

2010/2011 Computer Service & Support

PTI309 - 36 weeks

DoDEA Course Descriptions and Competencies

About the Program

Computer Service and Support prepares students for careers in the Computer industry. The course sequence focuses on duties and tasks performed by professionals in Computer installation and repair occupations, as well as pre-employment and employment skills.

Major Concepts/Content: This program is intended to prepare students for computer support careers. Students enrolled in this course will gain practical experience in assembling a computer system, installing an operating system, troubleshooting computers and peripherals, and using system tools and diagnostic software. They will develop skills in computer networking and resource sharing. Students explore wireless technologies (e.g., Bluetooth, Wi-Fi) and create and configure a network. In addition, students will explore the relationships between internal and external computer components. Customer service skills and career plans will be developed. Upon successful completion of the course, students *may* qualify to take the A+ certification exam.

Major Instructional Activities: Students will be trained to use tools, electronics test equipment, and software to analyze and solve PC problems. This course provides students with training in procedures for optimizing and troubleshooting concepts for computer systems and subsystems. Emphasis is placed on technical proficiency, skill-building, and workplace readiness. During the course, students will analyze defective equipment, determine corrective measures, and make the equipment operational if possible. Students will build a PC as part of the requirements of the course.

Major Evaluative Techniques: Students will demonstrate their knowledge through computer-based instruction and examinations, performance tests, hands-on service, and completion of various repair projects. Demonstration of performance and professionalism are major components of the student's evaluation.

The table below is a competency list for the Computer Service and Support course. The competencies are considered essential and are required of all students.

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Implementing DoDEA's CTE Course Requirements	
• 001	Demonstrate DoDEA's Workplace Readiness Skills in course activities.
• 002	Identify issues relating to this field of study that affect the environment that impact local and global communities.
• 003	Identify Internet safety issues and procedures for complying with acceptable use standards.
Investigating Careers	
• 004	Describe the primary responsibilities of a computer systems technician.
• 005	Create or update a portfolio containing representative samples of student work.
• 006	Describe the process and requirements for obtaining industry certifications related to the CSS course.
Exploring the Personal Computer	
• 007	Describe a computer system, its system resources and their purpose.

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• 008	Name and describe the basic operation of internal and peripheral devices.
• 009	Describe types of computer cases and power supplies.
• 010	Categorize computer component form factors.
• 011	Identify external ports and cables.
Demonstrating Safe Lab Procedures and Tool Use	
• 012	Explain the purpose of safe working conditions and procedures.
• 013	Demonstrate safe tool and material use in the lab.
• 014	Apply appropriate safety and environmental procedures.
Assembling a Computer	
• 015	Demonstrate how to open the case.
• 016	Install the power supply.
• 017	Demonstrate how to install and connect a motherboard.
• 018	Demonstrate how to install computer memory.
• 019	Install drives in internal bays.
• 020	Install adapter cards.
• 021	Connect internal cables.
• 022	Reassemble the computer case.
• 023	Boot the computer to test for proper operation.
Computer Component Identification, Classification, and Configuration	
• 024	Categorize storage devices and backup media.
• 025	Explain motherboard components, types and features.
• 026	Explain the purpose and characteristics of CPUs and their features.
• 027	Explain cooling methods and devices.
• 028	Compare and contrast memory types, characteristics and their purpose.
• 029	Distinguish between the different display devices and their characteristics.
• 030	Install and configure peripherals and input devices.
• 031	Summarize the function and types of adapter cards.
Demonstrating Preventive Maintenance and Troubleshooting	
• 032	Summarize importance of preventive maintenance and data protection.
• 033	Obtain assistance via electronic and hard copy references and documentation.
• 034	Identify tools and software used for preventive maintenance.
• 035	Identify and apply the steps of the troubleshooting process.
• 036	Perform preventive maintenance and data protection.
Exploring the Fundamentals of Operating Systems	
• 037	Explain the purpose of an operating system.
• 038	Compare and contrast of operating systems.
• 039	Determine operating system based on customer needs.
• 040	Identify operating system files.
• 041	Explain the basics of boot sequences, methods and startup utilities.
• 042	Identify concepts for creating and managing disks, folders, and files in operating systems.
• 043	Identify procedures for creating, viewing, and managing disks, folders, and files in

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	operating systems.
• 044	Install and configure different types of operating systems.
• 045	Upgrade an operating system.
• 046	Employ a graphical user interface (GUI) to run a command.
• 047	Employ a command line interface (CLI) to run a command.
• 048	Apply common preventive-maintenance techniques for operating systems.
• 049	Troubleshoot operating systems.
Examining the Fundamentals of Laptops and Portable Devices	
• 050	Describe laptops and other portable devices.
• 051	Describe the components of a laptop.
• 052	Compare desktop and laptop components.
• 053	Describe how to configure laptops.
• 054	Explain common preventive-maintenance techniques for laptops and portable devices.
• 055	Install, configure and optimize laptop components and features.
• 056	Describe how to troubleshoot laptops and portable devices.
Exploring the Fundamentals of Printers and Scanners	
• 057	Describe types of printer technology.
• 058	Describe the installation and configuration process for printers.
• 059	Describe types of scanner technology.
• 060	Explain the installation and configuration process for scanners.
• 061	Demonstrate common preventive-maintenance techniques for printers and scanners.
• 062	Troubleshoot printers and scanners.
• 063	Install and configure printers and scanners.
Exploring the Fundamentals of Networks	
• 064	Explain the principles of networking.
• 065	Describe types of networks.
• 066	Describe basic networking concepts and technologies.
• 067	Describe the physical components of a network.
• 068	Describe LAN topologies and architectures.
• 069	Identify standards organizations.
• 070	Identify Ethernet standards.
• 071	Compare OSI and TCP/IP data models.
• 072	Configure a NIC and a modem.
• 073	Identify technologies used to establish connectivity.
• 074	Construct an Ethernet cable.
• 075	Explain how to troubleshoot a network.
• 076	Identify wireless standards.
• 077	Describe connection types (e.g. dial-up, broadband, wireless, routers, basic VoIP).
• 078	Describe the basics of hardware and software firewall configuration.
• 079	Install and configure a small office home office (SOHO) network.

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Exploring the Fundamentals of Security	
• 080	Explain why security is important.
• 081	Describe security threats (including wireless).
• 082	Explain Web security.
• 083	Describe security procedures.
• 084	Describe common preventive-maintenance techniques for security systems and applications.
• 085	Describe how to troubleshoot security systems and applications.
• 086	Describe how to prevent, troubleshoot and remove viruses and malware.
Developing Communication Skills and Ethics	
• 087	Explain the ethical and legal aspects of working with computer technology.
• 088	Describe the customer-support environment and technician responsibilities.
• 089	Demonstrate communication skills used in customer support.