


**DHANALAKSHMI SRINIVASAN ENGINEERING COLLEGE
(AUTONOMOUS)**

(Approved by AICTE & Affiliated to Anna University, Chennai)
Re-Accredited by NAAC with 'A' Grade
Accredited by NBA for AERO, BME, CSE, ECE, EEE, IT & MECH.
PERAMBALUR-621212, TAMILNADU, INDIA.
Website: www.dsengg.ac.in


THEORY COURSE PLAN (2024-2025 EVEN SEMESTER)

Name of the Faculty				
Designation/Department	AP/IT			
Course Code/Name	U23ITT44 / COMPUTER NETWORKS			
Year/Section/Department	II/IT/B&C			
Credits Details	L:3	T:0	P:0	C:3
Total Contact Hours Required	45			

Syllabus:

UNIT I INTRODUCTION AND PHYSICAL LAYER	No. of Periods 9
Networks – Network Types – Protocol Layering – TCP/IP Protocol suite – OSI Model – Physical Layer: Performance – Transmission media – Switching – Circuit-switched Networks – Packet Switching.	
UNIT II DATA-LINK LAYER & MEDIA ACCESS	No. of Periods 9
Introduction – Link-Layer Addressing – DLC Services – Data-Link Layer Protocols – HDLC – PPP - Media Access Control - Wired LANs: Ethernet - Wireless LANs – Introduction – IEEE 802.11, Bluetooth – Connecting Devices.	
UNIT III NETWORK LAYER	No. of Periods 9
Network Layer Services – Packet switching – Performance – IPV4 Addresses – Forwarding of IP Packets - Network Layer Protocols: IP, ICMP v4 – Unicast Routing Algorithms – Protocols – Multicasting Basics – IPV6 Addressing – IPV6 Protocol.	
UNIT IV TRANSPORT LAYER	No. of Periods 9
Introduction – Transport Layer Protocols – Services – Port Numbers – User Datagram Protocol – Transmission Control Protocol – SCTP.	
UNIT V APPLICATION LAYER	No. of Periods 9
WWW and HTTP – FTP – Email –Telnet –SSH – DNS – SNMP.	
Total Hours :45	

Objectives:

- ❖ To understand the protocol layering and physical level communication.
- ❖ To analyze the performance of a network.
- ❖ To understand the various components required to build different networks.
- ❖ To learn the functions of network layer and the various routing protocols.
- ❖ To familiarize the functions and protocols of the Transport layer.

Text Books:

- T1: Behrouz A. Forouzan, Data Communications and Networking, Fifth Edition TMH, 2013.
T2: "Computer Networks" , By Pearson (5th Edition) by Tanenbaum, January 2013

Reference Books:

- R1. Larry L. Peterson, Bruce S. Davie, Computer Networks: A Systems Approach, Fifth Edition, Morgan Kaufmann Publishers Inc., 2012.
R2. William Stallings, Data and Computer Communications, Tenth Edition, Pearson Education, 2013.
R3. Nader F. Mir, Computer and Communication Networks, Second Edition, Prentice Hall, 2014.
R4. Ying-Dar Lin, Ren-Hung Hwang and Fred Baker, Computer Networks: An Open Source Approach, McGraw Hill Publisher, 2011.
R5. James F. Kurose, Keith W. Ross, Computer Networking, A Top-Down Approach Featuring the Internet, Sixth Edition, Pearson Education, 2013.

Website:

- W1: https://www.tutorialspoint.com/data_communication_computer_network/
W2: <https://www.slideshare.net/shafaan/chapter-1-introduction-to-data-communication-and-networks>
W3: <https://www.techtarget.com/searchnetworking/definition/Transport-layer>

Online Mode of Study (if Any):

- ❖ <http://www.tcpipguide.com>
- ❖ <http://www.ietf.org/rfc.html>
- ❖ <https://nptel.ac.in/course.html>

Course Plan:

S NO.	Topic	Reference Detail	Page Number	Mode of teaching	Number of Periods Required	Cumulative Period
UNIT – I INTRODUCTION AND PHYSICAL LAYER						9
1	Networks	T1	7-12	BB	1	1
2	Network Types	T1	13-19	BB	1	2
3	Protocol Layering	T1	32-35	BB	1	3
4	TCP/IP Protocol suite	T1,W1	35-44	BB	1	4
5	OSI Model	T1	44-46	BB	1	5
6	Physical Layer: Performance	T1	84-88	BB	1	6
7	Transmission media	T1	186-203	PPT	1	7
8	Switching – Circuit switched Networks	R1	209-213	BB	1	8
9	Packet Switching.	T2	214-222	BB	1	9
Outcome of Unit I:						
CO1: Understand the basic layers and its functions in computer networks.						
UNIT – II DATA-LINK LAYER & MEDIA ACCESS						9
10	Introduction	R2	238-242	BB	1	10
11	Link-Layer Addressing	T1	242-252	BB	1	11
12	DLC Services	T1	294-299	BB	1	12
13	Data-Link Layer Protocols	T1	299-304	BB	1	13
14	HDLC, PPP	T1	304-319	BB	1	14
15	Media Access Control	T1	325-341	BB	1	15
16	Wired LANs: Ethernet	T1	361-383	PPT	1	16
17	Wireless LANs Introduction – IEEE 802.11	T1,W2	439-450	BB	1	17
18	Bluetooth – Connecting Devices	T1	451-457	BB	1	18
Outcome of Unit II:						
CO2: Understand the functions of Datalink layer and explain the protocols in this layer.						
UNIT – III NETWORK LAYER						9
19	Network Layer Services	R3	512-516	BB	1	19
20	Packet switching, Performance	T1	516-522	BB	1	20
21	IPV4 Addresses	T1	528-546	BB	1	21
22	Forwarding of IP Packets	T1	546-555	PPT	1	22
23	Network Layer Protocols: IP	T1	562-574	BB	1	23
24	ICMP v4	T1	574-581	BB	1	24
25	Unicast Routing Algorithms & protocols	T1	611-631	PPT	1	25

Course Outcome Vs Program Outcome Mapping:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	1	-	-	-	-	-	-	-	1	-	-	-	-
CO2	3	1	-	-	-	-	-	-	-	1	-	-	-	-
CO3	3	2	1	1	-	-	-	-	-	1	-	-	-	-
CO4	3	2	-	-	-	-	-	-	-	1	-	-	-	-
CO5	3	2	1	-	-	-	-	-	-	1	-	-	-	-
CO6	3	2	-	-	-	-	-	-	-	1	-	-	-	-
AVG	3.00	1.3	1.00	1.00	-	-	-	-	-	1	-	-	-	-

Content beyond Syllabus:

- ❖ Implementation/ simulation of the protocols
- ❖ FDDI
- ❖ Error Correction and Detection

Internal Evaluation Components:

Webportal	Assignment	Components	Topic Number with Topic / Unit Details	Relevance to CO
Webportal 1	--	Assessment – I (60)	Unit I and II	CO1 & CO2
	1	Assignment – Handwritten (20)	5. OSI model with neat diagram Circuit 4.TCP/IP protocol suite 9. packet switching	CO1
	2	Assignment – Poster Presentation / PPT (20)	14.HDLC 17.IEEE 802.11 12.DLC services	CO2
Webportal 2	--	Assessment – II (60)	Unit III and IV	CO3 & CO4
	3	Seminar (20)	21.IPV4 addresses 25.Unicast routing algorithms 27.IPV6 addresses	CO3
	4	Case Study Report (20)	33.UDP. 34.TCP. 35.SCTP.	CO4
Webportal 3	--	Model Exam (75)	Unit I to V	CO1 to CO6
	5	MCQ (15)	Unit I to V	CO1 to CO6
	-	Course Attendance (10)	--	--

Submission Details:

Phase 1(Before AT 1)		Phase 2 (Before AT 2)		Phase 3 (Model)
Assignment 1	Assignment 2	Assignment 3	Assignment 4	Assignment 5

Google Class Code Details: r5k53r3

Class Name: U23IT44 / COMPUTER NETWORKS

PLAN OF ASSESSMENT TEST –DISTRIBUTION OF MARKS:

TEST	CO- MARK WISE DISTRIBUTION						BLOOM'S LEVEL MARK WISE DISTRIBUTION					
	CO1	CO2	CO3	CO4	CO5	CO6	BTL1	BTL2	BTL3	BTL4	BTL5	BTL6
AT-1	30	30	-	-	-	-						
AT-2			30	30	-	-						
	-	-										
MODEL												
	20	20	20	20	10	10						

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