

SARDAR PATEL UNIVERSITY
Programme: B.Sc (Information Technology)
Semester: VI
Syllabus with effect from: November - 2013

Paper Code: US06CINT06	Total Credit: 3
Title of Paper: Data Communication & Networking	

Unit	Description in detail	Weightage (%)
I	Introduction Computer networks : definition and advantages. Classification of computer networks. Introduction and differences among Local Area Networks (LANs), Metropolitan Area Networks (MANs), Wide Area Networks (WANs). Uses of Computer Networks.	25%
II	Data Communication Fundamentals Various types of transmission media - guided transmission media : magnetic media, twisted pair, coaxial cables, fiber optics. Introduction to wireless transmission. Meaning of the basic terms : topology, data rate, modulation rate, spectrum, bandwidth, server, host. Introduction to the concept of modulation, types of modulation, serial transmission vs. parallel transmission, synchronous transmission v/s asynchronous transmission, circuit switching, packet switching. The concept of multiplexing, Frequency Division Multiplexing (FDM) vs. Time Division Multiplexing (TDM).	25%
III	Layered Protocols and Local Area Network Technology Protocol significance and hierarchies. Design issues for the layers. The OSI Reference model. Examples of protocols for different layers of the OSI model. Types and characteristics of Local Area Networks. LAN Topologies : Bus, Star, Ring, Tree, Mesh. Introduction to Carrier Sense Multiple Access (CSMA) protocol for LAN.	25%
IV	Networking Devices and Satellite Communication functions of various networking components : modems, amplifiers, repeaters, hubs, switches, bridges, routers, gateway. Introduction to wireless networks. Communication satellites. Introduction to geosynchronous satellites.	25%

Basic Text & Reference Books:

- Behrouz Forouzan, Introduction to Data Communications and Networking, Tata McGraw-Hill Publishing Co. Ltd., New Delhi, 1998.
- Tanenbaum A. S., Computer Networks, Prentice-Hall of India Pvt. Ltd., New Delhi, 1997.
- Stallings W., Data and Computer Communications, 3rd Edition, Macmillan Pub. Company, New York, 1991.

