SYLLABUS

DATE OF LAST REVIEW: 02/2013
CIP CODE: 47.0201
SEMESTER: Departmental Syllabus
COURSE TITLE: Beginning Heating & Refrigeration
COURSE NUMBER: HVAC0212
CREDIT HOURS: 2
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: None

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 basic refrigeration cycle, basic electricity, and troubleshooting of systems for anyone who would like to get started in the heating and refrigeration field.

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 Theory
II. Refrigeration Cycle
III. System Components
   A. Evaporator
   B. Condenser
   C. Compressor
   D. Metering Devices
IV. Voltages
   A. 120 volts
   B. 220 volts
   C. 24 volts (control voltage)
VI. Sustainable Techniques of System Refrigerant, Recovery, Transition & Dehydration
VII. System Electrical Troubleshooting

EXPECTED LEARNER OUTCOMES:

A. The student will be able to explain how refrigerant systems cool a space by removing the heat.
B. The student will be able to have an understanding of the refrigerant cycle and how the refrigerant changes states.
C. The student will be able to demonstrate how compressors motors are electrical wired and function.
D. The student will be able to demonstrate how evaporators are service and cleaned.
E. The student will be able to demonstrate how condensers are cleaned and serviced.
F. The student will be able to demonstrate how refrigerant is removed, recovered and recycle according to the EPA regulations.

COURSE COMPETENCIES:
Upon successful completion of this course:

The student will be able to explain how refrigerant systems cool a space by removing the heat.
1. The student will be able to demonstrate that removing heat from a desired space and depositing that heat in a space of no concern is the refrigeration theory
2. The student will be able to demonstrate an understanding of the refrigerant cycle and how the refrigerant changes states.
3. The student will be able to demonstrate an understanding that refrigerant is a liquid that when boils becomes a vapor, and removes heat from the air.
4. The student will be able to demonstrate an understanding that refrigerant vapor when cooled releases heat and becomes a liquid, and the cycle repeats.

The student will be able to demonstrate how compressors motors are electrically wired and function.
5. The student will be able to demonstrate how to correctly wire the common, start, and run windings of a motor.
6. The student will describe the compressor motor as a split capacitor motor.
7. The student will describe when 120 volt motors are used.
8. The student will describe the application of a three phase motor.
9. The student will describe the parallel circuit wiring of the compressor motor.

The student will be able to demonstrate how evaporators are serviced and cleaned.

10. The student will be able to demonstrate proper access to the evaporator unit
11. The student will demonstrate proper airflow through the evaporator unit.
12. The student will demonstrate mechanical cleaning of the unit from inside to outside.
13. The student will demonstrate proper chemical cleaning of the unit.

The student will be able to demonstrate how condensers are cleaned and serviced.

14. The student will be able to demonstrate proper access to the condenser unit
15. The student will be able to demonstrate how to wash the condensing coil from the inside to the outside, and straighten any bent fins to insure proper air flow.

The student will be able to demonstrate how refrigerant is removed, recovered and recycle according to the EPA regulations.

16. The student will demonstrate proper recovery process according to EPA section 608.
17. The student will demonstrate proper recycling of the refrigerant according to EPA section 608.
18. The student will demonstrate proper safety equipment used when handling pressurized refrigerants.

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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be administered without regard to race, color, age, sex, religion, national origin, physical handicap, or veteran status and that such policy be made known.

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