FACULTY OF: - Technology and Engineering
DEPARTMENT OF: - Electronics & Communication Engineering
SEMESTER: - VII
CODE: - **4TE07DCN1**
NAME: – **DataCommunication and Networking (DCN)**

Teaching & Evaluation Scheme:-

Subject Code	Subject Name	Teaching Schemes (Hours)				Credits	Evaluation Schemes							Total
							Theory				Practical (Marks)			
											Internal		University	
		Th	Tu	Pr	To		Sessional Exam		University Exam		Pr	TW	Pr	
							Marks	Hours	Marks	Hours				
4TE07DCN1	DataCommunication and Networking (DCN)	03	00	02	05	04	30	1.5	70	3.0	---	20	30	150

Objectives:-

- In this course, we will study about concept of networking. We will also study different network layers and network security.

Prerequisites: -
- Basic knowledge about digital communication and some mathematical formulae.

Course Outlines:-

Sr. No.	Course Contents	Hours
1	**Introduction**: Uses of Computer Networks, Network Hardware, Network Software, Reference Models: OSI and TCP/IP model,TCP/IP addressing, Example Networks, Network Standardization, Metric Units.	**04**
2	**Physical Layer:** The Theoretical Basis For Data Communication, Guided Transmission Media, Wireless Transmission, Communication Satellites, The Public Switched Telephone Network, The Mobile Telephone System, Cable Television.	**05**
3	**Data Link Layer:** Data Link Layer Design Issues, Error Detection and Correction, Elementary Data Link Protocols, Sliding Window Protocols, Example Data Link Protocols.	**07**
4	**Medium Access Control Sublayer:** The Channel Allocation Problem, Multiple Access Protocols, Ethernet, Bluetooth Architecture, Data Link Layer Switching.	**08**
5	**Network Layer:** Network Layer Design Issues, Routing Algorithms, Congestion Control Algorithms, Quality of Service, Internetworking, The Network Layer in the Internet.	**08**
6	**Transport layer:** The Transport Service, Elements of Transport Protocols. A Simple Transport Protocol. The Internet Transport Protocols: UDP. The Internet Transport Protocols: TCP. Performance Issues.	**06**

7	**Application Layer:** DNS(Domain Name System), Electronic Mail, The World Wide Web.	**04**
8	**Network Security:** Cryptography, Symmetric-Key Algorithms: DES, AES, Public-Key Algorithms: RSA, Digital Signatures: symmetric key and public key signatures, Communication Security: IPsec and Firewalls, Social Issues.	**06**

Learning Outcomes:-

After successful completion of the course, students should:
- be able to understand networking concepts and different types nework layers.
- be able to understand basic netwotk security algorithms like for cryptography.
- be able to understand basics of digital signature, firewall IPSec.

Books Recommended:-

1. Computer Networks, **A.S .Tanenbaum**, 4th Edition, Pearson Education Inc.
2. Data and Communication Networking, **Behrouz Forouzan**, Tata McGraw Hill.
3. Data and computer communication, **William Stallings**, Pearson Education Inc.