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

Degree Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Education Requirements (<a href="http://catalog.louisville.edu/undergraduate/general-education-requirements/">http://catalog.louisville.edu/undergraduate/general-education-requirements/</a>)</td>
<td>31</td>
<td></td>
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<tr>
<td>(19 hours of General Education requirements may be satisfied through coursework required by the degree program)</td>
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</tr>
<tr>
<td>College/School Requirements</td>
<td></td>
<td>35</td>
</tr>
<tr>
<td>Program/Major Requirements</td>
<td></td>
<td>59</td>
</tr>
<tr>
<td>Supporting Courses</td>
<td></td>
<td>18</td>
</tr>
<tr>
<td>Minimum Total Hours</td>
<td></td>
<td>124</td>
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</tbody>
</table>

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

<table>
<thead>
<tr>
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</tr>
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<tbody>
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<td>31</td>
<td></td>
</tr>
</tbody>
</table>

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

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

Program/Major Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>Industrial Engineering Department</td>
<td></td>
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</tr>
<tr>
<td>IE 240 Fundamentals of Industrial Engineering</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>IE 250 Data Management and Spreadsheet Modelings for Industrial Engineering</td>
<td></td>
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</tr>
<tr>
<td>IE 288 Industrial Engineering Cooperative Education Seminar</td>
<td></td>
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</tr>
</tbody>
</table>
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
CSE 120 Introduction to Programming with Python 3
or CSE 130 Introduction to C and C++ Programming Languages 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.

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 Perspective US Diversity 3
Minimum Total 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
Minimum Total 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 Perspective - AH, SB, or SBH 3
Minimum Total Hours 11
Year 2
Fall
CSE 120 Introduction to Programming with Python 3
or CSE 130 Introduction to C and C++ Programming Languages 3
COMM 111 Introduction to Public Speaking 3
or COMM 112 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
Minimum Total Hours 17
Spring
IE 289 Industrial Engineering Cooperative Education I 1
IE Capstone Design 1
Minimum Total 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
Minimum Total Hours 11
Year 3
Fall
IE 389 Industrial Engineering Cooperative Education II 1
Minimum Total Hours 1

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.
## Industrial Engineering (BS)

### 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

### Summer
- **IE 489**: Industrial Engineering Cooperative Education III 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

### 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 Perspective - AH, SB, or SBH 3

### Hours
- **16
- 1
- 3
- 15
- 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.

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**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).