CS6551   **COMPUTER NETWORKS**   **L T P C**
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OBJECTIVES:
The student should be made to:
- ✓ Understand the division of network functionalities into layers.
- ✓ Be familiar with the components required to build different types of networks
- ✓ Be exposed to the required functionality at each layer
- ✓ Learn the flow control and congestion control algorithms

UNIT I FUNDAMENTALS & LINK LAYER   **9**
Building a network – Requirements - Layering and protocols - Internet Architecture – Network software – Performance ; Link layer Services - Framing - Error Detection - Flow control

UNIT II MEDIA ACCESS & INTERNETWORKING   **9**
Media access control - Ethernet (802.3) - Wireless LANs – 802.11 – Bluetooth - Switching and bridging – Basic Internetworking (IP, CIDR, ARP, DHCP, ICMP)

UNIT III   ROUTING   **9**
Routing (RIP, OSPF, metrics) – Switch basics – Global Internet (Areas, BGP, IPv6), Multicast – addresses – multicast routing (DVMRP, PIM)

UNIT IV TRANSPORT LAYER   **9**
Overview of Transport layer - UDP - Reliable byte stream (TCP) - Connection management – Flow control - Retransmission – TCP Congestion control - Congestion avoidance (DEC bit, RED) – QoS –Application requirements

UNIT V APPLICATION LAYER   **9**
Traditional applications -Electronic Mail (SMTP, POP3, IMAP, MIME) – HTTP – Web Services – DNS – SNMP

                                                       TOTAL: 45 PERIODS

OUTCOMES:
At the end of the course, the student should be able to:

- ✓ Identify the components required to build different types of networks
- ✓ Choose the required functionality at each layer for given application
- ✓ Identify solution for each functionality at each layer
- ✓ Trace the flow of information from one node to another node in the network

TEXT BOOK:
1. Larry L. Peterson, Bruce S. Davie, "Computer Networks: A Systems Approach", Fifth Edition, Morgan Kaufmann Publishers, 2011.

REFERENCES:
1. James F. Kurose, Keith W. Ross, "Computer Networking – A Top-Down Approach Featuring the Internet", Fifth Edition, Pearson Education, 2009.
2. Nader. F. Mir, "Computer and Communication Networks", Pearson Prentice Hall Publishers, 2010.
3. Ying-Dar Lin, Ren-Hung Hwang, Fred Baker, "Computer Networks: An Open Source Approach", Mc Graw Hill Publisher, 2011.
4. Behrouz A. Forouzan, "Data communication and Networking", Fourth Edition, Tata McGraw – Hill, 2011.