

JOLIET JUNIOR COLLEGE
DEPARTMENT OF COMPUTER INFORMATION
AND OFFICE SYSTEMS

COURSE SYLLABUS

Course Prefix and Number	CNT 103
Course Title	LAN Switching/Wireless Communication
Curriculum	Computer Information Systems
Semester Hours	4
Lecture	4
Lab	0
Prerequisites	CNT 102 with a grade of C or better

Catalog Description

This course is the third of four classes approved by Cisco Systems Inc., which prepares students for the Cisco Certified Network Associate (CCNA) exam. Course covers the principles of hierarchical network design to include: aggregate connectivity, network diameter, and redundancy. Topics include: rapid PVST, Spanning Tree Protocol, Virtual LAN, Virtual Trunking Protocol including domains, modes, advertisements, and pruning and basic operation of wireless LANs.

Course Objectives: See attached

Prepared by:

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4/00

Revised 2/09
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Revised 7/05
Revised 2/03
Revised 8/01
Updated 12/00

Ram Raghuraman
Department Chairperson

Date

STUDENT MATERIALS

A. Textbook:

OPTIONAL

Title: LAN Switching and Wireless, CCNA Exploration Companion Guide

Author: Lewis

Publisher: Cisco Press Prentice Hall

B. Other Required Materials

Student Evaluation (Type of Grading)

Configuring switches & routers, configuring IGRP, access list. Maintain a journal, online exams and an online final.

Week	Unit, Topic, Class Activity (Indicate approximate time allotment for each topic/unit)	Comments
1-2	<p>Describe how a hierarchical network supports the voice, video, and data needs of a small- or medium-sized business.</p> <p>Describe the functions of each of the three levels of the hierarchical network design model, the principles of hierarchical network design (aggregate connectivity, network diameter, and redundancy), and the concept of a converged network.</p> <p>Provide examples of how voice and video over IP affect network design.</p> <p>Select appropriate devices to operate at each level of the hierarchy, including voice and video components.</p> <p>Match the appropriate Cisco switch to each layer in the hierarchical network design model.</p>	
3-4	<p>Summarize the operation of Ethernet as defined for 100/1000 Mbps LANs in the IEEE 802.3 standard.</p> <p>Explain the functions that enable a switch to forward Ethernet frames in a LAN.</p> <p>Configure a switch for operation in a network designed to support voice, video, and data transmissions.</p> <p>Configure basic security on a switch that will operate in a network designed to support voice, video, and data transmissions.</p>	
5-6	<p>Explain the role of VLANs in a network.</p> <p>Explain the role of trunking VLANs in a network.</p> <p>Configure VLANs on the switches in a network topology.</p> <p>Troubleshoot the common software or hardware configuration problems associated with VLANs on switches in a network topology.</p>	
7-8	<p>Explain the role of VTP in a converged switched network.</p> <p>Describe the operation of VTP including domains, modes, advertisements, and pruning.</p> <p>Configure VTP on the switches in a converged network.</p>	
9-10	<p>Explain the role of redundancy in a converged network.</p> <p>Summarize how STP works to eliminate Layer 2 loops in a converged network.</p> <p>Explain how the STP algorithm uses three steps to converge on a loop-free topology.</p> <p>Implement rapid PVST+ in a LAN to prevent loops between redundant switches.</p>	

11-12	<p>Explain how network traffic is routed between VLANs in a converged network.</p> <p>Configure inter-VLAN routing on a router to enable communication between end-user devices on separate VLANs.</p> <p>Troubleshoot common inter-VLAN connectivity issues.</p>	
13-14	<p>Describe the components and basic operation of wireless LANs.</p> <p>Describe the components and operations of basic WLAN security.</p>	
15	<p>Troubleshoot wireless client access.</p> <p>Configure and verify basic wireless LAN access.</p>	

OBJECTIVES

Upon completion of the course, the student will be able to:

1. Master Basic Content: LAN Switching, VLANs, LAN Design, IGRP, Access Lists, IPX.
2. Master Lab Skills: Sophisticated Router Configuration, Switch Configuration, Network Troubleshooting Skills.
3. Master Documentation Skills: Maintaining Engineering Journal.