Course Title – Cisco Exploration 3 – LAN Switching and Wireless
Course Prefix and Number – ITCC 2408
Department - Computer Science Division - Tech & Bus
Course Type: (check one)
☐ Academic General Education Course (from ACGM – but not in WCJC Core)
☐ Academic WCJC Core Course
☒ WECM course (This course is a Special Topics or Unique Needs Course: ☐ Y or ☒ N)

Semester Credit Hours # : Lecture hours#: Lab/other hours #: 4:3:3

Equated Pay hours for course – 4.5

Course Catalog Description – This course helps students develop an in-depth understanding of how switches operate and are implemented in the LAN environment for small and large networks. Detailed explanations of LAN switch operations, VLAN implementation, Rapid Spanning Tree Protocol (RSTP), VLAN Trunking Protocol (VTP), Inter-VLAN routing, and wireless network operations. Analyze, configure, verify, and troubleshoot VLANs, RSTP, VTP, and wireless networks. Campus network design and Layer 3 switching concepts are introduced.

Prerequisites/Corequisites - Grade of C or higher in ITCC 1401

Approvals – the contents of this document have been reviewed and are found to be accurate.

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<tr>
<th>Prepared by</th>
<th>Signature</th>
<th>Date</th>
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<tbody>
<tr>
<td>Donna Schilling</td>
<td></td>
<td>11/23/2009</td>
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<td>Department Head</td>
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<td>Stephanie Dees</td>
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<td>11/23/2009</td>
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<td>Division Chair</td>
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<td>Stephanie Dees</td>
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<td>11/23/2009</td>
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<td>Vice President of Instruction or Dean of Vocational Instruction</td>
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1. Topical Outline – Each offering of this course must include the following topics (be sure to include information regarding lab, practicum, clinical or other non lecture instruction):

- Identify and correct common network problems at layers 1, 2, 3, and 7 using a layered model approach
- Interpret network diagrams
- Select the appropriate media, cables, ports, and connectors to connect switches to other network devices and hosts
- Explain the technology and media access control method for Ethernet networks
- Explain basic switching concepts and the operation of Cisco switches
- Perform and verify initial switch configuration tasks including remote access management
- Describe enhanced switching technologies such as VLANs, VLAN Trunking Protocol (VTP), Rapid Spanning Tree Protocol (RSTP), Per VLAN Spanning Tree Protocol (PVSTP), and 802.1q
- Describe how VLANs create logically separate networks and how routing occurs between them
- Configure, verify, and troubleshoot VLANs, trunking on Cisco switches, interVLAN routing, VTP, and RSTP
- Interpret the output of various `show` and `debug` commands to verify the operational status of a Cisco switched network
- Verify network status and switch operation using basic utilities such as ping, traceroute, Telnet, Secure Shell (SSH), Address Resolution Protocol (ARP), and `ipconfig`, as well as the `show` and `debug` commands.
- Identify, prescribe, and resolve common switched network media issues, configuration issues, autonegotiation, and switch hardware failures
- Manage Cisco IOS® Software
- Manage Cisco IOS configuration files (save, edit, upgrade, and restore)
- Describe standards associated with wireless media, such as ( IEEE WI-FI Alliance, ITU/FCC) standards
- Identify and describe the purpose of the components in a small wireless network, such as Service Set Identification (SSID), Basic Service Set (BSS), and Extended Service Set (ESS)
- Identify basic configuration parameters on a wireless network to ensure that devices connect to the correct access points
- Compare and contrast Wi-Fi Protected Access (WPA) security features and capabilities of open, Wired Equivalent Privacy (WEP), and WPA-1/2 networks
- Describe common wireless-network implementation issues such as interference and misconfiguration
II. Course Learning Outcomes

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<tr>
<th>Course Learning Outcome</th>
<th>Method of Assessment</th>
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<tr>
<td>Describe, design, implement, and secure a physical network interconnection structure</td>
<td>Skills Final; 70% of students will achieve a score no less than “3” according to the ITCC 2408 skills final rubric</td>
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<td>Install, configure, monitor, maintain, and troubleshoot a network router operating system</td>
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III. Required Text(s), Optional Text(s) and/or Materials to be Supplied by Student.

No Required Text


IV. Suggested Course Maximum - 20

V. List any specific spatial or physical requirements beyond a typical classroom required to teach the course.
   Classroom: computer for each student. Lab equipment: Cisco routers, Cisco switches, CSU/DSU, Networking Cables and a minimum of one computer per student.

VI. Course Requirements/Grading System – Describe any course specific requirements such as research papers or reading assignments and the generalized grading format for the course

Module Tests, Lab Assignments, Homework Assignments, Comprehensive Final Exam and Comprehensive Skills Exam

Skill Exam 25%
Labs/Homework 29%
Module Tests 21%
Final Exam 25%

VII. Curriculum Checklist

☐ - Academic General Education Course (from ACGM – but not in WCJC Core)
   No additional documentation needed

☐ - Academic WCJC Core Course
   Attach the Core Curriculum Checklist, including the following:
   • Basic Intellectual Competencies
   • Perspectives
   • Exemplary Educational Objectives

☒ - WECM Courses
   If needed, revise the Program SCANS Matrix & Competencies Checklist.