

Mechanical and Industrial Engineering

MASTER'S DEGREE PROGRAMS

The mechanical and industrial engineering department at UIC houses three master's programs, each designed to guide students toward future career success.

Students have access to more than 40 professors who are notable researchers in combustion, environmental science, thermal science, dynamics and control, mechatronics, virtual reality, MEMS (microelectrical mechanical systems), manufacturing, processing, and more.

MS IN MECHANICAL ENGINEERING

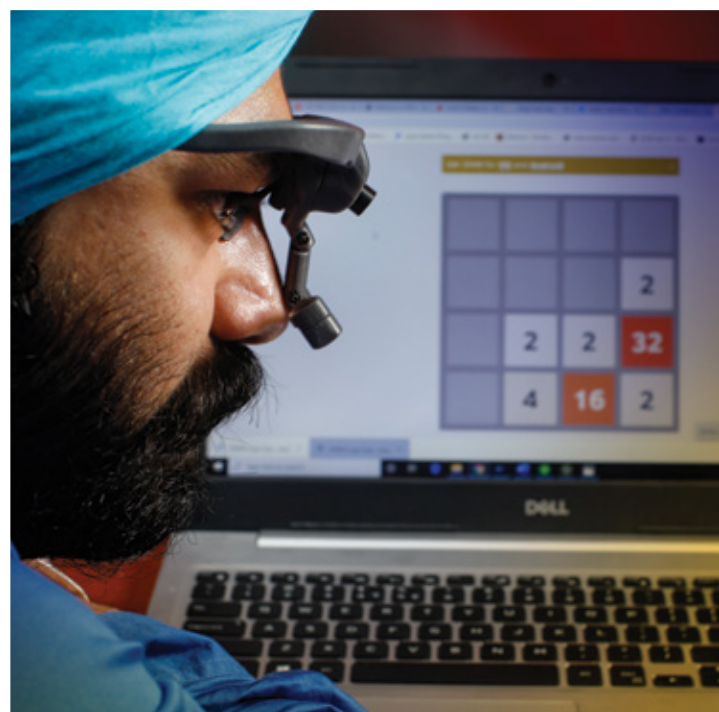
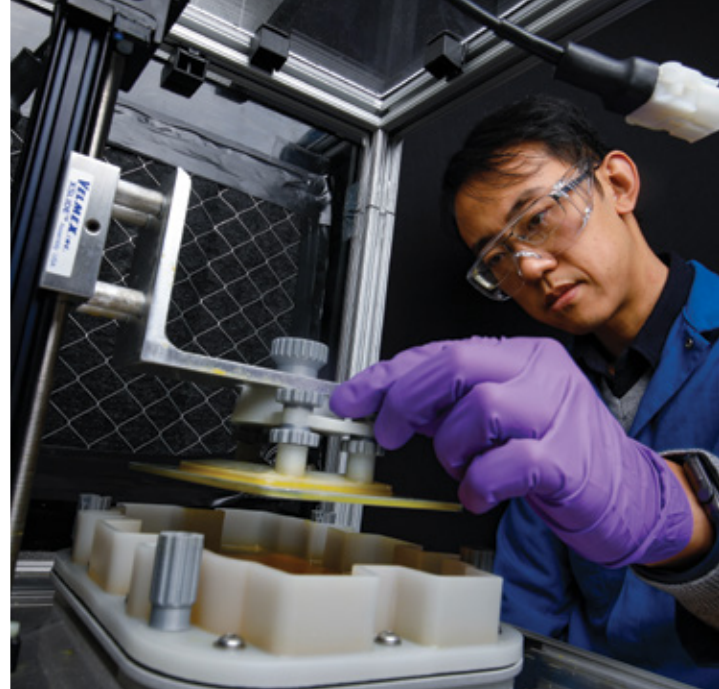
Those who rise to the top in mechanical engineering are able to recognize emerging issues, come up with creative solutions, and design and refine prototypes until they have something that truly works. UIC's program will help you to develop that skillset and mindset, opening the door to higher-level opportunities. In this program, you can either combine your courses with a research-based master's thesis or complete your entire MS degree through coursework.

MS IN INDUSTRIAL ENGINEERING

An MS in industrial engineering from UIC will hone your expertise in creating efficient, high-performing systems that bring together people, equipment, materials, power, and information to deliver products or services—preparing you for roles that are expected to grow 8 percent by 2028, according to the U.S. Bureau of Labor Statistics. You can either combine your courses with thesis research or complete your entire degree through coursework.

MASTER OF ENERGY ENGINEERING

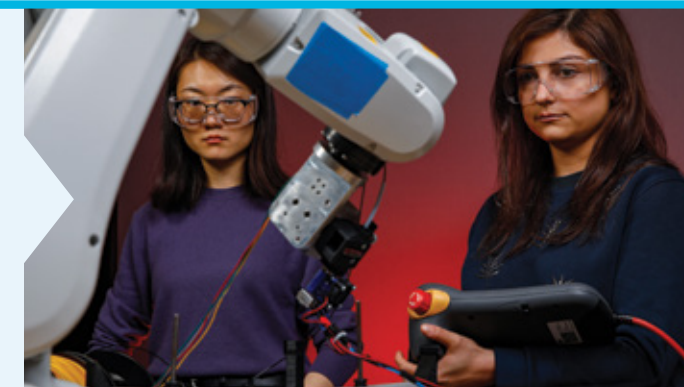
This practical program is open to students of many backgrounds: it requires an understanding of math and science but no prior experience or study in engineering. Through courses, guest speakers, site tours, and hands-on projects, you will come to understand the energy industry, from power generation to project management. This program offers evening courses to meet the needs of working professionals, and it has its own website: energyengineering.uic.edu.



International Programs

UIC's international partnership programs allow students from specific universities around the world to complete part of their higher education in our department, potentially culminating in an MS in Mechanical Engineering or MS in Industrial Engineering from UIC.

Learn more at go.uic.edu/COEinternational.



UIC's Academic Strengths

Mechanical Engineering:

- Design, Controls, and Manufacturing
- Energy Research
- Fluid/Thermal Research

Industrial Engineering:

- Big Data Analytics
- Advanced Manufacturing
- Machine Learning and Artificial Intelligence

Featured Courses

What will you take as an MS student at UIC? Explore your choices at mie.uic.edu (see the Courses page under the Graduate menu). Here are a few that have captured our current students' attention—and that have proved especially valuable in their careers after UIC.

IE 466 PRODUCTION PLANNING AND INVENTORY CONTROL

In this course, industrial engineering students become acquainted with the principles of production planning, master scheduling, job sequencing, design and control of deterministic and stochastic inventory systems, and material requirement planning.

IE 594 3D PRINTING / ADDITIVE MANUFACTURING

Understanding the principles, advantages, and limitations of additive manufacturing is key for today's engineers. This course introduces additive manufacturing technologies and explores physical modeling, materials, design, process and quality control, and applications of additive manufacturing technologies and parts, among other topics.

ME 411 MECHATRONICS I

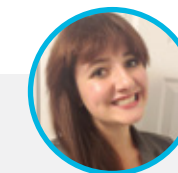
Students learn about elements of mechatronic systems, sensors, actuators, microcontrollers, modeling, hardware in the loop simulations, and real-time software. The class conducts lab experiments with electromechanical systems.

ME 547 ADVANCED CONCEPTS IN COMPUTER-AIDED ENGINEERING

This course covers useful concepts in motion simulation of complex rigid multibody systems. Students learn about the recursive formulation of kinematical and dynamical equations of open and constrained multibody systems and develop interactive computer solutions.

A Step Ahead

Thanks to the strength of our curriculum and UIC's global connections, many MS students are able to get **internships** that help them level up their career planning.



Jacqueline Swift

Internship: Spraying Systems Company

Location: Wheaton, IL

Assignment: Developing specialized software that research engineers, sales engineers, and technicians can use to analyze sprays created by the company's spraying products

Her perspective: "UIC has more than prepared me for my current position. The master's program has been challenging, but well worth it, and UIC is located in the heart of Chicago, which has a nearly endless supply of job opportunities."



Michael Bravo

Internship: The Boeing Company

Location: Chicago, IL

Assignment: Analysis and testing of the flight-control functions of Boeing's widebody 777X, ensuring that flaperons, elevators, rudders, slats, and flaps behave properly and safely during takeoff, landing, and flight

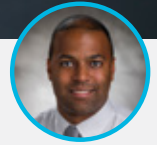
His perspective: "Mechanical and industrial engineering allows students to touch and invest in almost any industry that you can imagine: automotive, rehabilitative robotics, energy storage, nanotechnology, aerospace. If you can name it, chances are you can do it at MIE."



After UIC, where to?

Companies that have hired graduates of UIC's mechanical engineering, industrial engineering, and energy engineering master's programs include:

- Air Force Research Laboratory
- Advocate Condell Medical Center
- Altair
- Anthem
- Argonne National Laboratory
- Blue Origin
- Caterpillar Inc.
- CNH Industrial
- Collins Aerospace
- Cummins
- Deloitte Switzerland
- Electro-Motive Diesel Inc.
- Exelon
- Gamma Technologies
- General Motors
- Google
- HBK Engineering
- HydraForce
- Illinois Tool Works
- ImageXpert Inc.
- Intel Corporation
- Intellisense
- ITW
- Johnson Controls
- Komatsu Mining Corp.
- Lockheed Martin
- Mack Trucks (Volvo Group)
- MEMS R&D
- Motorola
- Navistar
- Primera Engineers
- Spraying Systems Company
- SunCoke Energy
- TATA Motors
- Tesla
- TRW Automotive
- U.S. Navy
- USG
- Wacker Neuson SE



Ryan Ollie

Manager of Facility Operations,
Advocate Condell Medical Center

Ryan Ollie, who earned an undergraduate degree in mechanical engineering, was working as an energy engineer at DNV GL when a coworker, a UIC alumnus, told him about UIC's master of energy engineering program.

Today, Ollie is manager of facility operations for one of the hospitals in the Advocate Aurora Health System—a recent promotion that places him in charge of engineering, maintenance, and grounds operations. As part of his role, he oversees energy-efficiency projects, determines engineering design standards with energy efficiency in mind, and tracks the hospital's overall utility usage.

"Understanding energy engineering principles is becoming increasingly important, because energy usage behavior is at the forefront of economic and environmental stewardship initiatives," Ollie said. "As most organizations are being tasked with reducing costs, effective management of utilities is paramount."



Hereford Johnson

Consultant, Deloitte

Consulting is a career that is opaque to a lot of people, but Hereford Johnson sees it as a path to make a difference in ever-changing ways. His team at Deloitte works on "everything from clean energy to improving healthcare, public policy, cybersecurity, and smart farms to improve agricultural practices," he said. "I have no doubt that we create positive impacts on the world and local community every day."

His role, informed in part by his MS in Industrial Engineering from UIC, is to help senior executives at large companies all over the United States to solve strategic and technological problems. "Industrial engineering, in my very biased opinion, is the best curriculum to prepare engineering students for the business world," he said. "The IE foundational skillset made me a well-rounded critical thinker, and it gives you a set of methodologies that will set you apart from your peers."

Johnson visits the UIC campus three or four times a year and credits several MIE faculty members as strong influences: "They gave me the tools to be a well-rounded engineer and a license to hustle. Thank you."

Admissions

Full details on how to apply—including requirements and deadlines—are at mie.uic.edu under the Graduate menu.

Interested in graduate study at UIC? Talk to us. Contact our graduate team with questions or for an informal conversation.

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