Course Information Form (CIF)

Course Code: CSC 116

Course Title: Networking II - WAN Connectivity

Department: Business/Computer Science and Technologies
PCS Code: 1.2 - Occupational/Technical Instruction
CIP Code: 11.0901
Repeatability: 0

Effective Date: Summer 2026

Credit Hours

Catalog Notation: 2-2-3
Credit Hour Distribution:

Lecture: 2	Lab: 2	Clinical: 0	**Total: 3**

General Course Information

Catalog Description

Configuration of Cisco IOS devices such as router and switches. Students will gain valuable hands on experience configuring Wide Area Networks, IPv6, OSPFv3 and EIGRPv6, PPP, OSPFv2 and EIGRP, and a comprehensive look at the STP protocol.

General Course Objectives

Intensive coverage of WANs and associated topics and skills as the second of two courses in the Cisco Networking Curriculum.

Minimum Placement Levels

English	Reading	Math
None	None	None

Prerequisites

Credit or concurrent enrollment in CSC 115

Methods of Evaluation

2 objective exams, 4-6 quizzes, and 15 lab projects.

Instructional Materials and Additional Supplies

CCNA Routing and Switching 200-125 Official Cert Guide Library, 9781587205811

Course Content

General Learning Outcomes (GLOs)

- Critical Thinking and Information Literacy: Students will demonstrate the ability to evaluate perspectives, evidence, and implications, and to locate, assess, and use information effectively.
- Technology: Students will demonstrate the ability to evaluate, select, and appropriately use current and emerging tools.

Course Segments and Student Learning Outcomes

Course Segment	Learning Outcomes	Lecture Hours	Lab Hours	Clinical Hours
Configuration, Verification, and Troubleshooting a Switch with VLANs and Interswitch Communications	1. Describe enhanced switching technologies, including VTP, RSTP, VLAN, PVSTP, and 802.1q. 2. Describe how VLANs create logically separate networks and the need for routing between them. 3. Configure, verify, and troubleshoot VLANs. 4. Configure, verify, and troubleshoot trunking on Cisco switches. 5. Configure, verify, and troubleshoot interVLAN routing. 6. Configure, verify, and troubleshoot VTP. 7. Configure, verify, and troubleshoot RSTP operation. 8. Interpret the output of various show and debug commands to verify the operational status of a Cisco switched network. 9. Implement basic switch security, including port security, unassigned ports, trunk access, etc.	6	6	0
Implementation of an IP Addressing Scheme and IP Services to Meet Network Requirements in a Medium-size Enterprise Branch Office Network	1. Calculate and apply a VLSM IP addressing design to a network. 2. Determine the appropriate classless addressing scheme using VLSM and summarization to satisfy addressing requirements in a LAN/WAN environment. 3. Describe the technological requirements for running IPv6, including protocols, dual stack, tunneling, etc. 4. Describe IPv6 addresses. 5. Identify and correct common problems associated with IP addressing and host configurations.	6	7	0
Configuration and Troubleshooting of Basic Operation and Routing on Cisco Devices	1. Compare and contrast methods of routing and routing protocols. 2. Configure, verify, and troubleshoot EIGRP. 3. Configure and verify redundant first hop routing protocols. 4. Verify configuration and connectivity using ping, traceroute, and telnet or SSH. 5. Troubleshoot routing implementation issues. 6. Verify router hardware and software operation using SHOW and DEBUG commands. 7. Implement basic router security.	7	6	0
Implementing, Verifying, and Troubleshooting NAT and ACLs in a Medium-size Enterprise Branch Office Network	1. Describe the purpose and types of access control lists. 2. Configure and apply access control lists based on network filtering requirements. 3. Configure and apply an access control list to limit telnet and SSH access to the router. 4. Verify and monitor ACLs in a network environment. 5. Troubleshoot ACL implementation.	6	6	0

Course Segment	Learning Outcomes	Lecture Hours	Lab Hours	Clinical Hours
Implement and Verify WAN Links	1. Configure and verify WAN technologies on Cisco routers. 2. Troubleshoot WAN implementation issues. 3. Describe VPN technology, including the importance, benefits, role, impact, and components. 4. Configure and verify PPP connection between Cisco routers.	5	5	0

Total Contact Hours

Lecture Hours	Lab Hours	Clinical Hours
30	30	0