



# Program Planning Guide

## Air Conditioning, Heating, and Refrigeration Tech Basic Certification (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

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



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## 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 including oil, gas, and electric heating systems. Topics include safety, tools and instrumentation, system operating characteristics, installation techniques, efficiency testing, electrical power, and control systems. Upon completion, students should be able to explain the basic oil, gas, and electrical heating systems and describe the 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**

*Prerequisite: Take one AHR 110 or AHR 113*

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**

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.