

# CISCO IT ESSENTIALS 8

## Course Outline - Cisco Networking Academy

**School Year 2026-2027**

*"The only roadblock to your success rests between your ears."*

|                             |                                                      |
|-----------------------------|------------------------------------------------------|
| <b>Program</b>              | Mission Valley Regional Occupational Program (MVROP) |
| <b>Grade Level</b>          | Grades 11-12                                         |
| <b>Course Length</b>        | Full academic year; block schedule                   |
| <b>Primary Curriculum</b>   | Cisco Networking Academy - IT Essentials 8           |
| <b>Cisco Course Profile</b> | Approximately 70 hours; 90 labs; instructor-led      |

### Course Purpose

Develop the hardware, operating-system, networking, security, troubleshooting, documentation, and customer-support foundation required for entry-level IT support work and continued study in networking, cybersecurity, cloud, and related technical pathways.

## 1. 1. Course Competencies

- Work safely with computer hardware, tools, power, batteries, components, peripherals, and ESD-sensitive devices.
- Identify, assemble, upgrade, configure, maintain, and troubleshoot desktop and mobile computer hardware.
- Apply a structured troubleshooting process using symptoms, evidence, testing, corrective action, verification, and documentation.
- Connect and troubleshoot computers on wired/wireless networks and configure common SOHO, firewall, and IoT settings.
- Install, configure, secure, and troubleshoot Windows while gaining exposure to mobile operating systems, Linux, and macOS.
- Support printers, laptops, mobile devices, virtualization, and cloud-related user environments.
- Apply foundational endpoint and SOHO cybersecurity practices and approved malware-response procedures.
- Document work, communicate with users, use escalation appropriately, and demonstrate legal/ethical professional behavior.
- Recognize basic scripting concepts and create simple instructor-guided scripts in Windows and Linux.
- Use instructor-authorized AI as a support tool while independently verifying technical accuracy and demonstrating core skills.

## 2. 2. Module-by-Module Course Outline

The sequence below follows Cisco Networking Academy IT Essentials Version 8. Timing is tentative and intentionally expands Cisco's core course with additional MVROP lab practice, troubleshooting, documentation, and capstone work.

| Module                                        | Core Content                                                                                                                                                      | Demonstrated Skills / Labs                                                        | Applied CTE Context                       | Tentative Pacing |
|-----------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------|------------------|
| 1. Introduction to Personal Computer Hardware | PC safety; electrical/ESD safety; cases; power supplies; motherboards; CPUs; cooling; RAM; storage; adapters; ports; peripherals; technician toolkit; disassembly | Safety check; component identification; ESD setup; tool use; computer disassembly | Safe bench practice and hardware literacy | Weeks 1-3        |

| Module                                         | Core Content                                                                                                                                                                           | Demonstrated Skills / Labs                                                                                                   | Applied CTE Context                                            | Tentative Pacing |
|------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|------------------|
| 2. PC Assembly                                 | General/fire safety; power supply; motherboard components; drives; adapters; cables; external connections; complete assembly                                                           | Install PSU, CPU, RAM, drives, cards and cables; complete system assembly                                                    | Build discipline, cable management, verification               | Weeks 4-6        |
| 3. Advanced Computer Hardware                  | POST; BIOS/CMOS/UEFI; OS install context; electrical power; protection; advanced hardware; storage/RAID; upgrades                                                                      | Navigate firmware; install Windows in lab context; evaluate upgrades; power calculations; hardware configuration             | Performance, compatibility, resilience and lifecycle           | Weeks 7-8        |
| 4. Preventive Maintenance and Troubleshooting  | Maintenance benefits; environment; troubleshooting process; tools; common/advanced hardware problems                                                                                   | Preventive-maintenance plan; multimeter/power-supply tester; diagnose and document hardware faults                           | Evidence-based repair and service records                      | Weeks 9-10       |
| 5. Networking Concepts                         | Network types/topologies; devices; protocols; TCP/IP; ports; media; cabling; Internet connectivity                                                                                     | Identify devices/media; interpret addressing/services; cable and protocol recognition                                        | Foundation for CCNA and IT support networking                  | Weeks 11-12      |
| 6. Applied Networking                          | MAC/IP addressing; NICs; SOHO design; wired/wireless; firewall settings; network services; IoT; troubleshooting                                                                        | Configure NIC; Packet Tracer networking; wireless; firewall; IoT device control; diagnose connectivity                       | Endpoint connectivity, IoT and secure SOHO support             | Weeks 13-15      |
| 7. Laptops and Other Mobile Devices            | Laptop/mobile characteristics; wireless; components; configuration; maintenance; security; troubleshooting                                                                             | Identify/replace laptop components; configure wireless/Bluetooth; gather customer information; troubleshoot mobile issues    | Mobile workforce and field support                             | Weeks 16-17      |
| 8. Printers                                    | Printer characteristics; inkjet/laser/thermal/impact; installation; sharing; maintenance; consumables; troubleshooting                                                                 | Install/configure printer; maintenance procedures; diagnose print failures                                                   | Peripheral support and service operations                      | Weeks 18-19      |
| 9. Virtualization and Cloud Computing          | Virtualization; hypervisors; virtual machines; cloud models/characteristics/services                                                                                                   | Create/configure VM with approved platform; compare cloud/virtual approaches                                                 | Modern support environments and resource abstraction           | Weeks 20-21      |
| 10. Windows Installation                       | Modern OS concepts; Windows editions/requirements; installation types; partitioning/filesystems; upgrades; boot methods                                                                | Prepare installation; install/upgrade Windows; configure storage and boot options                                            | Endpoint deployment and imaging foundations                    | Weeks 22-23      |
| 11. Windows Configuration                      | Desktop/File Explorer; system tools; accounts; permissions; storage; networking; remote access; security; troubleshooting                                                              | Configure Windows settings/accounts/network; use CLI/system tools; remote access; troubleshoot OS problems                   | Tier 1/Tier 2 endpoint support                                 | Weeks 24-27      |
| 12. Mobile, Linux, and macOS Operating Systems | Android/iOS; mobile UI/security; Linux/macOS features and tools; command line; troubleshooting                                                                                         | Perform basic mobile/Linux/macOS support; use approved commands/tools; diagnose common issues                                | Cross-platform support competency                              | Weeks 28-29      |
| 13. Security                                   | Malware; social engineering; threats/vulnerabilities; endpoint security; SOHO wireless/wired security; malware removal; security troubleshooting                                       | Apply secure settings; configure wireless security; follow malware-removal workflow; document outcomes                       | Secure support and cybersecurity pathway bridge                | Weeks 30-32      |
| 14. The IT Professional                        | Communication; professionalism; documentation; change management; ethics/legal issues; privacy/licensing; forensics awareness; help desk/call center; remote support; scripting basics | Customer/work-order scenarios; escalation; remote technician labs; chain-of-custody awareness; basic Windows/Linux scripting | Employability, ethics, service desk and automation foundations | Weeks 33-35      |
| Capstone and Review                            | Cumulative hardware, OS, network, security, troubleshooting, documentation and professional-support skills                                                                             | Diagnose, repair/configure, verify, document and present an integrated support case                                          | Entry-level technician performance and pathway transition      | Week 36          |

### 3. 3. Hands-on Laboratory Progression

- Electrical/ESD safety, technician toolkit, component identification, and system disassembly.
- Complete PC assembly, component replacement, cable management, and boot verification.
- BIOS/UEFI, power, storage, memory, cooling, upgrade, and compatibility exercises.

- Preventive maintenance plus structured hardware troubleshooting using approved diagnostic tools.
- Wired/wireless network connectivity, Packet Tracer, SOHO, firewall, IoT, and troubleshooting activities.
- Laptop/mobile-device and printer installation, maintenance, configuration, and troubleshooting.
- Virtual machine creation and operating-system installation/configuration.
- Windows administration, accounts, permissions, storage, networking, remote access, security, and recovery.
- Mobile, Linux, and macOS support tasks using approved tools and commands.
- Endpoint/SOHO security, malware-response workflow, secure wireless, and security troubleshooting.
- Service-ticket/work-order documentation, remote-support role play, professional communication, escalation, and basic scripting.
- Cumulative capstone requiring diagnosis, safe corrective action, verification, documentation, and customer-style communication.

#### 4. 4. Assessment Evidence

| Evidence Type           | Purpose                                   | Typical Evidence                                                                            |
|-------------------------|-------------------------------------------|---------------------------------------------------------------------------------------------|
| Hands-on technical labs | Demonstrate safe technical skill          | Hardware assembly/service, OS configuration, networking, printers, security, virtualization |
| Troubleshooting         | Demonstrate diagnostic reasoning          | Symptoms, evidence, hypothesis, tests, corrective action, verification, documentation       |
| Service documentation   | Demonstrate professional support practice | Work orders, tickets, inventory/asset notes, customer communication, escalation records     |
| Knowledge assessments   | Measure conceptual understanding          | Cisco module checks, quizzes, unit tests, terminology/application questions                 |
| Practical skills checks | Validate independent performance          | Timed or observed hardware/OS/network/support tasks                                         |
| Capstone                | Integrate course competencies             | End-to-end support case with technical work, documentation and presentation                 |

#### 5. 5. AI, Cybersecurity, Networking, IoT, and OT Connections

- AI / Edge: Hardware, operating-system, storage, cooling, power, driver, and network competencies provide the physical support foundation for AI-enabled endpoints and edge systems.
- Cybersecurity: Security, malware response, permissions, firewall/wireless settings, privacy, authorization, and evidence-handling concepts prepare students for deeper cybersecurity coursework.
- Networking / IoT: Modules 5-6 explicitly cover networking concepts, SOHO connectivity, Packet Tracer and IoT-device configuration, providing a direct bridge to CCNA Introduction to Networks.
- OT: Industrial/operational endpoints may be used as context for specialized devices and edge computing; detailed OT cybersecurity remains a strand within cybersecurity coursework, not a separate IT Essentials course.
- AI in Coursework: AI is permitted only when instructor-directed; students must validate recommendations and demonstrate the underlying technical skill without dependence on AI.

#### 6. 6. Professional and CTE Expectations

- Follow electrical, ESD, battery, tool, lifting, and active-lab safety procedures.
- Use only instructor-authorized devices, networks, media, software, accounts, diagnostic techniques, and repair activities.
- Document symptoms, configurations, parts, actions, tests, outcomes, and customer-style communications accurately.
- Protect credentials, personal information, licensing information, and any data treated as private or privileged.
- Use professional communication and teamwork during technical-support and troubleshooting activities.

- Maintain current coursework; bulk submission of missing work during the final week of a semester or year-end grading period will not be graded.
- No food or drink is permitted in the classroom or lab except as formally authorized.
- AI use and personal electronic-device use are governed by the full course syllabus and instructor direction.

## 7. 7. Pathway Progression

IT Essentials 8 provides a foundational entry point into IT support and infrastructure. Students can progress into CCNA Introduction to Networks, cybersecurity coursework, cloud/virtualization, operating systems, IT support certifications, and other technical CTE experiences. Cisco currently describes IT Essentials 8 as preparation for practical IT skills and CompTIA A+ certification study; external certification objectives should always be checked at the time of testing because certification providers update exams independently.

## 8. 8. Reference Basis

- Cisco Networking Academy, IT Essentials 8 - current course catalog (approximately 70 hours; 90 labs; instructor-led; hardware, software, networking and security).
- Cisco Networking Academy, IT Essentials Version 8 Education Standards mapping (2023), which identifies the 14-module instructional sequence and standards/objective alignments.
- MVROP classroom, laboratory, academic-integrity, AI-use, no-food/drink, late-work, and device-policy expectations as stated in the companion syllabus.
- *Document status: Sequence and pacing may be adjusted for the MVROP calendar, equipment, student mastery, Cisco curriculum updates, certification-provider changes, and administrative direction.*