

**SARDAR PATEL UNIVERSITY**  
**Programme & Subject: B.Sc (Computer Science)**  
**Semester: V**  
**Syllabus with Effect from: June-2013**

<b>Paper Code: US05CCSC04</b>		<b>Total Credit: 3</b>
<b>Title Of Paper: Computer Networks</b>		
Unit	Description in detail	Weighting (%)
I	<b>Introduction</b> 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 Meaning of the basic terms : topology, data rate, modulation rate, spectrum, bandwidth, server, host	25%
II	<b>Data Communication Fundamentals</b> Various types of transmission media - guided transmission media : magnetic media, twisted pair, coaxial cables, fiber optics 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	<b>Layered Protocols and Satellite Communication</b> Protocol significance and hierarchies Design issues for the layers The OSI Reference model Examples of protocols for different layers of the OSI model Introduction to wireless networks Communication satellites Introduction to geosynchronous satellites	25%
IV	<b>Local Area Network Technology and Networking Devices</b> Types and characteristics of Local Area Networks LAN Topologies : Bus, Star, Ring, Tree, Complete (Mesh) Introduction to Carrier Sense Multiple Access (CSMA) protocol for LAN functions of various networking components : modems, amplifiers, repeaters, hubs, switches, bridges, routers, gateway	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, 3<sup>rd</sup> Edition, Macmillan Pub. Company, New York, 1991.

