MECHANICAL ENGINEERING DEGREE

Students must also complete the Undergraduate Registration Requirement (https://catalogs.northwestern.edu/undergraduate/requirements-policies/undergraduate-registration-requirement/) and the degree requirements of their home school.

Course Requirements (48 units)

**Core Courses (32 units)**

4 mathematics courses (https://catalogs.northwestern.edu/undergraduate/engineering-applied-science/#requirementstext)

4 engineering analysis and computer proficiency courses (https://catalogs.northwestern.edu/undergraduate/engineering-applied-science/#requirementstext)

4 units of basic science:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYSICS 135-2 &amp; PHYSICS</td>
<td>General Physics and General Physics</td>
</tr>
<tr>
<td>PHYSICS 136-2 &amp; PHYSICS</td>
<td>and General Physics Laboratory</td>
</tr>
<tr>
<td>PHYSICS 136-3</td>
<td>and General Physics Laboratory</td>
</tr>
<tr>
<td>CHEM 131-0</td>
<td>General Chemistry 1</td>
</tr>
<tr>
<td>CHEM 141-0</td>
<td>and General Chemistry Laboratory</td>
</tr>
<tr>
<td>or CHEM 151-0</td>
<td>Accelerated General Chemistry I</td>
</tr>
<tr>
<td>or CHEM 151-0</td>
<td>and Accelerated General Chemistry Laboratory</td>
</tr>
<tr>
<td>or CHEM 171-0</td>
<td>Advanced General Inorganic Chemistry</td>
</tr>
<tr>
<td>or CHEM 181-0</td>
<td>and Advanced General Inorganic Chemistry Laboratory</td>
</tr>
</tbody>
</table>

3 design and communications courses (https://catalogs.northwestern.edu/undergraduate/engineering-applied-science/#requirementstext)

5 basic engineering courses:

- **MECH_ENG 233-0** Electronics Design
- CIV_ENV 216-0 Mechanics of Materials I
- MECH_ENG 241-0 Fluid Mechanics I
- MAT_SCI 201-0 Introduction to Materials
- MECH_ENG 222-0 Thermodynamics & Statistical Mechanics - I

7 social sciences/humanities courses (https://catalogs.northwestern.edu/undergraduate/engineering-applied-science/#requirementstext)

5 unrestricted electives (https://catalogs.northwestern.edu/undergraduate/engineering-applied-science/#requirementstext)

**Major Program (16 units)**

8 required courses:

- COMP_SCI 212-0 Mathematical Foundations of Comp Science
- or CHEM 210-1 Organic Chemistry
- MECH_ENG 224-0 Scientific and Embedded Programming in Python
- MECH_ENG 314-0 Machine Dynamics
- MECH_ENG 240-0 Intro to Mechanical Design and Manufacturing
- MECH_ENG 315-0 Theory of Machines: Design of Elements
- MECH_ENG 340-1 Computer Integrated Manufacturing: Manufacturing Processes
- MECH_ENG 377-0 Heat Transfer
- MECH_ENG 390-0 Intro to Dynamic Systems

2 capstone courses:

- MECH_ENG 398-1 Engineering Design I
- & MECH_ENG 398-2 and Engineering Design II (taken sequentially and counting toward the final 12 units taken before graduation)

6 concentration courses from one of the nine concentration areas:

1. See Core Courses Requirements (https://catalogs.northwestern.edu/undergraduate/engineering-applied-science/#requirementstext) for details.
2. PHYSICS 125-2 General Physics for ISP or PHYSICS 140-3 Fundamentals of Physics may be substituted for PHYSICS 135-2 General Physics. PHYSICS 125-3 General Physics for ISP or PHYSICS 140-3 Fundamentals of Physics may be substituted for PHYSICS 135-3 General Physics. Associated labs are PHYSICS 126-2 Physics for ISP Laboratory or PHYSICS 136-2 General Physics Laboratory and PHYSICS 126-3 Physics for ISP Laboratory or PHYSICS 136-3 General Physics Laboratory.
3. Students planning to take advanced ELEC_ENG courses may petition to substitute ELEC_ENG 221-0 Fundamentals of Circuits.
4. May not be taken with CHEM 342-1 Thermodynamics or CHEM_ENG 211-0 Thermodynamics.
5. Or take 1 300-level or above mathematics or basic science course.