The MECHANICAL ENGINEERING, B.S. (CAPITAL) program at Penn State Harrisburg is designed to prepare students for a lifetime of learning and professional development in the field of mechanical engineering. The program emphasizes a broad foundation in physics, chemistry, and mathematics, along with hands-on experience in engineering design and analysis. Students will gain knowledge of principles related to mechanical engineering, such as fluid and solid mechanics, thermodynamics, and heat transfer, to design and analyze systems that are safe, reliable, and cost-effective.

Program Requirements:
- **General Education**: A minimum of 45 credits is required, including 21 credits each of General Education courses in Quantification (GQ), and 9 credits each of General Education courses in Natural Sciences (GN) and Foundations (grade of C or better is required.)
- **Requirements for the Major**: A minimum of 131 credits is required, with specific courses required for each program.

Degree Requirements:
- **For the Bachelor of Science degree in Mechanical Engineering**, a minimum of 131 credits is required.
- **General Education**: 45 credits are required, including 9 credits of GN courses and 6 credits of GS courses.
- **Requirements for the Major**: 107-108 credits are required, including 9 credits of GN courses, 6 credits of GS courses, 6 credits of GQ courses, and 3 credits of GWS courses.

Mechanical Engineering is a broad discipline that involves the design, analysis, and optimization of mechanical systems. Graduates of this program are well-prepared for careers in a variety of industries, including automotive, aerospace, and electromechanical systems. The program emphasizes a strong foundation in mathematics, physics, and materials science, along with hands-on experience in design and analysis.

Program Highlights:
- Students will have opportunities to apply their knowledge in team-based projects and interact with industry partners.
- The curriculum is designed to foster critical thinking, problem-solving, and communication skills.
- Graduates will be prepared for a range of careers, including research and development, product design, and engineering management.

For more information, visit the Penn State Harrisburg website or contact the Department of Mechanical Engineering.
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). For more information, check the Suggested Academic Plan for your intended program.

Requirements for the Major
Each student must earn at least a grade of C in each 300- and 400-level course in the major field.

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 (http://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44). For more information, check the Suggested Academic Plan for your intended program.

Program Electives
Select 13 credits of program elective courses from school-approved program elective courses (http://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44).

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)

Harrisburg
Issam Abu-Mahfouz, Ph.D., P.E.
Program Chair
Mechanical Engineering, B.S. (Capital)

Olmsted Building W239
Middletown, PA 17057
717-948-6361
iaa2@psu.edu

Berks
Rungun Nathan
Program Coordinator, Associate Professor
Gaige 223
Reading, PA 19610
610-396-6170
rungun.nathan@psu.edu

Erie
Elisa Wu, Ph.D.
Program Chair, Associate Professor
227 AMIC
Erie, PA 16563
814-898-6559
yxw22@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).

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 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>Fall</th>
<th>Credits</th>
<th>Spring</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 15 or 30†</td>
<td>3</td>
<td>PHYS 211 ‡</td>
<td>4</td>
</tr>
<tr>
<td>MATH 140*</td>
<td>4</td>
<td>MATH 141*</td>
<td>4</td>
</tr>
<tr>
<td>EDSGN 100S</td>
<td>3</td>
<td>CAS 100†</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 110†</td>
<td>3</td>
<td>MATH 220*</td>
<td>2</td>
</tr>
<tr>
<td>CHEM 111</td>
<td>1</td>
<td>ECON 102 or 104†</td>
<td>3</td>
</tr>
<tr>
<td>General Education Course</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>17</td>
<td></td>
<td>16</td>
</tr>
</tbody>
</table>

Second Year

<table>
<thead>
<tr>
<th>Fall</th>
<th>Credits</th>
<th>Spring</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMCH 211*</td>
<td>3</td>
<td>EMCH 212*</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 212</td>
<td>4</td>
<td>EMCH 213*</td>
<td>3</td>
</tr>
<tr>
<td>MATH 230</td>
<td>4</td>
<td>ME 300*</td>
<td>3</td>
</tr>
<tr>
<td>MATH 251†</td>
<td>4</td>
<td>EE 211, 210, or 212</td>
<td>3</td>
</tr>
<tr>
<td>General Education Course (GWH)</td>
<td>1.5</td>
<td>CMPSC 200</td>
<td>3</td>
</tr>
<tr>
<td>General Education Course</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>16.5</td>
<td></td>
<td>18</td>
</tr>
</tbody>
</table>

Third Year

<table>
<thead>
<tr>
<th>Fall</th>
<th>Credits</th>
<th>Spring</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 202C‡</td>
<td>3</td>
<td>PHYS 214</td>
<td>2</td>
</tr>
<tr>
<td>MATSE 259*</td>
<td>3</td>
<td>ME 345W*</td>
<td>4</td>
</tr>
<tr>
<td>ME 320*</td>
<td>3</td>
<td>ME 357*</td>
<td>3</td>
</tr>
<tr>
<td>ME 349*</td>
<td>3</td>
<td>ME 367*</td>
<td>3</td>
</tr>
<tr>
<td>ME 365*</td>
<td>1</td>
<td>General Education Course</td>
<td>3</td>
</tr>
<tr>
<td>ME 380*</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>16</td>
<td></td>
<td>15</td>
</tr>
</tbody>
</table>

Fourth Year

<table>
<thead>
<tr>
<th>Fall</th>
<th>Credits</th>
<th>Spring</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ME 410*</td>
<td>3</td>
<td>ME 449*</td>
<td>3</td>
</tr>
<tr>
<td>ME 448*</td>
<td>3</td>
<td>4XX Engineering Elective*</td>
<td>3</td>
</tr>
<tr>
<td>ME 468*</td>
<td>3</td>
<td>4XX Engineering Elective*</td>
<td>3</td>
</tr>
<tr>
<td>ME 308 or 465*</td>
<td>1</td>
<td>General Education Course</td>
<td>3</td>
</tr>
<tr>
<td>4XX Engineering Elective*</td>
<td>3</td>
<td>General Education Course</td>
<td>3</td>
</tr>
<tr>
<td>4XX Engineering Elective*</td>
<td>3</td>
<td>General Education Course</td>
<td>1.5</td>
</tr>
<tr>
<td></td>
<td>16</td>
<td></td>
<td>16.5</td>
</tr>
</tbody>
</table>

Total Credits 131

- † 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 PHYS 214 - General Physics: Wave Motion and Quantum Physics
- 3 4XX Engineering Elective

See list below for eligible electives

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

Integrative Studies courses are required 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.

Program Notes
4XX Engineering Electives include:
- ME 402 - Power Plants
- ME 408 - Energy Systems
- ME 431 - Internal Combustion Engines
• ME 455 - Automatic Control Systems
• ME 460 - Advance Machine Design Problems
• ME 461 - Finite element in Engineering
• ENVE 430 - Sustainable Engineering
• and others offered by the program

Career Paths
Because every industry values a mechanical engineer’s problem-solving capabilities, you’ll enjoy tremendous career flexibility in disciplines as varied as research, manufacturing, product and systems design and testing, health care, energy, the military, transportation, and consumer products. A mechanical engineering education also is excellent preparation for technical management, business, law, or technical sales.

Careers
Typical entry-level careers for mechanical engineering graduates are applications engineer, design engineer and mechanical design engineer, test engineer, equipment installation engineering, facilities technician, stress analysis engineer, product development engineer, and project engineer.

Opportunities for Graduate Studies
Graduate programs in mechanical engineering delve more deeply into areas of specialization such as automotive engineering, robotics, advanced manufacturing, thermal science, computational fluid mechanics, combustion modeling, or biomechanical engineering.

Professional Resources
• American Society of Mechanical Engineers (https://www.asme.org)
• Society of Women Engineers (http://societyofwomenengineers.swe.org)
• National Society of Black Engineers (http://www.nsbe.org/home.aspx)

Accreditation
This Bachelor of Science in Mechanical Engineering program is accredited by the Engineering Accreditation Commission of ABET.

MORE INFORMATION ABOUT ABET ACCREDITATION (http://www.abet.org)

Contact
Harrisburg
SCHOOL OF SCIENCE, ENGINEERING, AND TECHNOLOGY
Olmsted Building, W239
Middletown, PA 17057
717-948-4348
szr514@psu.edu

http://harrisburg.psu.edu/science-engineering-technology/me-met/
bachelor-science-mechanical-engineering

Berks
EBC DIVISION
Gaige Building
Reading, PA 19610
610-396-6170
rungun.nathan@psu.edu

http://berks.psu.edu/bs-mechanical-engineering

Erie
SCHOOL OF ENGINEERING
242 Jack Burke Research and Economic Development Center
5101 Jordan Road
Erie, PA 16563
814-898-6153
engineering@psu.edu

http://behrend.psu.edu/school-of-engineering