

Heating, Ventilation, Air Conditioning, and Refrigeration (HVAC&R)

Heating, Ventilation, Air Conditioning, and Refrigeration (HVAC&R) is rated by the U.S. Department of Labor as one of the fastest growing job areas in the country.

There are excellent employment opportunities available, both locally and nationally, for graduates of certificate programs.

This nine-month, 800-hour, full-time day or evening certificate program is designed to provide students with the knowledge and hands-on skills to become successful HVAC&R technicians. HVAC&R technicians work for heating and cooling contractors, refrigeration and air conditioning service and repair shops, schools, hospitals, office buildings, a variety of industries, and local, state or federal governments.

Under the supervision of a licensed technician, the HVAC&R apprentices help with the installation, troubleshooting, diagnosis and repair of equipment. Upon successful completion of the program, students are credited with 2000 hours towards the requirement to sit for the Refrigeration Technician Examination. Today's HVAC&R Technician needs to be EPA certified. BFIT's HVAC&R program provides test preparation for the EPA certification. In addition, we also offer an R-410 A certificate and 10-hour OSHA Safety certificate, upon successful completion.

Also, this program offers 150 hours of electrical code needed for state licensure.

This program follows all federal regulations regarding gainful employment.

Curriculum

The course curriculum is structured to provide a basic knowledge of the refrigeration, air conditioning, and heating fields. Core courses in the first semester cover topics such as: refrigeration and heating principles, electricity for HVAC&R, safety in the HVAC&R field, and use of HVAC&R tools and equipment. An EPA course covering the reclamation and recycling of refrigerant completes the first semester. In the second semester of the program, students concentrate on commercial and industrial refrigeration, air conditioning and testing. This semester also covers heating, including oil and gas-fired units, and forced hot air and hydronic systems.

Facilities

The Benjamin Franklin Institute of Technology maintains a HVAC&R laboratory with two Hampden Engineering Trainers. HVAC&R Lab equipment gives students real world hands-on training on commercial refrigeration and air conditioning and also on oil and gas-fired burners. The HVAC&R Lab contains a wide variety of tools and equipment used in the heating and ventilation industry.

Outcomes

Upon successful completion of the HVAC&R Certificate, the graduate will be able to:

- Demonstrate the principles of refrigeration and air conditioning.
- Identify principles of different refrigerants and their temperature pressure relationships.
- Demonstrate a knowledge of refrigeration and air conditioning components, including compressors, evaporators, metering devices and condensers.
- Implement proper charging of refrigeration and air conditioning systems and proper leak protection methods.
- Solder and braze pipes and fittings.
- Test pressure and detect leaks.
- Recover, reclaim and recycle refrigerant in accordance with EPA and Mass. Dept. of Public Safety guidelines.
- Flare and swage tubing.
- Troubleshoot electrical and mechanical malfunctions of commercial and domestic units.
- Use HVAC&R tools and measuring devices effectively.

Certificate Requirements for HVAC&R Technology

TECHNOLOGY COURSES: 28 CREDITS

<u>Course #</u>	<u>Course Title</u>	<u>Credits</u>	<u>Lecture</u>	<u>Lab</u>
HV101	Theory of Heat	4	3	3
HV102	Safety, Tools, & Shop Practices	4	3	3
HV103	Electricity for HVAC&R	3	2	3
HV104	EPA Regulations	3	2	3
HV201	Commercial	4	3	2
HV202	AC, Heating, & Humidification	4	2	6
HV203	Commercial & Industrial AC	4	3	3
HV204	Electrical Codes & Schematics	2	2	0

The HVAC&R program is also offered during the evening for students who are unable to study during the day. Students in the HVAC&R evening program study Monday through Thursday. The program normally begins in January and concludes the following August. Information about the course schedule for the HVAC&R evening program is available through the BFIT Admissions Office.

Faculty

Donald Broza, Department Chair

Instructor Staff: Gerard Geffrard, David Hogan, Sal Lentini, Henry Valentini