

NASSAU BOCES - ADULT EVENING PROGRAM

Joseph M. Barry Career & Technical Education Center
1196 Prospect Ave.
Westbury, NY 11590

COURSE OUTLINE

Course Name: **RAC-I (Refrigeration and Air Conditioning I)**
Weeks: 8
Sessions: 16
Hours: 48
Days/Time: Mon/Wed 7-10pm
Instructor: D. Jenkins
Required Textbook: Heating and Cooling Essentials by Killinger, Publisher: Goodheart-Willcox
Prerequisites: None
Adult evening Office: (516) 622-6950

Course Overview:

This course provides an introduction to the fundamentals of refrigerant cycle theory and is mostly theory with some hands-on learning. An introduction to basic electricity and the types of components found on small refrigeration equipment will be covered. Other areas of study include cutting, bending, flaring, swaging and soldering of copper tubing. This course prepares you and is a prerequisite to taking RAC-II. Students are required to supply their own hand tools (list to be provided). Required additional cost: Textbook.

For RAC Certificate Program: Must take RAC-I plus RAC-II, Refrigerant Recovery & Recycling, EPA Seminar & Test for a Total of 145 hours.

HVRAC/EPA Certified Technician: Must take RAC-I, RAC-II, Refrigerant Recovery & Recycling, EPA Seminar & Test, Gas Burner, Blueprint Reading, Hydronics, Motor Controls for a total of 288 hours.

Course Topics

Session 1 Introduction of class to course theory
Session 2 Explanation of the Refrigeration Cycle
Session 3 How to flare, swage and solder copper
Session 4 Use of Meters and testing for blown fuses & tripped breakers
Session 5 Leak Detection – soap bubbles, halide torch, electronic devices
Session 6 How to evacuate a system – use of service
Session 7 How to charge a refrigeration system including: types of gauges, theory, types of hoses, types of gases, PT chart.
Session 8 Procedure for pumping down a refrigeration system
Session 9 The thermostatic expansion valve – operation and selection including metering devices and capillary tubes.
Session 10 Introduction to pressure controls: what they are, high and low pressure controls, how made and manufacturers
Session 11 Introduction to troubleshooting compressors and systems
Session 12 Introduction to metering devices
Session 13 How to wire in 120 & 220 volt, wire controls
Session 14 Introduction to time clocks, thermostats & controls
Session 15 Finalize all work on test boards & Review
Session 16 Review and Final Exam