MANGALORE UNIVERSITY

DEPARTMENT OF M.Sc. COMPUTER SCIENCE

MASTER OF COMPUTER APPLICATIONS (MCA) PROGRAMME

MCAS404 :ADVANCED COMPUTER NETWORKS		
Hours/Week: 4 **Credits : 4**		**I.A. Marks: 30** **Exams. Marks: 70**

Course Outcomes:

CO1: Illustrate reference models with layers, protocols and interfaces.
CO2: Summarize functionalities of different Layers.
CO3: Combine and distinguish functionalities of different Layers.
CO4: Describe and Analysis of basic protocols of computer networks, and how they can be used to assist in network design and implementation.
CO5: Identify and describe development history of routing protocols.
CO6: Describe Sub-netting and Addressing of IP V4.
CO7: Demonstrate Data Communications System and its components.
CO8: Identify the different types of network devices and their functions within a network.
CO9: Diagnose and resolve problems of a LAN and WAN.

	UNIT-I	**12 Hours**

Introduction: Introduction to Computer Networks. Understanding Network architecture. Introduction to TCP/IP Architecture, TCP/IP addressing, services, FTP, SMTP, TFTP, SNMP, and Network file system, domain name system, transport layer protocols, user datagram protocol, transmission control protocol, Class addresses, ARP, RARP.

	UNIT-II	**12 Hours**

Inter process communications: File and record locking, pipes, FIFO's, stream and messages, message queues, semaphores

	UNIT-III	**12 Hours**

Sockets: Sockets system calls, reserved ports, stream pipes, socket option, asynchronous I/O, Sockets and signals. Understanding the Internet Protocols SLIP versus PPP. Understanding the Socket interface. Concepts of the Windows sockets API. Importance of Raw Sockets. Internet Application Services, E-Mail, File Transfer Protocols, Characteristic Features of the Firewall.

UNIT-IV	12 Hours

Transport Layer Interface: Elementary TLI functions, stream and stream pipes, asynchronous I/O multiplexing. **Remote Procedure calls:** Remote login, remote command execution, external data representation. UUCP.

REFERENCE BOOKS

1. A. Stevens, "TCP/IP Illustrated", Vol. 1-3, Addison Wesley, 1998.
2. R. Stevens, "Unix Network Programming", PHI, 1998
3. J. Martin, "TCP/IP Networking – Architecture, Administration and programming", Prentice Hall, 1994.
4. D.E. Comer, "Internetworking with TCP/IP, Vol. 1, Principles, Protocols, and architecture, PHI, 2000.
5. Internet Programming by Kris Jamsa, Galgotia publishers, 2001.