

Course: 503: Network Technologies

Course Code	503
Course Title	Network Technologies
Credit	3
Teaching per Week	3 Hrs
Minimum weeks per Semester	15 (Including Class work, examination, preparation etc.)
Review / Revision	June 2019
Purpose of Course	With extensive use of Internet and Network at offices, it has now become quite essential for students of IT and Computer Science to acquire basic knowledge of Computer Networks. The purpose of this course is to provide basic knowledge of Computer Networks.
Course Objective	Making students aware of 1. Layering Models. 2. Various Network Topologies. 3. Computer Network parlance. 4. Network Security.
Pre-requisite	Prior knowledge of Operating Systems, LAN
Course Out come	After studying this subject, students will be aware of Layering Models, Different types of Computer Networks, Networking terms, Networking Topologies, Networking protocols and Networking Security.
Course Content	<p>Unit 1. An Introduction to Networks, Network Topologies, and Types</p> <p>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</p> <p>Unit 2. The Layering Models and Data Communication</p> <p>2.1 Introduction to OSI model with all layers 2.2 Differences between OSI Model & TCP/IP model 2.3 Data Communication Model, Digital and Analog data and signals, bit rate, baud, bandwidth, Nyquist bit rate</p> <p>Unit 3. Networking Hardware</p> <p>3.1 Introduction to Guided Transmission Media-Twisted Pair, Coaxial cable, Optical Fibre 3.2 Wireless transmission-Radio waves, microwaves, infrared waves, Satellite Communication. 3.3 Networking devices (repeater, hub, switch, router, bridge, modem)</p> <p>Unit 4. Basic of TCP/IP Model</p> <p>4.1 Introduction to TCP/IP Model</p>

	<p>4.2 Network Access Layer – MAC Address 4.3 Internet Layer – IP Address, IP Subnetting 4.4 Transport Layer - TCP, UDP, Port number 4.5 Application Layer</p> <p>Unit 5. Network Security: Introductory Concepts and Terminologies</p> <p>5.1 Various Types of Securities 5.2 Security with Certificates 5.3 Firewalls</p>
Reference Book	<ol style="list-style-type: none"> 1. Networking Complete – 3rd Edition – BPB Publications 2. Networking Essentials Study Guide – MCSE – Tata McGraw Hill Publication 3. Computer Networks – A S Tanenbaum - PHI 4. Data Communication & Networking – B A Forouzan – Tata McGraw Hill Publication 5. Computer Networks – Bhushan Trivedi – Oxford University Press
Teaching Methodology	Class Work, Discussion, Self-Study, Seminars and/or Assignments
Evaluation Method	30% Internal assessment. 70% External assessment.