

# NST21022 - Practical for Network Switching and Routing

Department of Information & Communication Technology

Faculty of Technology, SEUSL

## Lab Sheet – 08

**Title:** IPv4 VLSM (Variable Length Subnet Mask)

**Aim:**

- VLSM IP addressing scheme
- Configure devices with IPv4 after subnetting

**Task:**

- Design an IP scheme
- Subnet the IPv4 address
- Assign IP address to Network devices and verify connectivity

Use “NST21022 Labsheet 08.pka” file

### Activities

**Exercise 01: Subnet the 172.16.0.0/16 network into the appropriate subnets.**

1. Based on the topology, how many subnets were needed?
2. How many hosts need for each subnet?
3. How many hosts provide by each subnet?

**Exercise 02: Fill the subnet table.**

Subnet Number	Network Address	First Usable Host Address	Last Usable Host Address	Broadcast Address
A				
B				
C				
D				
E				
F				
G				
H				

**Exercise 03: Configure IP address according to following criteria.**

1. Fill the addressing table using following guidelines:
  - a. Assign the first usable IP addresses in each subnet to R1, R2, R3 for the LAN links.
  - b. Assign the first usable IP addresses in each subnet for the WAN links as follows;  
R1 – S0/1/0  
R1 – S0/1/1  
R2 – S0/1/1

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- c. Assign the last usable IP addresses in each subnet for the WAN links as follows.
- R2 – S0/1/0
  - R3 – S0/1/0
  - R3 – S0/1/1
- d. Assign the second usable IP address to the PCs in each subnet

**Addressing Table**

Devices	Interfaces	IP Addresses	Subnet Mask	Default Gateway
R1	G0/0/0			
	S0/1/0			
	S0/1/1			
R2	G0/0/0			
	G0/0/1			
	S0/1/0			
	S0/1/1			
R3	G0/0/0			
	G0/0/1			
	S0/1/0			
	S0/1/1			
PC1	NIC			
PC2	NIC			
PC3	NIC			
PC4	NIC			
PC5	NIC			

2. Assign IP addresses to network devices and verify connectivity