

**RARITAN VALLEY COMMUNITY COLLEGE
COMPUTER SCIENCE DEPARTMENT**

CISY 273 – Advanced Cisco Networking – Part II

I. Basic Course Information

- A. Course Number and Title: **CISY 273, *Advanced Cisco Networking – Part II***
- 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-272, *Advanced Cisco Networking – Part I***
- G. Laboratory Fees: **Yes**

II. Catalog Description

Prerequisite: CISY-272, Advanced Cisco Networking – Part I. This course is the fourth and final 7.5 week course in a program called the *Cisco Networking Academy*, which is a partnership between RVCC and the Cisco Corporation. This fourth course covers Wide Area Network Design considerations in-depth, PPP, ISDN, Frame Relay, and a final review of all four courses in preparation for students considering the CCNA exam. 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 equipment 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 4– Advanced Cisco Networking – Part II [Cisco CCNA Semester 4]

Through a hands-on approach, students will learn the network protocols in depth, network standards and router programming using Cisco routers and IOS. This is a continuation of Advanced Cisco Networking, Part I. The topics to be covered include:

1. WAN's and WAN design
2. Point to Point Protocol (PPP)
3. ISDN – Integrated Systems Digital Network
4. Frame Relay Packet Switched Network
5. Network Management – Advanced Topics
6. Comprehensive Review of all four semesters in preparation for the CCNA exam

VI. Education Goals and Learning Outcomes

Education Goals

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

1. Demonstrate knowledge of computer networking in designing networking solutions 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. Analyze various WAN design considerations and protocols
2. Describe and demonstrate the use of PPP
3. Configure a Router for use with Frame Relay and ISDN
4. Demonstrate the use of DHCP and NAT on routers
5. Describe how to scale networks using NAT and PAT

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 (7 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 (individual test on router configuration with subnetting, Access Lists and network problem determination and repair)
- 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 Environment for Laboratory Exercises
2. Exams on each major topic
3. Laboratory Exercises
4. Skills Examination
5. Final Examination

X. Textbook: Suggestions

- *WAN Technologies – CCNA 4 Companion Guide*, Reid, Allan, Cisco Press 2007, ISBN: 1-58713-172-2
- *WAN Technologies – CCNA 4 Labs and Study Guide*, Rullan, John, Cisco Press 2007, ISBN: 1-58713-173-0

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