Department:

Computer Support Technology

Course Description:

This course introduces the architecture, structure, functions, components, and models of the Internet and other computer networks. It uses the Open System Interconnection (OSI) and Transmission Control Protocol (TCP) layered models to examine the nature and roles of protocols and services at the application, network, data link, and physical layers. The principles and structure of Internet Protocol (IP) addressing and the fundamentals of Ethernet concepts, media, and operations are introduced to provide a foundation for the curriculum. Labs use a “model Internet” to allow students to analyze real data without affecting production networks. Packet Tracer (PT) activities help students analyze protocol and network operation and build small networks in a simulated environment. This is the first 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. Identify the seven layers of the OSI model and explain functions of each layer
2. Define network architectures and demonstrate an understanding of popular architectures
3. Identify network devices and explain the purpose of each
4. Identify various communication media and cable connectors
5. Build, configure, and maintain a client server and peer-to-peer network
6. Identify and configure network standards and protocols

Course Content:

A. Living in a Network-Centric World
B. Communication over the Network
C. Application Layer Functionality and Protocols
D. OSI Transport Layer
E. OSI Network Layer
F. Addressing the Network – Ipv4
G. Data Link Layer
H. OSI Physical Layer
I. Ethernet
J. Planning and Cabling Networks
K. Configuring and Testing Your Network
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:

CCNA 1: Network Fundamentals 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.