



# HEATING & AIR CONDITIONING SERVICE TECHNOLOGY

## Heating & Air Conditioning Service Technology Certification

Analyze, Troubleshoot, and Service HVAC units

The curriculum for this course includes a 10 hour OSHA certification and preparation for EPA universal certification. State of the art Mind-Tap simulations and zSpace 3-D software are used alongside live equipment for practicing new skills and concepts. Internships are available in the second semester. The heating and air conditioning service technology program will help students learn a variety of skills used in the industry, including the following:

- The principles of electricity as they relate to HVAC systems
- Servicing of heating, ventilation and air conditioning systems and their components
- Repairing or replacing worn, damaged, or defective mechanical parts
- Analysis and troubleshooting of HVAC systems
- Conferring with customers to assess issues and resolution options
- Job seeking, interviewing, and other professional skills

### Suggested educational levels:

- English literacy (reading, writing, speaking, and listening)
- Understanding of basic algebra

### Suggested physical abilities:

- Capable of lifting 50 pounds
- Capable of sustained activity for 5 hours at a time

### Class Hours:

- Morning: 7:50am - 10:40am Mon.- Fri.
- Afternoon: 12:05pm - 2:55pm Mon.- Fri.
- Evening: 5:30pm - 9:30pm Mon. - Thu.
- Program is 2 semesters in length, with start dates in Fall

### Tuition and Credit Hour Calculation

#### Semester 1

\$2,329.00 (Tuition)  
 + \$220.00 (Credit Hour Fee)  
 \$2,549.00

#### Semester 2

\$2,466.00 (Tuition)  
 + \$230.00 (Credit Hour Fee)  
 \$2,696.00

*Based on Colorado Resident In-State Tuition*

### Estimated Program Costs (to be paid at Picken's payment office)

#### Tuition and Credit Hour Fees:

Semester 1: \$2,549.00  
 Semester 2: \$2,696.00

#### Required On Campus Costs:

**Program Charges:** \$500.00 (each semester)  
**Student ID:** \$10.00 (each year)  
**Proxy Disc:** \$15.00 (semester 1)  
**CTSO Charge:** \$20.00 (each year)  
**Tungsten Arc Charge:** \$50.00 (second semester)  
**Workbook:** \$63.00 (+ tax)  
**OSHA Exam:** \$40.00 (first semester)  
**Safety Glasses:** \$5.00 (+ tax)  
**EPA Exam:** \$25.00

#### Estimated Total:

**Heating & Air Conditioning Service Technology Certificate:**  
 \$6,473.00 (+tax)

### Additional Relevant Costs (estimated)

#### Required Off Campus Costs:

**Books:** \$102.00 (+tax)

**Credits:**  
35

**Length:**  
1 year

**Cost:**  
\$6,473



Cost and information revised **March 2024**

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## Courses required for this certificate: Semester 1

<b>HVA 1003 Basic Electricity</b>	<b>3</b>
Covers the basic electrical AC theory, including the study of Ohm's Law to explain the operation of electrical devices.	
<b>HVA 1010 Fundamentals of Gas Heating</b>	<b>4</b>
Introduces students to the fundamentals of gas heating. Students work in a classroom and shop environment. Topics include the basics of gas heating systems, operation of gas valves and burners, gas pipe system design, gas piping system code requirements and basic code requirements for heating systems.	
<b>HVA 1046 Residential Load/Duct Design</b>	<b>4</b>
Introduces the importance of equipment sizing by teaching how to properly perform heating and cooling load calculations on residential houses. After determining proper equipment sizing, then demonstrate how to design the ductwork system sizing for proper airflow throughout the house.	
<b>HVA 2002 Troubleshooting &amp; Customer Service</b>	<b>3</b>
Covers field analysis of malfunctions on actual, in-house, heating, ventilation, refrigeration and air conditioning equipment. Customer interaction and diagnosis efficiency are stressed.	
<b>HVA 2040 Servicing Forced Air Systems</b>	<b>4</b>
Covers the operation, repair and maintenance of forced air heating systems. The course studies the different types of furnaces, code requirements, common controls and mechanical problems. This course also explores the A.G.A. approved method of testing furnace heat exchangers. Customer relations and workplace behavior are discussed.	
<b>OSH 1300 10HR OSHA Voluntary Compliance</b>	<b>1</b>
Provides a 10-Hour OSHA certification course for general industry and participants will review the current OSHA standards contained in 29 CFR 1910. Participants that complete the course will receive a certificate of completion from the United States Department of Labor, Occupational Safety and Health Administration. The course is taught by instructors certified by the Occupational Safety and Health Administration.	

## Courses required for this certificate: Semester 2

<b>HVA 1002 Basic Refrigeration</b>	<b>4</b>
Introduces the theory of refrigeration, components, charging, recycling, and evacuation of refrigeration units.	
<b>HVA 1006 Intro to Service Tech Training</b>	<b>1</b>
Introducing the basics from which the student will build their knowledge and understanding of this great career. Studies include class and school policies, safety for the Service Tech, first aid, and basic physics as it applies to heat, matter and energy.	
<b>HVA 1011 Piping Skills for HVAC</b>	<b>4</b>
Studies the different types of tubing and piping materials used in HVAC/R applications. Studies the proper tubing and piping installation methods used in the HVAC/R field. Subjects covered will be the proper cutting and bending procedures including, pipe math and how to make piping offsets. Common types of piping joints will be discussed, including, swaging, flaring, soldering, and brazing. Also covered will be cutting and threading of steel pipe and other alternative mechanical piping connections. Shop projects will include both bench projects and also mock up installation projects.	
<b>HVA 1013 Refrigerant Recovery Training</b>	<b>1</b>
Explains the laws regarding refrigerant recovery. The course includes hands-on use of recovery equipment. EPA certification is part of this course, students must pay \$40.00 for this optional exam.	
<b>HVA 2061 A/C Systems Service and Repair</b>	<b>4</b>
Emphasizes the service of HVAC systems. Troubleshooting techniques and equipment repair will be practiced.	
<b>HVA 2085 Independent Study</b>	<b>2</b>
Students will work with the instructor on a specific area with specific objectives and a predetermined project completion date.	

## HEATING & AIR CONDITIONING SERVICE TECHNOLOGY CERTIFICATE

**Certificate Total:** Clock Hours: 600 Credit Hours: 35

**Certificate Length:** 2 semesters

Additional costs may apply. All books, kits & supply costs are estimated. Cost, information, and classes are subject to change. Statistics present are based on the US Bureau of Labor Statistics. This certificate is eligible for Financial Aid. You may begin the Financial Aid process by completing your Free Application for Federal Aid (FAFSA) at [www.FAFSA.ed.gov](http://www.FAFSA.ed.gov). If you have further questions, please call (303)344-4910.