BIC 21303
Computer Networking
Project Specification (Maximum: 5 students per Group)
DUE DATE: WEEK 13 MONDAY 5 PM 9 JUNE 2025

Part 1: Small Office Home Office (SOHO) Network Design with Guest Network (40 %)

Project Scope

A small business network is to be designed for an organization. The organization has occasional guest users (Max 12 visitors) visiting the business premise. There are a total of 60 users in the organization. An FTP server for internal file sharing is required for all the 60 users.

Network design requirement:

1.Separate subnet for guest and LAN network.
2.The guest network should be restricted to access only FTP service on the FTP server and all other access to the LAN network should be blocked.
3.IP Network Design
4.Identify hardware requirement– Switches and Routers.
5.Configuration details on hardware.

Tentative Report Contents:

1. Project Title
2. Project Scope
3. Network requirement
4. Network planning – list of tasks and assign task to who?
5. IP Network design table
6. Physical Network Design (topology diagram with location/device information)
7. Logical Network Design (topology diagram with IP addresses)
8. Network configuration (Switch and Router interface configuration with explanation).
   Bonus mark (10m): configure with ACL.
9. Network Testing and verification procedure
10. Bill of material (hardware and software including equipment, model, quantity and estimated cost)

Part 2: A campus network design for a college (60 %)

Project Scope:

There are 230 users in the college. 160 users in the Main building, 20 users in Building 1, and 50 users in Building 2. Every building has a lobby which is 500 square feet open space, where wireless access to the network is required. Only authorized personal should have access to the wireless network.

The distance between Building 1 and the main building is 500 meter. The distance between Building 2 and the main building is 100 meter. The distance between Building 1 and Building 2 is 200 meter. A high speed cable internet connection is available in the main building which needs to be shared among all the users.

A branch campus is located about 10 km from the main campus network. It has 100 users, all in the same building. There's a lobby where Wi-Fi access is available. Only registered students can access the wireless network.

A server farm consisting of a web server, email server, DNS server and DHCP server is to be created to support the business needs of the organization. A special subnet is to be allocated only for the server farm.

The necessary equipment and appropriate topology required for the campus network design along with the IP address schema, IP address management, secure wireless access, internet sharing, features and services should be worked out. A bill of material should be included with products from Microsoft, Cisco, D-LINK or Netgear with appropriate quantity which can be used for setting up of the campus infrastructure. Use at least 2 routers.

Tentative Report Contents:

1. Project Title and Scope
2. Campus diagram
3. Network requirement analysis (Understanding the hardware and quantity required to setup the network;)
4. Physical Network Design (topology diagram with location/device information)
5. Logical Network Design (topology diagram with IP addresses)
6. IP network design table
7. Network configuration (Switch and Router interface configuration with explanation).
** Bonus mark (10m): if configure with Access Control List (ACL); if a Demilitarized Zone (DMZ) is implemented. You may use the ASA Firewall or Router configuration to separate the inside, outside and DMZ areas.

8. Network Testing and verification procedure
9. Bill of material (hardware and software including equipment, model, quantity and estimated cost)

Appendix A

Address distribution according to the group number. Please choose 1 group.

Address Range	Group #	Group Members
199.10.10.0, 199.10.11.0,	1	
199.20.20.0, 199.20.21.0	2	
199.30.30.0, 199.30.31.0	3	
199.40.40.0, 199.40.41.0	4	
199.50.50.0, 199.50.51.0	5	
199.60.60.0, 199.60.61.0	6	
199.70.70.0, 199.70.71.0	7	
199.80.80.0, 199.80.81.0	8	
199.90.90.0, 199.90.91.0	9	
199.100.100.0, 199.100.101.0	10	
199.110.110.0, 199.110.111.0	11	
199.120.120.0, 199.120.121.0	12	
199.130.130.0, 199.130.131.0	13	
199.140.140.0, 199.140.141.0	14	
199.150.150.0, 199.150.151.0	15	
199.160.160.0, 199.160.161.0	16	
199.170.170.0, 199.170.171.0	17	
199.180.180.0, 199.180.181.0	18	
199.190.190.0, 199.190.191.0	19	