

**COMPUTER NETWORKS LAB**

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ROLL NO: 166**

**SECTION: 5D**

**DEPARTMENT: SOFTWARE ENGINEERING**

**SUBMITTED TO: SIR RASIKH ALI**

**PROJECT DOCUMENTATION**

Albion University is a large university with two campuses situated 20 miles apart. The university's students and staff are distributed in four faculties: Health and Sciences, Business, Engineering/Computing, and Art/Design. Each member of staff has a PC, and students have access to PCs in the labs.

**Requirements:**

a. Create a network topology with the main components to support the following:

**Main campus:**

**1. Building A:**

Administrative staff in the departments of management, HR, and finance. The admin staff PCs are distributed in the building offices, and it is expected they will share some networking equipment (Hint: use of VLANs is expected here). The Faculty of Business is also situated in this building.

**2. Building B:**

Faculty of Engineering and Computing and Faculty of Art and Design.

**3. Building C:**

Students’ labs and IT department. The IT department hosts the University Web server and other servers.

4. There is also an email server hosted externally on the cloud.

**Smaller campus:**

Faculty of Health and Sciences (staff and students’ labs are situated on separate floors).

**b. Configuration tasks:**

Configure core devices and a few end devices to provide endtoend connectivity and access to internal and external servers.

Each department/faculty must be on its own separate IP network.

Configure switches with appropriate VLANs and security settings.

Use RIPv2 for routing in the internal network and static routing for the external server.

Devices in Building A should acquire dynamic IP addresses from a routerbased DHCP server.

**Tasks:**

**1. Task 1:**

Plan, design, and prototype the network topology for Albion University's network using Cisco Packet Tracer. Formative feedback will be provided in week 6.

**2. Task 2:**

Configure the network in Cisco Packet Tracer with appropriate settings to achieve the connectivity and functionalities specified in the requirements.