MECHANICAL ENGINEERING, B.S. (CAPITAL)

Begin Campus: Any Penn State Campus
End Campus: Harrisburg

Degree Requirements
For the Bachelor of Science degree in Mechanical Engineering, a minimum of 131 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>107-108</td>
</tr>
</tbody>
</table>

21 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GS courses; 3 credits of GWS courses.

Per Senate Policy 83.80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of coursework in the major to be taken at the location or in the college or program where the degree is earned.

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).

Code       Title                                    Credits
Prescribed Courses
CMPSC 200  Programming for Engineers with MATLAB  3
EDSGN 100S Introduction to Engineering Design      3
EE 211     Electrical Circuits and Power Distribution 3
ENGL 202C  Effective Writing: Technical Writing    3
MATH 230   Calculus and Vector Analysis            4
PHYS 212   General Physics: Electricity and Magnetism 4
Prescribed Courses: Require a grade of C or better
CHEM 110   Chemical Principles I                    3
EMCH 211   Statics                                 3
EMCH 212   Dynamics                                3
EMCH 213   Strength of Materials                   3
MATH 140   Calculus With Analytic Geometry I       4
MATH 141   Calculus with Analytic Geometry II      4
MATH 220   Matrices                                2-3
MATH 251   Ordinary and Partial Differential Equations 4
MATSE 259  Properties and Processing of Engineering Materials 3
ME 300     Engineering Thermodynamics I             3
ME 320     Fluid Flow                              3
ME 345W    Instrumentation, Measurements, and Statistics 4
ME 349     Intermediate Mechanics of Materials      3
ME 357     System Dynamics                          3
ME 365     Materials Testing Laboratory              1
ME 367     Machine Design                           3
ME 380     Machine Dynamics                          3
ME 410     Heat Transfer                            3
ME 448     Engineering Design Concepts               3
ME 449     Mechanical Design Projects                3
ME 468     Engineering for Manufacturing             3
PHYS 211   General Physics: Mechanics                4
Additional Courses
ECON 102   Introductory Microeconomic Analysis and Policy 3
or ECON 104 Introductory Macroeconomic Analysis and Policy 3
Select one of the following: 3
CHEM 111 & PHYS 214 Experimental Chemistry I
and General Physics: Wave Motion and Quantum Physics
CHEM 112   Chemical Principles II                   3
BIOL 141   Introduction to Human Physiology          3
Supporting Courses and Related Areas
Supporting Courses and Related Areas: Require a grade of C or better 13
Select 13 credits of program elective courses from school-approved list 1

1 These credits must be selected to fulfill the thematic requirements of the major.

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.)
• Quantification (GQ): 6 credits
• Writing and Speaking (GWS): 9 credits

Knowledge Domains
• Arts (GA): 6 credits
• Health and Wellness (GHW): 3 credits
• Humanities (GH): 6 credits
• Social and Behavioral Sciences (GS): 6 credits
• Natural Sciences (GN): 9 credits
Integrative Studies (may also complete a Knowledge Domain requirement)
  • Inter-Domain or Approved Linked Courses: 6 credits

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 (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.