



## ASSIGNMENT

**COURSE : SCALING NETWORKS**

**COURSE CODE : TNW3233**

**NAME :**

**ID. NO. :**

**LECTURER :**

**SECTION :**

**DO NOT OPEN THIS QUESTION PAPER UNTIL YOU ARE TOLD TO DO**

**SO** *The question paper consists of 4 printed pages*

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## 1. COURSE LEARNING OUTCOME

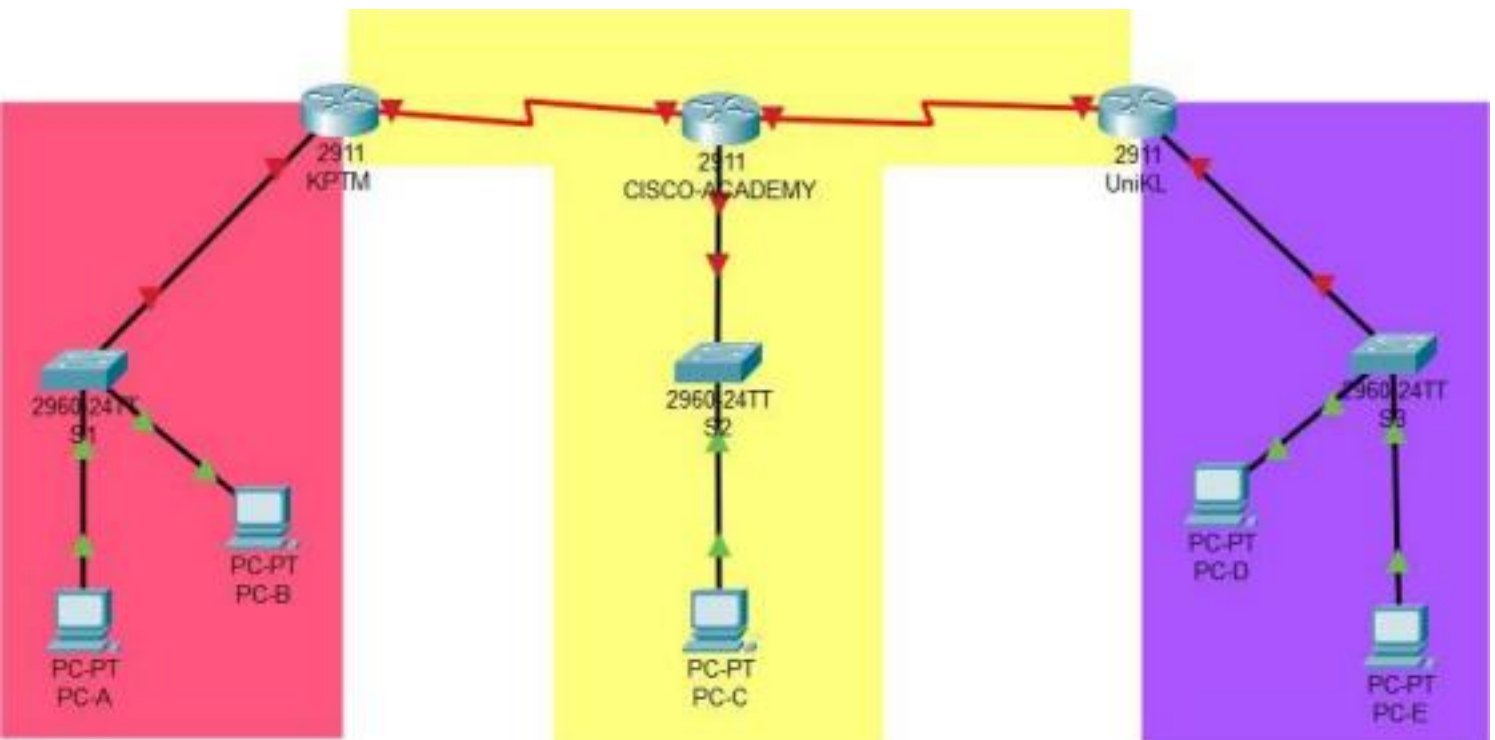
CLO3	Demonstrate multiarea OSPF routing for a specific topology (A3)
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## 2. INSTRUCTIONS TO CANDIDATES

To make OSPF more efficient and scalable, OSPF supports hierarchical routing using the concept of areas. An OSPF area is a group of routers that share the same link-state information in their link-state databases (LSDBs). When a large OSPF area is divided into smaller areas, it is called multi-area OSPF. Multi-area OSPF is useful in larger network deployments to reduce processing and memory overhead.

In the assignment, you will configure a multi-area OSPFv2 network. First, you need to design and test the network using Packet Tracer Software. Then, you will configure this network by using real device in lab. You can refer to the rubric scoring.

### Topology



Area 0

10.10.1.0/30 10.10.3.0/30

Se0/0/0 Se0/0/0 Se0/0/1 Se0/0/1  
G0/1 G0/1  
G0/1

G0/1

G0/1

G0/1 F0/2 F0/1

10.10.2.0/30

F0/1 Fa0 F0/1 Fa0 F0/2 Fa0 Fa0

**Addressing Table**

Device	Interface	IP Address	Subnet Mask	Default Gateway
CISCO ACADEMY	Se0/0/0	10.10.1.1	255.255.255.252	N/A
	G0/0	10.10.2.1	255.255.255.252	N/A
	Se0/0/1	10.10.3.1	255.255.255.252	N/A
KPTM	Se0/0/0	10.10.1.2	255.255.255.252	N/A
	G0/1	10.10.2.1	255.255.255.0	N/A
UniKL	Se0/0/1	10.10.3.2	255.255.255.252	N/A
	G0/1	10.10.9.1	255.255.255.0	N/A
PC-A	NIC	10.10.2.10	255.255.255.0	10.10.2.1
PC-B	NIC	10.10.2.11	255.255.255.0	10.10.2.1
PC-C	NIC	10.10.2.10	255.255.255.0	10.10.2.1
PC-D	NIC	10.10.9.10	255.255.255.0	10.10.9.1
PC-E	NIC	10.10.9.11	255.255.255.0	10.10.9.1

**REQUIREMENTS**

**Part 1: Build the Network and Configure Basic Device Settings** In Part 1, you will set up the network topology and configure basic settings on the routers. **Step 1:**

**Cable the network as shown in the topology.**

**Step 2: Configure basic settings for each router.**

- a. Disable DNS lookup.
- b. Configure device name, as shown in the topology.
- c. Configure an MOTD banner to warn users that unauthorized access is prohibited.

- d. Configure the IP addresses listed in the Addressing Table for all interfaces.
- e. Copy the running configuration to the startup configuration.

**Step 3: Verify Layer 3 connectivity.**

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**Part 2: Configure a Multi-area OSPFv2.**

In Part 2, you will configure a multi-area OSPFv2 network with a process ID of 10. All LAN interfaces should be passive.

**Step 1: Identify the OSPF router types in the topology.**

Identify the Backbone router(s):

Identify the Area Border Router(s) (ABR):

**Step 2: Configure OSPF on CISCO-ACADEMY.**

- a. Configure a router ID of 1.1.1.1 with OSPF process ID of 10.
- b. Add the networks for CISCO-ASIA to OSPF.

**Step 3: Configure OSPF on KPTM.**

- a. Configure a router ID of 2.2.2.2 with OSPF process ID of 10.
- b. Add the networks for KPTM to OSPF.
- c. Set LAN interface, as passive.

**Step 4: Configure OSPF on UniKL.**

- a. Configure a router ID of 3.3.3.3 with OSPF process ID of 10.
- b. Add the networks for UniKL to OSPF.
- c. Set LAN interface, as passive.

**Part 3: Test Connectivity**

- From **PC-A**, ping **PC-C**. The pings should be successful.
- From **PC-B**, ping **PC-D**. The pings should be successful.
- From **PC-C**, ping **PC-E**. The pings should be successful.

**END OF QUESTIONS**

TNW3233

SCALING NETWORKS Student's Name:

**Faculty of Computer Science and  
Information Technology**

**RUBRIC FOR ASSIGNMENT**

Student's ID No: Class/ Section:

Criteria	Beginning 1	Basic 2	Proficient 3	Advanced 4	Score
Design the network shown in topology given by using Packet Tracer software.	Student is able to connect all devices in more than three errors.	Student is able to connect all devices in three errors.	Student is able to connect all devices in two errors.	Student is able to connect all devices successfully without error.	
Build and connect all devices as shown in topology given by using or real device.	Student is able to connect all devices in more than three attempts.	Student is able to connect all devices in three attempts.	Student is able to connect all devices in two attempts.	Student is able to connect all devices successfully without error.	
Configure the basic settings and IP addressing on devices.	Student is able to configure basic settings and IP addressing according to the given information but error occurred more than twice.	Student is able to configure basic settings and IP addressing according to the given information but error occurred twice.	Student is able to configure basic settings and IP addressing according to the given information but error occurred once.	Student is able to configure basic settings and IP addressing according to the given information without error.	
Configure Multiarea OSPF on devices.	Student is able to configure Multiarea OSPF according to the given information but error occurred more than twice.	Student is able to configure Multiarea OSPF according to the given information but error occurred twice.	Student is able to configure Multiarea OSPF according to the given information but error occurred once.	Student is able to configure Multiarea OSPF according to the given information without error.	

Verify the network connections.	Student can prove the connections using correct commands but need to troubleshoot the network more than twice.	Student can prove the connections using correct commands but need to troubleshoot the network twice.	Student can prove the connections using correct commands but need to troubleshoot the network once.	Student can prove the connections using correct commands successfully without errors.	
Successfully performs task without supervision.	Cannot completes task.	Successfully completes task with moderate supervision.	Successfully completes task with minimal supervision.	Successfully completes task independently.	
<b>TOTAL</b>					<b>24</b>