

**Common Course Outline**  
**AIRC 115**  
**Fundamentals of Refrigeration**  
**3 Credits**

**Community College of Baltimore County**

**Description**

**AIRC 115 – Fundamentals of Refrigeration** introduces the compression refrigeration cycle, common refrigerants and their applications, and the theory of heat transfer as related to the refrigeration process. Students learn to evaluate system performance, use tools and equipment for service, and follow installation procedures such as charging, evacuating, and leak detection.

**3 Credits:** 2 lecture hours per week; 2 lab hours per week

**Prerequisite:** ACLT 052; Math 081

**Overall Course Objectives**

Upon completion of this course the student will be able to:

1. describe the compression refrigeration cycle;
2. identify mechanical and electrical components of refrigeration systems;
3. describe methods of heat transfer;
4. define sensible and latent heat;
5. use appropriate hand tools and measuring instruments safely and properly;
6. measure temperatures to determine system operating conditions;
7. perform various service procedures;
8. follow approved procedures for the evacuation, recovery and charging of various systems;
9. interpret the pressure and temperature relationships of refrigerants; and
10. comply with EPA directed refrigerant handling policy and procedures.

**Major Topics**

- I. Heat transfer
- II. Compression refrigeration systems
- III. System operating conditions
- IV. Safety procedures
- V. Refrigerants
- VI. Refrigerant pressure and temperature relationships

## **Course Requirements**

**Grading/exams:** Grading procedures will be determined by the individual faculty member and will be provided on the first day of class.

The following will be required for this course:

1. Approved practical project or written paper
  - If a written paper is assigned, the following will apply:
    - 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. All papers are due when 80% of the class sessions are completed.
2. Midterm exam
3. Comprehensive final
4. Minimum of three (3) classroom assignments
5. Minimum of four (4) homework assignments
6. Class discussion and participation

## **Other Course Information**

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

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