MANIPAL INSTITUTE OF TECHNOLOGY

(A constituent college of Manipal University, Manipal)
Manipal Karnataka 576 104

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

COURSE PLAN

Department : **Computer Science & Engg.**
Computer Communication and Networks

Subject : **(CSE-311)**

Semester & Branch : **V**

Name of the faculty : **Vivekanand Bhat**

Sucharitha Shetty
Radhika Kamath
Manoj R

No of contact hours/week : **4**

Assignment Portion	
Assignment no.	**Topics**
1	(L1-L10)
2	(L11-L20)
3	(L21-L29)
4	(L30-L39)
5	(L40-L48)
Test Portion	
Test no.	**Topics**
1	(L1-L20)
2	(L21-L40)

Submitted by:

Vivekanand Bhat

(Signature of the faculty)

Date:01-08-2014

Approved by:

(Signature of the HOD)

Date:

Lecture no	Topics to be covered
1	Uses of Computer Networks
2	Network Hardware
3	Network Software
4	Reference Models
5	Concepts and Terminology
6	Concepts and Terminology Contd.
7	Analog and Digital Signals
8	Analog and Digital Transmission
9	Transmission Impairments
10	Channel Capacity, Nyquist Bandwidth
11	Shannon Capacity Formula
12	Decibels and Signal Strength
13	Guided Transmission Media : Twisted Pair, Coaxial Cable
14	Guided Transmission Media: Optical Fiber
15	Wireless Transmission
16	Digital Data, Digital Signals: NRZ, Multilevel Binary
17	Biphase, Modulation Rate
18	Scrambling Techniques
19	Digital Data, Analog Signals: ASK, FSK
20	Phase Shift Keying
21	Quadrature Amplitude Modulation
22	Asynchronous Transmission, Synchronous Transmission
23	Types of Errors
24	Error Detection: Parity Check
25	Cyclic Redundancy Check
26	Flow Control
27	Error Control: Stop-and-Wait ARQ ,Go-Back-N ARQ
28	Selective-Reject ARQ, HDLC Basic Characteristics
29	HDLC Frame Structure, HDLC Operation
30	Performance Issues : Stop-and-Wait Flow Control
31	Error Free Sliding-Window Flow Control, ARQ
32	Frequency Division Multiplexing
33	Synchronous Time Division Multiplexing
34	Statistical Time Division Multiplexing: Characteristics Only
35	The Channel Allocation Problem
36	Aloha , Carrier Sense Multiple Access Protocols
37	Collision Free Protocols, Wireless LAN Protocols
38	Ethernet Cabling, Manchester Encoding, Ethernet MAC Sub layer Protocol
39	Binary Exponential Back Off Algorithm, Ethernet Performance

40	Switched Ethernet, Fast Ethernet
41	Wireless LANS: 802.11 Protocol Stack, Physical Layer
42	802.11 MAC Sub layer Protocol, 802.11 Frame Structure, Services
43	Store and Forward Packet Switching, Services Provided to the Transport Layer, Implementation of Connectionless Service
44	Implementation of Connection Oriented Service, Comparison of Virtual Circuit and Datagram Subnets
45	Optimality Principle, Shortest Path Routing, Flooding, Distance Vector Routing
46	Link State, Hierarchical, Broadcast and Multicast Routing, Routing for Mobile Hosts
47	General Principle of Congestion Control, Congestion Prevention Policies, Congestion Control in Virtual Circuit Subnets
48	Congestion Control in Datagram Subnets, Load Shedding

Text Books:

1. Andrew S. Tanenbaum – Computer Networks, 5th Edition, 2010 Prentice Hall of India Pvt. Ltd.
2. William Stallings – Data and Computer Communications, 7th Edition, 2004 Prentice Hall of India Pvt. Ltd.

References:

1. Behrouz A. Forouzan , Data Communications and Networking, Tata McGraw-Hill 4th Edition .2006
2. Computer Networking –A Top-Down Approach Featuring the Internet Tata McGraw-Hill 5th Edition .
3. Godbole, Data Communications and Networks, Tata McGraw-Hill 2002.
4. Micael A. Gallo & William M. Handcock, Computer Communications and Networking Technologies, Thomson, 2003 Edition.