RARITAN VALLEY COMMUNITY COLLEGE
ACADEMIC COURSE OUTLINE

UTIL-102 Overhead Line/Substation Technology II

I. Basic Course Information

A. Course Number and Title: UTIL-102 Overhead Line/Substation Technology II

B. New or Modified Course: MODIFIED

C. Date of Proposal: Semester: Fall Year: 2020

D. Effective Term: FALL 2021

E. Sponsoring Department: SCIENCE AND ENGINEERING

F. Semester Credit Hours: 5

G. Weekly Contact Hours: Lecture: 2
Directed Practice: 20 hours per week

H. Prerequisite: UTIL-101 Overhead Line /Substation Technology I

I. Laboratory Fees: NONE

J. Name and Telephone Number or E-Mail Address of Department Chair and Divisional Dean at time of approval:
Department Chair: Ed Carr, Edward.Carr@raritanval.edu
Divisional Dean: Sarah Imbriglio, sarah.imbriglio@raritanval.edu

II. Catalog Description

Prerequisite: UTIL-101 Overhead Line /Substation Technology I

This course is the second in a four part series and provides students supervised practical applications of electrical overhead line worker job duties in a setting under personal supervision of FirstEnergy personnel. Emphasis on skills required to perform work on secondary voltage circuits. Emphasis on the installation of services, street lighting, and secondary circuits, bucket truck familiarization and bucket rescue. Overview of distribution electrical systems, and Occupational Safety and Health Administration (OSHA) rules are also included. Based on Commercial Driver's License (CDL) training, some students may complete training and securement of Class "A" CDL. Safety topics include: Work Zone Traffic Control; Minimum

Approach Distances; Rubber Protective Equipment; and Knowledge of UD Excavation/Trenching/Shoring.

III. Statement of Course Need

A. UTIL 102- Overhead Line/Substation Technology II is taken the second semester of the first year. This course builds on the information gained from UTIL 101-Overhead Line/Substation Technology I and provides additional training in the next step of this program. Emphasis will be placed on the knowledge to safely and properly install three-phase primary conductors and the operation of transmission line installation equipment.

B. There is no lab component to this course.

C. This course is not designed for transfer.

IV. Place of Course in College Curriculum

A. This course meets a program requirement for the Electrical Utility Technology A.A.S.

B. 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

A. Ladders

B. Use and Operation of Tools and Equipment

C. Service Installation

D. Mobile Radio

E. Rescue Operations

F. Transformers

G. Cutouts

H. Underground

I. Streetlights

J. Grounds

K. Vehicles

L. CDL Training

M. Safety

VI. General Education and Course Learning Outcomes

A. General Education Learning Outcomes:

1. Communicate via mobile radio while following all F.C.C. and FirstEnergy Rules and Regulations. (NJ-GE1, NJ-GE4)
2. Demonstrate an understanding of the generation and distribution of electricity. (NJ-GE3)
3. Identify and demonstrate proper use of tools, and the skills necessary to obtain a Class "A" CDL driving license. (NJ-GE4)

B. Course Learning Outcomes:

1. Demonstrate proper pole top rescue.
2. Splice overhead service cable in preparation for service.
3. Splice conductors on ground with compression and automatic sleeves.
4. Demonstrate proper use of a continuity tester.
5. Identify a KWH meter number and read and record the meter reading.
6. Inspect, test, and set a three-wire and/or four-wire meter.
7. Check Rotation of Three-Phase Service.
8. Identify, locate, and repair a meter base problem.
9. Properly install and inspect current transformers.
10. Demonstrate how to temporarily restore service.

C. Assessment Instruments

A. Written Exams
B. Hands-on Assessment(s)
C. Observance of Safety Rules & Practices
D. Final Exam

VII. Grade Determinants

A. Written Exams
B. Hands-on Assessment(s)
C. Observance of Safety Rules & Practices
D. Final Exam

Primary formats, modes, and methods for teaching and learning that may be used in the course:

A. lecture/discussion
B. small group work
C. guest speakers
D. laboratory
E. student collaboration
F. demonstration

VIII. Texts and Materials

A. All materials will be provided by First Energy

IX. Resources

A. Each student will be required to provide their own Linemen boots and flame retardant apparel.