MECHANICAL ENGINEERING TECHNOLOGY, A.ENGT.

Begin Campus: DuBois, Erie, York

End Campus: DuBois, Erie, York

Program Description

This major helps graduates prepare for technical positions in manufacturing, machine and tool design, computer drafting and design, computer integrated manufacturing, materials selection and processes, technical sales, and other related industries in mechanical applications. The primary objective of the program is to provide a broad foundation in mechanical systems and applications; computer systems in drafting (CAD), manufacturing (CAM), and automation and robotics (CIM); production and product design; mechanics, dynamics, and strength of materials.

Graduates of this major may qualify for admission to the baccalaureate degree majors in Mechanical Engineering Technology and Structural Design and Construction Engineering Technology programs at Penn State Harrisburg; the Mechanical Engineering Technology and the Plastics Engineering Technology programs at Penn State Erie, The Behrend College; or the baccalaureate degree major in Electro-Mechanical Engineering Technology offered at Penn State Altoona, Penn State Berks, Penn State New Kensington, or Penn State York. Two tracks are available to streamline the transition to these baccalaureate degree programs. A general track is provided for students who do not plan to continue their engineering technology education at the baccalaureate level.

What is Mechanical Engineering Technology?

Mechanical engineering technology is the understanding of how products and machinery work and how they are designed, made, and used.

You Might Like This Program If...

- You are interested in computer-aided drafting (CAD) and computer-aided manufacturing.
- You enjoy physics, math and statistics.
- You have a passion for robotics and automation.
- You have an interest in programming and data acquisition.

Entrance to Major

Students must have a minimum 2.0 GPA to change to this Associate degree after admission to the University.

Degree Requirements

For the Associate in Engineering Technology degree in Mechanical Engineering Technology, a minimum of 65 credits is required:

Requirement	Credits
General Education	21
Requirements for the Major	54-64

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (http://bulletins.psu.edu/undergraduate/general-education/associate-degree-general-education-program) section of the Bulletin and consult your academic adviser.

Foundations (grade of C or better is required.)

- **Quantification (GQ):** 3 credits
- **Writing and Speaking (GWS):** 3 credits

Knowledge Domains

- **Arts (GA):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Foundations or Knowledge Domains

- **A General Education course selected from GWS, GQ, GN, GA, GH, or GS, and may include Integrative Studies (Inter-domain or Linked) courses:** 3 credits

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

12-15 of these 21 credits are included in the Requirements for the Major.

University Degree Requirements

Cultures Requirement

3 credits of United States (US) or International (IL) cultures coursework are required and may satisfy other requirements

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 60 degree credits must be earned for a associates degree. The requirements for some programs may exceed 60 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (http://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80)). For more information, check the Suggested Academic Plan for your intended program.

Requirements for the Major

This includes 12-15 credits of General Education courses: 3 credits of GN courses; 3 credits of GQ courses; 6 credits of GWS courses, 0-3 credits

of GH or GS. A First-Year Seminar is required for students at Penn State Erie, The Behrend College.

Code	Title	Credits
Prescribed Courses		
CAS 100	Effective Speech	3
IET 215	Production Design	2
IET 216	Production Design Laboratory	2
MCHT 213	Strength and Properties of Materials	3
MCHT 214	Strength and Properties of Materials Laboratory [1]	1
MET 210	Machine Design	3
Prescribed Courses: Require a grade of C or better		
IET 101	Manufacturing Materials, Processes, and Laboratory	3
MCHT 111	Mechanics for Technology: Statics	3
MET 206	Dynamics	3
Additional Courses		
ENGL 15	Rhetoric and Composition	3
or ENGL 30	Honors Freshman Composition	
Select 5-6 credits of the following:		5-6
MATH 22 & MATH 26	College Algebra II and Analytic Geometry and Plane Trigonometry	
MATH 40	Algebra, Trigonometry, and Analytic Geometry [1,2]	
MATH 81 & MATH 82	Technical Mathematics I and Technical Mathematics II [1,2]	
MATH 82	Technical Mathematics II [1,2]	
Select 3-4 credits of the following:		3-4
PHYS 150	Technical Physics I	
PHYS 211	General Physics: Mechanics	
PHYS 250	Introductory Physics I	
Select 3-4 credits of the following:		3-4
PHYS 151	Technical Physics II	
PHYS 212	General Physics: Electricity and Magnetism	
PHYS 251	Introductory Physics II	
Select at least 19-24 credits from one of the following three tracks:		19-24
General Track		
EDSGN 100	Introduction to Engineering Design	
EDSGN 110	Spatial Analysis in Engineering Design	
or EGT 114	Spatial Analysis and Computer-Aided Drafting	
EET 105	Electrical Systems	
MET 107	Computer Applications for Technologists	
STS 200	Critical Issues in Science, Technology, and Society	
or STS 233	Ethics and the Design of Technology	
or STS 245	Globalization, Technology, and Ethics	
Select at least 6 credits from the approved supporting course list for this track		
Baccalaureate Electro-Mechanical Engineering Technology (EMET) Track		
CMPET 117	Digital Electronics [1]	
CMPET 120	Digital Electronics Laboratory [1]	
EDSGN 100	Introduction to Engineering Design	
EDSGN 110	Spatial Analysis in Engineering Design	
or EGT 114	Spatial Analysis and Computer-Aided Drafting	
EET 105	Electrical Systems	
EET 114	Electrical Circuits II [1]	
EET 118	Electrical Circuits Laboratory [1]	
MATH 83	Technical Calculus [1,2]	
or MATH 140	Calculus With Analytic Geometry I	
STS 200	Critical Issues in Science, Technology, and Society	
or STS/ PHIL 233	Ethics and the Design of Technology	
or STS 245	Globalization, Technology, and Ethics	
Baccalaureate Mechanical Engineering Technology (METBC or MET) Track		
EGT 120	Introduction to Graphics and Solid Modeling	
EGT 121	Applied Solid Modeling	
MET 107	Computer Applications for Technologists	
EET 100	Electric Circuits, Power, and Electronics	
Select 1 credit of First-Year Seminar		
Select 6 credits from the approved supporting course list for this track		

1 Students pursuing the baccalaureate track must take MATH 22 and MATH 26.

2 Students who choose to take MATH 81 and MATH 82 must select MATH 83. Students who choose to take MATH 22 and MATH 26 must select MATH 140.

Program Educational Objectives

Graduates of the Associate Degree in Mechanical Engineering Technology program will:

- Practice in the areas of applied design, manufacturing, testing, evaluation, technical sales, or 2D and 3D modeling.
- Communicate effectively and work collaboratively in multi-disciplinary teams.
- Learn and adapt to changes in a professional work environment.
- Demonstrate a high standard of professional ethics and be cognizant of social concerns as they relate to the practice of engineering technology.

Student Outcomes

To support the achievement of educational objectives, the following student outcomes were established for the 2MET program. Students graduating from the 2MET program will:

1. Be able to apply the knowledge, techniques, skills, and modern tools of mechanical engineering technology to narrowly defined mechanical engineering technology activities.
2. Be able to apply a knowledge of mathematics, science, engineering and technology to mechanical engineering technology problems that require limited application of principles but extensive practical knowledge.
3. Be able to conduct standard tests and measurements, and to conduct , analyze, and interpret experiments.
4. Be able to function effectively as a member of a technical team.
5. Be able to identify, analyze, and solve narrowly defined engineering technology problems.
6. Be able to communicate effectively regarding narrowly defined mechanical engineering technology activities.

7. Be able to recognize the need for and an ability to engage in self-directed continuing professional development.
8. Demonstrate an understanding of and a commitment to address professional and ethical responsibilities including a respect for diversity.
9. Demonstrate a commitment to quality, timeliness, and continuous improvement.

Additional Program Specific criteria for 2MET

a. The application of applied mechanics, computer-aided drafting/design, experimental techniques/procedures to the fabrication, test, operation, or documentation of basic mechanical systems
b. The application of physics or chemistry to mechanical systems in a rigorous mathematical environment at or above the level of algebra and trigonometry.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information need to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (http://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy)

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Suggested Academic Plans

Ending at DuBois Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
EDSGN 100†		3 CAS 100 (GWS)‡†	3
IET 101*†		3 MET 107	3
MATH 26 (GQ)*‡†		3 EDSGN 110†	2
EET 105†		3 MATH 22 (GQ)*‡†	3
ENGL 15, 30, or ESL 15 (GWS)‡†		3 MCHT 111*	3
PSU 8		1-3 General Education Course	3
	16-18		17

Second Year

Fall	Credits	Spring	Credits
IET 215†		2 MET 210*†	3
IET 216†		2 PHYS 151 (GN)†	3
MCHT 213†		3 STS 200†	3
MCHT 214†		1 General Education Course	3
MET 206*†		3 Technical Elective	3
PHYS 150 (GN)†		3	
Technical Elective	2-5		
	16-19		15

Total Credits 64-69

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy University Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

GWS, GQ, GN, GA, GH, and GS are abbreviations used to identify General Education program courses. General Education includes Foundations (GWS and GQ) and Knowledge Domains (GN, GA, GH, and GS). Foundations courses (GWS and GQ) require a grade of 'C' or better.

Integrative Studies courses can be completed for the General Education program. N is the suffix at the end of a course number used to designate an Inter-Domain course and Z is the suffix at the end of a course number used to designate a Linked course.

College Notes

Program Notes: Technical electives include the following courses:
COURSE LIST: AE T 297; CHEM 101, 110, 111; CMPSC 101; EET 100, 114, 118; EG T 297; IET 105, 109, 297; IST 110, 210, 220, 250; MATH 083, 140; MET 281, 297; STAT 200; SUR 111; EDSGN 210
*EDGSN 110 has replaced EGT 114 for spatial Analysis technical elective.

**MATH 022 may be taken concurrently with MATH 026.

***First Year Seminar requirement may also be fulfilled through approved General Education requirement.

Academic Advising Notes: A student's career/graduate school plans should be considered in developing an individual academic plan. Be sure to consult an adviser in this department when scheduling courses.

Ending at Erie Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
EGT 120	3	EGT 121	3
ENGL 15 or 30 (GWS)‡†	3	IET 215	2
First Year Seminar	1	MATH 82 (GQ)*	3
IET 101*	3	MCHT 111*	3
MATH 81 (GQ)*	3	PHYS 250 (GN)*	4
General Education Course	3	General Education Course	3
	16		18

Second Year

Fall	Credits	Spring	Credits
IET 216	2	CAS 100 (GWS)‡†	3
MCHT 213	3	EET 100	3
MCHT 214	1	MET 210	3
MET 107	3	PHYS 251 (GN)†	4
MET 206*	3	General Education Course	3
MET Track Elective	3		
MET Track Elective	3		
	18		16

Total Credits 68

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy University Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

GWS, GQ, GN, GA, GH, and GS are abbreviations used to identify General Education program courses. General Education includes Foundations (GWS and GQ) and Knowledge Domains (GN, GA, GH, and GS). Foundations courses (GWS and GQ) require a grade of 'C' or better.

Integrative Studies courses can be completed for the General Education program. N is the suffix at the end of a course number used to designate an Inter-Domain course and Z is the suffix at the end of a course number used to designate a Linked course.

College Notes

Permissible Math substitutions: MATH 26 or MATH 41 instead of MATH 81, MATH 22 instead of MATH 82, and MATH 140 instead of MATH 83.

2MET Technical Electives:

AET 297* (1-3), BA 242 (2), BA 243 (2), CHEM 101 (3), CHEM 110 (3), CHEM 111 (1), CMPSC 101 (3), EDSGN 210 (2), EET 114 (4), EET 118 (1), EGT 201 (2), EGT 297* (1-9), IET 105 (2), IET 109 (3), IET 297* (1-3), IST 110 (3), IST 210 (4), IST 220 (3), IST 250 (3), MATH 83 (4), MATH 140 (4), MATH 141 (4), MATH 210 (3), MET 281 (4), MET 297* (1-3), MET 306 (3), MET 320 (3), MET 330 (3), MET 341 (3), MGMT 301 (3), PLET 205 (3), STAT 200 (4), SUR 111 (3)

Upon approval of the College of Engineering, students may be allowed to select technical elective courses from other disciplines. * Requires prior approval from the Mechanical Engineeing Technology Department Chair.

Ending at York Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
EDSGN 100	3	MCHT 111*	3
IET 101*	3	General Education Course	3
EET 105	3	CMPET 117	3
MATH 26	3	CMPET 120	1
ENGL 15, 30, or ESL 15 (GWS)‡†	3	MATH 22 (GQ)*‡	3
		PHYS 150 or 250 (GN)	3-4
	15		16-17

Second Year

Fall	Credits	Spring	Credits
MCHT 213	3	MET 210	3
MCHT 214	1	IET 215	2
MET 206*	3	IET 216	2
EGT 114	2	CAS 100 (GWS)‡†	3
STS 233 or PHIL 233	3	Track Selection	6

PHYS 151 or 251 (GN)†	3-4 General Education Course	3
	15-16	19

Total Credits 65-67

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy University Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

GWS, GQ, GN, GA, GH, and GS are abbreviations used to identify General Education program courses. General Education includes Foundations (GWS and GQ) and Knowledge Domains (GN, GA, GH, and GS). Foundations courses (GWS and GQ) require a grade of 'C' or better.

Integrative Studies courses can be completed for the General Education program. N is the suffix at the end of a course number used to designate an Inter-Domain course and Z is the suffix at the end of a course number used to designate a Linked course.

Career Paths

Graduates from the mechanical engineering technology program work in a variety of industries such as automotive, aeronautical, petroleum, defense, medical, power generation, transportation, and materials.

MORE INFORMATION ABOUT CAREERS (http://career.engr.psu.edu)

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (http://www.engr.psu.edu/students/grad-prospective/default.aspx)

Accreditation

This program is accredited by the Engineering Technology Accreditation Commission of ABET, www.abet.org (http://www.abet.org).

MORE INFORMATION (http://www.abet.org)

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