WHY PURSUE A GRADUATE DEGREE IN ME?

- Expand your skills and knowledge to open opportunities in R&D and technical leadership.
- Be at the forefront of technology development in fields that excite you and impact society.

ADMISSION

Admission to the graduate degrees are competitive and based on an evaluation of academic performance, test scores, personal statement and references. Applicants to a thesis based degree are considered for financial funding by the department and faculty at time of application. Funded students generally earn a monthly stipend with full tuition, fees, and health insurance paid.

ACADEMICS

The Graduate Program in Mechanical Engineering brings together faculty and graduate students with common interests in applying engineering and scientific principles to design and develop novel computational and experimental solutions to a wide array of multidisciplinary technical challenges. The department offers a Master of Science, with thesis and non-thesis options; and a Doctor of Philosophy degree to prepare candidates for careers in industry, government, or academia.

RESEARCH DIVISIONS

Research within the department spans four broad divisions of research activity that stem from the core fields of Mechanical Engineering. In many cases, individual research projects encompass topics that cut across more than one division.

- BIOMECHANICS
- ROBOTICS AND AUTOMATION
- SOLID MECHANICS AND MATERIALS
- THERMAL-FLUID SYSTEMS

Students address real-world engineering problems in research labs and centers, which creates a community for multi-disciplinary learning, research and experimentation.

LEARN MORE

Lori Sisneros, sisneros@mines.edu
Graduate Program Manager

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Mechanical Engineering
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1610 Illinois Street
Golden, CO 80401
Our faculty and graduate students are engaged in multi-disciplinary research that often overlaps these divisions, as well as fields beyond the traditional borders of Mechanical Engineering. Our research is stimulated by our department’s strong ties and collaboration with other departments across the Mines campus, other academic U. S. and international institutions, industrial partners, and federal laboratories, such as NREL and NIST.

**THERMAL-FLUID SYSTEMS**

Research in thermal-fluid systems integrates the disciplines of thermodynamics, heat transfer, fluid mechanics, transport phenomena, chemical engineering, and materials science toward solving problems and making advances through experiments and computational modeling in the broad areas of energy conversion and storage, fluid mechanics, alternative fuels, renewable energy, and thermal transport.

**BIOMECHANICS**

Research activities include experimental, computational, and theoretical approaches with applications in the areas of rehabilitation engineering, computer assisted surgery and medical robotics, patient specific biomechanical modeling, intelligent prosthetics and implants, and bioinstrumentation.

**SOLID MECHANICS & MATERIALS**

This research division develops novel computational and experimental solutions for problems in the mechanical behavior of advanced materials. Research includes investigations of microstructural effects on mechanical behavior, nanomechanics, granular mechanics, and continuum mechanics. Research is computational in nature using advanced methods such as molecular dynamics, finite-element, and boundary-element methods.

**ROBOTICS & AUTOMATION**

Research in this division explores the science underlying the design process, innovative computational analysis for automation, intelligence and systems optimization, and implementation of mechanical and control systems to enable autonomy. Topics include the design of robotic and automation system hardware and software.

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**FACULTY SPOTLIGHT: AARON STEBNER**

Assistant Professor Aaron Stebner joined the CSM faculty in 2013, and received a National Science Foundation (NSF) Early CAREER award in 2015 for his work in the study of micromechanics phase transformation in shape memory alloys and stainless steels. In addition to his full appointment in Mechanical Engineering, he is jointly appointed in Metallurgical and Materials Engineering and he also advises students through the multidisciplinary Materials Science program. He founded the Beam Team/Multiscale Mechanics of Materials lab.

Dr. Stebner was a postdoctoral scholar of the Graduate Aerospace Laboratories at the California Institute of Technology (GALCIT) after earning his Ph.D. from Northwestern University and B.S. and M.S. degrees from The University of Akron. Concurrent to his PhD program, he held an appointment as a Lecturer of the Segal Design Institute at Northwestern University.

Photo: Dr. Stebner and members of his research team.

“Earning a PhD in ME has provided me with the opportunity to improve my understanding of the thermal sciences, while participating in cutting edge energy research.”

Gladys Anyenya, ME Ph.D. Graduate
Thermal-Fluids Systems Research Division

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