BACHELOR OF SCIENCE (B.S.) MAJOR IN INDUSTRIAL ENGINEERING

Minimum required: 132 semester credit hours

Admission Requirements

1. The Bachelor of Science (B.S.) degree with a major in Industrial Engineering requires admission to the university and admission to the program. Information about the program admissions can be found at: http://mycatalog.txstate.edu/undergraduate/science-engineering/ingram-school/#admissionstext

2. In order to declare Industrial Engineering as a major, students must meet one of the following prerequisites:
   - ACT Math score of 24 or higher,
   - SAT Math score of 520 (re-centered) or higher, or
   - credit for one of the following Math courses with a grade of "C" or higher:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 1315</td>
<td>College Algebra</td>
<td>3</td>
</tr>
<tr>
<td>MATH 1317</td>
<td>Plane Trigonometry</td>
<td>3</td>
</tr>
<tr>
<td>MATH 1319</td>
<td>Mathematics for Business and Economics I</td>
<td>3</td>
</tr>
<tr>
<td>MATH 1329</td>
<td>Mathematics for Business and Economics II</td>
<td>3</td>
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</tbody>
</table>

3. Students who do not meet the above prerequisites may choose Pre-Industrial Engineering as their major. Pre-Industrial Engineering students who complete one of the following MATH courses with a grade of "C" or higher may declare Industrial Engineering as their major:

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</tr>
<tr>
<td>MATH 1329</td>
<td>Mathematics for Business and Economics II</td>
<td>3</td>
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</tbody>
</table>

General Requirements

1. The general education core curriculum courses are listed in the degree plan below along with the statewide component code number. See the General Education Core Curriculum (http://mycatalog.txstate.edu/undergraduate/general-education-core-curriculum) section of this catalog for the Texas State requirements and options in the core curriculum, including Honors courses.

2. Majors must complete a minimum of 36 advanced hours (3000 or 4000 level courses).

3. Nine semester credit hours must be writing intensive (WI).

4. If two years of the same language are taken in high school, then no additional language hours will be required for the degree. In the absence of such high school language, two semesters of the same modern language must be taken at the college level.

5. The Industrial Engineering major includes all the courses required for an Applied Mathematics minor.

Course Requirements

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Freshman</th>
<th>Second Semester</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 1335</td>
<td>3 PHYS 1430 (Life &amp; Physical Sciences Component Code 030)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>CHEM 1141</td>
<td>1 ENG 1320 (Communication Component Code 010)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ENGR 1310 (Communication Component Code 010)</td>
<td>3 ENGR 2300</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ENGR 1313</td>
<td>3 HIST 1310 (American History Component Code 060)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>MATH 2471 (Mathematics Component Code 020)</td>
<td>4 MATH 2472</td>
<td>4</td>
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<tr>
<td>US 1100</td>
<td>1</td>
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<td>15</td>
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Sophomore

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Hours</th>
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<tbody>
<tr>
<td>PHYS 2425 (Life &amp; Physical Sciences Component Code 030 and Component Area Option Code 090/093)</td>
<td>3</td>
</tr>
<tr>
<td>MATH 3377</td>
<td>3 MATH 3323</td>
</tr>
<tr>
<td>ENGR 2310 (Government/Political Science Component Code 070)</td>
<td>3 ENGR 3375</td>
</tr>
<tr>
<td>MFGE 2332</td>
<td>3 ART 2313, DAN 2313, MU 2313, or TH 2313 (Creative Arts Component Code 050)</td>
</tr>
<tr>
<td>HIST 1320 (American History Component Code 060)</td>
<td>3 ECO 2301 (Social &amp; Behavioral Sciences Component Code 080)</td>
</tr>
<tr>
<td>POSI 2320 (Government/Political Science Component Code 070)</td>
<td>3 POSI 2320</td>
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<td>16</td>
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</tbody>
</table>

Junior

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Hours</th>
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<tbody>
<tr>
<td>ENGR 3311</td>
<td>3 MATH 3373</td>
</tr>
<tr>
<td>ENGR 3315</td>
<td>3 IE 3330</td>
</tr>
<tr>
<td>ENGR 3373</td>
<td>3 IE 3340</td>
</tr>
<tr>
<td>IE 3320</td>
<td>3 IE 3360</td>
</tr>
<tr>
<td>PHIL 1305 or 1320 (Language, Philosophy &amp; Culture Component Code 040)</td>
<td>3 COMM 1310 (or ENG Literature Component Area Option Code 090)</td>
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<tr>
<td></td>
<td>15</td>
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</table>

Senior

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>IE 4310</td>
<td>3 IE 4320</td>
</tr>
<tr>
<td>IE 4355</td>
<td>3 IE 4350</td>
</tr>
<tr>
<td>Math/Science Elective for Math Minor or IE Elective</td>
<td>3 IE Elective</td>
</tr>
<tr>
<td>IE Elective</td>
<td>3 IE 4393</td>
</tr>
</tbody>
</table>
A minimum of nine (9) hours of advanced Industrial Engineering electives chosen from the list below are required.

A minimum of three (3) hours of approved Math/Science electives are required for IE student with applied math minor.

### Advanced Industrial Engineering Electives

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>IE 4330</td>
<td>Reliability Engineering</td>
<td>3</td>
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<tr>
<td>IE 4340</td>
<td>Optimization Techniques</td>
<td>3</td>
</tr>
<tr>
<td>IE 4360</td>
<td>Human Factors Design</td>
<td>3</td>
</tr>
<tr>
<td>IE 4399A</td>
<td>Lean Six Sigma Methodologies</td>
<td>3</td>
</tr>
<tr>
<td>IE 4399D</td>
<td>Modern Heuristic Optimization Techniques</td>
<td>3</td>
</tr>
<tr>
<td>IE 4399E</td>
<td>Introduction to Systems Engineering</td>
<td>3</td>
</tr>
<tr>
<td>IE 4399F</td>
<td>Introduction to Data-Intensive Analysis and Simulation</td>
<td>3</td>
</tr>
<tr>
<td>MFGE 4367</td>
<td>Polymer Properties and Processing</td>
<td>3</td>
</tr>
<tr>
<td>MFGE 4392</td>
<td>Microelectronics Manufacturing I</td>
<td>3</td>
</tr>
<tr>
<td>ENGR 3190</td>
<td>Cooperative Education</td>
<td>1</td>
</tr>
<tr>
<td>ENGR 4390</td>
<td>Internship</td>
<td>3</td>
</tr>
<tr>
<td>ENGR 4395</td>
<td>Independent Studies in Engineering</td>
<td>3</td>
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