South Central College

HVAC 2000  Electrical Circuits

Course Outcome Summary

Course Information

Description
This is an 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
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](http://www.southcentral.edu/disability)

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