Computer Networks

Course Code	20CS3503	Year	III	Semester	I
Course Category	PCC	Branch	CSE	Course Type	Theory
Credits	3	L-T-P	3-0-0	Prerequisites	Computer Organisation and Architecture and Data Structures
Continuous Evaluation	30	Semester End Evaluation	70	Total Marks	100

CO	Course Outcome Statement	Blooms 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

Contribution of Course Outcomes towards achievement of Program Outcomes & Strength of correlations (3:Substantial, 2: Moderate, 1:Slight)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3													
CO2	2													
CO3	2													
CO4													2	
CO5		2							1	1				

Syllabus		Mapped CO
Unit No.	Contents	
I	**Introduction :-** Networks, Network Types, Network Models :-The Protocol Layering , TCP/IP Protocol Suite, The OSI Model, **Physical Layer :-** Transmission Media - Guided Media, Un-Guided Media **Data-Link Layer:** Introduction to Data-Link Layer - Introduction, Link-Layer Addressing. Error Detection and Correction - Introduction, Cyclic Redundancy Check. Data Link Control (DLC) - DLC Services. Media Access Control (MAC) - Random Access, Controlled Access.	CO1, CO2

II	**Network Layer:** Introduction to Network Layer - Network-Layer Services, Packet Switching, Network-Layer Performance, IPv4 Addresses, Forwarding of IP Packets. **Next Generation IP-** IPv6 Addressing, The IPv6 Protocol.	**CO1, CO3, CO5**
III	**Network-Layer Protocols -** Internet Protocol (IP), Unicast Routing - Introduction, Routing Algorithms- Distance vector and Link State Routing, Unicast Routing Protocols.	**CO1, CO3, CO5**
IV	**Transport Layer:** Introduction to Transport Layer-Introduction, Transport-Layer Protocols. Transport Layer Protocols-Introduction, User Datagram Protocol(UDP), Transmission Control Protocol(TCP)	**CO1, CO4, CO5**
V	**Application Layer:** Standard Client-Server Protocols-World Wide Web and HTTP, FTP, Electronic Mail, Telnet, Secure Shell (SSH), Domain Name System (DNS)	**CO1, CO4**

Learning Resources
Text Books
1. Data Communications and Networking, Behrouz A. Forouzan, Fifth Edition, McGrawHill
References
1. Computer Networking A Top-Down Approach, James F. Kurose, Keith W. Ross, Sixth Edition, Pearson Education 2. Computer Networks - A Systems Approach, Larry L. Peterson, Bruce S. Davie, Fifth Edition, Morgan Kaufmann.
e-Resources & other digital material
1. https://nptel.ac.in/courses/106/105/106105183/ 2. https://nptel.ac.in/courses/106/105/106105081/ 3. https://www.youtube.com/playlist?list=PLEAYkSg4uSQ2NMmzNNsEK5RVbhxqx0BZF