COMPUTER NETWORKS (CS3103PC)

3. SYLLABUS

COMPUTER NETWORKS

B.Tech. III Year I Semester								
Course Code	Category	Hours / Week			Credits	Maxumum Marks		
CS3103PC	Core	L	T	P	C	CIA	SEE	Total
		3	0	0	3	30	70	100
Contact classes: 60	Tutorial Classes : NIL	Practical classes : NIL				Total Classes :60		
Prerequisites 1. A course on"Programming for problem solving" 2. A course on "Data Structures"								

Course Objectives

1. The objective of the course is to equip the students with a general overview of the concepts and fundamentals of computer networks.
2. Familiarize the students with the standard models for the layered approach to communication between machines in a network and the protocols of the various layers.

Course Outcomes

1. Gain the knowledge of the basic computer network technology.
2. Gain the knowledge of the functions of each layer in the OSI and TCP/IP reference model.
3. Obtain the skills of subnetting and routing mechanisms.
4. Obtain knowledge on Connection oriented and connection less protocols like TCP and UDP
5. Familiarity with the essential protocols of computer networks and how they can be applied in network design and implementation.

COURSE SYLLABUS

MODULE- I

Network hardware, Network software, OSI, TCP/IP Reference models, Example Networks: ARPANET, Internet.

Physical Layer: Guided Transmission media: twisted pairs, coaxial cable, fiber optics, Wireless transmission.

MODULE- II

Data link layer: Design issues, framing, Error detection and correction.

Elementary data link protocols: simplex protocol, A simplex stop and wait protocol for an error-free channel, A simplex stop and wait protocol for noisy channel.

SlidingWindow protocols: A one-bit sliding window protocol, A protocol using Go-Back-N, A protocol using Selective Repeat, Example data link protocols.

Medium Access sub layer: The channel allocation problem, Multiple access protocols: ALOHA, Carrier sense multiple access protocols, collision free protocols. Wireless LANs, Data link layer switching.

MODULE- III

Network Layer: Design issues, Routing algorithms: shortest path routing, Flooding, Hierarchical routing, Broadcast, Multicast, distance vector routing, Congestion Control Algorithms, Quality of Service, Internet working, The Network layer in the internet.

MODULE- IV

Transport Layer: Transport Services, Elements of Transport protocols, Connection management, TCP and UDP protocols.

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MODULE- V

Application Layer –Domain name system, SNMP, Electronic Mail; the World WEB, HTTP, Streaming audio and video.

TEXT BOOK:

1. Computer Networks—Andrew S Tanenbaum, David.j.Wetherall, 5th Edition, Pearson Education/PHI

REFERENCE BOOKS:

1. An Engineering Approach to Computer Networks- S.Keshav, 2nd Edition,Pearson Education Data Communications and Networking–Behrouz A.Forouzan, Third Edition TMH.