Electrical Engineering (Electric Power and Energy Systems), BSE

Program Description

The goal of the electric power and energy systems concentration in the BSE electrical engineering program is to prepare graduates for positions in industries dealing with generation, transmission and utilization of electric power. Generation includes conventional power generation (fossil fuel and nuclear) and alternative energy systems, including solar, wind and fuel cells.

Students in this program complete the foundation courses in math, science and engineering. Students are then required to take the pathway course in electric power and complete nine of the 15 technical elective credit hours with power classes. In addition, the senior design capstone project focuses upon the area of electric power and energy systems.


At a Glance

- **College/School:** Ira A. Fulton Schools of Engineering
- **Location:** Tempe campus or online
- **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 (On-campus)
2019 - 2020 Major Map (Online)
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:

- Electrical Engineering, MSE
- Robotics and Autonomous Systems (Electrical 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.

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), 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 2.50 for 24 or more transfer hours, and
2. minimum GPA of 2.75 in all critical courses for Terms 1 and 2 (MAT 265, MAT 266, PHY 121 and PHY 122)

**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.

**Attend Online**

ASU offers this program in an online format with multiple enrollment sessions throughout the year. Applicants may view the program description and request more information [here](https://www.asu.edu).

**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://transfer.asu.edu) to outline a list of recommended courses to take prior to
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

Career opportunities for graduates with a concentration in electric power and energy systems include:

- consulting engineering firms
- employment in utility companies
- entrepreneurial opportunities
- power equipment manufacturers
- research and design organizations
- state, federal and municipal agencies

This concentration also prepares students to pursue graduate degrees in the areas of:

- power generation
- power systems
- power transmission and distribution
- renewable and sustainable energy sources

The program also prepares graduates for continued learning experiences, either in a formal graduate program or in continuing education applications.
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>Computer Hardware Engineer</td>
<td>5.5%</td>
<td>$115,120</td>
</tr>
<tr>
<td>Electrical Engineer</td>
<td>8.6%</td>
<td>$95,060</td>
</tr>
<tr>
<td>Electronics Engineer</td>
<td>3.7%</td>
<td>$102,180</td>
</tr>
<tr>
<td>Energy Engineer</td>
<td>6.4%</td>
<td>$97,250</td>
</tr>
<tr>
<td>Nuclear Engineer</td>
<td>3.8%</td>
<td>$105,810</td>
</tr>
<tr>
<td>Radio Frequency Identification Device Specialist</td>
<td>3.7%</td>
<td>$102,180</td>
</tr>
<tr>
<td>Solar Energy Systems Engineer</td>
<td>6.4%</td>
<td>$97,250</td>
</tr>
<tr>
<td>Telecommunications Engineering Specialist</td>
<td>6.5%</td>
<td>$104,650</td>
</tr>
<tr>
<td>Wind Energy 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

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