**DESCRIPTOR: ITIS 151**

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| Discipline: Information Technology/ Information Systems | Proposed Sub-discipline (if applicable): | | |
| General Course Title:  **Switching, Routing and Wireless Essentials** | | | Min. Units 3 |
| General Course Description:  This second course in the Cisco Certified Networking Associate (CCNA) curriculum focuses on switching technologies and router operations that support small-to-medium business networks and includes Wireless Local Area Networks (WLANs) and security concepts. Students learn key switching and routing concepts. Students will perform basic network configuration and troubleshooting, identify and mitigate Local Area Network (LAN) security threats, and configure and secure a basic WLAN. | | | |
| Proposed Number: ITIS 151 | Proposed Suffix: | | |
| Required Prerequisites[[1]](#footnote-1): None. | | | |
| Required Co-Requisites: None. | | | |
| Advisories/Recommended Preparation[[2]](#footnote-2):  ITIS 150 - Computer Network Fundamentals | | | |
| Course Content:   1. Basic Device Configuration 2. Switching Concepts 3. Virtual Local Area Networks (VLANs) 4. Inter-VLAN Routing 5. Spanning Tree Protocol (STP) 6. EtherChannel 7. Dynamic Host Configuration Protocol version 4 (DHCPv4) 8. StateLess Address Auto Configuration (SLAAC) and DHCPv6 Concepts 9. First Hop Redundancy Protocol (FHRP) Concepts 10. LAN Security Concepts 11. Switch Security Configuration 12. WLAN Concepts 13. WLAN Configuration 14. Routing Concepts 15. Internet Protocol (IP) Static Routing 16. Troubleshoot Static and Default Routes | | | |
| Course Objectives: *At the conclusion of this course, the student should be able to:*   1. Configure VLANs and Inter-VLAN routing applying security best practices. 2. Troubleshoot inter-VLAN routing on Layer 3 devices. 3. Configure redundancy on a switched network using STP and EtherChannel. 4. Troubleshoot EtherChannel on switched networks. 5. Explain how to support available and reliable networks using dynamic addressing and first-hop redundancy protocols. 6. Configure dynamic address allocation in Internet Protocol version 6 (IPv6) networks. 7. Configure WLANs using a Wireless Controller (WLC) and Layer 2 (L2) security best practices. 8. Configure switch security to mitigate LAN attacks. 9. Configure IPv4 and IPv6 static routing on routers. | | | |
| 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):   * Cisco Academy Program, *Switching, Routing and Wireless Essentials CCNA Academy Companion Guide Version 7*, 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)