# Computer Networking: Concepts

# (CSE 3751)

## Experiment 6

**Aim:**

Implementation and understanding the use of Sub- netting, and VLSM (Variable Length subnet masking) with Cisco Packet Tracer

**Objectives:**

1. An overview on classless IPv4 addressing, CIDR notation, sub-netting and VLSM used in computer networking.
2. Implementing the sub-netting technique to divide a network into smaller subnets (with predefined users) and analysing the communication between PCs in both intra and inter-subnets.
3. Implementing the VLSM technique to optimize the IPv4 address allocations to PCs (belonging to subnets) and interfaces in a given network and analysing the communication between PCs in the network.

**Exercises:**

1. Express the following classful IP addresses in CIDR notation:
    a. 192.34.1.9
    b. 10.10.10.1
    c. 129.10.14.15
2. Given the IP address of a device as 192.168.10.126/25. Find the subnet mask and network ID in dotted decimal notation.
3. A network with ID 200.1.2.0 is divided into 3 subnets, find number of hosts per subnet. Also, for all the subnets, find-
    a. Subnet Address
    b. First Host ID
    c. Last Host ID
    d. Broadcast Address
4. Design a network using VLSM for the following requirements with the given network 10.0.0.0/24. Assign IP addresses accordingly: (a) Network A: 60 hosts (b) Network B: 30 hosts (c) Network C: 14 hosts (d) Network D: 6 hosts