

BSc (IT)

DSC-9: Data Communication and Computer Networks (LTP::4:2:0)

6 Credits

Unit I:

Introduction to computer network- Topology; Base Band & Broad Band Topology; Guided & Unguided Media. Overview of Data & Signal Bits. Baud & Bit Rate. Modulation (AM, PM, FM); Multiplexing (TDM, FDM, STDM).

Unit II:

Digital To Analog – ASK, PSK, FSK, QPSK. Transmission methods – Synchronous & Asynchronous, Flow Control, Error Control, Error Detection methods.

Goals of Layered protocols- Introduction to OSI, TCP/IP

Unit III:

HDLC- frame format, station, states, configuration, access control. LAN Topology – Ethernet (IEEE 802.3), Token Bus (IEEE 802.4), Token Ring (IEEE 802.5)

Switching Technologies – Circuit, Message, and Packet. X.25, X.21, RS-232 C – frame format, channel, packet frames, facilities.

Unit IV:

ISDN- D channel, B-Channel, International Standards, NT1, NT2, TA, TE Devices. Bridging and Routing. Congestion Control – Leaky Bucket & Token Bucket Algorithms. Introduction to data security (private key, public key)

Text Books:

1. Fourauzan B., “Data Communications and Networking”, 3rd edition, TataMcGraw-HillPublications, 2004, ISBN 0 – 07 – 058408 – 7
2. Tanenbaum A., “Computer Networks”, 4th Edition, PHI, ISBN 81 – 203 –2175 – 8

Reference Books:

1. Keshav S., “An Engineering Approach to Computer Networking”, PearsonEducation, ISBN 981 – 235 – 986 – 9
2. Comer D., “Computer Networks and Internet”, 2ND Edition, PearsonEducation, ISBN 81– 7808 – 086 – 9
3. S.K.Basandra & S. Jaiswal, “Local Area Networks”, Galgotia Publications
4. William Stallings, “Data and Computer Communication”