Course Title: Internet Technology (CSC-402)
Lecture: 3 Hrs.   **Full Marks: 60+20+20**
Lab: 3 Hrs.   **Pass Marks: 24+8+8**
Credits: 3 hours.
Course Objectives:
This course deals on the practical application of internetworking technologies to private intranets for information management and public internets for electronic commerce students will learn theoretical details, strategies for designing sites, techniques for creating their technical infrastructures, methods for developing content, and techniques for site deployment and management.

1. **Introduction**   **5 Hrs.**
   1.1 History and Development of Internets and Intranets
   1.2 IANA, RIR/NIR/LIR and ISPs for internet number management
   1.3 Internet Domain and Domain Name System
   1.4 Internet Access Overview
   1.5 Internet Backbone Networks: Optical Backbone, Marine Cables, Teleports, Satellite and Terrestrial Links

2. **Internet Protocol Overview**   **6 Hrs.**
   2.1 TCP/IP and the IP Layer overview
   2.2 IPv4 and IPv6 Address Types and Formats
   2.3 IPv4 and IPv6 Header Structure
   2.4 Internet RFCs

3. **Protocols and Client/Server Applications**   **6 Hrs.**
   3.1 Standard protocols: SMTP, E-mail, Message (RFC22), PGP, POP, IMAP, HTTP, FTP
   3.2 N-Tiered Client/Server Architecture
   3.3 Universal Internet Browsing
   3.4 Multiprotocol Support

4. **HTTP and the Web Services**
   4.1 HTTP, Web Servers and Web Access
   4.2 Universal naming with URLs
   4.3 WWW Technology: HTML, DHTML, WML, XML
   4.4 Tools: WYS/WYG Authoring Tools
   4.5 Helper applications: CGI, PERL, JAVA SCRIPTS, PHP, ASP, .NET Applications
   4.6 Introduction to AJAX (Programming)
   4.7 Browser as a rendering engine: text, HTML, gif and jpeg

5. **Designing Internet Systems and Servers**   **8 Hrs.**
   5.1 Designing of Internet System Network Architecture

5.2 Choice of platforms

5.3 Sever Concepts: WEB, Proxy, RADIUS, MAIL

5.4 Cookies

5.5 Loading Balancing: Proxy Arrays

5.6 Server Setup ad Configuration Guidelines

5.7 Security and System Administration Issues, Firewalls and Content Filtering

6. Internet and Intranet Systems Development   **6 Hrs.**

6.1 Introductions

6.2 Benefits and drawbacks of intranets

6.3 Protocols, Structure and Scope of Networks

6.4 Intranets Resources Assessments: Network Infrastructure, Clients and Server Resources

6.5 Intranet Implementation Guidelines

6.6 Content Design, Development, Publishing and Management

6.7 Intranet Design with Open source Tools: DRUPAL, JUMLA

6.8 Tunneling Protocols: VPN

7. Internet and Intranet Applications   **6 hrs.**

7.1 General Applications: E-mail, WWW, Gopher, Online Systems

7.2 Multimedia and Digital Video/Audio Broadcasting: Video/Audio Conferencing, Internet Relay Chat (IRC)

7.3 Broadband Communications, Policy, xDSL and Cable Internet

7.4 VoIP, FoIP and IP Interconnection

7.5 Datacenters and Data warehousing, packet clearing house

7.6 Unified Messaging Systems

7.7 Fundamental of e0commerce

7.8 Concept of Grid and Cloud Computing

Laboratory

Laboratory should contain all the features mentioned in the syllabus

References

1. Computer Networks: Andrew S. Tanenbaum, Prentice Hall India Limited, New Delhi, 2010

2. Internet and Intranet Engineering: Daniel Minoli, MGraw-Hill India Limited, New Delhi, 2009

3. Internetworking with TCP/IP: Comer, D.E. and Stevens

Model Question (Internet Technology)

Tribhuvan University
Institute of Science and Technology
B.Sc. CSIT 7th Semester (Model Question)

Course Title: Internet Technology (CSC-402)

Full Marks: 60   **Pass Marks: 24**

Time: 3 Hrs.

<u>**Attempt Any Five Questions**</u>

1. [a] What are Teleports and Terrestrial Links? Explain the practical approach of IP address distribution in this world. [8]
   [b] Explain Internet System development history with the growth of World Wide Web. [4]

2. [a] What is RFC? Explain the TCP/IP Protocol Hierarchy. [2+4]
   [b] Describe the Features and Benefits of enabling TCP/IPv6 in your machine for communication management. [6]

3. [a] Explain the features of XML with its basic syntax. [4]
   [b] Describe basic Internet server configuration steps with example. [8]

4. [a] what would be your proper choice of platforms to build your secure internet system? Describe on behalf of the choice of hardware and software system. [8]
   [b] What are the intranet implementation guidelines? [4]

5. [a] What is Unified Messaging System? Explain the purpose and requirement of National Data Centers. [2+4]
   [b] What is VoIP? Explain its different flavor with its benefits and drawback. [6]

6. Explain the conceptual development of Intranet System by considering network design, resource assessments and security issues. [4+4+4]

7. Write down notes on (any Three)
   a) Content Design Management and Issues
   b) PGP
   c) IRC and its features/benefits
   d) Proxy Arrays
   e) Internet Security and Content Filtering Issues