15IT303J	COMPUTER NETWORKS	L	T	P	C
		3	0	2	4
Co-requisite:	NIL				
Prerequisite:	NIL				
Data Book / Codes/Standards	NIL				
Course Category	P PROESSIONAL CORE				
Course designed by	Department of Information Technology				
Approval	32nd Academic Council Meeting , May 2016				

PURPOSE	This course provides a foundation to understand computer networks using layered architectures. It also helps students to understand the various network models, addressing concept, routing protocols and design aspects of computer networks. .

INSTRUCTIONAL OBJECTIVES		**STUDENT OUTCOMES**						
At the end of the course, student will be able to								
1.	Understand the evolution of computer networks using the layered network architecture.	b						
2.	Design computer networks using subnetting and routing concepts	c						
3.	Understand the various Medium Access Control techniques and also the characteristics of physical layer functionalities.	m						

Session	Description of Topic	Contact Hours	C-D-I-O	IOs	Reference
	UNIT I: INTRODUCTION TO COMPUTER NETWORKS	**9**			
1.	Evolution of Computer Networks	1	C	1	1
2.	Classification of Computer Networks LAN,WAN,MAN	2	C	1	1
3.	Network Topology : BUS, STAR, RING, MESH -	2	C	1	1
4.	OSI Layered Architecture	2	C	1	1
5.	TCP/IP Model	2	C	1	1
	UNIT II: IPV4 ADDRESSING ARCHITECTURE	**9**			
6.	IPv4 Public and Private Address	2	C	2	1
7.	Subnetting	3	C	2	1
8.	VLSM-CIDR	2	C	2	1
9.	Network Devices:Router, Switch, HUB, Bridge.	2	C	2	1
	UNIT III: NETWORK LAYER PROTOCOLS	**9**			
10.	Static Routing	1	C	2	1
11.	Introduction to dynamic Routing Protocols	1	C	2	1
12.	RIP v1 and RIP v2,OSPF	3	C	2	1
13.	EIGRP	2	C	2	2

Session	Description of Topic	Contact Hours	C-D-I-O	IOs	Reference
14.	BGP	2	C	2	1
	UNIT IV: DATA LINK LAYER	**8**			
15.	Medium Access Control Techniques	1	C	3	1
16.	Random, Round Robin, Reservation, ALOHA	1	C	3	1
17.	Pure and Slotted, CSMA/CD	1	C	3	1
18.	CSMA/CA, Ethernet, Token Ring, Token Bus,	1	C	3	1
19.	ARQ 3 Types,	1	C	3	1
20.	Error Detection Codes, Parity Check, Checksum	2	C	3	1
21.	Error Correction Codes,Hamming codes	1	C	3	1
	UNIT V: PHYSICAL LAYER CHARACTERISTICS	**10**			
22.	Physical Layer overview	2	C	3	1
23.	Latency, Bandwidth, Delay	1	C	3	1
24.	Wireless: 802.11	2	C	3	1
25.	Transmission Media : Twisted pair, Coaxial, Fibre	2	C	3	1
26.	802.15, 802.15.4	2	C	3	1
27.	802.16	1	C	3	1
	Total Contact Hours	45			

Sl. No.	Description of Experiments	Contact Hours	C-D-I-O	IOs	Reference
1.	IP Addressing and subnetting (VLSM)	2	D,I	1-4	1,2
2.	LAN Configuration using straight through and cross over cables	2	D,I	3	2
3.	Basic Router Configuration (Creating Passwords, Configuring Interfaces)	2	I	1	2
4.	Static and Default Routing	4	I	1	2
5.	RIPv1	4	I	2	1,2
6.	RIPv2	2	I	2	1,2
7.	EIGRP Configuration, Bandwidth, and Adjacencies	4	I	2	2
8.	EIGRP Authentication and Timers	2	I	2	2
9.	Single-Area OSPF Link Costs and Interface	2	I	2	1,2
10.	Multi-Area OSPF with Stub Areas and Authentication	2	I	2	2
11.	Redistribution Between EIGRP and OSPF	2	I	2	2
12.	Model Examination	2			
	Total Contact Hours	30			

SI.No	LEARNING RESOURCES