# Scope & Sequence

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| Course Name: Computer Maintenance **PEIMS Code:** 13027300 | | | **Course Credit:** 1.0  **Course Requirements:** Grade Placement 10-12.  **Prerequisite:** None.  **Recommended Prerequisite:** Principles of Information Technology.  **Recommended Corequisite:** Computer Maintenance Lab. |
| **Course Description:** In Computer Maintenance, students will acquire knowledge of computer maintenance and creating appropriate documentation. Students will analyze the social responsibility of business and industry regarding the significant issues relating to the environment, ethics, health, safety, and diversity in society and in the workplace as related to computer maintenance. Students will apply technical skills to address the IT industry and emerging technologies. | | | |
| **NOTE:** This is a suggested scope and sequence for the course content. This content will work with any textbook or instructional materials. If locally adapted, make sure all TEKS are covered. | | | |
| **Total Number of Periods**  **Total Number of Minutes**  **Total Number of Hours** | 175 Periods  7,920 Minutes  132 Hours\* | \*Schedule calculations based on 175/180 calendar days. For 0.5 credit courses, schedule is calculated out of 88/90 days. Scope and sequence allows additional time for guest speakers, student presentations, field trips, remediation, extended learning activities, etc. | |
| **Unit Number, Title, and Brief Description** | **# of Class Periods\***  (assumes 45-minute periods)  Total minutes per unit | **TEKS Covered**  **130.303. (c) Knowledge and Skills** | |
| **Unit 1: Computer Ethics and Employability Skills**  Students will expand their knowledge base and interest in careers and entrepreneurship opportunities in the field of Information Technology. Students will explore and discuss employment opportunities and industry certifications and requirements in small groups and as a class as they develop individualized career preparation plans. Students will discover and use resources available through Computer and Technology Student Organizations (CTSO) or other extracurricular organization(s) to further develop leadership and employability skills. Students will discuss and demonstrate appropriate and proper etiquette and behavior as well as effective listening and speaking skills in this and in all units as they further develop their personal and career goals and increase their interpersonal and employability skills. Students will participate in group activities to enhance intellectual property law, copyright, trademarks, patents and violation of these laws. Students will discuss and demonstrate knowledge of computer threats into hacking, piracy and data vandalism. | 10 periods  450 minutes | (1) The student demonstrates professional standards/employability skills as required by business and industry. The student is expected to:  (A) employ effective reading and writing skills;  (B) employ effective verbal and nonverbal communication skills;  (C) solve problems and think critically;  (D) demonstrate leadership skills and function effectively as a team member;  (E) identify and implement proper safety procedures;  (F) demonstrate an understanding of legal and ethical responsibilities in relation to the field of IT; and  (G) demonstrate planning and time-management skills such as project management, including initiating, planning, executing, monitoring and controlling, and closing a project.  (2) The student identifies various employment opportunities in the IT field. The student is expected to:  (A) identify job opportunities and accompanying job duties and tasks; and  (B) examine the role of certifications, resumes, and portfolios in the IT profession. | |
| **Unit 2: Customer Service and Academic Skills**  Students will expand their knowledge base and interest in customer service through activities that are supportive of a multi-cultural perspective. Students will apply academic skills in all learning activities and apply knowledge through designs that would be represented in a technical support work environment. | 5 periods  225 minutes | (3) The student applies academic skills to the requirements of computer technologies. The student is expected to:  (A) demonstrate effective verbal and written communication skills with individuals from varied cultures such as fellow workers, management, and customers; and  (B) interpret appropriate documentation such as schematics, drawings, charts, diagrams, technical manuals, and bulletins. | |
| **Unit 3: Concepts and Fundamentals of Computer Hardware**  Students will engage in opportunities to develop concepts in computer hardware. Students will participate in technical activities that will enhance the understanding and knowledge of computer hardware components, processor logic, electrical concepts, component communication, and environmental requirements. Students will synthesize and demonstrate knowledge of computer hardware terminology by identifying major components and their functions. | 40 periods  1,800 minutes | (4) The student acquires an understanding of computer hardware technologies. The student is expected to:  (A) explain the fundamentals of microprocessor theory;  (B) define the use of Boolean and Binary logic in computer technologies;  (C) explain the theories of magnetism, electricity, and electronics as related to computer technologies;  (D) explain proper troubleshooting techniques as related to computer hardware;  (E) differentiate among digital and analog input and output electronics theory;  (F) explain the relationships relative to data-communications theory;  (G) describe the architecture of various computer systems;  (H) describe the function of computer components such as central processing units, storage devices, and peripheral devices;  (I) explain computer system environmental requirements and related control devices; and  (J) identify new and emerging technologies that may affect the field of computer technology. | |
| **Unit 4: Concepts and Fundamentals of Computer Maintenance and Troubleshooting**  Students will engage in opportunities to develop concepts in computer maintenance and troubleshooting. Students will participate in technical activities that will enhance the understanding and knowledge of the functions computer hardware components, mobile technology. Students will synthesize and demonstrate knowledge of computer hardware terminology by identifying troubleshooting techniques. | 40 periods  1,800 minutes | (5) The student uses hardware design, operation, and maintenance knowledge and skills to identify major computer components. The student is expected to:  (A) identify the purpose and function of computer components in the operation of the computer system such as central processing unit, mother board, sockets, chipsets, basic input and output system and their drivers, memory, hard drive technologies, video cards, input and output devices and ports, and modem and network interface cards (NIC);  (B) identify how mobile devices such as personal data assistants and cell phones operate;  (C) identify how mobile devices such as personal data assistants and cell phones connect and share data;  (D) demonstrate an understanding of the rationale behind error messages and symptoms of hardware failures;  (E) research interrupt sequences and beep codes; and  (F) identify priorities and interrupts at the system level. | |
| **Unit 5: Concepts and Fundamentals of Computer Operating Systems**  Students will engage in opportunities to develop concepts in computer operating systems. Students will participate in technical activities that will enhance the understanding and knowledge of the differences in operating systems, including mobile technology. Students will synthesize and demonstrate knowledge of computer operating systems by identifying operating system fundamentals of installation and configuration. | 30 periods  1,350 minutes | (6) The student acquires knowledge of operating system design, including operation and maintenance. The student is expected to:  (A) explain the fundamentals of an operating system;  (B) compare and contrast different operating systems; and  (C) identify the operating systems of mobile devices. | |
| **Unit 6: Concepts and Fundamentals of Computer Application Installation and Configuration**  Students will engage in opportunities to develop concepts in computer applications and software. Students will participate in technical activities that will enhance the understanding and knowledge of the differences between operating system programs and application software. Students will synthesize and demonstrate knowledge of computer applications by identifying types of software and troubleshooting techniques. | 30 periods  1,350 minutes | (7) The student acquires knowledge of the theory behind the installation, configuration of software programs, and updates in IT systems. The student is expected to:  (A) identify the operational features and proper terminology related to computer software systems;  (B) evaluate application software packages;  (C) verify that software is properly licensed prior to installation;  (D) differentiate between types of software such as Software as a Service, single-user, per-seat, enterprise, freeware, shareware, and open-source licensing; and  (E) explain proper troubleshooting techniques related to computer software. | |
| **Unit 7: Concepts and Fundamentals of Computer Networking**  Students will engage in opportunities to develop concepts in computer networking. Students will participate in technical activities that will enhance the understanding and knowledge of the differences in networking connections and network styles. Students will synthesize and demonstrate knowledge of computer networking by identifying types of network implementations and troubleshooting techniques. | 20 periods  900 minutes | (8) The student acquires knowledge of the installation and configuration of network connections. The student is expected to:  (A) explain the fundamentals of network connections and interface requirements;  (B) explain the steps required to install and configure a computer on a network; and  (C) identify the steps to troubleshoot network connectivity. | |