20ITT51 -COMPUTER NETWORKS

Programme & Branch	B. Tech & Information Technology	Sem.	Category	L	T	P	Credit
Prerequisites	Nil	5	PC	3	1	0	4

Preamble	This course deals with the fundamental concepts of computer networks. It presents bottom up approach of different layers along with their concepts and protocols.	
Unit - I	**Network Models and Physical Layer**	**9+3**
Data Communications – Networks – Networks Types. Network Models: TCP/IP Protocol model - The OSI Model. Digital-to-digital conversion: Line coding – Line Coding Schemes – Transmission Modes – Transmission media: Guided – Unguided media.		
Unit - II	**Data Link Layer**	**9+3**
Introduction – Link Layer Addressing – Error Detection and Correction: Introduction – Block Coding – CRC – Checksum– Framing – HDLC - Point-to-point protocol. Media Access Control Protocols: Random Access Protocols – Channelization - Wired LAN: Standard Ethernet – Connecting Devices – Virtual LANs.		
Unit - III	**Network Layer**	**9+3**
Network Layer Services- Network layer performance - IPV4 addresses – Internet Protocol (IP) - ICMPv4. Unicast Routing Algorithms: Distance Vector and Link-state routing – Routing Protocols: RIP and OSPF - IPV6 addressing- IPV6 protocol.		
Unit - IV	**Transport Layer**	**9+3**
Introduction – Transport layer protocols: Simple – Stop-and-wait - Go-back-N – Selective Repeat - Piggybacking – UDP – TCP. Quality of Service: Data Flow Characteristics -Techniques to improve QoS.		
Unit - V	**Application Layer**	**9+3**
WWW - HTTP- FTP - Electronic mail –Telnet - SSH, DNS. Network Management: Introduction - SNMP.		

Lecture: 45, Tutorial :15Total: 60

TEXT BOOK:

1. Behrouz A. Forouzan, "Data Communications and Networking", McGraw-Hill, 5th Edition, 2013.

REFERENCES:

1. Kurose James F. and Ross Keith W., "Computer Networking: A Top-Down Approach", 6th Edition, Pearson Education, New Delhi, 2017.
2. Stallings, "Data and Computer Communications", PHI, 10th Edition, New Delhi, 2015.