**Computer Communications and Networks**



**Lab 12**

**Network Topology using Packet Tracer**

Lab Manual 12

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| Objectives  * Develop a network topology using Packet Tracer * Concept of CIDR Subnet * DHCP |

# **Lab Tasks**

1. **You have to design a network solution for UCP four Labs, Staff and Faculty members. All the three Labs, Staff and faculty members should be on different Sub networks. There are total 52 computers divided according to the table shown below.**

|  |  |
| --- | --- |
| Subnets | No.of Hosts |
| Lab 1 | 3 |
| Lab 2 | 5 |
| Lab 3 | 6 |
| Lab 4 | 8 |
| Faculty | 9 |

**Assume that UCP is given a Network Class C address having first three octets of IP address fixed as 192.168.10.0/24. Make sure that you optimally design the network considering the number of devices (switches, routers etc.) used and how you are assigning the IP addresses to different subnets in your design. (You can consult the slides for sub netting provided to you in case you have no idea about sub netting or you have forgotten it)**

1. **Use wires (straight through and cross over where necessary and applicable) – no wireless LAN is required for this submission.**
2. **Use 2811 Router and 2950-24 switches.**
3. **You have to assign IPs the machines using dhcp configuration from the CLI of the router**
4. **Use ping from the command prompt of computers to check your network design is working.**

**Make your design as neat as possible and properly add the IPs of all the PCs and router interfaces using comments in your design to get the full credit. (You can insert comments in the design area using a sticky note sign in the right sidebar of Cisco Packet Tracer)**

**Configuring Router using CLI of Router:**

**To configure the router using CLI there are many commands but what you need to know are some basic commands using which you should be able to configure DHCP using server. Below given are some commands to configure DHCP . You must see all these commands carefully and try to implement your system using CLI of the router. Commands are simple and you will interpret what each command says once you have read it thoroughly.**

**Note: You can use TAB in CLI to write the incomplete word after writing one or two letters e.g., if you write “configure ter” and press tab CLI will automatically make it “configure terminal”.**

**//Configuring DHCP in Router**

Router(config)#ip dhcp pool NetA //Configure DHCP using router for One Subnet

Router(dhcp-config)#network 192.168.10.0 255.255.255.0 //Give network and mask

Router(dhcp-config)#default-router 192.168.10.1 //Give default gateway for NetA

Router(dhcp-config)#exit //exit the NetA config

//exclude certain specific addresses if you want

Router(config)#ip dhcp excluded-address 192.168.1.4 192.168.10.7

Router(config)#exit

// for show dhcp pool

Router#show ip dhcp pool