

COURSE SYLLABUS

LAST REVIEW	Fall 2022
COURSE TITLE	Cooling 1
COURSE NUMBER	HVAC 0226
DIVISION	Career and Technical Education
DEPARTMENT	HVAC
CIP CODE	47.0201
CREDIT HOURS	3
CONTACT HOURS/WEEK	Class: 1 Lab: 4
PREREQUISITES	HVAC 0100

COURSE DESCRIPTION

This course will cover the fundamentals of residential cooling. This will include comfort and psychometrics, residential refrigeration applied to air conditioning, and air distribution and balance.

PROGRAM ALIGNMENT

This course is part of a program aligned through the Kansas Board of Regents and Technical Education Authority. For more information, please visit:

https://kansasregents.org/workforce_development/program-alignment

PROGRAM LEARNING OUTCOMES

1. The student will be able to demonstrate the ability to perform HVAC procedures in a safe manner
2. The student will be able to classify the different needs of equipment and summarize a solution.
3. The student will be able to exhibit a high level of professionalism including appropriate dress, attendance, communication skills and other soft skills necessary.

TEXTBOOKS

<http://kckccbbookstore.com/>

METHODS OF INSTRUCTION

A variety of instructional methods may be used depending on content area. These include but are not limited to: lecture, multimedia, cooperative/collaborative learning, labs and demonstrations, projects and presentations, speeches, debates, panels, conferencing, performances, and learning experiences outside the classroom.

Methodology will be selected to best meet student needs.

COURSE OUTLINE

- I. Comfort and Psychometrics
 - A. Comfort.
 - B. Dry Bulb and Wet Bulb Temperatures.
 - C. Body Temperature
 - D. The Psychometric Chart.

- II. The Evaporator.
 - A. The A Coil.
 - B. The Slant Coil.
 - C. The H Coil.
 - D. Coil Circuits.

COURSE LEARNING OUTCOMES AND COMPETENCIES

Upon successful completion of this course, the student will:

- A. Demonstrate an understanding of the four factors involved in comfort.
 - 1. Explain the use of dry bulb temperature to evaluate the operation of an air-conditioning system.
 - 2. Explain the use of grains of moisture to evaluate the operation of an air-conditioning system.
 - 3. Explain the use of moisture in a pound of air to evaluate an air-conditioning system.

- B. Explain an understanding of psychometrics.
 - 4. Demonstrate using dry bulb, wet bulb, and ambient air to set the proper refrigerant charge in an air condition system.
 - 5. Demonstrate use of a wet bulb to determine humidity levels.
 - 6. Demonstrate use of a calibrated thermometer.
 - 7. Explain how humidity affects comfort levels.
 - 8. Explain how humidity affects indoor air quality (IAQ).

- C. Explain an understanding of dew point temperature.
 - 9. Explain using dew point to achieve the proper comfort level in an air conditioning system.

- D. Demonstrate three ways in which heat transfers into a structure.
 - 10. Demonstrate using conduction, convection, and radiation to find the heat loss of any structure.
 - 11. Define and describe measurement of heat loss by conduction.
 - 12. Define and describe measurement of heat loss by convection.
 - 13. Define and describe measurement of heat loss by radiation.
 - 14. Describe factors of heat loss such as casements and points of entry.

- E. Explain refrigeration as applied to air conditioning.
 - 15. Explain refrigerant-based methods of heat transfer.
 - 16. Explain the concept and use of the “place of no concern”.

- F. Recognize the different types of evaporator coils.
 - 17. Describe and recognize an A coil.
 - 18. Describe and recognize an H coil.
 - 19. Describe and recognize a slant coil.
 - 20. Describe and recognize a coil circuit.
 - 21. Describe the proper application of each style of coil.
 - 22. Describe the safety and efficiency of each type of coil.

ASSESSMENT OF COURSE LEARNING OUTCOMES AND COMPETENCIES

Student progress is evaluated through both formative and summative assessment methods. Specific details may be found in the instructor’s course information document.

COLLEGE POLICIES AND PROCEDURES

Student Handbook

<https://www.kckcc.edu/files/docs/student-resources/student-handbook-and-code-of-conduct.pdf>

College Catalog

<https://www.kckcc.edu/academics/catalog/index.html>

College Policies and Statements

<https://www.kckcc.edu/about/policies-statements/index.html>

Accessibility and Accommodations

<https://www.kckcc.edu/academics/resources/student-accessibility-support-services/index.html>.