Electrical Engineering Technology

HAGERSTOWN COMMUNITY COLLEGE

What is the Electrical Engineering Program?

HCC's Electrical Engineering Technology Program prepares students for careers as electrical engineering technicians who assist engineers in the maintenance, installation, design, fabrication, and testing of electrical and electronic devices and systems. Students in the program will obtain the scientific, electrical, and technical engineering skills necessary to function as contributing members of engineering teams.

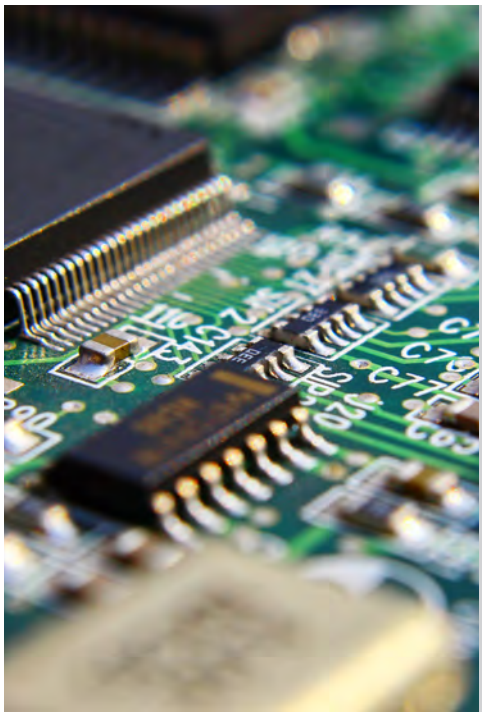
The Electrical Engineering Technology Program incorporates the basic electronics technician certificate, which creates a stackable credential resulting in a pathway to a job as well as degree completion. The curriculum provides a blend of skills and technical knowledge, as well as academic preparation facilitating students' transfer to an applied engineering technology/ manufacturing baccalaureate degree program or job entry into an engineering environment.

What type of students excel in this program?

Individuals who excel in electrical engineering possess a strong analytical aptitude, are naturally inquisitive, and enjoy hands-on activities. In addition, they have an excellent attention to detail, good communication skills, the ability to think logically and come up with creative solutions, excellent problem-solving skills, strong math skills, and the ability to work well with others.

What types of jobs do electrical engineering technicians perform?

Electrical and electronics engineering technicians help engineers design and develop computers, communications equipment, medical monitoring devices, navigational equipment, security systems, power systems, computer farms, and other electrical and electronic equipment. They often work in product evaluation and testing, using measuring and diagnostic devices to adjust, test, and repair equipment. They are also involved in the manufacture and deployment of equipment for automation.



PROGRAM OPTIONS

- A.A.S. Degree, Electrical Engineering Technology
- Certificate, Electronics Technician

CAREER OUTLOOK

MEDIAN SALARY

$103K

for electrical and electronics engineers

EMPLOYMENT

328,100 jobs in U.S.
5,570 jobs in Maryland

As more companies are expected to tap the expertise of engineers for projects involving electronic devices and systems, electrical engineers will be in demand to develop sophisticated consumer electronics and design distribution systems related to new technologies.

(source: www.bls.gov/ooh)

Electrical engineering technician jobs might include repair and maintenance of the employer's electronics equipment. This requires the ability to read schematics and maintenance manuals, test and troubleshoot equipment, solder and unsolder components, and research parts availability and costs. Specialized licenses are required when working on equipment requiring Federal Communications Commission (FCC) licensing or working in physically hazardous environments such as nuclear power.

What do Electrical Engineering students learn?

Students in the electrical engineering program learn all the necessary skills to perform in today's technical environment: DC/AC electronics, Analog and Digital Electronics, Microprocessors, Robotics, Telecommunication, Process Control, PLC (Programmable Logic Control), SCA (Supervisory Control and Data Acquisition) and Automation Systems, Electronic Design, Energy Audits, and Computer and Industrial Networking.

What makes HCC's program special?

HCC's continued investment in facilities and state-of-the-art teaching tools also offers students a competitive edge as they enter the workforce or continue their education. Program instructors have critical industry experience to provide the applications knowledge to make this program instantly useful.

In addition, HCC's A.A.S. degree trains students for many of the tasks traditionally performed by engineers with a four-year degree. As a result, this program is an excellent stepping-stone for students interested in completing an engineering degree.

Does HCC offer a separate electronics program?

Yes, HCC now offers an electronics technician certificate program that provides students with credentials for a career in the growing area of industrial electricity, an area that is standard in manufacturing, commercial and residential buildings.

A.A.S. Degree

Electrical Engineering Technology

The Electrical Engineering Technology, A.A.S. program prepares students for careers as electrical engineering technicians who assist engineers in the maintenance, installation, design, fabrication and testing of electrical and electronic devices and systems. Students in the program will obtain the scientific, electrical, and technical engineering skills necessary to function as contributing members of engineering teams.

General Education Requirements 18-19 credits

Arts and Humanities
Select from approved General Education course list 3

Behavioral/Social Sciences
Select from approved General Education course list 3

Biological/Physical Science
PHY 112 Applied Physics 3
OR
PHY 201 General Physics 4

Diversity
Select from approved General Education course list 3

English
Select from the approved English General Education course list 3
(ENG 112 is recommended)

Mathematics
MAT 114 Introduction to Applied Algebra 3
OR
MAT 160 Precalculus I ..... (3)

Program Requirements 36 credits
ELE 101 Industrial Networking 3
ELE 102 Analog Electronics 3
ELE 105 Microprocessors & Microcontrollers 3
ELE 106 Digital Electronics 3
ELE 110 Fundamentals of Electricity 4
ELE 113 Instrumentation and Process Control I 3
ELE 204 Electrical Machines 3
ELE 206 Electronic Communications Systems 3
ELE 207 Advanced Electronics/Electricity 3
ELE 208 Advanced Digital Circuit Design and Analysis 3
ELE 209 Printed Circuit Board Design and Assembly 2
INT 102 Introduction to PLCs 3

Free Electives 5-6 Credits

Free electives should be selected in consultation with an advisor to satisfy career goals and/or transfer college requirements.

Some recommended courses are listed below:
ADM 201 Lean Manufacturing and Quality Assurance 2
EGT 150 Introduction to CNC Programming 3
ELE 130 Introduction to Unmanned Systems 3
ELE 140 Introduction to Robotics 3
ELE 203 PLC Applications 3
ELE 269 Internship 1-3
INT 120 Introduction to OSHA 1

Degree Requirement 60

Certificate

Electronics Technician

The Electronics Technician Certificate program provides students with the skills required to analyze and repair electronic circuits in the manufacturing environment, including evaluating the root cause of component failure to avoid unnecessary equipment down time and repeated failures.

Program Requirements 22 credits
ELE 101 Industrial Networking 3
ELE 102 Analog Electronics 3
ELE 106 Digital Electronics 3
OR
ELE 158 Circuits, Schematics, and Test Equipment 3
ELE 110 Fundamentals of Electricity 4
ELE 113 Instrumentation and Process Control I 3
ELE 204 Electrical Machines 3
INT 102 Introduction to PLCs 3

Certificate Requirement 22

3471 4/24

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