

AHR 110
INTRO TO REFRIGERATION

COURSE DESCRIPTION:

Prerequisites: MAT 060 or DMA 010, 020, 030; RED 070, or satisfactory score on placement test
Corequisites: None

This course introduces the basic refrigeration process used in mechanical refrigeration and air conditioning systems. Topics include terminology, safety, and identification and function of components; refrigeration cycle; and tools and instrumentation used in mechanical refrigeration systems. Upon completion, students should be able to identify refrigeration systems and components, explain the refrigeration process, and use the tools and instrumentation of the trade. Course Hours Per Week: Class, 2; Lab, 6; Semester Hours Credit, 5.

COURSE OBJECTIVES:

- a. Understand the basic refrigeration cycle
- b. Understand the functionality and operation of the major components of a residential / light commercial air conditioning system
- c. Understand the concepts of superheat and subcooling
- d. Know how to install refrigeration manifold gauges and interpret operating pressure and temperature readings
- e. Understand the principals of pressure testing and evacuation
- f. Know how to adjust the refrigerant charge and recover refrigerant
- g. Understand elementary electrical wiring diagrams and PSC motors
- h. Understand troubleshooting techniques
- i. Have knowledge of refrigeration tubing, piping, and soldering techniques
- j. Be able to successfully pass the CFC Refrigeration Exam

OUTLINE OF INSTRUCTION:

1. Basic Refrigeration Cycle
2. Evaporators and Condensers
3. Compressors and Metering Devices
4. Superheat and Subcooling Concepts
5. Manifold Gauges, Services Valves, and Refrigeration Specialties
6. Pressure Testing and Evacuation
7. Charging the System, Typical Operating Pressures and Temperatures
8. Refrigerant Recovery
9. Refrigeration Tubing, Piping, and Soldering Techniques

10. Electrical Wiring Diagrams and PSC Motors
11. Prep for CFC Exam

REQUIRED TEXTBOOK:

To be selected by Instructor/Discipline Chair.