

# MECHANICAL ENGINEERING (MS)

## Degree Requirements

The program leading to the degree of Master of Science in Mechanical Engineering offers three plans of study (thesis option, project option, course work only option). Some graduate courses in Mechanical Engineering are offered at night for the benefit of full-time employed engineers within commuting distance of the campus. The MS program in Mechanical Engineering has several possible specializations including biomechanics, materials engineering, heat transfer, fluid mechanics, computational mechanics, vibrations, dynamics, simulation and controls.

## Admission to the MSME Program

The following criteria supplement the Graduate School admission criteria (see Admission to Graduate Programs (<https://www.southalabama.edu/graduatemajors/graduateschool/>)):

- **Regular Admission requirements**
  - A. Grade-point average of 3.0 or greater (A=4.0) on all undergraduate work.
  - B. Minimum score of 151 on the quantitative Graduate Record Exam (GRE) and a minimum score of 138 on the verbal GRE. Applicants must submit official GRE scores. This requirement is waived for students who received the BSME degree from the University of South Alabama. However, those students may need to present GRE scores to be eligible for some assistantships or fellowships.
  - C. For International students whose native language is not English, at least the following score on one of these English language tests:
    - paper-based TOEFL score 550, or
    - internet-based TOEFL score 79, or
    - IELTS band score 6.5, or
    - Pearson (PTE Academic) score 59, or
    - Duolingo score 100.
- **Provisional Admission requirements**
  - A. Minimum grade-point average of 2.5 (A=4.0) on all undergraduate work.
  - B. Requirements B and C as for regular admission.

## Degree Requirements for MSME

The requirements for the possible options of the MSME degree are:

- **Thesis Option:** 30 credit hours
  - **6 credit hours** required math courses MA 507 and MA 508, and
  - **9 credit hours** selected from **Mechanical Engineering Core graduate courses** (*one* course in Solid Mechanics, *one* course in Fluid Mechanics, and *one* course in Thermal Sciences), and
  - **9 credit hours** selected from **MSME Engineering elective graduate courses** and **MSME graduate courses in supporting areas** (but including *no more than 3 credit hours* from **MSME graduate courses in supporting areas**), and
  - Responsible Conduct of Research (RCR) training from CITI Program (<https://about.citiprogram.org/en/series/responsible-conduct-of-research-rcr/>), and
  - **6 credit hours** required Thesis courses ME 599 & ME 599, and
  - Satisfactory oral defense of Thesis.<sup>1,2</sup>

- **Project Option:** 33 credit hours
  - **6 credit hours** required math courses MA 507 and MA 508, and
  - **12 credit hours** selected from **Mechanical Engineering Core graduate courses** (including *one* course in Solid Mechanics, *one* course in Fluid Mechanics, and *one* course in Thermal Sciences), and
  - **12 credit hours** selected from **MSME Engineering elective graduate courses** and **MSME graduate courses in supporting areas** (but including *no more than 6 credit hours* from **MSME graduate courses in supporting areas**), and
  - Responsible Conduct of Research (RCR) training from CITI Program (<https://about.citiprogram.org/en/series/responsible-conduct-of-research-rcr/>), and
  - **3 credit hours** required Project course ME 594, and
  - Satisfactory oral defense of Project Report,<sup>1</sup> and
  - Pass written comprehensive examination (<https://www.southalabama.edu/colleges/engineering/me/resources/memscprehensiveexamrequirements.pdf>).
- **Course Option:** 33 credit hours
  - **6 credit hours** required math courses, MA 507 and MA 508, and
  - **12 credit hours** selected from **Mechanical Engineering Core graduate courses** (including *one* course in Solid mechanics, *one* course in Fluid mechanics, and *one* course in Thermal Sciences), and
  - **15 credit hours** selected from **MSME Engineering elective graduate courses** and **MSME graduate courses in supporting areas** (but including *no more than 6 credit hours* from **MSME graduate courses in supporting areas**), and
  - Pass written comprehensive examination (<https://www.southalabama.edu/colleges/engineering/me/resources/memscprehensiveexamrequirements.pdf>).

### Mechanical Engineering Core graduate courses:

#### *Solid Mechanics:*

ME 538 Finite Element Analysis  
 ME 571 Advanced Engineering Dynamics  
 ME 573 Vibrations of Continuous Sys  
 ME 575 Continuum Mechanics (cannot count in Fluid Mechanics simultaneously)  
 ME 583 Applied Elasticity

#### *Fluid Mechanics:*

ME 520 Advanced Fluid Mechanics  
 ME 560 Compressible Fluid Flow  
 ME 575 Continuum Mechanics (cannot count in Solid Mechanics simultaneously)

#### *Thermal Sciences:*

ME 540 Advanced Heat Transfer  
 ME 551 Classical Thermodynamics

### MSME Engineering elective graduate courses:

*Any ME or other Engineering 500- or 600-level courses* excluding Thesis or Project courses, and excluding DIS courses more than 6 credit hours maximum.

### MSME graduate courses in supporting areas:

2 Mechanical Engineering (MS)

*Any non-Engineering 500- or 600-level courses* subject to approval by the Graduate Coordinator in the MABE Department. The following courses will always be approved:

CIS 506 IS in Organizations  
ISC 545 Management Information Systems  
MA 567 Operations Research  
ST 540 Stat in Research I.

<sup>1</sup> Should the student present an unsatisfactory defense, a second attempt will be allowed no sooner than 12 weeks after the first attempt. A second unsatisfactory defense will result in dismissal from the program.

<sup>2</sup> No written comprehensive examination is required of Thesis option MSME students. Successful defense of the Thesis will be deemed to satisfy the comprehensive examination requirement for Thesis option candidates.