

## Contact Us

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## Program Overview

One of the fastest-growing service occupations, Heating, Ventilation and Air Conditioning has seen major changes over the past years as a result of the national emphasis on fuel conservation and environmental concerns.

Every private residence, business, industry and agency needs the skill of technicians trained in the installation, maintenance and repair of air conditioning, refrigeration and heating systems.

Students are trained to diagnose and repair malfunctions; size, fabricate and install air duct systems; and estimate cooling and heating loads for selection of the most efficient systems for a given building. Practical training in a well-equipped shop and outside installation of service projects gives students on-the-job experience before they graduate. EPA technician certification is taught and the test is offered to all curriculum students.

## PROGRAM REQUIREMENTS

### A.A.S., Major in Heating, Ventilation, and Air Conditioning Technology

#### GENERAL EDUCATION COURSES

COURSES	CREDIT HOURS
ENG 165 Professional Communications.....	3.0
MAT 170 Algebra, Geometry and Trigonometry I.....	3.0
<i>or MAT 110 College Algebra</i>	
MAT 171 Algebra, Geometry and Trigonometry II .....	3.0
<i>or MAT 111 College Trigonometry</i>	
Elective Social/Behavioral Sciences .....	3.0
Elective Humanities/Fine Arts .....	3.0

**SUBTOTAL: 15.0**

#### REQUIRED CORE SUBJECT AREAS

COURSES	CREDIT HOURS
ACR 101 Fundamentals of Refrigeration.....	5.0
ACR 106 Basic Electricity for HVAC/R .....	4.0
ACR 110 Heating Fundamentals .....	4.0
ACR 122 Principles of Air Conditioning .....	5.0
ACR 160 Service Customer Relations .....	3.0

**SUBTOTAL: 21.0**

#### OTHER COURSES REQUIRED FOR GRADUATION COURSES CREDIT HOURS

ACR 105 Tools and Service Techniques I.....	1.0
ACR 107 Wiring Diagrams.....	2.0
ACR 109 Tools and Service Techniques II .....	2.0
ACR 130 Domestic Refrigeration.....	4.0
ACR 131 Commercial Refrigeration .....	4.0
ACR 140 Automatic Controls.....	3.0
ACR 150 Basic Sheet Metal.....	2.0
ACR 210 Heat Pumps.....	4.0
ACR 223 Testing and Balancing .....	3.0
ACR 224 Codes and Ordinances .....	2.0
ACR 231 Advanced Refrigeration .....	4.0
CPT 101 Introduction to Computers .....	3.0
<i>or CPT 169 Industrial Computer Applications</i>	

**SUBTOTAL: 34.0**

**TOTAL CREDIT HOURS: 70.0**

## HVACR Installers Certificate

The certificate will enable students to gain entry level skills for HVACR equipment installation. This certificate will enable students to accelerate their progression to the HVACR Technician career track.

#### REQUIRED COURSE INFORMATION COURSES CREDIT HOURS

ACR 101 Fundamentals of Refrigeration.....	5.0
ACR 105 Tools and Service Techniques I.....	1.0
ACR 106 Basic Electricity for HVAC/R .....	4.0
ACR 109 Tools and Service Techniques II .....	2.0
ACR 131 Commercial Refrigeration .....	4.0
ACR 140 Automatic Controls.....	3.0
ACR 150 Basic Sheet Metal.....	2.0

**SUBTOTAL: 21.0**

**TOTAL CREDIT HOURS: 21.0**

## Heating Fundamentals Certificate

The Heating Fundamentals certificate provides students with the theory and hands-on training in the operation of heating and cooling system design and component application. The certificate program will focus on concepts of installation, service repair, preventative maintenance and start-up of heating and cooling systems.

The students will be required to successfully complete the R-410A and the Heat Pump Certification exams in ACR 210. Students will be required to successfully complete the Light Commercial Refrigeration Certification Exam in ACR 231.

Heating Fundamentals certificate graduates will have opportunities to work in the industry in one or more of the following areas: service, installation and repair of gas, oil and electric heating systems, service, installation and repair of heat pump systems and design and installation of air duct systems.

**The Heating Fundamentals certificate is the second year of the HVAC Technology program. These ACR courses require prerequisites. New or first year students should not be registered in this certificate program. An exception can be made for students that previously attained an EPA 608 certification and have verifiable and pertinent field experience. Students that meet these requirements may register directly for these courses with the review and approval of the HVAC Academic Program Director.**

### REQUIRED COURSE INFORMATION

COURSES	CREDIT HOURS
ACR 110 Heating Fundamentals .....	4.0
ACR 122 Principles of Air Conditioning.....	5.0
ACR 210 Heat Pumps.....	4.0
ACR 223 Testing and Balancing .....	3.0
ACR 224 Codes and Ordinances .....	2.0
ACR 231 Advanced Refrigeration .....	4.0
CPT 101 Introduction to Computers .....	3.0
<i>or CPT 169 Industrial Computer Applications</i>	

**SUBTOTAL: 25.0**

**TOTAL CREDIT HOURS: 25.0**

## Introduction to HVAC Certificate (Quickskills)

Introduction to HVAC certificate is a “stackable certificate” that is embedded in the HVAC Associate in Applied Science Degree. Classroom and in shop training focuses on basic principles and theories of HVAC, specialized tool usage, and the opportunity to obtain the Environmental Protection Agency 608 certification. Students develop knowledge of the refrigeration cycle, basic components of the refrigeration cycle, and an understanding of thermodynamics through the refrigeration cycle. OHM’s law, the proper usage of the volt/ohm meter, and the skills to interpret readings of the meter are cultivated within the certificate. Familiarization of major tools and equipment used in metal fabrication and proper usage of the tools and equipment are part of skills acquired through hands on training. Courses in the Introduction to HVAC certificate place a strong emphasis on safety with proper usage of personal protection equipment, tag out/lock out policies and procedures, and a general overview of safety in the industry. Students entering this program will develop knowledge and skills for entry-level employment as installers or mechanics in the air conditioning, refrigeration, and heating industry. It is also provides supplemental training for persons previously or currently employed in the field.

### REQUIRED COURSE INFORMATION

COURSES	CREDIT HOURS
ACR 101 Fundamentals of Refrigeration.....	5.0
ACR 105 Tools and Service Techniques I.....	1.0
ACR 106 Basic Electricity for HVAC/R.....	4.0
ACR 150 Basic Sheet Metal.....	2.0

**SUBTOTAL: 12.0**

**TOTAL CREDIT HOURS: 12.0**

# Refrigeration Applications Certificate

The Refrigeration Applications certificate provides students with the theory and hands-on training in the operation of refrigeration system design and component application. The certificate program will focus on installation, start-up, service repair and preventative maintenance of commercial and domestic refrigeration systems.

The students will be required to successfully complete the EPA 608 Refrigerant Handling Certification Exam in ACR 101. Students will be required to successfully complete the Electrical Certification Exam in ACR 140.

Refrigeration applications graduates will have opportunities to work in the refrigeration industry in one or more of the following areas: service and repair of refrigeration systems, service and repair of domestic refrigeration systems, service and installation of food and vending refrigeration equipment and service and installation of supermarket equipment.

## REQUIRED COURSE INFORMATION

<b>COURSES</b>	<b>CREDIT HOURS</b>
ACR 101 Fundamentals of Refrigeration.....	5.0
ACR 105 Tools and Service Techniques I.....	1.0
ACR 106 Basic Electricity for HVAC/R.....	4.0
ACR 107 Wiring Diagrams.....	2.0
ACR 109 Tools and Service Techniques II.....	2.0
ACR 130 Domestic Refrigeration.....	4.0
ACR 131 Commercial Refrigeration .....	4.0
ACR 140 Automatic Controls.....	3.0
ACR 150 Basic Sheet Metal.....	2.0
ACR 160 Service Customer Relations .....	3.0
CPT 101 Introduction to Computers .....	3.0
<i>or CPT 169 Industrial Computer Applications</i>	

**SUBTOTAL: 33.0**

**TOTAL CREDIT HOURS: 33.0**

>>> Visit [www.ptc.edu/hvac](http://www.ptc.edu/hvac) to learn more.