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