MECHANICAL ENGINEERING TECHNOLOGY, B.S. (CAPITAL)

Begin Campus: Any Penn State Campus
End Campus: Harrisburg

Program Description
The goal of the Mechanical Engineering Technology program is to provide our students with the necessary training and education so that they can provide high-level technical support to a variety of industrial, commercial, consulting, and governmental organizations. The emphasis of our program is in the application of scientific and engineering principles. Technical communication in oral and written form is also emphasized. Our graduates are expected to appreciate the ethical and societal responsibilities of a technologist, the concepts of Continuous Quality Improvement and the continuing impact of globalization of design, manufacturing and marketing of technical goods and services. Our graduates are trained to deal with choice of materials and methods that are safe, environmentally and aesthetically acceptable and economically competitive. Typical responsibilities that may be assigned to our graduates are the development and evaluation of machines and mechanisms; development, organization and supervision of manufacturing processes and procedures; the instrumentation, control and testing of a process; quality control; technical marketing and sales; design of mechanical systems for heating and cooling and energy management.

The strengths of our program include:
- hands-on training;
- extensive laboratory experience;
- state of the art computer methods, excellent job placement;
- accreditation by the Technology Accreditation Commission of the Accreditation Board for Engineering and Technology (ABET).

Graduates who wish to continue their professional development can take the Fundamentals of Engineering exam in Pennsylvania, a prerequisite for taking the Professional Engineering exam.

What is Mechanical Engineering Technology?
Mechanical engineering technology is the application of engineering and technology principles for the creation of products and mechanical systems. It emphasizes applied design and analysis of engineering systems and materials. Mechanical engineering technology differs from mechanical engineering in that its focus is the practical application and implementation of engineering principles as opposed to theoretical development and exploration of those principles.

You Might Like This Program If...
- You like hands-on and creative problem-solving.
- You like understanding how mechanical devices work.
- You work well within collaborative, multidisciplinary teams.
- You are interested in a career as an engineering technologist or testing engineer.

Entrance to Major
Entry to the Mechanical Engineering Technology major requires a 2.00 or higher cumulative grade-point average.

Re-enrollment
Associate degree students should file a re-enrollment form during the final semester of their associate degree. Students re-enrolling from an associate’s degree into the bachelor’s degree should run a degree audit from LionPATH, using the MET major code, to determine their curriculum requirements.

Degree Requirements
For the Bachelor of Science degree in Mechanical Engineering Technology, a minimum of 128 credits is required:

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Education</td>
<td>45</td>
</tr>
<tr>
<td>Requirements for the Major</td>
<td>104</td>
</tr>
<tr>
<td>21 of the 45 credits for General Education</td>
<td></td>
</tr>
<tr>
<td>are included in the Requirements for the</td>
<td></td>
</tr>
<tr>
<td>Major. This includes:</td>
<td></td>
</tr>
<tr>
<td>3 credits of GWS courses; 9 credits of</td>
<td></td>
</tr>
<tr>
<td>GN courses; 6 credits of QQ courses, 3</td>
<td></td>
</tr>
<tr>
<td>credits of GS courses.</td>
<td></td>
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</tbody>
</table>

Requirements for the Major
To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44).

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 110</td>
<td>Chemical Principles I</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 111</td>
<td>Experimental Chemistry I</td>
<td>1</td>
</tr>
<tr>
<td>ENGL 202C</td>
<td>Effective Writing: Technical Writing</td>
<td>3</td>
</tr>
<tr>
<td>IET 308</td>
<td>Statistical Quality Control</td>
<td>3</td>
</tr>
<tr>
<td>MATH 140</td>
<td>Calculus With Analytic Geometry I</td>
<td>4</td>
</tr>
<tr>
<td>MET 321</td>
<td>Analytical Techniques</td>
<td>2</td>
</tr>
<tr>
<td>MET 338</td>
<td>Thermal/Fluids Laboratory</td>
<td>1</td>
</tr>
<tr>
<td>MET 358</td>
<td>Process Design Engineering</td>
<td>3</td>
</tr>
<tr>
<td>MET 370</td>
<td>Engineering Materials Laboratory</td>
<td>1</td>
</tr>
<tr>
<td>MET 438</td>
<td>Thermal Engineering B</td>
<td>3</td>
</tr>
<tr>
<td>MET 454</td>
<td>Automatic Controls</td>
<td>3</td>
</tr>
<tr>
<td>MET 458</td>
<td>Controls Laboratory</td>
<td>1</td>
</tr>
<tr>
<td>MET 481</td>
<td>Project Design</td>
<td>3</td>
</tr>
<tr>
<td>MET 486</td>
<td>Project Design</td>
<td>3</td>
</tr>
</tbody>
</table>

Prescribed Courses: Require a grade of C or better

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGR 320Y</td>
<td>Design for Global Society</td>
<td>3</td>
</tr>
<tr>
<td>MET 332</td>
<td>Thermal Engineering A</td>
<td>3</td>
</tr>
<tr>
<td>MET 336</td>
<td>Engineering Fluid Mechanics</td>
<td>3</td>
</tr>
<tr>
<td>MET 341</td>
<td>Mechanical Measurements and Instrumentation</td>
<td>3</td>
</tr>
<tr>
<td>MET 431</td>
<td>Heat Transfer</td>
<td>3</td>
</tr>
</tbody>
</table>

Additional Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDSGN 100</td>
<td>Cornerstone Engineering Design</td>
<td>3</td>
</tr>
<tr>
<td>or EGT 120</td>
<td>Introduction to Graphics and Solid Modeling</td>
<td>3</td>
</tr>
</tbody>
</table>
EET 101  Electrical Circuits I  3-4
or EET 320  Industrial Electricity and Electronics
IET 101  Manufacturing Materials, Processes, and Laboratory  3
or IET 311  Elements of Metallurgy
IET 215  Production Design  3-4
or IET 316  Manufacturing Processes
MET 210W  Machine Design  3
or MET 365  Design of Machine Elements
PHYS 150  Technical Physics I  3-4
or PHYS 211  General Physics: Mechanics
PHYS 151  Technical Physics II  3-4
or PHYS 212  General Physics: Electricity and Magnetism
STAT 200  Elementary Statistics  4
or MATH 141  Calculus with Analytic Geometry II
Additional Courses: Require a grade of C or better
Select 3 credits from the following:  3
EMCH 211  Statics
ET 300  Mechanics I: Statics
MET 111  Mechanics for Technology: Statics
Select 3 credits from the following:  3
EMCH 212  Dynamics
ET 321  Dynamics
MET 206  Dynamics
Select 3 credits from the following:  3
EMCH 213  Strength of Materials
ET 322  Strength of Materials
MET 213  Strength and Properties of Materials
Supporting Courses and Related Areas
Select 5-9 credits from the department approved list of courses  5-9
Select 12 credits from 300-400 level technology and engineering elective courses in consultation with an academic adviser and in support of the student's interests  12

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 (https://bulletins.psu.edu/undergraduate/general-education/baccalaureate-degree-general-education-program/) section of the Bulletin and consult your academic adviser.

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.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)
  • Quantification (GQ): 6 credits
  • Writing and Speaking (GWS): 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)
  • Arts (GA): 3 credits
  • Health and Wellness (GHW): 3 credits
  • Humanities (GH): 3 credits
  • Social and Behavioral Sciences (GS): 3 credits
  • Natural Sciences (GN): 3 credits

Integrative Studies
  • Inter-Domain Courses (Inter-Domain): 6 credits

Exploration
First Year Engagement
All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

University Degree Requirements

First Year Engagement
All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement
6 credits are required and may satisfy other requirements
  • United States Cultures: 3 credits
  • International Cultures: 3 credits

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 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 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
The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or
within time constraints (see Senate Policy 83-80 (https://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.

### 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 (https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/)

### Harrisburg

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Middletown, PA 17057
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iaa2@psu.edu

### Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2023-24 academic year. To access previous years’ suggested academic plans, please visit the archive (https://bulletins.psu.edu/undergraduate/archive/) to view the appropriate Undergraduate Bulletin edition (Note: the archive only contains suggested academic plans beginning with the 2018-19 edition of the Undergraduate Bulletin).

### Mechanical Engineering Technology, B.S. at Harrisburg 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 conjuction 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>Fall</th>
<th>Credits</th>
<th>Spring</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 15, 15S, 30T, or ESL 15†</td>
<td>3 STAT 200 or MATH 141†</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>MATH 140†</td>
<td>4 PHYS 150 or 211†</td>
<td>3-4</td>
<td></td>
</tr>
<tr>
<td>CHEM 110†</td>
<td>3 CAS 100A or 100S†</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>CHEM 111†</td>
<td>1 General Education Course†</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>EDSGN 100S</td>
<td>3 General Education Course†</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>General Education Course†</td>
<td>3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 128-132

* 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. CHEM 111 - Experimental Chemistry I
2. Students may substitute either CHEM 112 (3) or BIOL 141 (3) for the combination of CHEM 111 (I) and PHYS 214 (2).
3. Electives are approved by the academic adviser

### University Requirements and General Education Notes:

- 300-400 level Technology or Engineering Elective
  - See Program Notes below for eligible electives
US and IL are abbreviations used to designate courses that satisfy Cultural Diversity 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.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of ‘C’ or better.

Program Notes
Technology or Engineering Electives include:

- MET 308 - Computer Aided Solid Modeling and Analysis (3)
- MET 417 - Finite Element Analysis (3)
- MET 432 - Fluid Power (3)
- MET 435 - Building Energy Systems (3)
- MET 462 - Internal Combustion Engine Design (3)
- ENVE 430 - Sustainable Engineering (3)
- or others offered by the program.

Career Paths
Mechanical Engineering Technology is a broad engineering discipline that provides a number of career possibilities. The Mechanical Engineering Technology program prepares students to provide high-level technical support to a variety of industrial, commercial, consulting, and governmental organizations.

Careers
Mechanical Engineering Technology graduates should experience good employment potential. Opportunities are expected to grow to keep pace with the demand for technical products. According to the U.S. Bureau of Labor Statistics and O*NET, opportunities for Mechanical Engineering Technologists will grow at a rate of 5-9% through 2026.

Professional Resources

- American Society of Mechanical Engineers (https://www.asme.org/)

Accreditation
The Bachelor of Science in Mechanical Engineering Technology at Penn State Harrisburg is accredited by the Engineering Technology Accreditation Commission of ABET, https://www.abet.org, under the General Criteria and the Mechanical Engineering Technology Program Criteria.

Professional Licensure/Certification
Many U.S. states and territories require professional licensure/certification to be employed. If you plan to pursue employment in a licensed profession after completing this program, please visit the Professional Licensure/Certification Disclosures by State (https://www.psu.edu/state-licensure-disclosures/) interactive map.