MECHANICAL ENGINEERING (ENME)

Graduate Degree Program
College: Engineering

Abstract
The Department of Mechanical Engineering offers graduate study leading to the Master of Science and Doctor of Philosophy degrees. In addition, students may pursue a Master of Engineering degree through the Professional Master's Program of the Office of Advanced Engineering Education. The Department's instruction and research are carried out through the following four divisions:

DESIGN and System Reliability
The focus of this area of concentration is the study of:

- Measuring, tracking, and predicting levels of reliability during systems' life cycles
- Understanding and mitigating the causes of component, system, and process failures
- Incorporating reliability, sustainment, and life-cycle considerations into design
- Microelectronic device and electronic system reliability and stress analysis
- Integrated product design and manufacturing
- Design and reliability of high temperature and high power electronic systems, electro-optics, sensors, and actuators
- Battery design, thermal management, and reliability
- Design formalisms
- Multi-criteria design decision making and optimization
- Statistical process control and improved manufacturing methods
- Human reliability analysis
- Cybersecurity
- Machine learning and data analytics

Mechanics, Materials, and manufacturing
This division concentrates on the study of analytical and experimental fundamentals of mechanics and materials. Areas of specialization include:

- Characterization and optimization of mechanical properties of materials
- Methods for non-destructive detection of damage in structural systems
- Mechanical characterization of Micro-Electro-Mechanical Systems (MEMS) materials
- Manufacturing systems
- Additive manufacturing in micro-nano-bio systems

Financial Assistance
Financial assistance is available to highly qualified students in the form of research and teaching assistantships. The most outstanding applicants are offered fellowships. Students seeking financial assistance should submit with their applications a current resume or CV as well as a statement regarding their qualifications and/or past research or teaching experience. Financial assistance is sought for all worthy students.

Contact
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University of Maryland
Program-Specific Requirements

- Letters of Recommendation (3)
- Graduate Record Examination (GRE)
- CV/Resume
- Publications/Presentations

The programs leading to the M.S. and Ph.D. degrees are open to qualified students holding a bachelor's degree in mechanical engineering. Admission may also be granted to students with degrees from other areas of engineering, mathematics, and physical sciences. In some cases, students may be required to take undergraduate courses to fill gaps in their background.

Application Deadlines

<table>
<thead>
<tr>
<th>Type of Applicant</th>
<th>Fall Deadline</th>
<th>Spring Deadline</th>
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</thead>
<tbody>
<tr>
<td>Domestic Applicants</td>
<td></td>
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<tr>
<td>US Citizens and Permanent Residents</td>
<td>May 13, 2022</td>
<td>October 15, 2021</td>
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<tr>
<td>International Applicants</td>
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<tr>
<td>F (student) or J (exchange visitor) visas; A, E, G, H, I and L visas and immigrants</td>
<td>March 11, 2022</td>
<td>September 24, 2021</td>
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RESOURCES AND LINKS:

Program Website: [http://www.enme.umd.edu](http://www.enme.umd.edu)


Requirements

- Mechanical Engineering, Doctor of Philosophy (Ph.D.) ([https://academiccatalog.umd.edu/graduate/programs/mechanical-engineering-enme/mechanical-engineering-phd/](https://academiccatalog.umd.edu/graduate/programs/mechanical-engineering-enme/mechanical-engineering-phd/))
- Mechanical Engineering, Master of Science (M.S.) ([https://academiccatalog.umd.edu/graduate/programs/mechanical-engineering-enme/mechanical-engineering-ms/](https://academiccatalog.umd.edu/graduate/programs/mechanical-engineering-enme/mechanical-engineering-ms/))

Facilities and Special Resources

Mechanical engineering faculty, researchers, and students leverage state-of-the-art research equipment, technology, and systems to develop new methods, create innovative tools, and find practical solutions to the most pressing societal concerns. More information about our research labs and centers can be found here: [https://enme.umd.edu/facilities](https://enme.umd.edu/facilities/).

Admissions

General Requirements

- Statement of Purpose
- Transcript(s)
- TOEFL/IELTS/PTE (international graduate students ([https://gradschool.umd.edu/admissions/english-language-proficiency-requirements/](https://gradschool.umd.edu/admissions/english-language-proficiency-requirements/)))