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

I. CATALOG DESCRIPTION

Course Number: **UTIL 1010**
Course Title: Concepts of Electricity I
Prerequisite(s): None

Catalog Description: Introduction to the fundamentals of electrical theory and components in direct current (DC) circuits. Topics include resistive circuit analysis using Ohm's law, interpretation of circuit diagrams, and the proper operation of basic electrical test equipment. Laboratory activities emphasize the application of these concepts through demonstrations of resistive loads in DC circuits, safe and proper use of test instruments, adherence to electrical safety procedures, and accurate construction and testing of circuits from diagrams.

Credit Hours: 5.0
Class Hours: 60
Lab Hours: 45
Total Contact Hours: 105

II. COURSE OBJECTIVES: *Course will:*

A. Introduce the basic principles governing direct current (DC) electrical circuits.
B. Introduce the analysis of simple resistive circuits using Ohm's Law and related relationships.
C. Demonstrate the construction of electrical circuit diagrams using standard symbols and conventions.
D. Emphasize the safe and correct use of basic electrical test instruments to measure voltage, current, and resistance.
E. Promote proper laboratory practices and electrical safety procedures.
F. Apply theoretical concepts through hands-on activities that involve circuit assembly, measurement, and troubleshooting.

III. STUDENT LEARNING OUTCOMES AND GENERAL EDUCATION LEARNING OUTCOMES

A. Student Learning Outcomes**:** *Student will be able to:*

1. Apply Ohm's Law and the relationships among voltage, current, resistance, and power to analyze DC circuits.
2. Interpret circuit diagrams and construct corresponding DC circuits using resistive components.
3. Operate electrical test equipment (multimeters, power supplies, etc.) to measure voltage, current, and resistance accurately.
4. Demonstrate correct laboratory procedures and adhere to safety protocols when working with DC circuits.
5. Diagnose and correct common wiring or measurement errors in simple DC circuits.
6. Document circuit measurements and results using standard lab reporting formats and terminology.

B. General Education Learning Outcomes

1. GELO #5: Analytical, Quantitative, and Scientific Reasoning
    a. Outcome: Apply mathematical and scientific methods to solve problems from an array of contexts and everyday situations.

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

A. TBD

1.

V. INSTRUCTIONAL MATERIALS

TBD

(TEXTBOOK FORMAT: Author's Last Name, Author's First Name, and Initial (if used.) Second Author's First Name, Last Name, Book title, Edition, Publishing House, Date of Publication, ISBN)

A. Required Text(s):

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