FACULTYOFCOMPUTERAPPLICATIONS
Bachelor of Computer Applications

- **Sem.** 4
- **Subject Code** : 05BC3402
- **Subject** :Computer Networks
- **Course Objectives**:
    1. To understand the fundamental concepts of networking and Physical layer.
    2. To understand the functionality of Data Link Layer
    3. To understand the functionality of MAC sub layer
    4. To understand the functionality of Network layer
    5. To understand the functionality of transport and application layer.

- **Prerequisites**: Basics of Computer, Operating Systems

Unit No	Topics Covered	Noof lectures required
1	**Introduction to Computer Network and Physical Layer** Introduction of computer network, uses of computer network, Network Hardware, Network Software, Reference Models, Example Networks The Theoretical Basis for Data Communication ,Guided Transmission Media, Wireless Transmission, Communication Satellites	7
2	**DataLinkLayer** Design issues of data link layer, framing techniques, Error detection techniques: Parity Bit Checker (LRC, VRC), Checksum, CRC, Error Correction Technique: Hamming Code, Elementary Data Link Protocols: Simplex Stop and Wait Protocols for noisy channel, Sliding Window Protocol	8
3	**The Medium Access Control Sublayer** Channel Allocation Problem,Multiple Access Protocols,	10

	Ethernet, Wireless LANs, Broadband Wireless, Bluetooth	
4	**Network Layer** Network Layer design issues, Routing Algorithms, Congestion Control Algorithm,Quality of Services, Internetworking	**10**
5	**Transport and Application Layer** The Transport Service, Elements of Transport Protocol, The Simple Transport Protocol, The Internet Transport Protocols : UDP and TCP DNS - The Domain Name System, Electronic Mail, The World Wide Web	**10**

Course Outcomes:

Student will be able to:

1. Understand the network hardware, network software, transmission media
2. Understand the framing techniques, error detection and correction techniques, elementary data link protocols.
3. Understand the channel allocation problem, wireless LAN, Broadband, Bluetooth technologies
4. Understand various routing algorithms
5. Understand the transport layer protocols like TCP and UDP,DNS,WWW.

Course Outcomes–Program Outcomes Mapping Table:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	H		M		L	M	M	M	M	L	L
CO2	H	M	M		L	M	M	M	M	L	M
CO3	H	M	M		L	M	M	M	M	L	M
CO4	H	M	M		L	M	M	M	M	L	M
CO5	H	M	M		L	M	M	M	M	L	M

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Text Book :

1."ComputerNetworks",AndrewS.Tanenbaum,PrenticeHall,Fourth Edition.

ReferenceBooks :

1. **"Data Communications and Networking", Behrouz A. Forouzan, Tata McGraw-Hill, Fourth Edition.**
2. **Computer Networking, James F. Kurose and Keith W. Ross International edition, Pearson Education2012**
3. **Computer Networks – V.S. Bagad and I.A. Dhotre, Technical Publications.**
4. **AdvancedProgramminginUnixEnvironment,W.RichardStevens ,PearsonEducationPublications,SecondEdition Web**

References :

1. **https://www.javatpoint.com/computer-network-tutorial**
2. **https://www.tutorialspoint.com/data_communication_computer_network/index.htm**
3. **https://www.wireshark.org/**

AppReferences:

1. **Computer Networking Tutorial-Complete course IT**
2. **Computer Networking Dictionary**

Syllabus Coverage from text/referencebook &web/app reference:

Unit#	ChapterNumbers
1	1.1,1.2,1.3.1,1.3.2,1.3.3,1.4.1,1.4.2,1.5 2.1,2.2,2.3,2.4
2	3.1 to 3.4
3	4.1 to 4.6
4	5.1 to 5.5
5	6.1 to 6.5,7.1 to 7.3