PIEDMONT TECHNICAL COLLEGE

HEATING, VENTILATION, AND AIR CONDITIONING TECHNOLOGY, A.A.S. - HVA3

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 gives students on-the-job experience before they graduate. EPA technician certification is taught and the test is offered to all curriculum students, which includes A2L refrigerant and flammable refrigerant.

Four certificate programs are offered: Introduction to HVAC - (Quickskills), HVACR Installers, Heating Fundamentals, and Refrigeration Applications.

Requirements

Courses	Course Title	Credit Hours
General Education Courses		
ENG 165	Professional Communications	3
Mathematical Requirement (https://catalog.ptc.edu/student-handbook/advising-registration/general-education-courses/)		6
Elective Social/Behavioral Sciences (https://catalog.ptc.edu/student-handbook/advising-registration/general-education-courses/)		3
Elective Humanities/Fine Arts (https://catalog.ptc.edu/student-handbook/advising-registration/general-education-courses/)		3
Subtotal		15
Required Core Subject Areas		
ACR 102	Tools and Service Techniques	3
ACR 106	Basic Electricity for HVAC/R	4
ACR 108	Refrigeration Fundamentals	3
ACR 110	Heating Fundamentals	4
ACR 118	Air Conditioning Fundamentals	3
ACR 242	Electronic Controls	2
Subtotal		19
Other Courses Required for Graduation		
ACR 107	Wiring Diagrams	2
ACR 131	Commercial Refrigeration	4
ACR 140	Automatic Controls	3
ACR 150	Basic Sheet Metal	2
ACR 175	EPA 608 Certification Preparation	1
ACR 201	Troubleshooting and Maintenance	3
ACR 206	Advanced Electricity for HVAC/R	2
ACR 210	Heat Pumps	4
ACR 223	Testing and Balancing	3
ACR 224	Codes and Ordinances	2
ACR 231	Advanced Refrigeration	4
ACR 250	Duct Fabrication	3
ACR 252	Special Topics in Air Conditioning & Heating	2
COL 103	College Skills	3
Subtotal		38
Total Hours		**72**

Graduation Plan

Fall Start

Course	Title	Hours
First Year		
Fall Semester		
ACR 102	Tools and Service Techniques	3
ACR 106	Basic Electricity for HVAC/R	4
ACR 108	Refrigeration Fundamentals	3
ACR 150	Basic Sheet Metal	2
COL 103	College Skills	3
	Hours	**15**
Spring Semester		
ACR 118	Air Conditioning Fundamentals	3
ACR 131	Commercial Refrigeration	4
ACR 175	EPA 608 Certification Preparation	1
ACR 206	Advanced Electricity for HVAC/R	2
ACR 250	Duct Fabrication	3
Mathematical Requirement (https://catalog.ptc.edu/student-handbook/advising-registration/general-education-courses/)		3
	Hours	**16**
Summer Semester		
ACR 107	Wiring Diagrams	2
ACR 140	Automatic Controls	3
ACR 231	Advanced Refrigeration	4
Elective Behavioral Science (https://catalog.ptc.edu/student-handbook/advising-registration/general-education-courses/)		3
	Hours	**12**
Second Year		
Fall Semester		
ACR 110	Heating Fundamentals	4
ACR 201	Troubleshooting and Maintenance	3
ACR 210	Heat Pumps	4
ENG 165	Professional Communications	3
Mathematical Requirement (https://catalog.ptc.edu/student-handbook/advising-registration/general-education-courses/)		3
	Hours	**17**

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
Elective Humanities/Fine Arts (https://catalog.ptc.edu/student-handbook/advising-registration/general-education-courses/)		3
	Hours	**12**
	Total Hours	**72**

Spring Start

Course	Title	Hours
First Year		
Spring Semester		
ENG 165	Professional Communications	3
COL 103	College Skills	3
Mathematical Requirement (https://catalog.ptc.edu/student-handbook/advising-registration/general-education-courses/)		3
	Hours	**9**
Summer Semester		
ACR 107	Wiring Diagrams	2
ACR 140	Automatic Controls	3
ACR 231	Advanced Refrigeration	4
	Hours	**9**
Fall Semester		
ACR 102	Tools and Service Techniques	3
ACR 106	Basic Electricity for HVAC/R	4
ACR 108	Refrigeration Fundamentals	3
ACR 150	Basic Sheet Metal	2
	Hours	**12**
Second Year		
Spring Semester		
ACR 118	Air Conditioning Fundamentals	3
ACR 131	Commercial Refrigeration	4
ACR 175	EPA 608 Certification Preparation	1
ACR 206	Advanced Electricity for HVAC/R	2
ACR 250	Duct Fabrication	3
	Hours	**13**
Summer Semester		
Elective Behavioral Science (https://catalog.ptc.edu/student-handbook/advising-registration/general-education-courses/)		3
Elective Humanities/Fine Arts (https://catalog.ptc.edu/student-handbook/advising-registration/general-education-courses/)		3
Mathematical Requirement (https://catalog.ptc.edu/student-handbook/advising-registration/general-education-courses/)		3
	Hours	**9**
Fall Semester		
ACR 110	Heating Fundamentals	4
ACR 201	Troubleshooting and Maintenance	3
ACR 210	Heat Pumps	4
	Hours	**11**
Third Year		
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
	Hours	**9**
	Total Hours	**72**

Summer Start

Course	Title	Hours
First Year		
Summer Semester		
COL 103	College Skills	3
Mathematical Requirement (https://catalog.ptc.edu/student-handbook/advising-registration/general-education-courses/)		3
	Hours	**6**
Fall Semester		
ACR 102	Tools and Service Techniques	3
ACR 106	Basic Electricity for HVAC/R	4
ACR 108	Refrigeration Fundamentals	3
ACR 150	Basic Sheet Metal	2
	Hours	**12**
Spring Semester		
ACR 118	Air Conditioning Fundamentals	3
ACR 131	Commercial Refrigeration	4
ACR 175	EPA 608 Certification Preparation	1
ACR 206	Advanced Electricity for HVAC/R	2
ACR 250	Duct Fabrication	3
	Hours	**13**
Second Year		
Summer Semester		
ACR 107	Wiring Diagrams	2
ACR 140	Automatic Controls	3
ACR 231	Advanced Refrigeration	4
Elective Behavioral Science (https://catalog.ptc.edu/student-handbook/advising-registration/general-education-courses/)		3
	Hours	**12**
Fall Semester		
ACR 110	Heating Fundamentals	4
ACR 201	Troubleshooting and Maintenance	3
ACR 210	Heat Pumps	4
ENG 165	Professional Communications	3

Mathematical Requirement (https://catalog.ptc.edu/student-handbook/advising-registration/general-education-courses/)		3
	Hours	**17**
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
Elective Humanities/Fine Arts (https://catalog.ptc.edu/student-handbook/advising-registration/general-education-courses/)		3
	Hours	**12**
	Total Hours	**72**

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

It is best to start in the Fall semester.

Students will earn an A.A.S., Major in HVAC Technology (HVA3) by the completion of the Refrigeration Applications Certificate, the Heating Fundamentals Certificate, HVACR Installers Certificate, Introduction to HVAC Certificate and completion of 18 credit hours of general education.

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)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.

Program Student Learning Outcomes

Purpose Statement

Purpose Statement – The HVAC 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 profession growth in the HVAC/R field. The program offers a wide range of credentials including the Associate in Applied Science Degree and two certificates in HVAC Technology.

Program Student Learning Outcomes

1. Install, repair and service light commercial refrigeration systems.
2. Use a wiring schematic in troubleshooting most air conditioning, heating, and refrigeration systems.
3. Install and service 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. Commission air quantities in heating and air conditioning, and refrigeration systems.
7. Install and service most heating systems including gas, oil, and electric.
8. Apply safety rules and regulations when working.
9. Install, repair and maintain most domestic refrigeration systems.