**Lab Sheet – 13**

**Title:** Configure VLANs

**Aim:**

- Getting familiar with Layer-3 Switching and Inter-VLAN Routing

**Task:**

- Design a network topology
- Adding VLANs to a Switch
- Configure IP addresses
- Configure Layer 3 switch
- Configure Inter-VLAN Routing

**Activities**

**Exercise 01: Design a Network Topology**

**Use "NST21022 Labsheet 14.pka" file**

**VLAN and Addressing Table**

| Device | VLAN | Name | Network |
|---|---|---|---|
| **S1** | VLAN 10 | Red | 192.168.1.0/24 |
| | VLAN 20 | Green | 192.168.2.0/24 |
| | VLAN 30 | Blue | 192.168.3.0/24 |
| **S2** | VLAN 40 | Yellow | 192.168.4.0/24 |
| | VLAN 50 | White | 192.168.5.0/24 |
| | VLAN 60 | Black | 192.168.6.0/24 |
| **Device** | **Interface** | **IP Address** | **VLAN** |
| **Colors** | VLAN 10 | 192.168.1.1/24 | |
| | VLAN 20 | 192.168.2.1/24 | |
| | VLAN 30 | 192.168.3.1/24 | |
| | VLAN 40 | 192.168.4.1/24 | |
| | VLAN 50 | 192.168.5.1/24 | |
| | VLAN 60 | 192.168.6.1/24 | |
| **PC-1** | NIC | 192.168.1.10/24 | VLAN 10 |
| **PC-2** | NIC | 192.168.2.10/24 | VLAN 20 |

| | | | |
|---|---|---|---|
| **PC-3** | NIC | 192.168.3.10/24 | VLAN 30 |
| **PC-4** | NIC | 192.168.4.10/24 | VLAN 40 |
| **PC-5** | NIC | 192.168.5.10/24 | VLAN 50 |
| **PC-6** | NIC | 192.168.6.10/24 | VLAN 60 |

1. Create a network topology with layer 3 switch including another 2, layer 2 switch.
2. Create additional VLANs on Colors, S1 and S2 according to the table above.
3. Assign Ports to VLANs
4. Configure Switch Virtual Interface (SVI) on Colors

   ***Colors(config)# interface vlan 10***

   ***Colors(config-if)# ip address 192.168.1.1 255.255.255.0***

5. Configure trunking on Colors

   a. Configure interface g0/1 and g0/2
   b. Make the interface a static trunk mode

      ***Colors(config-if-range)# switchport mode trunk***

   c. Encaplsulate the link with the dot1q protocol

      ***Colors(config-if-range)# switchport trunk encapsulation dot1q***

6. Configure trunking in S1 and S2
7. Enable routing in global configuration mode.

   ***Colors(config)#ip routing***

8. Check routing table
9. Verify connectivity.