

Master of Science Engineering with a Concentration in Mechanical Engineering (MS)

Master's Admission Information

To qualify as a candidate for a Master of Science or a Master of Engineering program, applicants must meet the general University admission requirements and have completed undergraduate-level coursework that includes subject matter equivalent to a bachelor's degree in mechanical engineering, aerospace engineering, engineering mechanics, or a closely related discipline such as physics or mathematics. An applicant with an overall grade point average (GPA) of 3.0 and a GPA in the major of 3.0 (4.0 scale) is eligible for regular admission. Applicants with a GPA below 3.0 may be eligible for provisional admission. Students are typically required to submit their Graduate Record Examination (GRE) scores, although the Graduate Program Director (GPD) may waive the GRE requirement for applicants with excellent academic credentials. For those applicants with non-engineering degrees, or with engineering degrees other than mechanical engineering, aerospace engineering, or engineering mechanics, successful completion of remedial graduate coursework may be required as a condition of admission. The Master of Science programs requires a minimum of 24 semester credit hours of coursework beyond the bachelor's degree with at least a B (3.0) average and a minimum of 6 semester credit hours of thesis research. The Master of Engineering program requires a minimum of 30 semester credit hours of course work with at least a B (3.0) average.

Leveling Requirements

Students from disciplines other than Mechanical and Aerospace Engineering are required to complete a number of leveling courses depending on their undergraduate degrees:

Holders of a B.S. degree in Mechanical Engineering Technology (MET) from an ABET accredited institution must complete three of the following leveling courses per recommendation of the Graduate Program Director:

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| MATH 307 | Ordinary Differential Equations |
| MAE 303 | Mechanics of Fluids |
| MAE 312 | Thermodynamics II |
| MAE 340 | Computational Methods in Mechanical Engineering |
| MAE 436 | Dynamic Systems and Control |

If applicants already have a minor in Mechanical Engineering or Aerospace Engineering, then no leveling courses are necessary. The selected courses are subject to satisfying the prerequisites listed in the catalog.

Holders of a B.S. degree in Physics or Mathematics from an ABET accredited institution must complete three of the following leveling courses per recommendation of the Graduate Program Director:

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|---------|---|
| MAE 303 | Mechanics of Fluids |
| MAE 311 | Thermodynamics I |
| MAE 315 | Heat and Mass Transfer |
| MAE 332 | Mechanical Engineering Design I |
| MAE 340 | Computational Methods in Mechanical Engineering |
| MAE 433 | Mechanical Engineering Design II |

If applicants already have a minor in Mechanical Engineering or Aerospace Engineering, then no leveling courses are necessary. The selected courses are subject to satisfying the prerequisites listed in the catalog.

Curriculum Requirements

Core Courses

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|----------------------------------|-----------------------------------|---|
| MAE 601 | Engineering Mathematics | 3 |
| or MAE 608 | Applied Mathematics for Engineers | |
| or MATH 691 | Engineering Analysis I | |
| Select three from the following: | | 9 |
| MAE 602 | Fluid Dynamics and Aerodynamics | |
| MAE 603 | Advanced Mechanics of Solids | |
| MAE 604 | Analytical Dynamics | |
| MAE 605 | Advanced Classical Thermodynamics | |
| MAE 607 | Continuum Mechanics | |
| MAE 620 | Heat Transfer I | |
| MAE 640 | Modern Control Theory | |
| MAE 672 | Design of Experiments | |
| MAE 682 | Concurrent Engineering | |

Total Credit Hours **12**

In all programs, a maximum of 6 semester credit hours may be derived from 500-level courses.

Master of Science (Thesis) Programs

The Master of Science degree is a research degree requiring a written thesis. The thesis constitutes 6 semester credit hours within the 30 semester credit hour requirement. Students are given a verbal examination, administered as the student's thesis defense, under the direction of the faculty advisor with support from the Thesis Advisory Committee. The examination consists of two parts, a student presentation of their thesis research followed by a closed session where the Thesis Advisory Committee further questions the student. The committee concentrates on research presented in both oral and written formats, but may expand questioning to include related course work. The thesis should be formatted with guidelines established by the College.