SARDAR PATEL UNIVERSITY
Programme & Subject: M.Sc – Information Technology (Integrated)
Semester: IV
Syllabus with Effect from: November - 2015

Paper Code: PS04CIIT02	Total Credit: 3
Title Of Paper: Data Communication & Networking (Revised)	

Unit	Description in detail	Weightage (%)
I	**Introduction to Computer Networks** 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) Communication Mode, Data encoding: analog and digital Definitions: data rate, baud rate, modulation rate, frequency, spectrum, bandwidth, server, host. Various types of transmission media - guided transmission media: magnetic media, twisted pair, coaxial cables, fiber optics, Introduction to unguided transmission media LAN Topologies Functions of various networking components : modems, amplifiers, repeaters, hubs, switches, bridges, routers, gateway	25%
II	**Data Communication Fundamentals and Layered Protocols** 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) and. Time Division Multiplexing (TDM) Protocol significance and hierarchies Design issues for the layers, Error Detection and correction The OSI Reference model, functions and responsibilities of each layer. TCP/IP Reference model. Comparison of OSI and TCP/IP Examples of protocols for different layers of the OSI model.	25%
III	**Network Layer , Transport Layer and Network Security** CSMA/CD TCP IP Fast Ethernet	25%
IV	**Wireless Networks** Introduction to wireless networks Radio, VHF, microwave,infrared,light-wave transmission Communication satellites Wireless Network Topologies, Cellular Topology, Cell Fundamentals Concepts of GSM, GPRS, CDMA and SMS. Wireless LANs,Wireless Geolocation systems	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.
- Kaveh Pahlavan and Prashant Krishnamurthy: Principles of Wireless Networks, Pearson Education Asia, 2002.