MECHANICAL ENGINEERING TECHNOLOGY, A.ENGT. (ENGINEERING)

Begin Campus: DuBois, York
End Campus: DuBois, 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:

<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/associates-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 2.00 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**

A First-Year Seminar is required for students at Penn State Erie. The

**General Track**

<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>
</tbody>
</table>

**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       |
- ENGL 30 | Honors Freshman Composition                     | 3       |

Select 5-6 credits of the following:

- MATH 22 | College Algebra II and Analytic Geometry and Plane Trigonometry | 3-4       |
- MATH 40 | Algebra, Trigonometry, and Analytic Geometry     | 1-2       |
- MATH 81 | Technical Mathematics I                          | 3-4       |
- MATH 82 | Technical Mathematics II                         | 1-2       |

Select 3-4 credits of the following:

- PHYS 150 | Technical Physics I                             | 3-4       |
- PHYS 211 | General Physics: Mechanics                      | 3-4       |
- PHYS 250 | Introductory Physics I                          | 3-4       |

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

**Baccalaureate Electro-Mechanical Engineering Technology (EMET) Track**

- EDSGN 110 | Spatial Analysis in Engineering Design          | 1-2       |
- EGT 114    | Spatial Analysis and Computer-Aided Drafting    | 1-2       |
- EET 105    | Electrical Systems                              | 1-2       |
- EET 114    | Electrical Circuits II                          | 1-2       |
- EET 118    | Electrical Circuits Laboratory                   | 1-2       |
- MATH 83    | Technical Calculus                               | 1-2       |
- MATH 140   | Calculus With Analytic Geometry I               | 1-2       |
- STS 233    | Ethics and the Design of Technology             | 1-2       |
- STS 245    | Globalization, Technology, and Ethics           | 1-2       |

**Baccalaureate Mechanical Engineering Technology (METBC or MET) Track**

- EET 100 | Electric Circuits, Power, and Electronics       | 1-2       |
- EGT 120 | Introduction to Graphics and Solid Modeling    | 1-2       |
- EGT 121 | Applied Solid Modeling                         | 1-2       |
- MET 107 | Computer Applications for Technologists        | 1-2       |

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**

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)

### DuBois

**Douglas J. Miller**

Assistant Teaching Professor and Program Coordinator

1 College Place
110 DEF Building
DuBois, PA 15801
814-375-4731
djm290@psu.edu

### York

**Andrea Giorgioni**

Lecturer and Program Coordinator

35 Main Classroom Building
1031 Edgecomb Ave.
York, PA 17403
717-771-4033
aug19@psu.edu

### Erie

**Fredrick Nitterright**

Lecturer and Program Coordinator

227 Burke
Erie, PA 16563
814-898-6185
fxn101@psu.edu

**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) 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 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.

<table>
<thead>
<tr>
<th>First Year</th>
<th>Fall Credits</th>
<th>Spring Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDSGN 100</td>
<td>3</td>
<td>MCHT 111†‡</td>
</tr>
<tr>
<td>IET 101*</td>
<td>3</td>
<td>General Education Course</td>
</tr>
<tr>
<td>MET 107</td>
<td>3</td>
<td>EET 105</td>
</tr>
<tr>
<td>MATH 26*</td>
<td>3</td>
<td>EDSGN 110 or EGT 114</td>
</tr>
<tr>
<td>ENGL 15, 30, or ESL 15 (GWS)††</td>
<td>3</td>
<td>CAS 100 (GWS)††</td>
</tr>
</tbody>
</table>

| Total Credits               | 65-70        |

<table>
<thead>
<tr>
<th>Second Year</th>
<th>Fall Credits</th>
<th>Spring Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MCHT 213²</td>
<td>3</td>
<td>MET 210</td>
</tr>
<tr>
<td>MCHT 214</td>
<td>1</td>
<td>PHYS 151 or 251 (GN)†²</td>
</tr>
<tr>
<td>MET 206²</td>
<td>3</td>
<td>STS 200</td>
</tr>
<tr>
<td>IET 216</td>
<td>2</td>
<td>General Education Course</td>
</tr>
<tr>
<td>IET 215</td>
<td>2</td>
<td>Technical Electives³</td>
</tr>
<tr>
<td>PHYS 150 or 250 (GN)²</td>
<td>3-4</td>
<td>Technical Electives³</td>
</tr>
<tr>
<td>Technical Electives³</td>
<td>2-3</td>
<td></td>
</tr>
</tbody>
</table>

| Total Credits               | 16-18        | 17-20          |

* 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

1 MATH 26 and MATH 22 may be taken concurrently
2 Students successfully completing MATH 140 and subsequently MATH 141 may choose to take the EMCH 211, EMCH 212 and EMCH 213 sequence of courses for Statics (MCHT 111), Dynamics (MET 206), and Strengths/Properties of Materials (MCHT 213); and similarly, PHYS 211 and PHYS 212 in place of (PHYS 150/PHYS 250) and (PHYS 151/PHYS 251), respectively.
3 A minimum of 6 credits of approved Technical Elective Credits are required in order to reach the minimum major graduation requirement of 65 credits.

**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.

**Program Notes**

Approved Technical Elective Courses include the following courses:
COURSE LIST: AET 296, 297; ACCTG 211; BA 241, 242, 243; CHEM 101, 110, 111, 112; CMPET 117, 120; CMPSC 101, 121, 122, 200, 201; EDSGN 210, 296, 297; EET 100, 114, 118, 275; EGT 201; EMET 100, 350, 430; IET 105, 109, 296, 297, 333; IST 110, 210, 220, 250, 402; MATH 083, 140, 141, 210; ME 300; MET 281, 296, 297, 306, 320, 330, 341; MGMT 301; MIS 204; PLET 205; SCM 200; STAT 200; STS 233; SUR 111.

Additional courses may be acceptable via academic petition, must discuss with your academic adviser and/or program coordinator.

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 York Campus
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<tr>
<td>EET 105</td>
<td>3</td>
<td>MET 107</td>
<td>3</td>
</tr>
<tr>
<td>MATH 26</td>
<td>3</td>
<td>PHYS 150 or 250 (GN)</td>
<td>3-4</td>
</tr>
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<td></td>
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</tr>
</tbody>
</table>

15 15-16

Second Year

<table>
<thead>
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<th>Fall</th>
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<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MCHT 213</td>
<td>3</td>
<td>MET 210</td>
<td>3</td>
</tr>
<tr>
<td>MCHT 214</td>
<td>3</td>
<td>IET 215</td>
<td>2</td>
</tr>
<tr>
<td>MET 206*</td>
<td>3</td>
<td>MET 216</td>
<td>2</td>
</tr>
<tr>
<td>EDSGN 110 or EGT 114</td>
<td>2</td>
<td>CAS 100 (GWS)††</td>
<td>3</td>
</tr>
<tr>
<td>STS 233 or PHIL 233</td>
<td>3</td>
<td>Technical Electives †</td>
<td>6-7</td>
</tr>
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Program Notes
Technical electives include the following courses:
COURSE LIST: CHEM 101, 110, 111; CMPET 117, 120; CMPSC 101, 121, 201; EET 114, 275; EGT 201; EMET 326, 350, 430; IET 333; IST 402; MATH 140; MGMT 301, MKTG 301, STAT 200

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
University Park
SCHOOL OF ENGINEERING DESIGN, TECHNOLOGY, AND PROFESSIONAL PROGRAMS
213 Hammond Building
University Park, PA 16802
814-865-2952
adviser@engr.psu.edu
http://www.sedtapp.psu.edu

DuBois
1 College Place
DuBois, PA 15801
814-375-4731
djm290@psu.edu
https://dubois.psu.edu/2met

York
35 Main Classroom Building
1031 Edgecomb Ave.
York, PA 17403
717-771-4033
aug19@psu.edu

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