MASTER OF MECHANICAL ENGINEERING (MME) DEGREE

Program Learning Outcomes for the MME Degree

Upon completing the MME degree, students will be able to:

1. Demonstrate an advanced command of Mechanical Engineering fieldwork.
2. Communicate scientific ideas effectively in writing and when speaking.

Requirements for the MME Degree

The MME degree is a non-thesis master’s degree. For general university requirements, please see Non-Thesis Master's Degrees (https://ga.rice.edu/graduate-students/academic-policies-procedures/regulations-procedures-non-thesis-masters-degrees/). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (https://ga.rice.edu/graduate-students/academic-policies-procedures/regulations-procedures-all-degrees/).

Students pursuing the MME degree must complete:

- A minimum of 10 courses (30 credit hours) to satisfy degree requirements.
- A minimum of 30 credit hours of graduate-level study (coursework at the 500-level or above).
- A minimum of 24 credit hours must be taken at Rice University.
- A minimum residency enrollment of one fall or spring semester of part-time graduate study at Rice University.
- A minimum of 24 credit hours from departmental (MECH) course offerings, including the area of specialization.
- The requirements for one area of specialization. The MME degree program offers two areas of specialization:
  - Aerospace Engineering (p. 2), or
  - Mechanical Engineering (p. 3).
- A minimum overall GPA of 2.67 or higher in all Rice coursework.
- A minimum GPA of 3.00 or higher in all Rice coursework that satisfies requirements for the non-thesis master’s degree.

The professional master’s degree in Mechanical Engineering (MME) is a non-thesis degree program intended for students who have completed a 4-year bachelor’s program in engineering and wish to join the workforce as practicing professionals, rather than pursuing a research oriented or academic career. It offers preparation in advanced engineering topics in order to enhance an engineer’s technical qualifications and increases competitiveness in the job market.

The MME program is open to students who have shown academic excellence in their undergraduate studies. Students who have a BS or BA degree in any field of engineering or related study may apply, although some may need to fulfill prerequisites or take remedial courses to earn the MME degree. Students may enroll on a full or part-time basis.

Lists of required and suggested courses are available from the department. Students should develop a specific plan of study based on their particular interests and discussions with their advisor.
Footnotes and Additional Information

Approved departmental course offerings are MECH course offerings at the 500-level or above taught by faculty with a tenure home or special teaching appointment in MECH. In exceptional cases, 2 courses, or a total of 6 credit hours, at the 500-level or above can be taken outside of the MECH department. This would require special approval from the department after reviewing the rigor and applicability of the class to the applicant’s plan of study.

A minimum of 30 credit hours at the 500-level or above is required to earn the MME degree. Regardless of the student’s previously earned undergraduate degree at the time of entrance into the graduate program, no credit hours of research coursework may be permitted in lieu of the required coursework outlined above.

Students entering with a BS degree:
• 30 credit hours of coursework

Students entering with a BA degree (or other bachelor’s degree):
• 30 credit hours of coursework

Areas of Specialization

Area of Specialization: Aerospace Engineering

Students pursuing the Aerospace Engineering area of specialization must complete:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>MECH 578</td>
<td>ORBITAL MECHANICS AND MISSION DESIGN</td>
<td></td>
</tr>
<tr>
<td>MECH 590</td>
<td>AEROSPACE PROPULSION</td>
<td></td>
</tr>
<tr>
<td>MECH 591</td>
<td>GAS DYNAMICS</td>
<td></td>
</tr>
<tr>
<td>MECH 592</td>
<td>DESIGN FOR AEROSPACE ENVIRONMENTS</td>
<td></td>
</tr>
<tr>
<td>MECH 596</td>
<td>INTRODUCTION TO FLIGHT MECHANICS</td>
<td></td>
</tr>
<tr>
<td>MECH 691</td>
<td>INTRODUCTION TO HYPERSONIC AERODYNAMICS</td>
<td></td>
</tr>
</tbody>
</table>

Select 2 courses from the following: 6

Total Credit Hours 6

Area of Specialization: Mechanical Engineering

Students pursuing the Mechanical Engineering area of specialization must complete:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>MECH 502</td>
<td>VIBRATIONS</td>
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</tr>
<tr>
<td>MECH 575</td>
<td>INTRODUCTION TO HYDRODYNAMIC STABILITY</td>
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<tr>
<td>MECH 582</td>
<td>CONVECTIVE HEAT TRANSFER</td>
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<tr>
<td>MECH 584</td>
<td>MICROSCOPIC THERMODYNAMICS AND TRANSPORT</td>
<td></td>
</tr>
<tr>
<td>MECH 597</td>
<td>NEUROMUSCULOSKELETAL MODELING AND SIMULATION</td>
<td></td>
</tr>
</tbody>
</table>

Select 2 courses from the following: 6

Total Credit Hours 6

Policies for the MME Degree

Department of Mechanical Engineering Graduate Program Handbook

The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, the department of Mechanical Engineering publishes a graduate program handbook, which can be found here: https://gradhandbooks.rice.edu/2020_21/Mechanical_Engineering_Graduate_Handbook.pdf

Transfer Credit

For Rice University’s policy regarding transfer credit, see Transfer Credit (https://ga.rice.edu/graduate-students/academic-policies-procedures/regulations-procedures-all-degrees/#transfer). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program's advisor when considering transfer credit possibilities.

Additional Information

For additional information, please see the Mechanical Engineering website: https://mech.rice.edu/

Opportunities for the MME Degree

Fifth-Year Master's Degree Option for Rice Undergraduate Students

Rice students have an option to pursue the Master of Mechanical Engineering (MME) degree by adding an additional fifth year to their four undergraduate years of science and engineering studies. Advanced Rice undergraduate students in good academic standing may apply to the MME degree program during their junior or senior year. Upon acceptance, depending on course load, financial aid status, and other variables, they may then start taking some required courses of the master’s degree program. A plan of study will need to be approved by the student’s undergraduate advisor and the MME program director.

As part of this option and opportunity, Rice undergraduate students:
• must complete the requirements for a bachelor’s degree and the master’s degree independently of each other (i.e. no course may be counted toward the fulfillment of both degrees).
• should be aware there could be financial aid implications if the conversion of undergraduate coursework to that of graduate level reduces their earned undergraduate credit for any semester below that of full-time status (12 credit hours).
• more information on this Undergraduate - Graduate Concurrent Enrollment opportunity, including specific information on the registration process can be found here (https://ga.rice.edu/undergraduate-students/academic-opportunities/undergraduate-graduate-concurrent-enrollment/).

Additional Information

For additional information, please see the Mechanical Engineering website: https://mech.rice.edu/