

Branch Name:	Computer Engineering / Information Technology
Program Code:	ET404 / ET407
Course Title:	Computer Network
Course Code:	2ET4040402
Pre-requisite Course:	--

Course Objectives:

1. Build an understanding of the fundamental concepts of computer networking.
2. Familiarize the student with the basic taxonomy and terminology of the computer networking area.
3. Introduce the student to advanced networking concepts, preparing the student for entry Advanced courses in computer networking.
4. Independently understand basic computer network technology.
5. Identify the different types of network topologies and protocols.
6. Enumerate the layers of the OSI model and TCP/IP. Explain the function(s) of each layer.

Teaching and Examination Scheme:

Teaching Scheme (Hours per week)				Evaluation Scheme (Marks)				
Lecture (L)	Tutorial (T)	Practical (P)	Credit	Theory (Marks)		Practical (Marks)		Total (Marks)
				University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	
3	0	2	4	60	40	20	30	150

Course Contents:

Unit No	Topic	Total Hours	Weightage (%)
Unit – I	Basics of Computer Network: 1.1 Definition & history of networks 1.2 Usage of Computer Networks 1.3 Standard Organizations and Protocols 1.4 Line Configuration 1.5 Network Topology 1.6 Categories of network Based on Scope and Connection 1.7 Applications and features of different types of servers: File server, Print Server, Mail Server, Web Server, Proxy Server	08	20
Unit – II	The Reference Model for network communication: 2.1 OSI model & function of each Layer 2.2 TCP/ IP model 2.3 Connection oriented Vs Connectionless approach 2.4 Comparison of OSI & TCP/IP Models	09	20
Unit – III	Transmission Media: 3.1 Types of Transmission Media 3.2 Guided Media: Twisted Pair, Coaxial Cable, Fiber 3.3 Un Guided Media : Electromagnetic spectrum, Radio Transmission, Microwave Transmission, Infrared Transmission, Satellite Communication	08	20
Unit- IV	Network devices and Network Management Software: 4.1 Repeaters 4.2 Hubs 4.3 Switches 4.4 Routers 4.5 Access Points 4.6 Gateways 4.7 Bridges 4.8 Difference between Layer 2 and Layer 3 Switches. 4.9 Introduction of Network Management software	08	20

Unit-V	IP Protocol and Network Applications:	09	20
	5.1 Explain IP v4 and IP v6 protocol.		
	5.2 Select appropriate class for given network size.		
	5.3 Illustrate subnet and usage of subnet masking.		
	5.4 Explain DNS, Email and FTP, HTTP.		

Text Books:

Computer Networks (3rd edition), Tanenbaum Andrew S., International edition, 1996.

Reference Books:

Sr.No.	Title of Book	Author	Publication
1.	Computer Networks	Andrew S Tannebaum	Pearson, 2012
2.	Information Technology Today	S. Jaiswal	Galgotia Publications
3.	Computer Networks	Bhushan Trivedi	Oxford University Press, 2013
4.	Data Communication & Networking,	Forouzen	Tata McGraw Hill
5.	Data & Computer Communication,	Williams Stallings	Prentice Hall of India
6.	Networks for Computer Scientists and Engineers	Youlu Zheng & ShakilAkhtar	Oxford University Press, 2012

List of Open-Source Software/learning website:

<https://www.geeksforgeeks.org/computer-network-tutorials/>

https://onlinecourses.nptel.ac.in/noc18_cs38

<http://ww25.nptelvideos.in/2012/11/computer-networks.html>

Course Learning Outcomes (CLO):

The theory should be taught and practical should be carried out in such a manner that students are able to acquire different learning out comes in cognitive, psychomotor and affective domain to demonstrate following course outcomes.

1. Describe various protocols, models in networks.
2. Explain operations of TCP, HTTP, and DNS.
3. Illustrate uses of Subnets, Ipv4 and Ipv6 in computer networks.
4. Design simple computer networks.
5. Establish and Commission simple computer networks.
6. Identify and solve network operational problems.

LIST OF PRACTICAL:

1. Install & Test Network Interface Card.
2. Prepare and Test Straight UTP Cable.
3. Prepare and Test Cross UTP Cable.
4. Develop a small Network. (Hands on Training)
5. Install Windows 2003/Windows 2008 Network operating System.
6. Install & Configure File Server.
7. Install & Configure Print Server.
8. Install & Configure Mail Server.
9. Install & Configure Proxy Server.
10. Install & Configure Web Server.
11. Install & Test Router, Repeater and Bridge.
12. Install a small wireless network using access points.
13. Set, Configure& Test Internet.

Mapping of CLO with PO and PSO

Course Learning Outcomes	Program Outcomes(POs)												Program Specific Outcomes (PSOs)			
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4
CLO1	H	M	M	L										M		
CLO2	H	M	M	L										M		
CLO3	M	L	L	L										H		
CLO4	L	M	H	M										H		
CLO5	M	L	L	L										L		
CLO6	L	L	L	L										L		

H: High, M: Medium, L: Low