SWARNANDHRA
COLLEGE OF ENGINEEERIN G AND TECHNOLGY
(AUTONOMOUS)

SEETHARAMPURAM, NARSAPUR-534280, WG- DT, AP

DEPARTMENT OF MASTER OF COMPUTER APPLICATIONS

TEACHING PLAN

Course Code	Course Title	Year / Sem.	Branch	Contact Hr./ week	Academic Year	Date of Commencement of Semester
24MC2T01	COMPUTER NETWORKS	I/II	MCA	6	2025-26	17.02.2025

COURSE OUTCOMES: Upon the successful completion of this course the student will be able

1. Explain the network architecture, TCP/IP and OSI reference Models (K2)
2. Identify and understand various techniques and modes of Transmission.(K3)
3. Demonstrate the data link protocols, multi-channel access Protocols and IEEE 802 standards for LAN (K2).
4. Describe routing and congestion in network layer with routing algorithms and classify IPV4 addressing scheme (K5).
5. Discuss the elements and protocols of transport layer, Develop network security and define various protocols such as FTP, HTTP, Telnet, DNS (K6).

Unit	OUTOCME Blooms Level	TOPIC/ACTIVITY		Text Book	Contact HOURS	Delivery Method
I	Explain the network architecture, TCP/IP and OSI reference Models (K2)	UNIT-I				Chalk & Board, PPT
		1.1	Network Topologies WAN, LAN, MAN	T1	1	
		1.2	Reference models- The OSI Reference Model	T1	1	
		1.3	TCP/IP Reference Model	T1	1	
		1.4	A Comparison of the OSI and TCP/IP Reference Models	T1	1	
		1.5	Physical Layer – Introduction to physical	T1	1	

I		1.4	A Comparison of the OSI and TCP/IP Reference Models	T1	1	
		1.5	Physical Layer – Introduction to physical layer	T1	1	
		1.6	Data and Signals Periodic analog signals, digital signals	T1	1	
		1.7	Transmission Impairment	T1	1	
		1.8	Data rate limits	T1	1	
		1.9	Performance	T1	1	
		1.10	Introduction to Guided Media- Twisted-pair cable, Coaxial cable and Fiber optic cable	T1	1	
		1.11	Unguided media: Wireless-Radio waves, microwaves, infrared.	T1	1	
II	Identify and understand various techniques and modes of Transmission. (K3)	**UNIT – II**				Chalk & Board PPT, Video
		2.1	The Data Link Layer - Services Provided to the Network Layer	T1	1	
		2.2	Framing – Error Control – Flow Control, Error Detection and Correction	T1	1	
		2.3	Error-Correcting Codes – Error Detecting Codes	T1	2	
		2.4	Elementary Data Link Protocols- Simplex Protocol.	T1	1	
		2.5	A Simplex Stop and Wait Protocol for an Error free channel-A Simplex Stop and Wait Protocol for a Noisy Channels	T1	1	
		2.6	Sliding Window Protocols-A One Bit Sliding Window Protocol	T1	1	
		2.7	A Protocol Using Go-Back-N-A	T1	1	

			Protocol Using Selective Repeat.			
III	Demonstrate the data link protocols, multi-channel access protocols and IEEE 802 standards for LAN (K2).		**UNIT – III**			Chalk & Board PPT Demonstration
		3.1	**The Medium Access Control Sub layer**-The Channel Allocation Problem-Static Channel Allocation	T1	2	
		3.2	Assumptions for Dynamic Channel Allocation	T1	1	
		3.3	Multiple Access Protocols-Aloha-Pure aloha- slotted aloha	T1	1	
		3.4	Carrier Sense Multiple Access Protocols	T1	1	
		3.5	Collision-Free Protocols	T1	1	
		3.6	Limited Contention Protocols	T1	1	
			Mid I Exam			
		3.7	Wireless LAN Protocols-Ethernet	T1	1	
		3.8	Classic Ethernet Physical Layer-Classic Ethernet MAC Sub-layer Protocol	T1	2	
		3.9	Ethernet Performance	T1	1	
		3.10	Fast Ethernet	T1	1	
		3.11	Wireless LANs-The 802.11 Architecture and Protocol Stack	T1	1	
		3.12	The 802.11 Physical Layer	T1	1	
		3.13	The802.11 MAC Sub-layer Protocol	T1	1	
		3.14	The 805.11 Frame Structure-Services.	T1	1	
IV	Describe routing and congestion in network layer with routing algorithms		**UNIT – IV**			
		4.1	The Network Layer Design Issues – Store and Forward Packet Switching-Services Provided to the	T1	1	

	and classify IPV4 addressing scheme (K5).		Transport layer			Chalk & Board PPT, Demonstration
		4.2	Implementation of Connectionless Service- Implementation of Connection Oriented Service	T1	1	
		4.3	Comparison of Virtual Circuit and Datagram Networks	T1	1	
		4.4	Routing Algorithms-The Optimality principle	T1	1	
		4.5	Shortest path	T1	1	
		4.6	Flooding, Distance vector	T1	1	
		4.7	Link state, Hierarchical	T1	1	
		4.8	Congestion Control algorithms- General principles of congestion control	T1	1	
		4.9	Congestion prevention polices	T1	1	
		4.10	Approaches to Congestion Control- Traffic Aware Routing	T1	1	
		4.11	Admission Control- Traffic Throttling- Load Shedding	T1	1	
		4.12	Internet Working: How networks differ- How networks can be connected	T1	1	
		4.13	Tunneling	T1	1	
		4.14	Internetwork Routing	T1	1	
		4.15	Fragmentation	T1	1	
		4.16	Network layer in the internet – IP protocols-IP Version 4 protocol	T1	1	
		4.17	IP addresses	T1	1	
		4.18	Subnets	T1	1	

		4.19	IP Version 6- The main IPV6 header	T1	1	
		4.20	Internet control protocols-ICMP-ARP-DHCP.	T1	1	
UNIT – V						
V	Discuss the elements and protocols of transport layer. Develop network security and define various protocols such as FTP, HTTP, Telnet, DNS (K6).	5.1	The Transport Layer: Transport layer protocols	T1	1	Chalk & Board PPT
		5.2	Introduction-services	T1	1	
		5.3	port number-User data gram protocol-User datagram	T1	1	
		5.4	UDP services-UDP applications	T1	1	
		5.5	Transmission control protocol: TCP services	T1	1	
		5.6	TCP features- Segment-A TCP connection-windows in TCP- flow control-Error control.	T1	2	
		5.7	Application Layer -- World Wide Web	T1	1	
		5.8	HTTP	T1	1	
		5.9	FTP-Two connections-control connection-Data connection	T1	1	
		5.10	security of FTP-Electronic mail-Architecture	T1	1	
		5.11	web based mail- email security	T1	1	
		5.12	TELENET-local versus remote Logging	T1	1	
		5.13	Domain Name System: Name Space	T1	1	
		5.14	DNS in Internet	T1	1	
		5.15	Resolution-Caching-Resource Records	T1	1	
		5.16	DNS messages-Registrars-security of DNS Name Servers	T1	1	

	Course Beyond the syllabus	5.17	Multimedia requirements ,TCP enhanced services	T1	1	
		MID EXAM 2				
		TOTAL CLASSES			67	

Recommended Text Books for Reading:

Text Books

1. Computer Networks: Andrew S Tanenbaum David J. Wetherall, 5/e, Pearson

2.Data Communications and Networking, Behrouz Forouzan, 5/e, McGraw Hill

Reference Books:

1.Computer Networks- A Systems Approach, Peterson Bruce Davie,2/e, Harcourt Asia
2.Computer Communications and Networking Technologies, Gallo, Hancock, Cengage
3.An Engineering Approach to Computer Networking, Keisha , Pearson

Web Resources:

1. https://onlinecourses.swayam2.ac.in/cec23_cs07/preview
2. https://onlinecourses.nptel.ac.in/noc21_cs18/preview
3. https://ocw.mit.edu/courses/6-829-computer-networks-fall-2002/pages/lecture-notes/
4. https://www.cisco.com/c/en_in/solutions/enterprise-networks/what-is-computer-networking.html
5. https://www.cisco.com/c/en_in/solutions/enterprise-networks/what-is-computer-networking.html
6. https://www.cs.vu.nl/~ast/CN5/

Faculty **Head of the Department** **Principal**