



Heating, Ventilation, Air Conditioning & Refrigeration Technology (HVAC-R)

Assunpink Center

This program prepares students with the fundamentals of the heating and air conditioning industry. Students learn about heating and cooling cycles and electricity, including electrical and electronic controls, heating systems, heat pumps, system layout, and design. Students also learn how to install, service, and repair HVAC systems using modern techniques and tools. Students will learn about residential and commercial HVAC systems and become engaged with refrigerant cycles, pressure temperature measurements, and charging, sequence of operation, furnace ignition assemblies, heat loads, controls, and troubleshooting. The students will experience solar water heating systems and other green HVAC energy systems.

Students will earn industry-valued credentials such as OSHA 10 certification, Flexible Gas Line (TracPipe), and the Universal EPA certification. In addition to certifications, students will be enrolled in Interplay Learning, the Department of Labor registered pre-apprenticeship program, earning 144 hours in related technical instruction credit, which counts towards an approved apprenticeship program in New Jersey. All HVAC-R students join their respective Career Technical Student Organization, Skills USA, and compete in local, regional, and state-level competitions.

Heating, Ventilation, Air Conditioning & Refrigeration Technology (HVAC-R) I

Grade Level: 11 Credits: 20

Year one (1) students begin preparation for the Universal EPA Exam, which is taken early in the second year of the program. The year begins with an introduction to the EPA, an overview of tools, and an introduction to the basic principles of heating and cooling. Students will be engaged in refrigerant cycles, pressure temperature measurements, and charging, sequence of operation, furnace ignition assemblies, heat loads, controls, and troubleshooting. The students will experience an introduction to solar water heating systems. During this year, the students will also be engaged in training and assessment, leading them to the field-required Flexible Gas Line certification, and obtaining OSHA 10 certification.

Heating, Ventilation, Air Conditioning & Refrigeration Technology (HVAC-R) II

Grade Level: 12 Credits: 20

Year two (2) continues its focus on Electrical Systems and the use of electric power and teaches students how to identify and install electric thermostats, wiring relay protection devices, and capacitors. They will learn to wire and replace all relevant types of motors, from split-phase to shaded pole, to three-phase and capacitor start motors, plus the drawing of schematic wiring diagrams. The Universal EPA certification is an industry technical skills assessment certification that will make students a valuable entity able to install, service, repair, and maintain a wide variety of heating and cooling systems.



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Industry Valued Credentials & Certifications

OSHA 10 certification
Flexible Gas Line certification
Universal EPA certification

Articulation Agreements

Thomas Edison State University



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