MECHANICAL ENGINEERING TECHNOLOGY, A.ENGT. (BEHREND)

Begin Campus: Erie
End Campus: Erie

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:

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Education</td>
<td>21</td>
</tr>
<tr>
<td>Requirements for the Major</td>
<td>54-64</td>
</tr>
</tbody>
</table>

12-15 of the 21 credits for General Education are included in the Requirements for the Major. This includes: 3 credits of GN courses; 3 credits of GQ courses; 6 credits of GWS courses; 0-3 credits of GH or GS.

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.

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 2.0 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
A First-Year Seminar is required for students at Penn State Erie, The Behrend College.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS 100</td>
<td>Effective Speech</td>
<td>3</td>
</tr>
<tr>
<td>IET 215</td>
<td>Production Design</td>
<td>2</td>
</tr>
<tr>
<td>IET 216</td>
<td>Production Design Laboratory</td>
<td>2</td>
</tr>
<tr>
<td>MCHT 213</td>
<td>Strength and Properties of Materials</td>
<td>3</td>
</tr>
<tr>
<td>MCHT 214</td>
<td>Strength and Properties of Materials Laboratory</td>
<td>1</td>
</tr>
<tr>
<td>MET 210</td>
<td>Machine Design</td>
<td>3</td>
</tr>
<tr>
<td>IET 101</td>
<td>Manufacturing Materials, Processes, and Laboratory</td>
<td>3</td>
</tr>
<tr>
<td>MCHT 111</td>
<td>Mechanics for Technology: Statics</td>
<td>3</td>
</tr>
<tr>
<td>MET 206</td>
<td>Dynamics</td>
<td>3</td>
</tr>
</tbody>
</table>

Additional Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 15</td>
<td>Rhetoric and Composition</td>
</tr>
<tr>
<td>or ENGL 30</td>
<td>Honors Freshman Composition</td>
</tr>
</tbody>
</table>

Select 5-6 credits of the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 22</td>
<td>College Algebra II and Analytic Geometry &amp; MATH 26</td>
<td>Plane Trigonometry</td>
</tr>
<tr>
<td>MATH 40</td>
<td>Algebra, Trigonometry, and Analytic Geometry 1,2</td>
<td>5-6</td>
</tr>
<tr>
<td>MATH 81</td>
<td>Technical Mathematics I &amp; MATH 82 and Technical Mathematics II 1,2</td>
<td>5-6</td>
</tr>
<tr>
<td>MATH 82</td>
<td>Technical Mathematics II 1,2</td>
<td>5-6</td>
</tr>
</tbody>
</table>

Select 3-4 credits of the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 150</td>
<td>Technical Physics I</td>
</tr>
<tr>
<td>PHYS 211</td>
<td>General Physics: Mechanics</td>
</tr>
<tr>
<td>PHYS 250</td>
<td>Introductory Physics I</td>
</tr>
</tbody>
</table>

Select 3-4 credits of the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 151</td>
<td>Technical Physics II</td>
</tr>
<tr>
<td>PHYS 212</td>
<td>General Physics: Electricity and Magnetism</td>
</tr>
<tr>
<td>PHYS 251</td>
<td>Introductory Physics II</td>
</tr>
</tbody>
</table>

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

General Track

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDSGN 100</td>
<td>Introduction to Engineering Design</td>
<td>3</td>
</tr>
<tr>
<td>EDSGN 110</td>
<td>Spatial Analysis in Engineering Design or EGT 114</td>
<td>Spatial Analysis and Computer-Aided Drafting</td>
</tr>
<tr>
<td>EET 105</td>
<td>Electrical Systems</td>
<td>3</td>
</tr>
<tr>
<td>MET 107</td>
<td>Computer Applications for Technologists</td>
<td>3</td>
</tr>
<tr>
<td>STS 200</td>
<td>Critical Issues in Science, Technology, and Society or STS 233</td>
<td>Ethics and the Design of Technology</td>
</tr>
<tr>
<td>or STS 245</td>
<td>Globalization, Technology, and Ethics</td>
<td></td>
</tr>
</tbody>
</table>

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

Baccalaureate Electro-Mechanical Engineering Technology (EMET) Track

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMPET 117</td>
<td>Digital Electronics 1</td>
<td>1</td>
</tr>
<tr>
<td>CMPET 120</td>
<td>Digital Electronics Laboratory 1</td>
<td>1</td>
</tr>
<tr>
<td>EDSGN 100</td>
<td>Introduction to Engineering Design</td>
<td>3</td>
</tr>
</tbody>
</table>

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
The Associate Mechanical Engineering Technology program prepares students with technical and professional skills for the professional practice. Due to their experience in our program, within few years of graduation, we expect our graduates to have the ability to:

1. Practice in the areas of applied design, manufacturing, testing, evaluation, technical sales, or 2D and 3D modeling.
2. Communicate effectively with internal and external stakeholders.
3. Work collaboratively in multi-disciplinary teams and assume an increasing level of responsibility and leadership within their organizations.
4. Demonstrate troubleshooting skills by following protocols and using technical literature.

Student Outcomes
Student outcomes describe what students are expected to know and be able to do by the time of graduation. The Associate Mechanical Engineering Technology program is designed to enable students to:

1. Apply knowledge, techniques, skills, and modern tools of mathematics, science, engineering, and technology to solve well-defined engineering problems appropriate to the discipline.
2. Design solutions for well-defined technical problems and assist with the engineering design of systems, components, or processes appropriate to the discipline.
3. Apply written, oral, and graphical communication in well-defined technical and non-technical environments; and an ability to identify and use appropriate technical literature.
4. Conduct standard tests, measurements, and experiments and to analyze and interpret the results.
5. Function effectively as a member or leader on a technical team.

**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 needed 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](http://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy))

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**Suggested Academic Plan**

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2019-20 academic year. To access previous years’ suggested academic plans, please visit the archive ([http://bulletins.psu.edu/undergraduate/archive](http://bulletins.psu.edu/undergraduate/archive)) to view the appropriate Undergraduate Bulletin edition (Note: the archive only contain suggested academic plans beginning with the 2018-19 edition of the Undergraduate Bulletin).

**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**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Spring Credits</th>
<th>Total Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EGT 120</td>
<td>3</td>
<td>EGT 121</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 15 or 30 (GWS)†‡</td>
<td>3</td>
<td>IET 215</td>
<td>2</td>
</tr>
<tr>
<td>First Year Seminar</td>
<td>1</td>
<td>MCHT 111*</td>
<td>3</td>
</tr>
<tr>
<td>IET 101*</td>
<td>3</td>
<td>MATH 81 (GQ)*</td>
<td>4</td>
</tr>
<tr>
<td>MATH 81 (GQ)*</td>
<td>3</td>
<td>PHYS 250 (GN)*</td>
<td></td>
</tr>
<tr>
<td>General Education Course</td>
<td>3</td>
<td>General Education Course</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>16</td>
<td><strong>18</strong></td>
<td><strong>68</strong></td>
</tr>
</tbody>
</table>

* 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.

**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:

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.

**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 POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE MECHANICAL ENGINEERING TECHNOLOGY PROGRAM (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 ABOUT ABET ACCREDITATION (http://www.abet.org)

**Contact**

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