ST.JOSEPH'S COLLEGE FOR WOMEN (AUTONOMOUS), VISAKHAPATNAM

VI SEMESTER **COMPUTER SCIENCE** Time: 3 Hrs/Week

C C1 6601/CS C1 6901/CST C1 6301(3) **COMPUTER NETWORKS** Max:Marks:100

w.e.f. 2015 – 2018 ("15AC") **SYLLABUS**

OBJECTIVES:

To understand the concepts of computer networks.
To study the functions of different layers.
To introduce IEEE standards employed in computer networking.
To make the students to get familiarized with different protocols and network components

UNIT–I: INTRODUCTION: Uses of Computer Networks – Networks for Companies, Networks for people, Social Issues. Network Hardware – Topologies, LAN, MAN, WAN, Wireless Networks, Internetworks. Network Software– Protocol Hierarchies, Design Issues for the Layers, Interfaces and Services, Connection-Oriented and Connectionless Services, Service Primitives. Reference Models -The OSI Reference Model, The TCP/IP Reference Model, A comparison of the OSI and TCP Reference Model.

Physical Layer: Transmission Media – Magnetic media, Twisted Pair, Baseband Coaxial Cable, Broadband Coaxial Cable, Fiber Optics, Wireless Transmission.
Chapters 1.1, 1.2, 1.3, 1.4(1.4.1, 1.4.2, 1.4.3), 2.2, 2.3

UNIT–II: DATA LINK LAYER: Data Link Layer Design Issues, Error Detection and Correction, Elementary Data Link Protocols- A Simplex Stop-and-Wait Protocol, A Simplex Protocol for a Noisy channel. Sliding Window Protocol- A protocol using Go Back n

UNIT–III: MEDIUM ACCESS SUBLAYER: Channel Allocation Problem, Multiple Access Protocols, IEEE Standard 802.3: Ethernet, 802.5: Token Ring
Chapters: 3.1, 3.2, 3.3(3.3.2, 3.3.3), 3.4(3.4.1, 3.4.2), 4.1, 4.2, 4.3(4.3.1, 4.3.3)

UNIT–IV: NETWORK LAYER: Network Layer Design Issues, Routing Algorithms-Shortest Path Routing, Hierarchical Routing, Routing for Mobile Hosts, Broadcast Routing and Multicast Routing.
Chapters: 5.1, 5.2(5.2.1, 5.2.2, 5.27, 5.2.8, 5.2.9, 5.2.10)

UNIT–V: TRANSPORT LAYER: The Transport Services-Services provided to the Upper Layers, Quality of Service, Transport Service Primitives, Elements of Transport Protocols-Addressing, Establishing a connection, Releasing a connection, Flow control and buffering, Multiplexing, and Crash Recovery.
Chapters: 6.1, 6.2

APPLICATION LAYER: Domain Name System, Simple Network Management Protocol- SNMP Model, SNMP Protocol, Electronic Mail, and World Wide Web.
Chapters: 7.2, 7.3(7.3.1, 7.3.5), 7.4(7.4.1, 7.4.2, 7.4.3), 7.6(7.6.1, 7.6.2, 7.6.3)

TEXT BOOK: Andrew S. Tanenbaum, "Computer networks", Third Edition, Pearson Education.

REFERENCE BOOK: Behrouz A.Fourouzan, "Data Communication and Networking", Tata McGraw-Hill, 2004.

** ** **