HEATING, VENTILATION, AND AIR CONDITIONING TECHNICIAN (AAS)

Overview

Degree: Associate of Applied Science
Major: Heating, Ventilation, and Air Conditioning
Program Code: 1388

The Heating, Ventilation, and Air Conditioning Program prepares the student with entry-level skills required by employers in this industry.

It is industry focused, with the student having the opportunity to earn their EPA certification, plus HVAC Excellence Certifications (Industry Competency Exams), administered by the ESCO Institute. The ICE exams are supported by the EPA (Environmental Protection Agency), DOE (Department of Education), Department of the Interior, Bureau of Indian Affairs, ASHRAE (American Society of Heating Refrigerating and Air Conditioning Engineers), Western HVAC Performance Alliance, International Association of Building Sciences, United States Green Building Council, and the United States Senate's High Performance Building Council.

The Heating focus of the program consists of education in job safety, soldering and brazing, basic electricity, forced air gas furnace service, hydronic service, air flow problems, duct sizing, and troubleshooting gas fired equipment. Performance testing after repairs is emphasized. State-of-the-art computer simulation programs are used along with live equipment in the lab.

The Air Conditioning focus of the program consists of basic refrigeration, refrigerant recovery training, principles of A/C operation, heat pumps, further air flow problems, analysis and troubleshooting the total system. Performance testing after repairs is emphasized. State-of-the-art computer simulation programs are used along with live equipment in the lab.

Important information about this program:

EPA certification is part of this program and students will be required to pay the examination fee.

For more information on what you can do with this major, visit CMU Tech's Programs of Study page.

All CMU/CMU Tech technical certificate graduates are expected to demonstrate proficiency in specialized knowledge/applied learning, communication fluency, and critical thinking. In addition to these campus#wide student learning outcomes, graduates of this major will be able to:

1. Demonstrate professional behavior and communication skills to include listening, speaking, and writing specific to the HVAC industry. (Communication Fluency)
2. Demonstrate safe work habits in performance of tasks in the HVAC industry. (Specialized Knowledge, Applied Learning)
3. Demonstrate professional and ethical behavior, and work place responsibility as a HVAC repair technician. \ (Personal and Social Responsibility, Information Literacy)
4. Demonstrate basic troubleshooting skills and repair skills to fulfill the requirements of HVAC service and repair technicians. (Critical Thinking)
5. Utilize mathematical concepts to analyze and implement troubleshooting systems to include systems containing hardware and software components of HVAC systems. (Quantitative Fluency)

Requirements

Each section below contains details about the requirements for this program. Select a header to expand the information/requirements for that particular section of the program's requirements.

To print or save an overview of this program's information, including the program description, learning outcomes, requirements, suggested course sequencing (if applicable), and advising and graduation information, scroll to the bottom of the left-hand navigation menu and select "Print Options." This will give you the options to either "Send Page to Printer" or "Download PDF of This Page." The "Download PDF of This Page" option prepares a much more concise presentation of all program information. The PDF is also printable and may be preferable due to its brevity.

Institutional Degree Requirements

The following institutional degree requirements apply to all CMU and CMU Tech Associate of Applied Science (AAS) degrees. Specific programs may have different requirements that must be met in addition to institutional requirements.

- 60 semester hours minimum.
- Students must complete a minimum of 15 of the final 30 semester hours of credit at CMU/CMU Tech.
- 2.00 cumulative GPA or higher in all CMU/CMU Tech coursework.
- A course may only be used to fulfill one requirement for each degree/certificate.
- No more than six semester hours of independent study courses can be used toward the degree.
- Non-traditional credit, such as advanced placement, credit by examination, credit for prior learning, cooperative education and internships, cannot exceed 20 semester credit hours for an AAS degree.
- Pre-collegiate courses (usually numbered below 100) cannot be used for graduation.
- Capstone exit assessment/projects (e.g., Major Field Achievement Test) requirements are identified under Program-Specific Degree Requirements.
- The Catalog Year determines which program sheet and degree requirements a student must fulfill in order to graduate. Visit with your advisor or academic department to determine which catalog year and program requirements you should follow.
- See “Requirements for Undergraduate Degrees and Certificates” in the catalog for a complete list of graduation requirements.

Specific to this degree:

- 61 semester hours required for AAS in Heating Ventilation and Air Conditioning Technician.

Essential Learning Requirements

(15 semester hours)
See the current catalog for a list of courses that fulfill the requirements below. If a course is an Essential Learning option and a requirement for

your major, you must use it to fulfill the major requirement and make a different selection for the Essential Learning requirement.

Code	Title	Semester Credit Hours
English		
ENGL 111	English Composition I-GTCO1	3
Select one of the following courses:		3
ENGL 112	English Composition II-GTCO2	
SPCH 101	Interpersonal Communication	
SPCH 102	Speechmaking	
Mathematics		
MATH 107	Career Math (or higher)	3
Other Essential Learning Core Courses		
Select one Social and Behavioral Sciences, History, Natural Sciences, Fine Arts, or Humanities course		3
Select one Social and Behavioral Sciences, History, Natural Sciences, Fine Arts, or Humanities course		3
Total Semester Credit Hours		**15**

Other Lower Division Requirements

Code	Title	Semester Credit Hours
Wellness Requirements		
KINE 100	Health and Wellness	1
Select one Activity course		1
Total Semester Credit Hours		**2**

Program Specific Requirements

(44 semester hours)

Code	Title	Semester Credit Hours
HVAC 102	Basic Refrigeration	4
HVAC 103	Basic Electricity	3
HVAC 106	Introduction to Service Technician Training	1
HVAC 110	Fundamentals of Gas Heating	4
HVAC 111	Piping Skills for HVAC	4
HVAC 113	Refrigerant Recovery Training	1
HVAC 117	OSHA Ten-Hour Voluntary Compliance	1
HVAC 122	Commercial Refrigeration	4
HVAC 146	Residential Duct Design	2
HVAC 202	Troubleshooting and Customer Service	3
HVAC 210	Fundamentals of Hydronic Heating	4
HVAC 222	Heating, Ventilation, Air Conditioning, and Refrigeration Systems Troubleshooting	5
HVAC 240	Servicing Forced Air Systems	4
HVAC 261	Air Conditioning Systems Service and Repair	4
Total Semester Credit Hours		**44**

Suggested Course Plan

First Year		
Fall Semester		**Semester Credit Hours**
HVAC 102	Basic Refrigeration	4
HVAC 103	Basic Electricity	3
HVAC 106	Introduction to Service Technician Training	1
HVAC 110	Fundamentals of Gas Heating	4
HVAC 117	OSHA Ten-Hour Voluntary Compliance	1
MATH 107	Career Math	3
	Semester Credit Hours	**16**
Spring Semester		
HVAC 111	Piping Skills for HVAC	4
HVAC 113	Refrigerant Recovery Training	1
HVAC 240	Servicing Forced Air Systems	4
ENGL 111	English Composition I-GTCO1	3
Select one Social and Behavioral Sciences, History, Natural Sciences, Fine Arts or Humanities course		3
	Semester Credit Hours	**15**
Second Year		
Fall Semester		
HVAC 122	Commercial Refrigeration	4
HVAC 146	Residential Duct Design	2
HVAC 202	Troubleshooting and Customer Service	3
Select one of the following:		3
ENGL 112	English Composition II-GTCO2	
SPCH 101	Interpersonal Communication	
SPCH 102	Speechmaking	
Select one Social and Behavioral Sciences, History, Natural Sciences, Fine Arts or Humanities course		3
	Semester Credit Hours	**15**
Spring Semester		
HVAC 210	Fundamentals of Hydronic Heating	4
HVAC 222	Heating, Ventilation, Air Conditioning, and Refrigeration Systems Troubleshooting	5
HVAC 261	Air Conditioning Systems Service and Repair	4
KINE 100	Health and Wellness	1
KINA 1xx Activity Course		1
	Semester Credit Hours	**15**
	Total Semester Credit Hours	**61**

Advising and Graduation

Advising Process and DegreeWorks

Documentation on the pages related to this program is intended for informational purposes to help determine what courses and associated requirements are needed to earn a degree. The suggested course sequencing outlines how students could finish degree requirements. Some courses are critical to complete in specific semesters, while others may be moved around. Meeting with an academic advisor is essential in planning courses and altering the suggested course sequencing. It is ultimately the student's responsibility to understand and fulfill the requirements for their intended degree(s).

DegreeWorks is an online degree audit tool available in MAVzone. It is the official record used by the Registrar's Office to evaluate progress towards a degree and determine eligibility for graduation. Students are responsible for reviewing their DegreeWorks audit on a regular basis and should discuss questions or concerns with their advisor or academic

department head. Discrepancies in requirements should be reported to the Registrar's Office.

Graduation Process

Students must complete the following in the first two months of the semester prior to completing their degree requirements:

- Review their DegreeWorks audit and create a plan that outlines how unmet requirements will be met in the final semester.
- Meet with their advisor and modify their plan as needed. The advisor must approve the final plan.
- Submit the "Intent to Graduate" form to the Registrar's Office to officially declare the intended graduation date and commencement ceremony plans.
- Register for all needed courses and complete all requirements for each degree sought.

Submission deadlines and commencement details can be found on the Graduation web page.

If a student's petition for graduation is denied, it will be their responsibility to apply for graduation in a subsequent semester. A student's "Intent to Graduate" does not automatically move to a later graduation date.