Common Course Outline
AIRC 232
Advanced Residential Systems
3 Credits

The Community College of Baltimore County

Description

AIRC 232 – 3 credits – Advanced Residential Systems presents advanced service techniques for maintenance and repair of residential air conditioning equipment and controls. Students will troubleshoot and repair major components of a residential air conditioning system. Topics include advanced system analysis, measurement of operating efficiency, and inspection and correction of all major system components. Upon completion, students restore a HVAC system so that it operates at manufacturers' specifications.

3 Credits: 2 lecture hours per week; 2 lab hours per week
Prerequisites: AIRC 205, AIRC 210, and ELEI 201 or approval by the program coordinator.

Overall Course Objectives

Upon completion of this course students will be able to:

1. develop a set of planned maintenance procedures and schedules;
2. identify and correct faults on a simulated HVAC system;
3. inspect a HVAC system for leaks and proper operation;
4. troubleshoot and repair residential cooling equipment;
5. troubleshoot and repair accessories to residential HVAC equipment;
6. perform planned or essential maintenance on natural and LP gas fired HVAC systems;
7. perform planned or essential maintenance on oil powered HVAC systems;
8. perform planned or essential maintenance on electric powered HVAC systems;
9. read wiring diagrams and troubleshoot tables for various pieces of HVAC equipment; and
10. measure the operating efficiency of a residential unit.

Major Topics

I. Inspection procedures
II. Troubleshooting procedures
III. Planned maintenance schedules
IV. Cooling units
V. Heating units, gas and oil
VI. Heat pumps
VII. Boilers

Course Requirements

Grading/exams: Grading procedures will be determined by the individual faculty member but will include the following:

1. Written paper
    a. Topic of the paper will be selected by the student and should relate to the subject material of the course.
    b. 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.
    c. The paper is due when 80% of the class sessions are completed.
        a. Students are required to utilize appropriate academic resources.
2. Lab or software simulation project using time and accuracy grading format
3. Midterm exam
4. Comprehensive final
5. Minimum of three (3) classroom assignments
6. Minimum of four (4) homework assignments
7. Class discussion and attendance

Other Course Information

This course is a HVAC and Energy Technology program elective.