

# Louisiana Delta Community College

## Academic Affairs Master Syllabus

**Course Name:** INTERMEDIATE ROUTING AND SWITCHING

**Course Number:** INCT 2130

**Credit Lecture hours:** 2    **Credit Lab Hours:** 2    **Contact Hours:** 90

**Textbook, Author, and Publisher:** To be provided by College Campus

**Instructor Information:** To be provided by College Campus

**Class Location:** To be provided by College Campus

**Course Description:** This course help students develop an in-depth understanding of how switches operate and are implemented in the LAN environment for small and large networks. Beginning with a foundational overview of Ethernet, this course provides detailed explanations of LAN switch operation, VLAN implementation, Rapid Spanning Tree Protocol (RSTP), VLAN Trunking Protocol (VTP), Inter-VLAN routing, and wireless network operations. Students analyze, configure, verify, and troubleshoot VLANs, RSTP, VTP, and wireless networks. Campus network design and Layer 3 switching concepts are introduced.

**Prerequisites:** INTE 2120

**Co-requisites:** None

### Learning Outcomes:

On completion of this course, the student should be able to perform the following with a proficiency that complies with the minimum standard of industry:

1. Identify and correct common network problems at layers 1, 2, 3 and 7 using a layered model approach
2. Interpret network diagrams
3. Select the appropriate media, cables, ports, and connectors to connect switches to other network devices and hosts
4. Explain the technology and media access control method for Ethernet networks
5. Explain basic switching concepts and the operation of Cisco switches
6. Perform and verify initial switch configuration tasks including remote access management
7. Describe enhanced switching technologies (VTP, RSTP, VLAN, PVSTP, 802.1q)
8. Describe how VLANs create logically separate networks and the need for routing between them
9. Configure, verify and troubleshoot VLANs
10. Configure, verify, and troubleshoot trunking on Cisco switches
11. Configure, verify, and troubleshoot interVLAN routing

**Learning Outcomes continued:**

12. Configure, verify, and troubleshoot VTP
13. Configure, verify, and troubleshoot RSTP operation
14. Interpret the output of various show and debug commands to verify the operational status of a Cisco switched network
15. Verify network status and switch operation using basic utilities (ping, traceroute, telnet, SSH, arp, ipconfig), SHOW & DEBUG commands
16. Identify, prescribe, and resolve common switched network media issues, configuration issues, autonegotiation, and switch hardware failures
17. Manage Cisco IOS
18. Manage IOS configuration files (save, edit, upgrade, restore)
19. Describe standards associated with wireless media (IEEE WI-FI Alliance, ITU/FCC)
20. Identify and describe the purpose of the components in a small wireless network. (SSID, BSS, ESS)
21. Identify the basic parameters to configure on a wireless network to ensure that devices connect to the correct access point.
22. Compare and contrast wireless security features and capabilities of WPA security (open, WEP, WPA-1/2)
23. Identify common issues with implementing wireless networks. (Interference, Misconfiguration)

**Assessment Measures:** To be provided by the College Campus.

**Library Resource Center:**

The Delta Library and Learning Resource Center is committed to providing quality information and learning resources and services, including technology, in supporting the overall mission of Delta Community College and its commitment to lifelong learning.

**Special Accommodations:**

Louisiana Delta Community College complies with Section 504 of the Rehabilitation Act, as well as the Americans with Disabilities Act. Students with disabilities who attend the Monroe campus may make a request by contacting the Director of Counseling and Disability Services (See College Directory for contact information.) at the beginning of each semester. Reasonable accommodations will be attempted for students with documented disabilities. If an impairment is identified later in the semester, a non-retroactive accommodation plan will be developed. Students at satellite campuses should contact the Coordinator of Student Affairs at their particular campus.

**Title IX:**

Louisiana Delta Community College is committed to protecting the rights of students, which includes compliance with Title IX requirements. As such, the institution and members of our community will not tolerate the offenses of dating violence, domestic violence, sexual assault, and stalking. Students with Title IX concerns should contact the College's Title IX Coordinator (See College Directory for contact information.) Students are required to complete Sexual Assault Awareness and Prevention Online Training. Access to this online course will be sent out through the Delta email account.

**Student Code of Conduct:**

Louisiana Delta Community College encourages an environment of academic integrity and mutual respect. Students should read and follow both academic and behavioral expectations identified in the Code of Student Conduct that can be found online at [www.ladelta.edu](http://www.ladelta.edu). Students are expected to act with integrity, respect the rights of others, and conduct themselves in a professional manner. The Honor Code prohibits academic misconduct such as cheating, engaging in unauthorized collaboration, and plagiarism. Violations of the Code of Student Conduct may result in disciplinary action as provided in the Code. Incidents are reported through the online Student Conduct system.