

Information Technology Support

Information Technology 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. Students should earn an industry-based certification at the end of the course.

- DOE Code: 5230
- Recommended Grade Level: Grades 10, 11
- Recommended Prerequisites: Digital Applications and Responsibility
- Credits: 1-3 credits per semester, 2 semester maximum; maximum of 6 credits
- 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. The Dual Credit crosswalk can be accessed [here](#).

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 Professionals of America 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

- ITS-1.1 Identify the fundamental components of using computers including the identification and function of storage devices, motherboards, power supplies, processors, memory, display devices, input devices, adaptor cards, ports, and cooling systems
- ITS-1.2 Install, configure, optimize and upgrade computer device components including: storage devices, display devices, and basic input and multimedia devices
- ITS-1.3 Identify the fundamental principles of using laptops and mobile devices including form factors, peripherals, expansion slots, ports, communication connections and input devices
- ITS-1.4 Install and configure multifunction printers
- ITS-1.5 Describe processes used by multifunction printers

Domain – Troubleshooting, Repair, and Maintenance

Core Standard 2: Students validate practical skills for managing computer devices.

Standards

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

- ITS –2.12 Install, configure, optimize and upgrade laptops and mobile devices including power management and peripherals

Domain – Operating Systems and Utilities

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

Standards

- ITS-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 configuration files, virtual memory and file system
- ITS-3.2 Install, configure, optimize and upgrade operating systems
- ITS-3.3 Install, configure, optimize and upgrade virtual machines

Domain – Networking

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

Standards

- ITS-4.1 Identify names, purposes and characteristics of basic network protocols and terminologies
- ITS-4.2 Define virtual and cloud-based networking
- ITS-4.3 Summarize the basic networking fundamentals including technologies devices and protocols
- ITS-4.4 Differentiate network types
- ITS-4.5 Categorize network cables and connectors
- ITS-4.6 Install and configure networks

Domain – Security

Core Standard 5: Students can identify security threats for computing devices.

Standards

- ITS-5.1 Identify the fundamental principles of security including names, purposes, and characteristics of hardware and software security, wireless security, and data security
- ITS-5.2 Implement security best practices for hardware, software, data, and for a SOHO network

Domain – Employability and Operational Procedure

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

Standards

- ITS-6.1 Describe the aspects and importance of safety and environmental issues, safe work environments, equipment handling, and disposal of equipment
- ITS-6.2 Demonstrate storage, transportation, and shipping procedures of computer devices
- ITS-6.3 Employ good communication skills including listening and tact/ discretion when communicating with customers and colleagues
- ITS-6.4 Employ job-related professional behavior including notation of privacy, confidentiality, and respect for the customer and customers’ property
- ITS-6.5 Identify careers related to information technology

ITS-6.6 Apply appropriate research techniques for an IT professional