

Computer Networks

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

Course Outcomes

| | | |
|---|--|-----------|
| Upon successful completion of the course, the student will be able to | | |
| 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 | <p>Introduction :- Networks, Network Types, Network Models :-The Protocol Layering , TCP/IP Protocol Suite, The OSI Model,</p> <p>Physical Layer :- Transmission Media - Guided Media, Un-Guided Media</p> <p>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.</p> | CO1,CO2 |
| II | <p>Network Layer: Introduction to Network Layer - Network-Layer Services, Packet Switching, Network-Layer Performance, IPv4 Addresses, Forwarding of IP Packets.</p> <p>Next Generation IP- IPv6 Addressing, The IPv6 Protocol.</p> | CO1,CO2,CO5 |
| III | <p>Network-Layer Protocols - Internet Protocol (IP), Unicast Routing - Introduction, Routing Algorithms- Distance vector and Link State Routing, Unicast Routing Protocols.</p> | CO1,CO2,CO4, CO5 |
| IV | <p>Transport Layer: Introduction to Transport Layer-Introduction, Transport-Layer Protocols. Transport Layer Protocols-Introduction, User Datagram Protocol(UDP), Transmission Control Protocol(TCP)</p> | CO1,CO3,CO5 |
| V | <p>Application Layer: Standard Client-Server Protocols-World Wide Web and HTTP, FTP, Electronic Mail, Telnet, Secure Shell (SSH), Domain Name System (DNS)</p> | CO1,CO3 |

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>