INDUSTRIAL ENGINEERING (BS)

This program was approved for students entering the university in the Summer 2022–Spring 2023 catalog year. For more information about catalog year, go to Catalog Year Information (http://catalog.louisville.edu/undergraduate/university-wide-unit-specific-policies/catalog-year/).

Bachelor of Science in Industrial Engineering
Unit: Speed School of Engineering (https://engineering.louisville.edu) (SS)
Department: Industrial Engineering (http://engineering.louisville.edu/industrial/)
Academic Plan Code(s): IE_ _BIE

Program Information

The Bachelor of Science in Industrial Engineering degree program is accredited by the Engineering Accreditation Commission of ABET, www.abet.org (http://www.abet.org). The Master of Engineering in Industrial Engineering degree program is accredited by the Engineering Accreditation Commission of ABET, www.abet.org (http://www.abet.org).

Degree Summary

Code	Title	Hours
General Education Requirements (http://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]		35
Program/Major Requirements		59
Supporting Courses		18
Minimum Total Hours		124

[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.

Specific coursework information can be found on the Degree Requirements tab.

Accelerated BS Pathway

Industrial Engineering majors that are interested in pursuing and MS IE or MEng EM (Online) can consider an Accelerated Pathway. For more information, see the "Accelerated BSIE Pathway" Tab.

General Education Requirements

Code	Title	Hours
General Education Requirements (http://catalog.louisville.edu/undergraduate/general-education-requirements/) [1]		31
The following courses are required by the program and satisfy the respective General Education Requirement(s):		
CHEM 201	General Chemistry I	
CHEM 207	Introduction to Chemical Analysis I	
COMM 111	Introduction to Public Speaking	
or COMM 112	Business and Professional Speaking	
ENGL 101	Introduction to College Writing	
ENGL 102	Intermediate College Writing	
ENGR 101	Engineering Analysis I	
PHYS 298	Introductory Mechanics, Heat and Sound	

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. Using other courses to satisfy General Education requirements will require additional hours to complete the degree requirements.

College/School Requirements

Code	Title	Hours
Speed School Core		
CHEM 201	General Chemistry I [2]	3
CHEM 207	Introduction to Chemical Analysis I [2]	1
COMM 111	Introduction to Public Speaking	3
or COMM 112	Business and Professional Speaking	
ENGL 101	Introduction to College Writing [2,3]	3
ENGL 102	Intermediate College Writing [2,3]	3
ENGR 101	Engineering Analysis I [2]	4
ENGR 102	Engineering Analysis II	4
ENGR 110	Engineering Methods, Tools, and Practice I	2
ENGR 111	Engineering Methods, Tools and Practice II	2
ENGR 201	Engineering Analysis III	4
ENGR 205	Differential Equations for Engineering	2
PHYS 298	Introductory Mechanics, Heat and Sound [2]	4
Minimum Total Hours		**35**

Program/Major Requirements

Code	Title	Hours
Industrial Engineering Department		
IE 240	Fundamentals of Industrial Engineering	3
IE 250	Data Management and Spreadsheet Modelings for Industrial Engineering	3
IE 288	Industrial Engineering Cooperative Education Seminar	0

IE 289	Industrial Engineering Cooperative Education I	1
IE 320	Manufacturing Processes	4
IE 360	Probability and Statistics for Engineers	3
IE 361	Developing Decision Support Systems with Excel	3
IE 370	Engineering Economic Analysis	3
IE 380	Work Design	3
IE 389	Industrial Engineering Cooperative Education II	1
IE 421	Facility Location and Layout	3
IE 425	Production and Inventory Control	3
IE 430	Quality Control	3
IE 489	Industrial Engineering Cooperative Education III	1
IE 499	IE Capstone Design (CUE)	3
IE 515	Operations Research Methods	3
IE 541	Simulation	3
IE 563	Experimental Design in Engineering	3
IE 580	Introduction to Human Factors Engineering and Ergonomics	3
IE Electives		6
Industrial Engineering Core		
CHEM 202	General Chemistry II	3
PHYS 295	Introductory Laboratories I	1
Minimum Total Hours		**59**

Code	Title	Hours
Supporting Courses		
CSE 120	Introduction to Programming with Python	3
or CSE 130	Introduction to C and C++ Programming Languages	
CEE 205	Mechanics I: Statics	3
CHE 253	Materials Science	3
ECE 252	Introduction to Electrical Engineering	3
ME 251	Thermodynamics I	3
ENGR 151	Engineering Graphics Technology	1
ENGR 330	Linear Algebra for Engineering	2
Minimum Total Hours		**18**

A student may accumulate no more than two D-minus, D, or D+ grades in IE prefixed courses to graduate with a baccalaureate degree. For any additional D-minus, D, or D+ grades beyond two, the student must repeat the course to earn a better grade.

Candidates for the Bachelor of Science degree must be in good standing (university GPA ≥ 2.25) and must attain a GPA 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:		
IE 499	IE Capstone Design	

1 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.

2 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.

3 Students completing ENGL 105 in lieu of ENGL 101 or ENGL 102 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.

Flight Plan

Year 1

Fall		**Hours**
CHEM 201	General Chemistry I	3
CHEM 207	Introduction to Chemical Analysis I	1
ENGL 101	Introduction to College Writing	3
ENGR 101	Engineering Analysis I	4
ENGR 110	Engineering Methods, Tools, and Practice I	2
General Education: Cardinal Core Arts & Humanities, Social & Behavioral Sciences, or Social & Behavioral Sciences Historical Persepective US Diversity - AHD1, SBD1, or SBHD1		3
	Hours	**16**
Spring		
CHEM 202	General Chemistry II	3
ENGL 102	Intermediate College Writing	3
ENGR 102	Engineering Analysis II	4
ENGR 111	Engineering Methods, Tools and Practice II	2
PHYS 295	Introductory Laboratories I	1
PHYS 298	Introductory Mechanics, Heat and Sound	4
	Hours	**17**
Summer		
ENGR 151	Engineering Graphics Technology	1
ENGR 201	Engineering Analysis III	4
CEE 205	Mechanics I: Statics	3
General Education: Cardinal Core Arts & Humanities, Social & Behavioral Sciences, or Social & Behavioral Sciences Historical Persepective - AH, SB, or SBH		3
	Hours	**11**

Year 2

Fall		
CSE 120 or CSE 130	Introduction to Programming with Python or Introduction to C and C++ Programming Languages	3
COMM 111 or COMM 112	Introduction to Public Speaking or Business and Professional Speaking	3
ENGR 205	Differential Equations for Engineering	2
IE 240	Fundamentals of Industrial Engineering	3
IE 250	Data Management and Spreadsheet Modelings for Industrial Engineering	3
IE 288	Industrial Engineering Cooperative Education Seminar	0
IE 380	Work Design	3
	Hours	**17**
Spring		
IE 289	Industrial Engineering Cooperative Education I	1
	Hours	**1**
Summer		
IE 360	Probability and Statistics for Engineers	3
CHE 253	Materials Science	3
ENGR 330	Linear Algebra for Engineering	2
IE 370	Engineering Economic Analysis	3
	Hours	**11**

Year 3

Fall		
IE 389	Industrial Engineering Cooperative Education II	1
	Hours	**1**

Spring		
IE 361	Developing Decision Support Systems with Excel	3
IE 320	Manufacturing Processes	4
IE 425	Production and Inventory Control	3
IE 430	Quality Control	3
ME 251	Thermodynamics I	3
	Hours	**16**
Summer		
IE 489	Industrial Engineering Cooperative Education III	1
	Hours	**1**
Year 4		
Fall		
IE 421	Facility Location and Layout	3
IE 515	Operations Research Methods	3
IE 541	Simulation	3
IE 580	Introduction to Human Factors Engineering and Ergonomics	3
Industrial Engineering Elective [3]		3
	Hours	**15**
Spring		
IE 499	IE Capstone Design	3
ECE 252	Introduction to Electrical Engineering	3
IE 563	Experimental Design in Engineering	3
Industrial Engineering Elective		3
General Education: Cardinal Core Arts & Humanities, Social & Behavioral Sciences, or Social & Behavioral Sciences Historical Persepective - AH, SB, or SBH		3
General Education: Cardinal Core Arts & Humanities, Social & Behavioral Sciences, or Social & Behavioral Sciences Historical Persepective - AH, SB, or SBH		3
	Hours	**18**
	Minimum Total Hours	**124**

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.

To create either report:

1. Log into your ULink account.
2. Click on the Academic Progress tile.
3. Next, click on "View my Degree Audit" to run a Degree Audit report in the Undergraduate Advising area.
4. To create a What-if report, click on "Create a What-if Advisement Report."

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

Flight Planner
Based on your major, the Flight Planner tool may be available for you to create a personalized Flight Plan. The Flight Planner can be found in the ULink Student Center. Consult with your advisor for assistance with the Flight Planner.

Accelerated Program Participants

Students accepted into an Accelerated Pathway may substitute select Graduate-level courses for equivalent Undergraduate courses as discussed with their Graduate Program Advisor.

Accelerated BS-MSIE and BS-MEEMO Pathways

Industrial Engineering majors that are interested in pursuing and MS IE or MEng EM (Online) can consider an Accelerated Pathway. The Accelerated Pathway allows 12 credit hours of Graduate Coursework to be counted towards both degrees, speeding up the timeline for overall completion.

Students may apply as early as Summer 2 of the BS IE given they meet the following criteria:

- Completion of 60+ credit hours towards BS IE degree
- Completion of 10+ credit hours in IE coursework
- Current enrollment in, or previous completion of IE 360
- GPA of 3.3 or above

Applications are available in the Department of Industrial Engineering, JB Speed Building Room 304, or online at engineering.louisville.edu/academics/departments/industrial/ (https://engineering.louisville.edu/academics/departments/industrial/) .
Students who are admitted to the Accelerated Pathway and wish to complete the MSIE or MEEMO degree, should formally submit an application for the Master's Program of their choosing, to the Graduate School when they are nearing completion of the BSIE degree.

The Bachelor of Science in Industrial Engineering (IE BIE) program prepares students to meet the requirements for certification and/or licensure. If you plan to pursue professional licensure or certification you should first determine your state's criteria for examination and licensure to see how/if our program meets those requirements prior to enrollment. We recommend that you also contact your state's licensing board directly to verify that the requirements have not changed recently and to answer any questions especially those regarding additional requirements beyond the degree.

More information about certification or licensure is available at the following website: https://louisville.edu/oapa/licensure-information (https://louisville.edu/oapa/licensure-information/) (you may search by school or by the name of the program then click on 'View Details' to display the information).

For programs with an online option, more information about certification or licensure is available here: http://louisville.edu/online/About-Us (http://louisville.edu/online/About-Us/) (please scroll down near the bottom of the page and click on the licensing disclosures tab).