

INTERNET ENGINEERING 2

2025-26

Course title: CCNA: Switching, Routing & Wireless Essentials (Course-2)

Course Code/ Section#

Units of credit: 10

Meeting Dates: 08/12/25-06/02/26

Instructor: Mr. H. Albizo

Location-Room: 72

Contact: halbizo@fusdk12.net or halbizo@mvrop.org

510-656-5711x46372

UC-g Credit Mission Valley ROP Certificate of completion is awarded with a grade of C or better

Course Overview

This UC “g” elective is the second of three courses in the Cisco CCNA certification pathway. Students will learn switching, routing, and wireless networking concepts for small to medium-sized business networks. Emphasis is placed on hands-on lab experience, secure network design, and troubleshooting. This course prepares students for advanced ICT and postsecondary studies in network administration, cybersecurity, systems engineering, and prepares students for industry CCNA certification and entry-level networking careers.

Course Objectives

Students will:

- Understand how switches and routers operate within a network
- Configure VLANs, inter-VLAN routing, and Spanning Tree Protocol
- Secure local area networks and wireless access points
- Troubleshoot static and default routes
- Develop skills in routing protocols and wireless network configurations
- Applying cybersecurity concepts to network environments
- Build practical experience through real-world labs and scenarios

Core Topics

- Small-to-medium business networks
- Enterprise level components and configuration
- Device Configuration & Network Protocols
- VLANs, STP, EtherChannel, and DHCP
- IPv4/IPv6 Addressing and Routing
- LAN & WLAN Security Concepts

- WLAN Design and Configuration
- First Hop Redundancy Protocols (FHRP)
- Troubleshooting network connectivity issues
- Security concepts related to LANs, VLANs, inter-VLAN routing, and wireless LANs

Certifications

- All students will take at least one **Precision Exam**
- Eligible students are encouraged to pursue **Cisco CCNA industry certification**

Grading Breakdown

- **15%** – Participation & Conduct
- **15%** – Exams & Quizzes
- **30%** – Assignments & Homework
- **40%** – Hands-on Labs & Projects

Late Work Policy:

1 day late = -10% | 2-7 days late = -25% | **After 1 week = not accepted unless excused**

Class Expectations

- **Be Prompt:** Arrive on time, ready to work
- **Be Prepared:** When the bell rings. No loud side-bar discussions, be in your seat, and *absolutely no food in class*
- **Be Respectful:** Practice professional communication
- **Be Engaged:** Contribute actively and respectfully
- **Be Ethical:** AI use is allowed for brainstorming or script support, but not for completing assignments or exams

Class Rules

- **No smartphones or laptops allowed.** Desktops will be used and are configured with all the required software.
- **No eating in class at any time.** Bottled water only in the classroom
- **No disruptions, sidebar conversations, profanity, or rowdy behavior**

Required Materials & Tools

- **Online Curriculum:** Cisco NetAcad (access provided week 2)
- **Journal:** A notebook, writing pad for documenting hands on activities

- **Software Used:** Cisco Packet Tracer, Wireshark, Tera Term or Putty, VirtualBox
- **Textbooks/References (provided):**
 - *Networking Fundamentals* (Wiley)
 - *Wireshark Network Analysis* – Chappell
 - *Network Security Essentials* – Herzog et al.
 - *CCNA 200-301 Portable Command Guide 5th Ed*

Student Portfolio & Career Readiness

At the beginning of the school year, students will build a portfolio consisting of:

- Cover letter, Resume with references
- LinkedIn profile and job application (this does not apply to students under 16 years of age)
- CACareerZone for career research
- Sample project documentation (2nd semester)

Homework: Class assignments and homework (approx. 20 minutes nightly, Mon–Thurs) are posted on **Google Classroom**. Students in danger of failing may be assigned additional work.

- The online curriculum is available at **cisco.netacad.net 24/7**.
- By week two, each student will receive a Cisco Academy login. Instructors do not have access to passwords

Events & Industry Exposure

Students are encouraged to participate in industry events such as:

- Fremont Engineering Expo (April/May)
- Fremont National Manufacturing Day (October)
- Cisco Systems Shadow Day (by Invitation)
- Program Advisory Committee (ICT student engagement-November by invitation)

Note to Parents/Guardians

I am teaching both ICT (Information and Communication Technology) and Entrepreneurship courses and am credentialed for both. Both sectors are integral components for success. As such I'm looking forward to expanding my Program Advisory Committee and will always welcome diverse viewpoints.

Parents working in (ICT) and the field of business are invited to join the Mission Valley ROP / Irvington High School **Program Advisory Committee** to help guide and improve our technology and business programs. The committee meets once a year for 1.5 hours. If interested, please contact Mr. Albizo at halbizo@fusdk12.net.

Student — AI Use & Code of Ethics

AI Policy

AI may be used to support idea generation or script writing for class discussion but may not be used to complete or generate graded assignments; questions to assessments, and reports that do not reflect original thinking. Misuse of AI tools is considered academic dishonesty, and as such is subject to parental and admin notification and Saturday detention.

As artificial intelligence (AI) becomes part of everyday learning, it is important to use it responsibly and ethically. Using AI tools prepares students for the future workplace, where AI literacy and ethical awareness will be critical skills in every industry sector.

Students — I agree to the following principles for AI use in school:

1. Integrity

I will not use AI to cheat, plagiarize, or misrepresent someone else's work as my own.

2. Accountability

I am responsible for how I use AI and for verifying the accuracy and appropriateness of its outputs.

3. Transparency

I will clearly indicate when I use AI tools in assignments, projects, or presentations.

4. Respect for Privacy

I will not use AI to share, collect, or misuse private or sensitive information.

5. Avoiding Bias

I will think critically about AI-generated content and be alert to any unfair or biased information.

6. Purposeful Use

I will use AI to enhance my learning, not to avoid thinking or doing my own work.

7. Digital Citizenship

I will follow school rules and classroom policies related to AI use and report any misuse I observe.

8. Human-Centered Values

I will ensure that my use of AI supports fairness, empathy, and the well-being of others.

Mission Valley ROP is dedicated to preparing students with technical and ethical workplace skills. **Cheating or plagiarism by any means** will result in a failing grade on the assignment, notification to administration and to the parent/guardian

Acknowledgment

By signing below, I understand and agree to use AI tools ethically, responsibly, and in accordance with classroom and school expectations. I further understand, violations of this guidance will have administrative consequences.

A **Media Release Form** students may have occasion to have their picture taken in the classroom or during special events like field trips. Some students or their parents may not want to have their child's picture taken. The media release form allows for opting in or out. **Opting out will not affect the student's grade.** However, we must have a signed copy on file.

Please **sign and return** this page and the Media Release Contract. No student will be given access to equipment or curriculum until the **Computer Use Agreement** is signed by both student and parent/guardian.

Acknowledgment & Agreement

To gain access to curriculum and equipment, students and parents must sign this syllabus along with the **Media Release Form** and return by the second week of class.

Signatures

Student Name (Print): _____ **Date:** _____ Class Period: ____

Student Signature: _____ **Date:** _____

Parent/Guardian Name (Print): _____ **Date:** _____

Parent/Guardian Signature: _____ **Date:** _____

Parent Contact Info

Phone: _____ **Email:** _____