## Computer and Information Technology Systems (CITS)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Offered As Demand Warrants</th>
<th>Prerequisites</th>
<th>Lecture + Lab + Other</th>
<th>Recommended:</th>
</tr>
</thead>
<tbody>
<tr>
<td>CITS F201</td>
<td>Microcomputer Operating Systems Support</td>
<td>1-3</td>
<td>Offered As Demand Warrants</td>
<td>CITS F204 or CS F103; CITS F222; or equivalent skills.</td>
<td>1-3 + 0 + 0</td>
<td>CITS F150 or equivalent skills.</td>
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<tr>
<td>CITS F202</td>
<td>Microcomputer Hardware Support</td>
<td>1-3</td>
<td>Offered As Demand Warrants</td>
<td>CITS F203 or equivalent skills.</td>
<td>1-3 + 0 + 0</td>
<td>CITS F201 or equivalent skills.</td>
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<tr>
<td>CITS F203</td>
<td>Information Technology Support Fundamentals</td>
<td>4</td>
<td>Offered As Demand Warrants</td>
<td>CIOS F150 or equivalent skills.</td>
<td>4 + 0 + 0</td>
<td>CITS F201 or equivalent skills.</td>
</tr>
<tr>
<td>CITS F204</td>
<td>Introduction to Computer Networks</td>
<td>3</td>
<td>Offered As Demand Warrants</td>
<td>CIOS F150; or equivalent skills.</td>
<td>3 + 0 + 0</td>
<td>CIOS F150 or equivalent skills.</td>
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<tr>
<td>CITS F205</td>
<td>Introduction to Coding and Programming</td>
<td>1-3</td>
<td>Offered As Demand Warrants</td>
<td>CITS F205 or CS F103; CITS F222; or equivalent skills.</td>
<td>1-3 + 0 + 0</td>
<td>Math placement at the 100-level.</td>
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<tr>
<td>CITS F212</td>
<td>Server Operating Systems</td>
<td>3</td>
<td>Offered As Demand Warrants</td>
<td>CITS F204 (may be taken concurrently) or equivalent skills.</td>
<td>3 + 0 + 0</td>
<td>CITS F204 (may be taken concurrently) or equivalent skills.</td>
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<tr>
<td>CITS F219</td>
<td>Microcomputer Operating Systems: Topics</td>
<td>1-4</td>
<td>Offered As Demand Warrants</td>
<td>CIOS F150 or equivalent skills.</td>
<td>1-4 + 0 + 0</td>
<td>CITS F203 or equivalent skills.</td>
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<tr>
<td>CITS F220</td>
<td>Implementing Internet Tools and Technologies</td>
<td>3</td>
<td>Offered As Demand Warrants</td>
<td>CITS F203 or equivalent skills.</td>
<td>3 + 0 + 0</td>
<td>CITS F203 or equivalent skills.</td>
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<tr>
<td>CITS F221</td>
<td>Graphics and Multimedia for the Web</td>
<td>3</td>
<td>Offered As Demand Warrants</td>
<td>CITS F203 or equivalent skills.</td>
<td>3 + 0 + 0</td>
<td>CITS F203 or equivalent skills.</td>
</tr>
<tr>
<td>CITS F222</td>
<td>Website Design</td>
<td>1-3</td>
<td>Offered As Demand Warrants</td>
<td>CITS F203 or equivalent skills.</td>
<td>1-3 + 0 + 0</td>
<td>CITS F203 or equivalent skills.</td>
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<tr>
<td>CITS F224</td>
<td>Web Scripting</td>
<td>3</td>
<td>Offered As Demand Warrants</td>
<td>CITS F203 or equivalent skills.</td>
<td>3 + 0 + 0</td>
<td>CITS F203 or equivalent skills.</td>
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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  
Offered As Demand Warrants  
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