1. **Syllabus Description**

**UNIT 1:** **Introduction Concepts:** Data and Signal fundamentals, Analog Signals, Digital Signals, Transmission Media: Guided and Unguided Media, Transmission Impairments, Categories of Networks, Network Topology Design - Delay Analysis, Switching methods, ISDN, The OSI reference model ,TCP/IP Protocol Suite, Comparison of OSI and TCP/IP.

**UNIT 2: Digital and Analog Transmission:** Digital Transmission: Digital-to-Digital Conversion, Analog-to-Digital Conversion, Pulse Code Modulation, Delta Modulation, Digital-to-Analog Conversion, ASK,FSK,PSK, Analog-to-Analog Conversion, Modulation Techniques.

**UNIT 3:** Medium Access sub layer - Channel Allocations, LAN protocols -ALOHA protocols - Overview of IEEE standards - FDDI. Data Link Layer - Elementary Data Link Protocols, Sliding Window protocols, Error Detection and Correction: Block coding, cyclic codes, Linear block codes, checksum.

**UNIT 4:** Network Layer - Point - to Pont Networks, routing, Congestion control,

Internetworking -TCP / IP, IP packet, IP address, IPv6. Transport Layer - Design

issues, connection management, session Layer-Design issues, remote procedure

call. Presentation Layer-Design issues, Data compression techniques, cryptography

TCP– Window Management.

**UNIT 5:** **Application Layer:** Electronic mail, WWW, HTTP, SMTP, POP3, IMAP, FTP, SSH

**UNIT 6:** The advances and the latest trends in the course as well as the latest applications of the areas covered in the course. The latest research conducted in the areas covered in the course. Discussion of some latest papers published in IEEE transactions and ACM transactions, Web of Science and SCOPUS indexed journals as well as high impact factor conferences as well as symposiums. Discussion on some of the latest products available in the market based on the areas covered in the course and patents filed in the areas covered in the course.

1. **Text Books**

Behrouz A. Forouzan, “Data Communications and Networking” 5th ed., 2010

William Stallings, Data and Computer Communications,9th ed., 2010

**REFERENCE BOOKS:**

* 1. Andrew S Tanenbaum “Computer Networks”
  2. Todd Lammle, CCNA Study Guide, 7th ed. 2011