



Effective 2012/2013

Career Cluster ►



Career Pathway ►

Construction

**AIR CONDITIONING, HEATING & REFRIGERATION TECHNOLOGY**

(10-601-1A)

Associate of Applied Science Degree  
Offered at: Kenosha Campus

<sup>Δ</sup> Suggested Sequence	✓	Course Number	Course Title	Requisites	Credits	Hrs/Wk Lec - Lab
Semester 1		103-199	PC Basics / Microsoft Office		3	2-2
		601-110	* Air Condition Fundamentals		3	3-0
		601-111	* Workplace Fundamentals		1	0-2
		601-116	* Mechanical Fundamentals		3	1-4
		605-107	Fundamentals of Electricity/Electronics		3	1-4
		804-107	College Mathematics	Prereq: 834-109 (See Note 1 & 4)	3	3-0
Semester 2		601-121	* Heating Systems	Prereq: 601-110	3	2-2
		601-128	* Electrical Controls & Systems	Prereq: 605-107	3	1-4
		801-136	English Composition 1	Prereq: 831-103 (See Note 1)	3	3-0
		801-196	Oral / Interpersonal Communication	Prereq: 858-760 (See Note 1)	3	3-0
		809-196	Sociology, Introduction to	Prereq: 838-105 (See Note 1)	3	3-0
Semester 3		601-129	* HVAC Systems	Prereq: 601-110; 601-116	3	1-4
		601-131	§* Heating Systems Applications	Prereq: 601-121	3	1-4
		601-133	* Refrigeration Fundamentals		3	2-2
		601-147	* Control Circuit Applications	Prereq: 601-128	3	1-4
		801-197	Technical Reporting	Prereq: 801-136	3	3-0
Semester 4		601-130	* HVAC Blueprint Reading		2	1-2
		601-143	§* Refrigeration Applications	Prereq: 601-110; 601-116; 601-133	3	1-4
		601-145	* Electronic Energy Management	Prereq: 601-147	3	1-4
		601-148	* HVAC Electrical Troubleshooting/Repair	Prereq: 601-147	3	1-4
		809-195	Economics	Prereq: 838-105 (See Note 1)	3	3-0
		809-198	Psychology, Introduction to	Prereq: 838-105 (See Note 1)	3	3-0
Electives		<b>Take 6 elective credits. Any associate degree level course may be taken as an elective.</b>			<b>6</b>	
		<b>Suggested Electives:</b> 442-101 Welding Basics (1 Cr) 601-114 Power Plant Op Engineer (4 Cr) 806-128 Descriptive Physics (3 Cr)				

**Program Total Required**

**69**

<sup>Δ</sup> Courses may be taken out of suggested sequence as long as requisites have been met.



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**PROGRAM DESCRIPTION**

Air Conditioning, Heating, & Refrigeration Technology develops the skills and knowledge necessary for state and federal certification. Theory and practical hands-on experience in the troubleshooting, repair, and installation of residential and commercial HVAC/R systems are emphasized. Students will practice on modern and advanced equipment, incorporating microprocessor controls, and building automation technology. Topics covered during lecture and lab hours include complete heating, air conditioning and refrigeration systems, how components interact, and total system performance. Refrigerant handling certification is encouraged and is dependent upon successful completion by the individual student.

**PROGRAM LEARNING OUTCOMES**

Graduates of the HVAC Associate Degree Program should be able to:

1. Troubleshoot and repair residential heating equipment.
2. Troubleshoot residential air conditioning equipment.
3. Troubleshoot commercial refrigeration equipment.
4. Gather and tabulate data to calculate heating and cooling loads on residential dwellings.
5. Install a residential furnace and air conditioner.
6. Interpret residential/commercial building prints for code requirement, piping layout, and equipment placement.
7. Lay out and make basic duct work for residential dwellings.
8. Lay out, cut, and perform soldering and brazing techniques on copper tubing.

**CORE ABILITIES**

Gateway believes students need both technical knowledge and skills and core abilities in order to succeed in a career and in life. The following nine core abilities are the general attitudes and skills promoted and assessed by all Gateway programs. All Gateway graduates should be able to:

- |  |   |
|--|---|
| 1. Act responsibly                           | 5. Develop job seeking skills                                       |
| 2. Communicate clearly and effectively       | 6. Respect themselves and others as a member of a diverse community |
| 3. Demonstrate essential computer skills     | 7. Think critically and creatively                                  |
| 4. Demonstrate essential mathematical skills | 8. Work cooperatively   |
|  | 9. Value learning   |

**ADMISSION REQUIREMENTS**

1. Students must submit an application & \$30 fee.
2. Students must complete reading, writing, and math placement testing.
3. Students must submit official high school, GED, or HSED transcript.

**GRADUATION REQUIREMENTS**

1. 69 Credits with an average of 2.0 or above.
2. \*Average of 2.0 ("C") or above for these Major courses.
3. §Students who take 601-113 (Facility Operating Engineer LP) and 601-117 (Facility Operating Engineer HP) may omit these courses.

*For a complete list of Graduation Requirements check the Student Handbook.*

**NOTES**

1. A satisfactory placement test score (or successful remediation) is required prior to enrollment. See a counselor for details.
2. Safety glasses are required in labs. If prescription safety glasses are required, allow a minimum of 90 days.
3. Any course may be taken prior to entry in the program, assuming prerequisites and corequisites have been satisfied (or waived with department approval).
4. Formerly 804-106, Intro to College Math.

**OTHER INFORMATION**

Gateway Technical College reserves the right to modify curriculum requirements for students who interrupt enrollment for a period of two years or take over seven years to complete. Tuition and material fees are determined by the board of the Wisconsin Technical College System. Consult the Master Class Schedule for exact fee amounts. Occasionally, the District may offer a particular course out of published sequence. By doing so, the District does not obligate itself to offer succeeding courses out of published sequence.

**EQUAL OPPORTUNITY/ACCESS EDUCATOR / EMPLOYER  
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You may call Student Services at (262) 767-5300 (Burlington), (262) 741-8300 (Elkhorn), (262) 564-2300 (Kenosha), or (262) 619-6300 (Racine) for additional information. For a complete list of course descriptions (and possible online courses) for this program, please consult Web Advisor on our web page at [www.gtc.edu](http://www.gtc.edu).

My counselor is \_\_\_\_\_ My counselor's contact information is \_\_\_\_\_.