Master of Science in Mechanical Engineering (Thesis)

About This Program

Master of Science in Mechanical Engineering provides opportunities for professional development in such forms as: instructional courses to enhance technical competence in areas of mechanical engineering practice; training through a variety of experiences in design, development, research, experimentation, and/or analysis in joint efforts with faculty and peers; specialized courses of study required for entry into career fields allied to the mechanical engineering discipline; guided individual study under faculty supervision; and supportive coursework for programs leading to careers that require interdisciplinary competence.

A student with aid from a faculty advisor plans a program consistent with the student's technical interests and the available facilities and course offerings. Typically, programs are classified as:

- Thermal Science
- Fluid Science
- Mechanical Design and Manufacturing
- Solid Mechanics and Structures
- Controls and Systems

The thesis option is a research-oriented program in which completion of a thesis is mandatory.

Competencies

1. Upon completion, students are expected to be able to effectively use the modern techniques and tools important to the field of mechanical engineering.
2. Upon completion, students are expected to attain familiarity attain familiarity with theoretical concepts in fluid dynamics.
3. Upon completion, students are expected to attain familiarity attain familiarity with theoretical concepts in structural mechanics.
4. Upon completion, students are expected to attain familiarity with theoretical concepts in control systems.
5. Upon completion, students are expected to attain familiarity with thermal science.

Admissions Criteria

Admission is based on equal weighting of the following criteria:

1. An overall GPA, as calculated by the Graduate School, of 3.0 or higher in undergraduate coursework is required. (For some international applicants where GPA calculations based on a 4.0 system are not performed, a minimum performance level of 65 percentile. This minimum expectation may be higher for some countries, where less stringent grading criteria are used.) Performance in core mechanical engineering courses is of particular importance.
2. A GRE score of at least 146 (verbal) and 155 (quantitative).
3. For applicants whose native language is not English: All students admitted in the program 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.

UNCONDITIONAL ADMISSION

To be unconditionally admitted, an applicant must meet all above conditions.

PROBATIONARY ADMISSION

Applicants who fail to meet the conditions for unconditional admission, but satisfy any two of items 1, 2, and 3 will be considered for probationary admission.

PROVISIONAL ADMISSION

Applicants who are unable to supply all of the required documentation prior to the admission deadline, but who otherwise appear to meet the admission criteria, may be granted provisional admission.

DENIAL

Applicants who fail to meet at least two of the admission criteria will normally be denied admission.

DEFERRAL

A deferred decision may be granted when an application file is incomplete or when a denied decision is not appropriate.

APPLICANTS WHOSE NATIVE LANGUAGE IS NOT ENGLISH

All students admitted in the program 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.

WAIVER OF THE GRADUATE RECORD EXAM

A waiver of the Graduate Record Examination may be considered for a UT Arlington graduate who has completed a BSME degree within the past 3 years. The student's GPA must equal or exceed 3.0 in each of two calculations: (a) in the last 60 hours of study and (b) in all undergraduate coursework completed at UT Arlington. The GRE waiver may be extended to include non-UT Arlington candidates that have undergraduate degrees in mechanical engineering (with GPA of 3.25 or above) from U.S. universities with an ABET accredited engineering program or other select U.S. universities subject to graduate advisor's approval. The waiver of the GRE applies only to applicants for the master's degree programs. Interested applicants should contact the Mechanical Engineering Graduate Advisor.

Curriculum

The Master of Science in Mechanical Engineering is a research-oriented program in which completion of a thesis is mandatory.

Foundations (Core)		
Select 3 courses, one from each of three different core areas.		9
Thermal Science		
ME 5316	THERMAL CONDUCTION	
ME 5317	CONVECTION HEAT TRANSFER	
ME 5318	RADIATIVE HEAT TRANSFER	
ME 5321	ADVANCED CLASSICAL THERMODYNAMICS	
Fluid Science		
ME 5313	FLUID DYNAMICS	
ME 5325	COMBUSTION	
ME 5342	GAS DYNAMICS	
Structural Mechanics		
ME 5310	FINITE ELEMENT METHODS	
ME 5311	STRUCTURAL DYNAMICS	
ME 5312	CONTINUUM MECHANICS	
ME 5339	INTERMEDIATE MECHANICS OF MATERIALS	
Controls and Systems		
ME 5303	CLASSICAL METHODS OF CONTROL SYSTEMS ANALYSIS AND SYNTHESIS	
ME 5305	DYNAMIC SYSTEMS MODELING	
ME 5341	CONTROL SYSTEM COMPONENTS	
Design and Manufacturing		
ME 5320	DESIGN OPTIMIZATION	
ME 5326	MANUFACTURING PROCESSES AND SYSTEMS	
ME 5349	POLYMER SCIENCE AND ENGINEERING	
ME 5350	COMPUTER AIDED DESIGN AND MANUFACTURING	
Analysis Courses		
ME 5331	ANALYTIC METHODS IN ENGINEERING	3
ME 5332	ENGINEERING ANALYSIS	3
Elective Courses		
Select 3 graduate courses in a mechanical engineering speciality. Courses outside ME require prior approval of the graduate advisor and committee chair.		9
Thesis		
Select at least 6 hours from the following: [1]		6
ME 5398	THESIS	
ME 5397	RESEARCH IN MECHANICAL ENGINEERING	

ME 5698	THESIS	
Total Hours		**30**

[1] The student must enroll in ME 5398 or ME 5397 every semester in which the student is actively involved in thesis preparation or research, except that the student must enroll in ME 5398 or ME 5698 in the semester of graduation.

Advising Resources

Advising can be conducted in person or remotely via Teams. Please email your advisor to schedule an appointment. The advising form can be downloaded from the MAE Grad Advising Canvas page. First consult with your advisor if you are planning a Leave of Absence, Grade Forgiveness, or Change of Program.

Location:

306 Woolf Hall

Email:

MAEGradAdvising@uta.edu

Phone:

817-272-2500

Web:

Graduate Advising Webpage (https://www.uta.edu/academics/schools-colleges/engineering/academics/departments/mechanical-aerospace/students/gradadvising/)