and Error Control, Protocols: Simplest, Stop-and-wait, Go-back-N, Selective Repeat, Piggybacking, HDLC, Point-to-Point protocol. Multiple Access: Random Access- ALOHA, CSMA, CSMA/CD, CSMA/CA. Controlled Access- Reservation, Polling, Token Passing. Channelization- FDMA, TDMA, CDMA.

Wired LANs: Ethernet: IEEE Standards, Standard Ethernet, Bridged Ethernet, Switched Ethernet, Full Duplex Ethernet, Fast Ethernet, Gigabit Ethernet.

Wireless LANs: IEEE802.11 Standard, Bluetooth. Connecting LANs, Backbone Networks and Virtual LANs.

Suggested Readings:

1. B. A. Forouzan: Data Communications and Networking, Fourth edition, TMH.
2. A. S. Tanenbaum, Computer Networks, Fourth edition, PHI.
3. D. E. Comer, Computer Networks and Internets, Pearson.
4. W. Stallings, Data and Computer Communications, Pearson.

CS110	System Analysis and Design	L	T	P
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Introduction to Software System: Software crisis, Software Characteristics, Development lifecycle, Specification, Analysis, Design, Implementation and Testing.

Modular top-down analysis, design and testing, Project Feasibility, System Requirements Analysis, Fact Finding Techniques, Data Flow Diagram, Data Dictionary, Decision Tree, Decision Tables, Structured English, Systems Proposal.

System Design, CASE tools for system analysis and design, data modeling and process modeling (data flow diagrams, entity relationship diagrams), traditional and prototyping approaches, Object-Oriented Analysis and Modeling, design and development of relational database systems.

I/O design, input validation and user interface design (GUI).

Suggested Readings:

1. E. M. Awad, Systems Analysis and Design, McGraw-Hill Professional.
2. J. L. Whitten, Lonnie D. Bentley and Kevin C. Dittman, Systems Analysis and DesignMethods, McGraw-Hill.
3. K. E. Kendall, Systems Analysis and Design, Pearson Education.
4. V. Rajaraman, “System Analysis and Design”, Prentice Hall.
5. J. A. Sern, “Analysis & Design of Information System”, McGraw Hill.