

School of Computer Science Engineering and Technology

Course-B. Tech	Type- Core
Course Code- CSET207	Course Name- COMPUTER NETWORKS
Year- 2025	Semester- Even
Date- 17/03/2025	Batch- 2023-2026

CO-Mapping

	CO1	CO2	CO3
Q1			√
Q2		√	√
Q3		√	
Q4		√	

Objective: Implementation & Configuration of Multi-area OSPF

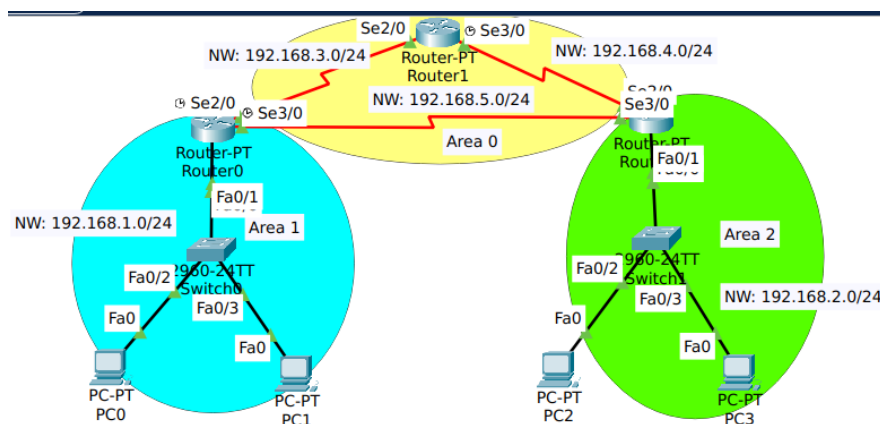
Description: Open Shortest Path First (OSPF) is a dynamic routing protocol that uses a link-state routing algorithm to determine the best path for data packets. It operates within an autonomous system and efficiently updates routing tables in response to network topology changes. OSPF enables faster convergence and scalability in complex networks.

Tasks:

Q1: Network Infrastructure Setup

- Create a network infrastructure using three routers (R1, R2, R3), switches, and end devices.
- Assign IP addresses to all network devices using the **Class B address block 172.16.0.0/16**.
- Implement multiple LANs: LAN A, LAN B, and LAN C.

Example Network Infrastructure:



Note: The above figure is an example. You have to do task as per the Class B address block 172.16.0.0/16.

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Q2: OSPF Configuration

- Configure OSPF on routers with appropriate area assignments (e.g., Area 0, Area 1, and Area 2).
- Use the "network" command to enable OSPF on each interface.
- Assign Router IDs manually to each router.
- Use the "show ip ospf neighbor" command to verify OSPF neighbor relationships.

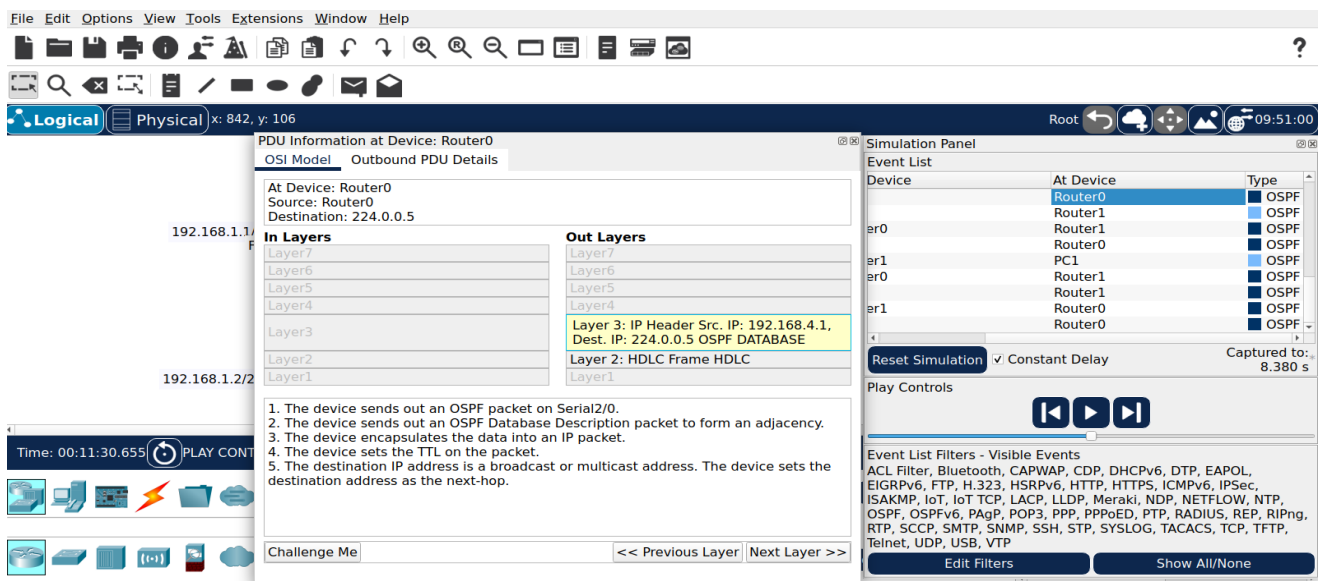
Q3: Verify Network Connectivity

- Use the "ping" command to test connectivity between end devices.
- Use the "traceroute" command to examine the path taken by data packets.
- Check the OSPF routing table using "show ip route ospf."

Q4: Packet Analysis and Simulation

- Analyze OSPF packet types (Hello, DBD, LSR, LSU, LSAck) in simulation mode.
- Observe how OSPF updates routing tables dynamically.

Example:



Submission Guidelines:

- 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 .cpt file along with the details in word/pdf in zipped format on LMS within 4 days.
- Zipped files must be saved as per the format RollNo_Lab# (Example: E21CSE632_Lab1).
- Write the name and enrolment number inside the assignment file. Without it, your submission will not be considered for evaluation.
- Provide labels for IP addresses, cable and devices.

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- e) Submit the assignment in your respective batch's submission link in LMS. Submission in other batch's submission portal will not be checked.
- f) Late submission will lead to penalty.
- g) Plagiarism will lead to negative grading.