



Mechanical Engineering Technology



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.

What is the employment outlook for this career?

Mechanical engineers are expected to have employment growth of five percent through 2026, according to the U.S. Bureau of Labor Statistics. 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 by four percent through the year 2018. 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).

What do mechanical engineering technicians earn?

Earnings vary depending on experience, education, geographical location, and specialization. In 2017, for example, the national average annual wage for mechanical engineering technicians was over \$55,360, with the top ten percent earning over \$85,230. Interns in this field typically earn about 50 percent of the wage rate paid to experienced workers. As workers gain experience and improve their skills, they receive periodic increases until they reach the wage rate of experienced workers (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.

Important information about the educational debt, earnings, and completion rates of students who attended these programs can be viewed at www.hagerstowncc.edu/gedp/cer_cad/15.1303-Gedt.html

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 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 I.....	3
CAD 153	Computer-Aided Drafting	3
EGT 101	Computerized Spreadsheets for Engineers	2
EGT 136	Mechanics	3
EGT 231	Strength of Materials.....	3
EGT 234	Machine Design	4
EGT 235	Fluid Power.....	3

Restricted Electives 10-11 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)
EGT 150	Introduction to CNC Programming..	(3)
ELE 110	Fundamentals of Electricity.....	(4)
ELE 113	Instrumentation and Process Control I	(3)
MAT 161	Precalculus	(4)
MAT 203	Calculus I	(4)

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)
EGR 103	Introduction to Engineering	(3)
EGT 150	Introduction to CNC Programming..	(3)
EGT 250	Advanced CNC	(3)
EGT 269	Internship I.....	(3)
ELE 103	PLC Applications	(3)
ELE 110	Fundamentals of Electricity.....	(4)
ELE 113	Instrumentation and Process Control I	(3)

Degree Requirement60

A.A.S. Degree

Mechanical Engineering Technology Option in Computer-Aided Design

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 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	Computerized Spreadsheets for Engineers	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 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 I.....	(3)
CSC 102	Introduction to Information Technology.....	(3)
EGR 103	Introduction to Engineering.....	(3)
EGT 150	Introduction to CNC Programming..	(3)
EGT 234	Machine Design	(4)
EGT 235	Fluid Power.....	(3)
INT 101	Introduction to Industrial Technology.....	(3)
INT 102	Introduction to PLCs.....	(3)
INT 104	Facilities Safety and Compliance....	(3)
INT 107	Heating, Ventilation, Air Conditioning and Refrigeration (HVAC/R)	(3)
ELE 110	Fundamentals of Electricity.....	(4)

Degree Requirement.....60

Certificate

Mechanical Engineering Technology 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 credits

CAD 152	Computer-Aided Design I.....	3
CAD 153	Computer-Aided Drafting	3
ENG 101	English Composition	3
<i>ELL 101 English Composition for English Language Learners is an approved substitution for ENG 101</i>		
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 6 credits

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 Requirement24

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 I.....	3
CSC 102	Introduction to Information Technology.....	3
GDT 112	Computer Graphics.....	3

Letter of Recognition Requirement.....9

Contact Information:

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

Recommended Professional Organizations:

The Minerals, Metals & Materials Society (TMS)
www.tms.org

American Society of Mechanical Engineers (ASME)
www.asme.org

Society of Manufacturing Engineers (SME)
www.sme.org

Society of Women Engineers (SWE)
www.societyofwomenengineers.swe.org

American Institute of Building Design (AIBD)
www.aibd.org

American Institute of Architects (AIA)
www.aia.org