MECHANICAL ENGINEERING (BS)

This program was approved for students entering the university in the Summer 2023—Spring 2024 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 Mechanical Engineering
Unit: Speed School of Engineering (https://engineering.louisville.edu/) (SS)
Department: Mechanical Engineering (http://engineering.louisville.edu/mechanical/)
Academic Plan Code(s): ME_ _BMC

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>
</tr>
<tr>
<td>(19 hours of General Education requirements may be satisfied through coursework required by the degree program)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>College/School Requirements</td>
<td></td>
<td>35</td>
</tr>
<tr>
<td>Program/Major Requirements</td>
<td></td>
<td>56</td>
</tr>
<tr>
<td>Supporting Courses</td>
<td></td>
<td>22</td>
</tr>
<tr>
<td><strong>Minimum Total Hours</strong></td>
<td>**</td>
<td><strong>125</strong></td>
</tr>
</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.

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, Speed School requires successful completion of the following courses in high school:

- Calculus or pre-calculus
- Chemistry

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 each of the following courses: ENGR 181 (or equivalent) and Intro to Chemistry (CHEM 101 or equivalent).

It is recommended students successfully complete Physics I (PHYS 298 or equivalent) before transferring to the J.B. Speed School of Engineering.

General Education Requirements

<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>
</tr>
<tr>
<td>The following courses are required by the program and satisfy the respective General Education Requirement(s):</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CHEM 201</td>
<td>General Chemistry I - S (<a href="http://catalog.louisville.edu/undergraduate/general-education-requirements/">http://catalog.louisville.edu/undergraduate/general-education-requirements/</a>)</td>
<td></td>
</tr>
<tr>
<td>CHEM 207</td>
<td>Introduction to Chemical Analysis I - SL (<a href="http://catalog.louisville.edu/undergraduate/general-education-requirements/">http://catalog.louisville.edu/undergraduate/general-education-requirements/</a>)</td>
<td></td>
</tr>
<tr>
<td>COMM 111</td>
<td>Introduction to Public Speaking - OC (<a href="http://catalog.louisville.edu/undergraduate/general-education-requirements/">http://catalog.louisville.edu/undergraduate/general-education-requirements/</a>)</td>
<td></td>
</tr>
<tr>
<td>or COMM 112</td>
<td>Business and Professional Speaking - OC (<a href="http://catalog.louisville.edu/undergraduate/general-education-requirements/">http://catalog.louisville.edu/undergraduate/general-education-requirements/</a>)</td>
<td></td>
</tr>
</tbody>
</table>
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
--- | --- | ---
CHEM 201 | General Chemistry I - S (http://catalog.louisville.edu/undergraduate/general-education-requirements/) | 3
CHEM 207 | Introduction to Chemical Analysis I - SL (http://catalog.louisville.edu/undergraduate/general-education-requirements/) | 1
COMM 111 | Introduction to Public Speaking - OC (http://catalog.louisville.edu/undergraduate/general-education-requirements/) | 3
or COMM 112 | Business and Professional Speaking - OC (http://catalog.louisville.edu/undergraduate/general-education-requirements/) | 3
ENGL 101 | Introduction to College Writing - WC (http://catalog.louisville.edu/undergraduate/general-education-requirements/) | 3
ENGL 102 | Intermediate College Writing - WC (http://catalog.louisville.edu/undergraduate/general-education-requirements/) | 3
ENGR 101 | Engineering Analysis I - QR (http://catalog.louisville.edu/undergraduate/general-education-requirements/) | 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 - S (http://catalog.louisville.edu/undergraduate/general-education-requirements/) | 4

#### Program/Major Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ME 206</td>
<td>Mechanics II: Dynamics</td>
<td>3</td>
</tr>
<tr>
<td>ME 251</td>
<td>Thermodynamics I</td>
<td>3</td>
</tr>
<tr>
<td>ME 288</td>
<td>Mechanical Engineering Cooperative Education Seminar</td>
<td>0</td>
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<tr>
<td>ME 289</td>
<td>Mechanical Engineering Cooperative Education I</td>
<td>1</td>
</tr>
<tr>
<td>ME 310</td>
<td>Thermodynamics II</td>
<td>3</td>
</tr>
<tr>
<td>ME 311</td>
<td>Fluid Mechanics I</td>
<td>3</td>
</tr>
<tr>
<td>ME 312</td>
<td>Fluid Mechanics Laboratory</td>
<td>1</td>
</tr>
<tr>
<td>ME 323</td>
<td>Mechanics of Materials</td>
<td>3</td>
</tr>
<tr>
<td>ME 324</td>
<td>Mechanics of Materials Laboratory</td>
<td>1</td>
</tr>
<tr>
<td>ME 380</td>
<td>Computer Aided Design</td>
<td>2</td>
</tr>
<tr>
<td>ME 381</td>
<td>Introduction to Manufacturing</td>
<td>2</td>
</tr>
<tr>
<td>ME 389</td>
<td>Mechanical Engineering Cooperative Education II</td>
<td>1</td>
</tr>
<tr>
<td>ME 414</td>
<td>Mechanical Measurements</td>
<td>3</td>
</tr>
<tr>
<td>ME 415</td>
<td>Senior Mechanical Engineering Laboratory</td>
<td>1</td>
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<tr>
<td>ME 422</td>
<td>Machine Design I</td>
<td>3</td>
</tr>
<tr>
<td>ME 435</td>
<td>System Dynamics</td>
<td>3</td>
</tr>
<tr>
<td>ME 440</td>
<td>Heat Transfer</td>
<td>3</td>
</tr>
<tr>
<td>ME 442</td>
<td>Machine Design II</td>
<td>3</td>
</tr>
<tr>
<td>ME 489</td>
<td>Mechanical Engineering Cooperative Education III</td>
<td>1</td>
</tr>
<tr>
<td>ME 497</td>
<td>Mechanical Engineering Capstone Design Project - CUE (<a href="http://catalog.louisville.edu/undergraduate/general-education-requirements/">http://catalog.louisville.edu/undergraduate/general-education-requirements/</a>)</td>
<td>3</td>
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#### Mechanical Engineering Core

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 202</td>
<td>General Chemistry II - S (<a href="http://catalog.louisville.edu/undergraduate/general-education-requirements/">http://catalog.louisville.edu/undergraduate/general-education-requirements/</a>)</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 295</td>
<td>Introductory Laboratories I - SL (<a href="http://catalog.louisville.edu/undergraduate/general-education-requirements/">http://catalog.louisville.edu/undergraduate/general-education-requirements/</a>)</td>
<td>1</td>
</tr>
</tbody>
</table>

#### Minimum Total Hours

- **Supporting Courses**
  - CSE 120 | Introduction to Programming with Python | 3
  - CEE 205 | Mechanics I: Statics | 3
  - CHE 253 | Materials Science | 3
  - ECE 252 | Introduction to Electrical Engineering | 3
  - IE 370 | Engineering Economic Analysis | 3
  - PHYS 299 | Introductory Electricity, Magnetism and Light | 4
  - ENGR 151 | Engineering Graphics Technology | 1
  - ENGR 307 | Numerical Methods for Engineering | 2

- **Minimum Total Hours** | **56** | **35** | **22**

A student is allowed to accumulate no more than two D+ or lower grades in ME prefixed courses (including ME approved elective courses) to graduate with a baccalaureate degree.

If a student accumulates a third D+ or lower grade, the student is required to repeat one of those courses to earn a better grade.
A student who accumulates more than one D in a ME course will not be permitted to enter Graduate Studies to pursue the MEng degree program until any courses with D grades more than one are repeated and a better grade is earned.

Candidates for the Bachelor of Science degree must be in good standing (GPA ≥ 2.25) and must attain a GPA of at least 2.25 for all courses used to satisfy degree 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.

This course is a General Education requirement for the program; see 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.

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 (HC) course may be needed to satisfy program credit hour requirements.

### Flight Plan

#### Year 1

**Fall**
- CHEM 201 General Chemistry I - S [catalog.louisville.edu/undergraduate/general-education-requirements/]
- CHEM 207 Introduction to Chemical Analysis I - SL [catalog.louisville.edu/undergraduate/general-education-requirements/]
- ENGL 101 Introduction to College Writing - WC [catalog.louisville.edu/undergraduate/general-education-requirements/]
- ENGR 101 Engineering Analysis I - QR [catalog.louisville.edu/undergraduate/general-education-requirements/]
- ENGR 110 Engineering Methods, Tools, and Practice I
- General Education: Cardinal Core Arts & Humanities, Social & Behavioral Sciences, or Social & Behavioral Sciences Historical Perspective - AH, SB, or SBH

**Hours: 16**

**Spring**
- CHEM 202 General Chemistry II - S [catalog.louisville.edu/undergraduate/general-education-requirements/]
- ENGL 102 Intermediate College Writing - WC [catalog.louisville.edu/undergraduate/general-education-requirements/]
- ENGR 102 Engineering Analysis II
- ENGR 111 Engineering Methods, Tools and Practice II
- PHYS 295 Introductory Laboratories I - SL [catalog.louisville.edu/undergraduate/general-education-requirements/]
- PHYS 298 Introductory Mechanics, Heat and Sound - S [catalog.louisville.edu/undergraduate/general-education-requirements/]

**Hours: 17**

#### Year 2

**Fall**
- CHE 253 Materials Science
- ENGR 151 Engineering Graphics Technology
- ME 206 Mechanics II: Dynamics
- ME 251 Thermodynamics I
- ME 288 Mechanical Engineering Cooperative Education Seminar
- ME 323 Mechanics of Materials
- ME 324 Mechanics of Materials Laboratory
- General Education: Cardinal Core Arts & Humanities, Social & Behavioral Sciences, or Social & Behavioral Sciences Historical Perspective US Diversity - AH1, SB1, or SBH1

**Hours: 17**

**Spring**
- ME 289 Mechanical Engineering Cooperative Education I
- CSE 120 Introduction to Programming with Python
- COMM 111 or COMM 112 Introduction to Public Speaking - OC [catalog.louisville.edu/undergraduate/general-education-requirements/]
- ME 288 Computer Aided Design
- ME 289 Introduction to Manufacturing
- ME 422 Machine Design I

**Hours: 12**

#### Year 3

**Fall**
- ME 389 Mechanical Engineering Cooperative Education II
- ECE 252 Introduction to Electrical Engineering
- ENGR 205 Differential Equations for Engineering
- ME 311 Fluid Mechanics I
- ME 312 Fluid Mechanics Laboratory
- ME 380 Computer Aided Design
- ME 381 Laboratory Economics and Financial Analysis
- ME 442 Machine Design I

**Hours: 16**

**Spring**
- ME 489 Mechanical Engineering Cooperative Education III
- ENGR 307 Numerical Methods for Engineering
- ME 414 Mechanical Measurements
- ME 415 Senior Mechanical Engineering Laboratory
- ME 442 Machine Design II
- Mechanical Engineering Elective I (4xx/5xx)
- Mechanical Engineering Elective II (4xx/5xx)
- General Education: Cardinal Core Arts & Humanities, Social & Behavioral Sciences, or Social & Behavioral Sciences Historical Perspective - AH, SB, or SBH

**Hours: 18**

**Summer**
- CEE 205 Mechanics I: Statics
- ENGR 201 Engineering Analysis III
- PHYS 299 Introductory Electricity, Magnetism and Light

**Hours: 11**
ME 497  Mechanical Engineering Capstone Design Project - CUE 3
(http://catalog.louisville.edu/undergraduate/general-education-requirements/)

Mechanical Engineering Elective III (4xx/5xx) 3

General Education: Cardinal Core Arts & Humanities, Social & Behavioral Sciences, or Social & Behavioral Sciences Historical Perspective - AH, SB, or SBH 3

<table>
<thead>
<tr>
<th>Hours</th>
<th>15</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum Total Hours</td>
<td>125</td>
</tr>
</tbody>
</table>

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:

a. Log into your ULink account.
b. Click on the Academic Progress tile.
c. Select the appropriate report.
   i. To run a Degree Audit report, click on "View my Degree Audit."
   ii. To create a What-if report, click on "Create a What-if Advisement Report."
   iii. 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)

The Bachelor of Science in Mechanical Engineering (ME BMC) 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: https://louisville.edu/online/About-Us?tab=disclosures (https://louisville.edu/online/About-Us/?tab=disclosures).