

Eastern Center for Arts and Technology

Program Review

Final Report

HVAC Technology

2024

Occupational Advisory Committee Members

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Occupational Outlook

Job prospects for HVAC Technicians, mechanics and installers are expected to be excellent, particularly for those with training from an accredited technical school or with formal apprenticeship training.

The U.S. Department of Labor, Bureau of Labor Statistics, predicts a growing number of HVAC Mechanics and Installers. Employment of HVAC Mechanics and Installers is projected to grow much faster than average, 9% or higher through the years of 2021 - 2031.

Pennsylvania labor statistics predict that HVAC Technician employment is expected to grow from approximately 484,600 in 2021 to approximately 508,300 in 2031. Employment of HVAC mechanics and installers is expected to grow faster than average through 2031. Demand for residential, commercial and industrial climate control systems will increase as the population and economy grow. Those who have attended technical school or formal training will have the best opportunities. Technicians who specialize in installation work may experience periods of unemployment when the level of new construction activity has declined, and the economy is at a low point. Service work tends to remain relatively stable through lulls in the economy.

Summary of Graduate Placement

Students from the HVAC program from 2019-2023 entered related employment and post-secondary education at a rate of 64.7%. Notably, 82.4% of students achieved the EASTERN completion standard of a final grade of 70% or higher and completion of all tasks in the career objective.

Current Program Status and Plans for Growth

The HVAC Technology program has been experiencing several years of growth. Since 2019, students have had a uniform requirement, enhancing the professional atmosphere of the program and the environment. From 2019 to 2023 school, the percentage of students enrolling at a post-secondary trade school, college, or university after completing the program has increased yearly. In addition, NOCTI scores have continued to improve each year. In 2021-2022, 93.3% of the students who completed the NOCTI earned a score of proficient or above. Although this percentage is still shy of PDE's benchmark and EASTERN's benchmark, the successful performance of the students is on an upward trend.

Program Viability

Currently the HVAC program at EASTERN is experiencing growing enrollment. Great effort has been placed on marketing the HVAC program and the benefits it could provide for students in their future. EASTERN has visited participating schools with HVAC students during college fairs to get the HVAC program better exposure.

The HVAC Occupational Advisory Committee recommends and supports the continuation of the HVAC program at EASTERN. This recommendation is due to

the continuing market demand for technicians, improved placement rates of graduates, and increased industry needs. Input from local contractors supports the demand for technicians in the industry. The current class size is 39 students with an estimated 21 returning students for 2024-25.

Summary of Industry Trends

Trends indicate that the HVAC industry is responding to a robust market. This market is influenced by concern for energy conservation, environmental responsibility, and technological advancements.

Concern for the environment has prompted the development of new energy-saving heating and air conditioning systems, and different refrigerants. An emphasis on better energy management should lead to the replacement of older systems and the installation of newer, more efficient systems in existing homes and buildings. Also, demand for maintenance and service work should increase as businesses and homeowners strive to keep increasingly complex systems operating at peak efficiency. The increase in energy awareness has spurred an increase in the electronic controls used to improve the energy efficiency of heating and cooling units. Most systems gain efficiency using electronic controls and high-efficiency compressors all designed to use fewer resources to operate. Increased use of electrical/electronic controls requires sound theoretical and practical knowledge of system devices and circuitry. Qualified technicians must keep current with industry trends and technological advances in electrical/electronic and energy management systems.

HVAC Technology is also a **Green Increased Demand** occupation, meaning that green economy activities and technologies are likely to increase the employment

demand and may require significant changes in the work and employee requirements. HVAC work in the green demand could mean constructing new green buildings, retrofitting residential and commercial buildings, and installing other green technologies.

Technicians need to possess communication skills to work with customers and employers. Most technicians work in residences and places of employment. It is essential that they be able to communicate problems to customers and do so sincerely. Further, communication with employers is equally important. A “business sense” is an essential skill as a technician grows within the industry. Industry training is important to keep pace with industry trends. Students need to be educated and certificated in current advancements and technologies to make them employable and an asset to the industry. To ensure the students are current, the instructor must stay current in new energy conservation methods, environmental and technological advances.

Recommendations:

Based on industry trends, the committee makes the following recommendations:

Recommendation 1: Build a deck or an area for outdoor units to be put outside of the theory room for students to work on units in the correct elements.

Recommendation 2: Purchase 5 new combustion analyzers for the program.

Recommendation 3: Purchase Pro-Press tools and fittings for students to learn how to use and add a project for students.

Recommendation 4: Purchase heat pumps and A/C units, new heaters with coils, new air handlers, and all hardware needed to install equipment.

Implementation Timeline

2024-2025 School Year

- Build a deck or an area for outdoor units to be put outside of the theory room for students to work on units in the correct elements. TBD
- Purchase a combustion analyzer. (3) (replacement) (2024 Grant)
- Purchase a press tool kit. (replacement) \$2,099
- Purchase a manual floor shear. (replacement) (2024 Grant)
- Total \$2,099

2025-2026 School Year

- Purchase combustion analyzers (2) (replacement) \$3,324
- Purchase Nest thermostats (2) \$300
- Purchase Ecobee thermostats (2) \$300
- Purchase heat packs (4) (replacements) \$648
- Total \$4,572

2026-2027 School Year

- Purchase heat pumps (4) (replacements) \$9,503
- Purchase air handlers (4) (replacements) \$3,585
- Purchase evaporator coils (replacements) \$2,590
- Total \$15,678

2027-2028 School Year

- Purchase heaters (4) (replacements) \$4,497
- Purchase A/C units (replacements) \$5,428
- Total \$9,925

Program Review Total \$32,274

