RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

New Scheme Based On AICTE Flexible Curricula

Electronics & Communication Engineering, VI-Semester

Departmental Elective EC- 603 (A) DATA COMMUNICATION

Unit-I
Data Communication: Introduction, Components, data representation Serial & Parallel transmission , Modes of data transmission, Line Encoding: Unipolar, Polar, Bipolar, Networks – Protocols and standards – Standards organizations – Line configurations – Topology – Transmission mode – Categories of networks – Inter networks.

Unit-II

OSI model: Functions of the layers.
Transmission media: Guided media – Unguided media – Transmission impairment – Performance.
Switching
Circuit switching , packet switching (virtual circuit and datagram approach), message switching

Unit-III
ERROR CONTROL AND DATA LINK PROTOCOLS

Error detection and correction: Types of errors – Detection – Vertical Redundancy Check (VRC) – Longitudinal Redundancy Check (LRC) – Cyclic Redundancy Check (CRC) – Check sum – Error Correction. Data Link Layer Protocols: Framing , HDLC, ARQ: Stop and Wait, Sliding Window. Efficiency

Unit-IV NETWORKS
LAN: Project 802 – Ethernet – Token bus – Token ring – FDDI.
MAN: IEEE 802.6 (DQDB) – SMDS.
 X.25, FRAME RELAY, ATM AND SONET/, SDH

Unit-V. NETWORKING DEVICES AND TCP / IP PROTOCOL SUITE
Networking and internetworking devices: Repeaters – Bridges – Gateways – Other devices – Routing algorithms – Distance vector routing – Link state routing.
TCP / IP protocol suite: Overview of TCP/IP.

REFERENCE BOOKS
1. Data and Computer Communication – W. Stallings, Pearson
2. LANs – Keiser, Tata Mc-Graw Hill
3. Data Communication & Networking – B.A. Forouzan, Tata Mc-Graw Hill
4. Internetworking with TCP/IP – VOL-I – D.E. Comer, PHI
5. ISDN and Broad band ISDN with Frame Relay & ATM – W. Stallings, Pearson

Textbooks:

1. Computer Networks by Tanenbum/PHI.

2. Data Networks: Bertsekas & Gallager.

3. Shay, William A. / "Understanding Data communications & Networks" / Vikas Publishing HousePvt. Ltd.