



Wayne  
County  
Community  
College  
District

# Heating, Ventilation and Air Conditioning (HVAC): Certificate Programs

## PAY

The median annual wage of heating, air conditioning, and refrigeration mechanics and installers was \$48,730 in May 2020.

## JOB OUTLOOK

Employment of heating, air conditioning, and refrigeration mechanics and installers is expected to grow 13 percent from 2018 to 2028, much faster than the average for all occupations. Rising demand for trained technicians will result in excellent employment opportunities.

*Bureau of Labor Statistics, U.S. Department of Labor, Occupational Outlook Handbook, May 2020, Heating, Air Conditioning, and Refrigeration Mechanics and Installers, on the Internet at <http://www.bls.gov/ooh/installation-maintenance-and-repair/heating-air-conditioning-and-refrigeration-mechanics-and-installers.htm>*



## ABOUT THE PROGRAM

The Heating, Ventilation and Air Conditioning (HVAC) College Certificate programs provide an opportunity for students to develop their skills and competencies for entry-level positions in a variety of related fields. The curriculum focuses on the ability to maintain, install and repair climate control devices in residential, industrial and commercial buildings. The program provides students with training in the layout and design of cooling and heating systems, the use of the latest tools, gauges and testing equipment used in the field, troubleshooting and inspection of equipment. The program prepares students for state and local licensing exams. Students with prior HVAC training and experience may be eligible to waive certain courses.



## WHAT DO HEATING, VENTILATION AND AIR CONDITIONING (HVAC) MECHANICS AND INSTALLERS DO?

Heating, air conditioning, and refrigeration mechanics and installers—often referred to as HVACR technicians—work on heating, ventilation, cooling, and refrigeration systems that control the air quality in many types of buildings.

## WHERE DO THEY WORK?

Heating, air conditioning, and refrigeration mechanics and installers mostly work in residential homes, schools, hospitals, office buildings, or factories. Their work sites may be very hot or cold because the heating and cooling system they must repair is broken. Working in cramped spaces is common. Most HVAC mechanics and installers work full-time.

## Recommended Sequence of Courses

### HVAC Short-Term Certificate:

#### 3rd Class Refrigeration

CR. No.	COURSE TITLE	CREDITS
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#### SEMESTER 1

DRT 101	Blueprint Reading	3
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HVA 100	Introduction to HVAC and Hermetic Systems	5
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MAT 113	Intermediate Algebra	3
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<b>SEMESTER TOTAL</b>		<b>11</b>
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#### SEMESTER 2

ENG 119	English I	3
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HVA 103	Commercial Refrigeration	4
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HVA 108	Refrigeration Controls	4
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<b>SEMESTER TOTAL</b>		<b>11</b>
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#### SEMESTER 3

HVA 111	Applied Electricity in Air Conditioning and Heating	3
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HVA 118	Codes and Regulations	3
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<b>SEMESTER TOTAL</b>		<b>6</b>
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#### **HVAC: 3RD CLASS REFRIGERATION**

<b>CERTIFICATE TOTAL</b>		<b>28</b>
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*Note: Certificate total hours may not include prerequisites.*

### HVAC College Certificate: Geothermal Technology

CR. No.	COURSE TITLE	CREDITS
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#### SEMESTER 1

GTT 101	Principles of Thermogeology	3
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MAT 113	Intermediate Algebra	3
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RET 101	Renewable Energy Principles	3
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<b>SEMESTER TOTAL</b>		<b>9</b>
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#### SEMESTER 2

GTT 105	Applications of Geothermal Systems	4
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HVA 100	Introduction to HVAC and Hermetic Systems	5
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<b>SEMESTER TOTAL</b>		<b>9</b>
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#### SEMESTER 3

HVA 104	Air Conditioning I	4
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HVA 105	Air Conditioning II	4
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GTT 201	Geothermal REHC Technology	3
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GTT 220	GHEX Accreditation	4
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<b>SEMESTER TOTAL</b>		<b>15</b>
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#### **HVAC: GEOTHERMAL**

<b>CERTIFICATE TOTAL</b>		<b>33</b>
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*Note: Certificate total hours may not include prerequisites.*

### HVAC College Certificate: High Pressure Steam

CR. No.	COURSE TITLE	CREDITS
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#### SEMESTER 1

DRT 101	Blueprint Reading	3
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HVA 106	Basic Heating	5
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MAT 113	Intermediate Algebra	3
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<b>SEMESTER TOTAL</b>		<b>11</b>
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#### SEMESTER 2

HVA 110	Forced Air and Hydronic Heating	4
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HVA 118	Codes and Regulations	3
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HVA 200	Introduction to Boiler Plant Maintenance	3
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<b>SEMESTER TOTAL</b>		<b>10</b>
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#### SEMESTER 3

HVA 205	Steam I	3
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HVA 210	Steam II	3
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HVA 215	Boiler Room Accessories	3
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<b>SEMESTER TOTAL</b>		<b>9</b>
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#### **HVAC: HIGH PRESSURE STEAM**

<b>CERTIFICATE TOTAL</b>		<b>30</b>
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*Note: Certificate total hours may not include prerequisites.*

### HVAC College Certificate:

#### Sheet Metal Design and Fabrication

CR. No.	COURSE TITLE	CREDITS
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#### SEMESTER 1

DRT 101	Blueprint Reading	3
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HVA 106	Basic Heating and Heating Controls	5
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MAT 113	Intermediate Algebra	3
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<b>SEMESTER TOTAL</b>		<b>11</b>
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#### SEMESTER 2

HVA 100	Introduction to HVAC and Hermetic Systems	5
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HVA 109	Ventilation and Duct Fabrication	5
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<b>SEMESTER TOTAL</b>		<b>10</b>
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#### SEMESTER 3

HVA 104	Air Conditioning I	4
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HVA 105	Air Conditioning II	4
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HVA 115	Physical Properties of Air and Duct Design	5
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<b>SEMESTER TOTAL</b>		<b>13</b>
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#### **HVAC: SHEET METAL DESIGN**

<b>CERTIFICATE TOTAL</b>		<b>34</b>
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*Note: Certificate total hours may not include prerequisites.*