

MINNESOTA WEST COMMUNITY & TECHNICAL COLLEGE

COURSE OUTLINE

DEPT. CST

COURSE NUMBER: 2150

NUMBER OF CREDITS: 4

Lecture: 3 Lab: 1 OJT: 0

Course Title:

Advanced Routing Technology

Catalog Description:

Advanced Routing Technology the third course in the CCNAv7 curriculum describes the architectures and considerations related to designing, securing, operating, and troubleshooting enterprise networks. Students gain skills to configure and troubleshoot enterprise networks, and learn to identify and protect against cybersecurity threats. They are introduced to network management tools and learn key concepts of software-defined networking, including controller-based architectures and how application programming interfaces (APIs) enable network automation.

Prerequisites or Necessary Entry Skills/Knowledge:

CST 1150

FULFILLS MN TRANSFER CURRICULUM AREA(S) (*Leave blank if not applicable*)

- Goal 1: Communication: By meeting the following competencies:
- Goal 2: Critical Thinking: By meeting the following competencies:
- Goal 3: Natural Sciences: By meeting the following competencies:
- Goal 4: Mathematics/Logical Reasoning: By meeting the following competencies:
- Goal 5: History and the Social and Behavioral Sciences: By meeting the following competencies:
- Goal 6: The Humanities and Fine Arts: By meeting the following competencies:
- Goal 7: Human Diversity: By meeting the following competencies:
- Goal 8: Global Perspective: By meeting the following competencies:
- Goal 9: Ethical and Civic Responsibility: By meeting the following competencies:
- Goal 10: People and the Environment: By meeting the following competencies:

Topics to be Covered

Wide area network (WAN) technologies

Quality of service (QoS) mechanisms used for secure remote access

ENSA also introduces software-defined networking, virtualization, and automation concepts that support the digitalization of networks

Student Learning Outcomes

Explain how single-area OSPF and OSPFv2 operates in both point-to-point and broadcast multiaccess networks.

Explain how vulnerabilities, threats, and exploits can be mitigated to enhance network security.

Explain how ACLs are used as part of a network security policy.

Implement Ipv4 ACLs to filter traffic and secure administrative access.

Configure NAT services on the edge router to provide IPv4 address scalability.

Explain how WAN access technologies can be used to satisfy business requirements.

Explain how VPNs and IPsec secure site-to-site and remote access connectivity.

Explain how networking devices implement QoS.

Implement protocols to manage the network.

Troubleshoot enterprise networks.

Explain the purpose and characteristics of network virtualization.

Explain how network automation is enabled through RESTful APIs and configuration management tools.

Is this course part of a transfer pathway: Yes No

***If yes, please list the competencies below**

Revised Date: 3/29/2022