

COMPUTER TECH SUPPORT

Computer Tech Support allows students to explore how computers work. Students learn the functionality of hardware and software components as well as suggested best practices in maintenance and safety issues. Through hands on activities and labs, students learn how to assemble and configure a computer, install operating systems and software, and troubleshoot hardware and software problems. Student should earn an industry-based certification at the end of the course.

- DOE Code: 5230
- Recommended Grade Level: 10, 11
- Recommended Prerequisite: Digital Applications and Responsibility
- Credits: 2 semester course, 2 semesters required, 1-3 credits per semester, 6 credits maximum
- Counts as a Directed Elective or Elective for all diplomas

Dual Credit

This course provides the opportunity for dual credit for students who meet postsecondary requirements for earning dual credit and successfully complete the dual credit requirements of this course.

Application of Content and Multiple Hour Offerings

Intensive laboratory applications are a component of this course and may be either school based or work based or a combination of the two. Work-based learning experiences should be in a closely related industry setting. Instructors shall have a standards-based training plan for students participating in work-based learning experiences. When a course is offered for multiple hours per semester, the amount of laboratory application or work-based learning needs to be increased proportionally.

Career and Technical Student Organizations (CTSOs)

Career and Technical Student Organizations are considered a powerful instructional tool when integrated into Career and Technical Education programs. They enhance the knowledge and skills students learn in a course by allowing a student to participate in a unique program of career and leadership development. Students should be encouraged to participate in Business Professional of America, DECA, or Future Business Leaders of America, the CTSOs for this area.

Content Standards

Domain – Hardware

Core Standard 1 Students synthesize hardware and peripheral concepts critical to the design of a working computer system.

Standards

- CTS-1.1 Identify the fundamental components of using personal computers including the identification and function of storage devices, motherboards, power supplies, processors, memory, display devices, input devices, adaptor cards, ports, and cooling systems
- CTS-1.2 Install, configure, optimize and upgrade personal computer components including storage devices, display devices, and basic input and multimedia devices

- CTS-1.3 Identify the fundamental principles of using laptops and portable devices including form factors, peripherals, expansion slots, ports, communication connections and input devices
- CTS-1.4 Install and configure printers and scanners
- CTS-1.5 Describe processes used by printers and scanners including laser, ink dispersion, thermal, solid ink and impact printers and scanners

Domain – Troubleshooting, Repair, and Maintenance

Core Standard 2 Students validate practical skills for managing personal computers.

Standards

- CTS-2.1 Apply and adapt troubleshooting methodologies and its relationship to the scientific method
- CTS-2.2 Perform preventative maintenance on personal computer components including visual and audio inspection, driver and firmware updates, scheduling, use of appropriate repair tools and cleaning materials, and environmental factors
- CTS-2.3 Identify tools, diagnostic procedures and troubleshooting techniques for personal computer components
- CTS-2.4 Perform preventative maintenance of networks including securing and protecting network cabling
- CTS-2.5 Identify tools, basic diagnostic procedures and troubleshooting techniques for laptops and portable devices including power conditions, video, keyboard, pointer and wireless card issues
- CTS-2.6 Perform preventative maintenance on laptops and portable devices including cooling devices, hardware and video cleaning materials, operating environments, storage, transportation and shipping
- CTS-2.7 Identify tools, diagnostic procedures, troubleshooting, and maintenance techniques for computer security
- CTS-2.8 Identify tools, diagnostic procedures and troubleshooting techniques for operating systems including boot sequences, recognize and resolve common operational issues, explain common error messages and codes and operating system utilities
- CTS-2.9 Perform preventative maintenance on operating systems by using common utilities, updates, scheduled backups/restores, and restore points
- CTS-2.10 Apply command-line functions and utilities to manage operating system, including proper syntax and switches
- CTS-2.11 Identify, isolate and resolve printer/scanner problems including defining the cause, applying the fix and verifying functionality

Domain – Operating Systems and Utilities

Core Standard 3 Students integrate software skills and troubleshooting utilities to manage reliable computer systems.

Standards

- CTS-3.1 Identify the fundamentals of using operating systems as defined by the operating system's name, purpose, and characteristics of the operating system components including registry, virtual memory and file system
- CTS-3.2 Install, configure, optimize and upgrade operating systems

CTS-3.3 Install, configure, optimize and upgrade laptops and portable devices including power management and peripherals

CTS-3.4 Install, configure, optimize and upgrade virtual machines

Domain – Networking

Core Standard 4 Students evaluate networking concepts to build and maintain an operational network.

Standards

CTS-4.1 Identify names, purposes and characteristics of basic network protocols and terminologies

CTS-4.2 Install, configure optimize and upgrade networks

CTS-4.3 Summarize the basic networking fundamentals including technologies devices and protocols

CTS-4.4 Categorize network cables and connectors and their implantations

CTS-4.5 Differentiate different network types

Domain – Security

Core Standard 5 Students analyze security threats to ensure the health of the network.

Standards

CTS-5.1 Identify the fundamental principles of security including names, purposes, and characteristics of hardware and software security, wireless security, and data security

CTS-5.2 Install, configure, upgrade, and optimize security for hardware, software, and data

Domain – Employability and Operational Procedure

Core Standard 6 Students apply customer service concepts to be effective computer technicians.

Standards

CTS-6.1 Describe the aspects and importance of safety and environmental issues, safe work environments, equipment handling, and disposal of equipment

CTS-6.2 Employ good communication skills including listening and tact/ discretion when communicating with customers and colleagues

CTS-6.3 Employ job-related professional behavior including notation of privacy, confidentiality, and respect for the customer and customers' property