RARITAN VALLEY COMMUNITY COLLEGE
ACADEMIC COURSE OUTLINE

NTWK 250 Network Operating System and Cloud Computing

I. Basic Course Information

A. Course Number and Title: NTWK 250 Network Operating System and Cloud Computing

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):   CIST 103 Computer Concepts & Programming or
                           CIST 105 Foundations of Computer Science or
                           NTWK 119 Networking Essentials or
                           NTWK 270 CCNA 1 Introduction to Networks or
                           permission from the instructor

   ☐ Corequisite (s):

I. Additional Fees: None

II. Catalog Description

(Prerequisite/s: CIST-103 Computer Concepts & Programming or CIST-105, Foundations of Computer Science, or NTWK 119 Networking Essentials or NTWK 270 CCNA 1 Introduction to Networks or permission from the Instructor)
The course is primarily based on the industry performance-based Microsoft MCSA AZ-800 certification. It introduces students to Microsoft Server and Amazon AWS (Amazon Web Service). Students will attain relevant skills in Microsoft Server installation and configuration, Hyper-V, Active Directory, DNS, DHCP, Server storage, User and

computer accounts and Security. The course will also introduce students to Amazon AWS cloud computing services.

III. Statement of Course Need

A. Organizations are deploying in-house servers and/or use the cloud services to manage their everyday multiple data solutions. Skills with Network Operating Servers and cloud computing are essential to today's Network administrators. Students who understand how to install, configure, and secure in-house servers and manage cloud services will be better prepared for the real-world business environment. In addition, having an industry-based certificate will make students more employable.

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 Support Certificate
    c. Computer Networking and Cybersecurity Certificate
    d. Computer Programming 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. Server Installation, Upgrade and Migration
B. Server Configuration and Management
C. Server Storage
D. Hyper-V

E. Active Directory
F. Group Policy
G. DNS
H. File and Share Access
I. DHCP
J. Print and Document Services
K. High Availability
L. Amazon EC2 (Elastic Compute Cloud)
M. Amazon VPC (Virtual Private Cloud)
N. Amazon S3 (Simple Storage Service)
O. Amazon ELB (Elastic Load Balancing)
P. Amazon Autoscaling

VI. A. <u>Course Learning Outcomes</u>

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. Install and configure Network Operating servers (GE-4)
3. Administer active directory, network and file services (GE-4)
4. Implement DNS and DHCP and Hyper-V services (GE-4)
5. Setup AWS account and management console
6. Describe Amazon Elastic Compute Cloud, Virtual Private Cloud, Simple Storage Cloud, load balancing and Autoscaling (GE-1, 4)

A. <u>Assessment Instruments</u>

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 – *MCSA Windows Server 2016 Complete Study Guide*, William Panek, SYBEX, a Wiley Brand, 2016.

Supplemental Hand-out Documents on Amazon AWS

TestOut: TestOut Server Hybrid 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. 180-day free Microsoft server and desktop operating systems

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