



C. U. SHAH UNIVERSITY, WADHWAN CITY.

Faculty of: **Computer Science**

Course: **Bachelor of Science (Information Technology)**

Semester: **II**

Subject Code: **4CS02TFN1**

Subject Name: **Fundamentals of Networking**

Sr. No	Branch Code	Subject Code	Subject Name	Teaching hours/Week			Credit hours	Credit Points	Evaluation Scheme/ Semester								Total
				Th	Tu	Pr			Theory				Practical				
									Internal Assessment		End Semester Exams		Internal Assessment		End Semester Exams		
									Marks	Duration	Marks	Duration	Marks	Duration	Marks	Duration	
3	2	4CS02TFN1	Fundamentals of Networking	4	--	-	4	4	15 SE	1Hr.	70	2½ Hrs.	--	--	---	--	100

AIM:

- The broad objective of the course is to understand, the architecture and principles of today's computer networks and its types.

COURSE CONTENTS

Unit I Data Communication Fundamentals

08 Hrs.

- Data and Signal, Transmission Media, Transmission Impairments and Channel Capacity
- Transmission of Digital Signal, Analog Data to Analog Signal, Digital Data, Analog Signals
- Multiplexing of Signals

Unit II Data Link Control

06 Hrs.

- Interfacing to the media and synchronization
- Error Detection and Correction
- Flow Control and Error Control
- HDLC

Unit III Switched Communication Networks

08 Hrs.

- Switching Techniques: Circuit Switching, Packet switching
- Synchronous Optical Network (SONET)
- X.25
- Frame Relay
- Asynchronous Transfer Mode Switching (ATM)

Unit IV Broadcast Communication Network

10 Hrs.

- Network Topology
- Medium Access Control (MAC) Techniques
- IEEE CSMA/CD based LANs
- IEEE Ring LANs
- Wireless LANs
- Bluetooth
- Cellular Telephone Networks
- Satellite Networks

Unit V Internetworking**08 Hrs.**

- Internetworking Devices
- Internet Protocol (IP)
- Transport and Application Layer Protocols

Unit VI Network Security**08 Hrs.**

- Cryptography
- Secured Communication
- Firewalls

REFERENCE BOOKS:

1. Computer Networking: A Top - Down Approach, by Ames Kurose, Keith Ross
2. Computer Networks - Andrew S Tanenbaum
3. Computer Networks: A Systems Approach Book by Bruce S. Davie and Larry L. Peterson
4. TCP/IP Tutorial and Technical Overview, (IBM Redbook) - Download From <http://www.redbooks.ibm.com/abstracts/gg243376.html>
5. TCP/IP Guide, Charles M. Kozierok, Available Online - <http://www.tcpiptide.com/>
Request for Comments (RFC) - IETF - <http://www.ietf.org/rfc.html>

SWAYAM/NPTEL Link:

<https://nptel.ac.in/courses/106/105/106105080/>