RARITAN VALLEY COMMUNITY COLLEGE
ACADEMIC COURSE OUTLINE

NTWK 272 – CCNA 3 Wireless and Routing Essentials

I. Basic Course Information

A. Course Number and Title: NTWK 272, CCNA 3 Wireless and Routing Essentials

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 hours
Laboratory: 2 hours
Out of class student work per week: 5 hours

H. ☒ Prerequisite: NTWK 271 CCNA 2 Switching and LAN Security Essentials

I. Additional Fees: None

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: NTWK 271 CCNA 2 Switching and LAN Security Essentials. This is the third 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 focuses on Wireless Local Area networks (WLAN) and routing concepts to support small-to medium business networks. Students will learn how to configure and troubleshoot wireless devices, dynamic routing protocol OSPF, static routes and Firewalls. In addition, switch and network security concepts will be explored.

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 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 third course in the CCNA Version 7.0 curriculum at the 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 in 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 their individual websites

V. Outline of Course Content

Course 3 – Wireless and Routing Essentials [Cisco CCNA 3 Semester]

A. Students will be able to design, implement, configure and troubleshoot WLANs and perform router and Firewall configurations to provide better security, increase performance and mitigate network attacks. Students will learn the followings:

1. Switch security configurations
2. Wireless concepts and configurations
3. Routing concepts and static routing
4. Troubleshoot static and default routes

5. OSPFv2 concepts and configurations
6. Network security and ACL concepts

B. Labs will include the designing, configuring, and troubleshooting of small networks using the equipment in the networking Lab or the simulation software Packet Tracer.

VI. A. Course Learning Outcomes

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

1. Produce accurate, written Lab Reports in a clear and concise manner. (GE-1)
2. Secure switches to prevent common LAN attacks
3. Build, configure and secure small WLANs.
4. Configure and troubleshoot static routes, default routes and OFPFv2.
5. Secure and troubleshoot routers and wireless Access point (APs.)
6. Implement network security concepts and configure Firewalls to mitigate network vulnerabilities.

B. Assessment Instruments

1. 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
2. Laboratory Exercises - Assignments are part of the Academy Program and provide consistency in skill development across all Academies
3. Skills Examination (successful configuration of Lab Routers using Multi-area OSPF and/or EIGRP and switches employing STP
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

CCNAv7 Switching, Routing, and Wireless Essentials (SRWE) Companion Guide, B. Vachon 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