



CIS 2152

Division: Career and Technical Education

Department: Computer Information Systems

Course: CIS 2152

Title: Cisco Internetworking I & II

Catalog Description:

This course presents network concepts, including hardware, software, topologies, network management, and problem diagnosis. Additional topics include stratified load forecasting and the critical evaluation of the effectiveness of alternative network topologies. CIS 215L Cisco Internetworking Lab 1 must be taken concurrently with this course.

General Education Requirements: N/A

Semesters Offered: TBA

Credit/Time Requirement: Credit: 3; Lecture: 3; Lab: 0

Clock/Hour Requirements: 45

Offered for Non-Credit: No

Prerequisites: CIS 1140 or equivalent industry certification

Corequisites: CIS 215L

Justification:

This course has been approved by the program advisory committee. This is the first of two courses which will prepare a student to take the Cisco Certified Network Associate (CCNA) certification exam.

Student Learning Outcomes:

Upon successful completion of this course, students will be able to:

- identify and describe the functions of each of the seven layers of the OSI reference model
- describe data link and network addresses and identify key differences between them
- define and describe the function of a MAC address
- list the key Internetworking functions of the OSI network layer
- identify at least three reasons why the industry uses a layered model
- describe the two parts of network addressing, identify the parts, and specific protocol address examples
- identify the functions of each layer of the ISO/OSI reference model
- define and explain the 5 conversion steps of data encapsulation
- describe the different classes of IP addresses and subnetting
- identify the functions of the TCP/IP network layer protocols
- examine router elements (RAM, ROM, CDP, show)
- describe connection oriented service and connectionless network service, and identify their key differences

- define flow control and describe the three basic methods used in networking
- identify the functions of the TCP/IP transport layer protocols
- manage configuration files from the privileged exec mode
- identify the functions performed by ICMP
- control router passwords, identification, and banner
- identify the main Cisco IOS software commands for router startup
- check an initial configuration using the setup command
- add RIP routing to your configuration
- configure IP addresses
- verify IP addresses.

Content:

Course objectives will be accomplished by providing students with learning experiences in the following subject areas:

- PC hardware and software
- networking
- layered communications
- WANs
- routing
- using the router
- router components
- router startup and setup
- router configuration
- IOS
- TCP/IP
- routing protocols.

General Education Outcomes:

1) Read effectively, constructively, and critically.

Students will be required to read from the assigned text, reference manuals, and industry journals to retrieve, analyze, and synthesize information into design, repair, and troubleshooting situations.

2) Write clearly, informatively, and persuasively.

Students are required to write response papers on current topics in the IT industry. These papers are reviewed and returned to students for improvement.

4) Retrieve, evaluate, interpret, and deliver information through a variety of traditional and electronic media.

Students will research technical issues through the internet, industry journals, and reference manuals.

5) Apply a cultural and historical awareness to a variety of phenomena.

Students will be aware of the changing nature of the computer field and how it impacts use of dated software with newer and older hardware. An awareness of the history and development of computers is a must for professional preparation.

6) Apply computational skills to a variety of contexts.

Students will be required to utilize the binary, hexadecimal, and base-10 numbering systems in situations such as network addressing and screen display colors.

Key Performance Indicators:

In class:

- Student grades will be based on a combination of lab exercises (5-25%), quizzes (5-25%), tests (10-50%), and a final exam or project (20-50%).

Following class:

- Post evaluation will be measured by subsequent classes and successful completion of the CCNA certification exam.

Representative Text and/or Supplies:

- *Cisco Networking Academy: First Year Companion*, current edition, Cisco Press.
- *Cisco Networking Academy Online Curriculum*, (locally hosted URL).

Optimum Class Size: 12

Maximum Class Size: 16

Signatures:

I hereby submit this course syllabus:

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I hereby find this course consistent with the goals and resources of the Computer Information Systems Department:

Michael P. Medley, MBA, Assistant Professor, Chair

I hereby find this course consistent with the goals and resources of the Career and Technical Education Division:

Michael P. Medley, MBA, Assistant Professor, Dean

I have discussed the need for library resources related to this class with the person submitting the syllabus:

Lynn Anderson, MLIS, Technical Services Librarian (Main Campus)

Michelle Olsen, MLS, Campus Librarian (Richfield Campus)