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)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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<tbody>
<tr>
<td><strong>Core Courses (32 units)</strong></td>
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<tr>
<td>4 mathematics courses (<a href="https://catalogs.northwestern.edu/undergraduate/engineering-applied-science/#requirementstext">https://catalogs.northwestern.edu/undergraduate/engineering-applied-science/#requirementstext</a>)</td>
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<tr>
<td>4 engineering analysis and computer proficiency courses (<a href="https://catalogs.northwestern.edu/undergraduate/engineering-applied-science/#requirementstext">https://catalogs.northwestern.edu/undergraduate/engineering-applied-science/#requirementstext</a>)</td>
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<tr>
<td><strong>4 units of basic science:</strong></td>
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<tr>
<td>PHYSICS 135-2 &amp; PHYSICS 135-3 &amp; PHYSICS 136-2 &amp; PHYSICS 136-3</td>
<td>General Physics and General Physics Laboratory and General Physics Laboratory</td>
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<tr>
<td>CHEM 131-0 &amp; CHEM 141-0 &amp; CHEM 151-0 &amp; CHEM 161-0 or CHEM 171-0 &amp; CHEM 181-0</td>
<td>General Chemistry 1 and General Chemistry Laboratory 1 and Accelerated General Chemistry 1 and Accelerated General Chemistry Laboratory 1 and Advanced General Inorganic Chemistry and Advanced General Inorganic Chemistry Laboratory</td>
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<tr>
<td><strong>3 design and communications courses</strong> (<a href="https://catalogs.northwestern.edu/undergraduate/engineering-applied-science/#requirementstext">https://catalogs.northwestern.edu/undergraduate/engineering-applied-science/#requirementstext</a>)</td>
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<tr>
<td><strong>5 basic engineering courses:</strong></td>
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<tr>
<td>MECH_ENG 233-0</td>
<td>Electronics Design</td>
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<tr>
<td>CIV_ENV 216-0</td>
<td>Mechanics of Materials I</td>
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<tr>
<td>MECH_ENG 241-0</td>
<td>Fluid Mechanics I</td>
</tr>
<tr>
<td>MAT_SCI 201-0</td>
<td>Introduction to Materials</td>
</tr>
<tr>
<td>MECH_ENG 222-0</td>
<td>Thermodynamics &amp; Statistical Mechanics I</td>
</tr>
<tr>
<td><strong>7 social sciences/humanities courses</strong> (<a href="https://catalogs.northwestern.edu/undergraduate/engineering-applied-science/#requirementstext">https://catalogs.northwestern.edu/undergraduate/engineering-applied-science/#requirementstext</a>)</td>
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<tr>
<td><strong>5 unrestricted electives</strong> (<a href="https://catalogs.northwestern.edu/undergraduate/engineering-applied-science/#requirementstext">https://catalogs.northwestern.edu/undergraduate/engineering-applied-science/#requirementstext</a>)</td>
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<tr>
<td><strong>Major Program (16 units)</strong></td>
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<tr>
<td><strong>8 required courses:</strong></td>
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<tr>
<td>COMP_SCI 212-0 or CHEM 215-1</td>
<td>Mathematical Foundations of Comp Science and Organic Chemistry I</td>
</tr>
<tr>
<td>MECH_ENG 224-0</td>
<td>Scientific and Embedded Programming in Python</td>
</tr>
<tr>
<td>MECH_ENG 314-0</td>
<td>Machine Dynamics</td>
</tr>
<tr>
<td>MECH_ENG 240-0</td>
<td>Intro to Mechanical Design and Manufacturing</td>
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<tr>
<td>MECH_ENG 315-0</td>
<td>Theory of Machines: Design of Elements</td>
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<tr>
<td>MECH_ENG 340-1</td>
<td>Computer Integrated Manufacturing: Manufacturing Processes</td>
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<tr>
<td>MECH_ENG 377-0</td>
<td>Heat Transfer</td>
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<tr>
<td>MECH_ENG 390-0</td>
<td>Intro to Dynamic Systems</td>
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<tr>
<td><strong>2 capstone courses:</strong></td>
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<tr>
<td>MECH_ENG 398-1 &amp; MECH_ENG 398-2</td>
<td>Engineering Design I and Engineering Design II (taken sequentially and counting toward the final 12 units taken before graduation)</td>
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<tr>
<td><strong>6 concentration courses from one of the nine concentration areas:</strong></td>
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</table>

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.