Aerospace Engineering (Astronautics), BSE

Program Description

The aerospace engineering curriculum provides students with an education in technological areas critical to the design and development of aerospace vehicles and systems.

The astronautics curriculum covers:

- attitude determination and control
- elective topics in aeronautics
- gas dynamics
- orbital mechanics
- rocket propulsion
- space environment
- space structures
- telecommunications

Students in the astronautics concentration culminate their major study with a capstone design project that incorporates the multiple disciplines involved in the creation of a space-going vehicle.


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 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:

Aerospace Engineering, MS
Mechanical 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 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 (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 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 credit hours, and
2. minimum GPA of 2.75 in all critical courses: MAE 201, MAE 202, MAE 213 and MAE 242

**Change of Major Requirements**

Admission requirements for many majors in the Ira A. Fulton Schools of Engineering are higher than university admission standards: [https://engineering.asu.edu/admission-requirements](https://engineering.asu.edu/admission-requirements).

Students should refer to [https://changingmajors.asu.edu/request](https://changingmajors.asu.edu/request) 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 the [Transfer Map search](https://engineering.asu.edu/admission-requirements) 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. Students may learn more about these programs by visiting the admission site: https://admission.asu.edu/transfer/pathway-programs.

**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**

A majority of students entering the field of aerospace engineering desire to work on the design and analysis of aerospace vehicles. Most graduates are employed in the aerospace industry or in government positions related to aerospace. Specific careers in aerospace engineering include:

- aeronautical and space systems integration
- configuration development
- material and structural design
- propulsion engineering
- space mission design and analysis
- vehicle and component analysis using computer-aided tools
- vehicle design and performance
- wind tunnel and flight testing

The aerospace engineering program has the following educational objectives:

1. Through volunteering, entrepreneurial endeavors, community service, their employment, etc., graduates of the aerospace engineering program demonstrate commitment to the Sun Devil ideals of global engagement, social embeddedness, social transformation and sustainability.
2. Graduates of the aerospace engineering program should have attained one or more of the following objectives within a few years after completing their degrees:
   1. employment in aerospace or other field in a position that capitalizes on the skills and abilities gained through the degree in aerospace engineering, in positions of increasing responsibility and leadership within their organization
   2. admission into a graduate degree program in aerospace engineering or other technical field
3. admission into a professional degree program, such as law or business, in accordance with the specific interests and abilities of the graduate

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>Energy Engineer ⚱</td>
<td>6.4%</td>
<td>$97,250</td>
</tr>
<tr>
<td>Engineering Manager ⚱</td>
<td>5.5%</td>
<td>$137,720</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

Mechanical and Aerospace Engineering Program | ECG 202
semte@asu.edu | 480-965-2335