COURSE SYLLABUS

CISS153: LAN Switching and Wireless

Textbook: Cisco Academy Curriculum & Packet Tracer 5.2

Suggested:

- Networking Fundamentals, CCNA Exploration Companion Guide. ISBN-10:1-58713-208-7 (Cisco Press) Publication Date: 2008 (printed version of the online curriculum)
- CCNA Portable Command Reference by Cisco Press, 2008. ISBN: 1-158720-193-3

Course Description:
This course focuses on the Cisco layered network design model, which provides efficient management, expansion capabilities, and optimal network performance in modern converged networks. Ethernet switching processes and operation are reviewed and more advanced switching features and considerations are explored. Switch configuration, management, and VLANs are configured to achieve specific LAN operational requirements.

Course Objectives:

- Apply the Hierarchical Network Design Model and select appropriate switches for specific layers.
- Configure common switch features to support specific network operational requirements.
- Use VLANs to segment modern converged networks and control security access.
- Analyze and configure advanced switch features such as trunking, spanning-tree protocol, and inter-VLAN routing.
- Understand wireless LAN architecture, features, and security concerns and implement a secure WLAN using both consumer and commercial products.

Course Requirements: Students must have passed CISS 152/CCNA 2 or demonstrate equivalent course/work experience and have approval from Business Department for any waivers.

Grading Policy:

Module Exams	25%
Assignments\labs	40%
Skills Exams	20%
Final Exam	15%

Grading Scale:

A	90-100
B	80-89
C	70-79
D	60-69
F	0-59

Class Policies:

1. Module exams must be completed in class. The passing exam score on the Final Exam(s) is 70% to qualify for a discount voucher for CCNA testing from Cisco.

2. All assignments must be turned in on the date they are due. Please include your name, module, and assignment name in the email or in the header of the assignment.

3. For all packet tracer homework assignments, label the assignment with your name and the title of the assignment (i.e. P.T. 1.5.1). In addition, take a screen shot showing 100% completion if it is an activity that shows completion. If for some reason the activity does not show 100% completion due to a bug or glitch, then show that the activity works with a screen shot and turn that in instead. If it is an activity that does not show completion % take screen shot(s) proving that the P.T. lab works properly and turn that in for credit.

4. Failure to complete any graded assignment, lab, or exam will result in 0 credit.

5. All assignments and labs are to be turned in on time. If they are turned in late the grade is subject to a 15% reduction in points per calendar day.

6. All written work is to follow APA or MLA standards for research documentation and formatting.

7. Cheating is strictly prohibited and will result in a penalty of an F grade and/or expulsion from the course and possibly the program. If you obtain information and/or articles from the Internet and copy and paste the material you must properly document sources and give the original author credit using acceptable APA or MLA standards. Plagiarism will not be tolerated. All work is to be completed by you in good faith with proper research methods followed.

8. You are expected to read all lesson materials prior to the class that we will be discussing the associated lesson.

Changes to this course schedule/syllabus may be made in order to insure the academic integrity of the course and learning outcomes.

General Course Outline:

Week	Topics	Assignments/Labs
1	**CCNA 3: Chapter 1 LAN Design** -Describe how a hierarchical network supports modern business needs. -Describe the functions of each of the three levels of the hierarchical network design model, principles of hierarchical network design, and the concept of a converged network. -Provide examples of how voice and video over IP affect network design. -Select appropriate devices to operate at each layer. -Match the appropriate Cisco switch to each layer.	Case Study: Green Networks Inc. Lab 1.3.2 Concepts Review Challenge Lab 1.3.3 Troubleshooting a Small Network P.T. 1.2.4 Build a Hierarchical Topology P.T. 1.3.2 Concepts Review Challenge P.T. 1.3.3 Troubleshooting a Small Network Ch. 1 Practice Test Questions (graded)
2	**CCNA 3: Basic Switch Concepts and Configuration** -Summarize the operation of Ethernet LANs as defined in IEEE 802.3 standards. -Explain the functions that enable a switch to forward Ethernet frames in a LAN. -Configure a switch for operation in a network designed to support voice, video, and data transmissions. -Configure basic security on a switch that will operate in a network designed to support voice, video, and data.	**Test Ch. 1-LAN Design** Case Study: Green Networks Inc. Lab 2.5.1 Basic Switch Configuration Lab 2.5.2 Managing Switch OS and Config. P.T. 2.3.8 Basic Switch Management P.T. 2.4.7 Securing Unused Ports P.T. 2.5.1 Basic Switch Configuration P.T. 2.6.1 P.T. Skills Integration Challenge Ch. 2 Practice Test Questions (graded)

3	**CCNA 3: Virtual LANs** -Explain the role of VLANs in a network. -Explain the role of trunking VLANs in a network. -Configure VLANs on the switches in a network topology -Troubleshoot the common software or hardware configuration problems associated with VLANs.	**Test Ch. 2-Switch Functionality** Case Study: Ajax Enterprise Lab 3.5.1 Basic VLAN Configuration Lab 3.5.2 Challenge VLAN Configuration Lab 3.5.3 Troubleshooting VLAN… P.T. 3.1.4 Controlling Broadcast Domains… P.T. 3.2.3 Trunking Modes P.T. 3.3.4 Configure a Trunk P.T. 3.4.2 Common Problems with VLANs.. P.T. 3.5.1 Basic VLAN Configuration P.T. 3.5.2 Challenge VLAN Configuration P.T. 3.5.3 Troubleshooting VLANs P.T. 3.6.1 Skills Integration Challenge Ch. 3 Practice Test Questions (graded)
4	**CCNA 3: VLAN Trunking Protocol** -Explain the role of VTP in a converged network. -Describe the operation of VTP including domains, modes, advertisements, and pruning. -Configure VTP on the switches in a converged network.	**Test Ch. 3 VLANs** Case Study: Ajax Enterprise Complete VTP Operation Testlet 4.2.5 P.T. 4.3.3 Managing VLANs on a VTP server P.T. 4.4.1 Basic VTP Configuration P.T. 4.4.3 Troubleshooting VTP Config. P.T. 4.4.2 VTP Configuration Challenge P.T. 4.5.1 Skills Integration Challenge Lab 4.4.1 Basic VTP Configuration Lab 4.4.2 VTP Configuration Challenge Lab 4.4.3 Troubleshooting VTP Config. Ch. 4 Practice Test Questions (graded)
Week	**Topics**	**Assignments/Labs**
5	**CCNA 3: Spanning Tree Protocol** - Explain the role of redundancy in a converged network. -Summarize how STP works to eliminate layer 2 loops. -Explain how the STP algorithm uses three steps to converge on a loop-free topology. -Implement rapid PVST+ in a LAN to prevent loops between redundant switches.	**Test Ch. 4 VTP** Case Study: Ajax Enterprise P.T. 5.1.3 Real-world Redundancy Issues P.T. 5.2.5 STP Port States and BPDU Timers P.T. 5.5.2 Challenge STP P.T. 5.5.3 Troubleshooting STP P.T. 5.6.1 Skills Integration Challenge Lab 5.5.1: Basic Spanning Tree Protocol Lab 5.5.2: Challenge STP Lab 5.5.3: Troubleshooting STP Ch. 5 Practice Test Questions (graded)
6	**CCNA 3: Inter-VLAN Routing** -Explain how network traffic is routed between VLANs in a converged network. -Configure inter-VLAN on a router to enable communication between end-user devices on separate VLANs. -Troubleshoot common inter-VLAN connectivity issues.	**Test Ch. 5 STP** Case Study: RapidTrans P.T. 6.2.2.4 Configure Traditional Inter-VLAN routing P.T. 6.2.2.5 Configure Router on a Stick P.T. 6.3.3 Troubleshoot Inter-VLAN Routing P.T. 6.4.1 Basic Inter-VLAN Routing P.T. 6.4.2 Challenge Inter-VLAN Routing P.T. 6.4.3 Troubleshooting Inter-VLAN Routing P.T. 6.5.1 Skills Integration Challenge Lab 6.4.1 Basic Inter-VLAN Routing

		Lab 6.4.2 Challenge Inter-VLAN Routing Lab 6.4.3 Troubleshooting Inter-VLAN Routing Ch. 6 Practice Test Questions (graded)
7	**CCNA 3: Basic Wireless Concepts and Configuration** -Describe the components and basic operation of wireless LANs. -Describe the components and operations of basic WLAN security. -Configure and verify basic wireless LAN access. -Troubleshoot wireless client access.	**Test Ch. 6 Inter-VLAN Routing** Case Study: Red Enterprise Technologies P.T. 7.3.2 Configuring a Wireless NIC P.T. 7.5.2 Challenge Wireless Configuration P.T. 7.5.3 Troubleshooting Wireless Config. P.T. 7.6.1 Skills Integration Challenge Lab 7.5.1 Basic Wireless Configuration Lab 7.5.2 Challenge Wireless Configuration Ch. 7 Practice Test Questions (graded) **Test Ch. 7 taken remotely during week** **Practice Final Exam during week**
8	**CCNA 3: Review-Final/Skills Exams**	**Cisco online Final Exam** **Cisco Skills Exam**