Engineering (Electrical Systems), BSE

Engineers are creative problem-solvers who help shape the future. Few professions unleash the spirit of innovation like engineering.

**Program Description**

The BSE program in engineering prepares graduates to collaborate across disciplines to design and build solutions to real-world problems. In the Bachelor of Science in engineering program, students apply fundamental engineering knowledge and design thinking to real projects every semester.

Students in the electrical systems concentration of the Bachelor of Science in engineering program build a broad engineering foundation to which they add the skills and knowledge necessary to contribute electrical subject matter expertise in transdisciplinary engineering teams. This expertise includes theory and application of sensors, actuators, microcontrollers and microprocessors as well as the integration of these components into electrical and mechatronic systems. The electrical systems curriculum also provides significant hands-on experience designing and implementing electrical and mechatronic systems to meet the needs of users.

Accredited by the Engineering Accreditation Commission of ABET; [http://www.abet.org](http://www.abet.org).

This major is eligible for the Western Undergraduate Exchange program at the following location: Polytechnic campus. Students from Western states who select this major and campus may be eligible for reduced nonresident tuition at a rate of 150% of Arizona resident tuition plus all applicable fees. Students should click the link for more information and eligibility requirements of the [WUE program](http://www.abet.org).

**At a Glance**

- **College/School**: Ira A. Fulton Schools of Engineering
- **Location**: Polytechnic campus

[http://www.abet.org](http://www.abet.org)
• 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:

- Engineering, MS
- Global Management, MGM
- Manufacturing Engineering, MS
- Robotics and Autonomous Systems (Systems Engineering), MS
- Secondary Education (Teacher Certification), MEd
- Solar Energy Engineering and Commercialization, PSM
- Technology (Management of Technology), MSTech

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.

Freshman | Transfer | International | Readmission

**Change of Major Requirements**
A current ASU student has no additional requirements for changing majors.

Students should refer to 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™ 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.

**Global Opportunities**

**Global Experience**

Students gain valuable experience when studying abroad, experience that can enhance their resumes. With over 250 programs available, study abroad allows students to tailor their experience to their unique interests and skill sets. Students in engineering are able to gain hands-on experience in a variety of countries around the world, such as Germany and Colombia. In a competitive field, students stand out with the heightened cultural competency and leadership and critical thinking skills they acquired when studying abroad. https://goglobal.asu.edu/

**Career Opportunities**

Engineers collaborate on transdisciplinary teams to design, manufacture and deliver innovative technological products and services.

The electrical systems program enables students to develop sophisticated technical skills in tandem with the professional skills of communication, teamwork and collaboration and the self-motivation and adaptability that many employers seek. Graduates are prepared to work in large corporations, government agencies and small businesses as well as to go on to graduate school to pursue advanced degrees. The program's emphasis on open-ended design and project-based learning supports the development of entrepreneurial skills and attitudes, and some students start companies of their own.

Engineers with electrical expertise are in high demand in many industry sectors, especially manufacturing, utilities, and communications and defense systems. Electrical systems also pervade the service sectors in areas such as health care, finance, education and entertainment. Graduates from this program have the broad base of technical knowledge and operational skills that make them invaluable
members of multidisciplinary engineering teams, well suited for employment across a broad spectrum of engineering endeavors.

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>Automation Engineer</td>
<td>1.3%</td>
<td>$103,380</td>
</tr>
<tr>
<td>Electrical Engineer</td>
<td>4.6%</td>
<td>$100,830</td>
</tr>
<tr>
<td>Electronics Engineer</td>
<td>1.4%</td>
<td>$107,540</td>
</tr>
<tr>
<td>Energy Engineer</td>
<td>1.3%</td>
<td>$103,380</td>
</tr>
<tr>
<td>Fuel Cell Engineer</td>
<td>3.9%</td>
<td>$90,160</td>
</tr>
<tr>
<td>Microsystem Engineer</td>
<td>1.3%</td>
<td>$103,380</td>
</tr>
<tr>
<td>Robotics Engineer</td>
<td>1.3%</td>
<td>$103,380</td>
</tr>
<tr>
<td>Solar Energy Systems Engineer</td>
<td>1.3%</td>
<td>$103,380</td>
</tr>
<tr>
<td>Wind Energy Engineer</td>
<td>1.3%</td>
<td>$103,380</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

**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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