



Program Planning Guide

Air Conditioning, Heating, and Refrigeration Tech Basics Certificate (C35100B)

Program Length: 3 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; Diploma in Air Conditioning, Heating, and Refrigeration; Certificate in Air Conditioning, Heat, and Refrigeration Basics

Suggested Course Schedule		Class	Lab	Work	Credits	Notes:
1st Semester (fall)						
AHR 110	Intro to Refrigeration	2	6	0	5	
	Total Semester Hours	2	6	0	5	
2nd Semester (spring)						
AHR 112	Heating Technology	2	4	0	4	
AHR 113	Comfort Cooling	2	4	0	4	
AHR 114	Heat Pump Technology	2	6	0	4	
	Total Semester Hours	6	14	0	12	
3rd Semester (summer)						
AHR 160	Refrigerant Certification	1	0	0	1	
	Total Semester Hours	1	0	0	1	
Total Semester Hours Required for Graduation: 18						



Course Descriptions

AHR 110 Intro to Refrigeration

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.

AHR 112 Heating Technology

This course covers the fundamentals of heating systems. Topics include safety, instrumentation, system operating, efficiency testing, electrical power, and control systems. Upon completion, students should be able to perform maintenance, service, and testing for major components of a heating system.

AHR 113 Comfort Cooling

This course covers the installation procedures, system operations, and maintenance of residential and light commercial comfort cooling systems. Topics include terminology, component operation, and testing and repair of equipment used to control and produce assured comfort levels. Upon completion, students should be able to use psychrometrics, manufacturer specifications, and test instruments to determine proper system operation.

AHR 114 Heat Pump Technology

This course covers the principles of air source and water source heat pumps. Emphasis is placed on safety, modes of operation, defrost systems, refrigerant charging, and system performance. Upon completion, students should be able to understand and analyze system performance and perform routine service procedures.

AHR 160 Refrigerant Certification

Prerequisite: Take AHR 110 and AHR 113 or AHR 120

This course covers the requirements for the EPA certification examinations. Topics include small appliances, high pressure systems, and low pressure systems. Upon completion, students should be able to demonstrate knowledge of refrigerants and be prepared for the EPA certification examinations.