Materials Science and Engineering, BSE

ESMSEBSE

Program Description

Materials engineers are responsible for designing and developing advanced materials for a wide variety of engineering applications. Courses in materials teach students in the BSE program in materials science and engineering about the design of materials and how to process them to improve their structure, properties and performance. Materials engineers are in demand by almost every industry, from automotive to aerospace to biomaterials to nanotechnology.


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)

2019 - 2020 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:

Materials Science and 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 [https://admission.asu.edu/international/undergrad-apply](https://admission.asu.edu/international/undergrad-apply)), 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

Admission requirements for many majors in the Ira A. Fulton Schools of Engineering are higher than university admission standards. Students should refer to https://engineering.asu.edu/admission-requirements for information about how to change a major to this program.

Transfer Options

ASU is committed to helping you thrive by offering tools that allow you to personalize your transfer path to ASU. Students may use the Transfer Map search to outline a list of recommended courses to take prior to transfer.

ASU has transfer partnerships in Arizona and across the country to create a simplified transfer experience for students. These pathway programs include exclusive benefits, tools, and resources and help students save time and money in their college journey. Learn more about these programs by visiting the Admissions site.

Global Opportunities

PLuS Alliance
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/

Global Degree

Career Opportunities

Materials engineers are in demand in a wide range of industries and professions, including:

- aerospace
- automotive
- computer
- electronics
- energy
- health care
- microelectronics
- nanotechnology
- robotics
- telecommunications

The career paths in these industries offer opportunities to impact technological advances through working in a team environment with engineers from the chemical, electrical, mechanical, aerospace and other engineering disciplines.

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>Aerospace Engineer ✨</td>
<td>6.1%</td>
<td>$113,030</td>
</tr>
<tr>
<td>Automotive Engineer ✨</td>
<td>8.8%</td>
<td>$85,880</td>
</tr>
<tr>
<td>Computer Hardware Engineer</td>
<td>5.5%</td>
<td>$115,120</td>
</tr>
<tr>
<td>Materials Engineer</td>
<td>1.6%</td>
<td>$94,610</td>
</tr>
<tr>
<td>Materials Scientist ✨</td>
<td>7.1%</td>
<td>$99,530</td>
</tr>
<tr>
<td>Mechanical Engineer ✨</td>
<td>8.8%</td>
<td>$85,880</td>
</tr>
<tr>
<td>Occupation</td>
<td>Growth Rate</td>
<td>Average Salary</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>-------------</td>
<td>----------------</td>
</tr>
<tr>
<td>Microsystem Engineer</td>
<td>6.4%</td>
<td>$97,250</td>
</tr>
<tr>
<td>Nanosystems Engineer</td>
<td>6.4%</td>
<td>$97,250</td>
</tr>
<tr>
<td>Solar Energy Systems Engineer</td>
<td>6.4%</td>
<td>$97,250</td>
</tr>
<tr>
<td>Supply Chain Engineer</td>
<td>6.4%</td>
<td>$97,250</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).

🌞 Bright Outlook 🌿 Green Occupation

**Contact Information**

Materials Science and Engineering Program | ECG 202  
semte@asu.edu | 480-965-2335