Biomedical Engineering, BSE

ASU is not currently accepting applications for this program. Students are advised to apply directly to either the biological devices or the biomedical devices concentration.

Program Description

The BSE program in biomedical engineering provides in-depth knowledge to translate an idea for a health solution into a viable prototype of a biomedical device.

With knowledge gained from courses that cover engineering, life sciences, and that tie the two together, graduates are able to apply their skills in an ethical and a sustainable manner to make contributions that address societal and individual needs.


At a Glance

- College/School: Ira A. Fulton Schools of Engineering
- Location: Tempe
- 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)

2022 - 2023 Major Map
Major Map (Archives)
Concurrent Program Options

Students pursuing concurrent degrees (also known as a "double major") earn two distinct degrees and receive two diplomas. Working with their academic advisors, students can create their own concurrent degree combination. Some combinations are not possible due to high levels of overlap in curriculum.

Accelerated Program Options

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:

Biomedical Engineering, MS

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

Admission Requirements

General University Admission Requirements:
All students are required to meet general university admission requirements.

| First-year | Transfer | International | Readmission |

Additional Requirements:

The admission standards for majors in the Ira A. Fulton Schools of Engineering are higher than minimum university admission 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 (https://admission.asu.edu/international/undergrad-student), then admission to engineering requires a minimum TOEFL score of 550 (paper-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 minimum 24 ACT combined score or 3.00 minimum ABOR GPA or class ranking in top 25% 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% 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 3.00 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; specifics are listed on the following Engineering webpage: [https://engineering.asu.edu/admission-requirements](https://engineering.asu.edu/admission-requirements).

Students should refer to [https://changemajor.apps.asu.edu](https://changemajor.apps.asu.edu) for information about how to change a major to this program.

**Transfer Options**

ASU is committed to helping students thrive by offering tools that allow personalization of the transfer path to ASU. Students may use [MyPath2ASU™](https://changemajor.apps.asu.edu) 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 they help students save time and money in their college journey. Students may learn more about these programs by visiting the admission site: [https://admission.asu.edu/transfer/MyPath2ASU](https://admission.asu.edu/transfer/MyPath2ASU).

**Global Opportunities**

Global Experience
Students studying biomedical engineering gain valuable hands-on experience when studying abroad, experience that enhances their resumes. With over 250 programs available in a variety of countries around the world, study abroad allows students to tailor their experience to their unique interests and skill sets. In a competitive field, they stand out with the heightened cultural competency and leadership and critical thinking skills they achieved from studying abroad. [https://goglobal.asu.edu/](https://goglobal.asu.edu/)

### Career Opportunities

Biomedical engineers are primarily employed in:

- governmental regulatory agencies
- hospital and research facilities
- medical and educational institutions
- medical device, biotechnology and pharmaceutical industries

In industry, they may work in all aspects of product development including:

- business development
- manufacturing
- marketing
- quality
- regulatory
- research and design
- sales

Because of their background in both the engineering and medical fields, they often serve a coordinating or interfacing function and provide a key role for transdisciplinary teams. Government positions may involve evaluating new technologies, testing product quality and safety and setting standards.

In the hospital, biomedical engineers serving in a clinical engineering function may provide advice on the selection and use of medical equipment and supervise performance testing and maintenance. Biomedical engineers may also build customized devices for special health care, rehabilitation or research needs.

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>Biomedical Engineer</td>
<td>4.7%</td>
<td>$92,620</td>
</tr>
<tr>
<td>Human Factors Engineer</td>
<td>10.1%</td>
<td>$88,950</td>
</tr>
<tr>
<td>Microsystem Engineer</td>
<td>1.3%</td>
<td>$103,380</td>
</tr>
<tr>
<td>Technical Sales Engineer</td>
<td>6.3%</td>
<td>$108,830</td>
</tr>
</tbody>
</table>
Validation Engineer 10.1% $88,950

* 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

**Professional Licensure**

ASU programs that may lead to professional licensure or certification are intended to prepare students for potential licensure or certification in Arizona. Completion of an ASU program may not meet educational requirements for licensure or certification in another state. For more information, students should visit the ASU professional licensure webpage: [https://admission.asu.edu/academics/licensure](https://admission.asu.edu/academics/licensure).

Students should note that not all programs within the Fulton Schools of Engineering lead to professional licensure.

**Contact Information**

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