RARITAN VALLEY COMMUNITY COLLEGE
ACADEMIC COURSE OUTLINE

NTWK 290 Ethical Hacking and Penetration Testing

I. Basic Course Information

A. Course Number and Title: NTWK 290 Ethical Hacking and Penetration Testing

B. New or Modified Course: Modified

C. Date of Proposal: Semester: Fall Year: 2024

D. Effective Term: Fall 2025

E. Sponsoring Department: Math & 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 (s): NTWK 271 CCNA 2 Switching and LAN Security Essentials or permission from the instructor

☐ Corequisite (s):

I. Additional Fees**:** None

II. Catalog Description

(Prerequisite/s: NTWK 271-CCNA 2 Switching and LAN Security or permission from the Instructor) The course is based on the industry performance-based EC-Council CEH certification. Students will acquire solid foundation and relevant hands-on experience in hacking and pen-testing. Students will learn the tools, technologies, methods, and skills needed to earn EC-Council's certified Ethical Hacker certification. Software packages such as Kali Linux will be used to attain the skills needed to become a professional ethical hacker

III. Statement of Course Need

A. Ethical hackers, or penetration testers, have been around for a long time, but because the increases in cybercrime and regulations over the last decade, they have become more popular than in the past. The realization is that finding weaknesses and deficiencies in systems and addressing the proactively is less costly than dealing with the fallout that comes after the fact. In response, organizations have sought to create their own penetration testing teams internally as well as contract with outside experts when and if they are needed.

B. This course does have 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 dependent on the institution.

IV. Place of Course in College Curriculum

A. Free Elective

B. This course serves as a program requirement in:
   a. Computer Networking and Cybersecurity A.A.S.
   b. Computer Networking and Cybersecurity Certificate

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 NJTransfer website, www.njtransfer.org; b) for other colleges and universities, go to the individual websites for those schools

V. Outline of Course Content

The outline for the course is below. This outline can be adapted by individual instructors according to the order in which they cover content.

A. Cryptography
B. Footprinting
C. Scanning
D. Enumeration
E. System Hacking
F. Malware
G. Sniffers
H. Social Engineering
I. Denial of Service
J. Session Hacking
K. Web Servers and Applications

L. SQL Injections
M. Hacking Wi-Fi and Bluetooth
N. Mobile Device Security
O. Evasion
P. Cloud Technologies and Security
Q. Physical Security

VI. A. Course Learning Outcomes

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

1. Analyze complex system requirements and specify Network Operating System and Cloud Computing features to meet them. (GE- 4*)
2. Analyze systems to gain information from a target (GE*)
3. Probe various services present on a given host
4. Use the information gained from footprinting, scanning, and earlier examinations to secure a network. (GE-4)
5. Describe the varieties of malware (GE-1)
6. Use packet sniffers to gather information that is flowing across the network.
7. Analyze attacks that are designed to temporarily or permanently shut down a target. (GE*)
8. Analyze disrupt and shut down wireless networks and mobile devices (GE-4*)
9. Describe how physical security can protect assets from being stolen, lost, or otherwise compromised. (GE-1)

A. 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

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

A. Lecture/Discussion

B. Laboratory

VIII. Texts and Materials

A. Suggested Textbook

Suggested Textbook – CEHv9 Certified Ethical Hacker Version 9 Study Guide, Sean-Phillip Oriyano, SYBEX, a Wiley Brand, 2016.

TestOut: TestOut Ethical Hacking Pro

(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. Oracle Virtual Box
    b. Software: Kali Linux

X. Check One: ☐Honors Course ☐Honors Options ☒ N/A