

# MINING ENGINEERING, B.S.

**Begin Campus:** Any Penn State Campus

**End Campus:** University Park

## Degree Requirements

For the Bachelor of Science degree in Mining Engineering, a minimum of 131 credits is required:

Requirement	Credits
General Education	45
Requirements for the Major	113

27 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; 6 credits of GWS courses; 3 credits of GH courses.

### 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>).

Code	Title	Credits
<b>Prescribed Courses</b>		
CHEM 110	Chemical Principles I	3
CHEM 111	Experimental Chemistry I	1
ECON 102	Introductory Microeconomic Analysis and Policy	3
EDSGN 100	Cornerstone Engineering Design	3
EE 211	Electrical Circuits and Power Distribution	3
EMCH 210	Statics and Strength of Materials	5
EME 460	Geo-resource Evaluation and Investment Analysis	3
EMSC 100S	Earth and Mineral Sciences First-Year Seminar <sup>1</sup>	3
GEO SC 201	Earth Materials	4
MATH 140	Calculus With Analytic Geometry I	4
MATH 141	Calculus with Analytic Geometry II	4
MATH 250	Ordinary Differential Equations	3
MNG 223	Mineral Land and Mine Surveying	2
MNG 331	Rock Mechanics	3
MNG 404	Mine Materials Handling Systems	2
MNG 410	Underground Mining	3
MNG 411	Mine Systems Engineering	2
MNG 422	Mine Ventilation and Air Conditioning	3
PHYS 211	General Physics: Mechanics	4
PHYS 212	General Physics: Electricity and Magnetism	4
PHYS 213	General Physics: Fluids and Thermal Physics	2
STAT 301		3
<i>Prescribed Courses: Require a grade of C or better</i>		
GEO SC 1	Physical Geology	3
MNG 230	Introduction to Mining Engineering	3
MNG 441	Surface Mining Systems and Design	3
MNG 451W	Mining Engineering Project	4

MNPR 301	Elements of Mineral Processing	3
MNPR 413	Mineral Processing Laboratory	1

### Additional Courses

Select 23 credits, one course from each category: 23

<b>A.</b>		
ENGL 15	Rhetoric and Composition	
ENGL 30H	Honors Rhetoric and Composition	
<b>B.</b>		
PHIL 103	Ethics	
PHIL 106	Business Ethics	
PHIL 107	Philosophy of Technology	
PHIL/STS 233	Ethics and the Design of Technology	
<b>C.</b>		
CMPSC 201	Programming for Engineers with C++	
CMPSC 202		
<b>D.</b>		
MATH 220	Matrices	
MATH 231	Calculus of Several Variables	
<b>E.</b>		
EMCH 212	Dynamics	
EMCH 212H	Dynamics	
<b>F.</b>		
EME 301	Thermodynamics in Energy and Mineral Engineering	
ME 300	Engineering Thermodynamics I	
<b>G.</b>		
CE 360	Fluid Mechanics	
EME 303	Fluid Mechanics in Energy and Mineral Engineering	
<b>H.</b>		
GEO SC 470W	Introduction to Field Geology	
MNG 470		

### Supporting Courses and Related Areas

Select 6 credits in consultation with adviser (students may apply 6 credits of ROTC) 6

<sup>1</sup> The following substitutions are allowed for students attending campuses where the indicated course is not offered: CAS 100 can be substituted for EMSC 100S.

### 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.