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.

<table>
<thead>
<tr>
<th>Course Requirements (48 units)</th>
<th>Title</th>
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<tbody>
<tr>
<td>4 mathematics courses</td>
<td>General Physics</td>
</tr>
<tr>
<td>&amp; PHYSICS 135-3</td>
<td>General Physics</td>
</tr>
<tr>
<td>&amp; PHYSICS 136-2</td>
<td>General Physics Laboratory</td>
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</tr>
<tr>
<td>&amp; PHYSICS 135-3 &amp; PHYSICS 136-2 &amp; PHYSICS 136-3</td>
<td>General Physics</td>
</tr>
</tbody>
</table>

4 units of basic science:

- PHYSICS 135-2 & PHYSICS 135-3: General Physics and General Physics Laboratory
- CHEM 131-0 & CHEM 141-0: General Chemistry 1
- or CHEM 151-0: Accelerated General Chemistry 1
- or CHEM 171-0: Advanced General Inorganic Chemistry Laboratory
- & CHEM 181-0: General Chemistry 1

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 224-0: Scientific and Embedded Programming in Python
- MECH_ENG 314-0: Machine Dynamics

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 215-1: Organic Chemistry I
- 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 & MECH_ENG 398-2: Engineering Design I 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:

- ME Breadth; Aerospace Engineering; Design; Energy and Sustainability;

(Courses in each concentration area are specified on the department website)

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 General 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.