**HIT274 Project**

This is a group project (four students in a group) worth 35% of this unit. You are required to use the given packet tracer file for your simulation and build upon it. In that file, you are given the World Wide Web (WWW) server that simulate the Internet.

Please note:

* Each student has to design and build their own network that connects to this WWW server and to your team members’ network.
* You are to come up with a scenario and design the appropriate network based on what you have learnt in this unit. Things to consider are the total number of networks, the size of each network, location of server, the connectivity between your networks such as directly connected due to close proximity or connected via the cloud. Some examples of scenarios are: Network design for a campus with multiple departments or an organisation with multiple branch offices spread across the country.

You must fulfil the following criteria:

**Criteria:**

1. Design
   1. The network designed by each student must contain a minimum of 4 wired routers and 6 switches.
   2. There must be a minimum of 10 end devices (e.g. printers, PCs, servers ) in each student’s design, including at least 1 server with DNS services.
   3. Redundancies must be taken into consideration.
   4. Design should be realistic and shows certain level of complexity.
   5. The network designed by each student should complement one another to meet the needs specified in the scenario.
2. Routing
   1. Appropriate routing protocols have been configured to allow connectivity among the various networks
   2. Default static route has been configured appropriately and correctly
3. Wireless
   1. Wireless LAN must be included in your design, with at least 3 wireless devices.
   2. There must be connectivity between the wireless devices and wired devices.
4. Security
   1. Security must be considered and implemented in your design.
   2. This include securing your switches, routers and wireless devices
5. IP Addressing
   1. Your network must allow both IPv6 and IPv4 communication.
   2. Appropriate IP addressing schemes must be considered for your design. VLSM to be used for IPv4.
   3. **Get the IP address from the lecturer once your group has been formed. Each group will have different IP addresses.**
6. Connectivity
   1. You must be able to connect to your team members’ IPv4 and IPv6 networks.
   2. You must connect to the WWW server and enable devices in your network to connect to the WWW server.

Refer to the marking rubric for more details.

**Submission:**

1. Packet Tracer File (20 marks) – rename the packet tracer file to your group number
2. Report (15 marks) – 1000 words per student
3. **Only 1 submission (packet tracer file and report) per group**
   * **Place note in packet tracer for any usernames or passwords used in your devices**

**Timeline:**

|  |  |  |
| --- | --- | --- |
| **Week** | **Tasks** | **Due** |
| 4 – 5 | Group forming and setup  \*You will be randomly allocated to a group if you did not form your own group | Lecture time |
| 6 – 11 | Working on the project | - |
| 12 | Submission | Friday, week 12 |

**Report Format:**

1. Cover page
2. Content page
3. Introduction
   1. Background (introduce your scenario)
   2. Aim
4. Design
   1. Overall Layout (specify clearly the contribution of each student)
   2. Redundancies
   3. Routing
   4. Wireless
   5. Security
   6. IP Addressing
5. Connectivity (You must demonstrate connectivity using appropriate screenshots)
6. Conclusion and Further Work