MECHANICAL ENGINEERING

Admission Requirements

Applicants for the master of science program must hold a bachelor’s degree from a program that is accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology at the time of graduation, or provide evidence of an equivalent academic background to the Dean of the College of Engineering and the appropriate department chair.

Applicants must submit official undergraduate transcripts, undergraduate grade point average, at least two letters of recommendation, and a statement of purpose. Personal statements or descriptions of post-baccalaureate experience that provide a rationale for proposed graduate study may also be submitted.

Official results of the analytical writing and quantitative portions of the GRE must be submitted. The GRE minimum requirements for admission into graduate programs in the College of Engineering can be met by one of the four score combinations below:

<table>
<thead>
<tr>
<th>Analytical Writing</th>
<th>Quantitative</th>
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<tbody>
<tr>
<td>2.5</td>
<td>164</td>
</tr>
<tr>
<td>3.0</td>
<td>159</td>
</tr>
<tr>
<td>3.5</td>
<td>153</td>
</tr>
<tr>
<td>4.0</td>
<td>149</td>
</tr>
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The GRE requirement may be waived for students holding degrees from ABET accredited programs (with department approval).

Applicants with a bachelor’s degree must have an overall grade-point average of 2.75 or better or 3.00 for the last two years (64 semester credits or equivalent).

Applicants whose native language is not English must have a TOEFL score of at least 79 or an IELTS score of at least 6.5.

Applicants who do not satisfy the requirements for Full Admission may be granted Provisional Admission or Deferred Admission.

Applicants with a bachelor’s degree in a discipline other than mechanical engineering shall have completed coursework in calculus, differential equations, and one year of classical physics. They are also required to complete a number of bridge-up undergraduate courses as recommended by the admission committee. These bridge-up courses may be taken concurrently with graduate courses.

Degree Requirements

The University’s Academic Requirements (See Academic Requirements in this Graduate Bulletin), the following College of Engineering requirements and the department’s academic requirements must all be satisfied for the master of science degrees in the College of Engineering.

- Successfully (no “fail” votes) defend the thesis before the Advisory Committee, or have the Engineering Report approved by the Advisory Committee, or successfully complete the appropriate department’s nonthesis option requirements.

Thesis Option
- Mechanical Engineering Courses - 15 credits
- Approved Mathematics - 3 credits
- Approved Electives - 6 credits
- Master’s Thesis - 6 credits
Total: 30 credits

Nonthesis Option
- Mechanical Engineering Courses - 15 credits
- Approved Mathematics - 3 credits
- Approved Electives - 12 credits
- Engineering Report - 2 credits
Total: 32 credits

Core Courses

All master’s students are required to take at least two of the following Mechanical Engineering core courses.

- 4600:609 Finite Element Analysis I (3 credits)
- 4600:610 Dynamics of Viscous Flow I (3 credits)
- 4600:611 Computational Fluid Dynamics I (3 credits)
- 4600:615 Conduction Heat Transfer (3 credits)
- 4600:622 Continuum Mechanics (3 credits)
- 4600:628 Mechanical Behavior of Materials (3 credits)
- 4600:630 Vibrations of Discrete Systems (3 credits)
- 4600:660 Engineering Analysis (3 credits) - Cannot count toward the required core courses if used to substitute the mathematics requirement.
- 4600:666 Analysis of Manufacturing Systems (3 credits)

At least two of the mechanical engineering courses must be designated as core courses (see "Core Courses"). Students are limited to not more than three 500-level course in engineering. Not more than two of the 500-level courses in engineering can be applied to the 15 credits of mechanical engineering coursework.

No computer language courses are permitted for graduate credit.

Engineering Analysis (4600:660) may replace approved mathematics. Courses in Statistics (3470:xxx) may also satisfy approved mathematics upon approval of the student’s adviser.

All master’s degree requirements must be completed within six years. Students receiving an assistantship are funded for a maximum of two years and must take the thesis option.