

SOUTHEAST COMMUNITY COLLEGE
ADVANCED TECHNOLOGIES AND SKILLED TRADES DIVISION
Utility Line Worker Program
Revision Date: November 2025

I. CATALOG DESCRIPTION

Course Number: UTIL 2200
Course Title: Distribution Systems
Prerequisite(s): UTIL 1901

Catalog Description: Integrated study and application of electrical distribution systems from the substation to the customer's service point. Emphasis on both the theory and practical operation of distribution equipment, including transformers, regulators, switches, and protective devices. Students will apply classroom concepts through hands-on field activities involving installation, maintenance, and troubleshooting of distribution components.

Credit Hours: 6.0
Class Hours: 45
Lab Hours: 135
Total Contact Hours: 180

II. COURSE OBJECTIVES: *Course will:*

- A. Integrate the theoretical principles and practical applications of electrical distribution systems from substations to customer service points.
- B. Develop an understanding of the operation, purpose, and interrelationships of key distribution components including transformers, meters, regulators, reclosers, and capacitors.
- C. Provide hands-on experience with the installation, maintenance, and troubleshooting of distribution equipment using industry-standard tools and procedures.
- D. Emphasize the importance of safety practices, equipment selection, and proper work methods in all phases of distribution system operation.
- E. Strengthen the student's ability to connect classroom theory with field performance through applied problem-solving and critical thinking.

III. STUDENT LEARNING OUTCOMES AND GENERAL EDUCATION LEARNING OUTCOMES

- A. Student Learning Outcomes:** *Student will be able to:*
- 1. Explain the theory, configuration, and operation of distribution transformers, and demonstrate the correct procedures for setting up, installing, and testing transformers in various configurations.
 - 2. Describe meter components, functions, and setup, and perform installation, removal, and troubleshooting of meters and associated systems.
 - 3. Identify major substation components and their functions within the distribution system, and apply safe work practices when installing, maintaining, and troubleshooting substation equipment.

4. Explain the operation and purpose of voltage regulators, and demonstrate the proper procedures for installing, changing out, and troubleshooting regulators while following safety requirements.
5. Describe the principles and operation of reclosers, and perform selection, sizing, installation, and replacement of reclosers as used in the utility field.
6. Explain the function and purpose of capacitors in distribution systems, and perform safe installation, removal, and replacement of capacitors and related equipment.

B. General Education Learning Outcomes

1. GELO #3: Critical Thinking and Problem Solving

- a. Outcome #1: Collect, identify, interpret, and analyze data.

IV. CONTENT/TOPICAL OUTLINE (*course outline may provide more detailed information*)

A. TBD

1.

V. INSTRUCTIONAL MATERIALS

A. Required Text(s): TBD

B. Other Resources:

1.

VI. METHODS OF PRESENTATION/INSTRUCTION

A. Methods of presentation typically include a combination of the following:

1.

VII. METHODS OF EVALUATION

A. Methods of evaluation typically include a combination of the following:

1. Participation
2. Daily Assignments
3. Written exams/quizzes
4. Lab performance

C. SCC STANDARD GRADING SCALE POLICY:

A+	95-100	C+	75-79	F	59 or less
A	90-94	C	70-74		
B+	85-89	D+	65-69		
B	80-84	D	60-64		

VIII. SPECIFIC COURSE REQUIREMENTS