Computer Science (Software Engineering), E
ESCSESBS

Program Description

The software engineering concentration is appropriate for computer science students seeking careers as software engineers. Students learn advanced processes, methodologies and tools for developing and testing large and small software applications in emerging areas such as:

- databases
- enterprise systems
- interoperable systems
- mobile computing
- service-orientated computing

They also learn information assurance concepts and techniques, or principles of human-computer interaction and methods, for developing these applications. The curriculum prepares students to assume leadership roles in software development organizations and to practice professional standards and emerging software technology to the software engineering life-cycle activities.


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)
2018 - 2019 Major Map
Major Map (Archives)

Accelerated Degrees

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:

- Computer Science (Art, Media and Engineering), MS
- Computer Science (Big Data Systems), MCS
- Computer Science (Big Data Systems), MS
- Computer Science (Biomedical Informatics), MS
- Computer Science (Cybersecurity), MCS
- Computer Science (Cybersecurity), MS
- Computer Science, MCS
- Computer Science, 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 http://global.asu.edu/future/undergrad) 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 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, 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 hours, and
2. minimum GPA of 2.75 in all critical courses for Terms 1 and 2 (see major map for critical courses)

Change of Major Requirements

Current ASU students should refer to https://engineering.asu.edu/admission-requirements for the major change requirements for this program.

Transfer Agreements

ASU has partnered with colleges and universities in Arizona, California, Illinois and Washington to provide transfer curriculum pathways. Students should select their current institution to see if there is a partnership
agreement between the institution and ASU for this degree program. Students who do not see their state or institution listed should check back as ASU is always working on creating new partnerships.

Transfer from a Maricopa Community College in Arizona
Select a college
- Chandler-Gilbert Community College
- Estrella Mountain Community College
- GateWay Community College
- Glendale Community College
- Mesa Community College
- Paradise Valley Community College
- Phoenix College
- Rio Salado College
- Scottsdale Community College
- South Mountain Community College

Transfer from an Arizona Community College
Select a college
- Arizona Western College
- Central Arizona College
- Cochise College
- Coconino Community College
- Dine College
- Eastern Arizona College
- Gila Community College
- Mohave Community College
- Northland Pioneer College
- Pima Community College
- Tohono O'odham Community College
- Yavapai College

Transfer from another state
Select a state
- California
- Illinois
- Washington
- Another state

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 are plentiful for software engineers. Graduates of this program possess the knowledge and skills to work across the spectrum of software development process activities, including:

- architecture
- coding
- project management
- quality assurance
- requirements engineering
- testing

Careers include:

- software analyst
- software architect
- software engineer
- software task leader
- software tester

Graduates of the software engineering concentration find employment in large and small organizations that develop, deploy and manage software systems. They work on all types of projects that include large, complex engineering systems, distributed banking, financial and government software and gaming.

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 Network Administrator</td>
<td>6.1%</td>
<td>$81,100</td>
</tr>
<tr>
<td>Computer Network Analyst</td>
<td>6.5%</td>
<td>$104,650</td>
</tr>
<tr>
<td>Computer Network Technician</td>
<td>8.3%</td>
<td>$62,340</td>
</tr>
<tr>
<td>Computer Programmer</td>
<td></td>
<td>$82,240</td>
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<tr>
<td>Computer Scientist</td>
<td>19.2%</td>
<td>$114,520</td>
</tr>
<tr>
<td>Computer Software Quality Engineer</td>
<td>9.3%</td>
<td>$88,510</td>
</tr>
<tr>
<td>Computer System Architect</td>
<td>9.3%</td>
<td>$88,510</td>
</tr>
<tr>
<td>Computer Systems Analyst</td>
<td>9.1%</td>
<td>$88,270</td>
</tr>
<tr>
<td>Occupation</td>
<td>Growth</td>
<td>Salary</td>
</tr>
<tr>
<td>------------------------------------------------</td>
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</tr>
<tr>
<td>Corporate Web Developer</td>
<td>9.3%</td>
<td>$88,510</td>
</tr>
<tr>
<td>Database Administrator (DBA)</td>
<td>11.5%</td>
<td>$87,020</td>
</tr>
<tr>
<td>Document Management Specialist</td>
<td>9.3%</td>
<td>$88,510</td>
</tr>
<tr>
<td>Geospatial Information Technologists</td>
<td>9.3%</td>
<td>$88,510</td>
</tr>
<tr>
<td>Information Security Analyst</td>
<td>28.5%</td>
<td>$95,510</td>
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<tr>
<td>Information Technology Manager (IT Manager)</td>
<td>12.0%</td>
<td>$139,220</td>
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<td>Nursing Operations Manager</td>
<td>9.1%</td>
<td>$88,270</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>
<tr>
<td>Telecommunications Engineering Specialist</td>
<td>6.5%</td>
<td>$104,650</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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