



IV Year-I Semester		T	P	C
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COMPUTER NETWORKS (RT41042)

Prerequisite Course:

-Nil-

Course Description and Objectives:

- Understand state-of-the-art in network protocols, architectures, and applications.
- Process of networking research
- Constraints and thought processes for networking research
- Problem Formulation, Approach and Analysis

Course Outcomes:

Upon completion of the course, the student will be able to achieve the following outcomes.

COs	Course Outcomes	POs
1	Analyze a communication system by separating out the different functions provided by the network; and some example networks.	3
2	Understand various network topologies required for communication	3
3	Understand that there are fundamental limits to any communications system	3
4	Understand the general principles behind addressing, routing, reliable transmission and other stateful protocols as well as specific examples of each	3
5	Have an informed view of both the internal workings of the Internet and of a number of common Internet applications and protocols	3

SYLLABUS

UNIT – I INTRODUCTION

OSI, TCP/IP and other networks models, Examples of Networks: Novell Networks, Arpanet, Internet, Network Topologies WAN, LAN, MAN.

UNIT – II PHYSICAL LAYER

Transmission media copper, twisted pair wireless, switching and encoding asynchronous communications; Narrow band, broad band ISDN and ATM.

UNIT – III DATA LINK LAYER

Design issues, framing, error detection and correction, CRC, Elementary Protocol-stop and wait, Sliding Window. Medium Access Sub Layer: ALOHA, MAC addresses, Carrier sense multiple access, IEEE 802.X Standard Ethernet, wireless LANS, Bridges.

UNIT – IV NETWORK LAYER

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R-13 Syllabus for ECE, JNTUK

Virtual circuit and Datagram subnets-Routing algorithm shortest path routing, Flooding, Hierarchical routing, Broad cast, Multi cast, distance vector routing. DYNAMIC ROUTING: Broadcast routing. Rotary for mobility, Congestion, Control Algorithms – General Principles of Congestion prevention policies. Internetworking: The Network layer in the internet and in the ATM Networks.

UNIT – V

TRANSPORT LAYER

Transport Services, Connection management, TCP and UDP protocols; ATM AAL Layer Protocol.

UNIT – VI

APPLICATION LAYER

Network Security, Domain name system, SNMP, Electronic Mail; the World WEB, Multi Media.

TEXT BOOKS:

1. Computer Networks — Andrew S Tanenbaum, 4th Edition. Pearson Education/PHI.
2. Data Communications and Networking – Behrouz A. Forouzan.Third Edition TMH.

REFERENCE BOOKS:

1. An Engineering Approach to Computer Networks-S.Keshav, 2nd Edition,Pearson Education.
2. Understanding communications and Networks, 3rd Edition, W.A. Shay, Thomson.