

## PEI5H002 Computer Network & Data Communication (3-0-0)

### Module-I

12Hrs

Overview of Data Communications and Networking.

Physical Layer : Analog and Digital, Analog Signals, Digital Signals, Analog versus Digital, Data Rate Limits, Transmission Impairment, More about signals.

Digital Transmission: Line coding, Block coding, Sampling, Transmission mode.

Analog Transmission: Modulation of Digital Data; Telephone modems, modulation of Analog signals. Multiplexing : FDM , WDM , TDM ,

Transmission Media: Guided Media, Unguided media (wireless)

Circuit switching and Telephone Network: Circuit switching, Telephone network.

### Module-II

12Hrs

Data Link Layer

Error Detection and correction: Types of Errors, Detection, Error Correction Data Link Control and Protocols:

Flow and Error Control, Stop-and-wait ARQ. Go-Back-N ARQ, Selective Repeat ARQ, HDLC. Point-to-Point Access: PPP

Point-to-Point Protocol, PPP Stack, Multiple Access

Random Access, Controlled Access, Channelization. Local area Network: Ethernet.

Traditional Ethernet, Fast Ethernet, Gigabit Ethernet. Token bus, token ring Wireless LANs: IEEE 802.11, Bluetooth virtual circuits: Frame Relay and ATM.

### Module-III 12Hrs

Network Layer:

Host to Host Delivery: Internetworking, addressing and Routing Network Layer Protocols: ARP, IPV4, ICMP, IPV6 and ICMPV6

Transport Layer: Process to Process Delivery: UDP; TCP congestion control and Quality of service.

Application Layer :

Client Server Model, Socket Interface, Domain Name System (DNS): Electronic Mail (SMTP) and file transfer (FTP) HTTP and WWW.

#### Text Books:

1. *Data Communications and Networking: Behrouz A. Forouzan, Tata McGraw-Hill, 4 Ed*
2. *Data Communication and Networks, Bhushan Trivedi, Oxford University Press*
3. *Computer Networks: A. S. Tannenbum, D. Wetherall, Prentice Hall, Imprint of Pearson 5th Ed*

#### Reference Book:

1. *Computer Networks: A system Approach: Larry L, Peterson and Bruce S. Davie, Elsevier, 4 Ed*
2. *Computer Networks: Natalia Olifer, Victor Olifer, WilleyIndia*
3. *Data and Computer Communications: William Stallings, Prentice Hall, Imprint of Pearson, 9*
4. *Data communication & Computer Networks: Gupta, Prentice Hall of India*
5. *Network for Computer Scientists & Engineers: Zheng, Oxford University Press*
6. *Data Communications and Networking: White, Cengage Learning*