A. Protocol

Course Name: CISCO CCNA 2
Course Number: CIS 342
Credits: 4 (2 hours lecture, 3 hours lab)
Prerequisites: CIS 341 with a C- or better
Maximum Class Size (face-to-face): 24
Maximum Class Size (online): 35
*Justification for online class size is due to the highly-technical nature of the course.

B. Objectives of the Course:
Upon completion of this course the student will be able to:

a. Design and configure a network making use of PCs, routers and switches.
b. Compare and contrast dynamic and static routes.
c. Compare and contrast RIP and EIGRP routing protocols.
d. Troubleshoot common network problems.

C. Catalog Description:

This course is designed for the Information Systems major. It is the second in a series of four CCNA (CISCO Certified Networking Associate) courses. It provides the student with a thorough understanding of the router basics involved in computer networking. Prerequisite: CIS 341 with a C- or better. Four credits.

D. Outline of the Course:
1) Routers
   a. Physical characteristics
   b. External connections
   c. Management port connections
   d. Console port connections
   e. Connecting to WAN interfaces
   f. Connecting to LAN interfaces
2) Router user interfaces
3) Starting a router
   a. Initial bootup
   b. Establishing a console connection
   c. Router login
   d. Keyboard help
   e. Command history
   f. Troubleshooting command line errors
   g. Displaying router information
4) Configuring a router
   a. Command modes
   b. Configuring a router name
   c. Configuring passwords
   d. Configuring a serial interface
   e. Configuring an Ethernet interface
   f. Interface descriptions
g. Login banners  
h. Message of the day banners  
i. Configuring host tables  
j. Backing up configuration files  
5) Discovering and connecting to neighbors  
a. Introduction to CDP  
b. Creating a network map of the environment  
6) Displaying information about remote devices  
a. Telnet  
b. Other connectivity tests  
c. Troubleshooting IP addressing issues  
7) Router boot sequence and verification  
8) Static routing  
a. Static route operation  
b. Configuring static routes  
c. Configuring default route forwarding  
d. Troubleshooting static route configuration  
9) Dynamic routing  
a. Autonomous systems  
b. Identifying classes of routing protocols  
c. Distance vector routing protocol features  
d. Link-state routing protocol features  
10) RIP  
a. Configuration  
b. Troubleshooting  
c. Load balancing  
d. Integrating static routes  
11) RIP version 2  
a. History of RIP  
b. Features  
c. Comparing version 1 and version 2  
d. Configuring RIP v2  
e. Troubleshooting RIP v2  
f. Default routes  
12) EIGRP  
13) EIGRP  
a. Features  
b. Metrics  
c. Routes  
d. Configuring  
e. Troubleshooting  
14) Examining a routing table  
15) Network testing and troubleshooting  
16) Link state routing protocol  
a. Features  
b. Maintaining routing information  
c. Routing algorithms  
d. Advantages  
e. Disadvantages  
f. Comparing distance vector and link-state routing  
17) OSPF  
a. Terminology  
b. Comparing OSPF with distance vector routing protocols  
c. Shortest path algorithm  
d. OSPF network types  
e. OSPF Hello protocol  
f. Steps in the operation of OSPF
g. Configuring OSPF
h. Propagating a default route

E. Teaching Methodology:

1) Traditional Classroom Methodology

This course will be taught using some lecture/discussion method followed with a majority of class time using hands-on lab activities on the presented concepts. Some cooperative group method will be employed during appropriate sections of the course.

2) Online Methodology

This course will be taught using a variety of methods including lecture videos, activities, group collaborative learning, and discussion boards.

Quality Matters™ Statement – The online course follows the standards of the Quality Matters™ rubric. An online homework system is required in this course.

F. Text

All material will be provided online via the CISCO Networking Academy Website (cisco.netacad.net).

G. Assessment Activities:

1) Traditional Classroom Assessment

Various assessment methods are used, at the discretion of the instructor, and can include exams, quizzes, tutorials, homework assignments, programs/projects/labs. An online homework submission system is used in this course.

2) Online Assessment

Various assessment methods are used, at the discretion of the instructor, and can include exams, quizzes, tutorials, homework assignments, programs/projects, wikis, online journals and labs. An online homework system is required in this course.

H. Accommodations for Students with Disabilities:

OSD
Revised December 2012

STUDENTS WITH DISABILITIES

Students with disabilities:

- Reserve the right to decide when to self-identify and when to request accommodations.

- Will register with the Office for Students with Disabilities (OSD) each semester to receive accommodations.

- Might be required to communicate with faculty for accommodations, which specifically involve the faculty.
• Will present the OSD Accommodation Approval Notice to faculty when requesting accommodations that involve the faculty.

Office for Students with Disabilities

Requests for approval for reasonable accommodations should be directed to the Office for Students with Disabilities (OSD). Approved accommodations will be recorded on the OSD Accommodation Approval notice and provided to the student. Students are expected to adhere to OSD procedures for self-identifying, providing documentation and requesting accommodations in a timely manner.

Contact Information:

- Location: Azorsky Building – Room 105
- Phone: (724) 938-5781
- Fax: (724) 938-4599
- Email: osdmail@calu.edu
- Web Site: www.calu.edu (search “disability”)

I. Supportive Instructional Materials, e.g. library materials, web sites, etc.

Library Materials:
Books located in the PILOT catalogs, library databases (Ebscohost, CIOS, Proquest, Lexis-Nexis) which include books, journals, magazines, and newspapers. Examples of holdings at the Louis L. Manderino Library are:


Hayden, Matt, *Teach yourself networking in 24 hours* (Indianapolis, IN: Sams Pub. 1998)


A. Supportive Instructional Materials, e.g. library materials, web sites, etc.

Books located in the PILOT catalogs, library databases (Ebscohost, CIOS, Proquest, Lexis-Nexis) which include books, journals, magazines, and newspapers.
Information for Course Proposals

J. Proposed Instructors: Dr. Gina Boff, Dr. Gary DeLorenzo, Dr. Lisa Kovalchick, Dr. Tony Rodi or any other tenure-track CIS faculty from the Department of Mathematics, Computer Science and Information Systems.

K. Rationale for Course: Course already exists and being updated for Global Online delivery.

L. Specialized Equipment or Supplies Needed: None

M. Answer the following questions using complete sentences:

1. Does the course require additional human resources? No, the course is already being taught.

2. Does the course require additional physical resources? No. The current physical resources on campus can accommodate the teaching of this course.

3. Does the course change the requirements in any particular major? No.

4. Does the course replace an existing course? No, this course does not replace any existing courses.

5. How often will the course be taught? This course will be taught once every year.

6. Does the course duplicate an existing course in another Department or College? No.

7. What is the recommended maximum class size for this course? Recommended class size for this course is 35 for online sections, due to the highly-technical nature of the course.

N. If the proposed course includes substantial material that is traditionally taught in another discipline, you must request a statement of support from the department chair that houses that discipline. This course does not include substantial material from another discipline.

O. Please identify if you are proposing to have this course considered as a menu course for General Education. If yes, justify and demonstrate the reasons based on the categories for General Education. The General Education Committee must consider and approve the course proposal before consideration by the UCC. No; this course will not be offered on the GenEd menu.