

T. Y. B. C. A. Semester 5
Effective From: June 2013.

Paper No.: 503 (Core Elective)

Teaching Hours: 3 Hrs./Week

Paper Title: Network Technologies

Credits: 3

Prerequisite: Fundamental Knowledge of Operating System.

Aim: The objective is to provide basic knowledge of network components, network operating system, working of networking and security on networks.

Expected Outcome: Students will get knowledge of networking, OSI model, configuration & troubleshooting of different network topologies using various network devices.

1. An introduction to Networks, Network Topologies and Types

- 1.1. Data communication [Analog, Digital]
- 1.2. Introduction: Networking
- 1.3. Information Exchange, Sharing, preserving & protecting
- 1.4. Hardware and Software Resource Sharing
- 1.5. Need, Uses and advantages of Network
- 1.6. Clients, Servers, Peers based and Hybrid Networks
- 1.7. Server types
- 1.8. Network Topologies (Bus, Star, Ring, Star Bus, Star Ring & Physical Mesh)
- 1.9. Defining Network Protocols (H/W Protocols, S/W Protocols, H/W-S/W Interface)
- 1.10. Introduction to wireless network, Ad-hoc wireless and sensor wireless network.

2. The OSI Model and Network hardware

- 2.1. Introduction to OSI Model with all layers
- 2.2. Data Communication Model, Digital and Analog data and signals, bit rate, baud, bandwidth, Nyquist bit rate
- 2.3. Introduction to Guided Transmission Media – Twisted Pair, Coaxial cable, Optical fibre
- 2.4. Wireless transmission – Radio waves, microwaves, infrared waves; Satellite communication.

3. Network S/W (Operating Systems)

- 3.1. What is Network Operating System?
- 3.2. Common features of Different Operating Systems (Windows XP, Windows-7 and NT Workstation)

4. Network Security: Introductory Concepts and Terminologies

- 4.1. Various types of securities
- 4.2. Security with certificates

VEER NARMAD SOUTH GUJARAT UNIVERSITY – SURAT
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Proposed Syllabus (As Per CBCS)

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4.3. Firewalls

5. Basic of TCP/IP

5.1. IP Address, IP Subnet

5.2. Introduction of UDP and TCP

Reference Books:

1. Networking Complete – 3rd Edition- BPB Publication (Text Book)
2. Mastering Local Area Networks By – Christa Anderson & Mark Minasi – BPB Publication
3. MCSE: Networking Essentials Study Guide- Tata McGraw Hill Publication.
4. MCSE: Windows 2000 N/W Infrastructure Desing - Tata McGraw Hill Publication.
5. MCSA/MCSE: Windows 2000 Professional Study Guide - Tata McGraw Hill Publication.
6. Computer Networks – TenanBaum – PHI
7. Data communication & N/W – B. Forouzan, Tata McGraw Hill Publication.