

# COMPUTER SERVICE TECHNOLOGY (CST)

**CST C091** 1 Unit (18 lecture hours; 6 lab hours)

## CyberPatriot I - Introduction

**Grading Mode:** Standard Letter, Pass/No Pass

This course prepares students for participation in the CyberPatriot cyber defense competition. It covers topics in the major areas of ethical and legal issues of cybersecurity vulnerabilities, countermeasures, vulnerabilities of Windows desktop operating systems, online safety, and computer anatomy. Students will participate in practice competitions using virtual machines to develop the ability to concentrate during competition. Students will learn practical techniques for securing a network and sensitive data through business scenarios. Emphasis on hands-on training. Graded or Pass/No Pass option. (NOT DEGREE APPLICABLE.)

**CST C092** 1 Unit (18 lecture hours; 6 lab hours)

## CyberPatriot II - Intermediate

**Grading Mode:** Standard Letter, Pass/No Pass

This course prepares students for participation in the CyberPatriot cyber defense competition. It covers topics in the major areas of ethical and legal issues of cybersecurity vulnerabilities, countermeasures, an introduction to Linux operating systems and administration. Students will participate in practice competitions using virtual machines to develop the ability to concentrate during competition. Students will learn practical techniques for securing a network and sensitive data through business scenarios. Emphasis on hands-on training. Graded or Pass/No Pass option. (NOT DEGREE APPLICABLE.)

**CST C093** 1 Unit (18 lecture hours; 6 lab hours)

## CyberPatriot III - Advanced

**Advisory:** CST C091 and C092.

**Grading Mode:** Standard Letter, Pass/No Pass

This course prepares students for participation in the CyberPatriot cyber defense competition. It covers topics in the major areas of ethical and legal issues of cybersecurity vulnerabilities, countermeasures, exploration of vulnerabilities of Linux operating systems, Linux services, and an introduction to Cisco routing and switching. Students will participate in practice competitions using virtual machines to develop the ability to work and strategize as a team. Students will learn practical techniques for securing a network and sensitive data through business scenarios. Emphasis on hands-on training. Graded or Pass/No Pass option. (NOT DEGREE APPLICABLE.)

**CST C094** 1 Unit (18 lecture hours; 6 lab hours)

## CyberPatriot IV - Veteran

**Advisory:** CST C091, C092, and C093.

**Grading Mode:** Standard Letter, Pass/No Pass

This course prepares students for participation in the CyberPatriot cyber defense competition. It covers topics in the major areas of ethical and legal issues of cybersecurity vulnerabilities, countermeasures, routing and switching protocols, IOS security, networking techniques and best practices, and development of practice competitions for other teams. Students will participate in practice competitions using virtual machines to develop the ability to work and strategize as a team. Students will learn practical techniques for securing a network and sensitive data through business scenarios. Emphasis on hands-on training. Graded or Pass/No Pass option. (NOT DEGREE APPLICABLE.)

**CST C096** 3 Units (54 lecture hours)

## CyberPatriot Coaching

**Advisory:** CST C099.

**Grading Mode:** Standard Letter, Pass/No Pass

This course prepares students for coaching the CyberPatriot cyber defense competition. It covers the introduction to CyberPatriot, recruitment of competitors, competition operating systems, overview of virtual machines, and preparation for competition. The course includes an introduction to security fundamentals. Students will learn about resources available for coaches and competitors, such as scoring engines and competition preparation materials. Graded or Pass/No Pass option. (NOT DEGREE APPLICABLE.)

**CST C104** 3 Units (54 lecture hours)

## IT Fundamentals

**Grading Mode:** Standard Letter, Pass/No Pass

**Transfer Credit:** CSU.

This course will cover the topics of the IT Fundamentals certification exam, which validates the knowledge and skills required to identify and explain the basics of computing, IT infrastructure, software development, and database use. In addition, candidates will demonstrate their knowledge to install software, establish basic network connectivity, and identify/prevent basic security risks. Technologies and trends of the IT industry will be covered to reinforce current best practices. Graded or Pass/No Pass option.

**CST C110** 4 Units (72 lecture hours; 18 lab hours)

## Computer Hardware and Software (A+ Essentials)

**Advisory:** CIS C111 or CST C104.

**Grading Mode:** Standard Letter, Pass/No Pass

**Transfer Credit:** CSU.

This course prepares students with the necessary competencies for an entry-level Information Technology career, such as IT Help Desk and IT Technician. Topics include personal computer components, operating systems, computer networks, computer peripherals, and basic security concepts. Lecture and hands-on experience in structured labs are included. This course aligns with the exam objectives of CompTIA's A+ Essentials Hardware and A+ Essentials Software. Graded or Pass/No Pass option.

**CST C112** **1 Unit (18 lecture hours; 9 lab hours)**  
**Introduction to VMware**  
**Advisory:** CST C116 and C117 or C128.

**Grading Mode:** Standard Letter, Pass/No Pass  
**Transfer Credit:** CSU.

Virtualization is one of the exciting new technologies being adopted by the computer industry. In this class we will explore the business and educational usages of Virtualization and give the student hands-on experience with the software. Students will install a virtual environment on their classroom systems and learn how to create and run virtual computer systems (Microsoft, Linux, and Novell) simultaneously in this environment. Graded or Pass/No Pass option.

**CST C128** **3 Units (54 lecture hours; 18 lab hours)**  
**Computer Networking Principles (Network+)**  
**Advisory:** CST C104 and CST C110.

**Grading Mode:** Standard Letter, Pass/No Pass  
**Transfer Credit:** CSU.

This course introduces the architecture, structure, functions, components, and models of the Internet and other computer networks. The principles and structure of IP (Internet Protocol) addressing and the fundamentals of Ethernet concepts, media, and operations are surveyed to provide a foundation for further study of computer networks. This course uses the OSI (Open Systems Interconnection) and TCP (Transmission Control Protocol) layered models to examine the nature and roles of protocols and services at the application, network, data link, and physical layers. Hands-on exercises help students develop skills to prepare for careers such as Network Engineer or Network Administrator. Preparation for the CompTIA Network+ certification exam. Graded or Pass/No Pass option.

**CST C158** **3 Units (54 lecture hours; 18 lab hours)**  
**Contemporary Operating Systems (Server+)**  
**Advisory:** CST C128.

**Grading Mode:** Standard Letter, Pass/No Pass  
**Transfer Credit:** CSU.

This course covers server hardware management and installation concepts, widely used in the Information Technology sector. Trends and technologies of the server environment such as virtualization, data centers, software-defined networking, security risks, and network-attached storage improvements will be covered. Students will learn skills for server administration and troubleshooting techniques through hands-on assignments. Preparation for the CompTIA Server+ certification exam. Graded or Pass/No Pass option.

**CST C172** **3 Units (54 lecture hours; 14 lab hours)**  
**SQL Server Design and Implementation**  
**Advisory:** CST C222A.

**Grading Mode:** Standard Letter, Pass/No Pass  
**Transfer Credit:** CSU.

This course covers installation, configuration, administration, and maintenance of the Microsoft SQL Server database management system. Students will learn how to design logical and physical databases, create data structures, monitor, secure and optimize a database, and evaluate and implement high availability options. Lecture and hands-on lab assignments help students build industry-recognized skills for entry-level positions working with the Microsoft SQL Server database management system. Graded or Pass/No Pass option.

**CST C177A** **3 Units (54 lecture hours; 14 lab hours)**  
**MD-100: Windows 10**  
**Advisory:** CST C110 and CST C128.

**Grading Mode:** Standard Letter, Pass/No Pass  
**Transfer Credit:** CSU.

The course provides hands-on experience with configuring and maintaining Windows 10. Topics include upgrading to Windows 10, demonstrating Windows media tools, optimizing the file system, using management tools, troubleshooting, configuring IPv6, wireless networking, configuring file folder management, and creating a network. Preparation for Microsoft Windows 10 Modern Desktop Administrator Associate, MD-100. Graded or Pass/No Pass option.

**CST C177B** **3 Units (54 lecture hours)**  
**Configuring Windows Devices**  
**Advisory:** CST C128.

**Grading Mode:** Standard Letter, Pass/No Pass  
**Transfer Credit:** CSU.

This course provides hands-on experience configuring Windows devices in the enterprise. Topics include managing data access and protection, remote access, apps, updates, system or file recovery, authentication, and authorization and configuring Hyper-V and Wi-Fi direct. This course maps to Windows 10 MCSA and 697 exams. Graded or Pass/No Pass option.

**CST C191A** **3 Units (54 lecture hours; 18 lab hours)**  
**Linux Operating System Principles (Linux+)**  
**Advisory:** CST C104 or C110 or C128.

**Grading Mode:** Standard Letter, Pass/No Pass  
**Transfer Credit:** CSU.

This course covers the history of the Linux operating system, various release versions, and how to install Linux. Students will compare and contrast desktop managers, traverse the Linux file system, explore the wonders of Vi scripts, and the command-line interface. Hands-on assignments will help students develop introductory technical skills relevant to entry-level cybersecurity and computer networking professional roles. Preparation for the CompTIA Linux+ certification exam. Graded or Pass/No Pass option.

**CST C198** **3 Units (54 lecture hours; 14 lab hours)**  
**Amazon Web Services (AWS) Cloud Foundations**  
**Advisory:** CST C128.

**Grading Mode:** Standard Letter, Pass/No Pass  
**Transfer Credit:** CSU.

This course covers the topics of the Amazon Web Services (AWS) Foundations certification exam, which validates the knowledge and skills used in the most commonly used cloud service platform, Amazon Web Services. Technologies and trends unique to cloud environments will be covered such as elasticity, storage, database, security, pricing, access, identity management, and support. Graded or Pass/No Pass option.

**CST C201D** **3 Units (54 lecture hours; 14 lab hours)**  
**CCNA 1: Introduction to Networks (ITN)**  
**Advisory:** CST C128.

**Grading Mode:** Standard Letter, Pass/No Pass  
**Transfer Credit:** CSU.

This is the first course in the Cisco Certified Network Associate (CCNA) curriculum. Introduces the architectures, models, protocols, and networking elements that connect users, devices, applications and data through the Internet and across modern computer networks. It includes IP addressing and Ethernet fundamentals. Hands-on training is stressed. Graded or Pass/No Pass option.

**CST C202D** **3 Units (54 lecture hours; 14 lab hours)**  
**CCNA 2: Switching, Routing, and Wireless Essentials**  
**Advisory:** CST C201D.

**Grading Mode:** Standard Letter, Pass/No Pass  
**Transfer Credit:** CSU.

This is the second course in version 7 of the Cisco Certified Network Associate (CCNA) curriculum series. It focuses on switching technologies and router operations that support small-to-medium business networks and includes wireless local area networks (WLAN) and security concepts. In addition to learning, key switching, and routing concepts, learners will be able to perform basic network configuration and troubleshooting, identify and mitigate LAN security threats, and configure and secure a basic WLAN. Hands-on training is stressed. Graded or Pass/No Pass option.

**CST C203D** **3 Units (54 lecture hours; 14 lab hours)**  
**CCNA 3: Enterprise Networking, Security, and Automation**  
**Advisory:** CST C202D.

**Grading Mode:** Standard Letter, Pass/No Pass  
**Transfer Credit:** CSU.

This is the third course in version 7 of the Cisco Certified Network Associate (CCNA) curriculum series. It describes the architecture, components, operations, and security to scale for large, complex networks, including wide area network (WAN) technologies. The course emphasizes network security concepts and introduces network virtualization and automation. Students learn how to configure, troubleshoot, and secure enterprise network devices and understand how application programming interfaces (API) and configuration management tools enable network automation. Hands-on training is stressed. Graded or Pass/No Pass option.

**CST C220D** **3 Units (54 lecture hours; 18 lab hours)**  
**VMware vSphere: Install, Configure, Manage 6.5**  
**Advisory:** CST C191 or C222.

**Grading Mode:** Standard Letter, Pass/No Pass  
**Transfer Credit:** CSU.

Virtualization allows consolidation of many traditional servers into a few physical servers with many virtual machines to realize significant cost savings. This VMware-authorized hands-on training course focuses on the installation, configuration, and management of VMware vSphere 6.5, which consists of VMware ESXi and VMware vCenter Server. This course is based on versions of ESXi 6.5 and vCenter Server 6.5. Completion of this course is preparation for the vSphere 6.5 Foundations Exam and portions of the VMware Certified Professional 6.5 - Data Center Virtualization exam. Topics covered map to a VCP6-DCA Exam and a subset of the VCP6.5-DCV exam. Graded or Pass/No Pass option.

**CST C241** **3 Units (54 lecture hours; 18 lab hours)**  
**Palo Alto Networks Cybersecurity Essentials**  
**Advisory:** CST C128 and CYBR C230.

**Grading Mode:** Standard Letter, Pass/No Pass  
**Transfer Credit:** CSU.

The course covers installing, configuring, and managing Palo Alto Networks next-generation firewalls as well as steps for maintaining security, preventing threats, networking, logging, and reporting features. This course starts at an introductory level and builds to an intermediate level. Aspects of basic next-generation firewall configuration covered include steps for security, networking, threat prevention, logging, and reporting features of Palo Alto Networks Operating System. Aspects of intermediate firewall configuration include managing GlobalProtect and Active/Active High Availability and optimizing visibility and control over applications, users, and content. Basic firewall troubleshooting is also covered. Security engineers, network engineers, and support staff are the targeted audience for this course. Graded or Pass/No Pass option.

**CST C248B** **3 Units (54 lecture hours; 14 lab hours)**  
**Wireless Networking**  
**Advisory:** CST C128.

**Grading Mode:** Standard Letter, Pass/No Pass  
**Transfer Credit:** CSU.

This is an entry-level course in wireless data communications. It covers the fundamentals of wireless technology and provides an overview of protocols, transmission methods, 802.11 network architecture, and IEEE standards. It also examines the broad range of enterprise Wi-Fi technologies available. Topics covered include the basics of radio frequency and wireless data transmission, and the protocols and mechanisms that every wireless network technician needs to understand. Hands-on exercises help students develop skills to prepare for careers such as Network Technician or Wireless Network Administrator. Preparation for the Certified Wireless Network Professional's (CWNP) Certified Wireless Network Administrator (CWNA) certification exam. Graded or Pass/No Pass option.

**CST C258** **3 Units (54 lecture hours; 18 lab hours)**  
**Linux Networking and Security**  
**Advisory:** CST C191.

**Grading Mode:** Standard Letter, Pass/No Pass  
**Transfer Credit:** CSU.

Introductory course exploring the Linux operating system including theory and hands-on application of topics covering command line utilities, graphical tools, networking protocols and services, user and group management, system permissions, and security. Graded or Pass/No Pass option.

**CST C264** **3 Units (54 lecture hours; 16 lab hours)**  
**Introduction to Red Hat Linux Administration**  
**Advisory:** CST C117A.

**Grading Mode:** Standard Letter, Pass/No Pass  
**Transfer Credit:** CSU.

Linux is the premiere operating system for web servers, cloud computing, smartphones, and consumer electronics. Linux system administration is one of the most in-demand skills in Information Technology. This course provides a foundation for students wishing to become full-time Linux system administrators by introducing key command line concepts and other enterprise-level tools. Graded or Pass/No Pass option.

**CST C274** **3 Units (54 lecture hours; 14 lab hours)**  
**Red Hat System Administration 2**  
**Advisory:** CST C191.

**Grading Mode:** Standard Letter, Pass/No Pass  
**Transfer Credit:** CSU.

Linux is the #1 operating system for web servers, cloud computing, smartphones, and consumer electronics. Linux system administration is one of the most in-demand skills in IT. Red Hat System Administration 2 (RH134) goes deeper into enterprise Linux administration including file systems and partitioning, logical volumes, SELinux, firewalling, and troubleshooting. Attending both Red Hat System Administration 1 and Red Hat System Administration 2 can help you in your preparation for the Red Hat Certified System Administrator exam (EX200). Graded or Pass/No Pass option.

**CST C275** **3 Units (54 lecture hours; 14 lab hours)**  
**Red Hat System Administrator 3**  
**Advisory:** CST C264 and C274.

**Grading Mode:** Standard Letter, Pass/No Pass  
**Transfer Credit:** CSU.

Red Hat Enterprise Linux Automation with Ansible (RH294) teaches the skills needed to manage large numbers of systems and applications efficiently and consistently. You will learn the techniques needed to use Ansible® to automate provisioning, configuration, application deployment, and orchestration. Students will learn how to install Ansible / Red Hat Ansible Engine on control nodes, create and update inventories of managed hosts, automate administration tasks with Ansible Playbooks, write effective playbooks at scale, protect sensitive data used by Ansible with Ansible Vault, and reuse code and simplify playbook development with Ansible roles. This course is geared toward Linux system administrators, DevOps engineers, infrastructure automation engineers, and systems design engineers who are responsible for automating configuration management, ensuring consistent and repeatable application deployment, provisioning and deployment of development, testing, and production servers, and integrating with DevOps continuous integration/continuous delivery workflows. Graded or Pass/No Pass option.

**CST C281** **1 Unit (60, 75 other hours)**  
**Work Based Learning**  
**Grading Mode:** Standard Letter, Pass/No Pass  
**Transfer Credit:** CSU.

To enhance each Work Based Learning participant's opportunity for success in the field of Computer Service Technology by bridging the gap between educational theory and on-the-job practices through individualized performance objectives related to the student's career or occupational goal in Computer Service Technology. Note: 75 hours of paid work or 60 hours of non-paid work in a field related to Computer Service Technology for each one-semester credit is required. Student must be enrolled in a total of 7 units including Work Based Learning. Graded or Pass/No Pass option.

**CST C282** **2 Units (120, 150 other hours)**  
**Work Based Learning**  
**Grading Mode:** Standard Letter, Pass/No Pass  
**Transfer Credit:** CSU.

To enhance each Work Based Learning participant's opportunity for success in the field of Computer Service Technology by bridging the gap between educational theory and on-the-job practices through individualized performance objectives related to the student's career or occupational goal in Computer Service Technology. Note: 75 hours of paid work or 60 hours of non-paid work in a field related to Computer Service Technology for each one-semester credit is required. Student must be enrolled in a total of 7 units including Work Based Learning. Graded or Pass/No Pass option.

**CST C283** **3 Units (180, 225 other hours)**  
**Work Based Learning**  
**Grading Mode:** Standard Letter, Pass/No Pass  
**Transfer Credit:** CSU.

To enhance each Work Based Learning participant's opportunity for success in the field of Computer Service Technology by bridging the gap between educational theory and on-the-job practices through individualized performance objectives related to the student's career or occupational goal in Computer Service Technology. Note: 75 hours of paid work or 60 hours of non-paid work in a field related to Computer Service Technology for each one-semester credit is required. Student must be enrolled in a total of 7 units including Work Based Learning. Graded or Pass/No Pass option.

**CST C284** **4 Units (240, 300 other hours)**  
**Work Based Learning**  
**Grading Mode:** Standard Letter, Pass/No Pass  
**Transfer Credit:** CSU.

To enhance each Work Based Learning participant's opportunity for success in the field of Computer Service Technology by bridging the gap between educational theory and on-the-job practices through individualized performance objectives related to the student's career or occupational goal in Computer Service Technology. Note: 75 hours of paid work or 60 hours of non-paid work in a field related to Computer Service Technology for each one-semester credit is required. Student must be enrolled in a total of 7 units including Work Based Learning. Graded or Pass/No Pass option.

**CST C295** **3 Units (54 lecture hours; 14 lab hours)**  
**Amazon Web Services Architect Associate**  
**Advisory:** CST C198.

**Grading Mode:** Standard Letter, Pass/No Pass  
**Transfer Credit:** CSU.

This course covers the fundamentals of building IT infrastructure on Amazon Web Services (AWS). The course is designed to teach solutions architects how to optimize their use of the AWS Cloud by understanding AWS services and how they fit into cloud-based solutions. Although architectural solutions can differ depending on the industry, type of application, and size of the business, this course emphasizes best practices for the AWS Cloud that apply to all of them. It also recommends various design patterns to help you think through the process of architecting optimal IT solutions on AWS. Throughout the course, students will explore case studies that showcase how some AWS customers have designed their infrastructures and the strategies and services that they have implemented. Finally, this course provides opportunities for students to build a variety of infrastructures through a guided, hands-on approach. Graded or Pass/No Pass option.

**CST C296** **3 Units (54 lecture hours; 14 lab hours)**  
**Amazon Web Services Cloud Operations Associate**  
**Advisory:** CST C198.

**Grading Mode:** Standard Letter, Pass/No Pass  
**Transfer Credit:** CSU.

The Amazon Web Services (AWS) Cloud Operations course is designed to prepare participants to pursue entry-level DevOps, support, and cloud operations roles. It will also help prepare them to take the AWS SysOps Administrator – Associate exam. Emphasizing best practices in the AWS Cloud and recommended design patterns, this course will teach students how to solve problems and troubleshoot various scenarios. The course will show students how to create automatable and repeatable deployments of networks and systems on AWS and covers specific AWS features and tools related to configuration and deployment. With case studies and demonstrations, students will learn how some AWS customers design their infrastructures and implement various strategies and services. Students will also have the opportunity to build a variety of infrastructures via guided, hands-on activities. Graded or Pass/No Pass option.

**CST C297** **3 Units (54 lecture hours; 14 lab hours)**  
**Amazon Web Services Cloud Developer**  
**Advisory:** CST C128 and C198.

**Grading Mode:** Standard Letter, Pass/No Pass  
**Transfer Credit:** CSU.

The Amazon Web Services (AWS) Cloud Developer course is designed to help students gain technical expertise in development using cloud technologies and prepare them to take the AWS Certified Developer – Associate level AWS Certification exam. The curriculum is delivered through instructor-led classes, knowledge assessments, and hands-on labs. Students will also have access to course manuals, online knowledge assessments, a free practice certification exam, and a discount voucher for the certification exam. Graded or Pass/No Pass option.