



South Central College

HVAC 2000 Electrical Circuits

Course Outcome Summary

Course Information

Description	This is a introductory course designed to help students understand the relationships of electricity. Electrical units, terms, formulas, and electrical schematics are covered.
Total Credits	2
Total Hours	48

Types of Instruction

Instruction Type	Credits/Hours
Lecture	
Lab	

Institutional Core Competencies

Communication - Students will be able to demonstrate appropriate and effective interactions with others to achieve their personal, academic, and professional objectives.

Critical and Creative Thinking - Students will be able to demonstrate purposeful thinking with the goal of using a creative process for developing and building upon ideas and/or the goal of using a critical process for the analyzing and evaluating of ideas.

Course Competencies

1. Analyze Ohm's Law

Learning Objectives

Write the formulas for Ohm's Law
Identify what each letter stands for in the formula
Use Ohm's Law formulas to complete worksheets

2. Examine the terminology used in electrical circuits

Learning Objectives

Identify and match electrical terms
Use correct terminology when answering electrical questions

3. Identify electrical symbols for schematics

Learning Objectives

Sketch electrical schematic symbols

Differentiate between wiring schematics and pictorial schematics symbols
Design an electrical schematic using proper symbols
Select electrical components found in the HVAC/R lab and match to electrical symbols found on the wiring schematic

4. Develop an understanding of series and parallel circuits

Learning Objectives

Write the circuit facts for a series and parallel circuit
Explain the differences between series and parallel circuits
Complete series and parallel circuit worksheets
Hook-up series circuits using the electrical circuit test boards
Hook-up parallel circuits using the electrical circuit test boards

5. Compare the different types of capacitors and their function

Learning Objectives

Identify the types of capacitors and functions
Describe what makes up a capacitor
Describe the formula for wiring capacitors in either series or parallel
Connect capacitors in series then in parallel and measure the capacitance of each

6. Examine different types of transformers used in the HVAC/R field

Learning Objectives

Identify the types of transformers and their make-up
Complete worksheet on the different types of transformers
Build a electrical circuit using a step-down transformer

7. Demonstrate the proper methods of testing or troubleshooting electrical circuits

Learning Objectives

Design shop and classroom safety rules
Establish troubleshooting procedures
Respect electricity and HVAC/R equipment
Demonstrate wearing proper safety equipment while working in the lab
Use correct test equipment for the job
Ask before attempting a task if you are not sure

SCC Accessibility Statement

South Central College strives to make all learning experiences as accessible as possible. If you have a disability and need accommodations for access to this class, contact the Academic Support Center to request and discuss accommodations. North Mankato: Room B-132, (507) 389-7222; Faribault: Room A-116, (507) 332-7222.

Additional information and forms can be found at: www.southcentral.edu/disability

This material can be made available in alternative formats by contacting the Academic Support Center at 507-389-7222.