MECHANICAL ENGINEERING TECHNOLOGY, A.ENG.T.

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:

- **General Education**
  - 21 credits

- **Requirements for the Major**
  - 54-64 credits

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 (http://www.psu.edu) 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.

Baccalaureate Electro-Mechanical Engineering Technology (EMET) Track

Select at least 19-24 credits from one of the following three tracks:

Select 3-4 credits of the following:

- EET 105 Electrical Systems
- CMPET 117 Digital Electronics
- CMPET 120 Digital Electronics Laboratory
- EDSGN 100 Introduction to Engineering Design
- EDSGN 110 Spatial Analysis in Engineering Design
- or EGT 114 Spatial Analysis and Computer-Aided Drafting

Select at least 6 credits from the approved supporting course list for this track

Baccalaureate Mechanical Engineering Technology (METBC or MET) Track

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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mfc5@psu.edu

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

<table>
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<tr>
<th>Fall</th>
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<td>EDSGN 100†</td>
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<td>CAS 100 (GWS)‡†</td>
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<td>IET 101†</td>
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<td>MET 107</td>
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<td>MATH 26 (GQ)†‡</td>
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<td>EET 105†</td>
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<td>(GWS)†‡</td>
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Second Year

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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

*EDSGN 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**

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<td>3 MCHT 111*</td>
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<td>MET 107</td>
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<td><strong>Total Credits 68</strong></td>
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‡ Course requires a grade of C or better for General Education

# Course is an Entrance to Major requirement

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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, and MATH 22 instead of MATH 82, and MATH 140 instead of MATH 83.

2MET Technical Electives:


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 Engineering Technology Department Chair.

**Ending at York Campus**

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<tr>
<td>EDSGN 100</td>
<td>3 MCHT 111*</td>
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<td>EET 105</td>
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<td>MCHT 213</td>
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<td>MCHT 214</td>
<td>1 IET 215</td>
<td>2</td>
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<tr>
<td>MET 206*</td>
<td>3 IET 216</td>
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<tr>
<td>EGT 114</td>
<td>2 CAS 100 (GWS)†‡</td>
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<td>STS 233 or PHIL 233</td>
<td>3 Track Selection</td>
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PHYS 151 or 251 (GN)†  3-4 General Education Course   3

Total Credits 65-67

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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)

Contact

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http://www.abet.org

Contact