RARITAN VALLEY COMMUNITY COLLEGE
ACADEMIC COURSE OUTLINE

CISY 273 – Connecting Networks

I.   Basic Course Information

A. Course Number and Title: **CISY 273, *Connecting Networks***

B. New or Modified Course: **Modified**

C. Date of Proposal or Revision: Semester: **Fall**   Year: **2013**

D. Sponsoring Department: **Computer Science Department**

E. Semester Credit Hours: **3**

F. Weekly Contact Hours: Lecture: **4 hours**
                           Laboratory: **4 hours**

G. Prerequisite: **A grade of C or better and a grade of 70% or better on the Final Exam in CISY-272*, Scaling Networks***

H. Laboratory Fees: **Yes, at current rate**

I. Department Chairperson: **Dr. Tom Edmunds;**
                             tedmunds@raritanval.edu

II.   Catalog Description

Prerequisite: A grade of C or better and a grade of 70% or better on the Final Exam in CISY-272, Scaling Networks. This course is the fourth and final 7½ 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, Frame Relay, VPNs, IPSec and a final review of all Cisco courses in the Academy Program in preparation for students considering the CCENT or CCNA exam. Students will have hands on experience including basic Router and Switch Configuration in a standalone Laboratory environment.

III.   Statement of Course Need

A. 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 advanced concepts of Wide Area Networks (WANs), Broadband networking solutions, securing networks and various network architectures used in WAN design.

B. This course does have a Laboratory component. The Laboratory equipment consists of the latest Cisco Routers and Switches which the students use to demonstrate their ability to construct networks and perform advanced router and switch configuration.

C. Most colleges do not accept this course as transferrable. Those that do only accept it as an Elective. However, a student who transfers into a Cisco Academy at another institution will receive credit for the fourth course in the CCNA Version 5.0 curriculum at the institution.

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

A. Free Elective
B. This course meets a program requirement for:
1. *Computer Networking Certificate – Cisco Emphasis*
2. *Computer Networking Certificate of Completion – Cisco Emphasis*
C. This course serves as a CIS Elective in the Computer Science List
D. Free Elective
E. To see course transferability: a) for New Jersey schools, go to the NJ Transfer website, www.njtransfer.org; b) for all other colleges and universities, go to their individual websites

V. **Outline of Course Content**

Semester 4– Connecting Networks [Cisco CCNA Semester 4]

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

1. WAN's and WAN design

2. Point to Point Protocol (PPP)

3. Operations of a VPN

4. Configuration and troubleshooting of Serial connections

5. Configuration and troubleshooting of IPSec tunneling operations

6. Network Architecture design

7. Comprehensive Review of all four semesters in preparation for the CCENT and CCNA exam

B. Labs will include the creation of small networks, the configuration of routers and switches and advanced, network design and troubleshooting using the equipment in the Lab and simulation software

VI. General Education and Course Learning Outcomes

A. General Education Learning Outcomes

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

1. Produce accurate, written Lab Reports in a clear and concise manner (GE-NJ 1)

B. Course Learning Outcomes

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

1. Describe different WAN technologies and their benefits
2. Describe the operational benefits of virtual private networks (VPN)
3. Configure and Troubleshoot serial connections
4. Configure and troubleshoot IPSec tunneling operations

VII. Modes of Teaching and Learning

A. Traditional lecture with Slide and Video Presentations
B. Self-learning through an online version of the curriculum delivered by Cisco
C. Laboratory Exercises on actual hardware (in small groups)
D. Laboratory Exercises using Simulation Software (individually)

VIII. Papers, Examinations, and other Assessment Instruments

A. Exams on each major topic (8 in all). Exams are part of the online tutorial provided by the Cisco Networking Academy Program and therefore are standard across all Academies
B. Laboratory Exercises – Assignments are part of the Academy Program and provide consistency in skill development across all Academies
C. Skills Examination (individual test on router configuration with subnetting, Access Lists and network problem determination and repair)
D. 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

    A. Major Topic Exams
    B. Laboratory Exercises
    C. Skills Examination
    D. Final Examination – students must pass the final examination with a 70% or higher

X.   Textbook: Suggestions

A. Suggested Textbook

Odom, Wendall *Cisco CCNA Routing and Switching 200-120 Official Cert Guide Library* Cisco Press 2013

(Please note: The course outline is intended only as a guide to course content and resources. Do not purchase textbooks based on this outline. The RVCC Bookstore is the sole resource for the most up-to-date information about textbooks.)

XI.   Resources

    A. Access to General Purpose Computers with Internet Access
    B. Access to Cisco Routers and Switches as specified in the Academy Program
    C. Access to a the Cisco Networking Academy Lab which can be isolated from the RVCC Network