Mechanical Engineering Technology

HAGERSTOWN COMMUNITY COLLEGE

What is the Mechanical Engineering Technology Program?

The Mechanical Engineering Technology (MET) Program is designed to prepare students to enter the mechanical design, manufacturing, and computer-aided design (CAD) industries. The curriculum provides a blend of drafting 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. The major provides lecture and laboratory courses for application-based study in engineering technology. With the adequate math, English, and science preparation for design and engineering applications after graduation, students in the MET program will have all the skills necessary to function as a contributing member of an engineering team. Core courses include Mechanics, Strength of Materials, Machine Design, CNC fundamentals, and CAD courses.

What type of students excel in this program?

Students who excel in mechanical engineering technology typically have critical thinking skills, enjoy hands on activities, work well in groups, and exhibit some proficiency in mathematics.

What types of jobs do mechanical engineering technicians perform?

Mechanical engineers or engineering technicians work in many industries, and their work varies by industry and function. The mechanical engineering technician is able to apply current knowledge and practices to solve specific technical problems. Technicians may specialize in energy systems, applied mechanics, automotive design, manufacturing, materials, construction, geospatial information systems, plant engineering and maintenance, pressure vessels and piping, and heating, refrigeration and air-conditioning systems. Mechanical engineering is a broad engineering discipline, so graduates have a wide range of career options from which to choose. Graduates of this program find employment as CAD drafters/designers, CNC operators, manufacturing engineering technicians, plant engineer assistants, mechanical test technicians, and sales engineers. To learn more about mechanical engineering careeres, visit *www.bls.gov/ooh/architecture-and-engineering/mechanical-engineering-technicians.htm*

PROGRAM OPTIONS

- A.A.S. Degree, Mechanical Engineering Technology
- A.A.S. Degree, Computer-Aided Design Concentration
- Certificate, Computer-Aided Design
- Letter of Recognition, Computer-Aided Design

CAREER OUTLOOK

MEDIAN SALARY

$56K

for Mechanical Engineering Technicians

EMPLOYMENT

42,600 jobs in U.S.
660 employed in MD

(source: www.bls.gov/ooh)

What is the employment outlook for this career?

Mechanical engineers are involved in the production of a wide range of products, and continued efforts to improve those products will create continued demand for their services. In addition, some new job opportunities will be created through the effects of emerging technologies in biotechnology, materials science, and nanotechnology.

Additional opportunities outside of mechanical engineering will exist because the skills acquired through earning a degree in mechanical engineering often can be applied in other engineering specialties. Employment of CAD drafters is expected to grow two percent from 2018 to 2028. Architectural and civil drafting is expected to be the fastest growing specialty. Increases in overall construction activity stemming from U.S. population growth and the related need to improve the nation's infrastructure should spur demand for drafters trained in architectural and civil design. Increasingly complex design problems associated with new products and manufacturing processes will increase the demand for mechanical drafters and electronic and electrical drafters (source: *www.bls.gov/ooh*).

Why should I come to HCC?

HCC offers the latest technology, software, and lab equipment to give students a competitive edge in a constantly changing environment. Students will learn mechanical design theory as well as applied hands-on problem-solving skills. Students earning the A.A.S. degree will complete an internship with a local engineering or manufacturing company where they will gain valuable on-the-job experience. Throughout the program, students develop a CAD portfolio containing drawings that meet industry standards and professionally display what they have accomplished at HCC.

What are the program options?

Students can earn an associate of applied science in MET or an associate of applied science in MET with an option in CAD. The MET: CAD option is particularly beneficial for the in-service technical person who wishes to upgrade job skills or apply a degree toward a new position. Students may also earn a certificate or letter of recognition in CAD. Students who are preparing for a career in construction, architecture, geo-spatial technologies, manufacturing, and other industries requiring computer-aided drafting and design skills may benefit from earning this certificate. The sequence of courses required for the letter of recognition is for students who need basic computer and drawing

skills in computer-aided design. Credits earned in the sequence can be applied toward a CAD certificate and associate degree program.

A.A.S. Degree

Mechanical Engineering Technology

This program gives students the opportunity to develop skills in mechanical design theory. Lecture and laboratory courses provide an application-based study in engineering technology. Students obtain the scientific, engineering, and technical skills necessary to function as a contributing member of the engineering team.

General Education Requirements 26-27 credits

See current college catalog for general education requirements. The catalog is available online at www.hagerstowncc.edu/academics/catalogs.

Program Requirements 21 credits

CAD	152	Computer-Aided Design	3
CAD	153	Computer-Aided Drafting	3
EGT	101	Foundations of Engineering Technology	2
EGT	136	Mechanics	3
EGT	231	Strength of Materials	3
EGT	234	Machine Design	4
EGT	235	Fluid Power	3

Restricted Electives 9-10 credits

Electives should be selected in consultation with an advisor to satisfy career goals or a transfer college curriculum.

CAD	228	CAD: Solid Modeling	3
EGR	103	Introduction to Engineering Science	3
EGT	150	Introduction to CNC Programming	3
EGT	250	Advanced CNC	3
EGT	269	Internship I	1-3
ELE	110	Fundamentals of Electricity	4
ELE	113	Instrumentation and Process Control I	3
ELE	130	Introduction to Unmanned Systems	3
ELE	203	PLC Applications	3
INT	102	Introduction to PLCs	3
INT	120	Introduction to OSHA	1
ELE	110	Fundamentals of Electricity	4
ELE	113	Instrumentation and Process Control I	3
MAT	101	College Algebra	3
MAT	161	Precalculus	4
MAT	203	Calculus I	4

Free Electives 3 credits

Electives should be selected in consultation with an advisor to satisfy career goals or a transfer college curriculum.

AET	102	Introduction to Alternative Energy	3
CAD	228	CAD: Solid Modeling	3
CHM	103	General Chemistry I	4
CSC	102	Introduction to Information Technology	3
CSC	132	Introduction to C and C++ Programming	3
EGT	150	Introduction to CNC Programming	3
ELE	110	Fundamentals of Electricity	4
ELE	113	Instrumentation and Process Control I	3

Degree Requirement 60

A.A.S. Degree

Computer-Aided Design Concentration, Mechanical Engineering Technology

This program gives students the opportunity to develop skills in computer-aided design (CAD). Lecture and laboratory courses provide an application-based study in engineering technology. Students obtain the scientific, engineering, and technical skills necessary to function as a contributing member of the engineering team. Articulation agreements exist with Washington County Public Schools, Fulton County Area Vocational Technical School, and Greencastle-Antrim High School for high school students to earn credit and/or dual-enroll in the program. The program is particularly beneficial for the in-service technical person who wishes to upgrade job skills or apply a degree toward a new position.

General Education Requirements 22-23 credits

See current college catalog for general education requirements. The catalog is available online at www.hagerstowncc.edu/academics/catalogs.

Program Requirements 23 credits

CAD	152	Computer-Aided Design	3
CAD	153	Computer-Aided Drafting	3
EGT	101	Foundations of Engineering Technology	2
EGT	136	Mechanics	3
EGT	231	Strength and Materials	3
GDT	112	Computer Graphics	3

Select one pathway:

Architectural Pathway

CAD	226	CAD: Architectural	3
CAD	230	BIM for Commercial Architecture	3

Mechanical Pathway

CAD	228	CAD: Solid Modeling	3
EGT	150	Introduction to CNC Programming	3

Restricted Electives 14-15 credits

Electives should be selected in consultation with an advisor to satisfy career goals or a transfer college curriculum. Select elective credits from the following list:

CAD	226	CAD: Architectural	3
CAD	228	CAD: Solid Modeling	3
CAD	230	BIM for Commercial Architecture	3
CAD	269	Internship	1-3
CSC	102	Introduction to Information Technology	3
EGR	103	Introduction to Engineering Science	3
EGT	150	Introduction to CNC Programming	3
EGT	234	Machine Design	4
EGT	235	Fluid Power	3
ELE	110	Fundamentals of Electricity	4
ELE	130	Introduction to Unmanned Systems	3
INT	101	Introduction to Industrial Technology	3
INT	102	Introduction to PLCs	3
INT	107	Heating, Ventilation, Air Conditioning and Refrigeration (HVAC/R)	3
INT	120	Introduction to OSHA	1
MAT	101	College Algebra	3
PHS	108	Introduction to Physical Geology	4

Degree Requirement 60

Certificate

Computer-Aided Design

This certificate is for students who are preparing for a career in construction, architecture, geo-spatial technologies, manufacturing, and other industries requiring computer-aided drafting and design skills.

Program Requirements 18-19 credits

CAD	152	Computer-Aided Design	3
CAD	153	Computer-Aided Drafting	3
ENG	101	English Composition	3
		ELL 101 English Composition for English Language Learners is an approved substitution for ENG 101	
MAT	114	Introduction to Applied Algebra	3
		OR	
MAT	161	Precalculus	(4)

Select one pathway:

Architectural Pathway

CAD	226	CAD: Architectural	3
CAD	230	BIM for Commercial Architecture	3

Mechanical Pathway

CAD	228	CAD: Solid Modeling	3
EGT	150	Introduction to CNC Programming	3

Free Electives 5-6 credits

Electives should be selected in consultation with an advisor.

CSC	102	Introduction to Information Technology	3
ENG	112	Technical Writing I	3
GDT	112	Computer Graphics	3
STU	106	Professionalism in the Workplace	1

Certificate Requirement 24

Letter of Recognition

Computer-Aided Design

This sequence of courses is for students who need basic computer and drawing skills and entry-level skills in computer-aided design. Credits earned in the sequence can be applied toward a CAD certificate and associate degree program.

Program Requirements 9 credits

CAD	152	Computer-Aided Design	3
CSC	102	Introduction to Information Technology	3
GDT	112	Computer Graphics	3

Letter of Recognition Requirement 9

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Contact Information:

Dr. Olu Bamiduro
Instructor, Mechanical Engineering Technology
240-500-2676
oabamiduro@hagerstowncc.edu

www.hagerstowncc.edu/MET