



Program Planning Guide

Air Conditioning, Heating, and Refrigeration Technology, Intermediate Certification (C35100I)

Program Length: 4 semesters

Program Sites: Center for Workforce Innovation/Howard James Industrial Training Center

Career Pathway Options: Associate in Applied Science Degree in Air Conditioning, Heating, and Refrigeration

Suggested Course Schedule		Class	Lab	Work	Credits	Notes:
1st Semester (fall)						
AHR 115	Refrigeration Systems	1	3	0	2	
Total Semester Hours		1	3	0	2	
2nd Semester (spring)						
AHR 125	HVACR Electronics	2	2	0	3	
AHR 133	HVAC Servicing	2	6	0	4	
AHR 151	HVAC Duct Systems I	1	3	0	2	
Total Semester Hours		5	11	0	9	
3rd Semester (summer)						
AHR 215	Commercial HVAC Controls	1	3	0	2	
AHR 225	Commercial Systems Design	2	3	0	3	
AHR 180	HVACR Customer Relations	1	0	0	1	
Total Semester Hours		4	6	0	6	
4th Semester (fall)						
WBL 111	Work-Based Learning I	0	0	10	1	
Total Semester Hours		0	0	10	1	
Total Semester Hours Required for Graduation: 18						



Course Descriptions

AHR 115 Refrigeration System

This course introduces refrigeration systems and applications. Topics include defrost methods, safety and operational control, refrigerant piping, refrigerant recovery and charging, and leak testing. Upon completion, students should be able to assist in installing and testing refrigeration systems and perform simple repairs.

AHR 125 HVACR Electronics

Prerequisite: Take One: AHR 111, ELC 111, or ELC 112

This course introduces the common electronic control components in HVACR systems. Emphasis is placed on identifying electronic components and their functions in HVACR systems and motor-driven control circuits. Upon completion, students should be able to identify components, describe control circuitry and functions, and use test instruments to measure electronic circuit values and identify malfunctions.

AHR 133 HVAC Servicing

Corequisite: Take One: AHR-112 OR AHR-113

The course covers the maintenance and servicing of HVAC equipment. Topics include testing, adjusting, maintaining, and troubleshooting HVAC equipment and record keeping. Upon completion, students should be able to adjust, maintain, and service HVAC equipment.

AHR 151 HVAC Duct System I

This course introduces the techniques used to lay out and fabricate duct work commonly found in HVAC systems. Emphasis is placed on the skills required to fabricate duct work. Upon completion, students should be able to lay out and fabricate simple duct work.

AHR 180 HVACR Customer Relations

This course introduces common business and customer relation practices that may be encountered in HVACR. Topics include business practices, appearance of self and vehicle, ways of handling customer complaints, invoices, telephone communications, and warranties. Upon completion, students should be able to present themselves to customers in a professional manner, understand how the business operates, complete invoices, and handle complaints.

AHR 211 Residential System Design

This course introduces the principles and concepts of conventional residential heating and cooling system design. Topics include heating and cooling load estimating, basic psychometrics, equipment selection, duct system selection, and system design. Upon completion, students should be able to design a basic residential heating and cooling system.

AHR 215 Commercial HVAC Controls

Prerequisite: Take One: AHR-111, ELC-111, or ELC 112

This course introduces HVAC control systems used in commercial applications. Topics include electric/electronic control systems, pneumatic control systems, DDC temperature sensors, humidity sensors, pressure sensors, wiring, controllers, actuators, and controlled devices. Upon completion, students should be able to verify or correct the performance of common control systems with regard to sequence of operation and safety.

AHR 225 Commercial System Design

This course covers the principles of designing heating and cooling systems for commercial buildings. Emphasis is placed on commercial heat loss/gain calculations, applied psychometrics, air-flow calculations, air distribution system design, and equipment selection. Upon completion, students should be able to calculate heat loss/gain, design and size air and water distribution systems, and select equipment.

WBL 111 Work-Based Learning I

This course provides a work-based learning experience with a college-approved employer in an area related to the student's program of study. Emphasis is placed on integrating classroom learning with related work experience. Upon completion, students should be able to evaluate career selection, demonstrate employability skills, and satisfactorily perform work-related competencies.