RARITAN VALLEY COMMUNITY COLLEGE
ADADEMIC COURSE OUTLINE

NTWK 270 – CCNA 1 Introduction to Networks

I.   Basic Course Information

A. Course Number and Title: NTWK-270, CCNA 1 Introduction to Networks

B. New or Modified Course: Modified

C. Date of Proposal or Revision: Semester: Spring   Year: 2023

D. Effective Term   Fall 2023

E. Sponsoring Department: Mathematics & Computer Science

F. Semester Credit Hours: 3

G. Weekly Contact Hours: 4   Lecture: 2
                                                      Laboratory: 2
                                                      Out of class student work per week: 5

H. Prerequisite: None

I. Additional Fees: No

J. Name and Telephone Number or E-Mail Address of Department Chair and
      Divisional Dean at time of approval:
      Lori Austin – Lori.Austin@raritanval.edu (Chair),
      Sarah Imbriglio – Sarah.Imbriglio@raritanval.edu (Divisional Dean)

II.   Catalog Description

Prerequisite: None. This is the first course in a sequence of four 7½-week CCNA courses. The course is part of the Cisco Networking Academy Program 3-course CCNA series which is designed to prepare students for entry level networking jobs. The course will introduce architectures, models, protocols, and networking elements- functions needed to support the operations and priorities of Fortune 500 companies to small innovative retailers. Students will be able to build simple LANs, perform basic routers   and switches configuration, develop working knowledge of IP addressing schemes and foundational network security.

III. Statement of Course Need

A. In the rapidly developing field of data communications and internetworking, Cisco is the dominant vendor of Networking Equipment. Cisco certification is recognized world-wide as a necessity 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 and Protocols, enabling them to progress to the next level on the path towards Certified Cisco Networking Associate (CCNA) certification.

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 basic 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 first course in the CCNA Version 7.0 curriculum at that Institution.

IV. Place of Course in College Curriculum

A. Free Elective
B. This course meets a program requirement for the Computer Networking & Cybersecurity AAS and Certificate programs.
C. This course serves as a Computer Elective on the Computer and Programming Electives List
D. 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 the individual websites

V. Outline of Course Content

Course 1 – Introduction to Networks [Cisco CCNA 1 Semester]

A. Students are introduced to the basics of modern networking. They will examine the most popular versions of LANs and WANs and how they work. Students will learn the fundamentals of:

1. Networks and layered communication
2. The OSI Model
3. Configuring a Network Operating System, routers and switches
4. Network Protocols and their application
5. TCP/IP including IP addressing and subnet masking, and techniques for IPv4 subnetting

6. IPv6 addressing and configuration
7. Network Topologies with emphasis on Ethernet and Ethernet Switching

B. Labs will include the wiring of networking equipment to terminal blocks and patch panels, the testing of cables using Network Testing Devices, the configuration of workstations to run TCP/IP, IP subnetting exercises, and the use of PING and TRACEROUTE for network diagnostics. Some labs will be done using simulation software while others will be performed on actual hardware.

VI. A. Course Learning Outcomes:

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

1. Produce accurate, written Lab Reports in a clear and concise manner. (GE-1)
2. Build Simple LANs, perform basic configurations for routers and switches, and implement IPv4 and IPv6 addressing schemes.
3. Configure routers, switches. And end devices to provide access to local and remote network resources and to enable end-to-end connectivity between remote devices.
4. Develop critical thinking and problem-solving skills using real equipment and Cisco Packet Tracer.
5. Configure and troubleshoot connectivity a small network using security best practices.

B. Assessment Instruments

1. Exams on each major topic (11 in all). Exams are part of the online tutorial provided by the Cisco Networking Academy Program and therefore are standard across all Academies
2. Laboratory Exercises - Assignments are part of the Academy Program and provide consistency in skill development across all Academies
3. Skills Base Assessment- Lab exam using Lab simulation program Packet Tracer or on real physical equipment
4. 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

VII. Grade Determinants

A. Major Topic Exams
B. Skills Examination
C. Laboratory Exercises

D. Final Examination

Methods for teaching and learning that may be used in the course:

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. Texts and Materials

A. Suggested Textbook

CCNAv7 Introduction to Networks (ITN) Companion Guide, R. Graziani and A. Johnson, Cisco Press 2020

(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.)

IX. 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 the Cisco Networking Academy Lab in WTC120 which can be isolated from the RVCC Network

X. Honors Option

N/A