

# HEATING FUNDAMENTALS, CERTIFICATE - HTG7

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 Heat Pumps. Students will be required to successfully complete the Light Commercial Refrigeration Certification Exam in ACR 131 Commercial Refrigeration.

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.**

## Requirements

Courses	Course Title	Credit Hours
<b>Required Course Information</b>		
ACR 110	Heating Fundamentals	4
ACR 201	Troubleshooting and Maintenance	3
ACR 210	Heat Pumps	4
ACR 223	Testing and Balancing	3
ACR 224	Codes and Ordinances	2
ACR 242	Electronic Controls	2
ACR 252	Special Topics in Air Conditioning & Heating	2
Subtotal		20
<b>Total Hours</b>		<b>20</b>

## Graduation Plan

### Fall Start

Course	Title	Hours
<b>First Year</b>		
<b>Fall Semester</b>		
ACR 110	Heating Fundamentals	4
ACR 201	Troubleshooting and Maintenance	3
ACR 210	Heat Pumps	4
<b>Hours</b>		<b>11</b>

### Spring Semester

ACR 223	Testing and Balancing	3
ACR 224	Codes and Ordinances	2
ACR 242	Electronic Controls	2
ACR 252	Special Topics in Air Conditioning & Heating	2
<b>Hours</b>		<b>9</b>
<b>Total Hours</b>		<b>20</b>

## Application and Advising

If you are ready to start your education, there are a few simple steps involved in enrolling at Piedmont Technical College.

Get Started Today (<https://www.ptc.edu/admissions/new-students/>)

## Advising Information

The following information provides a guide for advisors who are helping students enroll in this program.

### Program Notes

This certificate is the second year of the HVACR program. A new student without prior course work, relevant field experience or professional education can't initially register for these courses. The Department Head will make this determination on a case by case basis. Completion of the Refrigeration Applications Certificate ensures that a student has completed the necessary prerequisites.

Courses are offered during day and evening hours

Click here for a list of required tools. ([https://www.ptc.edu/sites/default/files/documents/academics/hvac/hvac\\_tool\\_list.pdf](https://www.ptc.edu/sites/default/files/documents/academics/hvac/hvac_tool_list.pdf)) Tools that students purchase are an investment in their future and necessary to be employable. Students are required to purchase safety glasses and leather work gloves for lab activities. Advise students to contact the Program Director if they have specific questions.

## Student Program Learning Outcomes

### Purpose Statement

The Heating Fundamentals program is dedicated to assisting adult learners in the development of the skills and knowledge necessary to the student's success and to support their educational goals for employment and professional growth in the HVAC field.

### Student Learning Outcomes

1. Install, repair and service most light commercial refrigeration systems.
2. Use a wiring schematic in troubleshooting most air conditioning, heating, and refrigeration systems.
3. Install and service most residential heat pump systems.
4. Use most of the tools and meters associated with the air conditioning and refrigeration industry.
5. Calculate residential heat loss and heat gain.

6. Test and balance air quantities in most heating and air conditioning systems.
7. Install and service most heating systems including gas, oil, and electric.
8. Apply safety rules and regulations when working.