



# C. U. Shah University, Wadhwan City

Faculty of Computer Science

Name of Program: Bachelor of Computer Application  
(BCA)

Semester : III

w.e.f. June-2014

## Teaching & Evaluation Scheme

Sr. No	Subject Code	Subject Name	Teaching Hours/Week				Credits	Evaluation Scheme/Semester							
			Th	Tu	Pr	Total		Theory				Practical			Total Marks
								Sessional Exam		University Exam		Internal		Uni	
								Marks	Hrs	Marks	Hrs	Pr	Tw	Pr	
3	4CS03BNT1	Data Communication & Networking	4	2	-	6	5	30	1.5	70	3	-	-	-	100

**Objectives:-** The course provides a state-of-art in Networking Concepts, Terminologies, Architectures, Protocols & Services, OSI Layers & TCP/IP Protocol suite.

**Pre-requisites:-** Fundamental of Data Communication, Computer Networking & Internet

Ch. No.	Chapter Name	Chapter Topics	Total Lecture
1	Basics of Network	Network Basics & Concepts, Network Types, (LAN, MAN, WAN, PAN, SAN & CAN), Network Topologies, (Mesh, Star, Bus, Ring & Hybrid), Network Connection(Point-Point, Multipoint) Modes Of Communication, (Simplex, Half-Duplex & Full-Duplex), Network Communication Methods, (Unicast, Multicast & Broadcast)	05
2	Network Models	OSI Reference Model with 7 Layers & TCP/IP Protocol Suite, Network Addressing (Physical, Logical & Port)	10
3	Transmission Media	Ethernet Cabling, Standard & Technology, Guided Media(Twisted Pair(STP & UTP), Co-axial, Fiber Cable) Unguided Media (Radio Wave, Microwave, Infrared, Bluetooth & Wi-Fi, Wi-Max & Assisting Media).	10
4	Multiplexing And Switching Concepts	MUX & DEMUX Concepts, Multiplexing Types (FDM,WDM & TDM), Switching Techniques (Circuit Switching, Packet Switching & Message Switching)	05
5	Network Devices	Layer1 Devices- HUB, Repeater, NIC Card, Modem, DSL & ADSL, Layer 2 Devices- Switch(Unmanageable), Bridge, Layer3 Devices- Router, Switch(Manageable), Gateway, Brouter, Network Printer, Firewall Wireless Devices- Access Point, Wireless Router, Wireless Switch & other Assisting Devices	05
6	IP Addressing	Basics Of IP Addressing, Types Of IP Address(IPv4, IPv6) , Design, Architecture & Implementation	05
7	Network Protocols	Connection Oriented(TCP) & Connectionless(UDP), Netbios, ARP, RARP, HTTP, FTP, TFTP, Telnet, SMTP, POP3, IMAP4, SNMP, DNS, BootP, DHCP, ICMP, LDAP & Others , Multiple Access Protocols(ALOHA, CSMA/CD, CSMA/CA), Controlled Access Protocols(Polling, Token Passing), Channelization Protocols (FDMA, TDMA, CDMA)	15
<b>Total</b>			<b>55</b>

**Teaching Methodology:**

Revision, Paper Solving, Seminar, Expert Talk, MCQ Quiz, Viva Test, Programming Test

**Learning Outcomes:**

Designing of Computer Network Environment to the various organization  
Provide effective solution regarding the computer networks  
Recognize and Implement the affect of Networking in Today's World

**Books Recommended:**

1. "Data Communication & Networking " TMH, Behrouz A. Forouzen,ISBN No:0072967757
2. "TCP-IP Protocol Suite" TMH, Behrouz A. Forouzen ,ISBN No:0073376043

**Reference Books:**

1. "Computer Networks" Pearson, A.S.Tanenbaum,ISBN No:0132126958
2. "Computer Networking:  
A Top down approach featuring the internet" Pearson,James Kurose &Keith Ross, ISBN No: 0273768964
3. "Cryptography and Network Security" Prentice Hall India, William Stallings, ISBN No:0133354695