (FTP) | Able to understand the Control Connection, Data Connection,  Able to understand the Security of FTP L2 (CO1, CO3) | LCD | 1 |  | 44 |  | |  | | |
| V | Electronic Mail | Able to understand the Architecture of email, Web-Based Mail, E-Mail Security L2 (CO1, CO3) | LCD | 2 |  | 46 |  | |  | | |
|  | **Active Teaching Methodology : Cross Word Puzzle** | **Should be able to complete the puzzle with relevant answers** | **---------** | **--------** |  | **Paper Based** |  | |  | | |
| V | TELNET & Secure Shell (SSH) | Able to understand the TELNET in Local versus Remote Logging, And usage of SECURE SHELL  (SSH): Components, Applications  L2 (CO1, CO3) | LCD | 2 |  | 48 |  | |  | | |
| V | Domain Name System (DNS) | Illustrate the DNS, Name Space,  DNS in the Internet, Resolution,  Caching, Domain Name System L2  Resource Records, DNS Messages, Registrars, DDNS, Security of DNS  (CO1, CO3) | LCD / GD | 2 |  | 50 | 28-10-23 | |  | | |
|  | Industry Institution Interaction  Topic : Overview of the latest technologies in the area | | | | | **3** |  | |  | | |

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| Legend: Teaching mode: | BB: Black Board | LCD: Power Point Presentation | GD: Group Discussion | FC: Flip class |
|  | L: Lecture Hours | T: Tutorial Hours |  |  |

Signature of Faculty Signature of HOD

Date: Date: