ENERGY TECHNOLOGY

What is Energy Technology?

Energy is a critical component to modern life. As a student in City College's energy program, you will learn the basics of energy production, delivery, consumption and conservation. This program is a good fit for students looking to establish a strong foundation of skills to gain employment as an electrician apprentice. It also prepares you for a career as a technician able to install, maintain, and operate sustainable and conventional energy systems, such as wind and solar. If you are looking for a future career in an innovative and profitable field, Energy Technology is right for you!

College Programs Offered:

Sustainable Energy Technician (A.A.S.)
Energy Technician (C.A.S.)
Energy Technician (C.T.S.)

What you do:

- Install wiring systems and upgrade existing wiring.
- Use state and national electrical codes during installation and inspection.
- Study motors, transformers, generators and electronic controllers.
- Demonstrate industry safety skills including; climbing, rescue and confined space procedures.
- Install and troubleshoot a wind or solar energy system.
- Install, operate and troubleshoot a building automation system
- Demonstrate an understanding of programmable logic controllers and motor control systems
- After completion of AAS, students sit for the NABCEP PV Associate Credential Exam.

Employment Opportunities:

- **Electrician Helper**
- **Electrician Apprentice**
- **Wind Turbine Technician**
- **Solar Photovoltaic Technician**
- **Energy Efficiency Auditor**
- **HVACR Technician**

Job Outlook and Pay:

Electrician-Helper

Median Wage (MT)*	$29,500 yearly $14.16 per hour
Median Wage (US)*	$28,700 yearly $13.81 per hour

Electrician

Median Wage (MT)*	$60,000 yearly $28.84 per hour
Median Wage (US)*	$51,900 yearly $24.94 per hour

*Bureau of Labor Statistics, Office of Employment Projections; MT Dept. of Labor and Industry, Research and Analysis Bureau. For more information visit http://www.careerinfonet.org/Occupations

Sustainable Energy Technician

(Associate of Applied Science Degree)

Required Courses	Credits
CAPP 120 Introduction to Computers	3
COMX 106 Communicating in a Dynamic Workplace	3
DST 140 Introduction to Hydraulics	2
DST 141 Introduction to Hydraulics Lab	2
ELCT 130 Electric Motors and Generators	3
ELCT 241 Electric Motors Controls	3
ELCT 250 Programmable Logic Controllers	3
ETEC 103 AC/DC Electronics II	3
ETEC 220 Electrical Power and Distribution I	3
HVC 110 Introduction to HVAC	3
HVC 255 Advanced Controls	3
M 114 Extended Technical Mathematics **or** M 121 College Algebra	3
NRGY 101 Introduction to Sustainable Energy	3
NRGY 121 Climb Safety and Rigging	1
NRGY 220 Wind Turbine Equipment	3
NRGY 235 Building Energy Efficiency	3
NRGY 243 Fundamentals of Photovoltaic Design and Installation	3
NRGY 299 Senior Capstone	3
NTS 104 CCNA 1: Intro to Networks	4
TRID 150 Environmental and Shop Practices	2
TRID 185 Introduction to Industrial Power Systems	2
TRID 186 Introduction to Industrial Power Systems Lab	1
WRIT 121 Introduction to Technical Writing	3
Restricted Elective	3
Total minimum credits required for degree	***65***

Restricted Electives to Choose from:

DDSN 114 Introduction to CAD	3
ETEC 284 Digital Electronics	4
NRGY 291 Special Topics	3
NRGY 298 Internship	3

Suggested Plan of Study

Sustainable Energy Technician

AAS Degree

First Semester (Fall)	Credits
HVC 110	3
M 114	3
NRGY 101	3
NRGY 121	1
TRID 185	2
TRID 186	1
WRIT 121	3
Total	***16***

Second Semester (Spring)	Credits
CAPP 120	3
COMX 106	3
ELCT 130	3
ETEC 103	3
DST 140	2
DST 141	2
Total	***16***

Third Semester (Fall)	Credits
ELCT 241	3
ETEC 220	3
NRGY 235	3
NRGY 220	3
NRGY 243	3
Total	***15***

Fourth Semester (Spring)	Credits
ELCT 250	3
HVC 255	3
NTS 104	4
NRGY 299	3
Restrictive Elective	3
Total	***16***

Energy Technician

Electrician Apprentice
(Certificate of Applied Science Degree)

Required Courses	Credits
CAPP 120 Introduction to Computers	3
COMX 106 Communicating in a Dynamic Workplace	3
ELCT 130 Electric Motors and Generators	3
ETEC 103 AC/DC Electronics II	3
ETEC 192 Fundamentals of Energy Technicians I	4
ETEC 193 Fundamentals of Energy Technicians II	4
M 114 Extended Technical Mathematics	3
NRGY 101 Introduction to Sustainable Energy	3
NRGY 121 Climb Safety and Rigging	1
TRID 150 Environmental and Shop Practices	2
TRID 185 Introduction to Industrial Power Systems Lecture	2
TRID 186 Introduction to Industrial Power Systems Lab	1
WRIT 121 Introduction to Technical Writing	3
Total	**35**

Energy Technician

Electrician Helper
(Certificate of Technical Studies)

ETEC 103 AC/DC Electronics II	3
ETEC 192 Fundamentals of Energy Technicians I	4
M 114 Extended Technical Mathematics	3
TRID 150 Environmental and Shop Practices	2
TRID 185 Introduction to Industrial Power Systems Lecture	2
TRID 186 Introduction to Industrial Power Systems Lab	1
WRIT 121 Introduction to Technical Writing	3
Total	**18**

For more information on this City College gainful employment program, such as cost, financial assistance, and placement rates, please go to: http://www.msubillings.edu/citycollege/programs/gedt_2016/sustainable_energy.html

Suggested Plan of Study
Energy Technician
CAS Degree

Semester 1	Credits
ETEC 103	3
ETEC 192	4
M 114	3
TRID 150	2
TRID 185	2
TRID 186	1
WRIT 121	3
Total	**18**

Semester 2	Credits
CAPP 120	3
COMX 106	3
ELCT 130	3
ETEC 193	4
NRGY 101	3
NRGY 121	1
Total	**17**

Total	**35**

Suggested Plan of Study
Energy Technician
CTS Degree

First Semester	Credits
ETEC 103	3
ETEC 192	4
M 114	3
TRID 150	2
TRID 185	2
TRID 186	1
WRIT 121	3

Total	**18**