

# COMPUTER AND INFORMATION TECHNOLOGY SYSTEMS (CITS)

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## CITS F201 Operating Systems Support

1-3 Credits

Offered As Demand Warrants

Comprehensive exploration of a current operating system: use, configuring, installing and administering. Topics include end-user and technical support.

**Recommended:** CIOS F150 or equivalent skills.

**Lecture + Lab + Other:** 1-3 + 0 + 0

## CITS F202 Microcomputer Hardware Support

1-3 Credits

Offered As Demand Warrants

Fundamental hardware and software (associated with hardware) configuration and troubleshooting. Includes installing, removing and configuring computer hardware components; installing and configuring software applications and operating systems to support hardware; diagnosing hardware and software problems; and developing troubleshooting and configuration procedures.

**Recommended:** CITS F201 or equivalent skills.

**Lecture + Lab + Other:** 1-3 + 0 + 0

## CITS F203 Information Technology Support Fundamentals

4 Credits

Offered As Demand Warrants

Overview of skills and knowledge required by professional computer support technicians to support and troubleshoot computer operating systems and computer hardware, including the purpose and function of the internal components of a computer, how to assemble a computer system, install an operating system and the basic skills and knowledge required to connect to and share resources in a network environment. Course covers objectives defined for CompTIA A+ certification.

**Recommended:** CIOS F150 or equivalent skills.

**Lecture + Lab + Other:** 4 + 0 + 0

## CITS F204 Introduction to Computer Networks

3 Credits

Offered As Demand Warrants

This foundational course introduces several ways that computers interact and the tools used in analysis and troubleshooting. Examples include local and wide area networks, also known as LANs and WANs; the "internet of things"; and cloud computing. Networking careers may also be explored. CITS F203 may be taken concurrently.

**Lecture + Lab + Other:** 3 + 0 + 0

## CITS F205 Introduction to Coding and Programming

1-3 Credits

Offered As Demand Warrants

Computer programming focused on programming concepts with programming tools.

**Prerequisites:** Math placement at the 100-level.

**Lecture + Lab + Other:** 1-3 + 0 + 0

## CITS F212 Server Operating Systems

3 Credits

Offered As Demand Warrants

Fundamentals in installing, configuring and maintaining server operating systems. Learn how to configure and administer network accounts, resources, and common services deployed on server operating systems. Course covers foundation server operating system knowledge required for Microsoft Certified Solutions Associate (MCSA) certification exams related to server technologies.

**Prerequisite:** CITS F204 (may be taken concurrently) or equivalent skills.

**Lecture + Lab + Other:** 3 + 0 + 0

## CITS F219 Operating Systems: Topics

1-4 Credits

Offered As Demand Warrants

In-depth and comprehensive technical class covering operating system skills and concepts. Course may be repeated for credit.

**Recommended:** CITS F203 or equivalent skills.

**Lecture + Lab + Other:** 1-4 + 0 + 0

## CITS F220 Implementing Internet Tools and Technologies

3 Credits

Offered As Demand Warrants

Exploration of advanced Internet topics. Building a presence on the Internet – evaluate web hosting services, domain names and registration services. How to implement and understand web communication tools and develop and understand the impact of participating in social networks and the changing nature of these networks.

**Recommended:** CIOS F150 or equivalent skills.

**Lecture + Lab + Other:** 3 + 0 + 0

## CITS F221 Graphics and Multimedia for the Web

3 Credits

Offered As Demand Warrants

Creating graphics and multimedia content for the Web. Graphic topics include formats, size and resolution, optimization and design fundamentals. Multimedia topics include animation, interactivity and combining sound, speech, graphics, photographs and video.

**Recommended:** CIOS F150; or equivalent skills.

**Lecture + Lab + Other:** 3 + 0 + 0

## CITS F222 Website Design

1-3 Credits

Offered As Demand Warrants

A comprehensive survey of professional website design and authoring tools used to create Internet websites. Topics include website design and planning, HTML and CSS.

**Recommended:** CIOS F150 or equivalent skills.

**Lecture + Lab + Other:** 1-3 + 0 + 0

## CITS F224 Web Scripting

3 Credits

Offered As Demand Warrants

Introduction to client-side Web page scripting. Covers basic programming concepts, including data representation, functions, control structures and arrays. Topics include client-side scripting with JavaScript, object-oriented JavaScript, design issues, error handling, security, the Document Object Model and dynamic HTML and AJAX.

**Prerequisite:** CITS F205 or CS F103; CITS F222; or equivalent skills.

**Lecture + Lab + Other:** 3 + 0 + 0

**CITS F225 Web Databases and Programming**

3 Credits

Offered As Demand Warrants

Programming and database design as it relates to creating dynamic web sites and applications. Develop web applications to automate websites, create and access web databases, provide tools for users to modify parts of their own website, create and access files on the fly and reduce repetitive maintenance. Course topics include CSS, SSI, DHTML, SQL, PHP and other web technologies.

**Prerequisites:** CITS F205 or CS F103; CITS F222; or equivalent skills.**Lecture + Lab + Other:** 3 + 0 + 0**CITS F228 Advanced Website Design and Development**

3 Credits

Offered As Demand Warrants

Plan and implement professional and comprehensive websites that utilize and integrate multiple website design and development technologies such as XHTML, CSS, XML, Ajax, Web APIs, client-side and server-side programming, graphics and multimedia, and web communication tools.

**Prerequisites:** CITS F221; CITS F222; CITS F224; CITS F225; or equivalent skills.**Lecture + Lab + Other:** 3 + 0 + 0**CITS F240 System and Network Services Administration**

3 Credits

Offered As Demand Warrants

Implement and administer the core network services operating within a network environment. Topics include: WSUS, WDS, DHCP, DNS, remote access, file and print, security and network management services. Develop a conceptual understanding of each network service and learn how to plan, implement and administer each service. Course covers system and network services objectives required for Microsoft Certified Solutions Associate (MCSA) certification exams related to server technologies.

**Prerequisites:** CITS F212 (may be taken concurrently) or equivalent skills.**Lecture + Lab + Other:** 3 + 0 + 0**CITS F241 Networking and LAN Infrastructure Basics**

4 Credits

Offered As Demand Warrants

The first of three courses (with CITS F242 and CITS F243) providing coverage of networking topics designed to prepare students for the CCNA certification exam. Covers the OSI and Internet models, IPv4 and IPv6 addressing, and network security fundamentals, while providing hands-on practical experience and career skills.

**Lecture + Lab + Other:** 4 + 0 + 0**CITS F242 Routing and Switching Essentials**

4 Credits

Offered As Demand Warrants

Second of three courses providing integrated coverage of networking topics designed to prepare students for the CCNA certification exam. Covers an in-depth study of the network switching concepts, VLANs, STP, DHCP, SLAC and DHCPv6 addressing, LAN security, and an introduction to routing concepts while providing learners for hands-on practical experience.

**Prerequisites:** CITS F241.**Lecture + Lab + Other:** 4 + 0 + 0**CITS F243 Intermediate Networking and LAN Infrastructure**

4 Credits

Offered As Demand Warrants

Third of three courses providing coverage of networking topics designed to prepare students for the CCNA certification exam. Covers network routing concepts, including OSPF, ACL concepts, WAN, VPN and IPSEC, QoS, and network design, troubleshooting, virtualization and automation, while providing opportunities for hands-on, practical experience and career skills development.

**Prerequisites:** CITS F241.**Lecture + Lab + Other:** 4 + 0 + 0**CITS F244 Advanced Network Infrastructure Services**

4 Credits

Offered As Demand Warrants

Covers the architecture, components and operations of cloud-based computer systems. Covers topics that prepare students for the AWS cloud foundations certification as well as other cloud formats.

**Prerequisites:** CITS F241.**Lecture + Lab + Other:** 4 + 0 + 0**CITS F249 Networking and Communications: Topics**

1-4 Credits

Offered As Demand Warrants

In-depth technical and comprehensive coverage of networking and communications skills and concepts.

**Recommended:** CITS F204 or equivalent skills.**Special Notes:** May be repeated for credit.**Lecture + Lab + Other:** 1-4 + 0 + 0**CITS F261 Computer and Network Security**

3 Credits

Offered As Demand Warrants

The fundamental concepts of computer and network security. Course topics include: understanding threats to a computing infrastructure, understanding encryption technologies, securing network communications and applications, security policies and responding to incidents. Course covers objectives defined for CompTIA Security+ certification.

**Prerequisites:** CITS F204 or equivalent skills.**Lecture + Lab + Other:** 3 + 0 + 0**CITS F262 Cybersecurity Defense and Countermeasures**

3 Credits

This course focuses on network and information systems security from a defensive point of view. Students will learn how to analyze internal and external security threats, develop security policies, and implement security measures to protect information within an enterprise. Topics include risk assessment, security policies and procedures, incident response, cryptographic services, network and host-based security.

**Prerequisites:** CITS F261 or equivalent skills.**Lecture + Lab + Other:** 3 + 0 + 0**CITS F263 Network Security Penetration Testing**

3 Credits

Offered As Demand Warrants

This course focuses on network and information systems security from an offensive point of view. Students will learn technical testing and examination techniques used to identify, validate and assess technical vulnerabilities within an enterprise. Topics include penetration testing methodology, footprinting and reconnaissance, scanning and enumeration, vulnerability validation, data collection and reporting.

**Prerequisites:** CITS F261 or equivalent skills.**Lecture + Lab + Other:** 3 + 0 + 0

**CITS F265 Directory Services Administration**

3 Credits

Offered As Demand Warrants

The purpose and components that make up directory services and the role these services play in storing, organizing and managing information in a network environment. How to create and configure directory service objects to manage access to network resources, to implement and manage group policy objects, and to backup, restore, monitor and troubleshoot directory service related issues. Course covers advanced directory services administration objectives required for Microsoft Certified Solutions Associate (MCSA) certification exams related to server technologies.

**Prerequisite:** CITS F212 (may be taken concurrently) or equivalent skills.

**Lecture + Lab + Other:** 3 + 0 + 0

**CITS F281 Professional Practices in IT**

1-3 Credits

Offered As Demand Warrants

Prepares students for work as an IT professional. Topics include: providing computer technical support, user support management, soft skills in IT, resume writing and career exploration, diagnosing problems, researching and documenting solutions, meeting user needs, developing training materials and giving workshops and lessons.

**Prerequisites:** 24 credits in CITS courses.

**Lecture + Lab + Other:** 1-3 + 0 + 0

**CITS F282 IT Troubleshooting Skills**

1-3 Credits

Offered As Demand Warrants

Practical IT troubleshooting skills, including hardware, software, networks and operating systems. The course will include practical and useful troubleshooting scenarios.

**Prerequisites:** CITS F203; CITS F204 or equivalent skills.

**Lecture + Lab + Other:** 1-3 + 0 + 0

**CITS F284 Independent Project**

1-3 Credits

Offered As Demand Warrants

Student created project or internship that includes learning new skills, applying the skills to significant problems, and demonstrating the results to other computer users. Includes application of learned skills in a professional manner.

**Prerequisites:** 12 credits in CITS courses.

**Lecture + Lab + Other:** 1-3 + 0 + 0

**CITS F285 Cooperative Work Experience**

3 Credits

Offered As Demand Warrants

On-the-job training related to occupational objectives. Weekly seminar with coordinator required.

**Prerequisites:** 12 credits in CITS courses.

**Lecture + Lab + Other:** 3 + 0 + 0

**CITS F288 Professional Certification Review**

1-3 Credits

Offered As Demand Warrants

Prepares students for national or industry specific certification examination.

**Lecture + Lab + Other:** 1-3 + 0 + 0

**CITS F289 Information Technology: Topics**

1-3 Credits

Offered As Demand Warrants

Comprehensive coverage of a specific information technology topic.

**Recommended:** CITS F203 or equivalent skills.

**Lecture + Lab + Other:** 1-3 + 0 + 0