2025 NETWORK SUPPORT

Program Standards

CONTENT STANDARD 1.0: PROFESSIONAL ORGANIZATIONS AND LEADERSHIP

Performance Standard 1.1: Student Leadership in Career Technical Student Organizations (CTSO) and Professional Associations

1.1.1 Explore the role of professional organizations and/or associations in the Networking Support Industry.
1.1.2 Define the value, role, and opportunities provided through career technical student organizations.
1.1.3 Engage in career exploration and leadership development.

CONTENT STANDARD 2.0: INDUSTRY APPLICATION OF NETWORKING SKILLS

Performance Standard 2.1: Professional and Career Skills

2.1.1 Describe the roles and responsibilities of the networking support professional.
2.1.2 Describe scope of practice of the networking support professional within an organizational structure.
2.1.3 Prioritize urgency of tasks as a networking professional within an organization.
2.1.4 Describe the initiative and resourcefulness needed for solving networking problems.
2.1.5 Identify and follow industry standards, procedures, and protocols for common networking support tasks.
2.1.6 Develop standard operating procedures for common networking support tasks.
2.1.7 Describe the common values of a networking professional (e.g., confidentiality, integrity, availability, trust, ethics).
2.1.8 Describe stress-management techniques to manage personal stress and de-escalation strategies within a stressful career setting.
2.1.9 Describe the importance of continual learning throughout a career in networking.
2.1.10 Describe the importance of mentoring team members within the networking support industry.
2.1.11 Translate technical jargon for a non-technical audience/customer.

Performance Standard 2.2: Personal Networking Security Practices

2.2.1 Demonstrate basic workstation security and password practices (i.e., accountability).
2.2.2 Describe the need for developing a security posture.
2.2.3 Define *social engineering.*
2.2.4 Demonstrate procedures for good security hygiene.

CONTENT STANDARD 3.0: END POINT TECHNOLOGIES

Performance Standard 3.1: Personal Computer (PC) Hardware Configuration and Installation

3.1.1 Identify system boards and related components.
3.1.2 Identify the critical components of an end device.
3.1.3 Describe the lifecycle of end-user devices.
3.1.4 Describe the troubleshooting process steps and common problems encountered by end-user devices.
3.1.5 Define basic host, data, and network security.
3.1.6 Describe the interoperability of system components and devices.
3.1.7 Analyze system requirements (e.g., hardware, software, firmware) to meet end-user specifications.
3.1.8 Install and configure peripheral devices.

Performance Standard 3.2: Fundamental Networking Technologies

3.2.1 Define the network interface.

3.2.2	Describe types (e.g., Wi-Fi, satellite, cellular, fiber) of network connections and features.
3.2.3	Compare wide area network (WAN) and local area network (LAN).
3.2.4	Identify network cables and connectors and their characteristics.
3.2.5	Describe transmission control protocol/internet protocol (TCP/IP) suite characteristics and properties.
3.2.6	Identify consumer wireless networking standards and encryption types.
3.2.7	Describe network devices (e.g., router switch, access point [AP]) and related applications.
3.2.8	Describe networking testing tools (e.g., toner, cable tester), procedures, and related applications.
3.2.9	Install (i.e., configure and deploy) a small office or home office (SOHO) network.
Performance Standard 3.3: Laptops, Mobile Devices, and Related Hardware	
3.3.1	Install and configure related peripherals (e.g., docking station).
3.3.2	Compare features of desktops, laptops, and mobile devices.
3.3.3	Customize configurations based on use case (i.e., customer needs).
Performance Standard 3.4: Printer and Imaging Hardware	
3.4.1	Identify common printing issues.
3.4.2	Compare printer types (e.g., laser, inkjet), features, and functions to meet business requirements.
3.4.3	Compare input and output imaging devices (e.g., projector, scanner, TV, fax).
3.4.4	Troubleshoot display device problems.
3.4.5	Perform basic printer maintenance.
Performance Standard 3.5: Operating Systems	
3.5.1	Compare mobile, Windows, Mac and Linux operating system.
3.5.2	Implement mobile, Windows, Mac, and Linux operating systems.
3.5.3	Describe the functions and applications of command line tools.
3.5.4	Manage an operating system, using network tools (e.g., system tools, utilities, internet protocol [IP] configuration).
3.5.5	Describe virtualization.
3.5.6	Describe Cloud computing services.
Performance Standard 3.6: Workstation Security	
3.6.1	Describe common endpoint vulnerabilities (e.g., identity, authentication, validation).
3.6.2	Describe common intrusion methods.
3.6.3	Describe intrusion prevention measures (e.g., firewalls, antivirus [AV] software).
3.6.4	Describe the implementation of best practices to secure a workstation.
3.6.5	Describe best practices for data destruction and disposal methods.
3.6.6	Describe workstation virtual private network (VPN) technologies.
3.6.7	Change the password on a workstation
CONTENT STANDARD 4.0: NETWORKING TECHNOLOGIES	
Performance Standard 4.1: Fundamental Networking Concepts	
4.1.1	Compare server-to-server, client-to-client, and client-to-server relationships.
4.1.2	Compare the layers of the open systems interconnection (OSI) and TCP/IP models.
4.1.3	Map applications, devices, and protocols related to the OSI model layers.
4.1.4	Describe the purpose and properties of IP addressing (e.g., IPv4, IPv6, classes).
4.1.5	Compare private and public IP addresses.
4.1.6	Describe the purpose and properties of dynamic host configuration protocol (DHCP).
4.1.7	Describe the purpose and properties of routing and switching.
4.1.8	Identify common transmission control protocol (TCP) and user datagram protocol (UDP) well-known ports.
4.1.9	Describe domain name system (DNS) concepts and components.
4.1.10	Describe virtual local area networks (VLANs) (e.g., trunking, access) and their functions.

4.1.11	Identify virtual network components (e.g., virtual switch, virtual router, virtual port) and connection procedures.
Performance Standard 4.2: Installation, Configuration and Troubleshooting	
4.2.1	Configure a network switch, using basic command-line interface (CLI) or graphical user interface (GUI).
4.2.2	Configure a network router, using basic CLI and GUI.
4.2.3	Configure static routing.
4.2.4	Verify route configuration, using a routing table.
4.2.5	Troubleshoot common router and switch problems.
4.2.6	Design and implement a three-tier network (e.g., core, distribution, access).
4.2.7	Troubleshoot connectivity issues, using software tools (e.g., ping, traceroute, nslookup).
Performance Standard 4.3: Network Media and Topologies Installation and Configuration	
4.3.1	Describe standard media types (e.g., copper, fiber), connectors, and associated properties (e.g., cable quality, CAT rating, limitations).
4.3.2	Describe power over ethernet (POE) and applications.
4.3.3	Describe network interface module (e.g., small form pluggable [SFP], gigabit interface converter [GBIC], quad small form pluggable [QSFP]).
4.3.4	Describe WAN topology types.
4.3.5	Describe LAN topology types.
4.3.6	Troubleshoot common physical connectivity (e.g., wired, light levels, wireless) problems.
4.3.7	Compare network physical and logical topologies.
4.3.8	Identify components of wiring distribution (e.g., rack space, patch panel, demarcation point).
Performance Standard 4.4: Network and Change Management	
4.4.1	Create a drawing (e.g., diagram, blueprint, map) that accurately describes network topology.
4.4.2	Describe best practices for network performance and configuration management (e.g., simple network management protocol [SNMP], syslog, network performance monitor/network configuration manager [NPM/NCM], Cloud configuration, backups).
4.4.3	Describe the advantages of Cloud management and automation tools.
4.4.4	Describe a change control process (e.g., design, coordination, planning, access, expected outcome).
Performance Standard 4.5: Basic Network Security	
4.5.1	Describe the methods of network access security (e.g., firewall, access control list [ACL]).
4.5.2	Describe best practices (e.g., multi-factor authentication, password complexity, encryption, 802.1x) that ensure user authentication.
4.5.3	Identify common network threats and vulnerabilities (e.g., distributed denial of service/denial of service [DDoS/DoS], man-in-the-middle, spoofing, physical security, misconfiguration).
4.5.4	Identify mitigation techniques for common threats and vulnerabilities (e.g., misconfiguration, physical security).
4.5.5	Describe a basic network firewall.
4.5.6	Describe basic wired and wireless network security (e.g., Wi-Fi Protected Access [WPA3]).
4.5.7	Describe network address translation (NAT).
4.5.8	Describe basic switchport security.
4.5.9	Define *confidentiality, integrity*, and *availability* (i.e., the CIA model) in reference to network security.
Performance Standard 4.6: IPv4 and IPv6 Addressing	
4.6.1	Describe the importance of subnetting.
4.6.2	Apply prefix notation in subnetting.
4.6.3	Subnet IPv4 addresses to fulfill given topology.

4.6.4 Subnet IPv6 addresses to fulfill given topology.
4.6.5 Perform route summarization.

IDCTE Document Control Information

Program Standard Revision: ETE Network Support

Date	Standard #	Original	Summary of Change	Revised By	Approved By