VELAMMAL COLLEGE OF ENGINEERING & TECHNOLOGY, MADURAI-625 009

(Autonomous)

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

2023-2024 ODD SEMESTER

COURSE PLAN

Degree	B.E-CSE
Course Code-Title	21CS208 –Computer Networks
Batch	2021-2025
Year/Semester/section	III/V/A & B
Course Component	Professional core(Theory With Practical Courses)
Name of the Instructor	Dr.J.V.Anchitaalagammai Mrs.S.Kavitha

Session No	Topic to be covered	Text/Reference Book Page No.	Mode of Delivery	Teaching Aid	No. of Hours	Cumulative No. of Hours
UNIT I -INTRODUCTION AND PHYSICAL LAYER						
1.	Networks	T1(4-12)	L+D	BB,LCD	1	1
2.	Network Types	T1(13-18)	L+I	BB,LCD	1	2
3.	Protocol Layering ,TCP/IP Protocol suite ,OSI Model	T1(32-45),W1	L+D, L+AV	BB,LCD	2	4
4.	Physical Layer- Performance	T1(84-88)	L+D, PS(Tx)	BB	2	6
5.	Transmission media	T1(185-201)	L+D	BB,LCD	1	7
6.	Switching- Circuit-switched Networks	T1(207-213)	L+D	BB,LCD	1	8
7.	Packet Switching	T1(213-216)	L+D	BB,LCD	1	9
UNIT II -DATA-LINK LAYER						
8.	Introduction – Link-Layer Addressing	T1(238-250)	L+D	BB,LCD	1	10
9.	Error Correction and Detection	T1(258-284)	L+D, PS(Tx)	BB,LCD	1	11
10.	DLC Services-Framing	T1(294-298)	L+D	BB,LCD	1	12
11.	Data-Link Layer Protocols – HDLC	T1(299-308) R2(222-227)	L+D	BB,LCD	1	13
12.	PPP	T1(309-318)	L+D	BB,LCD	1	14

13.	Media Access Control-Random Access	T1(325-350)	L+D	BB,LCD	1	15
14.	Wired LANs: Ethernet	T1(361-382),W2	L+D	BB,LCD	1	16
15.	Wireless LANs – IEEE 802.11	T1(435-452), W3,W7	L+D	BB,LCD	1	17
16.	Connecting Devices	T1(494-501)	L+D	BB,LCD	1	18
UNIT III- NETWORK LAYER						
17.	Network Layer Services	T1(512-521)	L+D	BB	1	19
18.	IPV4 Addresses - Classful Adressing	T1(528-531),W4	L+D, PS(Tx)	BB	2	21
19.	Classless Addressing	T1(532-538)	L+D, PS(Tx)	BB	1	22
20.	Dynamic Host Configuration Protocol(DHCP)	T1(539-543)	L+D	BB	1	23
21.	Network Layer Protocols: IP	T1(561-573)	L+ D	BB,LCD	1	24
22.	ICMP v4	T1(574-580)	L+D	BB,LCD	1	25
23.	Unicast Routing Algorithms & Protocols	T1(595-630)	L+D	BB,LCD	1	26
24.	IPV6 Addressing	T1(666-678) R4(259-266)	L+D, PS(Tx)	BB	1	27
UNIT IV- TRANSPORT LAYER						
25.	Introduction	T1(691-706)	L+ D	BB,LCD	1	28
26.	Transport Layer Protocols	T1(707-726)	L+ D	BB,LCD	2	30
27.	Services ,Port Numbers, User Datagram Protocol	T1(735-742)	L+ D	BB,LCD	2	32
28.	Transmission Control Protocol	T1(743-790) R3(298-306)	L+D	BB,LCD	3	35
29.	SCTP	T1(791-804),W5	L+ D	BB,LCD	1	36
UNIT V- APPLICATION LAYER						
30.	World Wide Web & HyperText Transfer Protocol	T1(872-886) R5(98-115)	L+ D	BB,LCD	2	38
31.	File Transfer Protocol	T1(887-890)	L+ I	BB,LCD	1	39
32.	Electronic Mail	T1(891-904)	L+ D	BB,LCD	1	40
33.	Telnet	T1(904-906)	L+ D	BB,LCD	1	41
34.	Secure Shell	T1(907-909) R1(667-670)	L+ D	BB,LCD	2	43
35.	Domain Name System	T1(910-921)	L+ D	BB,LCD	2	45
36.	Simple Network Management Protocol	T1(934-950)	L+ D	BB,LCD	2	47

PRACTICAL EXERCISES:

Session No	Experimental concepts to be covered	References	Mode of Delivery	Teaching Aid	No. of Hours	Cumulative No. of Hours
	21CS302 – COMPUTER NETWORKS (Lab Component)					
1.	Make use of various networking commands like tcpdump, netstat, ipconfig, nslookup and traceroute. Capture ping and traceroute PDUs using a network protocol analyzer and examine.	R1	DE+LW	LCD	3	3
2.	Design a topology using PCs and Switch with configuration of IP address and Observe the flow of data from host to host by creating network traffic.	R1	DE+LW	LCD	3	6
3.	Create a Network scenario and examine dynamically learning configured Switch MAC address table and ARP Cache table using simulation tool.	R1	DE+LW	LCD	3	9
4.	Simulation of Error correction and detection techniques.	R1	DE+LW	LCD	3	12
5.	Create a Network Scenario and assign subnet IP Addresses to various Network Devices and Verify the Connectivity using simulation tool.	R1	DE+LW	LCD	3	15
6.	Create a Network scenario with multiple routers and configure using RIP Routing in simulation tool.	R1	DE+LW	LCD	3	18
7.	Create a Network scenario with multiple routers and configure using OSPF Routing in simulation tool.	R1	DE+LW	LCD	3	21
8.	Create a Network scenario and generate the network traffic to examine the TCP/UDP communication using Simulation tool.	R1	DE+LW	LCD	3	24
9.	Implement the applications using TCP /UDP sockets like: Chat, File transfer	R1	DE+LW	LCD	3	27
10.	Setting up DNS, HTTP, DHCP and E-mail server using simulation tool.	R1	DE+LW	LCD	3	30

TEXT BOOK:

1. Behrouz A. Forouzan, "Data Communications and Networking", 5th Edition, Tata McGraw Hill, 2017.
2. William Stallings, "Data and Computer Communication", 10th Edition, Pearson Education, 2022.
3. Larry L. Peterson, Bruce S. Davie, "Computer Networks: A Systems Approach", 6th Edition, Morgan Kaufmann Publishers Inc., 2017.

REFERENCES:

1. Nader F. Mir, "Computer and Communication Networks", 2nd Edition, Prentice Hall, 2015.
2. James F. Kurose, Keith W. Ross, "Computer Networking, A Top-Down Approach Featuring the Internet", 8th Edition, Pearson Education, 2022
3. Mulayam Singh ,"CISCO PACKET TRACER LABS: Best practice of configuring or troubleshooting Network", 1st Edition ,BookRix,2019.

WEB MATERIALS:

W1.https://www.youtube.com/watch?v=-6Uoku-M6oY

W2.http://www.dauniv.ac.in/downloads/EmbsysRevEd_PPTs/Chap_3Lesson25EmsysNew.pdf

W3.https://learn.sparkfun.com/tutorials/bluetooth-basics/all

W4.https://www.cisco.com/c/en/us/support/docs/ip/routing-information-protocol-rip/13788-3.pdf

W5.https://nptel.ac.in

Course In charge	Course Coordinator	Module Coordinator	HoD/CSE
1/8/23	1/8/23	1/8/23	1/8/23