Course Syllabus ITCC 2408

COURSE 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, CO-PREQUISITES and OTHER REQUIREMENTS:
ITCC 1401 Cisco Exploration 1 – Network Fundamentals

TEXTBOOKS and REQUIRED MATERIALS/RECOMMENDED READINGS:
Cisco Online Curriculum at http://cisco.netacad.net

No Textbooks Required - Optional Books Below:

LAN Switching and Wireless, CCNA Exploration Companion Guide
By Cisco Networking Academy.

LAN Switching and Wireless, CCNA Exploration Labs and Study Guide
By Cisco Networking Academy.

Required reading: Chapter 1 through Chapter 7

COURSE CONTENT:

Chapter 1: In this chapter, you will begin exploring the switched LAN architecture and some of the principles that are used to design a hierarchical network. You will learn about converged networks. You will also learn how to select the correct switch for a hierarchal network and which Cisco switches are best suited for each network layer. The activities and labs confirm and reinforce your learning.

Chapter 2: In this chapter, you will build upon the skills learned in CCNA Exploration 4.0: Network Fundamentals, reviewing and reinforcing these skills with in-depth practice activities. You will learn about some key malicious threats to switches and learn to enable a switch with a secure initial configuration.
Chapter 3: In this chapter, you will learn how to configure, manage, and troubleshoot VLANs and trunks. Network performance can be a factor in an organization’s productivity and its reputation for delivering as promised. One of the contributing technologies to excellent network performance is the separation of large broadcast domains into smaller ones with VLANs. Smaller broadcast domains limit the number of devices participating in broadcasts and allow devices to be separated into functional groupings, such as database services for an accounting department and high-speed data transfer for an engineering department.

Chapter 4: In this chapter, you will explore how you can use the VLAN Trunking Protocol (VTP) of Cisco Catalyst switches to simplify management of the VLAN database across multiple switches.

Chapter 5: In this chapter you will learn how spanning-tree protocol (STP) prevents loop issues in the network and how STP has evolved into a protocol that rapidly calculates which ports should be blocked so that a VLAN-based network is kept free of traffic loops.

Chapter 6: In this chapter, you will learn about inter-VLAN routing and how it is used to permit devices on separate VLANs to communicate. You will learn different methods for accomplishing inter-VLAN routing, and the advantages and disadvantages of each. You will also learn how different router interface configurations facilitate inter-VLAN routing. Finally, you will explore the potential issues faced when implementing inter-VLAN routing, and how to identify and correct them.

Chapter 7: In this chapter, you will learn how wireless local area networks (WLANs) offer businesses a flexible networking environment. You will learn the different wireless standards available today and the features that each standard offers. You will learn which hardware components are typically necessary in a wireless infrastructure, how WLANs operate, and how to secure them. Finally, you will learn how to configure a wireless access point and a wireless client.

STUDENT LEARNING OUTCOMES:

Identify and correct common network problems at layers 1, 2, 3, and 7 using a layered model approach; select the appropriate media, cables, ports, and connectors to connect switches to other devices and hosts; perform and verify initial switch configuration tasks including remote access management; configure, verify, and troubleshoot VLANs, VLAN Trunking, Inter-VLAN routing, VTP, and RSTP; verify network status and switch operation using basic utilities (ping, traceroute, telnet, SSH, arp, ipconfig); identify and describe the purpose of the components in a small wireless network (SSID, BSS, ESS); and identify the basic parameters to configure on a wireless network to ensure that devices connect to the correct point

PERFORMANCE OBJECTIVES:

STUDENTS WHO COMPLETE ROUTING PROTOCOLS AND CONCEPTS WILL BE ABLE TO PERFORM THE FOLLOWING FUNCTIONS:

1. Advanced examination of frames for troubleshooting purposes.
2. Advanced switch and router configuration and troubleshooting for VLANs.
3. Advanced switch configuration and troubleshooting for STP.
4. Advanced switch configuration and troubleshooting for VTP.
5. Advanced switch configuration and troubleshooting for switch security.
6. Advanced switch configuration and troubleshooting for trunking switches.
7. Basic and advanced use of Packet Tracer 4.1 for switch configuration and frame examination.
8. Basic configuration of a wireless access point.
9. Basic configuration of a wireless router.
10. Basic configuration of a wireless NIC.
11. Basic wireless LAN troubleshooting.
12. Basic wireless router security configuration and troubleshooting.

METHODS OF MEASUREMENT (grade requirements):

Each chapter is followed with an Exam given online by the Cisco Academy System. The exams are graded by Cisco and scores are given immediately. Labs and study guides will be considered as a part of your attendance. Cheating, texting, IMing, and idly surfing the web will not be tolerated.

<table>
<thead>
<tr>
<th>Online Chapter Exams</th>
<th>10%</th>
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<tbody>
<tr>
<td>Quizzes, Homework, etc</td>
<td>20%</td>
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<tr>
<td>Online Final Exam</td>
<td>25%</td>
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<tr>
<td>Skill-Based Final Exam</td>
<td>30%</td>
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<tr>
<td>Daily Grade &amp; Labs</td>
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<thead>
<tr>
<th>Semester Average</th>
<th>NVC Grade</th>
<th>Cisco Academy</th>
<th>Status – Advance to next Academy Level</th>
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<tbody>
<tr>
<td>90 – 100</td>
<td>A</td>
<td>A</td>
<td>Pass – Advance to the next level</td>
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<tr>
<td>80 – 89</td>
<td>B</td>
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<tr>
<td>70 – 79</td>
<td>C</td>
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<td>60 – 69</td>
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<td>F</td>
<td>Fail Cisco Academy – Retake current level</td>
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<td>Below 60</td>
<td>F</td>
<td>F</td>
<td>Fail NVC and Cisco Academy</td>
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**NOTE:** A successful Cisco Academy student will pass the Skills Based Final exam with an 80% or better. An opportunity to retake an alternate Skills Based Final Exam will be given, however, the grade for the second exam attempt will be reduced by 10% or 1 letter grade.
GRADE APPEALS PROCESS:

If a student has an objection to a grade received, the following is the process to dispute the grade and must be followed in this order:

1. Informal resolution with the instructor
2. Written appeal to the instructor
3. Written appeal to the department chair
4. Written appeal to the college committee

STUDENT RESPONSIBILITIES:

A. Attendance

Effective Spring Term 2010, student absences will be recorded from the first day the class meets. Regular and punctual attendance in all classes and laboratories, day and evening, is required. Students who are absent for any reason should always consult with their instructors. Course syllabi must provide specific information regarding attendance, including, for courses involving the internet, online activity that constitutes “attendance.” Also, both tardiness and early departure from class may be considered forms of absenteeism. In all cases, students will be held responsible for completion of course requirements covered in their absence. Additionally, it is the student’s responsibility to drop a course for nonattendance.

Course instructors establish policy with regard to attendance in their respective syllabi and may drop a student for excessive absences. Absences are considered excessive when more than 12.5 percent of the total contact hours of instruction in a semester, including lecture and lab, are missed. For example, in a three-credit-hour lecture class, students may be dropped after more than six contact hours of absences. In a four-credit-hour lecture/lab class, students may be dropped after more than eight contact hours of absences. Absences are counted regardless of whether they occur consecutively. In special programs with additional accreditation or certification standards, additional attendance requirements may be enforced but faculty must clearly explain these policies in their syllabi.

Students who stop attending class for any reason should contact the instructor and the college registrar to officially withdraw from the class. Students may be required to consult with an advisor or designee before dropping. Failure to officially withdraw may result in a failing grade for the course. It is the student’s responsibility to withdraw officially from a class by submitting a completed Withdrawal Form to the Admissions and Records Office.

ADDITIONAL INSTRUCTOR REQUIREMENTS:

COLLEGE POLICIES:

A. All of the Alamo Colleges are tobacco free.
B. Alamo Colleges DPS Emergency Phone Numbers:

   Emergency Phone   (210) 222-0911
   General Phone     (210) 485-0099
   Weather Phone     (210) 485-0189 (For information on college closures)

Disability Access Statement – In accordance with the Americans with Disabilities Act (ADA) and Section 504 of the Rehabilitation Act, it is the responsibility of the student to self-identify with the campus
Disability Services office. Only those students with appropriate documentation will receive a letter of accommodation from the Disability Services office. Instructors are required to follow only those accommodation and/or services outlined in the letter of accommodation. For further information, please contact the Disability Services office at (210) 486-4466 or visit the office located in the Cyprus Campus Center, Rm. 204. If you have specific needs, please discuss them privately with your instructor.

GENERAL DESCRIPTION OF THE SUBJECT MATTER OF EACH LECTURE OR DISCUSSION:

<table>
<thead>
<tr>
<th>Week</th>
<th>Chapters</th>
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<tbody>
<tr>
<td>1</td>
<td>Introduction, Ch 1 Lecture and Lab: Ch 2: Reading and Labs</td>
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<tr>
<td>2</td>
<td>Ch 2 Lecture &amp; labs Ch 3 Labs</td>
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<tr>
<td>3</td>
<td>Ch 3 Lecture &amp; labs Ch 4 Labs</td>
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<td>4</td>
<td>Ch 4 Lecture &amp; labs Ch 5 Labs</td>
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<td>5</td>
<td>Ch 5 Lecture &amp; labs Ch 6 Lecture &amp; Labs</td>
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<td>6</td>
<td>Ch 7 Lecture &amp; Labs</td>
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<tr>
<td>7</td>
<td>Skills Test Review &amp; Final Exam Review</td>
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<tr>
<td>8</td>
<td>Final Exam and Practical</td>
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