COMPUTER INFORMATION TECHNOLOGY (CITE)

CITE-104 Systems Administration I
3 Credits
Lecture: 3 hours per week
Offering: Spring Only, All Years
This course covers the fundamentals of implementing, managing, maintaining, and provisioning services and infrastructure in an on-premise server-based network environment. This course covers the implementation and configuration of core networking services, such as IP networking, file storage, identity, user and group management, file and print services, remote access, and virtualization.
Corequisites: CITE-105
Recommended Pre/Corequisites: CITE-116, CITE-127

CITE-105 Systems Administration I Projects
3 Credits
Lecture: 1 hour per week, **Lab:** 6 hours per week
Offering: Spring Only, All Years
This course utilizes projects in teaching the fundamentals of implementing, managing, maintaining, and provisioning services and infrastructure in an on-premise server-based network environment. This course covers the implementation and configuration of core networking services, such as IP networking, file storage, identity, user and group management, file and print services, remote access and virtualization.
Corequisites: CITE-104
Recommended Pre/Corequisites: CITE-116, CITE-127

CITE-116 Desktop Operating System Support
3 Credits
Lecture: 3 hours per week
Offering: Fall Only, All Years
This course concentrates on supporting desktop and mobile operating systems in an enterprise computing environment. It examines installation, configuration, networking, remote access, resource access, secure wireless network access, security issues and their resolution.

CITE-118 Computer Information Technology Essentials
2 Credits
Lecture: 2 hours per week
Offering: Fall Only, All Years
This course covers the fundamentals of computer hardware and software and advanced concepts such as security, networking, and the responsibilities of an IT professional. Additional topics include mobile operating systems, OS X, Linux, and client-side virtualization. Expanded topics include Microsoft Windows operating systems, cybersecurity concepts, networking, and troubleshooting.

CITE-119 Computer Information Technology Essentials Projects
2 Credits
Lecture: 1 hour per week, **Lab:** 3 hours per week
Offering: Fall Only, All Years
This course presents a comprehensive advanced exposure to computer operating systems and hardware. Students working through hands-on activities and labs gain skills in assembling components, install, configure and maintain devices, PCs and software, understand the basics of networking and security/forensics, laptops, printers and properly diagnose, document, resolve common hardware and operating system software issues while applying troubleshooting skills. Students also gain understanding of appropriate customer support; understand the basics of virtualization, desktop imaging, and deployment. Additional topics include mobile operating systems, OS X, Linux, and client-side virtualization. Expanded topics include Microsoft Windows operating systems, cybersecurity concepts, networking, and troubleshooting.
Corequisites: CITE-118
Recommended Prerequisites: CITE-116 and CITE-127

CITE-121 Network Support I
3 Credits
Lecture: 3 hours per week
Offering: Fall and Spring Only, All Years
This course provides students with the knowledge of the architecture, structure, functions, components, and models of the Internet and other computer networks. The principles and structure of IP addressing and the fundamentals of LAN concepts, media, and operations are introduced to provide a foundation for students.
Corequisites: CITE-122
Recommended Pre/Corequisites: CITE-118 and CITE-119

CITE-122 Network Support I Projects
3 Credits
Lecture: 1 hour per week, **Lab:** 6 hours per week
Offering: Fall and Spring Only, All Years
This course provides students with the knowledge of the architecture, structure, functions, components, and models of the Internet and other computer networks. The principles and structure of IP addressing and the fundamentals of LAN concepts, media, and operations are introduced to provide a foundation for the student to be able to build simple LANs, perform basic configurations for routers and switches, and implement IP addressing schemes and troubleshoot network issues.
Corequisites: CITE-121
Recommended Prerequisites: CITE-118 and CITE-119

CITE-127 Desktop Commodity Operating System Support Projects
2 Credits
Lecture: 0.5 hours per week, **Lab:** 4.5 hours per week
Offering: Fall Only, All Years
This course utilizes projects in supporting commodity desktop and mobile operating systems in an enterprise computing environment. It examines installation, configuration, maintenance, remote access, resource access, secure wireless network access, security issues and their resolution. In addition configuring backups and restoring data, installing patches and updates, and networking are examined.
Corequisites: CITE-116

CITE-140 Introduction to Cybersecurity
3 Credits
Lecture: 1 hour per week, **Lab:** 6 hours per week
Offering: Fall Only, All Years
This course is designed to provide the fundamental concepts of cybersecurity. These concepts include cybersecurity theory and basic techniques for optimizing security on personal computers and small networks. Topics include the historical view of networking and security, security issues, trends, security resources, and the role of policy, people, and processes in information security.
Recommended Pre/Corequisites: CITE-118, CITE-121, CITE-122

CITE-142 Information Security Fundamentals
3 Credits
Lecture: 1 hour per week, **Lab:** 6 hours per week
Offering: Spring Only, All Years
This course is an introduction to network security and overall security processes and offers in-depth coverage of the risks and threats to an organization's data, combined with a structured way of addressing the safeguarding critical assets. The course provides a foundation for those new to security practices as well as those responsible for protecting network services, devices, traffic, and data.
Recommended Prerequisites: CITE-213, CITE-215

CITE-145 Cybersecurity Law and Ethics
3 Credits
Lecture: 3 hours per week
Offering: Spring Only, All Years
This course presents the student with issues of law and ethics in cyberspace. Cyber Ethics provides a framework for making ethical decisions that computer professionals are likely to encounter. This course examines ethical and legal issues as they apply to information systems.

CITE-152 Networking Essentials
3 Credits
Lecture: 2 hours per week, **Lab:** 3 hours per week
Offering: Spring Only, All Years
This course provides instruction in the fundamentals of networking and allows a student to develop a foundational understanding of network's high-level architecture and operational capacity. Topics explore various ways to interface with networks, including how to build, configure, test, name, and troubleshoot them. Students will learn how devices communicate on a network, and the services they can provide.

CITE-155 Linux Essentials
3 Credits
Lecture: 2 hours per week, **Lab:** 3 hours per week
Offering: Spring Only, All Years
This course will provide students with the fundamental concepts of Linux operating systems. The course covers such topics as the Linux file system, commands, utilities, text editing, shell programming, and text processing utilities. Students will learn command line syntax and features of the popular Linux shells, including filename generation, redirection, pipes, and quoting mechanisms. The course is designed to help students prepare for professional careers in the information technology and cybersecurity fields. It also helps prepare individuals seeking to pass Linux-based industry certification.

CITE-165 Linux System Administration
3 Credits
Lecture: 2 hours per week, **Lab:** 3 hours per week
Offering: Fall Only, All Years
This course introduces the student to the intermediate level of system administration using Linux operating systems. Additionally, the course provides the broad-based knowledge necessary to prepare students for further study in other specialized security fields and will also appeal to Microsoft professionals seeking to gain Linux experience.
Recommended Prerequisites: CITE-155

CITE-206 Systems Administration II
3 Credits
Lecture: 3 hours per week
Offering: Fall Only, All Years
This course covers the administration tasks necessary in maintaining a Cloud hosted network infrastructure. Topics include, Cloud architecture and billing, deploying images, compute and storage resources, networking resources, managing users and groups, managing policies, securing data, remote access, monitoring, and update management.
Prerequisites: CITE-104, CITE-105
Corequisites: CITE-207

CITE-207 Systems Administration II Projects
3 Credits
Lecture: 1 hour per week, **Lab:** 6 hours per week
Offering: Fall Only, All Years
This course uses projects to teach the skills necessary to deploy and maintain a Cloud hosted network infrastructure. Projects include deploying images, network and compute resources, managing users and groups, management policies, managing storage, securing data, configuring remote access, estimating costs, monitoring, and configuring update management.
Prerequisites: CITE-104, CITE-105
Corequisites: CITE-206

CITE-208 Systems Administration III
3 Credits
Lecture: 3 hours per week
Offering: Spring Only, All Years
This course covers systems administration tasks necessary in supporting hybrid multi-vendor enterprise networks. Topics include deploying a hybrid network infrastructure, advanced user and group management, advanced networking services, cross vendor network integration, identity management, designing for fault tolerance, security, and disaster recovery.
Prerequisites: CITE-206, CITE-207
Corequisites: CITE-209

CITE-209 Systems Administration III Projects
3 Credits
Lecture: 1 hour per week, **Lab:** 6 hours per week
Offering: Spring Only, All Years
This course uses projects to teach the skills necessary to support hybrid multi-vendor network infrastructures. Projects include deploying a hybrid network infrastructure, implementing advanced user and group management, implementing advanced networking services, supporting cross vendor network integration, supporting identity management, designing for fault tolerance, security, and disaster recovery.
Prerequisites: CITE-206, CITE-207
Corequisites: CITE-208

CITE-213 Network Support II
3 Credits
Lecture: 3 hours per week
Offering: Fall and Spring Only, All Years
This course describes the architecture, components, and operations of routers and switches in a small network. Students learn how to configure a router and a switch 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 virtual LANs and inter-VLAN routing in both IPv4 and IPv6 networks.
Prerequisites: CITE-121
Corequisites: CITE-215

CITE-215 Network Support II Projects
3 Credits
Lecture: 1 hour per week, **Lab:** 6 hours per week
Offering: Fall and Spring Only, All Years
This course describes the architecture, components, and operations of routers and switches in a small network. Students learn how to configure a router and a switch 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 virtual LANs and inter-VLAN routing in both IPv4 and IPv6 networks.
Corequisites: CITE-213

CITE-217 Network Support III
3 Credits
Lecture: 3 hours per week
Offering: Spring Only, All Years
This course describes the architecture, components, and operations of routers and switches in larger and more complex networks. Students learn how to configure routers and switches for advanced functionality and troubleshoot routers and switches and resolve common issues with routing and switching protocols in IP networks. Students will also develop the knowledge and skills needed to implement remote access operations in a complex network.
Prerequisites: CITE-213

CITE-219 Network Support III Projects
3 Credits
Lecture: 1 hour per week, **Lab:** 6 hours per week
Offering: Spring Only, All Years
This course describes the architecture, components, and operations of routers and switches in larger and more complex networks. Students learn how to configure routers and switches for advanced functionality and troubleshoot routers and switches and resolve common issues with routing and switching protocols in IP networks. Students will also develop the knowledge and skills needed to implement remote access operations in a complex network.
Corequisites: CITE-217

CITE-235 Network Security Fundamentals
3 Credits
Lecture: 1 hour per week, **Lab:** 6 hours per week
Offering: Fall Only, All Years
This course prepares students for entry-level security specialist careers by developing an in-depth understanding of network security principles and the tools and configurations needed to secure a network. Students will have hands-on experience with network implementation, network security, firewall implementation and maintenance and server hardening techniques.
Recommended Pre/Corequisites: CITE-142

CITE-237 Ethical Hacking and Systems Defense
3 Credits
Lecture: 1 hour per week, **Lab:** 6 hours per week
Offering: Spring Only, All Years
This course combines an ethical hacking methodology with the hands-on application of security tools to better help students understand securing systems. Students are introduced to common countermeasures that effectively reduce and/or mitigate attacks. Students will also practice using structured knowledge bases to discover vulnerabilities and recommend solutions for tightening network security and protecting data from potential attackers. Focus is on penetration-testing tools and techniques to protect computer networks.
Prerequisites: CITE-235

CITE-239 Network Forensics and Incident Response
3 Credits
Lecture: 1 hour per week, **Lab:** 6 hours per week
Offering: Spring Only, All Years
This course explores security incidents and intrusions, including identifying and categorizing incidents, responding to incidents, log analysis, network traffic analysis, various tools, and creating an incident response team.
Prerequisites: CITE-235

CITE-243 Command Line and Scripting Fundamentals
3 Credits
Lecture: 2 hours per week, **Lab:** 3 hours per week
Offering: Fall Only, All Years
This course teaches the fundamental skills necessary for working in a command line environment of today's common operating systems such as Microsoft DOS and PowerShell and the Linux Bash environment. This course is intended for technical professionals wanting to advance their skills and for students preparing for a technology-related career. It also offers an introduction to scripting languages including basic data types, control structures, regular expressions, input/output, and textual analysis.

CITE-258 Cyber Operations
3 Credits
Lecture: 2 hours per week, **Lab:** 3 hours per week
Offering: Spring Only, All Years
This course teaches knowledge and skills needed to successfully handle the tasks, duties, and responsibilities of an associate-level Cybersecurity Analyst working in a Security Operations Center (SOC). Students are exposed to the knowledge required to detect, analyze, and escalate basic cybersecurity threats. Numerous opportunities are offered to a student to practice the necessary skills using common open-source tools.

CITE-275 Intrusion Detection/Prevention Systems Fundamentals
3 Credits
Lecture: 1 hour per week, **Lab:** 6 hours per week
Offering: Fall Only, All Years
This course is designed to allow students to gain a thorough foundation in the design, implementation, and administration of Intrusion Detection Systems and Intrusion Prevention Systems, as well as practical, hands-on experience working with these systems. In addition, students analyze various attack signatures and the network traffic these systems collect.
Corequisites: CITE-235

CITE-289 Cyber Competitions
3 Credits
Lecture: 1 hour per week, **Lab:** 6 hours per week
Offering: Spring Only, All Years
This course prepares the student to participate in various cybersecurity competitions. It covers topics in the major areas of concentration for the competitions, and students will participate in practice competitions. Participating in a competition teaches students practical techniques for securing a network or personal data. This course provides an in-depth understanding of how to effectively protect computer networks. Students will learn the tools and penetration testing methodol0gies used by ethical hackers. In addition, the course provides a thorough discussion of what and who an ethical hack is and how important they are in protecting corporate and government data from cyber attacks. Students will learn updated computer security resources that describe new vulnerabilities and innovative methods to protect networks. Also covered is a thorough update of federal and state computer crime laws, as well as changes in penalties for illegal computer hacking.

CITE-295 Computer Information Technology Internship
4 Credits
Lecture: 1 hour per week, **Internship:** 9 hours per week
Offering: Spring Only, All Years
This course involves a working partnership in which the sophomore students of the CITE program join with area employers in a structured, real-life relationship. Students will gain insight and on-the-job work experience doing projects that would normally be assigned to the employer's entry-level support staff. During this supervised experience, students will be evaluated on their performance of course competencies. Students are responsible for finding an appropriate internship site and permission of the instructor is required. This course may be used to substitute for ATEC-117.
Prerequisites: 26 credits (level 100 or higher)

CITE-296 Cybersecurity Internship
3 Credits
Internship: 9 hours per week
Offering: Fall and Spring Only, All Years
This course involves a working partnership in which the sophomore students of the Network Security Administration program join with area employers in a structured, real-life relationship. Students will gain insight and on-the-job work experience doing projects that would normally be assigned to the employer's entry-level support staff. During this supervised experience, students will be evaluated on their performance of course competencies. Students are responsible for finding an appropriate internship site and permission of the instructor is required. This course may be used to substitute for ATEC-117 or CITE-289 Cybersecurity Competitions in the Network Security Administration program. Students must be sophomore status or have instructor permission to enroll in CITE-296.