Department:

Computer Support Technology

Course Description:

This course provides a comprehensive, theoretical, and practical approach to learning the technologies and protocols needed to design and implement a converged switched network. Students learn about the hierarchical network design model and how to select services for each layer. The course explains how to configure a switch for basic functionality and how to implement Virtual Local Area Networks (VLANs), VLAN Trunking Protocol (VTP), and Inter-VLAN routing in a converged network. The different implementations of Spanning Tree Protocol in a converged network are presented as well as how to implement a Wireless Local Area Network (WLAN) in a small-to-medium network. This is the third class in a series of four offerings to prepare for the Cisco Certified Network Associate (CCNA) certification.

Course Competencies:

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

1. Describe the advantages of LAN segmentation
2. Describe LAN segmentation using bridges, routers and switches
3. Name and describe two switching methods
4. Describe full-duplex and half-duplex Ethernet operation
5. Describe network congestion problems in Ethernet networks
6. Describe the benefits of network segmentation with bridges, routers and switches
7. Describe the features and benefits of Fast Ethernet
8. Describe the guidelines and distance limitations of Fast Ethernet
9. Distinguish between cut-through and store-and-forward LAN switching
10. Describe the operation of the Spanning Tree Protocol and its benefits
11. Describe the benefits of virtual LANS
12. Identify the basic parameters to configure a wireless network
13. Identify common implementation issues of a wireless network

Course Content:

A. LAN Design
B. Basic Switch Concepts and Configuration
C. VLANs
D. VTP
E. Spanning Tree Protocol (STP)
F. Inter-VLAN Routing

Revision Date: 03/15/2012 Page 1 of 2
G. Basic Wireless Concepts and Configuration

Learning Assessments:

Competencies will be assessed by assignments, case problems, quizzes, chapter tests, hands-on projects, lab assignments, a mid-term exam, and a final exam. Exams may be in objective or problem solving format.

Instructional Materials:

CCNA3: Switching Basics & Intermediate Routing Internet access


Guidelines for Requesting Accommodations Based on Documented Disability or Medical Condition

It is the intention of Highland Community College to work toward full compliance with the Americans with Disabilities Act, to make instructional programs accessible to all people, and to provide reasonable accommodations according to the law.

Students should understand that it is their responsibility to self-identify their need(s) for accommodation and that they must provide current, comprehensive diagnosis of a specific disability or medical condition from a qualified professional in order to receive services. Documentation must include specific recommendations for accommodation(s). Documentation should be provided in a timely manner prior to or early in the semester so that the requested accommodation can be considered and, if warranted, arranged.

On-Campus Students: At enrollment, any on campus student may complete a form that will allow them to self-identify any disability.

Off-Campus Regional Students: Self-identify your disability and accommodation needs with the Regional Coordinator and/or instructor, preferably prior to the first class meeting.

Online Students: Self-identify your disability and accommodation needs by contacting the Disabilities Coordinator. Students must provide their own programs to allow accessibility on their home computer.

Any student may also identify their disability by completing an online form located on the HCC homepage under Students Services/Resources/Disabilities. Questions should be directed to the Disabilities Coordinator.