SWARNANDHRA
COLLEGE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)

Accredited by National Board of Accreditation, AICTE, New Delhi, Accredited by NAAC with "A" Grade – 3.32 CGPA, Recognized under 2(f) & 12(B) of UGC Act 1956, Approved by AICTE, New Delhi, Permanent Affiliation to JNTUK, Kakinada
Seetharampuram, W.G.DT., Narsapur-534280, (Andhra Pradesh)

DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

TEACHING PLAN

Course Code	Course Title	Semester	Branch	Contact Periods /Week	Academic Year	Date of commencement of Semester
20CS5T01	**Computer Networks**	V	AI&ML	6	2024-25	05-06-2024

Pre-requisites:	
COURSE OUTCOMES	
CO1	Differentiate network reference models such as OSI, TCP/IP (K2)
CO2	Classify various Data Link Layer protocols such as Error Detection and correction (K2)
CO3	Distinguish various MAC sub layer Protocols such as ALOHA, CSMA, CSMA/CD (K2)
CO4	Differentiate various Network layer and Transport layer protocols and Its Applications (K2)
CO5	Illustrate various application layer protocols such as WWW and HTTP etc. (K2)

Unit	Out Comes / Bloom's Level	Topics No.	Topics/Activity	Text Book / Reference	Contact Hour	Delivery Method
UNIT-I: Data Communication						
I	CO1: Differentiate network reference models such as OSI, TCP/IP (K2)	1.1.1	Components.	T1,T3	1	Chalk ,talk
		1.1.2	Data Representation	T1,T3	1	Chalk ,talk
		1.1.3	Data flow (Simplex, Half-duplex and Full-Duplex)	T1,T3	1	Chalk ,talk
		1.1.4	Types of connections: Point to Point and Multipoint	T1,T3	1	Chalk ,talk
		1.1.5	Various Categories of Topologies	T1,T3	1	Chalk ,talk
		1.1.6	Categories of Networks	T1,T3	1	Chalk ,Talk

		1.1.7	Protocols and Standards	T1,T3	1	Chalk, Talk
		1.1.8,	OSI network model	T1,T3	2	Chalk, Talk
		1.1.9	TCP/IP Protocol Suite	T1,T3	2	Chalk, Talk
		1.2.0	Transmission Media (Twisted pair cable, Coaxial cable and Fiber-optic cable)	T1,T3	1	Chalk, Talk
Revision of Data communication					1	**Chalk ,talk, ppt**
				Total	**13**	
UNIT-II: Data Link Layer						
II	CO2: Classify various Data Link Layer protocols such as Error Detection and correction (K2)	2.1.1	Error Detection and Error Correction -Introduction	T2,R1	1	Chalk ,talk
		2.1.2	Block coding	T2	1	Chalk ,talk
		2.2.1	Er- ror Detection	T2	1	Chalk ,talk
		2.2.2	Error Correction	T2	1	Chalk ,talk
		2.2.3	Hamming Distance	T2	1	Chalk ,talk
		2.3.1	Minimum Hamming Distance	T2	1	Chalk ,talk
		2.3.2	Cyclic Codes	T2,R1	1	Chalk ,talk
		2.3.3	Cyclic Redundancy check (CRC)	T2,R1	1	Chalk ,talk
		2.3.4	Checksum	T2,R1	1	Chalk ,talk
		2.3.5	Framing	T2,R1	1	Chalk ,talk
		2.3.6	Flow control and Error control	T2	2	Chalk ,talk
		Revision of Data Link Layer			1	**Chalk ,talk, ppt**
Total					**13**	
UNIT-III: Medium Access Sub Layer & Network Layer						
III	CO3: Distinguish various MAC sub layer Protocols such as ALOHA, CSMA,	3.1.1	Random Access protocols – ALOHA, Pure ALOHA, Slotted ALOHA	T2,R1	2	Chalk ,talk
		3.1.2	Carrier Sense Multiple Access (CSMA)	T2,R1	1	Chalk ,talk
		3.1.3	1-persistent CSMA, Nonpersistent CSMA .	T2,R1	1	Chalk ,talk
		3.1.4	p-Persistent CSMA, CSMA/CD,	T2,R1	2	Chalk ,talk

	CSMA/CD (K2)	3.1.5	CDMA/CA	T2,R1	1	Chalk ,talk
		3.2.1	Logical addressing	T2,R1	1	Chalk ,talk
		3.2.2	IPV4 Addresses	T2,R1	1	Chalk ,talk
		3.2.3	Classful and Classless Addressing, Subnetting	T2,R1	1	Chalk ,talk
			Network Address Translation (NAT)	T2	1	Chalk ,talk
			IPV6 Addresses-Structure and Address space	T2	1	Chalk ,talk
			Address Mapping: ARP, RARP, BOOTP and DHCP	T2	1	Chalk ,talk
Revision of MAC sub layer protocols					1	**Chalk ,talk, ppt**
				Total	**14**	
UNIT-IV: Transport Layer						
IV	CO4: Differentiate various Network layer and Transport layer protocols and Its Applications	4.1.1	Process to Process Communication	T2	1	Chalk ,talk
		4.1.2	User Datagram Protocol (UDP)	T2	1	Chalk ,talk
		4.1.3	UDP Format, uses of UDP	T2	1	Chalk ,talk
		4.1.4	Transmission Control Protocol (TCP)	T2	1	Chalk ,talk
		4.1.5	TCP Services, TCP Fea- tures	T2,R2	1	Chalk ,talk
		4.1.6	TCP Segment	T2,R2	1	Chalk ,talk
		4.1.7	Quality of Service	T2,R2	1	Chalk ,talk
		4.1.8	QoS improving techniques	T2,R2	1	Chalk ,talk
		4.1.9	Leaky Bucket and Token Bucket algorithm	T2,R2	2	Chalk ,talk
Revision of Transport Layer				T2	1	**Chalk ,talk, ppt**
				Total	**11**	
UNIT-V: Application Layer						
V	CO5: Demonstrate the implementation of Advanced	5.1.1	Domain Name System (DNS)	T2	1	Chalk ,talk
		5.1.2	Domain Name Space	T2	1	Chalk ,talk
		5.1.3	Distribution of Name Space	T2	1	Chalk ,talk
		5.2.1	Remote Logging	T2	1	Chalk ,talk
		5.2.2	TELNET	T2	2	Chalk ,talk
		5.2.3	ELECTRONIC MAIL	T2	2	Chalk ,talk

	Behavioral Modeling. (K2 ,K3)	5.3.1	SMTP	T2	1	Chalk ,talk
			File Transfer Protocol (FTP)	T2	1	Chalk ,talk
		5.3.2	WWW, HTTP	T2	2	Chalk ,talk
Revision of Application Layer					1	**Chalk ,talk, ppt**
				Total	**13**	
CUMULATIVE PROPOSED PERIODS					**64**	

Text Books:

S.No.	AUTHORS, BOOK TITLE, EDITION, PUBLISHER, YEAR OF PUBLICATION
1	Behrouz A. Forouzan,Data Communications and Networking with TCPIP Protocol Suite 6thEdition, , McGrawHill 2022
2	Andrew S. Tanenbaum ,Computer Networks, 6th Edition, , Pearson New International Edition, 2021.
3	William Stallings ,Data and Computer Communication, 10th Edition, , Pearson Prentice Hall India, 2021

Reference Books:

S.No.	AUTHORS, BOOK TITLE, EDITION, PUBLISHER, YEAR OF PUBLICATION
1	Douglas Comer ,Internetworking with TCP/IP, Volume 1, 6th Edition, Prentice Hall of India. 2020
2	W. Richard Stevens, Addison-Wesley ,TCP/IP Illustrated, Volume 1,6th Edition , United States of America,2021

		Name	Signature with Date
i.	Faculty	B.Aswini Devi	
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iii.	Module Coordinator	Dr. G Sudhakar	
iv.	Programme Coordinator	Dr B Rama Krishna	

Principal