

LAB-2

Program- BTech
Course Code- CSET 207
Year- II

Type- Core
Course Name- Computer Networks
Semester- IV, Batch- NA

Simulation No.	Name	CO-1	CO-2	CO-3
2	Introduction to Network Topologies	✓		✓

Objective

Let us assume that Bennett University's IT department has 10–30 individuals assigned to each of three distinct networks (NW1, NW2, and NW3). These networks follow BUS, STAR, and RING topologies, respectively. Furthermore, there is a dedicated network with a hybrid topology designed for IT servers and services, accommodating six nodes. Additionally, the newly established Delhi branch of the university has seven staff members, requiring an internet connection to the main campus. It is assumed that all university offices necessitate internet connectivity, and the automation of network services is a priority.

IP Addresses Assignment Range: 10.10.1.1—10.10.2.254

[Please refrain from assigning default addresses].

Task 1:

Explore the specific requirements of the mentioned scenario, including detailed IP addresses assignments for end devices within BUS, STAR, RING, and HYBRID Topologies. **[30 min]**

Task 2:

Set up a BUS topology to segment Network (NW1) and trace the routes of all end devices within NW1. **[20 min]**

Task 3:

Create a STAR topology network for NW2, where all endpoint devices are connected through a HUB. Investigate the Protocol Data Units (PDUs) in alignment with the OSI Layers based on the specific network device in the university IT environment. **[20 Min.]**

Task 4:

Establish a ring topology for the NW3 network, incorporating five end devices, and interconnect it with the NW2 network to contribute to the hybrid structure of the IT Department. **[20 Min.]**

Task 5:

Discuss in brief about **different types of switches** in Cisco Packet Tracer tool, that is, Switch Model: 2960, 2950-24 and 2950T. **[20 min.]**

Submission Guidelines:

- a) The assignment must be verified by the instructor during the lab (Submission on LMS will only be considered once the working topology on Packet Tracer is verified). Submit the **.pkt** file along with the details in word/pdf (in a brief report) in zipped format on LMS.
- b) Zipped file must be saved as per the format RollNo_Lab# (Example: E21CSE632_Lab1).
- c) Write name and enrolment number inside the assignment file. Without it, your submission will not be considered for evaluation.
- d) Provide labels for IP addresses, cabling, and devices.
- e) Submit the assignment in your respective batch's submission link in LMS. Submission in another batch's submission portal will not be checked.
- f) Late submission will lead to penalty.
- g) Plagiarism will lead to negative grading.