

# HEATING AND VENTILATION (HVA)

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## **HVA 101 - Introduction to HVAC/R I**

**Credit Hours: 3, Contact Hours: 4**

This course will introduce students to the HVAC/R field by exploring basic heating, ventilation, and air conditioning concepts. Concepts of concentration include an introduction to HVAC/R, trade mathematics, basic electricity, introduction to heating, introduction to cooling, air distribution systems, basic copper and plastic piping practices, soldering and brazing, and basic carbon steel piping practices. Completion of this course will result in a Level 1 National Center for Construction Education Research Credential. Group 2 course.

Required Prerequisite(s): CAR 100

Recommended Prerequisite(s): Placement into ENG 111 and MTH 111

## **HVA 104 - Introduction to HVAC/R II**

**Credit Hours: 3, Contact Hours: 4**

This course will introduce students to the HVAC field through exploring basic heating, ventilation, and air conditioning concepts and reinforce concepts and skills learned in previous courses. Concepts include alternating current, compressors, refrigerants and oils, leak detection, evacuation, recovery, and charging, metering devices, heat pumps and basic maintenance. Group 2 course.

Required Prerequisite(s): HVA101

## **HVA 120 - Intermediate HVAC/R I**

**Credit Hours: 3, Contact Hours: 4**

This course will continue to develop students' knowledge of the HVAC field through exploring intermediate heating, ventilation, and air conditioning concepts and reinforce concepts and skills learned in previous courses. Concepts include chimneys, vents, and flues, sheet metal duct systems, fiberglass and fabric duct systems, commercial airside systems, air quality equipment, an introduction to hydronic systems, and fasteners, hardware and wiring terminations. Completion of this course will result in a Level 2 National Center for Construction Education Research Credential. Group 2 course.

Required Prerequisite(s): CAR100, HVA 101, HVA 104

## **HVA 124 - Intermediate HVAC/R II**

**Credit Hours: 3, Contact Hours: 4**

This course will continue to develop students' knowledge of the HVAC field by exploring intermediate heating, ventilation, and air conditioning concepts and reinforce concepts and skills learned in previous courses. Concepts include troubleshooting for control circuits and motors, cooling, heat pumps, gas heating, oil heating, and accessories. Other concepts include zoning, ductless, and variable refrigerant flow systems, commercial hydronic systems, and steam systems. Group 2 course.

Required Prerequisite(s): HVA 120

## **HVA 130 - Advanced HVAC/R I**

**Credit Hours: 3, Contact Hours: 4**

This course will continue to develop students' of the HVAC field through exploring advanced heating, ventilation, and air conditioning concepts and reinforce concepts and skills learned in previous courses. Concepts include retail refrigeration systems, customer relations, water treatment, indoor air quality, energy conservation equipment, building management systems, system air balancing, and system startup and shutdown. Completion of this course will result in a Level 3 National Center for Construction Education Research Credential. Group 2 course.

Required Prerequisite(s): HVA 124

## **HVA 136 - Advanced HVAC/R II - EPA Certification**

**Credit Hours: 3, Contact Hours: 3**

This course will continue to develop students' knowledge of the HVAC field through exploring advanced heating, ventilation, and air conditioning concepts and by reinforcing concepts and skills learned in previous courses. Concepts include construction drawings and specifications, heating and cooling system design, commercial/industrial refrigeration systems, alternative and specialized heating and cooling systems, and fundamentals of crew leadership. Completion of this course will result in a Level 4 National Center for Construction Education Research Credential. This course will also examine the impact of refrigerants on the environment and will focus on federal regulations regarding their use, recovery, and disposal methods. Students will participate in Environmental Protection Agency Certification Exams and will have an opportunity to earn an EPA Type I, Type II, Type III, or universal certification. Group 2 course. Quantitative Reasoning.

Required Prerequisite(s): HVA 124

Recommended Prerequisite(s): Placement in ENG 111 and MTH 111