

Subject Code : 2CS2010201	Subject Title: FUNDAMENTAL OF NETWORKING
Pre-requisite :	A strong understanding of bits bytes and characters, and information of how computers lay out data in memory

Course Objective:

The objectives of the course are to:

1. Introduces students to computer networks and focusing on firm foundation for understanding Data Communications based around the OSI Reference Model, TCP/IP model and interactions between them.
2. Provides the students with fundamental knowledge of the various aspects of computer networking and enables students to realize recent developments in the area.

Teaching Scheme (Hours per week)				Evaluation Scheme (Marks)				
Lecture	Tutorial	Practical	Credit	Theory		Practical		Total
				University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	
3	1	-	4	60	40	-	-	100

Subject Contents			
Sr. No	Topic	Total Hours	Weight (%)
1	Introduction to Computer Networks Uses of computer network, Network hardware – LAN, MAN, WAN. Network software – protocol hierarchies, Design issues for layers, Connection oriented and connectionless services, OSI model, TCP/IP model, and Comparison of OSI and TCP/IP model.	8	15
2	The Physical Layer Guided Media - Twisted Pair, coaxial cable, Fiber optics. Unguided transmission media - Radio wave, micro wave and infrared, light Transmission, Communication Satellites, Multiplexing and De-multiplexing– FDM, TDM, WDM. Switching – Circuit switching, Packet switching. 1G mobile Phone, 2G mobile Phone, 3G mobile Phone	10	20
3	The Data Link Layer: Design Issues - Framing, Error control, Flow control, Error Detection and correction. Elementary data link protocols, sliding window protocols.	8	15
4	The Network Layer: Introduction, Duties of Network Layer, Connection Oriented Forwarding using Virtual Circuits, Connection Less Forwarding using Datagram, Connection Oriented Vs Connectionless Forwarding, Forwarding Examples, Routing Algorithms, Congestion, Network Layer Switching.	10	20
5	The Transport Layer : Introduction, Duties of Transport Layer Connection Management at Transport Layer, Congestion Control, Comparison with Data Link Layer	6	15
6	The Application Layer Introduction, Domain Name System: Name Space, Registration Process, Name Servers, Resource Records, Types of Resource Records, Dynamic DNS, overview of Electronic mail, and HTTP, Bluetooth	6	15

Course Outcome:

At the end of this course, the student would be able

- To recognize the organization of computer networks, factors influencing computer network development and the reasons for having variety of different types of networks.
- To understand the Internet structure and Computer Network Architecture and can see how standard problems are solved in that context.

List of references:

1. Computer Network- Andrew S. Tanenbaum, Fifth edition, Pearson.
2. Computer Networks- Bhushan H Trivedi ,Oxford University Press.
3. Data Communications and Networking- Behrouz A. Forouzan, Tata McGraw-Hill, Fifth Edition