Syllabus for B. Tech. Semester V
Department of Information Technology

Course Code	ITT5003				
Category	Program Core Course				
Course Title	Computer Networks				
Scheme& Credits	L	T	P	Credits	Semester
	3	0	0	3	V

Course Outcomes:

On successful completion of the course, the student will be able to:

1. Demonstrate the knowledge of layered architecture for networking.
2. Understand the design issues at different layers in network architecture.
3. Exhibit knowledge of IP addressing and standard network services.
4. Apply the algorithms at different layers to solve problems.
5. Analyze the protocols with respect to their performance at different layers.

Syllabus:

Unit I

Introduction: Network hardware, Network software, Protocol hierarchies, Design issues for layers. The ISO-OSI reference model, TCP/IP model. Physical Layer: Issues, Transmission Impairments, Data Rate Limits, Performance. Bandwidth Utilization: Multiplexing, Transmission Media: Guided and Unguided.

Unit II

Data Link Layer - Design issues, Services, Error Detection and Correction, Data Link Control, Elementary Data Link Layer protocols. Medium Access Sub Layer: Multiple Access Protocols, IEEE standards: Ethernet (802.3), Wireless LAN (802.11).

Unit III

Network Layer: Design issues, Comparison of Virtual Circuit and Datagram subnets, Routing algorithms, Congestion control algorithms, Congestion control in Virtual Circuit subnets.

Unit IV

IPv4 Addressing: Datagram forwarding in IP4, Subnetting, CIDR Notation. Address Translation (ARP), Host Configuration (DHCP), Error Reporting (ICMP), Introduction to IPv6.

Unit V

Transport and Application layers: Services, Addressing, Establishing and releasing a connection, Flow control/buffering, Multiplexing and Crash recovery. Congestion control and Quality of Service. Introduction to UDP and TCP. Application Layer: Domain Name Space (DNS), MAIL server, File Transfer Protocol (FTP)

Text Books

1. Computer Networks: Andrew Tanenbaum, PHI.
2. Data Communication and Networking: Behrouz Forouzan, TMH.

Reference Books

1. Introduction to Data Communications and Networking: Wayne Tomasi, Pearson Education.
2. Computer Networks: A systems approach: Larry. L. Peterson, Bruce. S. Davie, 3rd Edition, Morgan Kaufmann publishers.
3. Computer Networks and Internet: Douglas Comer, PHI.

Syllabus for B. Tech. Semester V
Department of Information Technology

Course Code	ITP5003				
Category	Program Core Course				
Course Title	Computer Networks Lab.				
Scheme& Credits	L	T	P	Credits	Semester
	0	0	2	1	V

Course Outcomes

On successful completion of the course, the student will be able to:

1. Demonstrate the functionality of various software and hardware components of networking
2. Implement the layered functionalities at different layers
3. Configure various Network devices
4. Design and evaluate Network performance