

Newport-Mesa Unified School District
Office of Career Technical Education
High School Course of Study

AP Cybersecurity 1: Networking Fundamentals

DATE: 04/29/2025

INDUSTRY SECTOR: Information & Communication Technology

PATHWAY: Networking (172)

CALPADS TITLE: Intermediate Networking (Concentrator)

CALPADS CODE: 8121

HOURS:

Total	Classroom	Laboratory/CC/CVE
180	140	40

JOB TITLE	ONET CODES	JOB TITLE	ONET CODES
Cloud Architect	15-1241.00	Cyber Crime Investigator	15-1299.06
Information Security Engineer	15-1299.05	Security Management Specialist	13-1199.07
System Testing & Evaluation Specialist	15-1211.00	Systems Administrator	15-1242.00

COURSE DESCRIPTION:

This is a full-year high school course that covers the fundamentals of networking. It is equivalent to a college-level Introduction to Networking course. The course interweaves essential networking concepts with relevant, hands-on problem-solving activities to maximize students' understanding of network hardware and configuration, the use of protocols to enable reliable and accurate transmission of data between different hosts around the world, and relevant security practices that secure the transmission of data both within and between computer networks.

PREREQUISITES:

High School Name:	Site Prerequisite:
Newport Harbor High School	NA

A – G APPROVAL: ☐ Yes ☐ No ☒ Desired

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ARTICULATION: Advanced Placement (AP) credit

High School Name:	College Name:	College Course Title:
NA		

LEVEL: ☐ Participant ☐ Introductory ☒ Concentrator ☐ Capstone

CERTIFICATION: CompTIA Network+, Cisco Certified Networking Associate (CCNA), and Cisco Certified Support Technician (CCST): Networking

METHOD OF STUDENT EVALUATION:

- ✓ Pre and Post test
- ✓ Student Projects
- ✓ Written work
- ✓ Observation record of student performance
- ✓ Completion of assignments

METHOD OF INSTRUCTION:

- ✓ Small group instruction
- ✓ Demonstration
- ✓ Field Trips
- ✓ Guest Speaker
- ✓ Mentors
- ✓ Project-based learning
- ✓ Work-based learning

RECOMMENDED TEXTS OR SOFTWARE:

TBD, CodeHS (supplemental)

MODEL CTE PATHWAY:

Grade:	Fall Semester:	Spring Semester:
9th-11th	AP Cybersecurity 1A	AP Cybersecurity 1B
10th-12th	AP Cybersecurity 2A	AP Cybersecurity 2B

CALIFORNIA CAREER TECHNICAL EDUCATION MODEL CURRICULUM STANDARDS

California Department of Education CTE Standards website: <http://www.cde.ca.gov/ci/ct/sf/ctemcstandards.asp>

**INDUSTRY SECTOR
KNOWLEDGE AND PERFORMANCE ANCHOR STANDARDS**

1.0 Academics

2.0 Communications

3.0 Career Planning and Management

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4.0 Technology

5.0 Problem Solving and Critical Thinking

6.0 Health and Safety

7.0 Responsibility and Flexibility

8.0 Ethics and Legal Responsibilities

9.0 Leadership and Teamwork

10.0 Technical Knowledge and Skills

11.0 Demonstration and Application

CR = Classroom Hours

LAB/CC = Laboratory/Shop/Community Classroom Hours

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I.	Unit 1: Introduction to Cybersecurity and Networking	CR	LAB/CC	STANDARDS
	• Introduction to Cybersecurity • Personal Digital Security • Enterprise Security • Introduction to Computer Systems • Introduction to Command Line • Introduction to Networks • SOHO vs. Enterprise Networks	30	8	Academic: RST.9-10.4 RST.9-10.7 WHST.9-10.2 WHST.9-10.7 HS-ETS1-2 CTE Anchor: 1.1, 2.1-2.3, 3.2-3.3, 4.1-4.2, 5.1-5.3, 6.1, 6.3, 7.3, 8.1-2, 9.2, 10.1-2 Pathway: B1.1, B2.1, B4.1, B8.3
II.	Unit 2: Layers, Protocols, and Addressing	CR	LAB/CC	STANDARDS
	• OSI and TCP/IP Models • Introduction to Protocols and Servers • Cabling • Network Topologies • Physical Addressing • Logical Addressing • IP Configuration	31	8	Academic: RST.9-10.4 RST.9-10.7 WHST.9-10.2 WHST.9-10.7 HS-ETS1-2 CTE Anchor: 1.1, 2.1-2.3, 4.1-4.2, 5.1-5.3, 6.1-6.2, 7.2, 8.1-2, 9.2, 10.1-2 Pathway: B1.1, B2.1, B4.1, B8.3
III.	Unit 3: Configuring a LAN	CR	LAB/CC	STANDARDS
	• Switching • Switch Security • More on Protocols • LAN Configuration and Troubleshooting	21	8	Academic: RST.9-10.4 RST.9-10.7 WHST.9-10.2 WHST.9-10.7 HS-ETS1-2 CTE Anchor: 1.1, 2.1-2.3, 4.1-4.2, 5.1-5.3, 6.1, 7.2, 8.1, 9.2, 10.1-2 Pathway: B2.1, B4.1, B8.3, B11.1
IV.	Unit 4: Advanced LAN Topics	CR	LAB/CC	STANDARDS
	• IPv4 Addressing • Routing • Subnetting • Wireless Networks • Network Troubleshooting	28	8	Academic: RST.9-10.4 RST.9-10.7 WHST.9-10.2 WHST.9-10.7 HS-ETS1-2

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				CTE Anchor: 1.1, 2.1-2.3, 4.1-4.2, 5.1-5.3, 6.1, 7.2, 8.1, 9.2, 10.1-2 Pathway: B1.1, B4.1, B4.2, B8.3, B11.1
V.	Unit 5: Network Security	CR	LAB/CC	STANDARDS
	• Introduction to Security Controls • Physical and Administrative Controls • Technical Controls: Firewalls • Technical Controls: Network Segmentation • Technical Controls: Network Monitoring • Defense in Depth	30	8	Academic: RST.9-10.4 RST.9-10.7 WHST.9-10.2 WHST.9-10.7 HS-ETS1-2 CTE Anchor: 1.1, 2.1-2.3, 4.1-4.2, 5.1-5.3, 6.1, 7.2, 8.1-8.2, 9.2, 10.1-2 Pathway: B6.1, B6.2, B6.3, B8.3, B11.1