

# ARCHITECTURAL ENGINEERING, B.A.E.

**Begin Campus:** Any Penn State Campus

**End Campus:** University Park

## Program Description

This major emphasizes the application of scientific and engineering principles to the planning, design, and construction of buildings and building systems. The goal of the program is to provide engineering graduates with the best education available for careers in the building professions. Graduates will have the ability to practice as registered professional engineers in a variety of areas, both public and private, related to the planning, design, construction, and operation of buildings and to assume a place of leadership in society.

Four options are available in the ten-semester major:

1. the Construction option, which emphasizes building construction engineering and construction management;
2. the Lighting/Electrical option, which emphasizes the design of lighting and electrical systems for buildings;
3. the Mechanical option, which emphasizes the design of heating, ventilating and air-conditioning systems in buildings; and
4. the Structural option, which emphasizes the analysis and design of building structural systems.

Courses in architectural design are included in all options to give the engineering student an understanding of architectural design and its relation to engineering. Courses in engineering design are provided throughout the program. The design experience is culminated in a year-long capstone design course.

The professional degree, Bachelor of Architectural Engineering, is granted upon the satisfactory completion of the five-year program.

## What is Architectural Engineering?

Architectural Engineering is an interdisciplinary field focused on creating integrated building solutions, both in outcome and design process, to produce optimally engineered building systems. This is achieved through close coordination between several primary focus areas, including Structural, Mechanical, Lighting, Electrical, Acoustical, and Construction. The interdisciplinary approach of Architectural Engineering seeks to reduce the carbon footprint of buildings while improving the health, comfort, and productivity of building occupants. This interdisciplinary approach is necessary to respond to the most urgent societal and environmental challenges emerging from urbanization across the globe.

## You Might Like This Program If...

- You have aptitude in math and science.
- You appreciate the artistic and emotive aspects of architecture.
- You are passionate about human-centric design, indoor environmental quality, sustainability, energy conservation, or net-zero and high-performance buildings.
- You like to organize parts of a system or process, a handy skill in the planning, coordinating, budgeting, design, construction, and operation of building projects.

- You seek a team-oriented work environment with excellent prospects for advancement into project management and corporate leadership.

## Entrance to Major

In order to be eligible for entrance to this major, students must satisfy the following requirements by the end of the semester during which the admission to major process is carried out:

- 29-55 cumulative credits (excludes transfer and AP credits)
- completed with a grade of C or better: EDSGN 100 or EDSGN 130, CHEM 110, MATH 140, MATH 141, PHYS 211
- earned a minimum cumulative grade-point average (GPA) of 2.60

\* In the event that the major is under enrollment control, a higher minimum cumulative grade-point average is likely to be needed and students must be enrolled in the College of Engineering or Division of Undergraduate Studies at the time of confirming their major choice.

## Transfer Students

Under the new Entrance to Major (ETM) parameters, transfer students requesting admission to the College of Engineering at University Park will be evaluated in the following way:

### Transfer Admission into College of Engineering Pre-Major Status

Applicants who have attempted or completed 18 or more credits but no more than 2 full-time academic semesters at another college or university after high school graduation may apply for transfer admission to pre-major status in the College of Engineering (ENGR\_PMAJ). A minimum cumulative grade point average (GPA) of 3.00 and at least 4 credits of college calculus, completed with a C or better, are required for consideration.

After Penn State admission, to be eligible for entrance into a College of Engineering major, transfer students (TRN admit status) must meet all the ETM course and GPA requirements and have completed at least 12 credits earned at Penn State but not more than 25 credits.

### Transfer Admission Directly into a College of Engineering Major Majors Not Under Administrative Enrollment Controls

Applicants who have more than one year (2 full-time academic semesters) of attempted college coursework post-high school may only apply for admission directly into a College of Engineering major that does not have administrative enrollment controls. These students are not eligible to enter College of Engineering pre-major status (ENGR\_PMAJ). A minimum cumulative grade point average (GPA) of 3.00 and the following coursework completed with a C or better are required for consideration:

- 8 credits of college calculus
- 3 credits of college chemistry
- 4 credits of college physics - mechanics

The individual department will make the final admission determination, considering possible alternatives for Penn State specific ETM course requirements (such as EDSGN 100).

### Majors under Administrative Enrollment Controls

Applicants who have more than one year (2 full-time academic semesters) of attempted college coursework post-high school may not apply for admission to any College of Engineering major under administrative enrollment controls.

## Degree Requirements

For the Bachelor of Architectural Engineering degree in Architectural Engineering, a minimum of 160 credits is required:

Requirement	Credits
General Education	45
Requirements for the Major	148-151

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

### 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/students/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/>).

#### Common Requirements for the Major (All Options)

Code	Title	Credits
<b>Prescribed Courses</b>		
AE 202	Introduction to Architectural Engineering Concepts	3
AE 221	Architectural Building Materials	3
AE 222	Building Materials, Methods and Modeling II	3
AE 240	Programming and Data Science for Architectural Engineering	3
AE 309	Fundamentals of Architectural Acoustics	3
AE 441	Engineering Lifecycle Economic Analysis for Buildings	1
AE 481W	Comprehensive Architectural Engineering Senior Project I	4
AE 482	Comprehensive Architectural Engineering Senior Project II	4
ARCH 130A	Basic Design and Research I	3
ARCH 130B	Basic Design and Research II	3
ARCH 441	Architectural Design Analysis	3
ARTH 202N	Renaissance to Modern Architecture	3
CHEM 111	Experimental Chemistry I	1
EMCH 211	Statics	3
EMCH 212	Dynamics	3
EMCH 213	Strength of Materials	3
MATH 220	Matrices	3
PHYS 212	General Physics: Electricity and Magnetism	4
PHYS 213	General Physics: Fluids and Thermal Physics	2
<i>Prescribed Courses: Require a grade of C or better</i>		
AE 308	Introduction to Structural Analysis	4
AE 310	Fundamentals of Heating, Ventilating, and Air Conditioning	3
AE 311	Fundamentals of Electrical and Illumination Systems for Building	3
AE 372	Introduction to the Building Construction Industry	3
CHEM 110	Chemical Principles I	3
EDSGN 100	Cornerstone Engineering Design	3
ENGL 202C	Effective Writing: Technical Writing	3

MATH 140	Calculus With Analytic Geometry I	4
MATH 141	Calculus with Analytic Geometry II	4
PHYS 211	General Physics: Mechanics	4

Additional Courses		
ARCH 100	Architecture and Ideas	3
or LARCH 60	Cultural History of Designed Places	
MATH 231	Calculus of Several Variables	2-4
or MATH 230	Calculus and Vector Analysis	
MATH 250	Ordinary Differential Equations	3-4
or MATH 251	Ordinary and Partial Differential Equations	
ME 201	Introduction to Thermal Science	3
or ME 300	Engineering Thermodynamics I	
STAT 401	Experimental Methods	3
or IE 424	Process Quality Engineering	
Select one of the following:		
AE 124	Architectural Engineering Orientation	1
1 credit of another First-Year Seminar		
Select one of the following:		
ECON 14	Principles of Economics	3
ECON 102	Introductory Microeconomic Analysis and Policy	
ECON 104	Introductory Macroeconomic Analysis and Policy	
<i>Additional Courses: Require a grade of C or better</i>		
Select one of the following:		
CAS 100A	Effective Speech	3
CAS 100B	Effective Speech	
CAS/ENGL 138T	Rhetoric and Civic Life II	
Select one of the following:		
ENGL 15	Rhetoric and Composition	3
ENGL 30H	Honors Rhetoric and Composition	
ENGL/CAS 137H	Rhetoric and Civic Life I	
<b>Requirements for the Option</b>		
Select an option		35

#### Requirements for the Option Construction Option (35 credits)

Code	Title	Credits
<b>Prescribed Courses</b>		
AE 404	Building Structural Systems in Steel and Concrete	3
AE 405	Geotechnical Engineering	4
AE 472	Building Construction Planning and Management	3
AE 473	Building Construction Management and Control	3
AE 475	Building Construction Engineering I	3
AE 476	Building Construction Engineering II	3
CE 209	Fundamentals of Surveying	2
MGMT 326	Organizational Behavior and Design <sup>1</sup>	3
<b>Additional Courses</b>		
AE 477	Material Science for Architectural Engineers	3-4
or CE 336 & CE 337	Materials Science for Civil Engineers and Civil Engineering Materials Laboratory	
<b>Supporting Courses and Related Areas</b>		
Select 7-8 credits from technical courses on department list <sup>1</sup>		7-8

<sup>1</sup> Students having successfully completed ROTC upon graduation, may apply 3 credits of ROTC to these courses. Additionally, 3 credits of ROTC may be applied to GHW.

### Lighting/Electrical Option (35 credits)

Code	Title	Credits
<b>Prescribed Courses</b>		
AE 404	Building Structural Systems in Steel and Concrete	3
AE 461	Architectural Illumination Systems & Design	3
AE 462	Architectural Lighting Controls	3
AE 464	Advanced Architectural Illumination Systems & Design	3
AE 466	Computer Aided Lighting Design	3
AE 467	Advanced Building Electrical System Design	3
AE 468	Advanced Building Electrical and Communication Systems	3

#### Additional Courses

AE 453	Load and Energy Use Simulations for Buildings	3
or AE 454	Advanced Heating, Ventilating, and Air Conditioning	

#### Supporting Courses and Related Areas

Select 11 credits from technical courses on department option list <sup>1</sup> 11

<sup>1</sup> Students having successfully completed ROTC upon graduation, may apply 3 credits of ROTC to these courses. Additionally, 3 credits of ROTC may be applied to GHW.

### Mechanical Option (35 credits)

Code	Title	Credits
<b>Prescribed Courses</b>		
AE 404	Building Structural Systems in Steel and Concrete	3
AE 453	Load and Energy Use Simulations for Buildings	3
AE 454	Advanced Heating, Ventilating, and Air Conditioning	3
AE 455	Advanced Heating, Ventilating, and Air Conditioning System Design	3
AE 457	HVAC Control Systems	3
AE 458	Advanced Architectural Acoustics and Noise Control	3
AE 467	Advanced Building Electrical System Design	3
ME 320	Fluid Flow	3
ME 410	Heat Transfer	3

#### Supporting Courses and Related Areas

Select 8 credits from technical courses on department option list <sup>1</sup> 8

<sup>1</sup> Students having successfully completed ROTC upon graduation, may apply 3 credits of ROTC to these courses. Additionally, 3 credits of ROTC may be applied to GHW.

### Structural Option (35 credits)

Code	Title	Credits
<b>Prescribed Courses</b>		
AE 401	Design of Steel and Wood Structures for Buildings	3
AE 402	Design of Concrete Structures for Buildings	3
AE 403	Advanced Steel Design for Buildings	3

AE 405	Geotechnical Engineering	4
AE 430	Indeterminate Structures	3
AE 431	Advanced Concrete Design for Buildings	3
CE 209	Fundamentals of Surveying	2
EMCH 315	Mechanical Response of Engineering Materials	2
EMCH 316	Experimental Determination of Mechanical Response of Materials	1

#### Supporting Courses and Related Areas

Select 11 credits from technical courses on department list <sup>1</sup> 11

<sup>1</sup> Students having successfully completed ROTC upon graduation, may apply 3 credits of ROTC to these courses. Additionally, 3 credits of ROTC may be applied to GHW.

## 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/students/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/>)). For more information, check the Suggested Academic Plan for your intended program.

## Integrated B.A.E. in Architectural Engineering and M.A.E. or M.S. in Architectural Engineering

*Available at the following campuses: University Park*

Requirements for the Integrated B.A.E. in Architectural Engineering and Master of Architectural Engineering (M.A.E.) or Master of Science (M.S.) in Architectural Engineering can be found in the Graduate Bulletin (<https://bulletins.psu.edu/graduate/programs/majors/architectural-engineering/#integratedundergradgradprogramstext>).

## Program Educational Objectives

The undergraduate program in Architectural Engineering is designed to produce graduates who, within a few years of graduation, are expected to be:

- Progressing in their professional careers in the building industry or other related fields by applying expertise in one or more areas related to the integrated planning, design, construction, operation and maintenance of buildings and infrastructure: including, but not limited to, building construction engineering and management; lighting

systems; electrical systems; heating, ventilating and air-conditioning systems; structural systems;

- Demonstrating strong leadership, communication, collaborative, and interdisciplinary skills and a commitment to a sustainable built environment;
- Advancing the building industry and engaged in lifelong learning through activities, such as graduate level study, professional development, mentoring, involvement in professional organizations and service roles;
- Attaining credentials appropriate for their career path, such as professional licenses, registrations or certifications.

## Student Outcomes

Student outcomes describe what students are expected to know and be able to do by the time of graduation. The Architectural Engineering program is designed to enable students to:

1. Identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. Apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3. Communicate effectively with a range of audiences
4. Recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. Function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. Develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. Acquire and apply new knowledge as needed, using appropriate learning strategies.

## 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/students/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

### University Park

#### Undergraduate Program Officer

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## Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 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.

### Construction Option (2nd Year ETM): Architectural Engineering, B.A.E. at University Park Campus

Standard Path: Direct Entry from ENGAE to AE

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.

If you are starting at a campus other than the one this plan is ending at, please refer to: <https://advising.enr.psu.edu/degree-requirements/academic-plans-by-major.aspx>

#### First Year

Fall	Credits Spring	Credits
AE 124 (or First Year Seminar) <sup>†</sup>	1 ARTH 202N (GA) (US/IL) <sup>†</sup>	3
ECON 102 or 104 (GS) <sup>†</sup>	3 EDSGN 100 <sup>#</sup>	3
CHEM 110 (GN) <sup>*#†</sup>	3 MATH 141 or 141E (GQ) <sup>*†#†</sup>	4
CHEM 111	1 PHYS 211 (PHYS 211L and 211R) (GN) <sup>*#†</sup>	4
ENGL 15, 30H, or ESL 15 (GWS) <sup>††</sup>	3 CAS 100A or 100B (GWS) <sup>††</sup>	3
MATH 140 or 140E (GQ) <sup>*†#†</sup>	4	
	<b>15</b>	<b>17</b>

#### Second Year

Fall	Credits Spring	Credits
AE 202	3 AE 222	3
AE 221	3 AE 240	3
ARCH 130A	3 ARCH 130B	3
EMCH 211	3 EMCH 213	3
MATH 250	3 PHYS 212 (PHYS 212L and 212R) (GN)	4
PHYS 213	2	
	<b>17</b>	<b>16</b>

#### Third Year

Fall	Credits Spring	Credits
AE 308 <sup>*</sup>	4 AE 311 <sup>*</sup>	3
AE 309	3 AE 372 <sup>*</sup>	3
AE 310 <sup>*</sup>	3 ARCH 100 or LARCH 60 (GA) <sup>†</sup>	3
MATH 220	3 EMCH 212	3
MATH 231	2 General Education Course (GHW)	3

ME 201	3	
	<b>18</b>	<b>15</b>

#### Fourth Year

Fall	Credits Spring	Credits
AE 404	3 AE 405	4
AE 441	1 AE 472	3
AE 475	3 AE 476	3
ARCH 441	3 AE 477	3
MGMT 326	3 STAT 401 or IE 424	3
General Education Course	3	
	<b>16</b>	<b>16</b>

#### Fifth Year

Fall	Credits Spring	Credits
AE 473	3 AE 482	4
AE 481W	4 General Education Course	3
CE 209	2 General Education Course	3
ENGL 202C (GWS) <sup>††</sup>	3 Department Elective	3
Department Elective	3 Department Elective	2
	<b>15</b>	<b>15</b>

**Total Credits 160**

\* 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

#### University Requirements and General Education Notes:

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.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

#### College Notes:

- Some AE courses are offered every semester. To accommodate class size limitations, specific courses have been paired to permit students to interchange the semesters in which they enroll in these courses. These pairings are as follows: AE 240 and ME 201; AE 308 and AE 372; AE 310 and AE 311; ARCH 441 and (STAT 401 or IE 424).



- Fourth and Fifth-year AE courses are once a year in the semester shown in the above academic plan.
- Department Electives: Any 400-level or 500-level AE course is acceptable, except AE 401, AE 402, AE 404, AE 421, and AE 422. For recommended AE and other approved courses for each option, go to [www.ae.psu.edu/academics/undergraduate/electives.aspx](https://www.ae.psu.edu/academics/undergraduate/electives.aspx) (<https://www.ae.psu.edu/academics/undergraduate/electives.aspx>) and click on "Department Elective Worksheet."
- Students who complete the ROTC Program may substitute 3 ROTC credits for the GHW requirement and 3 ROTC credits for a Department Elective.
- (ARCH 100 or LARCH 60) and ARTH 202N are required GA courses. Substitution by an advanced course is possible. See an adviser.
- ME 300 may be substituted for ME 201.

## Construction Option (3rd Year ETM): Architectural Engineering, B.A.E. at University Park Campus

### Alternative Path: Direct Entry from ENGR to AE

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.

If you are starting at a campus other than the one this plan is ending at, please refer to: <https://advising.engr.psu.edu/degree-requirements/academic-plans-by-major.aspx>

#### First Year

Fall	Credits	Spring	Credits
CHEM 110 (GN) <sup>*#†</sup>	3	ARTH 202N (GA) (US/IL) <sup>†</sup>	3
AE 124 (or other First Year Seminar) <sup>†</sup>	1	EDSGN 100 <sup>#</sup>	3
MATH 140 or 140E (GQ) <sup>*† #†</sup>	4	MATH 141 or 141E (GQ) <sup>*† #†</sup>	4
CHEM 111	1	PHYS 211 (PHYS 211L and 211R) (GN) <sup>*#†</sup>	4
ECON 102 or 104 (GS) <sup>†</sup>	3	CAS 100A or 100B <sup>††</sup>	3
ENGL 15, 30H, or ESL 15 (GWS) <sup>††</sup>	3		
	<b>15</b>		<b>17</b>

#### Second Year

Fall	Credits	Spring	Credits
ARCH 100 or LARCH 60 (GA) <sup>†</sup>	3	EMCH 212	3
EMCH 211	3	EMCH 213	3
ME 201	3	MATH 220	3
MATH 250 (GQ)	3	MATH 231	2
PHYS 212 (PHYS 212L and 212R) (GN) <sup>†</sup>	4	PHYS 213	2
		General Education Course (GHW)	1.5
		General Education Course (GHW)	1.5
	<b>16</b>		<b>16</b>

#### Third Year

Fall	Credits	Spring	Credits
AE 202	3	AE 222	3
AE 221	3	AE 240	3
AE 308 <sup>*</sup>	4	AE 310 <sup>*</sup>	3
AE 309	3	AE 311 <sup>*</sup>	3
ARCH 130A	3	AE 372 <sup>*</sup>	3
		ARCH 130B	3
	<b>16</b>		<b>18</b>

#### Fourth Year

Fall	Credits	Spring	Credits
AE 404	3	AE 405	4
AE 441	1	AE 472	3
AE 475	3	AE 476	3

ARCH 441	3	AE 477	3
MGMT 326	3	STAT 401 or IE 424	3
General Education Course	3		
	<b>16</b>		<b>16</b>

#### Fifth Year

Fall	Credits	Spring	Credits
AE 473	3	AE 482	4
AE 481W	4	Department Elective	3
CE 209	2	Department Elective	2
Department Elective	3	General Education Course	3
ENGL 202C (GWS) <sup>††</sup>	3	General Education Course	3
	<b>15</b>		<b>15</b>

#### Total Credits 160

\* 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

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#### University Requirements and General Education Notes:

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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.

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#### College Notes:

- Some AE courses are offered every semester. To accommodate class size limitations, specific courses have been paired to permit students to interchange the semesters in which they enroll in these courses. These pairings are as follows: AE 240 and ME 201; AE 308 and AE 372; AE 310 and AE 311; ARCH 441 and (STAT 401 or IE 424).
- Fourth and Fifth-year AE courses are once a year in the semester shown in the above academic plan.
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- Students who complete the ROTC Program may substitute 3 ROTC credits for the GHW requirement and 3 ROTC credits for a Department Elective.
- (ARCH 100 or LARCH 60) and ARTH 202N are required GA courses. Substitution by an advanced course is possible. See an adviser.
- ME 300 may be substituted for ME 201.



## Lighting/Electrical Option (2nd Year ETM): Architectural Engineering, B.A.E. at University Park Campus

Standard Path: Direct Entry from ENGAE to AE

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.

If you are starting at a campus other than the one this plan is ending at, please refer to: <https://advising.engr.psu.edu/degree-requirements/academic-plans-by-major.aspx>

### First Year

Fall	Credits	Spring	Credits
AE 124 (or other First Year Seminar course) <sup>†</sup>	1	ARTH 202N (GA) (US/IL) <sup>†</sup>	3
ECON 102 or 104 (GS) <sup>†</sup>	3	EDSGN 100 <sup>#</sup>	3
CHEM 110 (GN) <sup>*#†</sup>	3	MATH 141 or 141E (GQ) <sup>*†##</sup>	4
CHEM 111	1	PHYS 211 (PHYS 211L and 211R) (GN) <sup>*#†</sup>	4
ENGL 15, 30H, or ESL 15 (GWS) <sup>††</sup>	3	CAS 100A or 100B <sup>††</sup>	3
MATH 140 or 140E (GQ) <sup>*†##</sup>	4		
	<b>15</b>		<b>17</b>

### Second Year

Fall	Credits	Spring	Credits
AE 202	3	AE 222	3
AE 221	3	AE 240	3
ARCH 130A	3	ARCH 130B	3
EMCH 211	3	EMCH 213	3
PHYS 213	2	PHYS 212 (PHYS 212L and 212R) (GN) <sup>*</sup>	4
MATH 250	3		
	<b>17</b>		<b>16</b>

### Third Year

Fall	Credits	Spring	Credits
AE 308 <sup>*</sup>	4	AE 311 <sup>*</sup>	3
AE 309	3	AE 372 <sup>*</sup>	3
AE 310	3	ARCH 100 or LARCH 60 (GA)	3
MATH 220	3	EMCH 212	3
MATH 231	2	General Education Course (GHW) <sup>†</sup>	3
ME 201	3		
	<b>18</b>		<b>15</b>

### Fourth Year

Fall	Credits	Spring	Credits
AE 404	3	AE 441	1
AE 461	3	AE 462	3
AE 464	3	AE 466	3
AE 467	3	AE 468	3
ARCH 441	3	STAT 401 or IE 424	3

General Education Course (GH)		3	
	<b>15</b>	<b>16</b>	
<b>Fifth Year</b>			
Fall	Credits	Spring	Credits
AE 453 or 454	3	AE 482	4
AE 481W	4	Department Elective	3
ENGL 202C (GWS) <sup>††</sup>	3	Department Elective	2
Department Elective	3	General Education Course <sup>†</sup>	3
Department Elective	3	General Education Course <sup>†</sup>	3
	<b>16</b>		<b>15</b>

### Total Credits 160

- \* 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

### University Requirements and General Education Notes:

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.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

### College Notes:

- Some AE courses are offered every semester. To accommodate class size limitations, specific courses have been paired to permit students to interchange the semesters in which they enroll in these courses. These pairings are as follows: AE 240 and ME 201; AE 308 and AE 372; AE 310 and AE 311; ARCH 441 and (STAT 401 or IE 424).
- Fourth and Fifth-year AE courses are once a year in the semester shown in the above academic plan.
- Department Electives: Any 400-level or 500-level AE course is acceptable, except AE 401, AE 402, AE 404, AE 421, and AE 422. For recommended AE and other approved courses for each option, go to [www.ae.psu.edu/academics/undergraduate/electives.aspx](http://www.ae.psu.edu/academics/undergraduate/electives.aspx) (<https://www.ae.psu.edu/academics/undergraduate/electives.aspx>) and click on "Department Elective Worksheet."

- Students who complete the ROTC Program may substitute 3 ROTC credits for the GHW requirement and 3 ROTC credits for a Department Elective.
- (ARCH 100 or LARCH 60) and ARTH 202N are required GA courses. Substitution by an advanced course is possible. See an adviser.
- ME 300 may be substituted for ME 201.

## Lighting/Electrical Option (3rd Year ETM): Architectural Engineering, B.A.E. at University Park Campus

### Alternative Path: Direct Entry from ENGR to AE

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.

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#### First Year

Fall	Credits Spring	Credits
AE 124 (or other First Year Seminar) <sup>†</sup>	1 ARTH 202N (GA) (US/IL) <sup>†</sup>	3
CHEM 110 <sup>*#†</sup>	3 EDSGN 100 <sup>#</sup>	3
CHEM 111	1 MATH 141 or 141E (GQ) <sup>*†##</sup>	4
ECON 102 or 104 (GS) <sup>†</sup>	3 PHYS 211 (PHYS 211L and 211R) (GN) <sup>*##†</sup>	4
ENGL 15, 30H, or ESL 15 (GWS) <sup>††</sup>	3 CAS 100A or 100B <sup>††</sup>	3
MATH 140 or 140E (GQ) <sup>*†##</sup>	4	
	<b>15</b>	<b>17</b>

#### Second Year

Fall	Credits Spring	Credits
ARCH 100 or LARCH 60 (GA) <sup>†</sup>	3 EMCH 212	3
EMCH 211	3 EMCH 213	3
ME 201	3 MATH 220	3
MATH 250	3 MATH 231	2
PHYS 212 (PHYS 212L and 212R) (GN) <sup>†</sup>	4 PHYS 213	2
	General Education Course (GHW)	1.5
	General Education Course (GHW)	1.5
	<b>16</b>	<b>16</b>

#### Third Year

Fall	Credits Spring	Credits
AE 202	3 AE 222	3
AE 221	3 AE 240	3
AE 308 <sup>*</sup>	4 AE 310 <sup>*</sup>	3
AE 309	3 AE 311 <sup>*</sup>	3
ARCH 130A	3 AE 372 <sup>*</sup>	3
	ARCH 130B	3
	<b>16</b>	<b>18</b>

#### Fourth Year

Fall	Credits Spring	Credits
AE 404	3 AE 441	1
AE 461	3 AE 462	3
AE 464	3 AE 466	3

AE 467	3 AE 468	3
ARCH 441	3 STAT 401 or IE 424	3
	General Education Course	3
	<b>15</b>	<b>16</b>

#### Fifth Year

Fall	Credits Spring	Credits
AE 453 or 454	3 AE 482	4
AE 481W	4 Department Elective	3
ENGL 202C (GWS) <sup>††</sup>	3 Department Elective	2
Department Elective	3 General Education Course	3
Department Elective	3 General Education Course	3
	<b>16</b>	<b>15</b>

#### Total Credits 160

\* 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

#### University Requirements and General Education Notes:

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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.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

#### College Notes:

- Some AE courses are offered every semester. To accommodate class size limitations, specific courses have been paired to permit students to interchange the semesters in which they enroll in these courses. These pairings are as follows: AE 240 and ME 201; AE 308 and AE 372; AE 310 and AE 311; ARCH 441 and (STAT 401 or IE 424).
- Fourth and Fifth-year AE courses are once a year in the semester shown in the above academic plan.
- Department Electives: Any 400-level or 500-level AE course is acceptable, except AE 401, AE 402, AE 404, AE 421, and AE 422. For recommended AE and other approved courses for each option, go to [www.ae.psu.edu/academics/undergraduate/electives.aspx](http://www.ae.psu.edu/academics/undergraduate/electives.aspx) (<https://www.ae.psu.edu/academics/undergraduate/electives.aspx>) and click on "Department Elective Worksheet."

- Students who complete the ROTC Program may substitute 3 ROTC credits for the GHW requirement and 3 ROTC credits for a Department Elective.
- (ARCH 100 or LARCH 60) and ARTH 202N are required GA courses. Substitution by an advanced course is possible. See an adviser.
- ME 300 may be substituted for ME 201.

## Mechanical Option (2nd Year ETM): Architectural Engineering, B.A.E. at University Park Campus

Standard Path: Direct Entry from ENGAE to AE

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.

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### First Year

Fall	Credits Spring	Credits
AE 124 (or other First Year Seminar) <sup>†</sup>	1 ARTH 202N (GA) (US/IL) <sup>†</sup>	3
CHEM 110 <sup>*#†</sup>	3 EDSGN 100 <sup>#</sup>	3
CHEM 111	1 MATH 141 or 141E (GQ) <sup>*†#†</sup>	4
ECON 102 or 104 (GS) <sup>†</sup>	3 PHYS 211 (PHYS 211L and 211R) (GN) <sup>*#†</sup>	4
ENGL 15, 30H, or ESL 15 (GWS) <sup>††</sup>	3 CAS 100A or 100B <sup>††</sup>	3
MATH 140 or 140E (GQ) <sup>*†#†</sup>	4	
	<b>15</b>	<b>17</b>

### Second Year

Fall	Credits Spring	Credits
AE 202	3 AE 240	3
AE 221	3 AE 222	3
ARCH 130A	3 ARCH 130B	3
EMCH 211	3 EMCH 213	3
MATH 250	3 PHYS 212 (PHYS 212L and 212R) (GN) <sup>†</sup>	4
PHYS 213	2	
	<b>17</b>	<b>16</b>

### Third Year

Fall	Credits Spring	Credits
AE 308 <sup>*</sup>	4 AE 311 <sup>*</sup>	3
AE 309	3 AE 372 <sup>*</sup>	3
AE 310 <sup>*</sup>	3 ARCH 100 or LARCH 60 (GA) <sup>†</sup>	3
MATH 220	3 EMCH 212	3
MATH 231	2 General Education Course (GHW)	3
ME 201	3	
	<b>18</b>	<b>15</b>

### Fourth Year

Fall	Credits Spring	Credits
AE 404	3 AE 455	3
AE 441	1 AE 457	3
AE 454	3 AE 458	3
AE 453	3 ME 410	3
ARCH 441	3 STAT 401 or IE 424	3

ME 320	3	
	<b>16</b>	<b>15</b>
<b>Fifth Year</b>		
<b>Fall</b>	<b>Credits Spring</b>	<b>Credits</b>
AE 467	3 AE 482	4
AE 481W	4 General Education Course	3
ENGL 202C (GWS) <sup>††</sup>	3 General Education Course	3
Department Elective	3 General Education Course	3
Department Elective	3 Department Elective	2
	<b>16</b>	<b>15</b>

### Total Credits 160

\* 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

### University Requirements and General Education Notes:

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All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

### College Notes:

- Some AE courses are offered every semester. To accommodate class size limitations, specific courses have been paired to permit students to interchange the semesters in which they enroll in these courses. These pairings are as follows: AE 240 and ME 201; AE 308 and AE 372; AE 310 and AE 311; ARCH 441 and (STAT 401 or IE 424).
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- Students who complete the ROTC Program may substitute 3 ROTC credits for the GHW requirement and 3 ROTC credits for a Department Elective.

- (ARCH 100 or LARCH 60) and ARTH 202N are required GA courses. Substitution by an advanced course is possible. See an adviser.
- ME 300 may be substituted for ME 201.



## Mechanical Option (3rd Year ETM): Architectural Engineering, B.A.E. at University Park Campus

### Alternative Path: Direct Entry from ENGR to AE

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.

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#### First Year

Fall	Credits Spring	Credits
AE 124 (or other First Year Seminar) <sup>†</sup>	1 ARTH 202N (GA) (US/IL) <sup>†</sup>	3
CHEM 110 <sup>*#†</sup>	3 EDSGN 100 <sup>#</sup>	3
CHEM 111	1 MATH 141 or 141E (GQ) <sup>*†##</sup>	4
ECON 102 or 104 (GS) <sup>†</sup>	3 PHYS 211 (PHYS 211L and 211R) (GN) <sup>*#†</sup>	4
ENGL 15, 30H, or ESL 15 (GWS) <sup>††</sup>	3 CAS 100A or 100B <sup>††</sup>	3
MATH 140 or 140E (GQ) <sup>*†##</sup>	4	
	<b>15</b>	<b>17</b>

#### Second Year

Fall	Credits Spring	Credits
ARCH 100 or LARCH 60 (GA) <sup>†</sup>	3 EMCH 212	3
MATH 250	3 EMCH 213	3
PHYS 212 (PHYS 212L and PHYS 212R) (GN) <sup>†</sup>	4 MATH 220	3
ME 201	3 PHYS 213	2
EMCH 211	3 MATH 231	2
	General Education Course (GHW)	1.5
	General Education Course (GHW)	1.5
	<b>16</b>	<b>16</b>

#### Third Year

Fall	Credits Spring	Credits
AE 202	3 AE 222	3
AE 221	3 AE 240	3
AE 308 <sup>*</sup>	4 AE 310 <sup>*</sup>	3
AE 309	3 AE 311 <sup>*</sup>	3
ARCH 130A	3 AE 372	3
	ARCH 130B	3
	<b>16</b>	<b>18</b>

#### Fourth Year

Fall	Credits Spring	Credits
AE 404	3 AE 455	3
AE 441	1 AE 457	3
AE 454	3 AE 458	3

AE 453	3 ME 410	3
ARCH 441	3 STAT 401 or IE 424	3
ME 320	3	
	<b>16</b>	<b>15</b>

#### Fifth Year

Fall	Credits Spring	Credits
AE 467	3 AE 482	4
AE 481W	4 General Education Course	3
ENGL 202C (GWS) <sup>††</sup>	3 General Education Course	3
General Education Course	3 Department Elective	3
Department Elective	3 Department Elective	2
	<b>16</b>	<b>15</b>

#### Total Credits 160

\* 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

#### University Requirements and General Education Notes:

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All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

#### College Notes:

- Some AE courses are offered every semester. To accommodate class size limitations, specific courses have been paired to permit students to interchange the semesters in which they enroll in these courses. These pairings are as follows: AE 240 and ME 201; AE 308 and AE 372; AE 310 and AE 311; ARCH 441 and (STAT 401 or IE 424).
- Fourth and Fifth-year AE courses are once a year in the semester shown in the above academic plan.
- Department Electives: Any 400-level or 500-level AE course is acceptable, except AE 401, AE 402, AE 404, AE 421, and AE 422. For recommended AE and other approved courses for each option, go to [www.ae.psu.edu/academics/undergraduate/electives.aspx](http://www.ae.psu.edu/academics/undergraduate/electives.aspx) (<https://www.ae.psu.edu/academics/undergraduate/electives.aspx>) and click on "Department Elective Worksheet."

- Students who complete the ROTC Program may substitute 3 ROTC credits for the GHW requirement and 3 ROTC credits for a Department Elective.
- (ARCH 100 or LARCH 60) and ARTH 202N are required GA courses. Substitution by an advanced course is possible. See an adviser.
- ME 300 may be substituted for ME 201.

## Structural Option (2nd Year ETM): Architectural Engineering, B.A.E. at University Park Campus

Standard Path: Direct Entry from ENGAE to AE

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.

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### First Year

Fall	Credits Spring	Credits
AE 124 (or First Year Seminar) <sup>†</sup>	1 ARTH 202N (GA) (US/IL) <sup>†</sup>	3
CHEM 110 <sup>*#†</sup>	3 EDSGN 100 <sup>#</sup>	3
CHEM 111	1 MATH 141 or 141E (GQ) <sup>*†##</sup>	4
ECON 102 or 104 (GS) <sup>†</sup>	3 PHYS 211 (PHYS 211L and 211R) (GN) <sup>*#†</sup>	4
ENGL 15, 30H, or ESL 15 (GWS) <sup>††</sup>	3 CAS 100A or 100B <sup>††</sup>	3
MATH 140 or 140E (GQ) <sup>*†##</sup>	4	
	<b>15</b>	<b>17</b>

### Second Year

Fall	Credits Spring	Credits
AE 202	3 AE 222 <sup>*</sup>	3
AE 221	3 AE 240	3
ARCH 130A	3 ARCH 130B	3
EMCH 211	3 EMCH 213	3
MATH 250	3 PHYS 212 (PHYS 212L and 212R) (GN) <sup>†</sup>	4
PHYS 213	2	
	<b>17</b>	<b>16</b>

### Third Year

Fall	Credits Spring	Credits
AE 308 <sup>*</sup>	4 AE 311 <sup>*</sup>	3
AE 309	3 AE 372 <sup>*</sup>	3
AE 310 <sup>*</sup>	3 ARCH 100 or LARCH 60 (GA) <sup>†</sup>	3
MATH 220	3 EMCH 212	3
MATH 231	2 General Education Course	3
ME 201	3	
	<b>18</b>	<b>15</b>

### Fourth Year

Fall	Credits Spring	Credits
AE 401	3 AE 403	3
AE 402	3 AE 405	4
AE 430	3 AE 431	3
ARCH 441	3 AE 441	1
General Education Course	3 STAT 401 or IE 424	3

Department Elective		3
<b>15</b>		<b>17</b>
<b>Fifth Year</b>		
Fall	Credits Spring	Credits
AE 481W	4 AE 482	4
CE 209	2 General Education Course	3
EMCH 315	2 General Education Course	3
EMCH 316	1 Department Elective	3
ENGL 202C (GWS) <sup>††</sup>	3 Department Elective	2
Department Elective	3	
<b>15</b>		<b>15</b>

### Total Credits 160

\* 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

### University Requirements and General Education Notes:

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All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

### College Notes:

- Some AE courses are offered every semester. To accommodate class size limitations, specific courses have been paired to permit students to interchange the semesters in which they enroll in these courses. These pairings are as follows: AE 240 and ME 201; AE 308 and AE 372; AE 310 and AE 311; ARCH 441 and (STAT 401 or IE 424).
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- Students who complete the ROTC Program may substitute 3 ROTC credits for the GHW requirement and 3 ROTC credits for a Department Elective.
- (ARCH 100 or LARCH 60) and ARTH 202N are required GA courses. Substitution by an advanced course is possible. See an adviser.
- ME 300 may be substituted for ME 201.

## Structural Option (3rd Year ETM): Architectural Engineering, B.A.E. at University Park Campus

### Alternative Path: Direct Entry from ENGR to AE

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.

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#### First Year

Fall	Credits Spring	Credits
AE 124 (or other First Year Seminar) <sup>†</sup>	1 ARTH 202N (GA) (US/IL) <sup>†</sup>	3
CHEM 110 <sup>*#†</sup>	3 EDSGN 100 <sup>#</sup>	3
CHEM 111	1 MATH 141 or 141E (GQ) <sup>*†##</sup>	4
ECON 102 or 104 (GS) <sup>†</sup>	3 PHYS 211 (PHYS 211L and 211R) (GN) <sup>*#†</sup>	4
ENGL 15, 30H, or ESL 15 (GWS) <sup>††</sup>	3 CAS 100A or 100B <sup>††</sup>	3
MATH 140 or 140E (GQ) <sup>*†##</sup>	4	
	<b>15</b>	<b>17</b>

#### Second Year

Fall	Credits Spring	Credits
ARCH 100 or LARCH 60 (GA) <sup>†</sup>	3 EMCH 212	3
MATH 250	3 EMCH 213	3
ME 201	3 MATH 220	3
EMCH 211	3 MATH 231	2
PHYS 212 (PHYS 212L and 212R) (GN) <sup>†</sup>	4 PHYS 213	2
	General Education Course (GHW)	1.5
	General Education Course (GHW)	1.5
	<b>16</b>	<b>16</b>

#### Third Year

Fall	Credits Spring	Credits
AE 202	3 AE 222	3
AE 221	3 AE 240	3
AE 308 <sup>*</sup>	4 AE 310 <sup>*</sup>	3
AE 309	3 AE 311 <sup>*</sup>	3
ARCH 130A	3 AE 372 <sup>*</sup>	3
	ARCH 130B	3
	<b>16</b>	<b>18</b>

#### Fourth Year

Fall	Credits Spring	Credits
AE 401	3 AE 403	3
AE 402	3 AE 405	4
AE 430	3 AE 431	3

ARCH 441	3 AE 441	1
General Education Course	3 STAT 401 or IE 424	3
	Department Elective	3
	<b>15</b>	<b>17</b>

#### Fifth Year

Fall	Credits Spring	Credits
AE 481W	4 AE 482	4
CE 209	2 General Education Course	3
EMCH 315	2 General Education Course	3
EMCH 316	1 Department Elective	3
ENGL 202C (GWS) <sup>††</sup>	3 Department Elective	2
Department Elective	3	
	<b>15</b>	<b>15</b>

#### Total Credits 160

- \* 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

#### University Requirements and General Education Notes:

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.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

#### College Notes:

- Some AE courses are offered every semester. To accommodate class size limitations, specific courses have been paired to permit students to interchange the semesters in which they enroll in these courses. These pairings are as follows: AE 240 and ME 201; AE 308 and AE 372; AE 310 and AE 311; ARCH 441 and (STAT 401 or IE 424).
- Fourth and Fifth-year AE courses are once a year in the semester shown in the above academic plan.
- Department Electives: Any 400-level or 500-level AE course is acceptable, except AE 401, AE 402, AE 404, AE 421, and AE 422. For recommended AE and other approved courses for each option, go to [www.ae.psu.edu/academics/undergraduate/electives.aspx](http://www.ae.psu.edu/academics/undergraduate/electives.aspx) (<https://www.ae.psu.edu/academics/undergraduate/electives.aspx>) and click on "Department Elective Worksheet."

- Students who complete the ROTC Program may substitute 3 ROTC credits for the GHW requirement and 3 ROTC credits for a Department Elective.
- (ARCH 100 or LARCH 60) and ARTH 202N are required GA courses. Substitution by an advanced course is possible. See an adviser.
- ME 300 may be substituted for ME 201.

## Career Paths

The Penn State Architectural Engineering program focuses on developing next-generation leaders with in-depth expertise in their technical discipline, overall breadth of the building industry, and passion about integrated design. Graduates of this program serve in a variety of roles in conceptualizing, designing, constructing, and managing built environments for both the public and private sectors. They accept job offers from companies such as: architectural engineering firms, consulting engineering companies, contractors, specialty contractors, forensic engineering consultants, building technology consultants, real estate developers, building equipment designers and manufacturers, building materials and products designers and producers, facilities engineering and management groups, and building owners.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE ARCHITECTURAL ENGINEERING PROGRAM (<https://www.ae.psu.edu/industry/career-fair/>)

## Opportunities for Graduate Studies

Students with a bachelor's degree and/or master's degree in Architectural Engineering are well prepared for graduate studies to further develop their depth of knowledge in traditional architectural engineering disciplines, such as structural, mechanical, construction, lighting, acoustical and electrical engineering. Alternatively, students may wish to broaden their expertise by pursuing graduate education in facility engineering, architecture, real estate and development, management, or law.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://www.ae.psu.edu/academics/graduate/>)

## Professional Resources

- Acoustical Society of America (ASA) (<https://acousticalsociety.org>)
- American Concrete Institute (ACI) (<https://www.concrete.org/>)
- American Institute of Steel Construction (AISC) (<https://www.aisc.org/>)
- American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) (<https://ashrae.org>)
- Architectural Engineering Institute (AEI) (<https://www.asce.org>)
- Earthquake Engineering Research Institute (EERI) (<https://www.eeri.org/>)
- Illuminating Engineering Society (IES) (<https://www.ies.org>)
- Institute of Noise Control Engineers (INCE) (<https://www.inceusa.org/>)
- International Association of Lighting Designers (IALD) (<https://www.iald.org/>)
- International Commission on Illumination (CIE) (<https://cie.co.at>)
- International District Energy Association (IDEA) (<https://www.districtenergy.org/home/>)
- International WELL Building Institute (WELL) (<https://www.wellcertified.com/>)
- Mechanical Contractors Association of America (MCAA)
- National Association of Home Builders (NAHB) (<https://www.nahb.org/>)
- National Electrical Contractors Association (NECA) (<https://www.necanet.org/>)
- National Institute of Building Sciences (NIBS) (<https://www.nibs.org/>)
- National Society of Professional Engineers (NSPE) (<https://www.nspe.org>)
- Portland Cement Association (PCA) (<https://www.cement.org/>)
- Precast Concrete Institute (PCI) (<https://www.pci.org/>)
- Society of Experimental Mechanics (SEM) (<https://sem.org/>)
- Structural Engineers Association of Pennsylvania (SEAoP) (<https://www.seaopa.org>)
- The Association for Decentralized Energy (ADE) (<https://www.theade.co.uk/>)
- The Masonry Society (TMS) and the Masonry Society Joint Committee (MSJC) (<https://masonrysociety.org/>)
- United States Green Building Council (USGBC) (<https://www.usgbc.org>)
- Whole Building Design Guide (WBDG) (<https://www.wbdg.org>)

## Accreditation

The B.A.E. in Architectural Engineering at University Park is accredited by the Engineering Accreditation Commission of ABET, <https://www.abet.org>, under the commission's General Criteria and Program Criteria for Architectural and Similarly Named Engineering Programs.

## 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://opair.psu.edu/plc/dashboard/>) interactive map.

## Contact

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