



South Central College

HVAC 2205 Coolers/Freezers Electrical Systems & Components

Course Outcome Summary

Course Information

Description	This course will cover both commercial coolers and freezers. The electrical components that are used in commercial coolers and freezers will be studied, analyzed, operated, and tested. A large portion of the class will be designated to the drawing and understanding of wiring schematics for the purpose of troubleshooting electrical failures. Proper safety and troubleshooting techniques will be followed. To be successful in this course, you should have knowledge in electrical circuits, refrigeration theory, and refrigeration controls.
Total Credits	3
Total Hours	64

Types of Instruction

Instruction Type	Credits/Hours
Classroom Presentation	2
On-Campus Lab	1

Pre/Corequisites

HVAC2120

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.

Cultural Competence - Students will be able to demonstrate an attitude of personal curiosity, a rising knowledge of cultures, and an evolving range of skills for living and working among others with other worldviews and ways of life.

Course Competencies

1. Examine the importance of following proper safety requirements.

Learning Objectives

Follow shop safety rules.
Identify situations that are unsafe.
Correct or repair systems that are unsafe.
Lock-out & Tag-out units.

2. Demonstrate the ability to use their multimeter for electrical troubleshooting.

Learning Objectives

Identify settings on their multimeter.
Describe steps for testing for resistance or continuity.
Communicate what tests can be performed with power on.

3. Examine power passing vs power consuming components.

Learning Objectives

Choose the power passing components on the wiring schematic.
Locate and test power consuming components on the refrigeration unit.
Communicate why power consuming components are wired in parallel.

4. Analyze components that are used to protect the system.

Learning Objectives

Identify components that protect the system during high ambient temperatures.
Identify components that protect the system during low ambient temperatures.
Identify components that protect the refrigeration sealed system.

5. Analyze the electrical symbols found on system schematics.

Learning Objectives

Using the electrical symbols locate the component on the refrigeration system.
Draw the electrical symbol for any component found on the refrigeration unit.

6. Examine causes of electrical failures.

Learning Objectives

Discuss condensing unit locations
List options for removing high ambient temperatures.
Discuss the proper way to make electrical connections.

7. Diagnose electrical system failures.

Learning Objectives

Troubleshoot electrical failures found in lab equipment.
Use the electrical schematic as a troubleshooting tool.
Complete the final troubleshooting exercise within 30 minutes.

8. Draw wiring schematics from lab equipment.

Learning Objectives

Convert pictorial diagram to wiring schematics.
Create a wiring schematic using components from walk-ins.

9. Examine the sequence of operation using the wiring schematics.

Learning Objectives

Identify primary controls.
Trace out the cooling circuit.
Trace out the defrost circuit.
Write out the S.O.P.

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.