Department:

Computer Support Technology

Course Description:

This course is designed to provide a comprehensive understanding of how to design and implement Local Area Networks (LANs) and Wide Area Networks (WANs). The focus will be on the equipment and technologies used in LANs and WANs. This course covers the features and functions of these devices as well as the circumstances under which each device can be implemented. Cabling standards and appropriate design parameters for various types of media and topologies are included. This course introduces wireless technologies and a variety of high-speed Internet access options. The challenges involved in creating a network design that meets the needs of the users of today's LANs and WANs will be discussed. The course will feature hands-on projects and case projects that provide experience in using tools involved in network design and implementation. This is the fourth 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 impact of applications (Voice Over IP and Video Over IP) on a network
2. Configure, verify, and troubleshoot Dynamic Host Configuration Protocol (DHCP) and Domain Naming Service (DNS) operation on a router
3. Verify, monitor, and troubleshoot Access Control Lists (ACLs) in a network environment
4. Configure and verify a basic WAN serial connection, a Point to Point Protocol (PPP) connection between Cisco routers, and Frame Relay on Cisco routers
5. Troubleshoot WAN implementation issues

Course Content:

A. Introduction to WANs
B. Point-to Point Protocol (PPP)
C. Frame Relay
D. Network Security
E. Access Control Lists (ACLs)
F. Teleworker Services
G. Internet Protocol (IP) Addressing Services
H. Network Troubleshooting
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:

CCNA4: WAN Technologies online curriculum 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.