

CNS - COMPUTER NETWORKING AND SYSTEMS

CNS 101 1 credit hours (lecture: 1 | lab: 0)

Orientation to IT Professions

Course enables students to analyze the field of Information Technology. Topics include a survey of the IT professions, employment skills, definitions, associations, current issues, salaries, and self-assessment survey of skills and competencies. Students are required to attend a local meeting of a professional association related to the field.

Delivery mode: Face-to-Face

CNS 103 4 credit hours (lecture: 3 | lab: 3)

IT Support Fundamentals

Course prepares students for entry-level IT support jobs. It utilizes Google IT support training modules to teach the fundamentals of IT support. Course includes troubleshooting and customer service, networking, operating systems, system administration, and security. Upon completion of this one-course curriculum, students will also earn the Google IT Support Professional certificate.

Delivery mode: Face-to-Face | Hybrid | Online Fee: \$20

CNS 105 3 credit hours (lecture: 3 | lab: 1)

Networking Essentials

Course introduces the technologies, terminology, and skills used in the world of data networking. Emphasis is on practical applications of networking and computer technology to real-world problems. Students gain the knowledge necessary to design and install a local area network. Topics include network hardware and software requirements, and network architecture.

Recommended: CIS 101 or CIS 103 or consent of instructor, coordinator or program chair.

Delivery mode: Face-to-Face | Hybrid | Online Fee: \$40

CNS 107 1 credit hours (lecture: 1 | lab: 0)

Internet Protocol Internetworking

Course is an overview of internet protocol (IP) addressing in data communication. Course is designed to develop the essential skills needed to effectively work with IP addressing. Emphasis is on the binary conversions, AND operation, subdividing, prefix, and variable length prefix.

Recommended: CNS 105 or consent of instructor, coordinator or program chair.

Delivery mode: Face-to-Face | Hybrid | Online

CNS 108 3 credit hours (lecture: 3 | lab: 1)

Introduction to Cloud Services

Course provides the foundational knowledge of cloud services and how these services are provided in cloud platform. This course focuses on cloud concepts, services, security, privacy, as well as pricing and support in cloud.

Delivery mode: Face-to-Face | Online

CNS 110 3 credit hours (lecture: 3 | lab: 1)

Windows Client Desktop 1

Course presents most recent release of a Microsoft Modern Desktop Operating System (OS). Topics include knowledge and skills required to deploy, configure, protect, and maintain a modern desktop operating system environment. Students will develop skills needed to install and customize a modern desktop operating system. Students will also learn how to develop skills that include managing storage, files, drivers, and printers as well as how to configure network connectivity for a modern desktop operating system. Students will also learn how to secure the Windows OS and protect the data on the device, and how to manage and troubleshoot a modern desktop operating system. Course maps to Microsoft Modern Desktop Certification exam.

Recommended: CNS 105 or consent of department chair.

Delivery mode: Face-to-Face | Hybrid | Online Fee: \$15

CNS 111 3 credit hours (lecture: 3 | lab: 1)

Windows Server 1

Course presents part one in a series of three courses that provides the skills and knowledge necessary to implement a core Windows Server 2016 in an existing enterprise environment. This course focuses on the necessary administrative responsibilities, such as implementing server images, planning and configuring storage solutions, and monitoring virtual machine installations. Course maps to Microsoft Installation, Storage, and Compute with Windows Server 2016. **PREREQUISITE:**

Recommended: CNS 110 or CompTIA Network+ certifications; or consent of instructor, coordinator or program chair.

Delivery mode: Face-to-Face | Hybrid | Online Fee: \$40

CNS 114 3 credit hours (lecture: 3 | lab: 1)

Windows Server 2

Course presents part two in a series of three courses that provides the skills and knowledge necessary to implement a core Windows Server 2016 infrastructure in an existing enterprise environment. This course focuses on the fundamental networking skills required to deploy and support Windows Server 2016 in most organizations. Students will review IP fundamentals, remote access technologies, and more advanced content including software-defined networking (SDN). Course maps to Networking with Windows Server 2016.

Recommended: CNS 111 or consent of the instructor, coordinator or program chair.

Delivery mode: Face-to-Face | Hybrid | Online Fee: \$40

CNS 116 3 credit hours (lecture: 3 | lab: 1)

Windows Server 3

Course presents part three in a series of three courses that provides the skills and knowledge necessary to implement a core Windows Server 2016 infrastructure in an existing enterprise environment. This course focuses on how to deploy and configure Active Directory Domain Services (AD DS) in a distributed environment, implement Group Policy, perform backup and restore, monitor and troubleshoot AD-related issues with Windows Server 2016, and to deploy AD server roles such as Active Directory Federation Services (AD FS) and Active Directory Certificate Services (AD CS). Course maps to Microsoft Identity with Windows Server 2016.

Recommended: CNS 114 or consent of instructor, coordinator or program chair.

Delivery mode: Face-to-Face | Hybrid | Online Fee: \$40

- CNS 117** **3 credit hours (lecture: 3 | lab: 1)**
Advanced Windows Server 1
 Course presents part one in a series of two courses that provides the skills and knowledge necessary to design and implement a Windows Server 2012 R2 infrastructure in an enterprise environment. This course covers the knowledge and skills needed to provide an enterprise solution that supports manual and automated server installations in a physical and virtual environment including the supporting file and storage services. Students will learn the skills necessary to provide enterprise networking solutions such as DHCP, IPAM, VPN, and DirectAccess. Students will also learn the skills necessary to design and implement a forest and domain infrastructure including multi domains/forest and branch office scenarios. Course maps to Microsoft Designing and Implementing a Server Infrastructure.
Prerequisite: CNS 116 or consent of instructor, coordinator or program chair
Delivery mode: Face-to-Face | Hybrid | Online Fee: \$40
- CNS 120** **3 credit hours (lecture: 3 | lab: 1)**
Advanced Windows Server 2
 Course presents part two in a series of two courses that provides the skills and knowledge necessary to design and implement a Windows Server 2012 R2 infrastructure in an enterprise environment. This course covers the knowledge and skills to plan and implement a highly available, secure infrastructure with focus on Active Directory® Federation Service (AD FS), public key infrastructure (PKI), and Active Directory Rights Management Services (AD RMS). Students will also learn the skills needed to plan and deploy virtual machines including self-service and automation of virtual machine deployments as well as planning and implementing a monitoring strategy that includes Microsoft® System Center 2012 R2-Operations Manager. Course maps to Microsoft Implementing an Advanced Server Infrastructure.
Recommended: CNS 117 or consent of instructor, coordinator or program chair.
Delivery mode: Face-to-Face | Hybrid Fee: \$40
- CNS 121** **1 credit hours (lecture: 0 | lab: 2)**
IT Certification Preparation
 Students may use this course as a prep course leading to an industry certification exam.
Prerequisite: Consent of department chair.
Delivery mode: Face-to-Face | Hybrid | Online
- CNS 140** **3 credit hours (lecture: 3 | lab: 2)**
Network Infrastructure Essentials
 Course examines physical aspects of voice and data network cabling and installation. Topics include overview of industry and worldwide standards; types of media and cabling; physical and logical networks, as well as signal transmission. Focus of hands-on, lab-oriented course is documentation, design and installation issues, laboratory safety, on-the-job safety, and working effectively in group environments. Course helps prepare for BICSI Registered Certified Installer, Level 1 exam. Students cannot receive credit for both ELT 105 and CNS 140.
Delivery mode: Face-to-Face Fee: \$40
- CNS 141** **3 credit hours (lecture: 3 | lab: 1)**
Cisco Introduction to Networks
 Course introduces the architecture, structure, functions, components, and models of the Internet and other computer networks. Content includes detailed description of OSI seven layer, the principles and structure of IP addressing, and the fundamentals of Ethernet concepts and operations. Course presents most recent release of the Cisco curriculum. This is the first course in the Cisco CCNA sequence of three courses.
Recommended: CNS 105 or CNS 103 or consent of department chair.
Delivery mode: Face-to-Face | Hybrid | Online Fee: \$30
- CNS 142** **3 credit hours (lecture: 3 | lab: 1)**
Cisco Switching, Routing, and Wireless Essentials
 Course describes the architecture, components, and operations of routers and switches in a small network. Students learn how to configure a router, a switch, and a wireless router for basic functionality. By the end of this course, students will be able to configure and troubleshoot routers and switches and resolve common issues with these devices. Course presents most recent release of the Cisco curriculum. This is the second course in the Cisco CCNA sequence of three courses.
Prerequisite: CNS 141; a passing grade must be registered on the Cisco Assessment Server.
Delivery mode: Face-to-Face | Hybrid | Online Fee: \$30
- CNS 143** **3 credit hours (lecture: 3 | lab: 1)**
Cisco Enterprise Networking, Security, and Automation
 Course describes the architecture, components, and operations of routers and switches in a large and complex network. Students learn how to configure routers and switches for advanced functionality. By the end of this course, students will be able to configure and troubleshoot enterprise networks. Students also learn about virtualization and automation. Course presents most recent release of the Cisco curriculum. This is the third course in the Cisco CCNA sequence of three courses.
Prerequisite: CNS 142 with grade of C; a passing grade must be registered on the Cisco Assessment Server
Delivery mode: Face-to-Face | Hybrid | Online Fee: \$30
- CNS 150** **3 credit hours (lecture: 3 | lab: 1)**
Windows Client Desktop 2
 Course presents most recent release of a Modern Desktop Operating System (OS). Topics include knowledge and skills required to deploy, configure, secure, manage, and monitor devices and client applications in an enterprise environment. Students learn how to manage identity, access, policies, updates, and apps. Students also learn how to design and implement a device strategy that meets the business needs of a modern organization. Students must be proficient and experienced in deploying, configuring, and maintaining Windows 10 and non-Windows devices and technologies. Course maps to Managing Modern Desktop Certification exam.
Prerequisite: CNS 110 with minimum grade of C or concurrent enrollment in CNS 110, or consent of department chair.
Delivery mode: Face-to-Face | Hybrid | Online Fee: \$15
- CNS 160** **3 credit hours (lecture: 3 | lab: 1)**
Virtualization Technologies
 Course presents virtualization technologies and concepts using the latest virtualization products in networked server environments. Students gain the knowledge necessary to install and configure the leading virtualization products to create virtual machines (VMs), virtual networks, cloud-based and on-demand services. Students also learn how to apply virtualization technology to create virtual data centers that use clusters for high availability, and use management software to administer virtual environment.
Recommended: CNS 105 or consent of instructor or department chair.
Delivery mode: Face-to-Face | Hybrid | Online Fee: \$30

<p>CNS 170 3 credit hours (lecture: 3 lab: 1) Principles of Information Security Course presents balance between security management and technical components of security. Focus is on Security Systems Development Life Cycle (SecSDLC). Topics include structured methodology as supportive framework to guide students through examination of components of information domain of Information Security Network; preparation for appropriate Network or Information Security Certification examinations. Prerequisite: CNS 105 or consent of instructor, coordinator or program chair <i>Delivery mode: Face-to-Face Online</i> Fee: \$40</p>	<p>CNS 176 3 credit hours (lecture: 3 lab: 1) Network Security Course presents the skills and knowledge necessary to install and configure systems to secure applications, networks and devices. This course also helps students to perform threat analysis and respond with appropriate mitigation techniques; participate in risk mitigation activities; and operate with an awareness of applicable policies, laws and regulations. This course helps students prepare for appropriate Security Certification examination. Prerequisite: CNS 105 or consent of department chair. <i>Delivery mode: Face-to-Face Online</i> Fee: \$30</p>
<p>CNS 171 3 credit hours (lecture: 3 lab: 1) Hardening Network Security Course provides students with the technical knowledge and skills in scripting required for “tighten down” security in computer network and systems. Course includes practical knowledge and step-by-step directions for securing a diverse network with multiple devices and operating systems. This course also assist students in preparing for the appropriate Network or Information Security Certification examinations. Recommended: CNS 105 or consent of instructor, coordinator, or program chair. <i>Delivery mode: Face-to-Face Hybrid</i> Fee: \$40</p>	<p>CNS 178 3 credit hours (lecture: 3 lab: 1) Ethical Hacking Course allows students and IT professionals to move into the cybersecurity field. Course helps students master an ethical hacking methodology that can be used in a penetration testing or ethical hacking situation. Students learn ethical hacking methodologies that can be used in penetration testing to assess the network security. The course covers reconnaissance, scanning, gain access, and maintain access. Prerequisite: CNS 176 with C or consent of department chair. <i>Delivery mode: Face-to-Face Hybrid Online</i> Fee: \$30</p>
<p>CNS 172 3 credit hours (lecture: 3 lab: 1) Network Defense and Countermeasures This course provides students with the knowledge and concepts needed for protecting computers and networks. The course covers intrusion detection, develop a security policy, implement Network Address Translation (NAT) and packet filtering by installing proxy servers, firewalls, and virtual private network (VPNs). The course also assists students in preparation for the appropriate Network or Information Security Certification examinations. Prerequisite: CNS 105 or consent of instructor, coordinator or program chair <i>Delivery mode: Face-to-Face Online</i> Fee: \$40</p>	<p>CNS 181 3 credit hours (lecture: 3 lab: 1) Implementing and Operating Cisco Security Technologies Course provides the knowledge required to implement and operate core security technologies including network security, cloud security, content security, endpoint protection and detection, secure network access, visibility and enforcements. This course helps candidates to prepare for Cisco Security Core exam. Prerequisite: CNS 142 or consent of department chair. <i>Delivery mode: Face-to-Face Hybrid</i> Fee: \$30</p>
<p>CNS 173 3 credit hours (lecture: 3 lab: 1) Cybersecurity Operations Analysis Course simulates real-world cybersecurity threat scenarios and creates opportunities for ethical hacking, security monitoring, analysis and resolution. Course helps students develop critical thinking and complex problem solving skills innovative assessments provide immediate feedback to support the evaluation of knowledge and acquired skills. Prerequisite: CNS 105 with C or consent of department chair. <i>Delivery mode: Face-to-Face Hybrid Online</i> Fee: \$30</p>	<p>CNS 193 3 credit hours (lecture: 3 lab: 1) Cloud Computing Course helps students and IT professionals to acquire the knowledge they need to maintain and optimize cloud infrastructure services. Students learn to analyze system requirements to successfully execute workload migrations to the cloud, implement appropriate security controls, and troubleshoot connectivity and security issues related to cloud implementations. Prerequisite: CNS 150 with C or consent of department chair. <i>Delivery mode: Face-to-Face Hybrid Online</i> Fee: \$30</p>
<p>CNS 174 3 credit hours (lecture: 3 lab: 1) Introduction to Computer Forensics This course provides students with the knowledge and solid foundation by introducing Computer Forensics as an entry into the professional field of Computer Forensics and investigation. The course covers current and past Operating Systems and a range of computer hardware and forensics software tools. The course also assists students in preparing for the appropriate Network or Information Security Certification examinations. Prerequisite: CNS 105 or consent of instructor, coordinator or program chair <i>Delivery mode: Face-to-Face Online</i> Fee: \$40</p>	<p>CNS 195 3 credit hours (lecture: 3 lab: 1) TCP/IP Packet Analysis This course covers creating, administering and maintaining an information system with TCP/IP protocol (Transmission Control Protocol/Internet Protocol) and utilities on computer networks, which is the basic provision of Internet services. Recommended: CNS 105 or consent of instructor, coordinator or department chair. <i>Delivery mode: Face-to-Face Online</i> Fee: \$40</p>

CNS 214 **3 credit hours (lecture: 3 | lab: 1)****Securing Enterprise Server**

Course teaches you how to protect administrative credentials and rights to help ensure that administrators can perform only the tasks that they need to, when they need to. This course explains how you can use auditing and the Advanced Threat Analysis feature in Windows Server to identify security issues. You will also learn how to mitigate malware threats, secure your virtualization platform, and use deployment options such as Nano server and containers to enhance security. The course also explains how you can help protect access to files by using encryption and dynamic access control, and how you can enhance your network's security.

Prerequisite: CNS 116 with C or consent of department chair.

Delivery mode: Face-to-Face | Hybrid | Online Fee: \$15

CNS 221 **3 credit hours (lecture: 3 | lab: 1)****Enterprise Cloud Services 1**

Course provides the knowledge needed to implement, manage, and monitor identity, and governance in a cloud environment. Students learn to configure virtual networking, manage network traffic, create and scale virtual machines in a cloud infrastructure. Students will also learn to provision, size, monitor, and adjust resources in cloud as appropriate.

Prerequisite: CNS 108 or consent of department chair.

Delivery mode: Face-to-Face | Online

CNS 222 **3 credit hours (lecture: 3 | lab: 1)****Enterprise Cloud Services 2**

Course provides the knowledge needed to implement and monitor a cloud infrastructure; implement management and security solutions; implement solutions for apps; and implement and manage data platforms. Students will learn to advise stakeholders and translate business requirements into secure, scalable, and reliable cloud solutions.

Prerequisite: CNS 221 or consent of department chair.

Delivery mode: Face-to-Face | Online

CNS 223 **3 credit hours (lecture: 3 | lab: 1)****Enterprise Cloud Services 3**

Course provides the expertise needed to design and monitor solutions on cloud platform.

Prerequisite: CNS 221 or consent of department chair.

Delivery mode: Face-to-Face | Online

CNS 224 **3 credit hours (lecture: 3 | lab: 1)****Securing Enterprise Cloud Services**

Course provides the knowledge needed to manage identity and access; implement platform protection; manage security operations; and secure data and applications in the cloud infrastructure.

Prerequisite: CNS 176 and CNS 108 or consent of department chair.

Delivery mode: Face-to-Face | Online

CNS 228 **3 credit hours (lecture: 3 | lab: 1)****Linux Administration**

Course offers instruction in installation, support, and administration of a LINUX operating system in both server and workstation configurations. Content includes LINUX and Web server installation, system startup/shutdown, hardware configuration, disk and file system structure, package management, TCP/IP networking, system management and security, X-Windows usage and configuration, user management, LINUX printing, system performance measurement and tuning, LINUX Kernel "hacking," and LINUX utilities. Credit cannot be received in both CIS 228 and CNS 228.

Recommended: CIS 218 and CNS 105 or comparable knowledge.

Delivery mode: Face-to-Face | Online Fee: \$10

CNS 238 **3 credit hours (lecture: 3 | lab: 1)****Linux Network Services Administration**

Course covers LINUX network services and administration using the LINUX operating system. Content includes: network technology and terms; TCP/IP installation and configuration; network hardware installation; secure INETD "super daemon" installation and TCPD wrappers; configuration of network services - Domain Name Services (DNS); DHCP; Apache (Web server); SMTP/SENDMAIL; File Transfer Protocol (FTP) server, Network File Server (NFS); SAMBA (Windows Network Server); Secure Shell (SSH); Secure Socket Layer; firewalls and packet filters; and packet sniffers and intrusion detections systems. Credit cannot be received for both CIS 238 and CNS 238.

Recommended: CIS 228 or CNS 228 or comparable knowledge or consent of instructor or program coordinator

Delivery mode: Face-to-Face | Online Fee: \$10

CNS 251 **3 credit hours (lecture: 2 | lab: 10)****Internship Experience**

Course consists of direct work experience, minimum ten hours per week in computer networking related environment in an approved Corporation or Business. Topics include applying previously learned computer-networking skills and knowledge to daily work activities; working closely with the CNS instructor; meeting frequently in classroom or online to integrate work experience with course activities. Fee Varies.

Prerequisite: Completion of a minimum of 15 credits in CNS with a grade of C or better in each course and consent of instructor, department coordinator, or program chair.

Delivery mode: Face-to-Face Fee: \$50

CNS 290 **1-4 credit hours (lecture: 1-4 | lab: 1-4)****Topics in Computer Networking and Systems**

Course covers variety of different topics current with technological advances in computer networking and systems/LAN. Topics identified for each section of course. Course may be repeated up to three times with different topics. Fee Varies. Prerequisite may vary by topic.

Delivery mode: Face-to-Face | Hybrid | Online