**University Campus Network Design**

**BEFORE MID TERM**

Design a network for a university campus consisting of seven buildings. Each building has a different number of computers and requires a unique network topology. The design must incorporate IPv4 addressing, network routing and appropriate network topologies for each building. Below are the requirements and guidelines for the network design:

* **Administration Building1:** 8 computers (use of **Star Topology** with a switch)
* **Administration Building2:** 8 computers (use of **Star Topology** with a Hub)
* **Administration Building3:** 8 computers (use of **Mesh** with a switch)
* **Library:** 10 computers (use of **Hybrid Topology** with switch and hub)
* **Computer Science Department1:** 12 computers (use of **Mesh Topology** with Hub)
* **Computer Science Department2:** 12 computers (use of **Mesh Topology** with switches)
* **Engineering Department:** 5 computers (use of **Bus Topology** with a hub)

**Key Tasks:**

1. **Network Topology Design**
   * Design the network topology for each building as per the given topologies.
2. **IP Addressing**
   * Plan and assign IPv4 addresses for all devices in each building. Use networks from **Class A**.
3. **Routing Setup**
   * Plan and implement routing between buildings using **Static routing**.
   * Define and justify the routing method.
4. **Connection Between Buildings**
   * Design how the buildings will be connected to each other using routers.
   * Provide detailed connection specifications for inter-building communication.

**AFTER MID TERM**

Now, reassign IP addresses to all buildings using **FLSM**, with the **network address 172.11.0.0**. Implement the same networks with additional services. Below are the requirements and guidelines for the updated network design:

**Additional Network Services:**

1. **IP Addressing:**
   * Assign **IPv4 as per subnetting** for all devices in each building.
   * Ensure each building has its own subnet.
   * Calculate the required subnets based on the number of devices and assign appropriate subnet masks.
2. **Server Configuration:**
   * **DHCP server** is placed in the **Library**.
   * **DNS server** is placed in the **Computer Science Department1**.
   * **FTP server** is placed in the **Engineering Department**.
   * **Mail server** is placed in the **Administration Building1**.