Industrial Engineering, BSE

Program Description

Industrial engineering is concerned with the design, improvement, installation and operation of integrated systems of people, materials, information, equipment and energy. The purpose is to determine efficient ways to make a product or to provide a service. Industrial engineering draws upon specialized knowledge and skill in the mathematical, physical and social sciences together with the principles and methods of engineering analysis and design.

The underlying concepts for the BSE program in industrial engineering include certain business principles but emphasize the use of mathematics and information technology to build models to describe, understand and optimize system performance. Depending on the subspecialties involved and the intended application, industrial engineering may also be known as operations management, management science, operations research, systems engineering or manufacturing engineering.


At a Glance

- **College/School**: Ira A. Fulton Schools of Engineering
- **Location**: Tempe campus
- **Additional Program Fee**: Yes
- **Second Language Requirement**: No
- **First Required Math Course**: MAT 265 - Calculus for Engineers I
- **Math Intensity**: Substantial

Required Courses (Major Map)

2018 - 2019 Major Map
Major Map (Archives)
Accelerated Degrees

This program allows students to obtain both a bachelor's and master's degree in as little as five years. It is offered as an accelerated bachelor's and master's degree with:

Industrial Engineering, MS

Acceptance to the graduate program requires a separate application. During their junior year, eligible students will be advised by their academic departments to apply.

Admission Requirements

General University Admission Requirements:

All students are required to meet general university admission requirements.
Freshman | Transfer | International | Readmission

Additional Requirements:

The admission standards for majors in the Ira A. Fulton Schools of Engineering are higher than minimum university standards. International students may have an additional English-language proficiency criterion. Foreign nationals must meet the same admission requirements shown below with the possible additional requirement of a minimum TOEFL score. If the university requires a TOEFL score from the applicant (see [http://global.asu.edu/future/undergrad](http://global.asu.edu/future/undergrad)), then admission to engineering requires a minimum TOEFL score of 550 (paper-based), 213 (computer-based), 79 on iBT (Internet-based) or a minimum IELTS score of 6.5.

Freshman Admission:

1. minimum 1210 SAT combined evidence-based reading and writing plus math score (or 1140 if taken prior to March 5, 2016) or minimum 24 ACT combined score or 3.00 minimum ABOR GPA or class ranking in top 25 percent of high school class, and
2. no high school math or science competency deficiencies

Transfer Admission Requirements

Transfer students with fewer than 24 transferable college credit hours:

1. minimum transfer GPA of 3.00 for less than 24 transfer hours, and
2. no high school math or science competency deficiencies, and
3. minimum 1210 SAT combined evidence-based reading and writing plus math score (or 1140 if taken prior to March 5, 2016) or minimum 24 ACT combined score, or 3.00 minimum ABOR GPA, or class ranking in top 25 percent of high school class
Transfer students with 24 or more transferable college credit hours must meet EITHER the primary OR the secondary criteria (not both):

**Primary Criteria**

1. minimum transfer GPA of 3.00 for 24 or more transfer hours, and
2. no high school math or science competency deficiencies (if Admission Services requires submission of a high school transcript)

**Secondary Criteria**

1. minimum transfer GPA of 2.75 for 24 or more transfer hours, and
2. minimum GPA of 2.75 in all critical courses for Terms 1 and 2 (see major map for critical courses)

**Change of Major Requirements**

Current ASU students should refer to [https://engineering.asu.edu/admission-requirements](https://engineering.asu.edu/admission-requirements) for the major change requirements for this program.

**Transfer Agreements**

ASU has partnered with colleges and universities in Arizona, California, Illinois and Washington to provide transfer curriculum pathways. Students should select their current institution to see if there is a partnership agreement between the institution and ASU for this degree program. Students who do not see their state or institution listed should check back as ASU is always working on creating new partnerships.
Global Opportunities

Global Experience

With over 250 programs in more than 65 countries (ranging from one week to one year), study abroad is possible for all ASU students wishing to gain global skills and knowledge in preparation for a 21st century career. Students earn ASU credit for completed courses, while staying on track for graduation, and may apply financial aid and scholarships toward program costs. https://mystudyabroad.asu.edu/.

Career Opportunities

Graduates in industrial engineering are prepared to design and manage systems for a wide range of organizations. They find exciting career opportunities in all types of manufacturing and service industries, including:

- banking and finance
- defense and government
- health care
- hospitality, sports and entertainment
• management consulting
• manufacturing (e.g., aerospace, automotive, semiconductor)
• software industry
• telecommunication
• transportation and logistics

Career examples include but are not limited to those shown in the following list. Advanced degrees or certifications may be required for academic or clinical positions.

<table>
<thead>
<tr>
<th>Career</th>
<th>*Growth</th>
<th>*Median Salary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biofuels Production Manager</td>
<td></td>
<td>$100,580</td>
</tr>
<tr>
<td>Engineering Manager</td>
<td>5.5%</td>
<td>$137,720</td>
</tr>
<tr>
<td>Human Factors Engineer</td>
<td>9.7%</td>
<td>$85,880</td>
</tr>
<tr>
<td>Hydroelectric Production Manager</td>
<td></td>
<td>$100,580</td>
</tr>
<tr>
<td>Industrial Engineer</td>
<td>9.7%</td>
<td>$85,880</td>
</tr>
<tr>
<td>Logistics Manager</td>
<td>6.7%</td>
<td>$92,460</td>
</tr>
<tr>
<td>Manufacturing Plant Manager</td>
<td></td>
<td>$100,580</td>
</tr>
<tr>
<td>Medical and Health Services Manager</td>
<td>20.5%</td>
<td>$98,350</td>
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<tr>
<td>Methane System Operator</td>
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<tr>
<td>Operations Research Analyst</td>
<td>27.4%</td>
<td>$81,390</td>
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<tr>
<td>Power Plant Manager</td>
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<td>$100,580</td>
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<tr>
<td>Power Production Manager</td>
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<td>$100,580</td>
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<tr>
<td>Quality Control Manager</td>
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<td>$100,580</td>
</tr>
<tr>
<td>Supply Chain Engineer</td>
<td>6.4%</td>
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<tr>
<td>Supply Chain Manager</td>
<td>8.0%</td>
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<tr>
<td>Transportation Dispatcher</td>
<td>6.7%</td>
<td>$92,460</td>
</tr>
<tr>
<td>Warehouse Manager</td>
<td>6.7%</td>
<td>$92,460</td>
</tr>
</tbody>
</table>

* Data obtained from the Occupational Information Network (O*NET) under sponsorship of the U.S. Department of Labor/Employment and Training Administration (USDOL/ETA).

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Contact Information