

Michigan Technological University
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Michigan Technological University

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Michigan Technological University is an equal opportunity educational institution/equal opportunity employer.

GRADUATE PROGRAMS IN MATERIALS
SCIENCE AND ENGINEERING



Admission and Financial Aid

Competition for acceptance in Michigan Tech's materials science and engineering graduate programs is keen. The department supports between thirty and fifty graduate students, mostly on research assistantships associated with externally funded research programs. In addition, the department offers teaching assistantships and fellowships to qualified applicants. All students admitted to the Graduate School are considered for financial aid.

About Michigan Tech

Michigan Technological University is a leading public research university of international stature, conducting research, developing new technologies, and preparing students to create the future for a prosperous and sustainable world. Michigan Tech offers more than 120 undergraduate and graduate degree programs in engineering, forestry and environmental sciences, computer sciences, technology, business and economics, natural sciences, arts, humanities, and social sciences.

How to apply

1. Download an application form from the Graduate School webpage.
2. Submit the completed application online, or mail or fax it to the Graduate School.
3. Track the status of your application online.

Visit the Graduate School webpage for complete details about admissions and program requirements.

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Michigan Tech

Create the Future . . .
Change the World.



MichiganTech



GRADUATE PROGRAMS IN MATERIALS SCIENCE AND ENGINEERING

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Materials science and engineering focuses on the synthesis, processing, properties, and applications of engineering materials—from the production of primary metals to the development of microelectronic nanomaterials with novel properties.

Michigan Tech granted its first PhD in Metallurgy in 1934 and remains a leader in research and graduate education, now offering PhD and MS degrees in Materials Science and Engineering.

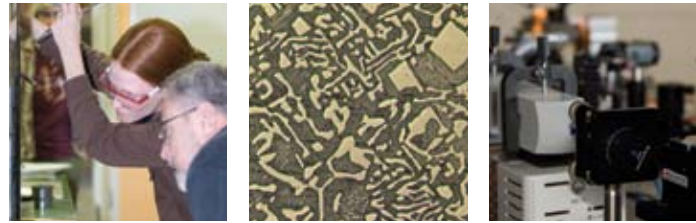
The future promises dramatic advances, making materials science a unique and exciting area of great scientific research, with far-reaching industrial, economic, and societal impact.

New materials will be synthesized atom by atom. Indeed, the number of possible combinations of atomic assemblies to achieve new structures and properties is seemingly endless, and this mechanistic understanding will provide powerful tools for materials and process development.

—Gerhard Wegner, Max Planck Institute



GRADUATE PROGRAMS IN MATERIALS SCIENCE AND ENGINEERING



Personalized Attention in a Challenging Program

The graduate program offered by the Department of Materials Science and Engineering is rigorous. It provides an outstanding foundation for careers in research, academia, materials production, and manufacturing.

Members of the faculty are nationally and internationally recognized for their teaching, research, and professional service. They strive to offer students extraordinary opportunities. Many have received prestigious National Science Foundation CAREER Awards and are recognized by professional societies, including ASM International (The Materials Information Society) and The Minerals, Metals, and Materials Society (TMS).

Students generally develop a close working relationship with faculty. The ratio of graduate students to faculty is about 2:1.

Facilities

The department has excellent facilities and instrumentation for synthesis, processing, testing, and characterization of materials, as well as a modern computational laboratory. Facilities and capabilities include the following:

- powder processing
- foundry
- deformation processing
- arc melters
- heat treating
- molecular beam epitaxy
- comminution
- separation
- materials characterization
- microfabrication
- applied chemical and morphological analysis
- materials testing, including electromechanical, servohydraulic, fatigue, hardness, impact, wear, and more

Research Across the Spectrum

Graduate students have the opportunity to study composite materials, ceramics, metals and alloys, electronic and optical materials, and polymers.

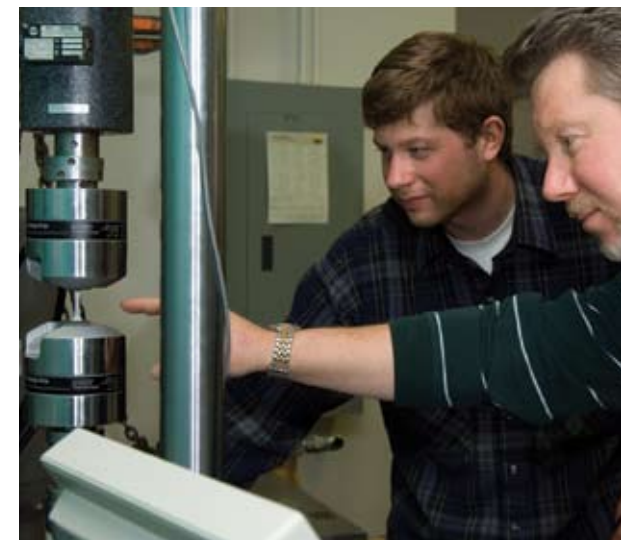
Research topics include synthesis and processing of primary materials, thermodynamics and kinetics of microstructural evolution, and material properties and performance, to name a few.

Current research spans the entire spectrum of materials engineering and involves more than twenty-five government and industry partners.

Michigan Tech encourages interdisciplinary research in manufacturing and materials processing. Graduate students may have the opportunity to collaborate with scientists in other departments, institutes, and research centers on campus.

The Institute of Materials Processing (IMP) is an innovative, multidisciplinary, nonprofit, industrially oriented research-and-development center holding more than sixty patents. The IMP, along with the Department of Materials Science and Engineering, is housed in a \$47.7-million research facility. For over forty years, IMP has been providing entrepreneurs and industry with the resources to study minerals, environmental concerns, and materials processing for over forty years. Its funding comes solely from royalties and research projects.

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Points of Pride

- ranked among the best in the nation by *US News & World Report*
- close interaction with automotive and primary metals industries
- excellent research facilities
- close interaction between faculty and graduate students
- successful alumni in industry, academia, and entrepreneurship



Faculty Research Areas

- casting, solidification, and heat treatment of steel and austempered ductile iron
- computer simulation of phase transformations
- corrosion of automotive fasteners and aluminum alloys
- development of novel processes for recycling waste materials
- fracture and fatigue of aircraft turbine alloys and automotive structural alloys
- growth and processing of magneto-optical and piezoelectric crystals
- mechanical alloying of metal/ceramic nanocomposites
- oxidation-resistant coatings
- powder metallurgy of tool steel
- processing of amorphous and nanostructured alloys
- structure and properties of lithium-ion battery materials