

**RARITAN VALLEY COMMUNITY COLLEGE
COURSE OUTLINE**

NTWK 280 – CCNA Security

I. Basic Course Information

- A. Course number and Title: NTWK 280 – CCNA Security
- B. New or Modified Course: New
- C. Date of Proposal: Semester: Fall Year: 2018
- D. Effective Term: Fall 2019
- E. Sponsoring Department: Mathematics & Computer Science
- F. Semester Credit Hours: 3
- G. Weekly Contact Hours: Lecture: 2
Lab 2
Out of class student work per week: 5
- H. Prerequisites: NTWK 271- Routing and switching
Essentials or permission of the Instructor
- I. Laboratory Fees: Yes
- 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

(Prerequisites: NTWK 271-Routing and Switching Essentials or permission of the Instructor) The course is based on the industry performance-based Cisco Security Implementing Cisco Network Security (IINS) certification. Students will be able to design, implement, configure and troubleshoot VPNs, firewalls, IDS/IPSs, and other network devices to mitigate against network and host threats. It will verify the student understanding, implementation and verification of security best practices on Cisco hardware and software.

III. Statement of Course Need

- A.** Security is important, and the lack of it risks financial, legal, political, and public relations implications. Having the ability to design and implement secure networks is an essential skill required by a network engineer or an administrator. Cisco security technology implementations are the most widely deployed technology in the industry. Students will be able to design, implement, configure and troubleshoot VPNs, firewalls IDS/IPSs, and other network devices to mitigate against network and host threats. The course will prepare students with hands-on experience that prepares them for the industry-based CCNA security certificate.
- B.** This course does have a lab component. Students are expected to use computers in the lab to work with various operating systems. A regular Computer Lab is sufficient.
- C.** This course generally transfers as a Computer Science Elective.

IV. Place of Course in College Curriculum

- A.** Free Elective
- B.** This course meets a program requirement for:
 - a.** Computer Networking and Cybersecurity, AAS and Certificate programs
- C.** Computer Elective from the Computer and Programming Electives List
- D.** Course Transferability: for New Jersey schools go to the NJ Transfer website, www.njtransfer.org . For all other colleges and universities, go to their individual websites.

V. Outline of Course Content

This course addresses the following topics:

- A.** Security concepts and threats
- B.** AAA using IOS and ISE
- C.** Bring Your Own Device (BYOD)
- D.** VPN technology and cryptography
- E.** IP security
- F.** IPSec site-to-site VPNs
- G.** SSL remote-access VPNs using Cisco ASA
- H.** Securing Layer 2 technologies
- I.** Network Foundation Protection (NFP)
- J.** Securing the management, data and control planes

- K. Cisco firewall technologies
- L. Mitigation technologies for e-mail, web-based and endpoint threats

VI. General Educational and Course Learning Outcomes

A. General Education Learning Outcomes:

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

1. Analyze complex network threats and specify firewall and IPS features to mitigate the threats. (GE-NJ 4)

B. Course Learning Outcomes:

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

1. Identify and secure layer 2 common security threats
2. Implement AAA and zone-based firewalls in Cisco IOS
3. Describe the fundamentals of VPN technology and cryptography
4. Configure IPSec site-to-site VPNs and IDS/IPS
5. Implement SSL VPCs using Cisco ASA
6. Secure the management, control and data planes on Cisco IOS
7. Analyze and mitigate endpoint threats, email-based threats and web-based threats

C. Assessment Instruments:

1. Quizzes
2. Lab exercises
3. Homework Assignments
4. Research Projects
5. Exams

VII. Grade Determinants

- A. Individual homework and projects
- B. Class participation
- C. Quizzes
- D. Exams
- E. Final Exam

Modes of Teaching and Learning

- A. Lecture/Discussion
- B. Laboratory

VIII. Text and Materials

Suggested Textbook – *CCNA Security 210-260 Official Cert Guide*, Omar Santos, John Stuppi, Cisco Press, Pearson Education, Inc, 2017.

Cisco Academy Online e-book

(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. Computer Lab for classroom instruction and exercises
- B. Technology Support
 - a. Cisco Packet Tracer

X. Honors Option

N/A