**Troubleshooting Exercise**

**Objective**

Skills practiced in this lab include VLAN and trunk ports, switchport security, and other host and switch configurations.

**Key Concepts and Commands**

switchport mode, port security settings and address type, VLAN setting and port assignment

VLAN

*S1(config)# vlan 10*

*S1(config-vlan)# name Student*

*S1(config-vlan)# vlan 20*

*S1(config-vlan)# name Faculty*

*S1(config)# interface f0/6*

*S1(config-if)# switchport mode access*

*S1(config-if)# switchport access vlan 10*

*S1(config)# interface range f0/11-24*

*S1(config)# interface range f0/11, f0/21*

*S1(config-if)# switchport access vlan 30*

*–- creating VLAN and assign ports to it in one command*

*S1(config-if)# no switchport access vlan*

*S1(config)# no vlan 30*

*S1# show vlan brief*

*S1# show ip interfaces brief  
S1# switchport mode access*

*Trunking*

*Switch(config-if)# switchport mode dynamic desirable*

*Switch(config-if)# switchport mode trunk*

*Switch(config-if)# switchport trunk native vlan 200*

*Switch(config-if)# switchport trunk allowed vlan remove 2*

*Switch(config-if)# switchport trunk allowed vlan ?*

*[WORD, add, all, except, none, remove]*

*Switch# show interfaces f0/2 switchport*

*Switch# show interfaces trunk*

*Switchport Security*

*Switch# show port address*

*Switch# show port-security*

*Switch# show port-security interface f 0/1*

*Switch # sh port-security address*

*Switch(config-if)# switchport mode access*

*Switch(config-if)# switchport port-security*

*Switch(config-if)# switchport port-security maximum 5*

*Switch(config-if)# switchport port-security mac-address sticky*

*Switch(config-if)# switchport port-security mac-address mac\_address*

*Switch# clear port-security all [configured | dynamic | sticky]*

**Trouble Shooting Tasks**

1. Use network trouble shooting tools (mainly ping in this exercise) to check connectivity of all hosts and switches. Document problems found.
2. Trouble shoot and configure hosts and switches to restore connectivity according to the VLAN and IP settings in the given network design.
3. Document the problems, reason(s) of the problem, and how they are resolved for each networking design (each Packet Tracer file) separately.

**Note:**

1. In the **troubleshooting4** network design, there is port security configuration. The task is to restore connectivity for PC2. You do not need to connect PC3. PC2 and PC3 share one port on the switch, they cannot both be connected at the same time. Change the port-security setting on the port to allow two 2 MAC addresses, and add PC2's MAC address to become a ‘SecureCongiured’ address.
2. In the **troubleshooting4** network design, to reactivate a shutdown interface due to security violation, you have to bring it out of the *error-disabled state* first. See pdf file “Cisco Port Security” on D2L for commands to reactivate the interface.

**Submission**

* Soft copy of the documentation of the “Trouble Shooting Tasks” (see above).
* Soft copy of the Packet Tracer network design .pkt file in dropbox
* Please submit individual files, **NOT a zipped folder**.