

COURSE INFORMATION

COURSE PREFIX/NO: **ACR 120**
COURSE TITLE: **Basic Air Conditioning**
LEC HRS/WEEK: 2.0
LAB HRS/WEEK: 6.0
CREDIT HRS/SEMESTER: 4.0

DL ATTENDANCE/VA STATEMENT TEXTBOOK INFORMATION

COURSE DESCRIPTION

This course is a study of various types of air conditioning equipment including electrical components, schematics, and service to the refrigerant circuit.

COURSE COMPETENCIES

Upon successful completion of this course, the student should be competent to perform the following tasks:

- Follow instructions in service manuals with regards to trouble shooting a/c units and systems.
- Identify and repair malfunctions on a majority of air conditioning equipment.

MINIMAL STANDARDS

Given a refrigeration system that is low in refrigerant, basic tool kit and manifold gauge set, add refrigerant to the system. The sight glass must be clear and pressures correct for the design conditions.

Given an operating refrigeration system, tools, equipment and materials, evacuate the refrigeration system. Evacuated system must be free of air and moisture.

Given a refrigeration system, tools, equipment and materials, add oil to a compressor. The oil level must be raised to the center of the sight glass.

Given a refrigeration system, tools, equipment and materials, replace the compressor. The replacement compressor must be of type and size recommended by the manufacturer, securely mounted, and wired in accordance with manufacturer's specifications and/or wiring diagram. Braced joints must be free of excess flux and leak proof.

Given a refrigeration system, parts, tools and equipment, replace the condenser or evaporator fan motor. The motor must be mechanically secure. All Electrical connections must be secure and in accordance with wiring diagram and/or manufacturer's specifications.

Given guidelines of acceptable work behavior by the instructor, the student will exhibit proper work attitudes at all times. See Evaluation.

Strategies/Grading of this outline for additional details.

COURSE REQUIREMENTS (i.e. attendance, academic honesty):

Students are responsible for attaining competencies through completion of the following course requirements:

ATTENDANCE

Students will be bound by the policies stated in the York Technical College Student Handbook. Students must attend 80% of the hours assigned the class for a semester to receive credit for the course.

In case a student does miss a class, the student is responsible for obtaining the material that was covered during the absence.

If a student is aware that a class will be missed, then the student should notify the instructor at the earliest possible date.

If a student misses a test because of illness or urgent emergency, it is the responsibility of the student: Notify the instructor prior to the class period, or at the earliest possible date. At that time a new date for a make up test can be scheduled.

Students with unexcused absences during tests will be allowed to take a make up test at the discretion of the instructor.

The student has the burden to be sure that some arrangement was made with the instructor for taking a make up test.

PARTICIPATION IN CLASS DISCUSSIONS

COMPLETING ASSIGNED LAB EXPERIMENTS AND TESTS. LABORATORY REQUIREMENTS:

The student will complete all lab assignments issued by the instructor. ACADEMIC HONESTY:

"York Technical College adheres to the South Carolina TECH Student Code, approved by the State Board for Technical and Comprehensive Education on March 13, 1974 (revised last April 25, 1984). Copies of this code are available in the Library and from Student Services. ...Any student caught cheating or involved in any other academic dishonesty will be given a grade of zero and will be subject to further disciplinary action."

Evaluation Strategies/Grading

The grading scale will be as follows: Grade Points

- A 90 - 100
- B 80 - 89
- C 70 - 79
- D 60 - 69
- F 0 - 59

Evaluation Method Total Points

Tests 30%

Laboratory 50%

Work Attitude 20%

1. Participation
2. Cooperation
3. Appearance
4. Effort
5. Safety
6. Responsibility
7. Professionalism
8. Attendance
9. Self Motivation
10. Works Independently ----- 100%

ENTRY LEVEL SKILLS

The student must demonstrate how to use the volt/ohm meter, the amp meter, vacuum pumps, and basic hand tools. In addition, he must understand the refrigeration cycle and simple electrical troubleshooting.

PREREQUISITES: ACR 101, ACR 106
CO-REQUISITES: ACR 140

Topic/Content Outline

- A. Air and Properties
- B. Humidity Measurement
- C. Psychrometric Charts
- D. Draft Measurement
- E. Ventilation
- F. Temperature Controls

LABORATORY EXPERIMENTS:

- A. Troubleshoot and replace a fan motor on a window air conditioner.
- B. Troubleshoot and repair the defrost cycle on a domestic refrigerator or freezer.
- C. Trouble shoot and replace the compressor on a window or central air conditioning unit.
- D. Troubleshoot and replace automatic controls or capacitors on an air conditioning unit.

Methods of Instruction:

This course consists of 2.0 hours of class periods and 6.0 hours of laboratory. The class instruction includes lectures, demonstrations, discussions, and tests. The lectures are given while drawing on the blackboard, using overhead projections, or video tapes.

The lab periods will consist of actual repair of equipment brought into the shop by students and the public. In addition, field trips will be scheduled to simulate actual trouble calls.