AIRC 210
Comfort Cooling Systems

3 Credits (2 Lecture hours and 2 Laboratory hours per week)

Community College of Baltimore County
Common Course Outline

Description

AIRC 210 – Comfort Cooling Systems: applies the theory and principles of refrigeration to comfort cooling and explains the use of electric heat pumps in residential and light commercial applications. The course incorporates the regulations and procedures that apply to refrigerant recovery, recycling and reclaiming and offers hands-on laboratory work in recovery and troubleshooting.

Pre-requisites: AIRC 115 and ELEI 101

Overall Course Objectives

Upon completion of this course, students will be able to:

1. interpret the various designs and applications of comfort cooling systems;
2. explain the theory and operation of heat pumps;
3. analyze and troubleshoot problems in comfort cooling equipment;
4. install, repair, and service comfort cooling equipment;
5. follow the regulations and procedures that apply to refrigerant recovery, reclaiming, and recycling;
6. trace control and line voltage circuits;
7. connect control circuits;
8. use multimeters and ammeters;
9. explain Coefficient of Performance (C.O.P) and Seasonal Energy Efficiency Ratio (S.E.E.R.); and
10. evaluate air flow requirements.

Major Topics

I. Cooling-only systems
II. Refrigeration systems
III. Start-up procedures
IV. Schematic and wiring diagrams
V. Multimeters and ammeters
VI. AC motors
VII. Heat pump systems
VIII. Air flow
IX. Refrigerant recovery
X. Maintenance procedures

Course Requirements

Grading will be determined by the individual faculty member, but shall include the following, at minimum:

- Approved practical project or written paper
    - If a written paper is assigned, the following will apply:
        - Topic of the paper will be selected by the student and should relate to the subject material of the course
        - The paper should be six (6) to eight (8) pages in length, typewritten, and double-spaced. It should include in addition to the six (6) to eight (8) pages of text, an author and title page and bibliography utilizing a minimum of three reference resources excluding classroom materials
        - All papers are due when 80% of the class sessions are completed
- Midterm exam
- Comprehensive final
- Minimum of three (3) classroom assignments
- Minimum of four (4) homework assignments
- Class discussion and participation

Written assignments and research projects: Students are required to use appropriate academic resources in their research and cite sources according to the style selected by their professor.

Other Course Information

This is a Heating, Ventilating, Air Conditioning, and Energy Technology program requirement.

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