

AIRC 205

Heating Systems

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

Community College of Baltimore County
Common Course Outline

Description

AIRC 205 – Heating Systems: investigates the construction and operation of gas fired, oil fired and electric forced air heating equipment. Students practice safe and appropriate procedures for installing, testing, adjusting, and maintaining heating equipment.

Pre-requisites: AIRC 115 and ELEI 101

Overall Course Objectives

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

1. explain combustion principles;
2. describe applications of fuel oils;
3. identify components of gas, oil, and electric heating units;
4. explain the differences between propane and natural gas furnaces;
5. illustrate gas pilot ignition methods;
6. identify types of gas burners and heat exchangers;
7. test gas furnace efficiency;
8. test a thermocouple;
9. check fuel pump operation;
10. test and adjust oil burners for maximum efficiency;
11. describe the operation of sequencers and heat relays in electric furnaces;
12. list safety procedures for operating controls in hydronic systems;
13. describe the difference between passive and active solar heating systems; and
1. perform maintenance, service and repairs on oil, gas, mechanical and electric heating systems.

Major Topics

- I. Safety procedures
- II. Combustion
- III. Fuel oils
- IV. Gas, oil, and electric heating units
- V. Furnace efficiency
- VI. Thermocouples
- VII. Humidification
- VIII. Solar heating systems

Course Requirements

The Common Course Outline (CCO) determines the essential nature of each course.
For more information, see your professor's syllabus.

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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