MECHANICAL ENGINEERING: MODELING AND SIMULATION IN MECHANICAL ENGINEERING, M.S.

REQUIREMENTS

MINIMUM GRADUATE SCHOOL REQUIREMENTS

Review the Graduate School minimum academic progress and degree requirements (http://guide.wisc.edu/graduate/#policiesandrequirementstext), in addition to the program requirements listed below.

NAMED OPTION REQUIREMENTS

MODE OF INSTRUCTION

<table>
<thead>
<tr>
<th>Mode of Instruction</th>
<th>Face to Face</th>
<th>Evening/Weekend</th>
<th>Online</th>
<th>Hybrid</th>
<th>Accelerated</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
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</table>

Mode of Instruction Definitions

**Accelerated:** Accelerated programs are offered at a fast pace that condenses the time to completion. Students are able to complete a program with minimal disruptions to careers and other commitments.

**Evening/Weekend:** Courses meet on the UW–Madison campus only in evenings and/or on weekends to accommodate typical business schedules. Students have the advantages of face-to-face courses with the flexibility to keep work and other life commitments.

**Face-to-Face:** Courses typically meet during weekdays on the UW-Madison Campus.

**Hybrid:** These programs combine face-to-face and online learning formats. Contact the program for more specific information.

**Online:** These programs are offered 100% online. Some programs may require an on-campus orientation or residency experience, but the courses will be facilitated in an online format.

CURRICULAR REQUIREMENTS

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>M E 903</td>
<td>Graduate Seminar (Two semesters are required and must be taken in the first two semesters.)</td>
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</table>

A minimum of 6 courses (18 credits total) must be taken from the courses listed:

- M E 440 Intermediate Vibrations
- M E 451 Kinematics and Dynamics of Machine Systems
- M E 459 Computing Concepts for Applications in Engineering
- M E 460 Applied Thermal / Structural Finite Element Analysis
- M E 468 Computer Modeling and Simulation of Autonomous Vehicles and Robots
- M E 531 Digital Design and Manufacturing
- M E/COMP SCI/ E C E 532 Matrix Methods in Machine Learning
- M E 535 Computer-Aided Geometric Design
- M E 548 Introduction to Design Optimization
- M E/COMP SCI/ I SY E 558 Introduction to Computational Geometry
- M E 564 Heat Transfer
- M E 573 Computational Fluid Dynamics
- M E 601 Special Topics in Mechanical Engineering (Applied & Computational Math w/Engineering Apps)
- M E/B M E 603 Topics in Bio-Medical Engineering (Finite Element Method for Biomechanics)
- M E/E C E 739 Advanced Robotics

Overall 3.00 GPA required.
Graduate GPA Requirement: This program follows the Graduate School's GPA Requirement policy (https://policy.wisc.edu/library/UW-1203).

Other Grade Requirements: Students must earn a C or above in all formal coursework.
Assessments and Examinations: None.

Language Requirements: No language requirements.

No thesis/research credits are permitted. Up to 3 credits of independent study are permitted but not required.

Acceptable courses are numbered 400 and above.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>M E 748</td>
<td>Optimum Design of Mechanical Elements and Systems</td>
</tr>
<tr>
<td>M E 751</td>
<td>Advanced Computational Dynamics</td>
</tr>
<tr>
<td>M E/COMP SCI/EC/EMA/EP 759</td>
<td>High Performance Computing for Applications in Engineering</td>
</tr>
<tr>
<td>M E 764</td>
<td>Advanced Heat Transfer I-Conduction</td>
</tr>
<tr>
<td>M E 964</td>
<td>Special Advanced Topics in Mechanical Engineering (Topic: &quot;Sci Computing for Apps in Eng&quot;)</td>
</tr>
<tr>
<td>E M A 521</td>
<td>Aerodynamics</td>
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<tr>
<td>E M A 522</td>
<td>Aerodynamics Lab</td>
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</table>

**Advisor Approval of Study Plan**

The faculty advisor must always approve the courses a student takes in the MS program. Students should schedule an appointment with their advisor when selecting their courses. During the final semester, the faculty advisor will review the courses taken again and if approved, sign the warrant request form.

**Other Policy**

Students in this program may not take courses outside the prescribed curriculum without faculty advisor and program director approval. Students in this program cannot enroll concurrently in other undergraduate, graduate or certificate programs.