

1. Design and Implement a Small Office Network

Week 1: Planning and Design

- **Task:** Define the network requirements for a small office, including number of users, types of devices, and internet connectivity needs.
- **Deliverable:** Network design document including topology diagrams, IP addressing scheme, and device list.

Week 2: Configuration of Basic Devices

- **Task:** Configure Cisco switches and routers according to the design. Set up basic configurations including VLANs and IP addressing.
- **Deliverable:** Configuration files and a report on the initial setup of devices.

Week 3: Advanced Configuration and Testing

- **Task:** Implement inter-VLAN routing, DHCP configurations, and verify connectivity using tools like ping and traceroute.
- **Deliverable:** Detailed configuration files, network test results, and troubleshooting report.

Week 4: Documentation and Presentation

- **Task:** Compile the final network design, configurations, and testing results into a comprehensive final report. Prepare a presentation summarizing the project.
- **Deliverable:** Final report and presentation.

2. Secure a Network Using Cisco Security Features

Week 1: Basic Security Configuration

- **Task:** Set up basic security measures on Cisco devices including access control lists (ACLs) and port security.
- **Deliverable:** Configuration files and a report on basic security configurations.

Week 2: Implement VLANs and ACLs

- **Task:** Configure VLANs and ACLs to secure network traffic and control access between different segments.
- **Deliverable:** Detailed configuration files and a report on the implementation of VLANs and ACLs.

Week 3: Implement Advanced Security Features

- **Task:** Set up more advanced security features such as DHCP snooping, dynamic ARP inspection, and IP source guard.
- **Deliverable:** Configuration files and a report on advanced security measures.

Week 4: Documentation and Presentation

- **Task:** Document all security configurations, test the network security, and prepare a presentation summarizing the security measures implemented.
- **Deliverable:** Final report and presentation.

3. Configure and Troubleshoot OSPF and EIGRP

Week 1: OSPF Configuration

- **Task:** Set up and configure OSPF on a network including router IDs, area configurations, and verification of OSPF operation.
- **Deliverable:** OSPF configuration files and verification report.

Week 2: EIGRP Configuration

- **Task:** Implement and configure EIGRP, including router settings, path metrics, and verification of EIGRP operation.
- **Deliverable:** EIGRP configuration files and verification report.

Week 3: Troubleshooting Routing Protocols

- **Task:** Troubleshoot OSPF and EIGRP issues using diagnostic tools like show commands and network monitoring.
- **Deliverable:** Troubleshooting report and updated configuration files.

Week 4: Documentation and Presentation

- **Task:** Compile the final configurations, troubleshooting results, and network diagrams into a comprehensive report. Prepare a presentation summarizing the project.
- **Deliverable:** Final report and presentation.

4. Deploy and Configure a Wireless Network

Week 1: Design and Planning

- **Task:** Design the wireless network including access point placement, SSIDs, and security settings.
- **Deliverable:** Wireless network design document including coverage maps and security policies.

Week 2: Configuration of Wireless LAN Controllers (WLC)

- **Task:** Configure a WLC and access points, including SSID setup, WPA2 security, and channel management.
- **Deliverable:** Configuration files and a report on wireless setup.

Week 3: Wireless Network Testing and Optimization

- **Task:** Test wireless coverage and performance. Optimize channel settings and address any connectivity issues.
- **Deliverable:** Testing results, optimization report, and updated configuration files.

Week 4: Documentation and Presentation

- **Task:** Document the final wireless network setup and performance results. Prepare a presentation on the wireless network deployment.
- **Deliverable:** Final report and presentation.

5. Implement a VPN Solution Using Cisco Devices

Week 1: VPN Basics and Planning

- **Task:** Define the VPN requirements and select the appropriate VPN technology (e.g., IPsec, SSL).
- **Deliverable:** VPN design document including technology selection and deployment plan.

Week 2: VPN Configuration

- **Task:** Configure VPNs on Cisco devices, including IPsec tunnels and SSL VPNs. Verify the VPN connections.
- **Deliverable:** VPN configuration files and verification report.

Week 3: VPN Testing and Troubleshooting

- **Task:** Test VPN connections for performance and security. Troubleshoot any issues using diagnostic tools.
- **Deliverable:** Testing results, troubleshooting report, and updated configuration files.

Week 4: Documentation and Presentation

- **Task:** Document the VPN configurations, testing outcomes, and troubleshooting steps. Prepare a presentation summarizing the VPN implementation.
- **Deliverable:** Final report and presentation.