

**RARITAN VALLEY COMMUNITY COLLEGE  
COMPUTER SCIENCE DEPARTMENT**

**CISY 272 – Advanced Cisco Networking – Part I**

**I. Basic Course Information**

- A. Course Number and Title: **CISY 272, *Advanced Cisco Networking – Part I***
- B. Date of Proposal or Revision: **November, 2006**
- C. Sponsoring Department: **Computer Science Department**
- D. Semester Credit Hours: **3**
- E. Weekly Contact Hours: **4 (2, 2)      Lecture 2 hours, Lab 2 hours**
- F. Prerequisite: **CISY-271, *Intermediate Cisco Networking***
- G. Laboratory Fees: **Yes**

**II. Catalog Description**

*Prerequisite: CISY-271, Intermediate Cisco Networking.* This course is the third of four 7 ½ week courses in a program called the *Cisco Networking Academy*, which is a partnership between RVCC and the Cisco Corporation. This third course covers Classless Routing Protocols, OSPF and EIGRP Routing Protocols, Switch Configuration, LAN switching, Virtual LAN's and VLAN trunking. Students will have hands on experience including Basic Router and Switch Configuration in a standalone Laboratory environment.

**III. Statement of Course Need**

In the rapidly developing field of data communications and internetworking, Cisco is the dominant vendor in the field. Cisco certification is recognized world-wide as a necessary for a sustained career in Network Design, Implementation, Management and Trouble Shooting. This course will help students learn the basic concepts of Networks and Open Network Standards, enabling them to progress to the next level on the path towards CCNA certification, Certified Cisco Networking Associate.

#### **IV. Place of Course in College Curriculum**

- Required for the *Computer Networking Certificate – Cisco Emphasis*
- CIS Elective
- Free Elective

#### **V. Outline of Course Content**

##### **Semester 3– Advanced Cisco Networking – Part I [Cisco CCNA Semester 3]**

Through a hands-on approach, students will learn the network protocols in depth, network standards and router programming using Cisco routers and IOS. The topics to be covered include:

1. Classless Routing
2. OSPF and EIGRP Routing Protocols
3. LAN Switching
4. LAN Design and Switches
5. Switch Configuration and Troubleshooting
6. VLAN's
7. VLAN Trunking Protocol

#### **VI. Education Goals and Learning Outcomes**

##### **Education Goals**

*At the completion of this course, students will be able to:*

1. Perform LAN and Router configurations that reflect critical and creative thought (G.E. 1)
2. Apply quantitative reasoning to interpret data used in solving computer networking problems (G.E. 7)

##### **Learning Outcomes**

*At the conclusion of the course, students will be able to:*

1. Describe and perform LAN switching operations
2. Describe and construct VLAN definitions in switches
3. Configure a Router with OSPF
4. Configure a Router with EIGRP
5. Demonstrate the ability to implement and use a variable length subnet marks in routers and switches
6. Describe how switches implement the Spanning Tree Protocol
7. Configure a Switch with VLAN Trunking Protocol

## **VII. Modes of Teaching and Learning**

Combinations of instructional techniques are utilized in the presentation of the Academy Program. Each topic is introduced by the Instructor using the traditional lecture. The major tutorial material has been developed by Cisco and is standard at any registered Cisco Academy. It is online and can be accessed by the student at RVCC and worked on *at his/her own pace*. Each unit includes an online quiz and examination. At the end of the semester, a final, online exam is given. The result of the final exam is recorded centrally by Cisco. Each student must pass a skills test for the semester in which he/she demonstrates a mastery of the material covered in the online tutorials as well as the hands-on Lab. Other exercises will be assigned at the discretion of the Instructor.

## **VIII. Papers, Examinations, and other Assessment Instruments**

- Exams on each major topic (9 in all). Exams are part of the online tutorial provided by the Cisco Networking Academy Program and therefore are standard across all Academies
- Laboratory Exercises – Assignments are part of the Academy Program and provide consistency in skill development across all Academies
- Skills Examination (successful configuration of Routers using OSPF, EIGRP, VLAN, VTP)
- Final Examination – used to assess the student’s mastery of the topics covered in the class. The Final Exam is a product of the Cisco Academy Program

## **IX. Grade Determinants**

1. Class Participation in Team Environments for Laboratory Exercises
2. Exams on each major topic
3. Laboratory Exercises
4. Skills Examination
5. Final Examination – students must pass the final examination in order to proceed to the final 7.5 week course in the series

## **X. Textbook: Suggestions**

- *Switching Basics and Intermediate Routing – CCNA 3 Companion Guide*, Lewis, Wayne, Cisco Press 2006, ISBN: 1-58713-170-6
- *Switching Basics and Intermediate Routing – CCNA 3 Labs and Study Guide*, Johnson, Allan, Cisco Press 2007, ISBN: 1-58713-171-4

## **XI. Resources**

- Access to General Purpose Computers with Internet Access
- Access to Cisco Routers and Switches as specified in the Academy Program
- Access to a Cisco Lab Environment, isolated from the RVCC Network