CHEMICAL ENGINEERING (MS, PHD)

A DISTINCTIVE GRADUATE EDUCATION

Graduate students pursuing the MS and PhD degrees in Chemical Engineering benefit from working side-by-side with faculty advisors on a wide range of research activities. Students and faculty apply chemical engineering principles to make cutting-edge technological advances. For example, researchers are pioneering a microdevice, i.e. an entire miniature chemical plant on a silicon wafer, to rapidly determine a patient’s blood type, as well as developing a new process to create pure iron from hazardous mining waste materials. Graduate research opportunities are often interdisciplinary with strong industry collaborations. The opportunity to get involved with research that improves peoples’ lives makes chemical engineering an excellent choice for graduate study. Students are encouraged to publish their work and disseminate their findings to a worldwide audience.

FACILITIES AND LABS

Fully-equipped laboratories and analytical equipment support the department’s research efforts. Resources are available to study inorganic and biochemical systems and processes ranging in size from nanoscale to pilot plant, biochemical engineering, mineral processing, process control, process design, polymer science, and nanotechnology.

Projects often go well beyond small-scale laboratory demonstrations. At three stories tall and 6,000 square feet, our Unit Operations Laboratory simulates a real-world chemical-processing facility. Students receive industrially relevant, hands-on experience with state-of-the-art equipment for chemical processing, instrumentation, control, and data acquisition.

GRADUATE RESEARCH

Research within the department is advancing fundamental and applied knowledge in chemical engineering and related fields. Our research is recognized nationally, and our core strengths are process safety, process systems engineering, energy production and storage, sustainable engineering, applied thermodynamics, polymer processing, new materials synthesis, minerals processing, iron and steel making, and biochemical engineering. Many of our new research projects are being driven by University initiatives in sustainability, biotechnology, and alternative energy.

Chemical and materials industries fund 25 percent of the department’s research programs. Federal and state agencies support the rest of our projects, highlighted by funding from the National Science Foundation, the Department of Education, the National Institute of Health, and the US Department of Energy. The current level of external funding is approximately $3 million, with about $1 million in annual research expenditures.

CHEMICAL ENGINEERING SPOTLIGHT

“During my undergrad, I started doing research with a professor trying to fabricate graphene. After graduation, I decided to pursue my PhD at Michigan Tech because I really enjoyed doing research. My doctoral research involves adding graphene nanoplatelets to an epoxy resin as an additive for aerospace applications. It’s fascinating to see a material go from an experimental phase to being used in an actual application.”

Danielle Klimek-McDonald
2015 PhD Candidate
ADMISSION REQUIREMENTS

Application deadline: Apply at least a semester in advance of projected admission. Applications are reviewed on an individual basis using a holistic approach.

All Students
• Graduate School application
• Statement of purpose
• Official transcripts
• Two letters of recommendation
• Recommended GPA of 3.0/4.0 or better

International Students
• GRE: Recommended Quantitative Score in 75th percentile, Verbal Score in 20th percentile, and Analytical Writing Score of 3.0 or better
• TOEFL: Recommended score of 94 iBT

ABOUT MICHIGAN TECH

Michigan Technological University, founded in 1885, has gained worldwide recognition for innovative education and scholarship. Michigan Tech is a leading public research university, exploring the boundaries of knowledge, developing new technologies, and preparing students to create the future for a prosperous and sustainable world. Michigan Tech offers more than seventy graduate degree programs in engineering, forestry and environmental sciences, computing, business and economics, natural and physical sciences, technology, humanities, and social sciences.

ABOUT HOUGHTON

Houghton lies in the heart of Upper Michigan’s scenic Keweenaw Peninsula. The campus overlooks the Keweenaw Waterway and is just a few miles from Lake Superior. The area’s waters and forests, including our 600-acre recreational forest adjoining campus, offer students unparalleled opportunity for outdoor recreation and relaxation. The University’s 7,000 students come from all fifty states and more than sixty nations, making the area a vibrant, multicultural community.

FINANCE YOUR FUTURE

Earning your graduate degree is an investment in your career and your future. Here are a few financial aid opportunities you can explore as you look for ways to pay for your degree.

• Graduate research assistantships (GRAs), graduate teaching assistantships (GTAs), and fellowships are awarded competitively.
• Many graduate students are eligible for a new set of federal loans, up to $20,500 per academic year, as an independent student.
• Contact Michigan Tech’s Financial Aid Office at 906-487-2622 or finaid@mtu.edu for more information on financial aid opportunities.

APPLICATIONS IS EASY—AND FREE!

www.mtu.edu/gradschool/admissions/apply

Chemical Engineering

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1400 Townsend Drive • Houghton, MI 49931-1295
Phone 906-487-3132 • Fax 906-487-3213 • Email cmgradprogram@mtu.edu

www.mtu.edu/chemical/graduate/program

Graduate School

Email gradadms@mtu.edu or call 906-487-2327
www.mtu.edu/gradschool

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