

With effect from the Academic Year 2021-22
VASAVI COLLEGE OF ENGINEERING(Autonomous)
IBRAHIMBAGH, HYDERABAD – 500 031

Department of Computer Science & Engineering
COMPUTER NETWORKS

SYLLABUS FOR B.E. V-SEMESTER

L:T:P (Hrs./week): 3:0:0	SEE Marks : 60	Course Code: U19PC520CS
Credits : 3	CIE Marks : 40	Duration of SEE : 3 Hours

COURSE OBJECTIVES	COURSE OUTCOMES <i>On completion of the course, students will be able to</i>
1 Apply networking concepts to work on networked systems using the existing protocols and evaluate the role of security for developing end user applications	1 Compare OSI and TCP/IP reference models and explain functionalities of Data Link Layer 2 Explain MAC protocols and networking devices. 3 Analyze the design issues of network layer 4 Describe the services of transport layer 5 Apply application layer protocols for providing network services to the end user

UNIT-I:

Introduction: Network Hardware, Network Software, Reference Models, Comparison of the OSI and TCP/IP Reference Models

Physical Layer: Guided transmission media, Wireless transmission media.

Data Link Layer: Design Issues, Error Detection and Correction, Elementary Data Link Layer Protocols, Sliding Window Protocols

UNIT-II:

Multiple Access Protocols : ALOHA, CSMA, Collision free protocols, Ethernet- Physical Layer, Ethernet Mac Sub layer, data link layer switching & use of bridges, learning bridges, spanning tree bridges, repeaters, hubs, bridges, switches, routers and gateways.

UNIT-III:

Network Layer: Network Layer Design Issues.

Routing Algorithms: Shortest path routing, flooding, distance vector routing, link state routing.

IP Addresses: IPV4, Subnetting, Supernetting, CIDR, NAT, IPV6.

Internet Control Protocols: ICMP, ARP, DHCP.

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UNIT-IV:

Transport Layer: The Transport Service, Elements of Transport Protocols

The Internet Transport Protocols (TCP and UDP): UDP, TCP: Introduction, The TCP service model, The TCP protocol, The TCP Segment Header, TCP connection establishment, connection release, TCP sliding window, TCP Timer management, TCP Congestion control, Performance issues.

UNIT-V:

Application Layer: Domain Name System -DNS Name Space, Domain Resource Records, Name Servers, FTP, TELNET

Network Security: Cryptography, Symmetric Key Algorithms: DES, AES, Cipher modes.

Public Key Algorithms: RSA. Digital Signatures, Management of Public Keys.

Learning Resources:

1. Andrew S. Tanenbaum, David J. Wetherall, Computer Networks, 5th Edition Pearson, 2012.
2. Data Communications and Networking, 4th Edition, Behrouz Forouzan, Tata McGraw Hill, 2011
3. James F. Kurose and Keith W. Ross, Computer Networking: A Top-Down Approach Featuring the Internet, 5th Edition, Addison-Wesley, 2012
4. Chwan-Hwa (John) Wu, J. David Irwin, Introduction to Computer Networks and Cyber Security, CRC Press, 2013
5. Alberto Leon-Garcia and Indra Widjaja, Communication Networks: Fundamental Concepts and Key Architectures, Tata McGraw-Hill, 2004.
6. <http://nptel.ac.in/courses/106105081/1>
7. <https://www.youtube.com/watch?v=WabdXYzCAOU>

The break-up of CIE: Internal Tests + Assignments + Quizzes

1	No. of Internal Tests	:	<input type="text" value="2"/>	Max. Marks for each Internal Test	:	<input type="text" value="30"/>
2	No. of Assignments	:	<input type="text" value="3"/>	Max. Marks for each Assignment	:	<input type="text" value="5"/>
3	No. of Quizzes	:	<input type="text" value="3"/>	Max. Marks for each Quiz Test	:	<input type="text" value="5"/>

Duration of Internal Tests : 1 Hour 30 Minutes