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:

- PHYSICS 135-2 General Physics
- PHYSICS 135-3 and General Physics
- PHYSICS 136-2 and General Physics Laboratory
- PHYSICS 136-3 and General Physics Laboratory

CHEM 131-0 General Chemistry I
- CHEM 141-0 and General Chemistry Laboratory I
- or CHEM 151-0 and Accelerated General Chemistry I
- or CHEM 171-0 and Advanced General Inorganic Chemistry
- & CHEM 181-0 and Advanced General Inorganic Chemistry Laboratory

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 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 Engineering Design I
- & MECH_ENG 398-2 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
- Engineering Mechanics of Materials and Structures
- Fluids, Energy, and Thermal Systems
- Manufacturing
- Micro-Nano Engineering
- Robotics.

(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 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.