Module Title: Applications of Network Computing
Module Code: CMC2421
Module Value: 1.5
Duration: 30 weeks
Class-Contact Hours: Lecture 30 hours.
Tutorial/Laboratory 60 hours.
Assessment Scheme: Continuous Assessment 50%
Examination 50%

Module Rationale/Aims:
· to provide an understanding the concepts of modern computer network;
· to provide an understanding of the need of computer network;
· to provide an understanding of the structure of a local area network, a widearea network and the Internet;
· to know how to setup and maintain application systems under the Internet environment.
Learning Objectives:
Students will be able to
· describe the concepts and principles of computer network;
· describe Network Programming Environment;
· understand the basic concepts of computer network;
· configure and use different network devices, operating systems, and application tools;
· understand the principles and functions of the TCP/IP protocols;
· build and maintain internet/intranet web server.
Syllabus Keywords:
client/server, Internet, Networking Operating Systems, WWW, HTML, HTTP, Web Browsers, Java, Applets, CGI, SSI, SQL, API, LAN, MAN, WAN, ISDN, TCP/IP, Routers, Bridges, switches, Gateways, Ethernet, Token Ring, Wireless, OSI, Sockets, Terminal Emulation, File Transfer, Email, Telnet, FTP, URL, UDP.

Recommended Textbooks/References:

Comer, D.E. and Droms,R.E., Computer Networks and Internets, Prentice Hall,2nd ed., 1999.Ince , D. & Freeman A., Programming the Internet with Java, Addison Wesley, 1997. Johnson, M. K. and Troan, E. W., Linux Application Development, Addison Wesley, 1998. Lammle, T., Porter, D., & Chells, J., CCNA Cisco Certified Network Associate Study Guide, Network Press, SYBEX, 1999. Santifaller M., TCP/IP and ONC/NFS Internetworking in the Unix Enivronment, 2 nd Edition, Addison Wesley, 1994

Lecture Tut/Lab

1 Introduction

a Information-technology (IT) infrastructure

b Classification of Applications

c Basic networking and OSI concepts

d Overview of some popular Network Operating Systems

2 Network Technologies and Architectures

a Enterprise Network Concepts

b Typical Networks:Local-Area Networks, Wide-Area Networks, and the Internet

c LAN setup

d Network Architectures and the OSI Reference Model

e Emerging Communication Technologies

3 Network Interconnectivity and Device Configuration

a Bridges and switches

b Routers and Firewalls

c Network Gateways

4 IT Building Blocks

a Client/Server Fundamentals

b IT Building Blocks - The C/S View

c Application Architectures and Sample Configurations

d Examples of Client/Server

e Socket Interface and Procedural Call

5 Internet Protocol

a Internetworking concepts and architecture

b IP

c IP datagram

d TCP

e UDP

6 World Wide Web

a Overview of World Wide Web

b Hypertext Markup Language (HTML)

c Hypertext Transfer Protocol (HTTP)

d Web Browsers and Web Severs

e Java and Java Applets

f Setting up and administration of internet/intranet web servers

7 Networking Applications

Client-server interaction, electronic mail, file transfer protocol (ftp), point-to-point protocol (PPP), dial-up network, Network File System (NFS), Domain Name Service (DNS)

8 Network Application Tools

a Categories of Commercial Network Application Tools

b Survey of Available Commercial Tools

c Installation and Commissioning of Available Commercial Tools