

Engineering Science (Software Engineering), MSE

ESSFEMSE

Program description

Degree awarded: MSE Engineering Science (Software Engineering)

The MSE program in engineering science with a software engineering concentration offers specialized courses founded on the fundamentals and principles of software engineering. The program provides the knowledge and skills needed by a software engineer or software task leader on large and small projects requiring either agile methodologies or formal capability maturity model integration approaches.

The program addresses major software development methodologies, techniques, tools and processes for developing and managing software projects. The curriculum is based on the Software Engineering Body of Knowledge under the leadership of the IEEE Computer Society. Each course places an emphasis on applied assignments and projects that are relative to the student's workplace.

At a glance

- **College/School:** [Ira A. Fulton Schools of Engineering](#)
- **Location:** [Online](#)

Degree requirements

30 credit hours and a portfolio, or

30 credit hours including the required applied project course (CSE 593)

Required Core (6 credit hours)

CSE 565 Software Verification, Validation, and Testing (3)

CSE 566 Software Project, Process, and Quality Management (3)

Concentration (3 credit hours)

CSE 591 Topic: Software Engineering Principles and Concepts (3)

Restricted Electives (18 or 21 credit hours)**Culminating Experience (0 or 3 credit hours)**

CSE 593 Applied Project (3)

portfolio (0)

Additional Curriculum Information

For an approved list of restricted electives, students should see the academic unit.

Students select five or six elective courses: five for the applied project option or six for the portfolio option.

Two faculty member-approved 400-level courses may also be selected as electives for the restricted electives.

Admission requirements

Applicants must fulfill the requirements of both the Graduate College and the Ira A. Fulton Schools of Engineering.

Applicants are eligible to apply to the program if they have earned a bachelor's or master's degree in computer engineering, software engineering or a related field from a regionally accredited institution.

Applicants must have a minimum GPA of 3.00 (scale is 4.00 = "A") in the last 60 credit hours of their first bachelor's degree program, or applicants must have a minimum cumulative GPA of 3.00 (scale is 4.00 = "A") in the last 12 units of the postbaccalaureate transcript.

All applicants must submit:

1. graduate admission application and application fee
2. official transcripts
3. proof of English proficiency

Additional Application Information

An applicant whose native language is not English must provide proof of English proficiency regardless of their current residency.

Applicants must provide evidence of demonstrated expertise in the area of object-oriented programming, advanced data structures, algorithm design and algorithm analysis; maturity in high-level programming (required); and successful completion of Calculus I (a minimum requirement).

Graduates of non-U.S. institutions must satisfy admission requirements established by the ASU Graduate College.

Tuition information

When it comes to paying for higher education, everyone's situation is different. Students can learn about [ASU tuition and financial aid](#) options to find out which will work best for them.

Attend online

ASU Online

ASU offers this program in an online format with multiple enrollment sessions throughout the year. Applicants may [view the program's ASU Online page](#) for program descriptions and to request more information.

Career opportunities

Software engineers solve a broad range of disciplinary and transdisciplinary problems and apply new technologies to improve the quality of life. This master's degree prepares graduates for advanced study in computing and engineering, and it provides leadership to software engineering development projects and teams. Graduates of the program have experience using the software development life cycle and tools to solve complex, real-world problems.

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:

- developing software to manage new regulatory requirements in industries such as health care, and administering existing policies digitally
- identifying requirements and developing testing plans for computer systems being built into consumer electronics
- leading software development teams and projects for organizations of various sizes and complexities

Contact information

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