

TH-2 DATA COMMUNICATION & COMPUTER NETWORK (Common to CSE/IT)

Theory	4 Periods per week	Internal Assessment	20 Marks
Total Periods	60 Periods	End Sem Exam	80 Marks
Examination	3hours	Total Marks	100Marks

A. Topic wise distribution of periods

Sl. No.	Topics	Periods
1	NETWORK& PROTOCOL	08
2	DATA TRANSMISSION & MEDIA	08
3	DATA ENCODING	08
4	DATA COMMUNICATION & DATA LINK CONTROL	08
5	SWITCHING & ROUTING	10
6	LAN TECHNOLOGY	10
7	TCP/IP	08
	TOTAL	60

B. RATIONALE: Now a days the growth of data communication technology has become very fast in development of various application areas. This subject will expose the learner to have an idea about the architecture computer network and different protocols to be followed to communicate. Further they will have an idea about different mode of communication.

C. OBJECTIVE: After completion of this course the student will be able to:

- Know the concepts of Data Communication, networking, protocols, and networking models
- Know the various transmission Medias
- Understand the concepts of switching
- Understand various Error detection and correction methods
- Know about data flow and error control
- Know about data link control
- Understand multiple access
- Learn the concepts of wired LANs and Ethernet
- Compare various connecting devices
- Know the concepts of network layer, logical addressing, IP, Forwarding and routing
- Understand brief concept on TCP/IP

D. CORSE CONTENTS:

1. Network& Protocol

- 1.1 Data Communication
- 1.2 Networks
- 1.3 Protocol & Architecture, Standards, OSI, TCP/IP

2. Data Transmission & Media

- 2.1 Data transmission Concepts and Terminology
- 2.2 Analog and Digital Data transmission
- 2.3 Transmission impairments, Channel capacity
- 2.4 Transmission media, Guided Transmission, Wireless Transmission

3. Data Encoding

- 3.1 Data encoding,
- 3.2 Digital data digital signals,
- 3.3 Digital data analog signals
- 3.4 Analog data digital signals
- 3.5 Analog data analog signals

4. Data Communication & Data link control

- 4.1 Asynchronous and Synchronous Transmission
- 4.1 Error Detection
- 4.3 Line configuration
- 4.4 Flow Control,
- 4.5 Error Control
- 4.6 Multiplexing
- 4.7 FDM synchronous TDM
- 4.8 Statistical TDM

4 Switching & Routing

- 5.1 Circuit Switching networks
- 5.2 Packet Switching principles
- 4.3 X.25
- 4.4 Routing in Packet switching
- 4.5 Congestion
- 4.6 Effects of congestion, congestion control
- 4.7 Traffic Management
- 4.8 Congestion Control in Packet Switching Network.

6. LAN Technology

- 6.1. Topology and Transmission Media
- 6.2 LAN protocol architecture
- 6.3. Medium Access control
- 6.4 Bridges, Hub, Switch
- 6.5 Ethernet (CSMA/CD), Fiber Channel
- 6.6 Wireless LAN Technology..

7. TCP/IP

- 7.1 TCP/IP Protocol Suite
- 7.2 Basic Protocol functions
- 7.3 Principles of Internetworking
- 7.3 Internet Protocol operations
- 7.4 Internet Protocol

Coverage of Syllabus upto Internal Exams (I.A.) Chapter 1,2,3,4

Books recommended:-

Sl.No	Name of Authors	Title of the Book	Name of the publisher
01	W.Stallings	Data Communication & Computer Networks	PHI
02	M.Bhatia	Introduction to Comp. Network	Unv. S. Press
03	Forouzen	Data Communication & Network	TMH