Master of Science in Materials Science and Engineering

About This Program

Master of Science in Materials Science and Engineering is designed to provide students with a fundamental understanding of phenomena occurring in materials and their associated chemical, electrical, mechanical, and physical properties. The program prepares students for professional careers in materials science and engineering or for additional studies at the doctoral level.

Candidates may elect programs emphasizing metals, polymers, ceramics, composite materials, or electronic materials, as well as a number of other areas. Although the program is administered through the College of Engineering, it is broadly interdisciplinary, actively involving faculty in both the College of Science and the College of Engineering. In addition to materials science and engineering courses, applicable courses are in the disciplines of aerospace engineering, biomedical engineering, chemistry, civil engineering, computer science engineering, electrical engineering, mechanical engineering, and physics.

Competencies

1. Upon completion, students will demonstrate mastery of both theoretical and experimental concepts in materials science.
2. Upon completion, students will demonstrate a broad understanding of the principles and properties of various classes of engineering materials.
3. Upon completion, students will demonstrate proficiency in advanced research skills.
4. Upon completion, students will demonstrate proficiency in presentation skills.

Admissions Criteria

Applicants for the master's degree must have either a baccalaureate or master's degree in engineering or science. Applicants who have completed a bachelor's degree and wish to pursue a doctoral degree without completing a master's degree may apply for admission into the BS to PhD Track. All applicants must meet the general requirements of the University as stated in the Graduate Admissions (https://catalog.uta.edu/academicregulations/admissions/graduate/) section of the catalog. Applicants not meeting all criteria may be admitted on a provisional or probationary basis.

For applicants with no prior training in engineering or with insufficient undergraduate materials coursework, the same minimum criteria will apply. Additionally, their records will be reviewed in relation to their materials backgrounds, and probationary status with specific remedial work required may be a basis for acceptance of such applicants.

The UT Arlington Materials Science and Engineering Department uses the following guidelines in reviewing applicants for admission to its master's degree program.

UNCONDITIONAL ADMISSION

An applicant will be considered for unconditional admission into the Materials Science and Engineering Program master's degree program if he/she meets the following requirements.

1. Minimum undergraduate GPA of 3.0 in the last 60 hours of undergraduate work in an appropriate engineering or science discipline. (For some international applicants where GPA calculation based on a 4.0 scale is not performed, a minimum performance level of 70 percentile is expected. This minimum expectation may be higher for some countries, where less stringent grading criteria are used.) Performance in core materials-related courses is of particular importance.
2. A GRE score of at least 146 (verbal) and 155 (quantitative). For those applicants whose GRE verbal score falls below 146, high TOEFL scores may be considered to offset the GRE verbal score.
3. An applicant whose native language is not English must meet the minimum university English language requirements as detailed in the general admission requirements section of the catalog. However, meeting the minimum requirement does not guarantee admission. The program will give preference to students with a TOEFL iBT total score of 84 with sectional scores of 22 for writing, 21 for speaking, 20 for reading, and 20 for listening or an IELTS score of 6.5.

PROBATIONARY ADMISSION

Probationary admission into the Materials Science and Engineering Program master's program may be permitted when an applicant meets the general admission requirements of the University and at least one of the first two requirements for unconditional admission. Non-native speakers of English TOEFL or IELTS scores will also be considered and must meet or exceed University minimum standards as described above.

PROVISIONAL ADMISSION

An applicant who is unable to supply all required documentation prior to the admission deadline, but who otherwise appears to meet admission requirements, may be granted provisional admission.

DEFERRED

If an applicant does not present adequate evidence of meeting admission requirements, the admission decision may be deferred until admission records are complete or the requirements are met.

DENIAL OF ADMISSION

A candidate may be denied admission if he/she fails to meet at least one of the first two criteria for unconditional admission or unacceptable scores on the TOEFL or IELTS.

WAIVER OF GRADUATE RECORD EXAM

The Graduate Record Examination (GRE) requirement for admission has been temporarily waved for all students applying to start their studies in Fall 2023, Spring 2024, or Fall 2024. Once this accommodation ends, applicants for master's degrees may be eligible for a waiver of the Graduate Record Exam if they are a UT Arlington graduate who graduated within the past three years and have completed an engineering or science degree closely related to materials science and engineering. This waiver of the GRE applies only to applicants for the master's degree programs. Interested applicants should contact the Materials Science and Engineering Graduate Advisor. To qualify these applicants must have a GPA equal or exceeding 3.0 in each of two calculations:

1. in the last 60 hours of study and
2. in all undergraduate coursework completed at UT Arlington.

This Graduate Record Examination waiver may be extended to include non-UT Arlington candidates for master's programs who have undergraduate degrees (with GPA of 3.3 or above) from U.S. universities with an ABET accredited engineering program or other select U.S. universities subject to graduate advisor's approval.

ELIGIBILITY FOR SCHOLARSHIPS/FELLOWSHIPS

Students that are admitted will be eligible for available scholarship or fellowship support. Award of scholarships or fellowships will be based on the student's relative standing with respect to other qualified applicants.

Curriculum

Foundations		
MSE 5300	INTRODUCTION TO MATERIALS SCIENCE AND ENGINEERING [1]	
MSE 5304	ANALYSIS OF MATERIALS	3
MSE 5305	SOLID STATE PHYSICS AND THERMODYNAMICS OF MATERIALS	3
MSE 5312	MECHANICAL BEHAVIOR OF MATERIALS	3
MSE 5321	PHASE TRANSFORMATIONS OF MATERIALS	3
Specialization		
Select 12 hours of graduate coursework in consultation with an advisor, with at least 6 hours in MSE.		12
Completion Options		
Select one of the following:		6
Thesis		
Select 6 hours from the following:		
MSE 5398	THESIS	
MSE 5698	THESIS	
Thesis Substitute		
Select an additional MSE graduate course.		
MSE 5394	MASTER'S RESEARCH PROJECT IN MATERIALS SCIENCE AND ENGINEERING	
Total Hours		**30**

[1] This course must be taken by any students whose academic backgrounds do not include materials science and engineering. An exemption may be granted by the graduate advisor if it is determined that the student has a solid foundation for the graduate study. The credit for MSE 5300 (https://catalog.uta.edu/search/?P=MSE%205300) will not be counted towards the total credits required for graduation. However, the grade of MSE 5300 (https://catalog.uta.edu/search/?P=MSE%205300) will be counted in calculating the GPA.

Program Completion

The Materials Science and Engineering Graduate Program, in fulfillment of its responsibility to graduate highly qualified professional engineers and scientists, has established certain policies and procedures. In addition to the requirements of the Graduate School listed elsewhere in this catalog, to continue in the program each materials science and engineering graduate student must:

1. Maintain at least a B (3.0) overall GPA in all coursework, and
2. Demonstrate suitability for professional practice.

At such time as questions are raised by materials science and engineering graduate faculty regarding either of the above, the student will be notified and will be given the opportunity to respond to the Committee on Graduate Studies for Materials Science and Engineering. The Committee on Graduate Studies will review the student's performance and make a recommendation concerning the student's eligibility to continue in the program. Appeal of a decision on continuation may be made through normal procedures outlined in the section of this catalog entitled "Grievances Other than Grades."

Advising Resources

Location:

ELB 231

Email:

mse@uta.edu

Phone:

817-272-2538

Web:

Schedule an appointment (https://www.uta.edu/academics/schools-colleges/engineering/academics/departments/materials-science/)