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>
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<tr>
<th>Requirement</th>
<th>Credits</th>
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<tbody>
<tr>
<td>General Education</td>
<td>45</td>
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<tr>
<td>Requirements for the Major</td>
<td>107-108</td>
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<td>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.</td>
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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 (https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44).

Select 13 credits of program elective courses from school-approved list 1.

Code   Title                                           Credits
CMPS 200 Programming for Engineers with MATLAB     3
EDSGN 100S Introduction to Engineering Design      3
EE 211  Electrical Circuits and Power Distribution  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
ENGL 202C Effective Writing: Technical Writing     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 Macroeconomic Analysis and Policy 3
or ECON 104  Introductory Microeconomic Analysis and Policy

Select one of the following:

CHEM 111  Experimental Chemistry I
PHYS 214  General Physics: Wave and Quantum Physics

CHEM 112  Chemical Principles II

BIOL 141  Introduction to Human Physiology

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better
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 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
• GN, may be completed with Inter-Domain courses: 3 credits
• GA, GH, GN, GS, Inter-Domain courses. This may include 3 credits
  of World Language course work beyond the 12th credit level or the
  requirements for the student's degree program, whichever is higher: 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 (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.