NETWORKING PROJECT: -

Main University is a large university that has two campuses situated 20 miles apart. The university students and staff are distributed in all departments; these include the Department of Architecture, Department of Civil, Computer, mechanical, electronic, electrical, etc. Each member of staff has a PC and students have access to PCs in the labs.

Requirements: - Create a network topology with the main components to support the followings.

Main Campus: -

Building A: - Administrative staff in the departments of management, HR and finance. The admin staff PCs are distributed in the building office and it is expected that they will share. some networking equipment (Hint: use of VLANs is expected here). The faculty of Computer is also situated in this building.

Building B: - Department of architecture, Department of mechanical, Department of civil.

Building C: - Students labs and IT department. The IT department hosts the university web server and other servers.

Smaller Campus: -

- Department of Mining (staff and students lab are situated on separate floors).
- You will be expected to configure the core devices and few end devices to provide end-to-end connectivity and access to the internal servers and the external server.
- Each department/faculty is expected should be on its own separate IP network.
- The switches should be configured with appropriate VLANs and security settings.
- RIPv2 will be used to provide routing for the routers in the internal network and static routing for the external server.
- The devices in building A will be expected to acquire dynamic IP addresses from a router-based DHCP server.

Tasks: -

Task 1: Your task is to plan, design, and prototype the network topology for Albion University's network using Cisco Packet Tracer. Formative feedback will be given on this task in week 6.

Task 2: Configure in Packet Tracer the network with appropriate settings to achieve the connectivity and functionalities specified in the requirements.

Task 3: Produce a report (max 1500 words) including evaluation your proposed network design and critical appraisal on your work. Your evaluation should include performance, scalability, reliability and security of your proposed network.

IP Address: -

S.NO	DEPT-Name	VLAN	IP ADDRESS	Gate way	Subnetting	Useable Address
1	Admin-Dept	10	192.168.10.4 UPTO 192.168.10.250	198.168.10.1	255.255.255.0	253
2	HR-Dept	20	192.168.20.4 UPTO 192.168.20.250	198.168.20.1	255.255.255.0	253
3	Buss-Dept	30	192.168.30.4 UPTO 192.168.30.250	198.168.30.1	255.255.255.0	253
4	E & C -Dept	40	192.168.40.4 UPTO 192.168.40.250	198.168.40.1	255.255.255.0	253
5	A & D - Dept	50	192.168.50.4 UPTO 192.168.50.250	198.168.50.1	255.255.255.0	253

6	- Dept	60	192.168.60.4 UPTO 192.168.60.250	198.168.60.1	255.255.255.0	253
7	STUD - Dept	70	192.168.70.4 UPTO 192.168.70.250	198.168.70.1	255.255.255.0	253
8	IT - Dept	80	192.168.80.4 UPTO 192.168.80.250	198.168.80.1	255.255.255.0	253
9	STAFF - Dept	90	192.168.90.4 UPTO 192.168.90.250	198.168.90.1	255.255.255.0	253
10	STUD - Dept	100	192.168.100.4 UPT0192.168.100.250	198.168.100.1	255.255.255.0	253

Configurations: -

MAIN ROUERT: - To Configurations RIP Routing Protocol at Main Router and Branch Router IP address is 10.10.10.0/29

MUX-Switch L3: - To Configurations Static Routing Protocol at Main MUX-Switch and Brach MUX-Switch and to allow the DHCP, Main MUX-switch IP address is 192.10.10.0 /24 distributed the Layer 2 switch also Switching Virtual Interfaces Configured at Each Department Separated VLAN & Trucking Enc dot1q.

ACCESS-Switch L2: - To Configurations Port-security, Add VLAN, Banner Motd, Security Settings, Default Gate way, Switch IP's, non-used ports will be Shut down.