

SARDAR PATEL UNIVERSITY
Programme: B.Sc (Electronics & Communication)
Semester: V
Syllabus with effect from: June-2013

Paper Code: US05CELC06	Total Credit: 3
Title Of Paper: Data Communication & Network	

Unit	Description in detail	Weighting (%)
I	Computer Network Introduction, Application Topology, Common bus, star, ring, fully Connected, combined topology, Need for standard OSI model: physical layer, data link layer, network layer, transport layer session layer, presentation layer, application layer	
II	Data Communication and Contention Protocols Transmission modes, serial and parallel transmission asynchronous transmission, simplex, half-duplex and full-duplex communication, Interface standard: RS-232 interface, RS 232 subsets, null modems, RS- 449 interface, X 21 interface , Aloha protocols, carrier sense multiple access, Collision detection, Token passing.	
III	Data Security and Integrity Introduction, parity checking: Parity checking analysis, double-bit error detection, cyclic Redundancy Checks, polynomial division, CRC working, analysis of CRC, CRC implementation using circular shifts. Hamming codes: single-bit error correction, multiple-bit error correction comparison of error detection and error correction, Viruses infecting files, memory resident viruses, virus evolution, virus sources, Internet worm, Computer hackers	
IV	Protocol concept and Networking Basic flow control signaling, frame oriented control, protocol efficiency, Sliding window protocols frame format, go back-protocol. Selective repeat protocol, sliding window protocol efficiency, protocol correctness: finites state machines, Petri nets Data link control protocol: high-level data link control, other bit-oriented protocol, binary synchronous communications protocol, Ethernet IEEE standard 8023 relation to OSI Ethernet components, connecting segments, frame format. Efficiency, Token ring. IEEE standard 802.5. Token bus: IEEE standard 8024, interconnecting LANS. Layer Connecting layer 2 connections, bridging different types of LANs, bridge routing Novell Netware: Netware configuration. Running Novell Netware. Security and integrity Selected Novell commands	

Basic Text & Reference Books:-

- Understanding Data Communication and Network-W.A Shay(Brookes/Cole)
- Data Communication and Networking - B.A.Forouzan
- Computer Networks and Internets – Douglas E Comer
- Computer Networks – A.S.Tannenbaum

