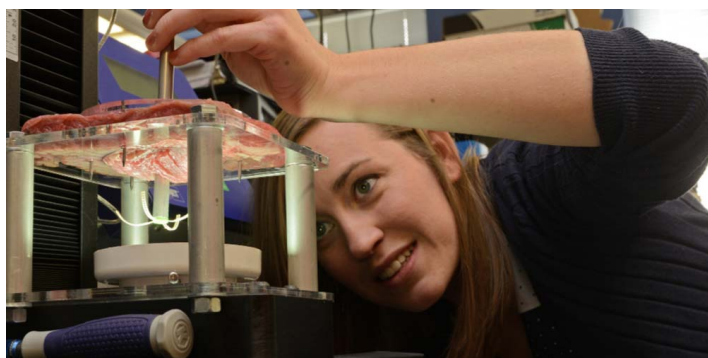# APPLIED ENGINEERING (BS)

This program was approved for students entering the university in the Summer 2025-Spring 2026 catalog year. For more information about catalog year, go to Catalog Year Information (https://catalog.louisville.edu/undergraduate/university-wide-unit-specific-policies/catalog-year/).

Bachelor of Science in Applied Engineering
Unit: Speed School of Engineering (SS) (https://engineering.louisville.edu/)
Department: Engineering Fundamentals (https://engineering.louisville.edu/academics/departments/fundamentals/)

Academic Plan Code(s): AENGBS (Belknap), AENGBS ECT (ECTC)

Program Information

The Bachelor of Science in Applied Engineering combines the problem-solving skills of engineering with practical and hands-on skills for implementing solutions. Students will work in state-of-the-art laboratories, learning how to use, fix, and manage the kinds of equipment that industries rely on in the 21st century.

Degree Summary

Code	Title	Hours
General Education Requirements (https://catalog.louisville.edu/undergraduate/general-education-requirements/) [1]		31
(19 hours of general education requirements may be satisfied through coursework required by the degree program)		
College / School Requirements [1]		33
Program / Major Requirements		68
Supporting Courses		12
Minimum Total Hours		**122**

[1] Some courses required in this degree program satisfy multiple requirements. To complete the degree in the minimum number of hours listed, some hours from the General Education Requirements must be satisfied by courses defined by the unit and/or program. Using other courses to satisfy General Education requirements will require additional hours to complete the degree requirements. See the Degree Requirements and/or Track tabs for specific coursework.

Incoming Student Admission Criteria

High School Curriculum Requirements: All schools require graduation from an accredited high school and completion of the Kentucky Pre-College Curriculum requirements. In addition, this program requires successful completion of either Calculus or Pre-calculus in high school.

Students with ACT / SAT Scores

- ACT composite and math scores of 25 OR SAT combined CR+M score of 1200 and math score of 590. A 3.0 GPA on a 4.0 scale

OR

- ACT composite and math scores of 24 OR SAT combined CR+M score of 1160 and math score of 570. A 3.5 GPA on a 4.0 scale

Students without ACT / SAT Scores

- HS GPA of 3.0 (or better) on a 4.0 scale
- Comprehensive transcript evaluation
- Review of Student Resume

Transferring to Engineering BS degree programs

Students with 24 hours or more transferable semester hours will have a minimum college grade point average of 2.8 and at least B-minus grades in College Algebra (MATH 111 (https://catalog.louisville.edu/search/?P=MATH%20111) or equivalent).

General Education Requirements

Code	Title	Hours
General Education Requirements (https://catalog.louisville.edu/undergraduate/general-education-requirements/)		31
The following courses are required by the program and satisfy the respective General Education Requirement(s):		
ENGL 101	Introduction to College Writing - WC (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	
ENGL 102	Intermediate College Writing - WC (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	
COMM 111	Introduction to Public Speaking - OC (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	
ENGR 100	Differential Calculus for Engineering - QR (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	
PHYS 298	Introductory Mechanics, Heat and Sound - S (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	
PHYS 295	Introductory Laboratories I - SL (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	
CHEM 101	Chemistry and Contemporary Society - S (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	

All degrees require the completion of the University-wide General Education Program (link provided above). To complete the degree in the **minimum number of hours** listed on the Overview tab, some hours

from the General Education Requirements must be satisfied by courses defined by the unit and/or program.

College/School Requirements

Code	Title	Hours
Speed School AE Core [1]		
CHEM 101	Chemistry and Contemporary Society - S (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	3
ENGL 101	Introduction to College Writing - WC (https://catalog.louisville.edu/undergraduate/general-education-requirements/) [1, 2]	3
ENGL 102	Intermediate College Writing - WC (https://catalog.louisville.edu/undergraduate/general-education-requirements/) [1, 2]	3
MATH 109	Elementary Statistics - QR (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	3
COMM 111	Introduction to Public Speaking - OC (https://catalog.louisville.edu/undergraduate/general-education-requirements/) [1]	3
PHYS 295	Introductory Laboratories I - SL (https://catalog.louisville.edu/undergraduate/general-education-requirements/) [1]	1
PHYS 298	Introductory Mechanics, Heat and Sound - S (https://catalog.louisville.edu/undergraduate/general-education-requirements/) [1]	4
ENGR 110	Engineering Methods, Tools, and Practice I	2
ENGR 111	Engineering Methods, Tools and Practice ll	2
ENGR 100	Differential Calculus for Engineering - QR (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	4
ENGR 101	Engineering Analysis I - QR (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	4
AE 499	Industry Experience Hours: Final Semester	1
Minimum Total Hours		**33**

Program / Major Requirements

Code	Title	Hours
Applied Engineering Management Core		
AE 111	Fundamentals of Safety	3
ACCT 201	Principles of Financial Accounting	3
ECON 201	Principles of Microeconomics - SB (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	3
MGMT 301	Management and Organizational Behavior	3
ISE 370	Engineering Economic Analysis	3
AE 313	Quality & Lean Systems	3
AE 411: Project Management & Process Improvement		3
Robotics & Automation Systems Track Requirements		
CSE 130	Introduction to C and C++ Programming Languages	3
AE 121	Computer-Aided Design	4
AE 122	Electronic Systems	4

Code	Title	Hours
AE 123	Solid Modeling & Rapid Prototyping	4
AE 221	Semiconductor Electronics	4
AE 222	Power Conversion & Control	4
AE 223	Industrial Robotics I	4
AE 224	Digital Electronics	4
AE 321	Mobile Robotics I	4
AE 322	Programmable Logic Controllers	4
AE 323	Programmable Logic Controllers II	4
AE 431	Mobile Robotics II	4
Minimum Total Hours		**68**

Code	Title	Hours
Supporting Courses		
Applied Engineering Directed Electives		12

Applied Engineering Work Hours Tracking Courses

Code	Title	Hours
AE 288	Industry Experience Seminar	0
AE 289	Industry Experience Hours Semester 1	0
AE 290	Industry Experience Hours Semester 2	0
AE 389	Industry Experience Hours Semester 3	0
AE 390	Industry Experience Hours Semester 4	0
AE 489	Industry Experience Hours Semester 5	0
AE 499	Industry Experience Hours: Final Semester	1

Candidates for the Bachelor of Science degree must be in Good Standing (university GPA ≥ 2.25) and must attain a grade point average of at least 2.25 for all courses used to satisfy degree requirements.

Code	Title	Hours
Culminating Undergraduate Experience (Graduation requirement)		
Requirement fulfilled by completing:		
AE 431	Mobile Robotics II	4

[1] This course is a General Education requirement for the program; see louisville.edu/provost/ger/ (http://www.louisville.edu/provost/ger/) for the listing, by academic year, of AH/D1/D2/SB/SBH Electives which satisfy the University-wide General Education requirements. Note that the 12-hour total for the AH/D1/D2/SB/SBH electives assumes the use of double counting of D1/D2 with another category.

[2] Students completing ENGL 105 (https://catalog.louisville.edu/search/?P=ENGL%20105) in lieu of ENGL 101 (https://catalog.louisville.edu/search/?P=ENGL%20101) or ENGL 102 (https://catalog.louisville.edu/search/?P=ENGL%20102) satisfy the General Education and Engineering Fundamentals requirements for Written Communication. However, an additional 3-hr Writing (WR) course or honors Written Communication (WC) course may be needed to satisfy program credit hour requirements.

Year 1

Fall		Hours
ENGL 101	Introduction to College Writing - WC (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	3
AE 111	Fundamentals of Safety	3
AE 121	Computer-Aided Design	4

ENGR 100	Differential Calculus for Engineering - QR (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	4
ENGR 110	Engineering Methods, Tools, and Practice I	2
	Hours	**16**
Spring		
ENGR 101	Engineering Analysis I - QR (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	4
ENGR 111	Engineering Methods, Tools and Practice ll	2
AE 122	Electronic Systems	4
AE 288	Industry Experience Seminar	0
CHEM 101	Chemistry and Contemporary Society - S (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	3
	Hours	**13**
Summer		
COMM 111	Introduction to Public Speaking - OC (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	3
MATH 109	Elementary Statistics - QR (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	3
AE 123	Solid Modeling & Rapid Prototyping	4
	Hours	**10**
Year 2		
Fall		
PHYS 295	Introductory Laboratories I - SL (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	1
PHYS 298	Introductory Mechanics, Heat and Sound - S (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	4
AE 221	Semiconductor Electronics	4
AE 222	Power Conversion & Control	4
AE 289	Industry Experience Hours Semester 1	0
	Hours	**13**
Spring		
ENGL 102	Intermediate College Writing - WC (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	3
CSE 130	Introduction to C and C++ Programming Languages	3
AE 223	Industrial Robotics I	4
AE 224	Digital Electronics	4
AE 290	Industry Experience Hours Semester 2	0
	Hours	**14**
Year 3		
Fall		
AE 321	Mobile Robotics I	4
AE 322	Programmable Logic Controllers	4
AE 389	Industry Experience Hours Semester 3	0
ECON 201	Principles of Microeconomics - SB (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	3
MGMT 301	Management and Organizational Behavior	3
	Hours	**14**
Spring		
ACCT 201	Principles of Financial Accounting	3
AE 313	Quality & Lean Systems	3
AE 323	Programmable Logic Controllers II	4
AE 390	Industry Experience Hours Semester 4	0
ISE 370	Engineering Economic Analysis	3
	Hours	**13**
Year 4		
Fall		
AE 411: Project Management & Process Improvement		3

General Education Requirement - SBH		3
Applied Engineering Elective		4
General Education Requirement -AH		3
AE 489	Industry Experience Hours Semester 5	0
	Hours	**13**
Spring		
AE 431	Mobile Robotics II	4
Applied Engineering Elective		4
Applied Engineering Elective		4
General Education Requirement - AH		3
AE 499	Industry Experience Hours: Final Semester	1
	Hours	**16**
	Minimum Total Hours	**122**

Degree Audit Report

Degree Audit reports illustrate how your completed courses fulfill the requirements of your academic plan. What-if reports allow you to compare the courses you have completed in your current academic plan to the courses required in another academic plan. Should you have questions about either report, please consult with your academic advisor.

Flight Planner

The Flight Planner tool is available for you to create a personalized Flight Plan to graduation. Advisors have access to review your Flight Planner and can help you adjust it to ensure you remain on track to graduate in a timely manner.

To create these reports:

1. Log into your ULink account.
2. Click on the Academic Progress tile.
3. Select the appropriate report.
    a. To run a Degree Audit report, click on "View my Degree Audit."
    b. To create a What-if report, click on "Create a What-if Advisement Report."
    c. To run a Flight Planner report, click on "Use My Flight Planner."

Click here to run a Degree Audit report, create a What-if report, or run a Flight Planner report. (https://ulink.louisville.edu/)