



Program Plan

Knox Technical Center

HVACR (Heating, Ventilation, Air Conditioning, Refrigeration)

Knox Technical Center
Adult Education at KCCC
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School Office Hours: Mon-Thurs 7:30am – 7:00pm
Fri 7:30am – 4:00pm

I. GENERAL INFORMATION

- A. Mission Statement: The mission of the Knox County Career Center Adult Education is to provide cutting-edge programs that prepare adults with career and lifelong learning skills.
- B. Program Coordinator: Louann Shultz
740.393.2933, ext. 1102
mcreighton@knoxcc.org
- Adult Education Director: Jane Marlow
740.393.2933, ext. 1106
jmarlow@knoxcc.org
- C. Disability Accommodations. Any learner needing special accommodation on the basis of any disability must advise the instructor at the beginning of class. All necessary accommodations will be made upon presentation of relevant certification, presented in a timely manner. Learners are also responsible for making contact with the Program Coordinator prior to the start of class. For detailed KCCC Bylaws & Policies pertaining to Reasonable Accommodation, see Section 2260.01-Section 504 – ADA Prohibition Against Discrimination Based on Disability located on the website at www.knoxtechnicalcenter.com.
- D. Equal Opportunity. It is the policy of the Knox County Career Center School District that employment, educational programs, and activities are provided without regard to race, color, national origin, sex or disability. Any learner with a disability should contact the program coordinator. The Board designates the Director as the Title VI, Title IX and Section 504 Coordinator.
- E. Title IV Eligibility. This program has been approved for Title IV funding. Adult learners requesting information about financial assistance should contact Financial Aid Coordinator Amy Thompson.

II. RATIONALE FOR PROGRAM

Program Plan

- Heating, air-conditioning, ventilation and refrigeration (HVACR) mechanics work in any location that equipment is used to control the climate, such as houses, retail stores, offices, hospitals, and plants.
- Employment of heating, air conditioning, and refrigeration mechanics and installers is projected to grow 4 percent from 2019 to 2029, much faster than the average for all occupations. (Bureau of Labor Statistics, 7/2018; (<https://www.bls.gov/ooh/installation-maintenance-and-repair/heating-air-conditioning-and-refrigeration-mechanics-and-installers.htm>))
- As of May 2021, 53 jobs relating to HVACR within 50 miles of KTC were posted on the Ohio Means Jobs website (www.ohiomeansjobs.com).
- Employment opportunities for HVACR technicians in and around the Columbus, Ohio area as of July 2018 is 303 jobs; <https://www.indeed.com/jobs?q=hvac+technician&l=Columbus%2C+OH>
- Job opportunities for HVACR technicians are expected to be excellent, particularly for those who have completed training at an accredited technical school or through an apprenticeship. Candidates familiar with computer tablets and electronics, as well as those who have developed troubleshooting skills, will have the best job opportunities as employers continue to have difficulty finding qualified technicians to install, maintain, and repair complex new systems continue to have difficulty finding qualified technicians to work on complex new systems. (<https://www.bls.gov/ooh/installation-maintenance-and-repair/heating-air-conditioning-and-refrigeration-mechanics-and-installers.htm>)
- The vast majority of HVACR technicians work full time, with occasional evening or weekend shifts. During peak heating and cooling seasons, they often work overtime or irregular hours. Although most technicians are employed by construction contractors, about 1 in 10 is self-employed workers who have the ability to set their own schedules. Technicians who service refrigeration, heating, and air conditioning equipment generally have stable employment throughout the year, particularly because a growing number of manufacturers and contractors now provide or even require year-round service contracts. (<https://www.bls.gov/ooh/installation-maintenance-and-repair/heating-air-conditioning-and-refrigeration-mechanics-and-installers.htm>)

III. PROGRAM DESCRIPTION

The HVACR (heating, ventilation, air conditioning, and refrigeration) Technician program will prepare learners for careers as HVACR installers and technicians. The 685-hour program is a performance based program with no prerequisite courses or certifications required.

IV. PROGRAM GOALS

- Provide sound fundamental skills required to pass EPA Section 608 Certification exam.

Program Plan

- Provide employment opportunities in a variety of residential/light commercial HVACR occupations
- Stay current with changing technologies by utilizing Advisory Committee from local industry
- Offer quality career-oriented instruction utilizing modern teaching techniques and applications.
- Provide the necessary skills to acquire employment or advance career opportunities in the HVACR field.
- Provide a bridge for career pathways.
- Explore technology of the future.

V. PROGRAM OUTCOMES

After the completion of the HVACR Technician Program, a learner will be able to:

- Demonstrate proper safety practices and procedures while installing, designing, troubleshooting and servicing HVACR systems
- Gain competency in the area of fossil fuel combustion systems found in residential and light commercial buildings
- Demonstrate competency in the area of refrigerant handling
- Understand the importance of good work habits, communication practices, and computation skills
- Demonstrate a high level of ability to access industry technical information on the Web
- Obtain required overall industry competencies in the areas of HVACR
- Demonstrate good team, interpersonal, and customer service skills.
- Obtain and maintain employment as a certified HVACR installer or technician
- Apply acquired knowledge and skill if learner chooses to advance to a higher level of education such as an Associate Degree with an articulated institution.

VI. CREDENTIAL

- Certification Exam: This program will prepare learners to pass the following certification exam:
 - The Environmental Protection Agency's (EPA) Section 608 Certification Exam.

VII. TARGET POPULATION

- Any person 18 years of age and older with high school diploma or GED
- Any person interested in a HVACR career and/or career enhancement within a residential or light commercial environment

VIII. PROGRAM MODEL

- A. 685 hours of instruction (Theory – 282 hours; Laboratory – 403 hours)
- B. See Addendum A for Curriculum Map

IX. ASSESSMENT STRATEGIES

Program Plan

- A. Preassessment Skills Review
 - WorkKeys
- B. Throughout Program
 - Individual module testing – minimum passing score of 75%
- C. Graduation
 - Maintain a 75% or higher per term attendance
 - Maintain 90% attendance per term and overall
 - Successfully complete all course work

X. EVALUATION PLAN TO DETERMINE PROGRAM EFFECTIVENESS

- Follow-up of placement of graduates into HVACR industry to determine employment rate
- Learner evaluation of instructors halfway through program and at end of program
- Learner evaluation of course halfway through program and at end of program
- Meetings with Advisory Committee at least twice a year
- Meetings with Faculty

XI. TRAINING PATHWAYS

- A. A career pathway system is a series of connected educational and training programs and support services that prepare and enable individuals, often while they are working, to secure a job and advance over time to successively higher levels of education and employment in a specific industry/field. Pathway goals are to increase access, awareness, affordability, resources, and alignment for high school students, adult learners, and the current workforce (Thrive, 2009).

The Knox Technical Center Adult HVACR Technician program is an entry-level program designed for learners with little to novice experience in the HVACR field, those who already work in the field and wish to enhance their skills, or those who simply wish to enter a HVACR career pathway.

Prior to admission potential learners must have the following:

- High school diploma or GED
- Completed application form with a \$50 deposit
- Skills Assessment (WorkKeys)
- Interview with program coordinator

Addendum A

ADULT EDUCATION
CURRICULUM MAP

Program Plan

KTC Adult Education HVAC-R

| Course Sequence | | Class Hours | Total Laboratory Hours | Total Course Hours |
|----------------------------|---|-------------|------------------------|--------------------|
| Course # | Course Name | | | |
| HVC100 | Employability | | 4 | 4 |
| HVC110 | Introduction to HVAC-R <ul style="list-style-type: none"> • Professional Development • Refrigeration System Fundamentals • Service Basics • Refrigerants | 73 | 108.5 | 181.5 |
| HVC200 | Employability | | 4 | 4 |
| HVC210 | Electrical <ul style="list-style-type: none"> • Basic Electricity, Magnetism & Electronics • Motors & Electric Control Systems | 34.5 | 51.75 | 86.25 |
| HVC220 | Introduction to Refrigeration <ul style="list-style-type: none"> • Refrigeration System Components • Domestic Refrigerators & Freezers | 34.5 | 51.75 | 86.25 |
| HVC300 | Employability | | 4 | 4 |
| HVC310 | Air Conditioning <ul style="list-style-type: none"> • Indoor Air Fundamentals • Air Conditioning Systems | 35 | 50.75 | 85.75 |
| HVC320 | Heating <ul style="list-style-type: none"> • Heating Systems • Energy Management & Conservation | 35 | 50.75 | 85.75 |
| HVC400 | Employability | | 4 | 4 |
| HVC410 | Commercial Refrigeration <ul style="list-style-type: none"> • Commercial Refrigeration Systems • Designing Commercial Refrigeration Systems • Installing & Servicing Commercial Systems Career Services Review for EPA 608 EPA Universal 608 Exam | 70 | 73.5 | 143.5 |
| Total Program Hours | | 282 | 403 | 685 |

Hours in session: 685 total hours Weeks in session: 43

Calendar: August 1, 2018 through May 23, 2019
Work Based Learning taught throughout HVAC-R Program

Revised 2/21/2018