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For Questions, Notes, Syllabus & Results

EC8551 COMMUNICATION NETWORKS

DETAILED SYLLABUS

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

Overview of Data Communications- Networks – Building Network and its types– Overview of Internet - Protocol Layering - OSI Mode – Physical Layer – Overview of Data and Signals - introduction to Data Link Layer - Link layer Addressing- Error Detection and Correction

UNIT II MEDIA ACCESS & INTERNETWORKING

Overview of Data link Control and Media access control - Ethernet (802.3) - Wireless LANs – Available Protocols – Bluetooth – Bluetooth Low Energy – WiFi – 6LowPAN–Zigbee – Network layer services – Packet Switching – IPV4 Address – Network layer protocols (IP, ICMP, Mobile IP)

UNIT III ROUTING

Routing - Unicast Routing – Algorithms – Protocols – Multicast Routing and its basics – Overview of Intradomain and interdomain protocols – Overview of IPv6 Addressing – Transition from IPv4 to IPv6

UNIT IV TRANSPORT LAYER

Introduction to Transport layer –Protocols- User Datagram Protocols (UDP) and Transmission Control Protocols (TCP) –Services – Features – TCP Connection – State Transition Diagram – Flow, Error and Congestion Control - Congestion avoidance (DECbit, RED) – QoS – Application requirements

UNIT V APPLICATION LAYER

Application Layer Paradigms – Client Server Programming – World Wide Web and HTTP - DNS- Electronic Mail (SMTP, POP3, IMAP, MIME) – Introduction to Peer to Peer Networks – Need for Cryptography and Network Security – Firewalls.

TEXT BOOK:

1. Behrouz A. Forouzan, —Data communication and Networking‖, Fifth Edition, Tata McGraw – Hill, 2013 (UNIT I –V)

REFERENCES

1. James F. Kurose, Keith W. Ross, —Computer Networking - A Top-Down Approach Featuring the Internet‖, Seventh Edition, Pearson Education, 2016.

2. Nader. F. Mir— Computer and Communication Networks‖, Pearson Prentice Hall Publishers, 2nd Edition, 2014.

3. Ying-Dar Lin, Ren-Hung Hwang, Fred Baker, —Computer Networks: An Open Source Approach‖, Mc Graw Hill Publisher, 2011.

4. Larry L. Peterson, Bruce S. Davie, —Computer Networks: A Systems Approach‖, Fifth Edition, Morgan Kaufmann Publishers, 2011.