

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 231 Advanced 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
Required Course Information		
ACR 110	Heating Fundamentals	4
ACR 122	Principles of Air Conditioning	5
ACR 210	Heat Pumps	4
ACR 223	Testing and Balancing	3
ACR 224	Codes and Ordinances	2
ACR 231	Advanced Refrigeration	4
CPT 101 or CPT 169	Introduction to Computers Industrial Computer Applications	3
Subtotal		25
Total Hours		25

Graduation Plan

Fall Start

Course	Title	Hours
First Year		
Fall Semester		
ACR 110	Heating Fundamentals	4
ACR 122	Principles of Air Conditioning	5

ACR 210	Heat Pumps	4
	Hours	13
Spring Semester		
ACR 223	Testing and Balancing	3
ACR 224	Codes and Ordinances	2
ACR 231	Advanced Refrigeration	4
CPT 101 or CPT 169	Introduction to Computers or Industrial Computer Applications	3
	Hours	12
Total Hours		25

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. The exact prerequisites are listed in the College catalog.

Courses are offered during day and evening hours

Top-quality tools, meter and gauges, which are required for this program, will cost \$500 - \$700. There is a list at the bookstore, or you can contact Bill Cockrell for more information.

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

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



- Test and balance air quantities in most heating and air conditioning systems.
- Install and service most heating systems including gas, oil, and electric.
- Apply Fundamentals for repair, adjustment and maintenance of pneumatic controls used in most air conditioning systems.
- Apply safety rules and regulations when working.
- Install, repair and maintain most domestic refrigeration systems.