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)

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
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
3 computer programming courses
6 industrial engineering methods core courses
7 General Education courses
2 Management Science Electives
5 IEMS elective courses
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
Any 300-level or higher course in Math, Statistics, or MMSS, except for exclusions listed below
Other Approved Non-engineering Technical Electives (p. 2)
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 311-2, 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

Course Title
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

Management Science Electives

Course Title
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)
### Other Approved Non-engineering Technical Electives

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS_INST 301-0</td>
<td>Accounting</td>
</tr>
<tr>
<td>BUS_INST 302-0</td>
<td>Marketing Management</td>
</tr>
<tr>
<td>BUS_INST 303-0</td>
<td>Leadership in Organizations</td>
</tr>
<tr>
<td>ECON 309-0</td>
<td>Public Finance</td>
</tr>
<tr>
<td>ECON 331-0</td>
<td>Economics of Risk and Uncertainty</td>
</tr>
<tr>
<td>ECON 336-0</td>
<td>Analytic Methods for Public Policy Analysis</td>
</tr>
<tr>
<td>ECON 339-0</td>
<td>Labor Economics</td>
</tr>
<tr>
<td>ECON 349-0</td>
<td>Industrial Economics</td>
</tr>
<tr>
<td>ECON 350-0</td>
<td>Monopoly Competition &amp; Public Policy</td>
</tr>
<tr>
<td>ECON 355-0</td>
<td>Transportation Economics and Public Policy</td>
</tr>
<tr>
<td>ECON 360-2</td>
<td>Investments</td>
</tr>
<tr>
<td>ECON 362-0</td>
<td>International Finance</td>
</tr>
<tr>
<td>ECON 371-0</td>
<td>Economics of Energy</td>
</tr>
<tr>
<td>ECON 380-1</td>
<td>Game Theory</td>
</tr>
<tr>
<td>ECON 380-2</td>
<td>Game Theory</td>
</tr>
<tr>
<td>ECON 381-1</td>
<td>Econometrics</td>
</tr>
<tr>
<td>ECON 381-2</td>
<td>Econometrics</td>
</tr>
<tr>
<td>IMC 303-0</td>
<td>Integrated Marketing Communications Strategy</td>
</tr>
<tr>
<td>ISEN 220-0</td>
<td>Introduction to Energy Systems for the 21st Century</td>
</tr>
<tr>
<td>ISEN 230-0</td>
<td>Climate Change and Sustainability: Ethical Dimensions</td>
</tr>
<tr>
<td>LOC 306-0</td>
<td>Studies in Organizational Change</td>
</tr>
<tr>
<td>LOC 311-0</td>
<td>Tools for Organizational Analysis</td>
</tr>
</tbody>
</table>