



Effective 2015/2016

Career Cluster ►



Career Pathway ►

Construction

**AIR CONDITIONING, HEATING & REFRIGERATION TECHNOLOGY**  
 (10-601-1B) – Geothermal Technician  
 Associate of Applied Science Degree  
 Most Courses Offered at Kenosha Campus

Δ Suggested Sequence	✓	Course Number	Course Title	Requisites	Credits	Hrs/Wk Lec - Lab
Semester 1		483-174	Intro to Groundloop Methods		2	2-0
		483-175	GeoExchange Site Safety		1	0-2
		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 )	3	3-0
Semester 2		483-178	Geological Formations for Drillers		3	3-0
		483-180	Rig Transport, Set-up, and Safety	Prereq: 483-175	2	2-0
		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: 838-105 (See Note 1)	3	3-0
		809-196	Sociology, Introduction to	Prereq: 838-105 (See Note 1 & 5)	3	3-0
Semester 3		483-170	Rotary Rig Operations	Prereq: 483-174; 483-175	3	2-2
		483-173	Plastic Fusion Applications		2	1-2
		601-129	* HVAC Systems	Prereq: 601-110; 601-116	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		442-101	Welding Basics		1	0-2
		483-172	Grouting and Sanitation		2	1-2
		483-177	Trenching/Header Fundamentals	Prereq: 483-173; 483-174; 483-175	2	1-2
		612-102	Intro to Mobile Hydraulics/Pneumatics	Prereq: 605-107	3	2-2
		809-195	Economics	Prereq: 838-105 (See Note 1)	3	3-0
		809-198	Psychology; Introduction to	Prereq: 838-105 (See Note 1 & 5)	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>				
		483-181 Geo Site & Record Management (2 Cr.)		483-182 Geo Safety Lead (2 Cr.)		
		483-104 DX Geo Applications (2 Cr.)		483-183 Rotary: Air Boring Applications		
		483-171 Rotary: Mud Boring Applications (3 Cr.)		601-157 Radiant Floor Heating (2 Cr.)		

**Minimum Program Total Credits Required**

**70**

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



Effective 2015/2016

Career Cluster ►



Career Pathway ►

Construction

**AIR CONDITIONING, HEATING & REFRIGERATION TECHNOLOGY (10-601-1B) – Geothermal Technician**  
*Associate of Applied Science Degree*  
Most Courses Offered at Kenosha Campus

**PROGRAM DESCRIPTION**

The *Air Conditioning, Heating & Refrigeration Technology-Geothermal Technician* program develops the skills and practical knowledge necessary for the student to seek employment in the installation, sales and service of the loopfield components used throughout the Geo industry. Topics are covered in a lecture/lab format with extensive work done during field exercises on active drill sites. The safe and proper operation of drilling equipment, the fabrication/installation of ground heat exchange loops, Federal and State regulatory compliance are covered in depth. Basic HVACR skill training needed by any industry professional such as the principles of airflow, piping, ductwork construction, heat flow, electrical circuits and the refrigeration process are also covered. While similar to conventional heating/cooling equipment this field of study emphasizes the unique components and installation techniques required by someone wishing to concentrate in Geothermal technology

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

**ADMISSION REQUIREMENTS**

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

**GRADUATION REQUIREMENTS**

1. Minimum 70 credits with an average of 2.0 or above.
2. \*Average of 2.0 ("C") or above for these Major 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 an advisor for details.
2. Safety glasses are required in labs. If prescription safety glasses are required, allow a minimum of 90 days.
3. During field drilling exercises steel toed shoes are required.
4. Any course may be taken prior to entry in the program, assuming prerequisites and corequisites have been satisfied (or waived with departmental approval).
5. Transfer credits in Social Science may substitute for this course. See an advisor for details.

**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 Web Advisor 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 EMPLOYER AND EDUCATOR  
EMPLEADOR Y EDUCADOR QUE OFRECE IGUALDAD DE OPORTUNIDADES**

To schedule an appointment with an advisor, please call 1-800-247-7122.

For a complete list of course descriptions (and possible online courses) for this program, please consult our web page at [www.gtc.edu](http://www.gtc.edu).

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