Heating and Air Conditioning (HAC)

HAC 101 Basic Plumbing Systems

3 Hours

Prerequisites: None

4 hours weekly (2-2)

The students will be introduced to basic plumbing systems and fittings. Water heater, sink, faucet, drain, piping systems, and toilet repair, installation, and maintenance will be covered Special emphasis will be placed on all local plumbing codes and safety protocols following OSHA guidelines. Hands-on training on real-life equipment will be the focus.

HAC 102 Residential Electrical Wiring

4 Hours

Prerequisites: None

6 hours weekly (2-4)

The students will be introduced to basic residential wiring practices used in modern electrical installations. The course will focus on all aspects of residential wiring installation, parts ID, and circuit analysis. Hands-on knowledge of wiring of switches, 3-way switches, 4-way switches, load centers, lighting and duplex receptacles will be covered. This course will follow all NEC codes and standards for safety and wire sizing.

HAC 105 Basic Sheet Metal Layout

3 Hours

Prerequisites: None

4 hours weekly (2-2)

A basic course for sheet metal pattern layout techniques as used in residential air conditioning and ventilation.

HAC 106 Advanced Sheet Metal Layout

2 Hours

Prerequisites: HAC 105

4 hours weekly (0-4)

An advanced course for sheet metal layout techniques as used in residential and commercial air conditioning and ventilation systems. The triangulation method of sheet metal layout will be emphasized in this course.

HAC 107 Electrical Controls and Circuitry

3 Hours

Prerequisites: ELT 102 or HAC 102

4 hours weekly (2-2)

The student is introduced to air conditioning, heating, and refrigeration controls circuitry as well as solid state electronic controls. Proper troubleshooting techniques as well as safety will be covered.

HAC 121 Heating I

4 Hours

Prerequisites: None

6 hours weekly (2-4)

An introduction to heating, ventilation, and air conditioning systems. Maintenance and repair of gas, oil, and hydronic furnaces will be covered.

HAC 122 Heating II

4 Hours

Prerequisites: HAC 121

6 hours weekly (2-4)

Introduction to air distribution, air cleaning, and calculation of heat loads. Special emphasis will be placed on electric furnace testing and servicing along with heat load calculations.

HAC 131 Refrigeration and Air Conditioning I

4 Hours

Prerequisites: None

6 hours weekly (2-4)

This course covers the fundamentals of refrigeration, refrigeration cycle, and basic refrigeration systems. Compression systems, refrigeration controls, charging, evacuating, and refrigeration tools and materials will be covered.

HAC 132 Refrigeration and Air Conditioning II

4 Hours

Prerequisites: HAC 131

6 hours weekly (2-4)

This course covers the operation and design of window units and split systems. Air conditioning controls and troubleshooting will also be covered. Special emphasis will be placed on psychrometrics, troubleshooting, and system design.

HAC 140 Weatherization

3 Hours

Prerequisites: None

4 hours weekly (2-2)

This course covers the process of implementing cost effective energy efficiency measures that increase the comfort and durability of the home.

HAC 142 Commercial Refrigeration

4 Hours

Prerequisites: HAC 131

5 hours weekly (3-2)

This course is designed to introduce the student to the operation and application of commercial refrigeration, evaporators, condensers, compressors, expansion devices, and related system components. Troubleshooting and typical operating conditions will be studied.

HAC 207 Advanced Controls and Circuitry

3 Hours

Prerequisites: HAC 102 & HAC 107

4 hours weekly (2-2)

An introduction to more advanced controls used in the HVAC/R industry for operational, energy management, and diagnostic applications. This course will cover programmable temperature controls/thermostats, Direct Digital Control (DDC) applications, and Energy Management Systems (EMS) as they apply to heating and air conditioning.

HAC 222 Advanced Heating Systems

3 Hours

Prerequisites: HAC 121, HAC 122

4 hours weekly (2-2)

An introduction to more advanced heat pump systems, including dual fuel applications. Emphasis on air-to-air and geothermal heat pumps.

HAC 224 Geothermal Systems

3 Hours

Prerequisites: None

4 hours weekly (2-2)

This course covers Geothermal as it is used in the HVAC industry. Basic concepts of geothermal installation, design, maintenance, and troubleshooting will be covered. This class will also cover refrigeration theory, heat transfer, payback, current tax incentives, common problems and pricing geothermal systems.

HAC 240 Installation of HVAC Systems

3 Hours

Prerequisites: HAC 121, HAC 131

5 hours weekly (1-4)

Student will develop advanced skills and knowledge of the installation and start-up of residential heating and air conditioning systems. Focuses on installation code requirements and start-up procedures for residential heating and air conditioning systems. Tools safety and add-on purchases will also be covered.

HAC 279 ICE Testing

2 Hours

Prerequisites: None

2 hours weekly (2-0)

This course is designed to help prepare the student to pass the ICE Exams. The Industry Competency Exams were organized by the ARI (Air Conditioning and Refrigeration Institute) to encourage high standards in education HVAC installation, service, and maintenance.