

### Computer Networks

<b>Course Code</b>	20CS3503	<b>Year</b>	II	<b>Semester</b>	I
<b>Course Category</b>	PCC	<b>Branch</b>	CSE	<b>Course Type</b>	Theory
<b>Credits</b>	3	<b>L-T-P</b>	3-0-0	<b>Prerequisites</b>	Basic Electrical and Electronics Engineering
<b>Continuous Evaluation :</b>	30	<b>Semester End Evaluation:</b>	70	<b>Total Marks:</b>	100

### Course Outcomes

Upon successful completion of the course, the student will be able to		
<b>CO1</b>	Understand the basic concepts and protocols of different layers.	<b>L2</b>
<b>CO2</b>	Apply Error Correction or MAC Protocol mechanism for a given scenario.	<b>L3</b>
<b>CO3</b>	Apply various Addressing mechanisms /Routing protocols for a given network.	<b>L3</b>
<b>CO4</b>	Apply appropriate Transport & Application layer protocol for a given context.	<b>L3</b>
<b>CO5</b>	Analyze the given scenario and use appropriate methods/mechanisms/protocols for designing a network.	<b>L4</b>

### Contribution of Course Outcomes towards achievement of Program Outcomes & Strength of correlations

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
<b>CO1</b>	√													
<b>CO2</b>	√													
<b>CO3</b>	√													
<b>CO4</b>													√	
<b>CO5</b>		√							√	√				

Syllabus		Mapped CO
Unit No.	Contents	
I	<p><b>Introduction :-</b> Networks, Network Types, Network Models :-The Protocol Layering , TCP/IP Protocol Suite, The OSI Model,</p> <p><b>Physical Layer :-</b> Transmission Media - Guided Media, Un-Guided Media</p> <p><b>Data-Link Layer:</b> 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.</p>	CO1,CO2
II	<p><b>Network Layer:</b> Introduction to Network Layer - Network-Layer Services, Packet Switching, Network-Layer Performance, IPv4 Addresses, Forwarding of IP Packets.</p> <p><b>Next Generation IP-</b> IPv6 Addressing, The IPv6 Protocol.</p>	CO1,CO3,CO5
III	<p><b>Network-Layer Protocols -</b> Internet Protocol (IP), Unicast Routing - Introduction, Routing Algorithms- Distance vector and Link State Routing, Unicast Routing Protocols.</p>	CO1,CO3,CO5
IV	<p><b>Transport Layer:</b> Introduction to Transport Layer-Introduction, Transport-Layer Protocols. Transport Layer Protocols-Introduction, User Datagram Protocol(UDP), Transmission Control Protocol(TCP)</p>	CO1,CO4,CO5
V	<p><b>Application Layer:</b> Standard Client-Server Protocols-World Wide Web and HTTP, FTP, Electronic Mail, Telnet, Secure Shell (SSH), Domain Name System (DNS)</p>	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=PLEAYkSg4uSQ2NMmzNNsEK5RVbhqx0BZF>