Software Engineering, BS

TSSERBS

Program Description

The BS program in software engineering blends engineering, computing, project leadership and software construction. Students learn how to make creative software solutions to today's problems. Software systems are complex, often including millions of lines of code. Graduates of the bachelor's degree program in software engineering possess the knowledge and skills of a defined engineering approach to complex systems analysis, planning, design and construction.

The program has a unique, project-driven curriculum, establishing a new model for software engineering education. The program is built around the concepts of engaged learning, discovery-based education and learn-by-doing. Students complete projects in every semester of the program to provide emphasis in communication, teamwork, critical thinking and professionalism. Students have flexibility in designing their course of study; they select a software engineering application area such as Web and mobile applications or embedded systems as their primary focus, and they may obtain interdisciplinary knowledge through a secondary area of their design.


The accelerated program is only allowed for the software engineering program on the Polytechnic campus.

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 percent of Arizona resident tuition plus all applicable fees. Students should click the link for more information and eligibility requirements of the WUE program.

At a Glance

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

- Robotics and Autonomous Systems (Artificial Intelligence), MS
- Software 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 minimum 24 ACT combined score or 3.00 minimum ABOR GPA or class ranking in top 25 percent of high school class, and
2. Admission may be granted with one deficiency in no more than two competency areas. Deficiencies in both math and laboratory science are not acceptable.

Transfer Admission Requirements:

Transfer students with fewer than 24 transferable college credit hours:

1. minimum transfer GPA of 2.75 for less than 24 transfer hours, and
2. satisfy the freshmen admission requirements

Transfer students with more than 24 transferable college credit hours:

1. minimum transfer GPA of 2.75 for 24 or more transfer hours, and
2. If Admission Services requires submission of a high school transcript, admission may be granted with one deficiency in no more than two competency areas. Deficiencies in both math and laboratory science are not acceptable.

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/.

Students should refer to 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.

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 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

Software engineers solve a broad set of transdisciplinary problems and apply new technologies to improve the quality of life. Graduates design and engineer innovative systems that may include mechanical and electrical components that interact with software. The bachelor's degree program in software engineering is a unique program in which students learn by solving engaging projects, commonly as a member of a development team. The program prepares graduates for advanced study in computing, an allied field, or to enter the computing profession (most commonly as an application software engineer). According to the Bureau of Labor Statistics, software engineers are highly paid, and there is significant growth in the number of employment opportunities. Some software engineering jobs may include:

- creating applications for mobile devices
- creating web applications
- designing, creating and validating software for avionics, robotics and similar systems fields

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>Computer Programmer</td>
<td></td>
<td>$82,240</td>
</tr>
<tr>
<td>Computer Science Professor</td>
<td>8.1%</td>
<td>$78,630</td>
</tr>
<tr>
<td>Computer Software Quality Engineer</td>
<td>9.3%</td>
<td>$88,510</td>
</tr>
<tr>
<td>Information Technology Manager (IT Manager)</td>
<td>12.0%</td>
<td>$139,220</td>
</tr>
<tr>
<td>Software Developer</td>
<td>11.1%</td>
<td>$107,600</td>
</tr>
<tr>
<td>Software Engineer</td>
<td>30.7%</td>
<td>$101,790</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**

Software Engineering | PICO 245
cidse.undergrad@asu.edu | 480-727-3520