

Course Competency

CTS 2143C Server Administration

Course Description

This course is designed for students preparing for IT careers as server administrators, and focuses on server hardware and operating systems, system management and administration, security and disaster recovery, infrastructure and network services, data storage, and troubleshooting. This course is intended to prepare students for the CompTIA Server+ certification. Recommended Preparation: server operating systems experience. (3 hr. lecture; 2 hr. lab)

Course Competency	Learning Outcomes
<p>Competency 1:The student will demonstrate an understanding of the role of a Server Administrator by:</p>	<ol style="list-style-type: none"> 1. Communication 2. Information Literacy
<ol style="list-style-type: none"> 1. a) Describing the duties and responsibilities of Server Administrators, as differentiated from system administrators, network administrators, and DevOps engineers. b) Describing client-server and multi-user environments. c) Describing the purpose, function and types of Servers. d) Describing server-based applications and operations. e) Explaining the terms enumerated in the CompTIA Server+ Acronym List. 	
<p>Competency 2:The student will demonstrate an understanding of Server Hardware Installation and Maintenance by:</p>	<ol style="list-style-type: none"> 1. Communication 2. Information Literacy 3. Cultural / Global Perspective 4. Computer / Technology Usage
<ol style="list-style-type: none"> 1. a) Describing Server Hardware and their features. b) Describing the purpose and use of a Server Hardware Compatibility List (HCL). c) Describing Server storage, including RAID levels and types, media, interfaces, shared storage, etc. d) 	

<p>Describing data backup hardware and methods. e) Given a scenario, installing physical hardware. f) Given a scenario, deploying and managing storage. g) Given a scenario, performing Server hardware maintenance.</p>	
<p>Competency 3:The student will demonstrate an understanding of Server Hardware Management by:</p>	<ol style="list-style-type: none"> 1. Communication 2. Information Literacy 3. Computer / Technology Usage
<ol style="list-style-type: none"> 1. a) Describing Basic Input/Output system (BIOS), Unified, Extensible Firmware Interface (UEFI), Power On Self-Test (POST) and the Server OS boot process. b) Describing In-Band and Out-of-Band Management (OOBM), remote management, and the Intelligent Platform Management Interface (IPMI). c) Performing local hardware administration using: Keyboard-Video-Mouse (KVM), crash cart, virtual administration console, and serial connectivity. d) Describe the steps required to perform firmware upgrades. e) Describing baseline Server hardware operation and monitoring process. f) Describing the function and use of Server hardware alerts. 	
<p>Competency 4:The student will demonstrate an understanding of Server Operating System Installation, Configuration and Management by:</p>	<ol style="list-style-type: none"> 1. Communication 2. Numbers / Data 3. Critical thinking 4. Information Literacy 5. Computer / Technology Usage
<ol style="list-style-type: none"> 1. a) Describing Server Operating System (OS) requirements. b) Describing Server OS installation media methods; partition, volume and file system types; and imaging and cloning methods. c) Installing a Server OS. d) Configuring Domain settings including, Directory Services, Trust 	

<p>Relationships, Group Policies, Hostnames, User Accounts, etc. e) Given a scenario, configuring and managing Server OS functions, services and features. f) Explaining the key concepts of high availability for Servers. g) Describing the rollout of system updates, upgrades and patches, and the installation of new software versions. h) Updating parameters and configurations. i) Describing the function and use of Server logs, and the documentation of system changes. j) Performing a password recovery. k) Conducting a system audit review.</p>	
<p>Competency 5:The student will demonstrate an understanding of Server Network Operations by:</p>	<ol style="list-style-type: none"> 1. Communication 2. Numbers / Data 3. Critical thinking 4. Information Literacy 5. Computer / Technology Usage
<ol style="list-style-type: none"> 1. a) Describing Server Network Connection Policies. b) Describing the various Server network hardware, adapters, interfaces, and cabling. c) Configuring a Server’s IP addresses, VLANs, Gateways, DNS, Routing, VPN, firewall and other network protocols and services. d) Configuring a Server’s network connections for load balancing, fault tolerance, optimization and high availability. e) Provisioning a secure site-to-site connection to the Cloud. f) Given a scenario, configuring a Server to use and provide network infrastructure services. 	
<p>Competency 6:The student will demonstrate an understanding of Server Administration by:</p>	<ol style="list-style-type: none"> 1. Communication 2. Information Literacy 3. Computer / Technology Usage
<ol style="list-style-type: none"> 1. a) Describing Server roles and requirements. b) Describing storage 	

<p>management, including data preservation, redundancy, deduplication, and backup practices. c) Describing the key concepts of high availability for Servers. d) Describing the purpose and operation of virtualization. e) Given a scenario, installing a virtual server. f) Describing scripting basics for Server administration and task automation. g) Explaining the importance of asset management and documentation. h) Explaining licensing concepts. i) Given a scenario, maintaining Server functions and features.</p>	
<p>Competency 7:The student will demonstrate an understanding of Security and Disaster Recovery by:</p>	<ol style="list-style-type: none"> 1. Communication 2. Critical thinking 3. Information Literacy 4. Computer / Technology Usage
<ol style="list-style-type: none"> 1. a) Describing data security concepts. b) Describing physical security concepts. c) Explaining concepts pertaining to identity and access management for Server administration. d) Explaining data security risks and mitigation strategies. e) Given a scenario, applying Server hardening methods. f) Explaining the advantages and disadvantages of incremental vs. differential data backups. g) Performing a data backup, and data restoration. h) Explaining the importance of disaster recovery. i) Describing proper Server decommissioning concepts. 	
<p>Competency 8:The student will demonstrate an understanding of Server Troubleshooting by:</p>	<ol style="list-style-type: none"> 1. Critical thinking 2. Information Literacy 3. Computer / Technology Usage
<ol style="list-style-type: none"> 1. a) Explaining troubleshooting theory, methodology, and best practices. b) Given a scenario, troubleshooting common hardware failures. c) Given a scenario, 	

<p>troubleshooting storage problems. d) Given a scenario, troubleshooting common OS and software problems. e) Given a scenario, troubleshooting network connectivity issues. f) Given a scenario, troubleshooting security problems.</p>	
<p>Competency 9:The student will demonstrate an understanding of workplace skills and professionalism by:</p>	<ol style="list-style-type: none"> 1. Communication 2. Critical thinking 3. Ethical Issues
<ol style="list-style-type: none"> 1. a) Describing the roles of the IT support specialist in a business enterprise. b) Describing methods of understanding and managing user’s needs and expectations. c) Describing methods of logging incidents and reporting problem resolution. d) Presenting and following oral and written instructions. e) Demonstrating self-motivation and responsibility to complete an assigned task. f) Choosing appropriate actions in situations requiring effective time management. g) Applying principles and techniques for being a productive, contributing member of a team. h) Identifying and discussing intellectual property rights and licensing issues. i) Identifying and discussing issues contained within professional codes of conduct. j) Using appropriate communication skills, courtesy, manners, and dress in the workplace. k) Documenting problems and solutions in service reports and maintaining support records. l) Explaining the methods and best practices of interviewing end users to determine the symptoms and probable causes of system problems. 	

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