**Bharati Vidyapeeth College of Engineering**

Lavale, Pune- 412 115, Maharashtra State.

Phone: (020) 6500 3345, Website: bvcoe.bharatividyapeeth.edu

**Department of Computer Engineering**

***Laboratory Assignment List***

**INDEX**

|  |  |  |
| --- | --- | --- |
|  | **Subject: Computer Networks and Security Laboratory [310247] Credit: 01** |  |
|  | **Practical /Week:** 2 Hrs |  |
| **Class:** TE  **Term work:** 25 Marks  **Oral:** 25 Marks  **Course Objectives:**   1. To learn computer network hardware and software components 2. To learn computer network topologies and types of network 3. To develop an understanding of various protocols, modern technologies and applications 4. To learn modern tools for network traffic analysis 5. To learn network programming   **Course Outcomes:** On completion of the course, learners should be able to   1. **CO1:** Analyze the requirements of network types, topology and transmission media 2. **CO2:** Demonstrate error control, flow control techniques and protocols and analyze them 3. **CO3:** Demonstrate the subnet formation with IP allocation mechanism and apply various routing algorithms 4. **CO4:** Develop Client-Server architectures and prototypes 5. **CO5:** Implement web applications and services using application layer protocols 6. **CO6:** Use network security services and mechanisms | |  |

|  |  |
| --- | --- |
| **Suggested List of Laboratory Assignments** | |
| **Group A (Unit I and II)** | |
| 1 | Setup a wired LAN using Layer 2 Switch. It includes preparation of cable, testing of cable using line tester, configuration machine using IP addresses, testing using PING utility and demonstrating the PING packets captured traces using Wireshark Packet Analyzer Tool. |
| 2 | Demonstrate the different types of topologies and types of transmission media by using a packet tracer tool. |
| 3 | Write a program for error detection and correction for 7/8 bits ASCII codes using Hamming  Codes or CRC . |
| 4 | Write a program to simulate Go back N and Selective Repeat Modes of Sliding Window  Protocol in Peer-to-Peer mode. |
| **Group B Assignments(Unit III & IV)** | |
| 5 | Write a program to demonstrate Sub-netting and find subnet masks. |
| 6 | Write a program to implement link state /Distance vector routing protocol to find suitable path for transmission. |
| 7 | Use packet Tracer tool for configuration of 3 router network using one of the following  protocol RIP/OSPF/BGP. |
| 8 | Write a program using TCP socket for wired network for following  a. Say Hello to Each other  b. File transfer  c. Calculator |
| 9 | Write a program using UDP Sockets to enable file transfer (Script, Text, Audio and Video one file each) between two machines. |
| **Group C Assignments(Unit V & VI)** | |
| 10 | Write a program for DNS lookup. Given an IP address as input, it should return URL and vice- versa. |
| 11 | Installing and configure DHCP server and write a program to install the software on remote machine. |
| 12 | Study and Analyze the performance of HTTP, HTTPS and FTP protocol using Packet tracer tool. |
| 13 | To study the IPsec (ESP and AH) protocol by capturing the packets using Wireshark tool. |

* **Virtual Laboratory:** <http://vlabs.iitb.ac.in/vlab/>

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| [**The CO-PO Mapping Matrix**](#_bookmark6) **of CNSL** | | | | | | | | | |
| **PO3** | **PO4** | **PO5** | **PO6** | **PO7** | **PO8** | **PO9** | **PO10** | **PO11** | **PO12** |
| 2 | - | 2 | 1 | 1 | - | - | 1 | - | 1 |
| - | 1 | 1 | - | - | 1 | - | - | - | - |
| 1 | 1 | - | - | - | 1 | - | - | 1 | 1 |
| 2 | 1 | 1 | 1 | - | - | - | - | - | 1 |
| - | - | 1 | - | - | - | 1 | - | - | - |
| 3 | 1 | 1 | - | 1 | - | 2 | - | - | 1 |

Prof. Parinita J Chate Dr.Uday C Patkar

**(Subject In-charge) ( H.O.D)**