

# Air Conditioning, Refrigeration, and Heating

## Associate of Applied Science Degree

**Program Coordinator:** Jim Kroll • jkroll@vhcc.edu • 276-739-2560

**Length:** Four semesters\*\*

\*\*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:** A student eligible for admission to the College can normally be considered for admission to the Air Conditioning, Refrigeration and Heating programs. Proficiency in high school English and mathematics is required. Direct enrollment guidelines using either multiple measures or informed placement will determine a student's placement into college-level English and mathematics courses. 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 any 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 an Associate of Applied Science Degree. 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.

Course Number	Course Title	Lecture Hours	Lab Hours	Credits
<b>First Semester (Fall)</b>				
SDV 101	Orientation to College Success	1	0	1
MTH 111	Basic Technical Mathematics	3	0	3
AIR 111	Air Cond. & Ref. Controls I <sup>1</sup>	2	2	3
AIR 171	Refrigeration I <sup>1</sup>	4	6	6
AIR 121	Air Conditioning and Refrigeration I <sup>1</sup>	2	2	3
AIR 159	Heating and Cooling Safety	1	0	1
<b>Total</b>		<b>13</b>	<b>10</b>	<b>17</b>
<b>Second Semester (Spring)</b>				
AIR 112	Air Cond. & Ref. Controls II <sup>2</sup>	2	2	3
AIR 276	Refrigerant Usage EPA Certification	1	0	1
AIR 172	Refrigeration II <sup>2</sup>	4	6	6
AIR 122	Air Conditioning and Refrigeration II <sup>2</sup>	2	2	3
ENG 115	Technical Writing	3	0	3
<b>Total</b>		<b>12</b>	<b>10</b>	<b>16</b>
<b>Third Semester (Fall)</b>				
EEE	Humanities Elective	3	0	3
EEE	Social Science Elective	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>14</b>	<b>8</b>	<b>18</b>
<b>Fourth Semester (Spring)</b>				
EEE	Social Science Elective	3	0	3
SAF 130	Industrial Safety – OSHA 10	1	0	1
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>13</b>	<b>10</b>	<b>17</b>
<b>Total Minimum Credits for AAS Degree</b>				<b>68</b>

<sup>1</sup>Co-Requisite courses: AIR 111, AIR 171, AIR 121

<sup>2</sup>Co-Requisite Courses: AIR 112, AIR 172, AIR 122

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

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