

MechSE

Bachelor of Science degrees in
Engineering Mechanics and Mechanical Engineering



I ILLINOIS

Mechanical Science & Engineering

COLLEGE OF ENGINEERING

Mechanical Science & Engineering

Are you ready to make an impact on the world? The Department of Mechanical Science & Engineering (MechSE) at Illinois is consistently ranked in the Top 10 by U.S. News & World Report, and for good reason! Students from both of our majors—**Engineering Mechanics** and **Mechanical Engineering**—make a real impact here and abroad. They are solving today's most pressing technological challenges in energy and the environment, biology and health care, defense and security, transportation, micro-nano technology, design and manufacturing, robotics, and many other areas. MechSE students also gain problem-solving and communication skills to excel in non-traditional areas like finance, management, business, medicine, and law.



Award-winning 3D printed excavator cab designed by MechSE senior capstone design team.

Engineering Mechanics (EM) builds a solid foundation in math, physics, science, and computer simulation, enabling our students to tackle a diverse set of engineering challenges. Our EM program empowers students to make an impact in an area of their choice with a secondary field. Our small student-to-faculty ratio enhances learning and facilitates undergraduate research experiences. Half of our EM students pursue graduate school and the rest pursue industry positions upon graduation.

Mechanical Engineering (ME) provides hands-on and broad training in a wide variety of essential engineering topics, such as design and manufacturing, materials, thermal/fluid sciences, and controls, enabling our students to have a major impact on society. ME students benefit from an integrated, hands-on design sequence beginning in the freshman year and culminating in Senior Capstone Design, where students design a solution to a real-world problem. One third of our ME students pursue graduate school and the rest pursue industry positions upon graduation.

mechse.illinois.edu/about-us



MechSE undergraduate students enjoy:

- Welcoming environment from faculty, staff, and students
- Hands-on curricula starting freshman year
- State-of-the-art instructional and research labs
- Cutting-edge undergraduate research opportunities
- 3,000+ square feet of Innovation Studio makerspace
- 15+ MechSE-sponsored student organizations
- Industry-sponsored Senior Capstone Design Project
- Incredible internship, co-op, and study abroad opportunities
- Specialized advising for students interested in medical school
- Tailored career assistance through Engineering Career Services

The MechSE Experience

MechSE's undergraduate mission is to provide a world-class educational environment and develop engineers who have the broad knowledge and ability to address global technical challenges. EM and ME graduates are prepared to successfully enter industry or pursue graduate school, and advance to leadership positions.

Core Coursework

MechSE students enjoy engaging, current, and exciting curricula. While the student experience also includes applied topics and lab classes, the EM program places strong emphasis on a scientific approach, with a foundation of math and physics classes, followed by courses in statics, dynamics, solid mechanics, mechanics of fluids, continuum mechanics, mechanics of materials, computational mechanics, and engineering design. ME students also learn the fundamental mechanics in their formative years, but focus on a broader range of applied topics such as heat transfer, controls, and machine design in subsequent years. Both EM and ME students complete a Senior Capstone Design project in their final year, allowing them to integrate their expertise to solve real-world challenges in a team setting with corporate and faculty advisors.

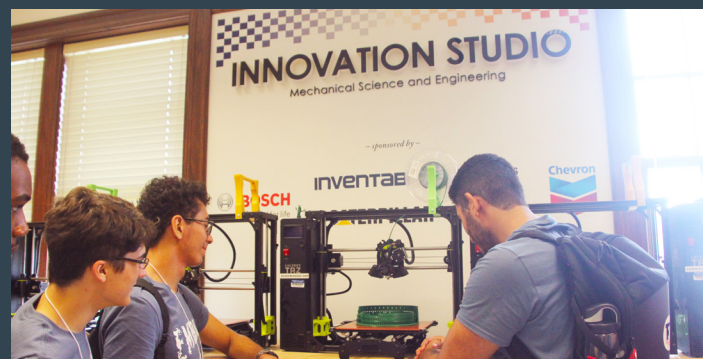
Faculty and Undergraduate Research

With almost 60 full-time professors, the MechSE faculty consists of high-achieving scholars dedicated to student education and innovative, cutting-edge research. MechSE's faculty are internationally renowned for their diverse research areas and teaching excellence. The majority of MechSE faculty enthusiastically engage undergraduate students in their research programs. Their research entails substantial collaboration, either among fundamental areas within engineering, or with other disciplines such as chemistry, physics, biology, or medicine. These collaborative efforts can shorten the timeline from scientific discovery to practical solutions addressing ever-changing global concerns.

Innovation Studio Makerspace

MechSE's Innovation Studio is the ideal area for undergraduate students to gain hands-on experience. The studio aims to provide modern fabrication techniques and services, and it serves as a true "makerspace" where students can work, interact, learn, play, and grow in an environment optimized for true innovation. It is an empowering facility, whether students are working on class projects or following dreams of entrepreneurship.

mechse.illinois.edu/undergraduate



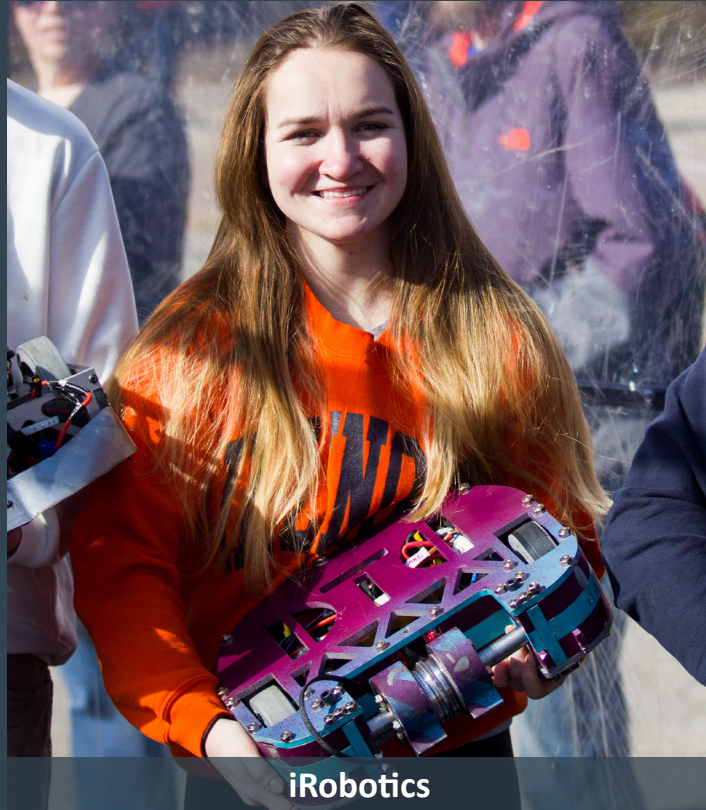
MechSE students learn by doing! They gain valuable hands-on experiences in our world-class laboratories that include: Materials Testing, Mechatronics, Combustion, Machine Design, Manufacturing, Micro-Nano Mechanical Systems, Dynamical Systems, Controls Systems, Robotics, Fluid Dynamics, Heat Transfer, Biomechanics, Metrology, and more!



Student Organizations: Get Involved!

With 800 student organizations on campus, MechSE students have the opportunity to explore potential career directions, build friendships, follow their passions, and share their accomplishments with the public at the annual Engineering Open House. Below are just some of the groups that are sponsored by MechSE:

- American Society of Heating, Refrigeration, and Air Conditioning Engineers
- American Society of Mechanical Engineers
- Engineers Without Borders
- Hydraulic Bike Team
- Hyperloop
- Illini Solar Car Team
- iRobotics
- National Society of Black Engineers
- Out in Science, Technology, Engineering, and Mathematics
- Pi Tau Sigma Honor Society
- Rube Goldberg Society
- Shell Eco-Marathon Urban Concept and Prototype Teams
- Society for Engineering Mechanics
- Society of Automotive Engineers: Baja, Electric, and Formula Racing Teams
- Society of Hispanic Professional Engineers
- Society of Women Engineers
- Women in MechSE



iRobotics



Illini Solar Car



Hydraulic Bike Team



MechSE is fortunate to offer two large facilities—the Mechanical Engineering Laboratory (MEL, shown above) and the Mechanical Engineering Building (MEB)—in the heart of the Illinois engineering campus. A massive addition to MEB is coming soon, optimizing the building for learning and innovation. It will feature a student center, 24/7 makerspace, state-of-the-art classrooms, and many other exciting spaces. Below is an architectural rendering of the new MEB.



“MechSE has prepared me very well through both classes and student societies. I received an internship at Fiat Chrysler Automobiles in Detroit and will be working there upon graduation. They liked my work so much that they invited me back full-time.”

—**Tyler Ditman, ME major**

“The biggest piece of advice I can give to future MechSE students is: get involved! Making friends just kind of happens—everybody around here is just willing to help out and give you advice.” —**Sam Santos, EM major**

“I made the right choice coming to MechSE at Illinois because the mechanical engineering curriculum itself is very interesting. It’s very broad and I can experiment with many different fields of study to create an individualized academic plan tailored to my career goals. MechSE definitely gives you a lot of flexibility.”

—**Karla Rivero Valles, ME major**

“After graduation, I will be starting my career in business strategy consulting. I believe the problem-solving skills that I learned within mechanical engineering have prepared me to tackle the challenges of consulting. I’m very excited to prove that next year and throughout my career!”

—**Jacob Alexander, ME major**



MechSE

thoughts from our students

“MechSE has provided me with many challenges, and rising to each one has made me a stronger student and person in general. It’s given me the opportunity to strengthen my problem-solving mindset and apply it, not only to engineering, but to all aspects of life. I’m very grateful for that!”

—**Taylor Tucker, EM major**

“I was always and still am the kind of guy who loves math and working with numbers, making the engineering mechanics program a perfect fit for me. However, what I didn’t expect was that design and manufacturing would have such an impact on my education. I’ve been involved with dozens of projects by now and all of them have taught me a new way to think.”

—**Vedant Puri, EM major**

“Engineering mechanics is not mechanical engineering; it’s smaller, the classes are different, it allows for a unique area of specialization, and the people in the program are just amazing. It really builds a tight, close-knit community, and if I could do it all again, I would still choose engineering mechanics.”

—**Christian Reichert, EM major**

“My experience in mechanical engineering has been incredibly diverse, from performing research in biomechanics to prototyping super mileage cars. My friends are all in different organizations, ranging from aerospace to consulting to service. I owe so much of where I am (Tesla internship) to the opportunities available while being a MechSE student!”

—**Nithin Rajkumar, ME major**

