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| **Course – 63 Title: Network Routing and Switching Sessional** |  |
| **Course No.: CCE 416 Credit : 1.50 Contact Hours: 2** | **Total Marks: 100** |

**11.1 Rationale:**

Computer Engineers should be competent in Routing and Switching and this course will develop then mainly important for Practically designing and implement a network diagram for any kind of organization, internet connectivity, Intranet communication, Network Architecture etc.

**11.2 Objectives:**

Students mainly understand a practical concept about routing and switching. After that they are confident about to practically implement configure and manage whole network via router and switch as follows:

* Understanding on configuring LAN communication
* To configuring Cisco Router
* Apply WAN Technologies
* Network Routing process and packet delivery
* Telnet
* Router security
* Static and Dynamic Routing
* Difference kind of Routing Protocol
* configuring VLAN communication
* Access control List

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| **11.3**  **Learning Outcomes** | **11.4**  **Course Content** | **11.5**  **Teaching Strategy/ Learning Experience** | **11.6 Assessment Strategy** |
| Understanding on configuring LAN communication | http://www.ussltraining.com/images/download.jpg   Building a Simple Network http://www.ussltraining.com/images/download.jpg   Exploring the Functions of Networking http://www.ussltraining.com/images/download.jpg   Securing the Network  http://www.ussltraining.com/images/download.jpg   Understanding the Host-to-Host Communications Model  http://www.ussltraining.com/images/download.jpg   Exploring the Packet Delivery Process  http://www.ussltraining.com/images/download.jpg   Understanding Ethernet  http://www.ussltraining.com/images/download.jpg   Connecting to an Ethernet LAN | Group Assignment, Panel Discussion, Problem based Learning | Matching Type, Peer-Rating |
| configuring Cisco Router | http://www.ussltraining.com/images/download.jpg   Ethernet Local Area Networks http://www.ussltraining.com/images/download.jpg   Understanding the Challenges of Shared LANs  http://www.ussltraining.com/images/download.jpg   Solving Network Challenges with Switched LAN Technology  http://www.ussltraining.com/images/download.jpg   Exploring the Packet Delivery Process  http://www.ussltraining.com/images/download.jpg   Operating Cisco IOS Software  http://www.ussltraining.com/images/download.jpg   Starting a Switch  http://www.ussltraining.com/images/download.jpg   Understanding Switch Security  http://www.ussltraining.com/images/download.jpg   Maximizing the Benefts of Switching  http://www.ussltraining.com/images/download.jpg   Troubleshooting Switch Issues | Group Assignment, Panel Discussion, Problem based Learning | Matching Type, Peer-Rating |
| configuring WAN Technologies | http://www.ussltraining.com/images/download.jpg   Wireless Local Area Networks  http://www.ussltraining.com/images/download.jpg   Exploring Wireless Networking  http://www.ussltraining.com/images/download.jpg   Understanding WLAN Security  http://www.ussltraining.com/images/download.jpg   Implementing a WLAN | Brainstorming, Case Studies, Group Assignment. | Discussion, Essay, |
| Network Routing process and packet delivery, Telnet, Router Security | http://www.ussltraining.com/images/download.jpg   Local Area Network Connections  http://www.ussltraining.com/images/download.jpg   Exploring the Functions of Routing  http://www.ussltraining.com/images/download.jpg   Understanding Binary Basics  http://www.ussltraining.com/images/download.jpg   Constructing a Network Addressing Scheme  http://www.ussltraining.com/images/download.jpg   Starting a Cisco Router  http://www.ussltraining.com/images/download.jpg   Confguring a Cisco Router  http://www.ussltraining.com/images/download.jpg   Exploring the Packet Delivery Process  http://www.ussltraining.com/images/download.jpg   Understanding Cisco Router Security  http://www.ussltraining.com/images/download.jpg   Using Cisco SDM  http://www.ussltraining.com/images/download.jpg   Using a Cisco Router as a DHCP Server  http://www.ussltraining.com/images/download.jpg   Accessing Remove Devices | Group Assignment, Panel Discussion, Problem based Learning | Matching Type, Peer-Rating |
| Apply Static and Dynamic Routing | http://www.ussltraining.com/images/download.jpg   Wide Area Networks Connections  http://www.ussltraining.com/images/download.jpg   Understanding WAN Technologies  http://www.ussltraining.com/images/download.jpg   Enabling the Internet Connection  http://www.ussltraining.com/images/download.jpg   Enabling Static Routing  http://www.ussltraining.com/images/download.jpg   Configuring Serial Encapsulation  http://www.ussltraining.com/images/download.jpg   Enabling RIP | Problem Based Learning, Project, Inquiry –based Learning | Practical Exam, Matching Type |
| Difference kind of Routing Protocol | http://www.ussltraining.com/images/download.jpg   Network Environment Management  http://www.ussltraining.com/images/download.jpg   Discovering Neighbors on the Network http://www.ussltraining.com/images/download.jpg   Managing Cisco Router Startup and Configuration  http://www.ussltraining.com/images/download.jpg   Managing Cisco Devices | Group Assignment ,Panel Discussion | Observation |
| configuring VLAN communication | http://www.ussltraining.com/images/download.jpg   Small Network Implementation http://www.ussltraining.com/images/download.jpg   Introducing the Review Lab http://www.ussltraining.com/images/download.jpg   Medium-Sized Switched Network Construction  http://www.ussltraining.com/images/download.jpg   Implementing VLANs and Trunks  http://www.ussltraining.com/images/download.jpg   Improving Performance with Spanning Tree  http://www.ussltraining.com/images/download.jpg   Routing Between VLANs  http://www.ussltraining.com/images/download.jpg   Securing the Expanded Network  http://www.ussltraining.com/images/download.jpg   Troubleshooting Switched Networks | Problem-based Learning, Demonstration, Project  /Assignment | Group Exercise, Observation, Inventories |
| configuring a complete Project | http://www.ussltraining.com/images/download.jpg   Medium-Sized Routed Network Construction http://www.ussltraining.com/images/download.jpg   Reviewing Routing Operations  http://www.ussltraining.com/images/download.jpg   Implementing VLSM  http://www.ussltraining.com/images/download.jpg   Single Area OSPF Implementation http://www.ussltraining.com/images/download.jpg   Implementing OSPF  http://www.ussltraining.com/images/download.jpg   Troubleshooting OSPF | Problem-based Learning, Demonstration, Project  /Assignment | Group Exercise, Observation, Inventories |

**RECOMMENDED BOOKS AND PERIODICALS**

**Text Books**:

1. Cisco Switching , Black Book Writer: Hanson Nottingham
2. CCNP Routing and Switching Writer: Kevin Wallace
3. CCNA Cisco Certified Network Associate Study Guide Writer: Todd Lammle