

# Alternative Energy Technology



## What is the Alternative Energy Technology Program?

The Alternative Energy Technology (AET) Program is designed to prepare students to enter the industrial, commercial, or residential setting in the growing areas of renewable energy, while at the same time providing students with technical, critical thinking, and customer service skills desired by a variety of other industries as well.

In the AET Program, students can earn progressive levels of certificates that can be applied toward employment or advanced degrees. Although the AET Program teaches solar, wind, and geothermal technologies, students learn such skills as electrical theory and applications, heating ventilation and air conditioning, pumps and motors, and plumbing, with a special emphasis on servicing alternative energy components.

The program features classroom instruction, as well as real-world, hands-on laboratory experiences that will include experiments in solar, wind, geothermal, and fuel cell technology. The use of meters, gauges, and computer software is also included to assist students in achieving an advanced knowledge of measurements and calculations.

## What types of jobs do AET technicians perform?

The field of alternative energy technology one of the fastest growing fields today and as installations continue to expand, opportunities for service and maintenance of these systems will be in high demand. Students who complete this program can work as solar, wind, and geothermal installers, technicians, and system designers, electricians, HVAC technicians, plumbers, and instrumentation or maintenance technicians.

## What makes HCC's program special?

HCC's AET Program is the only degree program of its kind in the tri-state region. Not only does HCC provide theory and installation training, but the College offers service and maintenance skills training to give its students a broad knowledge base that will afford them greater opportunities for further learning



and advancement at both the professional and academic level. Students completing the degree program will gain the necessary knowledge needed to enter the workforce and perform jobs such as installing, monitoring, and servicing alternative energy components in photovoltaic systems, solar thermal systems, or small wind turbines.




Within two semesters at HCC, students can earn credentials that are recognized by The North American Board of Certified Energy Practitioners (NABCEP), The American Wind Energy Association (AWCA), and The International Ground Source Heat Pump Association (IGSHPA).

Additionally, HCC's brand new 3,000 squarefoot, Energy Trades and Training Center (ETTC) features the latest, most advanced technologies in this rapidly growing field. Students have access to real world installation practices and monitoring through the use of green and solar, wind, and geothermal energy components.

## What are the program options?

Students can earn an associate of applied science in alternative energy technology.

## PROGRAM OPTIONS

-  A.A.S. Degree, Alternative Energy Technology
-  Certificate, Alternative Energy Technology, Geothermal Energy Installation and Service
-  Certificate, Alternative Energy Technology, Solar/Wind Energy Installation and Service

## CAREER OUTLOOK

### MEDIAN SALARY

**\$55K**

for electricians

### EMPLOYMENT



715,400 jobs in U.S.  
10% increase over next  
10 years

(source: [www.bls.gov/ooh](http://www.bls.gov/ooh))

Students can also earn a certificate in solar/wind energy installation and service and/or geothermal energy installation and service.



A.A.S. Degree  
**Alternative Energy  
 Technology**

**General Education Requirements 18-19 credits**

**Arts/Humanities**

Select from the approved General Education course list ..... 3

**Behavioral/Social Sciences**

Select from the approved General Education course list ..... 3

**Biological/Physical Science**

PHY 112 Applied Physics..... 3  
**OR**

PHY 201 General Physics ..... (4)

*\*Students intending to transfer should take the General Physics course.*

**Diversity**

Select from the approved General Education course list ..... 3

**English**

ENG 112 Technical Writing I..... 3

*\*A minimum grade of "C" or better is required for ENG 112.*

**Mathematics**

MAT 101 College Algebra..... 3  
**OR**

MAT 114 Introduction to Applied Algebra .... (3)

**Program Requirements 35 credits**

ADM 258 Advanced Motors, Machines, and Devices..... 3

AET 102 Introduction to Alternative Energy ... 3

AET 104 Geo-Thermal Installation..... 3

AET 106 Photovoltaic Installation ..... 3

AET 108 Wind Energy Installation ..... 3

BUS 145 Customer Service..... 1  
**OR**

STU 106 Professionalism in the Workplace .. (1)

ELE 110 Fundamentals of Electricity ..... 4

ELE 113 Instrumentation and Process Control I..... 3

INT 101 Introduction to Industrial Technology..... 3

INT 105 Plumbing and Pipefitting..... 3

INT 107 Heating, Ventilation, Air Conditioning and Refrigeration (HVAC/R)..... 3

INT 120 Introduction to OSHA..... 1  
 INT 121 Facility Codes and Compliance..... 2

**Restricted Electives 6-7 credits**

Select from the following list:

AET 240 AET Capstone Project ..... 1

AET 269 Internship I ..... 1-3

AET 270 Internship II ..... 1-3

CAD 152 Computer-Aided Design ..... 3

CAD 228 CAD: Solid Modeling..... 3

CSC 102 Introduction to Information Technology..... 3

EGT 235 Fluid Power ..... 3

ELE 130 Introduction to Unmanned Systems . 3

INT 102 Introduction to PLCs..... 3

IST 106 Spreadsheet Software ..... 3

**Degree Requirements ..... 60**

*Certificate*

**Alternative Energy  
 Technology  
 Solar/Wind Energy  
 Installation and Service**

Students completing this program will have the skills to enter an entry-level or apprentice-level position in the field of photovoltaic and wind turbine installation and service.

**Program Requirements 18 credits**

AET 101 Applied Mathematics for Technology I

AET 102 Introduction to Alternative Energy ... 3

AET 106 Photovoltaic Installation ..... 3

AET 108 Wind Energy Installation..... 3

BUS 145 Customer Service..... 1

ELE 110 Fundamentals of Electricity ..... 4

INT 120 Introduction to OSHA..... 1

INT 121 Facility Codes and Compliance..... 2

**Restricted Electives 4 credits**

Select from the following list:

AET 240 AET Capstone Project ..... 1

AET 269 Internship I ..... 1-3

CAD 152 Computer-Aided Design ..... 3

CSC 102 Introduction to Information Technology..... 3

**Certificate Requirements..... 22**

*Certificate*

**Alternative Energy  
 Technology  
 Geothermal Energy  
 Installation and Service**

Students completing this program will have the skills to enter an entry-level or apprentice-level position in the field of geothermal installation and service.

**Program Requirements 21 credits**

AET 101 Applied Mathematics for Technology. 1

AET 102 Introduction to Alternative Energy ... 3

AET 104 Geo-Thermal Installation..... 3

BUS 145 Customer Service..... 1

ELE 110 Fundamentals of Electricity ..... 4

INT 105 Plumbing and Pipefitting..... 3

INT 107 Heating, Ventilation, Air Conditioning and Refrigeration (HVAC/R)..... 3

INT 120 Introduction to OSHA..... 1

INT 121 Facility Codes and Compliance..... 2

**Restricted Electives 4 credits**

Select from the following list:

AET 240 AET Capstone Project ..... 1

AET 269 Internship I ..... 1-3

CAD 152 Computer-Aided Design ..... 3

CSC 102 Introduction to Information Technology..... 3

**Certificate Requirement ..... 25**

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**Contact information:**

Greg Betz  
 Instructor, Industrial Technology  
 & Alternative Energy Technology  
 240-500-2581  
 gabetz@hagerstowncc.edu

[www.hagerstowncc.edu/energy](http://www.hagerstowncc.edu/energy)

