Materials Science and Engineering, MS

ESMATEMS

Program Description

Degree Awarded: MS Materials Science and Engineering

The MS program in materials science and engineering prepares engineers for doctoral study or industrial positions that specialize in research, project management and product innovation in materials science and engineering. The program stresses a sound foundation in technical fundamentals, communication and professionalism. To this end, a broad-based curriculum is offered in thermodynamics, structures and mechanical properties; kinetics; optical and magnetic properties; materials characterization; and energy production and storage.

At a Glance

- **College/School:** Ira A. Fulton Schools of Engineering
- **Location:** Tempe campus or online

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:

- Chemical Engineering, BSE
- Materials Science and Engineering, BSE
- Mechanical Engineering, BSE
- Mechanical Engineering (Computational Mechanics), BSE
- Mechanical Engineering (Energy and Environment), BSE

Acceptance to the graduate program requires a separate application. During their junior year, eligible students will be advised by their academic departments to apply.
Degree Requirements

32 credit hours and a portfolio, or
32 credit hours and a thesis

Required Core (6 credit hours)
MSE 523 Structural and Mechanical Properties of Materials (3)
MSE 524 Advanced Thermodynamics (3)
MSE 525 Fundamentals of Electrical, Optical, and Magnetic Materials and Device Applications (3)
MSE 561 Phase Transformations, Kinetics and Diffusion in Solids (3)

Technical Electives (18 or 24 credit hours)

Other Requirement (2 credit hours)
MSE 591 Seminar (2)

Culminating Experience (0 or 6 credit hours)
MSE 599 Thesis (6) or
portfolio (0)

Additional Curriculum Information
The materials science and engineering MS program has two options: thesis and nonthesis.

All students are admitted to the nonthesis option. The nonthesis option requires a portfolio. During the last semester of their program, students in the portfolio option submit a portfolio containing at least two projects from previous materials science and engineering coursework along with a paper explaining the projects. Students must successfully complete the portfolio requirements to pass the culminating experience. Students completing a portfolio must also take an extra six credit hours of elective coursework to reach the required 32 credit hours for the program.

If students wish to change to the thesis option, a faculty advisor has to be secured, and then a petition can be submitted to change to the thesis option. Students in the thesis option must complete a thesis and pass the thesis defense examination.

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 any field, from a regionally accredited institution.

Applicants must have a minimum of a 3.00 cumulative GPA (scale is 4.00 = "A") in the last 60 hours of their first bachelor’s degree program, or applicants must have a minimum of a 3.00 cumulative GPA (scale is 4.00 = "A") in an applicable master’s degree program.

Admission to the materials science and engineering graduate program is highly competitive. All applicants must submit:

1. graduate admission application and application fee
2. official transcripts from all prior institutions attended
3. official GRE score
4. personal statement
5. resume or curriculum vitae
6. three letters of recommendation
7. proof of English proficiency

Additional Application Information
An applicant whose native language is not English (regardless of current residency) must provide proof of English proficiency. Applicants whose native language is not English are required to achieve a minimum score of 90 on the Internet-based TOEFL.

Admission to the 4+1 degree program requires a 3.50 ASU GPA (scale is 4.00 = "A") in degree-applicable courses. All applications are subject to review and admission is not guaranteed.

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.

Application Deadlines
Fall expand
Spring expand

Global Opportunities
PLuS Alliance
Global Experience
Career Opportunities

Contact Information

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