**DESCRIPTOR: ITIS 150**

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| Discipline: Information Technology and Information Systems | Proposed Sub-discipline (if applicable): | | |
| General Course Title:  **Computer Network Fundamentals** | | | Min. Units 3 |
| General Course Description:  This course introduces the architecture, structure, functions, components, and models of the Internet and other computer networks. Students achieve a basic understanding of how networks operate and how to build simple local area networks (LAN), perform basic configurations for routers and switches, implement Internet Protocol (IP) and enterprise technologies, including cloud and virtualization. Students will apply the knowledge and skills required to troubleshoot, configure, and manage common network devices; establish basic network connectivity; and implement network security, standards, and protocols. Preparation for the CompTIA Network+ certification exam. | | | |
| Proposed Number: ITIS 150 | Proposed Suffix: | | |
| Required Prerequisites: None. | | | |
| Required Co-Requisites[[1]](#footnote-1): None. | | | |
| Advisories/Recommended Preparation[[2]](#footnote-2):  None. | | | |
| Course Content:   1. Networking Concepts 2. Network Operations    1. Protocols and Models    2. Physical Layer    3. Number Systems    4. Data Link Layer    5. Ethernet Switching 3. Network Layer    1. Address Resolution    2. Internet Protocol version 4 (IPv4) Addressing    3. Internet Protocol version 6 (IPv6) Addressing    4. Internet Control Message Protocol (ICMP) 4. Transport Layer 5. Application Layer 6. Network Troubleshooting and Tools 7. Network Security Fundamentals | | | |
| Course Objectives: *At the conclusion of this course, the student should be able to:*   1. Configure switches and end devices to provide access to local and remote network resources. 2. Explain how physical and data link layer protocols support the operation of Ethernet in a switched network. 3. Configure routers to enable end-to-end connectivity between remote devices. 4. Create IPv4 and IPv6 addressing schemes and verify network connectivity between devices. 5. Explain how the upper layers of the OSI model support network applications. 6. Configure a small network with security best practices. 7. Troubleshoot connectivity in a small network. | | | |
| Methods of Evaluation:  Evaluation will include hands-on projects and a combination of examinations, presentations, discussions, or problem-solving assignments. | | | |
| Sample Textbooks, Manuals, or Other Support Materials (do not include editions or publication dates):   * West, J., et al., Network+ Guide to Networks, Cengage * Tomsho, G., Guide to Networking Essentials, Cengage * Cisco Academy Program – Introduction to Networks Version 7, CCNA Academy Companion Guide, Cisco Press | | | |
| FDRG Lead Signature: Markus Geissler, PhD Date: 20Jan2021 | | | |
| [For Office Use Only] | | **Internal Tracking Number** | |
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1. Prerequisite or co-requisite course need to be validated at the CCC level in accordance with Title 5 regulations; co-requisites for CCCs are the linked courses that must be taken at the same time as the primary or target course. [↑](#footnote-ref-1)
2. Advisories or recommended preparation will not require validation but are recommendations to be considered by the student prior to enrolling. [↑](#footnote-ref-2)