**RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA BHOPAL**

**Credit Based Grading System**

**Electronics & Communication Engineering, VII-Semester Elective-III**

**EC- 7004 (1) Data Communication**

**COURSE CONTENT:**

**Unit-I**

Introduction, Switching Techniques: Circuit Switching, Message Switching, Packet Switching, Protocols, Layered Network Architecture and Architecture of OSI & TCP/IP Reference model, ATM Model, ISDN and BISDN, Physical Layer Transmission Medium, Modem, Topologies.

**Unit-II**

Data Link Layer: Framing , HDLC, ARQ: Stop and Wait, Sliding Window. Efficiency, Error detection and Correction. CRC, Checksum, MAC Sub layer – LAN Protocols, ALOHA, Slotted, ALOHA, CSMA, CSMA/CD, Token Bus, Ring.

**Unit-III**

Network Layer: Routing – Data gram and Virtual Ckt, Dijkstra's, Bellman Ford, DV and Link state routing. Congestion Control and ATM Traffic Management – AAL, X.25, Internet Layer : IP Protocols, ICMP,ARP and RARP.

**Unit-IV**

Transport Layer: Connection Oriented transport Protocol Mechanism, TCP, TSAP, Transport Flow Regulation, UDP Fragmentation & Reassembly, Session and Transport Interaction, Synchronization Points, Session Protocols Data Unit.

**Unit-V**

Translation, Encryption / Decryption, Data Compression. Application Layer Protocols like: FTP, TFTP, RPC, Remote Login, DNS, SMTP, SNMP.

**References:**


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