South Central College

HVAC 2330  Alternative Heating System

Course Outcome Summary

Course Information

Description
This course covers a variety of alternative heating systems, some of the systems included will be oil heating systems, a variety of electrical heating systems, heat pump systems and alternative fuel sources will be discussed. Electrical and mechanical systems will be explored along with safety, troubleshooting and equipment performance.

Total Credits 2
Total Hours 48

Types of Instruction

Instruction Type Credits/Hours
Lecture
Lab

Pre/Corequisites

HVAC2000, HVAC2320, HVAC2240 or Instructor Approval.

Institutional Core Competencies

Civic Engagement and Social Responsibility - Students will be able to demonstrate the ability to engage in the social responsibilities expected of a community member.

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. Identify practices and procedures used to enhance safety for the technician and the home owner.
Learning Objectives
Review electrical shock hazards.
Outline the proper way of handling an oil fire inside a combustion chamber.
Recognize hazards of working with fuel oil.

2. **Examine the electrical systems.**
   Learning Objectives
   - Analyze low voltage circuitry.
   - Analyze High voltage circuitry.
   - Draw wiring schematics.
   - Test a cad cell.

3. **Summarize issues related to using fuel oil for heating.**
   Learning Objectives
   - Identify properties and characteristics of fuel oil.
   - Examine BTU firing rates.
   - Identify fuel supply systems.

4. **Examine the oil burner system.**
   Learning Objectives
   - Identify components on a fuel oil gun burner.
   - Examine high voltage ignition transformers.
   - Examine Primary control systems.
   - Perform a combustion analysis.

5. **Examine heat pump systems.**
   Learning Objectives
   - Compare standard air conditioning systems with heat pump systems.
   - Examine the four-way reversing valve.
   - Identify different types of metering devices.
   - Examine troubleshooting techniques when working on heat pumps.

6. **Investigate alternative fuels.**
   Learning Objectives
   - List other types of heating systems and the fuels they use.
   - Compare fuel costs.
   - Examine the environmental impact of many types of heating systems both traditional and alternative.

**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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