INDUSTRIAL 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.

Requirements (48 units)
Core Courses (27 units) 1

- 4 mathematics courses (https://catalogs.northwestern.edu/undergraduate/engineering-applied-science/#requirementstext)
- 4 units of basic science chosen according to McCormick basic science guidelines (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)
- 3 design and communications courses (https://catalogs.northwestern.edu/undergraduate/engineering-applied-science/#requirementstext)
- 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 (21 units)

- 1 engineering economics course
  - CIV_ENV 205-0 Economics and Finance for Engineers 2
- 3 computer programming courses
  - COMP_SCI 111-0 Fundamentals of Computer Programming
  - COMP_SCI 150-0 Fundamentals of Computer Programming 1.5
  - COMP_SCI 217-0 Data Management & Information Processing
- 6 industrial engineering methods core courses
  - IEMS 202-0 Probability
  - IEMS 303-0 Statistics
  - IEMS 304-0 Statistical Learning for Data Analysis
  - IEMS 313-0 Foundations of Optimization
  - IEMS 315-0 Stochastic Models
  - IEMS 317-0 Discrete Event Systems Simulation
- 1 production and logistics course chosen from the options below
  - IEMS 381-0 Supply Chain Modeling and Analysis
  - IEMS 382-0 Operations Engineering and Management
  - IEMS 383-0 Service Engineering and Management
  - IEMS 385-0 Introduction to Health Systems Management
- 1 client project course
  - IEMS 394-0 Industrial Engineering Client Project Challenge
- 5 IEMS elective courses
  - 3 industrial engineering/operations research electives (p. 1)
  - 2 management science electives (p. 1)
- 4 general technical elective courses chosen from areas below
  - Any IEMS course not applied towards another degree requirement
  - Any 200-level or higher course in McCormick, excluding CRDV and PRDV courses
  - Any 200-level or higher course in Biology, Chemistry or Physics, except for exclusions listed below

4 general technical elective courses chosen from areas below

- Any 200-level or higher course in McCormick, excluding CRDV and PRDV courses
- Any 200-level or higher course in Biology, Chemistry or Physics, except for exclusions listed below

Other Approved Non-engineering Technical Electives

- Any 300-level or higher course in Math, Statistics, or MMSS, except for exclusions listed below
- Other Approved Non-engineering Technical Electives (p. 1)

The following courses may not be used as General Technical Electives:
- CHEM 201-0, MATH 310-1, MATH 311-1, MATH 314-0, MATH 385-0, MATH 386-1, PHYSICS 311-1, PHYSICS 312-1, PHYSICS 335-0, STAT 301-1, STAT 301-2, STAT 301-3, STAT 303-1, STAT 303-2, STAT 303-3, STAT 320-1, STAT 383-0

May include up to 2 units of IEMS 399-0

At most 2 General Technical Electives may be taken P/N; no other electives may be taken P/N.

1 See general requirements (https://catalogs.northwestern.edu/undergraduate/engineering-applied-science/#requirementstext) for details.
2 May not be taken with or after KELLG_FE 310-0 Principles of Finance; see adviser for alternatives.

- Concentration (optional): at least 4 courses from an approved list
  - Students may pursue more than one concentration.
  - Concentrations may be created from courses that satisfy other requirements or concentrations.
  - A list of available concentration areas may be found on the department website.

Major Program Electives
Industrial Engineering/Operations Research Electives

- 3 courses chosen from the following list. Course used towards Production & Logistics requirement may not be used here.
  - IEMS 307-0 Quality Improvement by Experimental Design
  - IEMS 308-0 Data Science and Analytics
  - IEMS 351-0 Optimization Methods in Data Science
  - IEMS 365-0 Analytics for Social Good
  - IEMS 373-0 Intro to Financial Engineering
  - IEMS 381-0 Supply Chain Modeling and Analysis
  - IEMS 382-0 Operations Engineering and Management
  - IEMS 383-0 Service Engineering and Management
  - IEMS 385-0 Introduction to Health Systems Management
  - IEMS 395-0 Special Topics in Industrial Engineering (pre-approved topics only)

Management Science Electives

- 2 courses chosen from:
  - IEMS 325-0 Engineering Entrepreneurship
  - IEMS 340-0 Qualitative Methods in Engineering Systems
  - IEMS 341-0 Social Networks Analysis
  - IEMS 342-0 Organizational Behavior
  - IEMS 343-0 Project Management for Engineers
  - IEMS 344-0 Whole-Brain Leadership
  - IEMS 345-0 Negotiations and Conflict Resolution for Engineers
  - IEMS 395-0 Special Topics in Industrial Engineering (pre-approved topics only)
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<td>Analytic Methods for Public Policy Analysis</td>
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<td>ISEN 220-0</td>
<td>Introduction to Energy Systems for the 21st Century</td>
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