MECHANICAL ENGINEERING: RESEARCH, M.S.

This is a named option in the Mechanical Engineering M.S. (http://guide.wisc.edu/graduate/mechanical-engineering/mechanical-engineering-ms/)

The Department of Mechanical Engineering offers a Master of Science (M.S.) Mechanical Engineering degree with a named option in Research. Students in this program will select one of two tracks: either the Thesis track or the Independent Study track. (Fall 2021 is the final term in which students can select the ‘independent study’ track. Students admitted to Spring 2022 and beyond will be required to follow the ‘thesis’ track.)

• M.S. Mechanical Engineering: Research (2 tracks)
  • Thesis
  • Independent Study (Fall 2021 is the final term in which students can select this track. Students admitted to Spring 2022 and beyond will be required to follow the ‘thesis’ track.)

The M.S. Mechanical Engineering: Research degree program takes approximately two years to complete. The thesis track has a significant research component giving students valuable hands-on research experience with mentoring by faculty in the Department of Mechanical Engineering. The independent study track has a stronger focus on coursework but also requires at least 3 credits of independent study mentored by faculty in the Department of Mechanical Engineering. (Fall 2021 is the final term in which students can select the ‘independent study’ track. Students admitted to Spring 2022 and beyond will be required to follow the ‘thesis’ track.)

All students are mentored by the world-class faculty in the mechanical engineering department at UW–Madison. For a list of mechanical engineering faculty along with faculty research interests, please visit our faculty directory (https://directory.engr.wisc.edu/display.php?faculty?page=me&search=faculty). For more information on research areas see our page on research in Mechanical Engineering (https://www.engr.wisc.edu/department/mechanical-engineering/research-in-mechanical-engineering/).

ADMISSIONS

Please consult the table below for key information about this degree program's admissions requirements. The program may have more detailed admissions requirements, which can be found below the table or on the program’s website. Graduate admissions is a two-step process between academic programs and the Graduate School. Applicants must meet the minimum requirements (https://grad.wisc.edu/apply/requirements/) of the Graduate School as well as the program(s).

Once you have researched the graduate program(s) you are interested in, apply online (https://grad.wisc.edu/apply/).

<table>
<thead>
<tr>
<th>Requirements</th>
<th>Detail</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall Deadline</td>
<td>December 15</td>
</tr>
<tr>
<td>Spring Deadline</td>
<td>October 1</td>
</tr>
<tr>
<td>Summer Deadline</td>
<td>December 15</td>
</tr>
</tbody>
</table>

GRE (Graduate Record Examinations) Required.*

English Proficiency Test Every applicant whose native language is not English or whose undergraduate instruction was not in English must provide an English proficiency test score and meet the Graduate School minimum requirements (https://grad.wisc.edu/apply/requirements/#english-proficiency).

Other Test(s) (e.g., GMAT, MCAT) n/a

Letters of Recommendation Required 3

*Due to COVID-19, GRE scores will not be required for applications to Mechanical Engineering graduate programs for admission to the Spring 2022, Summer 2022, and Fall 2022 terms.

Students with a strong background in mechanical engineering or a related field with interest in furthering their education in mechanical engineering are encouraged to apply for admission to the department. Applicants accepted into the program generally have an undergraduate grade point average well above the graduate school minimum of 3.0 on a 4.0 scale. All applicants are required to take the Graduate Record Exam (GRE). Applications are evaluated on the basis of previous academic record, GRE scores, letters of recommendation, and a personal statement. Applicants are strongly encouraged to identify a faculty (p. 4) advisor during the application process. For more information on admission requirements see the department’s MS degree website (https://www.engr.wisc.edu/department/mechanical-engineering/academics/master-phd-degrees-mechanical-engineering/).

FUNDING

GRADUATE SCHOOL RESOURCES

Resources to help you afford graduate study might include assistantships, fellowships, traineeships, and financial aid. Further funding information (https://grad.wisc.edu/funding/) is available from the Graduate School. Be sure to check with your program for individual policies and restrictions related to funding.

PROGRAM RESOURCES

There are three mechanisms for Graduate Student funding through the university for M.S. Mechanical Engineering: Research students:

1. Fellowships
2. Graduate assistantships: project assistantships, teaching assistantships, and research assistantships
3. Traineeships

Funding is awarded based on the qualifications of the student, the number of applicants, the amount of available funding, the number of continuing students receiving support, and the degree program a student is enrolled in. Fellowship and research assistantship funding is only considered for thesis-based M.S. students. You can apply for funding for research assistantships by contacting individual faculty members directly. Please check our website (http://directory.engr.wisc.edu/me/faculty/) to look for faculty (only those listed with titles of assistant professor, associate professor, or professor can serve as graduate...
student advisors). Search for faculty who have research interests that align closely with your own by viewing faculty directory entries, visiting the faculty’s website (linked from the directory page), and reviewing publications by the faculty member. Once you have identified faculty with interests close to your own, you are encouraged to contact them by email to inquire regarding available research assistant positions. The admissions office does not know if a particular professor has research assistant positions available.

Students who apply to the department will be automatically considered for fellowship opportunities within the department. For information on applying for teaching assistant positions and for other information on funding please see the department website (https://www.engr.wisc.edu/department/mechanical-engineering/contact/forms/).

More information on graduate student funding is available from the UW-Madison Graduate School (https://grad.wisc.edu/funding/).

ADDITIONAL RESOURCES

FEDERAL LOANS

Students who are U.S. citizens or permanent residents may be eligible to receive some level of funding through the federal direct loan program. These loans are available to qualified graduate students who are taking at least 4 credits during the fall and spring semesters, and 2 credits during summer. Private loans are also available. Learn more about financial aid at their website (https://financialaid.wisc.edu/).

INTERNATIONAL STUDENT SERVICES FUNDING AND SCHOLARSHIPS

For information on International Student Funding and Scholarships visit the ISS website (https://iss.wisc.edu/students/new-students/funding-requirements/).

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</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>No</td>
</tr>
</tbody>
</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.

CURRICULAR REQUIREMENTS

Requirements Detail

<table>
<thead>
<tr>
<th>Credit Requirement</th>
<th>Minimum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thesis track: 21 credits.</td>
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</tr>
<tr>
<td>Independent Study track: 18 credits (Fall 2021 is the final term in which students can select this track. Students admitted to Spring 2022 and beyond will be required to follow the 'thesis' track.)</td>
<td></td>
</tr>
<tr>
<td>At least 50% of credits applied toward the graduate degree credit requirement must be completed in graduate-level coursework.</td>
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</tr>
<tr>
<td>Overall Graduate GPA Requirement</td>
<td>3.00 GPA required.</td>
</tr>
<tr>
<td>Other Grade Requirements: The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.</td>
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<tr>
<td>Language Requirements: No language requirements.</td>
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</tbody>
</table>

REQUIRED COURSES

Two semesters of M E 903 Graduate Seminar are required. These should be taken the first two semesters the student is in residence.

Thesis Track Required Courses:
A minimum of 18 formal course credits (minimum of 9 formal course credits in ME taken at UW–Madison); at least 3 of these credits must be numbered 700 or higher, and a minimum of 9 thesis credits (M E 790 Master’s Research and Thesis).

Independent Study Track Required Courses: (Fall 2021 is the final term in which students can select this track. Students admitted to Spring 2022 and beyond will be required to follow the 'thesis' track.)
A minimum of 24 formal course credits (minimum of 15 formal course credits in ME taken at UW–Madison); at least 3 of these credits must be numbered 700 or higher, and a minimum of 3 independent study credits (M E 699 Advanced Independent Study).

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.
POLICIES

GRADUATE SCHOOL POLICIES
The Graduate School’s Academic Policies and Procedures (https://grad.wisc.edu/acadpolicy/) provide essential information regarding general university policies. Program authority to set degree policies beyond the minimum required by the Graduate School lies with the degree program faculty. Policies set by the academic degree program can be found below.

NAMED OPTION-SPECIFIC POLICIES

PRIOR COURSEWORK
Graduate Work from Other Institutions
With program approval, students are allowed to count previously earned graduate coursework from other institutions: up to 9 credits of graduate coursework for the thesis track or up to 12 credits of graduate coursework for the independent study track. Approved credits will be allowed to count toward the minimum graduate degree credit requirement and the minimum graduate coursework requirement, but will not count toward the minimum graduate residence credit requirement.

Coursework earned five or more years prior to admission to a master’s degree is not allowed to satisfy requirements.

UW–Madison Undergraduate
Up to 7 credits numbered 400 or above can be counted toward the minimum graduate degree credit requirement. These credits may be counted toward the minimum graduate coursework (50%) requirement if they are from courses numbered 700 or above. No credits can be counted toward the minimum graduate residence credit requirement.

A course at the 300 level can only be transferred from a UW-Madison undergraduate program if it was taken as a technical elective (i.e., non-required course). Coursework earned five or more years prior to admission to a master’s degree is not allowed to satisfy requirements.

UW–Madison University Special
With program approval, and payment of the difference in tuition, students are allowed to count up to 15 credits of coursework numbered 400 or above taken as a UW–Madison Special student toward the minimum graduate residence credit requirement and the minimum graduate degree credit requirement. These credits may be counted toward the minimum graduate coursework (50%) requirement if they are in courses numbered 700 or above. Coursework earned five years or more prior to admission to a master’s degree is not allowed to satisfy requirements.

PROBATION
The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits.

This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

ADVISOR / COMMITTEE
All students are required to obtain a mechanical engineering faculty advisor who assists them in planning a course sequence that meets degrees requirements and who will discuss career objectives with the students.

An M.S. thesis committee must include the student’s mechanical engineering faculty advisor and at least two other members: one other graduate faculty or former graduate faculty up to one year after resignation or retirement, and one of the following: a third graduate faculty member, a retired faculty member with emeritus status, or a UW–Madison research scientist with principal investigator status who has been approved by the M E executive committee.

CREDITS PER TERM ALLOWED
15 credits

TIME CONSTRAINTS
Master’s degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

GRIEVANCES AND APPEALS
These resources may be helpful in addressing your concerns:

- Bias or Hate Reporting (https://doso.students.wisc.edu/bias-or-hate-reporting/)
- Graduate Assistantship Policies and Procedures (https://hr.wisc.edu/policies/gapp/#grievance-procedure)
- Hostile and Intimidating Behavior Policies and Procedures (https://hr.wisc.edu/hib/)
  - Office of the Provost for Faculty and Staff Affairs (https://facstaff.provost.wisc.edu/)
- Dean of Students Office (https://doso.students.wisc.edu/) (for all students to seek grievance assistance and support)
- Employee Assistance (https://www.eao.wisc.edu/) (for personal counseling and workplace consultation around communication and conflict involving graduate assistants and other employees, post-doctoral students, faculty and staff)
- Employee Disability Resource Office (https://employeedisabilities.wisc.edu/) (for qualified employees or applicants with disabilities to have equal employment opportunities)
- Graduate School (https://grad.wisc.edu/) (for informal advice at any level of review and for official appeals of program/departmental or school/college grievance decisions)
- Office of Compliance (https://compliance.wisc.edu/) (for class harassment and discrimination, including sexual harassment and sexual violence)
- Office of Student Conduct and Community Standards (https://conduct.students.wisc.edu/) (for conflicts involving students)
- Ombuds Office for Faculty and Staff (http://www.ombuds.wisc.edu/) (for employed graduate students and post-docs, as well as faculty and staff)
- Title IX (https://doso.students.wisc.edu/titleix/) (for concerns about discrimination)

Mechanical Engineering Grievance Procedures
If a student feels unfairly treated or aggrieved by faculty, staff, or another student, the University offers several avenues to resolve the grievance. Students’ concerns about unfair treatment are best handled directly with the person responsible for the objectionable action. If the student is uncomfortable making direct contact with the individual(s) involved, they should contact the advisor or the person in charge of the unit where the action occurred (program or department chair, section chair, lab
manager, etc.). Many departments and schools/colleges have established specific procedures for handling such situations; check their web pages and published handbooks for information. If such procedures exist at the local level, these should be investigated first. For more information see the Graduate School Academic Policies & Procedures: https://grad.wisc.edu/acadpolicy/?policy=grievancesandappeals. The Assistant Dean for Graduate Affairs (engr-dean-graduateaffairs@engr.wisc.edu) provides overall leadership for graduate education in the College of Engineering (CoE), and is a point of contact for graduate students who have concerns about education, mentoring, research, or other difficulties.

1. The student is encouraged to speak first with the person toward whom the grievance is directed to see if a situation can be resolved at this level.

2. Should a satisfactory resolution not be achieved, the student should contact the ME Graduate Committee Chair (https://docs.google.com/document/d/18F268f2Cq_CKwOaTcKHJu9RQA6ti9xho/edit/#heading=h1fob9te) or Department Chair (https://docs.google.com/document/d/18F268f2Cq_CKwOaTcKHJu9RQA6ti9xho/edit/#heading=h1fob9te) to discuss the grievance. The Graduate Committee Chair or Department Chair will facilitate problem resolution through informal channels and facilitate any complaints or issues of students. The first attempt is to help students informally address the grievance prior to any formal complaint. Students are also encouraged to talk with their faculty advisors regarding concerns or difficulties if necessary. University resources for sexual harassment, discrimination, disability accommodations, and other related concerns can be found on the UW Office of Compliance website (https://compliance.wisc.edu/). Other campus resources can be found above.

3. If the issue is not resolved to the student’s satisfaction the student can submit the grievance to the Graduate Committee Chair in writing, within 60 calendar days of the alleged unfair treatment.

4. On receipt of a written complaint, a faculty committee will be convened by the Graduate Committee Chair to manage the grievance. The faculty committee will obtain a written response from the person toward whom the complaint is directed. This response will be shared with the person filing the grievance.

5. The faculty committee will determine a decision regarding the grievance. The Graduate Committee Chair will report on the action taken by the committee in writing to both the student and the party toward whom the complaint was directed within 15 working days from the date the complaint was received.

6. At this point, if either party (the student or the person toward whom the grievance is directed) is unsatisfied with the decision of the faculty committee, the party may file a written appeal. Either party has 10 working days to file a written appeal to the School/College.

7. Documentation of the grievance will be stored for at least 7 years. Significant grievances that set a precedent will be stored indefinitely.

The Graduate School has procedures for students wishing to appeal a grievance decision made at the school/college level. These policies are described in the Graduate School’s Academic Policies & Procedures: https://grad.wisc.edu/acadpolicy/?policy=grievancesandappeals.

**PROFESSIONAL DEVELOPMENT**

**GRADUATE SCHOOL RESOURCES**

Take advantage of the Graduate School’s professional development resources (https://grad.wisc.edu/pd/) to build skills, thrive academically, and launch your career.

**PEOPLE**

**PROFESSORS**

Darryl Thelen (Chair)
Jaal Ghandhi
Dan Negrut
Gregory F. Nellis
Tim Osswald
Frank Pfefferkorn
John Pfotenhauer
Xiaoping Qian
Douglas Reindl
David Rothamer
Scott T. Sanders
Vadim Shapiro
Krishnan Suresh
Lih-sheng Turng

**ASSOCIATE PROFESSORS**

Melih Eriten
Christian Franck
Sage Kokjohn
Tom N. Krupenkin
Franklin Miller
Mario F. Trujillo
Michael Zinn

**ASSISTANT PROFESSORS**

Peter Adamczyk
Mark Anderson
Joseph Andrews
Lianyi Chen
Corinne Henak
Sangkee Min
Wenxiao Pan
Alejandro Roldan-Alzate
Josh Roth
Shiva Rudraraju
Stephan Rudykh
Dakota Thompson
Mike Wagner
Xiangru Xu

See also Mechanical Engineering Faculty Directory (https://directory.engr.wisc.edu/me/faculty/).

**OTHER**

n/a