

Computer Service Technology 4
Course Code: 5323

COURSE DESCRIPTION:

The Computer Service Technology course is designed to prepare the student to perform entry-level tasks under the supervision of an experienced technician. Students receive instruction in safety, communication skills, leadership skills, human relations and employability skills, effective work practices, and in the installation, operation, maintenance, and repair of personal computers. Associated peripheral equipment and data cabling construction and installation are also included. Laboratory activities provide instruction in installation, component replacement, operating systems, and upgrades in accordance with CompTIA A+ certification standards.

The most current listing of standards for this course/program can be found on the CompTIA Web site at <http://www.comptia.org/certification/a/default.asp> or the CompTIA home page <http://www.comptia.org>.

OBJECTIVE:

Given the necessary equipment, materials, and instruction, the student, on completion of the prescribed course of study, will be able to successfully accomplish the following standards.

COURSE CREDITS: 1 or 2 units

Prerequisite(s): Based on individual schools and school districts

Recommended Grade Level: 10-12

A. SAFETY AND ETHICS

1. Identify major causes of work-related accidents in offices.
2. Describe the threats to a computer network, methods of avoiding attacks, and options in dealing with virus attacks.
3. Identify potential abuse and unethical uses of computers and networks.
4. Explain the consequences of illegal, social, and unethical uses of information technologies, e.g., piracy; illegal downloading; licensing infringement; and inappropriate uses of software, hardware, and mobile devices.
5. Differentiate between freeware, shareware, and public domain software copyrights.
6. Discuss computer crimes, terms of use, and legal issues such as copyright laws, fair use laws, and ethics pertaining to scanned and downloaded clip art images, photographs, documents, video, recorded

sounds and music, trademarks, and other elements for use in Web publications.

7. Identify netiquette including the use of email, social networking, blogs, texting, and chatting.
8. Describe ethical and legal practices in business professions such as safeguarding the confidentiality of business-related information.

B. EMPLOYABILITY SKILLS

1. Identify positive work practices, e.g., appropriate dress code for the workplace, personal grooming, punctuality, time management, and organization.
2. Demonstrate positive interpersonal skills, e.g., communication, respect, and teamwork.

C. STUDENT ORGANIZATIONS

1. Explain how related student organizations are integral parts of career and technology education courses.
2. Explain the goals and objectives of related student organizations.
3. List opportunities available to students through participation in related student organization conferences/competitions, community service, philanthropy, and other activities.
4. Explain how participation in career and technology education student organizations can promote lifelong responsibility for community service and professional development.

D. ADVANCED PRINTERS AND SCANNERS

1. Identify the fundamental principles of using printers and scanners.
 - a. Identify differences between types of printer and scanner technologies (e.g., laser, inkjet, thermal, solid ink, impact).
 - b. Identify names, purposes, and characteristics of printer and scanner components (e.g., memory, driver, firmware) and consumables (e.g., toner, ink cartridge, paper).
 - c. Identify the names, purposes, and characteristics on interfaces used by printers and scanners including port and cable types.
2. Identify basic concepts of installing, configuring, optimizing, and upgrading printers and scanners.
 - a. Install and configure printers/scanners.
 - b. Install and configure printer upgrades including memory and firmware.
 - c. Optimize scanner performance including resolution, file format, and default settings.
 - d. Optimize printer performance (e.g., printer settings such as tray switching, print spool settings, device calibration, media types, and paper orientation).

3. Identify tools, basic diagnostic procedures and troubleshooting techniques for printers and scanners.
 - a. Gather information about printer/scanner problems.
 - b. Review and analyze collected data.
 - c. Identify solutions to identified printer/scanner problems.
 - d. Troubleshoot a print failure (e.g., lack of paper, clear queue, restart print spooler, recycle power on printer, inspect of jams, check for visual indicators).
 - e. Identify appropriate tools used for troubleshooting and repairing printer/scanner problems.
4. Perform preventative maintenance of printer and scanner problems.
 - a. Perform scheduled maintenance according to vendor guidelines (e.g., install maintenance kits, reset page counts).
 - b. Ensure a suitable environment.
 - c. Use recommended supplies.

E. ADVANCED NETWORKS

1. Identify the fundamental principles of networks.
 - a. Identify names, purposes, and characteristics of basic network protocols and terminologies.
 - b. Describe basic networking concepts.
 - c. Identify names, purposes, and characteristics of the common network cables.
 - d. Identify names, purposes, and characteristics of network cables (e.g., RJ45 and RJ11, ST/SC/LC, USB, IEEE 1394/Firewire).
 - e. Identify names, purposes, and characteristics (e.g., definition, speed, and connections) of technologies for establishing connectivity.
2. Install, configure, optimize, and upgraded networks.
 - a. Install and configure browsers.
 - b. Establish network connectivity.
 - c. Demonstrate the ability to share network resources.
3. Identify tools, diagnostic procedures and troubleshooting techniques for networks.
 - a. Identify the names, purposes, and characteristics of command line tools.
 - b. Diagnose and troubleshoot basic network issues.
 - c. TCP/IP (e.g., gateway, subnet mask, DNS, WINS, static, and automatic address assignment)
 - d. IPX/SPX (NWLink)
 - e. Install, identify, and obtain wired and wireless connections.
4. Perform preventative maintenance of networks including securing and protecting network cabling.
5. Identify tools, diagnostic procedures, and troubleshooting techniques for networks.
 - a. Explain status indicators (e.g., speed, connection, activity lights, and wireless signal strength).

F. ADVANCED SECURITY

1. Identify the fundamental principles of security.
 - a. Identify names, purposes, and characteristics of hardware and software security.
 - b. Identify names, purposes, and characteristics of wireless security.
 - c. Identify names, purposes, and characteristics of data and physical security.
 - d. Identify the names, purposes, and characteristics of access control and permissions.
 - e. Describe importance and process of incidence reporting.
 - f. Recognize and respond appropriately to social engineering situations.
2. Install, configure, upgrade, and optimize security.
 - a. Install, configure, upgrade, and optimize hardware, software, and data security.
3. Identify tool, diagnostic procedures, and troubleshooting techniques for security.
 - a. Diagnose and troubleshoot hardware, software, and data security issues.
4. Perform preventative maintenance for computer security.
 - a. Implement software security preventative maintenance techniques such as installing service packs and patches and training users about malicious software prevention technologies.
 - b. Recognize social engineering and address social engineering situations.

G. ADVANCED COMMUNICATION AND PROFESSIONALISM

1. Use good communication skills including listening and tact/discretion when communicating with customers and colleagues.
 - a. Use clear, concise, and direct statements.
 - b. Allow the customer to complete statements – avoid interrupting
 - c. Clarify customer statements – ask pertinent questions.
 - d. Avoid using jargon, abbreviations, and acronyms.
 - e. Listen to customers.
2. Use job-related professional behavior including notation of privacy, confidentiality, and respect for the customer and customer's property.
 - a. Behavior
 - b. Property

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