# Computer/Network Technician *(15.1202)*

| Measurable Learner Objective and Task Statement | Knowledge (Content) | Performance (Goals) | Notes |
|---|---|---|---|
| **A. Describe and safely interact with all computer systems, including ethics, communication, hardware, software, and tools.** | CA 1, CA 3 | 1.4, 1.8, 1.10, 2.1, 4.1 | |
| 1. Describe computer evolution (e.g., microcomputers and their relationship to current computing). | | | |
| 2. Compare and contrast mainframes, minicomputers, scientific workstations, and microcomputers. | | | |
| 3. Compare and contrast centralized and decentralized computing. | | | |
| 4. Identify information system components (e.g., software, hardware, input, process, and output). | | | |
| 5. Conduct every day procedures ethically (e.g., piracy, licensing, intellectual property, standards of conduct, privacy, organizational policies and procedures, and unauthorized access). | | | |
| 6. Communicate technical terms, solutions, and procedures to non-technical users. | | | |
| 7. Explain how software and hardware supports individuals with disabilities. | | | |
| 8. Create technical correspondence. | | | |
| 9. Demonstrate basic word processing skills (e.g., spreadsheet, slide presentation, database and Internet). | | | |
| **B. Appreciate and apply all personal and workplace safety procedures** | CA 3, HP 6, HP 7, SC 8 | 1.4, 1.8, 3.1, 3.2, 3.3, 3.5, 3.7, 4.7 | |
| 1. Comply with federal and state regulations (e.g., handling, storing, and disposing of hazardous materials). | | | |
| 2. Recognize when first aid is needed for occupational injuries and follow proper procedures. | | | |
| 3. Identify types, purposes, and the operation of fire extinguishers and suppression resources. | | | |
| 4. Demonstrate appropriate work place safety practices (e.g., electrical, hand tools, power tools, fall protection, eye protection, PPE, and environmental hazards). | | | |
| 5. Identify hazard of RF radiation devices. | | | |
| 6. Operate AC line-operated equipment safely (e.g., isolation transformers, grounding, leakage current testing, and GFI). | | | |
| 7. Practice accepted anti-static (ESD) procedures. | | | |

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| 8.   Identify electrical, mechanical, chemical, and environmental hazards. | | | |
| **C.**   **Basic Electronic Skills** | CA 3, SC 1, SC 2 | 1.5, 2.5, 3.5, 4.1 | |
| 1.   Evaluate and test source of DC and AC signals and power. | | | |
| 2.   Apply Ohm's law by evaluating series and parallel circuits. | | | |
| 3.   Measure voltage, current, and resistance using multimeters (e.g., VOM, EVM, and DVM). | | | |
| 4.   Make recommendations for computer device related power sources and power supplies. | | | |
| 5.   Discuss digital logic circuits. | | | |
| **D.**   **Hardware** | CA 1, CA 3, MA 1, HP 6, SC 7, SC 8 | 1.10, 2.7, 3.5, 3.7, 4.1 | |
| 1.   Describe computer parts and functions (e.g., ports). | | | |
| 2.   Assemble and configure a microcomputer from constituent parts. | | | |
| 3.   Compare and contrast merits of various microprocessors for various architectures. | | | |
| 4.   Compare and contrast current industry-standard busses. | | | |
| 5.   Identify industry-standard workstation and server hardware systems. | | | |
| 6.   Install and remove common peripherals. | | | |
| 7.   Verify operation of common peripherals. | | | |
| 8.   Install and verify device drivers. | | | |
| 9.   Perform burn-in/diagnostics. | | | |
| 10. Troubleshoot and repair subsystems. | | | |
| 11. Troubleshoot electromagnetic interference problems (EMI). | | | |
| 12. Adapt hardware for people with special needs. | | | |

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| 13.  Compare and constrast standard memory types. | | | |
| 14.  Perform preventive maintenance on computer/network systems and peripherals. | | | |
| 15.  Identify and diagnose current printing technology problems. | | | |
| **E.   Software** | CA 1, CA 3, CA 6, SC 7, SC 8 | 1.8, 1.10, 2.7, 3.1, 3.5, 3.7, 4.1 | |
| 1.   Identify, install, and configure common operating systems (e.g., Windows XP Pro, Windows Server 2003, Linux, and UNIX). | | | |
| 2.   Analyze and modify system configuration files. | | | |
| 3.   Perform and interpret diagnostics. | | | |
| 4.   Support special needs access (e.g., install software and operating systems). | | | |
| 5.   Utilize existing technical resources for problem resolution (e.g., news groups, online references, service manuals, read me files). | | | |
| 6.   Use file compression programs. | | | |
| 7.   Summarize system and network security practices (e.g., passwords, user accounts, and design and implementation of policies). | | | |
| 8.   Implement asynchronous connectivity (e.g., Internet, Intranet, dial-up, SLIP, and PPP). | | | |
| 9.   Install application software and suites successfully (e.g., office productivity and industry specific). | | | |
| 10.  Troubleshoot software integration problems. | | | |
| **F.   Connectivity** | CA 1, CA 6, MA 1, SC 8 | 1.8, 1.10, 2.7, 3.2, 3.3, 4.1 | |
| 1.   Discuss network wiring systems capabilities. | | | |
| 2.   Explain current wiring technologies (copper and fiber) according to current standards (e.g., TIA/EIA, IEEE, and ANSI). | | | |
| 3.   Explain wireless technologies advantages and disadvantages. | | | |

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| 4. Explain network communication equipment functions (e.g., modems, DSU/CSU, bridges, switches, routers, and hubs). | | | |
| 5. Install and configure switches and routers on a network. | | | |
| 6. Troubleshoot basic telecommunications problems (e.g., place device in loop-back model). | | | |
| 7. Identify the differences between standard analog and digital lines | | | |
| 8. Install basic telecommunication systems. | | | |
| 9. Trace wiring and repair defects. | | | |
| 10. Certify wiring infrastructure to standards. | | | |
| 11. Connect asynchronous communication devices. | | | |
| 12. Describe possible problems with asynchronous communication devices. | | | |
| **G. Networking basics, protocols, and standards** | CA 1, CA 3 | 1.5, 1.8, 2.5, 3.2, 3.3, 4.1 | |
| 1. Explain telecommunications infrastructure (e.g., LATA, LEC, and CO). | | | |
| 2. Differentiate areas of responsibilities between the telecommunications provider and their clients. | | | |
| 3. Explain current network standards and pseudo-standards (e.g., IEEE, RFCs, and ISO). | | | |
| 4. Draw, label, and explain networking layers (e.g., OSI). | | | |
| 5. Compare and contrast network topologies (e.g., star, bus, ring, broadband, and baseband). | | | |
| 6. Diagram and explain network topologies. | | | |
| 7. Summarize and implement protocols (e.g., TCP/IP, IPX/SPX, NETBEUI, and DHCP). | | | |
| 8. Differentiate between routing and switching/bridging. | | | |
| 9. Explain network security principles (e.g., IP spoofing, packet sniffing, password compromise, and encryption). | | | |

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| **H.  Network operating systems and protcols** | CA 1, CA 3, SC 8 | 1.10, 2.3, 3.1, 3.2, 3.5, 3.7, 4.1 | |
| 1.  Specify network server internal components. | | | |
| 2.  Install and configure network operating systems. | | | |
| 3.  Install and configure network hardware (e.g., NICs). | | | |
| 4.  Establish client environments and network resources. | | | |
| 5.  Describe procedures that are executed through login scripts. | | | |
| 6.  Verify client access to network resources. | | | |
| 7.  Provide secured access to network resources. | | | |
| 8.  Summarize the importance of network security (e.g., passwords and user accounts). | | | |
| **I.  Risk management** | CA 1, CA 3, CA 4, CA 6, HP 6, SC 8 | 1.10, 2.1, 3.1, 3.2, 3.5, 3.7, 4.1 | |
| 1.  Perform site survey. | | | |
| 2.  Recommend security procedures. | | | |
| 3.  Verify secured access to network resources. | | | |
| 4.  Explain firewall usage. | | | |
| 5.  Recommend backup procedures. | | | |
| 6.  Perform backup operations. | | | |
| 7.  Perform backup and restore proceedures. | | | |
| 8.  Discuss and implement virus protection and removal procedures (e.g., workstations and networks). | | | |
| 9.  Implement different levels of fault tolerance (e.g., transaction tracking and logging, auditing, uninterruptible power sources [UPS], mirroring, duplexing, and redundant array of inexpensive disks [RAID]). | | | |

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| **J.  Technical support** | CA 1, CA 4, MA 3, HP 6 | 1.4, 1.8, 2.1, 3.1, 3.2, 3.5, 3.7, 4.1 | |
| 1.  Document cable infrastructure. | | | |
| 2.  Document network configurations (e.g., workstation, server, and router). | | | |
| 3.  Maintain maintenance logs (e.g., document actions taken). | | | |
| 4.  Specify security procedures. | | | |
| 5.  Analyze system log files. | | | |
| 6.  Explain the need for network policy documentation. | | | |
| 7.  Provide basic user and/or network administrator documentation. | | | |
| 8.  Practice constructive problem solving with customers. | | | |
| 9.  Explain remote access and phone support concepts. | | | |
| 10. Implement customer suport remote access. | | | |
| **K.  Demonstrate leadership skills in the classroom, industry, and society** | CA 1, CA 4, CA 6, SS 6, HP 2 | 2.1, 2.3, 2.6, 4.3, 4.4, 4.6, 4.8 | |
| 1.  Demonstrate an understanding of SkillsUSA, its structure and activities. | | | |
| 2.  Demonstrate an understanding of one's personal values. | | | |
| 3.  Perform tasks related to effective personal management skills. | | | |
| 4.  Demonstrate interpersonal skills. | | | |
| 5.  Demonstrate etiquette and courtesy. | | | |
| 6.  Demonstrate effectiveness in oral and written communication. | | | |
| 7.  Develop and maintain a code of professional ethics. | | | |
| 8.  Maintain an appropriate professional appearance. | | | |

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| 9.  Perform basic tasks related to securing and terminating employment. | | | |
| 10. Perform basic parliamentary procedures in a group meeting. | | | |
| **L.  Explain and demonstrate skills in a specialization area identified by the instructor** | | | |

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