SYLLABUS

DATE OF LAST REVIEW: 02/2013
CIP CODE: 47.0201
SEMESTER: Departmental Syllabus
COURSE TITLE: Advance Heating and Refrigeration
COURSE NUMBER: HVAC0213
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: HVAC0212

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

COURSE DESCRIPTION:
For those who have some skill in the heating and refrigeration field and wish to experience hands-on recovery of refrigerant, charging of systems, wiring, diagrams, heat pumps and HVAC service procedures.

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. Electrical Series and Parallel Circuits
II. Pressure Temperature Charts & Touch and Feel
III. Sustainable techniques
A. Recovery
B. Recycling
C. Reclaiming
IV. Silver Brazing and Soft Solder
V. Super Heat and Sub Cooling
VI. Trouble Shooting Techniques
VII. Wiring Diagrams

EXPECTED LEARNER OUTCOMES:
A. The student will be able to demonstrate the difference between a series and parallel circuits
B. The student will be able to demonstrate, using a volt meter how to check the voltages in series and parallel circuits
C. The student will be able to demonstrate using a pressure chart, to find the correct head pressure according to specifications.
D. The student will be able to demonstrate the proper silver brazing techniques
E. The student will be able to demonstrate how to perform correct super-heat techniques
F. The student will be able to demonstrate how to follow a wiring diagram to find the correct electrical path.

COURSE COMPETENCIES:
Upon successful completion of this course:

The student will be able to demonstrate the difference between a series and parallel circuits
1. The student will be able to demonstrate using a volt meter to measure voltage drop across a load or loads in a series circuit.
2. The student will be able to demonstrate using a volt meter to measure the resistance of a load in a parallel circuit

The student will demonstrate, using a volt meter how to check the voltages in series and parallel circuits
3. The student will describe and diagram a series circuit.
4. The student will describe and diagram a parallel circuit.
5. The student will be able to demonstrate the correct placement of the volt meter probes across a load to check for correct voltage readings in each circuit type.
6. Demonstrate proper use of the meter and correct interpretation of the results.

The student will demonstrate using a pressure chart, to find the correct head pressure according to specifications.
7. The student will define and demonstrate pressure and temperature relationship of any refrigerant.
8. The student will be able to demonstrate using a pressure meter to collect data.
9. The student will be able to demonstrate using a pressure chart that R-22 at a temperature of 80 F will have a pressure of 143 psi.
10. The student will demonstrate the saturation point of any refrigerant at 70 F.
11. The student will demonstrate the proper silver brazing technique.

12. The student will describe and identify the components of a brazing system.

13. The student will be able to demonstrate how to set the correct regulator pressure oxygen (10 psi) and acetylene (5 psi) supplied to the brazing tip for a correct brazing flame.

14. The student will demonstrate safe transport/storage of compressed, combustible gases.

15. The student will describe and interpret EPA tank labels.

16. The student will demonstrate how to perform correct super-heat techniques.

17. The student will be able to demonstrate determining the super-heat requirement for each system.

18. The student will demonstrate how to follow a wiring diagram to find the correct electrical path.

19. The student will be able to demonstrate by using a wiring diagram that 120 volts enters the system at location L1, prior to the first switch, and completion of the circuit through the fan motor, completing the circuit at L2.

ASSSESSMENT 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.

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