DATE OF LAST REVIEW: 02/2013
CIP CODE: 47.0201
SEMESTER: Departmental Syllabus
COURSE TITLE: Cooling 2
COURSE NUMBER: HVAC0227
CREDIT HOURS: 3
INSTRUCTOR: Departmental Syllabus
OFFICE LOCATION: Departmental Syllabus
OFFICE HOURS: Departmental Syllabus
TELEPHONE: Departmental Syllabus
EMAIL: KCKCC issued email accounts are the official means for electronically communicating with our students.

PREREQUISITES: HVAC0101

REQUIRED TEXT AND MATERIALS: Please check with the KCKCC bookstore, http://www.kckccbookstore.com/, for the required texts for your particular class.

COURSE DESCRIPTION:
This course will cover the fundamentals of residential cooling. This will include installation, controls, typical operating conditions, and troubleshooting. Different types of systems will be discussed and evaluated.

METHOD OF INSTRUCTION:
A variety of instructional methods may be used depending on content area. They may include but are not limited to lecture, multimedia, cooperative/collaborative learning, demonstrations, labs, on-the-job, internships, and other learning experiences outside the classroom. Methodology will be selected to best meet student needs.
COURSE OUTLINE:

I. Refrigeration Applied to Air Conditioning
   A. The Function of the Evaporator
   B. Evaporator Application
   C. The Compressor
   D. The Reciprocating Compressor
   E. The Rotary Compressor
      1. Stationary Vane Rotary Compressor
      2. Rotary Vane Rotary Compressor
   F. The Scroll Compressor
   G. The Condenser
   H. Expansion Devices

EXPECTED LEARNER OUTCOMES:

A. The student will be able to demonstrate an understanding of air conditioning evaporator.
B. The student will be able to demonstrate an understanding of the three types of air conditioning compressors.
C. The student will be able to demonstrate an understanding of air conditioning condenser.
D. The student will be able to demonstrate an understanding of air conditioning metering device.
E. The student will be able to describe package air conditioning equipment

COURSE COMPETENCIES:

Upon successful completion of this course:

The student will be able to demonstrate an understanding of air conditioning evaporator.

1. The student will be able to describe the evaporator as a tubular refrigeration coil with aluminum fins for heat exchange.
2. The student will describe and identify an A coil.
3. The student will describe and identify a slant type coil.
4. The student will describe and identify a W type coil.
5. The student will describe heat removal by-products as condensation.

The student will be able to demonstrate an understanding of the five types of air conditioning compressors.

6. The student will be able to describe a Reciprocating Compressor – (Residential)
7. The student will be able to describe a Rotary Compressor – (Commercial)
8. The student will be able to describe a Scroll Compressor – (Residential)
9. The student will be able to describe a Centrifugal Compressor – (Commercial)
10. The student will be able to describe a Screw Compressor – (Commercial)
11. The student will be able to demonstrate that compressors all compress vaporized refrigerant and pump it throughout the system.

_The student will be able to demonstrate an understanding of an air conditioning condenser._

12. The student will be able to demonstrate how the condenser functions in heat rejection from the system, resulting in condensation.

13. The student will describe the use of the concept of “place of no concern” in air conditioning technology.

14. The student will describe the use of vapor refrigerant as a heat absorbent by state-of-refrigerant change.

15. The student will describe how air flow evacuates heat from the system.

16. The student will describe and demonstrate temperature probe determination of temperature drop at the evaporator.

_The student will be able to demonstrate an understanding of air conditioning metering devices._

17. The student will be able to describe how the expansion device meters the refrigerant to the evaporator.

18. The student will describe the thermostatic expansion valve and the fixed bore metering device.

19. The student will be able to demonstrate understanding or the safe, proper attachment of metering devices to a pressure-based system.

20. The student will demonstrate proper attachment sequence of metering devices to a system while pressurized.

21. The student will read and describe the events resulting in pressure differentials on the metering lines.

22. The student will demonstrate proper charging, bleeding, and refrigerant recovery (according to EPA standards).

_The student will be able to describe the package air conditioning equipment._

23. The student will be able to describe, identify, and explain function of the condenser component of various packaged air conditioning products.

24. The student will be able to describe, identify, and explain function of the evaporator component of various packaged air conditioning products.

25. The student will be able to describe, identify, and explain function of the compressor component of various packaged air conditioning products.

**ASSESSMENT OF LEARNER OUTCOMES:**
Student progress is evaluated by means that include, but are not limited to, exams, written assignments, and class participation

**SPECIAL NOTES:**
This syllabus is subject to change at the discretion of the instructor. Material included is intended to provide an outline of the course and rules that the instructor will adhere to in evaluating the
student’s progress. However, this syllabus is not intended to be a legal contract. Questions regarding the syllabus are welcome any time.

Kansas City Kansas Community College is committed to an appreciation of diversity with respect for the differences among the diverse groups comprising our students, faculty, and staff that is free of bigotry and discrimination. Kansas City Kansas Community College is committed to providing a multicultural education and environment that reflects and respects diversity and that seeks to increase understanding.

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