

# Air Conditioning, Refrigeration, and Heating

## Diploma

**Program Coordinator:** Jim Kroll • OTC 201 • 276-739-2560  
**Length:** \*\*Four semesters (two years)

\*\*Program can be completed in day or evening classes. The day program starts in even numbered years and the evening program starts in odd numbered years.

**Purpose:** The Air Conditioning, Refrigeration, & Heating curriculum is designed to provide up-to-date technical skills for employment in the growing \$150 billion HVACR industry. VHCC's 4,500 sq. ft. lab is equipped with various manufacturers' equipment, with student time divided in half between classroom theory and lab projects. Students will operate "live" equipment to improve skills in troubleshooting, maintenance, and installation. In addition, students will utilize manufacturer-training software, audiovisual materials, and specially designed trainers for electricity and refrigeration. There is a growing demand for trained HVACR technicians, due to record equipment sales, the introduction of new refrigerants, and technical improvements in equipment. The curriculum satisfies the entry-level training requirements for students new to the HVACR industry, as well as updating the skills of those who want to improve their current skills for advancement in the workplace.

**Occupational Objectives:** Air Conditioning Technician, Heating Technician, Refrigeration Technician, HVACR Technician, HVACR Contractor, Controls Technician, Indoor Air Quality Technician, HVACR Technical Sales, HVACR Installation, Service, Maintenance Technician

**Admission Requirements:** Students are required to meet the general requirements of the college as contained in this catalog. Proficiency in high school English and mathematics is required. Students who are not proficient in English and mathematics will be required to correct their deficiencies in developmental courses. Graduates of the Refrigeration Certificate program at Virginia Highlands Community College may enter the third semester of the program directly and continue for the two subsequent semesters to fulfill the diploma requirements. Students from other schools or colleges or with appropriate industrial experience may submit transcripts or other documentation for evaluation and advanced placement. The HVACR industry changes related to EPA regulations involving refrigerants, DOE efficiency requirements for equipment, and equipment manufacturer requirements for updated training, will require that students requesting credit for AAS/diploma/certificate/any other AIR classes older than 8 years old, from VHCC or other sources, will need to demonstrate competency and an understanding of current HVACR procedures to the HVACR faculty in order to receive approval.

**Program Requirements:** The majority of the curriculum will consist of courses in Air Conditioning, Refrigeration and Heating, with the remaining courses in related subjects, general education, and electives. The program will consist of both theoretical concepts and practical applications needed for success in this skilled field. Each student is advised to consult with his/her advisor and counselor for program planning and in selecting electives.

Upon completion of the four-semester program listed in this catalog, the graduate will be awarded a Diploma.

**Virginia Tradesman Certification Program:** Students seeking the Journeyman or Master levels of certification may, with appropriate documentation, help meet the practical work experience requirement through the Cooperative Education Program.

Course Number	Course Title	Lecture Hours	Lab Hours	Credits
<b>First Semester (Fall)</b>				
SDV 101	Orientation to College Success	1	0	1
AIR 111	Air Cond. & Ref. Controls I	2	2	3
AIR 171	Refrigeration I	6	6	9
ENG 111 or ENG 115	College Composition I or Technical Writing	3	0	3
<b>Total</b>		<b>12</b>	<b>8</b>	<b>16</b>
<b>Second Semester (Spring)</b>				
AIR 112	Air Cond. & Ref. Controls II	2	2	3
AIR 159	Heating and Cooling Safety	1	0	1
AIR 172	Refrigeration II	6	6	9
MTH 111	Basic Technical Mathematics	3	0	3
<b>Total</b>		<b>12</b>	<b>8</b>	<b>16</b>
<b>Third Semester (Fall)</b>				
EEE	General Elective or Coordinated Internship	3	0	3
AIR 134	Circuits and Controls I	2	2	3
AIR 176	Air Conditioning	4	4	6
AIR 235	Heat Pumps	2	2	3
<b>Total</b>		<b>11</b>	<b>8</b>	<b>15</b>
<b>Fourth Semester (Spring)</b>				
EEE	General Elective or Coordinated Internship	3	0	3
AIR 154	Heating Systems I	2	2	3
AIR 165	Air Conditioning Systems I	2	3	3
AIR 205	Hydronics and Zoning	2	2	3
AIR 231	Circuits and Controls IV	3	3	4
<b>Total</b>		<b>12</b>	<b>10</b>	<b>16</b>
<b>Total Minimum Credits required for the Diploma</b>				<b>63</b>

Students are urged to follow the [recommended pathway](#) for this diploma when choosing electives.

Additional approved humanities and social science electives are listed at <http://www.vhcc.edu/GenEdCore>.