ILLINOIS VALLEY COMMUNITY COLLEGE

COURSE OUTLINE

DIVISION: Workforce Development

COURSE: CSN 1242 Routing & Switching Essentials

Effective Date: Spring   2025   **Submitted Date:** Spring-24

Credit Hours: 3   **IAI Number (if applicable): N/A**

Complete all that apply or mark "None" where appropriate:
        Prerequisite(s): CSN 1241

        Enrollment by assessment or other measure? ☐ Yes ☒ No
        If yes, please describe:

        Corequisite(s): None

        Pre- or co-requisite(s): None

        Consent of Instructor: ☐ Yes ☒ No

Delivery Method: ☒ **Lecture**   **2 Contact Hours** (1 contact = 1 credit hour)
                                ☐ **Seminar**   **0 Contact Hours** (1 contact = 1 credit hour)
                                ☒ **Lab**   **3 Contact Hours** (2-3 contact = 1 credit hour)
                                ☐ **Clinical**   **0 Contact Hours** (3 contact = 1 credit hour)
                                ☐ **Practicum** **0 Contact Hours** (2-4 contact = 1 credit hour)
                                ☐ **Internship** **0 Contact Hours** (5-10 contact = 1 credit hour)

Offered: ☒ **Fall**   ☒ **Spring**   ☐ **Summer**

CATALOG DESCRIPTION and IAI NUMBER (if applicable):
The second of three courses in the Cisco Certified Networking Associates, (CCNA), curriculum designed to prepare students to pass the CCNA Certification Exam. The course focuses on switching technologies and router operations that support small-to-medium business networks and includes wireless local area networks (WLAN) and security concepts. Students learn key routing and switching concepts. By the end of the course, students can perform basic network configuration and troubleshooting, identify, and mitigate LAN security threats, and configure and secure a basic WLAN.

ACCREDITATION STATEMENTS AND COURSE NOTES:
None

COURSE TOPICS AND CONTENT REQUIREMENTS:
1. Intermediate LAN / WAN Setup
2. Basic WLAN Setup / Configuration
3. VLAN Configuration / Connectivity
4. Intermediate Understand of Routing Protocols
5. Identify Security Threats to Networks
6. Basic Security Configurations
7. Configuring Secured Network Access
8. Intermediate servers / switches / routers configurations
9. Basic - intermediate Network Troubleshooting

INSTRUCTIONAL METHODS:
Utilization of physical equipment and simulation software to engage students in comprehensive lab activities challenging their understanding and ability to work collaboratively / individually to overcome challenges and develop their skillset.

EVALUATION OF STUDENT ACHIEVEMENT:
Variety of labs
Quizzes
Written and Practical Final Exam

INSTRUCTIONAL MATERIALS:

Textbooks
None

Resources
Cisco's Learning Management System
Cisco's Packet Tracer (Simulation software)
Cisco's hardware Devices (Routers and Switches)

LEARNING OUTCOMES AND GOALS:
Institutional Learning Outcomes

☒ 1) Communication – to communicate effectively.

☐ 2) Inquiry – to apply critical, logical, creative, aesthetic, or quantitative analytical reasoning to formulate a judgement or conclusion.

☐ 3) Social Consciousness – to understand what it means to be a socially conscious person, locally and globally.

☐ 4) Responsibility – to recognize how personal choices affect self and society.

Course Outcomes and Competencies

1. Intermediate LAN / WAN Setup: Students will be able to install / configure network devices to form a local area and wide area network.
2. VLAN Configuration: Students will be able to configure and route traffic through multiple VLANs.
3. Basic Security / Threats to the network: Students will be able to identify common threats to the network and configure security protocols to minimize unauthorized access and changes to the network infrastructure and data resources.
4. Troubleshooting: Students will be able to troubleshoot access, connectivity, and performance issues from basic to intermediate levels.