



Air Conditioning, Refrigeration and Heating Program I (HVAC)
Sumter County Schools – Career and Adult Education <http://aec.sumter.k12.fl.us>
2016-17



The purpose of this introductory program is to prepare students for entry level employment or advanced training in the heating, air-conditioning (A/C), and refrigeration and ventilation industry. This program prepares students for employment as A/C, Refrigeration and Heating Helper, A/C, Refrigeration and Heating Mechanic Assistant, and A/C, Refrigeration and Heating Mechanic. This program focuses on broad, transferable skills, stresses the understanding of the heating, air-conditioning, refrigeration and ventilation industry, and demonstrates elements of the industry such as planning, management, finance, technical and production skills, the underlying principles of technology, and health, safety, and environmental issues. The student should obtain EPA certification prior to completing the program in order to be employed in any job that requires work with refrigerants.

The program consists of three occupational completion levels associated with the skills needed for entry level jobs in the industry. The approximate time needed to complete each level is 250 hours with total program completion time estimated at 750 hours. Sumter Adult and Community Education Center offers the program in four semesters. Students attend three evenings a week for approximately 16 weeks each semester. Classes run for four hours each evening. Students can expect course content and hands-on lab practice during the program. **Students must meet all performance standards and earn an average of 70% to receive a program completion certificate. (See attached list of program competencies.)**

- Air Conditioning, Refrigeration and Heating Helper – OCP A
- Air Conditioning, Refrigeration and Heating Mechanic Assistant – OCP B
- Air Conditioning, Refrigeration and Heating Mechanic 1 – OCP C

Students who identify themselves as having a disability should provide all necessary documentation to the school administrator for review. If the disability is verified by the appropriate documentation, a meeting will take place between the student, teacher, and administrator to develop an individual education plan and assist with an accommodations request with HVAC Excellence.

2014 Statewide Annual Wages – \$24,000-\$60,600 (See <http://www.bls.gov/ooh/installation-maintenance-and-repair/heating-air-conditioning-and-refrigeration-mechanics-and-installers.htm>)

Projected Statewide Growth – 2012-2022 – 45% increase with 1,610 projected openings annually (www.employflorida.com)

Students must be over the age of 18, be able to attend every class and do at-home studying, submit an application, take the TABE test, and complete career counseling. Absences must not exceed 10% of the class hours or students risk program completion.

COURSE TUITION and FEES

Tuition is calculated at \$2.44 per course hour for Florida residents and \$9.78 per course hour for non-residents. Non-refundable application fee includes TABE testing** and processing. Lab/Supply fees include all consumables used in laboratory experiences (copper, gas, solder, Freon, ductboard, wiring, instructional supplies, etc.), tool

replacements, instructional supplies, electronic curriculum resources, and all printing/copying of course documents. **Payment by money order, cash, or credit card accepted. There is a 3% fee for the use of the credit card. Make money orders payable to Sumter County School Board.** *Students are responsible for purchasing appropriate work gloves, safety glasses, and closed-toe shoes (not sneakers).*

TEXTBOOK

Refrigeration and Air Conditioning Technology, Hardcover – Unabridged, February 24, 2012

by **Bill Whitman** (Author), **Bill Johnson** (Author), **John Tomczyk** (Author), & **1 more**

ISBN-13: 978-1111644475 ISBN-10: 1111644470 Edition: 7th

ATTENDANCE Policy

Attendance is required in order to complete the curriculum standards and earn a program completion certificate and take the industry certification exam, if applicable.

Absences cannot exceed 10% of the course hours. Students who exceed 10% of course hours with absences risk earning a program completion certificate. Test makeups will only be allowed for documented absences. Examples of documented absences include doctor's requirements, employer requirements, hospital stays, military assignments, and jury duty. After 6 consecutive absences a student will be withdrawn from the class as required by the state attendance policy. The student may reapply for the next term with consideration for completed hours/competencies. Refund policy remains in effect.

REFUND POLICY

In the event a student elects to withdraw, under normal circumstances, the following refund procedure applies to students enrolled in adult career and technical courses:

- 1. Before start of class - full refund of course and non-resident student tuition and fees excluding non-refundable application fee and any supplies purchased and provided to student.*
- 2. Within 3 school days of start date – upon written request, full refund of course and non-resident tuition and industry certification fees. **NO REFUND** of lab fees, OSHA course/certification fees, student insurance, and non-refundable application fee.*
- 3. After 3 school days – **NO REFUND** of any tuition/fees.*

BASIC SKILLS TESTING**

In PSAV programs offered for 450 hours or more, in accordance with Rule 6A-10.040, F.A.C., the minimum basic skills grade levels required for postsecondary adult career and technical students to complete this program are: Mathematics 10, Language 9, and Reading 9. These grade level numbers correspond to a grade equivalent score obtained on a state designated basic skills examination. Students must be tested within the first six weeks of program start date. Students will be provided support materials for remediation if required levels are not met upon program entry. No student shall be denied program entry based on TABE scores.

Adult students with disabilities, as defined in Section 1004.02(7), Florida Statutes, may be exempted from meeting the Basic Skills requirements (Rule 6A-10.040). Students served in exceptional student education (except gifted) as defined in s. 1003.01(3)(a), F.S., may also be exempted from meeting the Basic Skills requirement.

Students who possess a college degree at the Associate of Applied Science level or higher; who have completed or are exempt from the college entry-level examination (a student who entered 9th grade in a Florida public school in the 2003-2004 school year, or any year thereafter, and earned a Florida standard high school diploma or a student who is serving as an active duty member of any branch of the United States Armed Services); or who have passed a state, national, or industry licensure exam are exempt from

meeting the Basic Skills requirement. Exemptions from state, national or industry licensure are limited to the certifications listed on the Basic Skills and Licensure Exemption List which may be accessed from the FLDOE CTE Resources webpage.

UNIFORM REQUIREMENTS

Closed-toe shoes or work boots (no athletic shoes), long pants, sleeved-shirts, and electrical safety work gloves, and safety glasses are required for each class. Shorts, tank-tops, sleeveless shirts, sneakers or flip flops are not permissible attire in the classroom or lab setting.

COURSE Tuition and Fees

	FL Resident – Term 1	Non-Resident – Term 1	FL Resident – Term 2	Non-Resident – Term 2	FL Resident – Term 3	Non-Resident – Term 3	FL Resident – Term 4	Non-Resident – Term 4
*Application Fee (NON-REFUNDABLE) (includes TABE unless exempt**)	\$ 35.00	\$ 35.00	\$ 15.00	\$ 15.00	\$ 15.00	\$ 15.00	\$ 15.00	\$ 15.00
FL Resident Tuition (per course) - \$2.44 x 187.5 hours	\$ 457.50		\$ 457.50		\$ 457.50		\$ 457.50	
Out-of-State Tuition (per course) - \$9.78 x 187.5 hours		\$1,833.75		\$1,833.75		\$1,833.75		\$1,833.75
OSHA 10-hour General Industry/Construction Certification Courses	\$ 50.00	\$ 50.00						
Lab/Supply Fees (per course) - Includes consumable supplies (ex.copper, gases, wiring, ductboard, etc.) (NON-REFUNDABLE)	\$ 75.00	\$ 75.00	\$ 75.00	\$ 75.00	\$ 75.00	\$ 75.00	\$ 75.00	\$ 75.00
Curriculum Materials (Mindtap 24 months, DelMar simulator 24 months, Textbook +shipping)	\$ 285.00	\$ 285.00						
*Student Insurance (NON-REFUNDABLE)	\$ 6.30	\$ 6.30	\$ 6.30	\$ 6.30	\$ 6.30	\$ 6.30	\$ 6.30	\$ 6.30
Certification Tests								
EPA 608					\$50.00	\$50.00		
HVAC Excellence Employment Ready Certification							\$50.00	\$50.00
TOTAL (FL Resident)	\$908.80		\$553.80		\$603.80		\$603.80	
TOTAL (Out of State)		\$2,285.05		\$1,930.05		\$1,980.05		\$1,980.05
TOTAL PROGRAM COST							\$2,670.20	\$8,175.20
Additional Fees – Responsibility of Student								
Safety Glasses and Work Gloves	Approx. \$20.00	Approx. \$20.00						

All prices subject to change pending legislative action and School Board approval.

*Costs are not included in CareerSource Training Scholarship

**Sumter Adult and Community Education Center
RECORD OF ACHIEVEMENTS
AIR CONDITIONING, REFRIGERATION & HEATING TECHNOLOGY 1**

Student Name: _____

OCP A	AIR CONDITIONING, REFRIGERATION & HEATING HELPER – 250 HOURS	
01.0	Demonstrate the importance of health, safety and environmental management systems in organizations and their importance to organizational performance and regulatory compliance.	
02.0	Identify, use and maintain the tools and tool accessories used in the heating, air-conditioning and refrigeration industry.	
03.0	Demonstrate mathematics knowledge and skills.	
04.0	Demonstrate a practical knowledge of basic electricity and of the electrical components of heating, air-conditioning and refrigeration equipment.	
05.0	Troubleshoot heating, air-conditioning and refrigeration electrical control systems and their components.	
06.0	Select and test electrical generation and distribution components for commercial heating and air conditioning systems.	
07.0	Maintain, test and troubleshoot electrical motors and their components for commercial heating and air-conditioning systems.	
08.0	Troubleshoot and wire electrical motors and their components.	
09.0	Operate solid-state electronics as used in heating, air-conditioning and refrigeration systems.	
10.0	Evaluate single-phase and three-phase power as used in heating, air-conditioning and refrigeration systems.	
11.0	Explain the function of basic electronics.	
OCP B	AIR CONDITIONING, REFRIGERATION & HEATING MECHANIC ASSISTANT – 250 HOURS	
12.0	Read construction documents.	
13.0	Describe the history and concepts of heating, air-conditioning and refrigeration.	
14.0	Demonstrate science knowledge and skills	
15.0	Explain the properties of matter and heat behavior.	
16.0	Analyze fluids, pressures, refrigerants and related codes.	

17.0	Evaluate heating, air-conditioning and refrigeration system components and accessories.	
18.0	Select appropriate commercial compressors.	
19.0	Test and adjust commercial evaporative condensers.	
20.0	Maintain, test and troubleshoot commercial evaporators.	
21.0	Fabricate and service the piping, tubing and fittings used in the heating, air-conditioning and refrigeration industry.	
22.0	Explain the importance of employability and entrepreneurship skills.	
OCP C	AIR CONDITIONING, REFRIGERATION & HEATING MECHANIC 1 – 250 HOURS	
23.0	Identify basic principles of heating, air conditioning, refrigeration and ventilation piping sizing.	
24.0	Utilize and operate mechanical refrigeration servicing and testing equipment.	
25.0	Assist in the installation of a residential heating and air-conditioning system and determine start-up procedures.	
26.0	Conduct start-up and check-out procedures for mechanical heating and air-conditioning systems.	
27.0	Demonstrate a working knowledge of refrigerants and oils.	
28.0	Interpret, use and modify construction drawings and specifications.	
29.0	Conduct system startup and shutdown.	
30.0	Design heating and cooling systems.	

Legend: ✓ = Achieved P = Partially Achieved
 N = Not Achieved N/A = Not Applicable

ADDITIONAL COMMENTS:

TEACHER SIGNATURE: _____

DATE: _____

How to Get Started:

1. Apply for scholarships, if available. (possible funds - CareerSource, Mid Florida Community Services, United Way of Lake and Sumter Counties)
2. Complete the enrollment package. Pay course tuition and required fees. Supply documentation if TABE exempt.

3. Attend orientation and take the TABE test (if needed). Meet with Career Specialist.
4. Attend class regularly. Participate fully. Study at home. Meet with success!