ELECTRONICS_OE_3.1 COMMUNICATION BETWEEN COMPUTERS

Unit – 1   **10 Hrs**

Introduction to Computer networks: Structure of Communications Network, Network elements, Network models: Types-advantages and disadvantages of Network Models, switching types, cables, types of cables, Network and types of transmission, Protocols, Network services, Flow control its types.

Network components : Hubs, Switches, Bridges, Routers, Servers, Clients, Advantages and disadvantages. Network Interface Cards, Modems

Topology and Access Methods: Introduction, Definition, Basic types of topologies, their advantages and disadvantages, Access Methods, Logical Link Control, Ethernet.

Unit – 2   **9 Hrs**

Data communication: Components, Data representation, Data flow, Networks – Categories of networks, Internetwork – Internet and Protocols, Analog and Digital Signals, Periodic and Non-Periodic Signals, Sine Wave, Phase, Wavelength, Digital Signals, Bit-rate, Bit-length, Transmission Impairment – Attenuation, Distortion and Noise, Performance - Bandwidth, Throughput, Latency, Jitter (Basic concepts only). Transmission Modes – Parallel and Serial Transmission, Asynchronous and Synchronous Transmission

Unit –3   **6 Hrs**

Network protocol: Hardware and Software components, Network Communication Standards, OSI Reference Model, TCP/IP Model.

Text Books
1.   Data Communications and Networking - Behrouz A Forouzan, Tata McGraw-Hill, 5th edition, ISBN: 9780070634145 for Unit I and III.
2.   Basics of Networking, PHI learning Pvt. Ltd. 2013, ISBN: 978-81-203-2489 for Unit II, IV, V and VI.