



# Atlantic Technical College

## Heating, Ventilation, Air-Conditioning/Refrigeration Program

### Syllabus – (HVAC/R 1)

### 2023-2024



**Instructor Name:** Mr. Youngblood  
**Department Name:** Architecture & Construction  
**Office/Classroom Location:** Building #8, Room 186  
**Phone Number:** 754-321-5100  
**Email Address:** brian.youngblood@browardschools.com

**Instructor Office Hours:**  
**M-F:** 2:50 PM – 3:50 PM  
(By appointment only)

<b>Student Hours:</b> <b>Monday – Friday</b> 7:05 AM – 2:50 PM (Adults)  <b>Lunch:</b> 10:10 AM to 10:40 AM  <i>NOTE: All students are expected to be present during their entire scheduled class time(s). All classroom breaks will occur on an “as needed” basis. The wall clock in the classroom will serve as the official time.</i>	<b>Program Name:</b> Heating, Ventilation, Air-Conditioning/Refrigeration (HVAC/R 1) <b>Career Cluster:</b> Architecture and Construction		
	<b>OCPs</b>	<b>Course Number / Title</b>	<b>Course Length</b>
	A	ACR0000/Introduction to HVAC/R	250 hours
	B	ACR0001/HVAC/R Fundamentals	250 hours
		C	ACR0012/HVAC/R Service Practices
			250 hours
			<b>750 total hours</b> (Including summer)

#### Technical College Policy/Adult Student Attendance:

- A student must be withdrawn after being absent for six (6) consecutive days.
- Two (2) additional absences may be allowed under certain circumstance with appropriate documentation.
- Please refer to the Broward Technical College Student Handbook for postsecondary students.  
<http://www.atlanticttechnicalcollege.edu/atc-student-handbook/>

#### Magnet High School/Attendance Policy:

A student who has had at least five unexcused absences, or absences for which the reasons are unknown, within a calendar month, or 10 unexcused absences, or absences for which the reasons are unknown, within a 90-calendar-day period, may be exhibiting a pattern of non-attendance (F.S.1003.26 (1) (b)) and the School Board of Broward County, Policy 5.5.

<p><b>Required Book(s) and/or Online Access</b> Available for purchase at the ATC Bookstore:</p> <ul style="list-style-type: none"> <li>Modern Refrigeration and Air Conditioning; 21<sup>st</sup> Edition ISBN# <u>9781635638776</u></li> </ul>	<p><b>Required Materials/Supplies</b> Purchased from ATC Bookstore:</p> <ul style="list-style-type: none"> <li>Safety glasses &amp; Computer Headset (optional)</li> </ul> <p>Not Purchased from ATC Bookstore:</p> <ul style="list-style-type: none"> <li>Items to be covered throughout course</li> </ul>
<p><i>All required books &amp; most materials/supplies can be purchased from the school bookstore. Stop by during operational hours for pricing &amp; purchasing information.</i></p>	
<p><b>ADULT STUDENTS:</b> <i>All required books &amp; some materials/supplies can be purchased from the school bookstore. Stop by during operational hours for pricing &amp; purchasing information. All other required materials/ retail supplies not available at the bookstore need to be purchased elsewhere. All required books and required materials/retail supplies need to be obtained prior to the start of the program.</i></p> <p><b>HIGH SCHOOL &amp; VA STUDENTS:</b> <i>Are not eligible to take this course</i></p>	
<p><b>Grading System:</b></p> <p>A 90 - 100% B 80 - 89% C 70 - 79% D 60 - 69% F 0 - 59% I Incomplete</p>	<p><b>Additional Program Specific Grading Information:</b></p> <ul style="list-style-type: none"> <li>Projects 25%</li> <li>Tests/Quizzes 25%</li> <li>Work Habits/Attend 25%</li> <li>Class Participation 15%</li> <li>Homework 10%</li> </ul> <p>See Class Management Plan for specific details</p>
<p><b>Online Course Grading Policy:</b> Not Applicable</p>	
<p><b>View Your Grades:</b> <b>Grades can be viewed online by following the directions below:</b></p> <ol style="list-style-type: none"> <li>Go to <a href="https://browardfocus.com">https://browardfocus.com</a> (access FOCUS using Chrome, Firefox or Safari)</li> <li>Student ID which is on your student schedule.</li> <li>Passcode: Student's date of birth formatted as PMM/DD/YYYY. <i>Two digits for the month, two digits for the day and Four digits for the year.</i></li> </ol>	
<p><b>See Class Management Plan for Classroom and Lab rules and Positive Intervention Policy</b></p>	

**Accommodations:**

Federal and state legislation requires the provision of accommodations for students with disabilities as identified on the secondary student's IEP or 504 plan or postsecondary student's accommodations plan to meet individual needs and ensure equal access. Postsecondary students with disabilities must self-identify, present documentation, request accommodation if needed, and develop a plan with their postsecondary service provider. The accommodation received in postsecondary education may differ from those received in secondary education.

Accommodation changes the way the student is instructed. Students with disabilities may need accommodation in such areas as instructional methods and materials, assignments and assessments, time demands and schedules, learning environment, assistive technology and special communication systems. Documentation of the accommodation requested and provided should be maintained in a confidential file.

In addition to accommodation, some secondary students with disabilities (ESE) will need modifications to meet their special needs.

- Modifications change the outcomes or what the student is expected to learn, e.g., modifying the curriculum of a secondary career and technical education course.  
**Note:** Postsecondary curriculum cannot be modified.
- Some secondary students with disabilities (ESE) may need additional time (i.e., longer than the regular school year), to master the student performance standards associated with a regular occupational completion point (OCP) or a modified occupational completion point (MOCP).
- If needed, a student may enroll in the same career and technical course more than once. Documentation should be included in the IEP that clearly indicates that it is anticipated that the student may need an additional year to complete an OCP/MOCP.
- The student should work on different competencies and new applications of competencies each year toward completion of the OCP(s)/MOCP. After achieving the competencies identified for the year, the student earns credit for the course.
- It is important to ensure that credits earned by students are reported accurately. The district's information system must be designed to accept multiple credits for the same course number (for eligible students with disabilities).

**Industry Certification & State Credential****Exam Costs:**

- EPA Section 608 (Type I, Type II, Type III, and/or Universal) - \$25
- EPA R-410a - \$25
- HVAC Excellence; Employment Ready (*for adults*): Air Conditioning; Commercial Air Conditioning; Commercial Refrigeration; Electrical; Electric Heat; Gas Heat; Heat Pump - \$15 each
- Occupational Safety and Health Administration (OSHA) 10-hour Construction Safety Outreach Course - \$35

*You may qualify for certification reimbursement of your exam cost(s) upon passing. Credential fees are subject to change.*

**Outstanding Student Recognition Information:**

A gold seal will be applied to a Program Completion Certificate or an Applied Technology Diploma if the student has earned a 3.5 GPA or higher in their Career and Technical Education (CTE) classes.  
Occupational Safety and Health Administration (OSHA) 10 Hour Construction Safety Outreach Course - \$35

**Program Name:** Heating, Ventilation, Air-Conditioning/Refrigeration (HVAC/R)

**Course Number:** ACR0000

**Course Name:** Introduction to HVAC/R

**Occupational Completion Point:** A

**Intended Outcomes:**

- 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 Explain the importance of employability and entrepreneurship skills.
- 03.0 Identify, use and maintain the tools and tool accessories used in the heating, air-conditioning and refrigeration industry.
- 04.0 Demonstrate mathematics knowledge and skills.
- 05.0 Read construction documents.
- 06.0 Explain the properties of matter and heat behavior.
- 07.0 Describe the history and concepts of heating, air-conditioning and refrigeration.
- 08.0 Demonstrate a practical knowledge of basic electricity & of the electrical components of heating, air-conditioning & refrigeration equipment.

**Course Number:** ACR0001  
**Course Name:** HVAC/R Fundamentals  
**Occupational Completion Point:** B

**Intended Outcomes:**

- 09.0 Demonstrate knowledge of electrical wiring in air-conditioning and refrigeration.
- 10.0 Troubleshoot heating, air-conditioning and refrigeration electrical control systems and their components.
- 11.0 Select and test electrical generation and distribution components for commercial heating and air conditioning systems.
- 12.0 Analyze fluids, pressures, refrigerants and related codes.
- 13.0 Evaluate heating, air-conditioning and refrigeration system components and accessories.
- 14.0 Fabricate and service the piping, tubing and fittings used in the heating, air-conditioning and refrigeration industry.
- 15.0 Maintain, test and troubleshoot electrical motors and their components for commercial heating and air-conditioning systems.

**Course Number:** ACR0012  
**Course Name:** Services Practices  
**Occupational Completion Point:** C

**Intended Outcomes:**

- 16.0 Utilize mechanical components of heating air-conditioning and refrigeration systems.
- 17.0 Operate solid-state electronics as used in heating, air-conditioning, and refrigeration systems.
- 18.0 Utilize and operate mechanical refrigeration servicing and testing equipment.
- 19.0 Assist in the installation of a residential heating and air-conditioning system and determine start-up procedures.
- 20.0 Conduct start-up and check-out procedures for mechanical heating and air-conditioning systems.
- 21.0 Use combustion-type heating servicing and testing equipment.
- 22.0 Troubleshoot combustion gas valves and regulators as used in heating, air-conditioning, refrigeration, and ventilation systems.
- 23.0 Understand the design of heating and cooling systems.
- 24.0 Make career plans.

The School Board of Broward County, Florida, prohibits any policy or procedure which results in discrimination on the basis of age, color, disability, gender identity, gender expression, national origin, marital status, race, religion, sex or sexual orientation. Individuals who wish to file a discrimination and/or harassment complaint may call the Director, Equal Education Opportunities/ADA Compliance Department at 754-321-2150 or Teletype Machine (TTY) 754-321-2158. Individuals with disabilities requesting accommodations under the Americans with Disabilities Act Amendments Act of 2008, (ADAAA) may call Equal Educational Opportunities/ADA Compliance Department at 754-321-2150 or Teletype Machine (TTY) 754-321-2158.