



Course Description

CTS2143C | Server Administration | 4.00 credits

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.

Course Competencies:

Competency 1: The student will demonstrate an understanding of the role of a Server Administrator by:

1. Describing the duties and responsibilities of Server Administrators, as differentiated from system administrators, network administrators, and DevOps engineers
2. Describing client-server and multi-user environments
3. Describe the purpose, function, and types of servers
4. Describe server-based applications and operations
5. Explaining the terms enumerated in the CompTIA Server+ Acronym List

Competency 2: The student will demonstrate an understanding of Server Hardware Installation and Maintenance by:

1. Describing Server Hardware and its features
2. Describing the purpose and use of a Server Hardware Compatibility List (HCL)
3. Describing Server storage, including RAID levels and types, media, interfaces, shared storage, etc
4. Describing data backup hardware and methods
5. Given a scenario, installing physical hardware
6. Given a scenario, deploying and managing storage
7. Given a scenario, perform Server hardware maintenance

Competency 3: The student will demonstrate an understanding of Server Hardware Management by:

1. Describe the basic input/output system (BIOS), unified and extended firmware interface (UEFI), power-on self-test (POST), and the server OS boot process
2. Describing In-Band and Out-of-Band Management (OOBM), remote management, and the Intelligent Platform Management Interface (IPMI)
3. Performing local hardware administration using Keyboard-Video-Mouse (KVM), crash cart, virtual administration console, and serial connectivity
4. Describe the steps required to perform firmware upgrades
5. Describing baseline Server hardware operation and monitoring process
6. Describing the function and use of Server hardware alerts

Competency 4: The student will demonstrate an understanding of Server Operating System Installation, Configuration and Management by:

1. Describing Server Operating System (OS) requirements
2. Describe server OS installation media methods, partition, volume, file system types, and imaging and cloning methods
3. Installing a Server OS
4. Configuring Domain settings, including Directory Services, Trust Relationships, Group Policies, Hostnames, User Accounts, etc
5. Providing a scenario, configuring and managing Server OS functions, services, and features
6. Explaining the fundamental concepts of high availability for Servers
7. Describe the rollout of system updates, upgrades, and patches, and install new software versions
8. Updating parameters and configurations

9. Describing the function and use of Server logs and the documentation of system changes
10. Performing a password recovery
11. Conducting a system audit review

Competency 5: The student will demonstrate an understanding of Server Network Operations by:

1. Describing Server Network Connection Policies
2. Describing the various Server network hardware, adapters, interfaces, and cabling
3. Configuring a Server's IP addresses, VLANs, Gateways, DNS, Routing, VPN, firewall, and other network protocols and services
4. Configuring a Server's network connections for load balancing, fault tolerance, optimization, and high availability
5. Provisioning a secure site-to-site connection to the Cloud
6. Provide a scenario, configure a Server to use, and provide network infrastructure services

Competency 6: The student will demonstrate an understanding of Server Administration by:

1. Describing Server roles and requirements
2. Describing storage management, including data preservation, redundancy, deduplication, and backup practices
3. Describing the critical concepts of high availability for Servers
4. Describing the purpose and operation of virtualization
5. Given a scenario, install a virtual server
6. Describing scripting basics for Server administration and task automation
7. Explaining the importance of asset management and documentation
8. Explaining licensing concepts
9. Given a scenario, maintaining Server functions and features

Competency 7: The student will demonstrate an understanding of Security and Disaster Recovery by:

1. Describing data security concepts
2. Describing physical security concepts
3. Explaining concepts about identity and access management for Server administration
4. Explaining data security risks and mitigation strategies. e) Given a scenario, apply Server-hardening methods
5. Explaining the advantages and disadvantages of incremental vs. differential data backups
6. Performing a data backup and data restoration
7. Explaining the importance of disaster recovery
8. Describing proper Server decommissioning concepts

Competency 8: The student will demonstrate an understanding of Server Troubleshooting by:

1. Explaining troubleshooting theory, methodology, and best practices
2. Given a scenario, troubleshooting common hardware failures
3. Given a scenario, troubleshooting storage problems
4. Given a scenario, troubleshooting standard OS and software problems
5. Given a scenario, troubleshooting network connectivity issues
6. Given a scenario, troubleshooting security problems

Competency 9: The student will demonstrate an understanding of workplace skills and professionalism by:

1. Describing the roles of the IT support specialist in a business enterprise
2. Describing methods of understanding and managing user's needs and expectations
3. Describing methods of logging incidents and reporting problem resolution
4. Presenting and following oral and written instructions
5. Demonstrating self-motivation and responsibility to complete an assigned task
6. Choosing appropriate actions in situations requiring effective time management
7. Applying principles and techniques for being a productive, contributing team member
8. Identifying and discussing intellectual property rights and licensing issues

9. Identifying and discussing issues contained within professional codes of conduct
10. Using appropriate communication skills, courtesy, manners, and dress in the workplace
11. Documenting problems and solutions in service reports and maintaining support records
12. Explaining the methods and best practices of interviewing end users to determine the symptoms and probable causes of system problems

Learning Outcomes:

- Solve problems using critical and creative thinking and scientific reasoning
- Formulate strategies to locate, evaluate, and apply information
- Use computer and emerging technologies effectively