

AIRC 222

Commercial Refrigeration Systems

3 Credits (3 Lecture hours per week)

Community College of Baltimore County
Common Course Outline

Description

AIRC 222 – Commercial Refrigeration Systems: investigates the methods and procedures used to analyze and diagnose problems with ice machines, reach-in coolers and freezers, and walk-in coolers and freezers. Emphasis is placed on light commercial type equipment. Students practice diagnostics through simulation and hands-on practice.

Pre-requisites: Prerequisites: AIRC 115, AIRC 210, ELEI 101, and ELEI 201 or approval of program coordinator

Overall Course Objectives

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

1. demonstrate operation of commercial refrigeration units, ice machines, restaurant specialty systems and their functions;
2. demonstrate troubleshooting and typical operating conditions for commercial refrigeration systems;
3. describe the application and function of specialized commercial refrigeration components;
4. identify common mechanical and electrical controls found on commercial A/C and refrigeration systems;
5. describe defrost systems and the function of the system components;
6. analyze operating conditions of medium and low temperature refrigeration systems;
7. adjust the superheat setting of a thermostatic expansion valve;
8. apply the refrigeration cycle to the operation of commercial refrigeration equipment;
9. outline the different methods for charging commercial refrigeration systems having either air-cooled or water-cooled condensers;
10. determine cut-in and cut-out pressure settings for pressure controls for direct temperature control, pump down and condenser fan cycling;
11. compare and contrast the different designs of commercial ice machines;
12. describe the different means of low ambient control; and
13. comply with personal and environmental safety practices.

Major Topics

- I. Safe practices and procedures
- II. Specialized commercial components
- III. Mechanical and electrical controls
- IV. Defrost systems
- V. Refrigerant cycle

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

- VI. Charging methods
- VII. Ice machines

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 elective.

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