ABOUT RAPID CITY
South Dakota’s second-largest city (pop. over 70,000) offers a quality of life you will love, with restaurants, entertainment outlets and shopping in Historic Downtown. Just 20 minutes from Mount Rushmore and the Black Hills, Rapid City is a perfect location for students interested in enjoying the outdoors.

ABOUT THE BLACK HILLS
The name “Black Hills” is a translation of the Lakota Pahá Sápa or “hills that are black.” One of the most historic and beautiful places in the country, the million-acre Black Hills National Forest and surrounding area feature Mount Rushmore, Crazy Horse Memorial, caves, canyons, wildlife, and other natural attractions. You can enjoy snowboarding, hiking, rock climbing, kayaking, mountain biking, fishing and more.

APPLICATIONS
graded.sdsmt.edu

CONTACT
605.394.2401
Mechanical.Engineering@sdsmt.edu

GRADUATE RESEARCH ASSISTANTSHIPS
Funding opportunities, in the form of both teaching and research assistantships, are available for exceptional students.
ME PH.D. PROGRAM

The mechanical engineering (ME) Ph.D. program at South Dakota School of Mines and Technology allows students to reach the highest level of academic achievement. In addition to teaching in academia, graduates can pursue careers at research centers in national laboratories and research & development (R&D) centers in automotive, aerospace, oil, and gas. Students will have a chance to work with faculty involved in research at the forefront of their fields and to publish in acclaimed journals. They will conduct experimental-numerical/theoretical research in one of three areas - thermo-fluid sciences, solid mechanics & materials science, and robotics & controls. The program emphasizes flexibility, breadth, and depth flexibility for the student and his/her doctoral committee to make choices; breadth across disciplines within and outside of mechanical engineering; and depth in one or more sub-disciplines. Graduates of the program will have demonstrated:

a) an ability to contribute new ideas, knowledge, applications, developments, and/or insights in an area of mechanical engineering;

b) a sufficient breadth of knowledge in their chosen areas within and outside of mechanical engineering;

c) an ability to formulate, and bring to meaningful completion, a research project.

NUMEROUS OPPORTUNITIES

The ME Graduate Studies and Research Program focuses on three primary areas of scientific research in mechanical engineering and engineering mechanics: fluid dynamics & thermal science, solid mechanics & material science, and robotics & controls. The research activities of the ME faculty involve both computational and experimental efforts across several departmental laboratories, including the Advanced Intelligent Mechatronics Systems (AIMS) lab; Center of Excellence for Advanced Manufacturing and Production (CAMP); Experimental and Computational Mechanics Laboratory (ECML); Fluids, Thermodynamics, and Heat Transfer lab; Joining and Mechanical Properties of Polymers (JMP) lab; Laboratory of Engineered Multifunctional Materials and Structures (LEMA); Powerful high-performance computing cluster; and Robotics and Computational Kinematics Innovation (ROCKIN) Lab.

Strong research collaborations exist among these laboratories as well as campus-wide research centers, such as:

- Additive Manufacturing Laboratory (AML)
- Arbogast Materials Processing and Joining (AMJP) lab
- Center for Security Printing and Anti-Counterfeiting Technology (SPACT)
- Composites and Polymer Engineering (CAPE) lab
- Surface Engineering Research Center (SERC)

PH.D. STUDENT TESTIMONIALS

Why choose the Department of Mechanical Engineering's Ph.D. program at SD Mines?

"I originally chose to attend SD Mines based on both its academic reputation as well as its well-known professors in my field."  
Farid Rouata, PhD student

"Mechanical engineering at SD Mines has a wonderful, academic atmosphere, which supports diverse teams in finding creative new approaches to exciting problems in the world. From coursework, to classmates, to the resources, to the facilities, to the research opportunities, to the professors, it is unparalleled. The best part is the abundant research opportunities available through the SD Mines Department of Mechanical Engineering. Highly accomplished professors and a wide variety of advanced and interesting classes, distinct school cultures, and tight-knit communities prepare you well for any future career."

Subhaaish Malik, PhD student

"The research opportunities here (under Dr. Albert Romkes) made me choose the Ph.D. program in the ME department."

Eirik Valseth, PhD candidate

What career paths have opened up for you due to your Ph.D. studies?

"I feel my PhD project can open up new lines of inquiry for this field and want to use it as the foundation for a research career. With a Ph.D. degree and an academic career, I will be able to conduct my own research, which is my career goal."

Farid Rouata, PhD student

"My PhD studies here have led me to seek a career in academia. At the same time, I'm sure a career in industry would have been an option that could have easily been pursued with my experience from the ME department."

Eirik Valseth, PhD candidate

FACULTY

The faculty members in the Department of Mechanical Engineering at SD Mines are dedicated to providing the highest quality academic guidance. Below are current ME faculty members associated with the Ph.D. program.

- Dr. Pierre Larochelle: experimental/theoretical robotics, Department Head
- Dr. Duane Abate: thermosciences, energy storage, combustion
- Dr. Jason Ash: experimental solid mechanics
- Dr. Cassandra Birenkott: solid mechanics of polymers
- Dr. Hadi Fekomandi: mechanics and robotics
- Dr. Aaron Laitley: advanced manufacturing and VMC machining
- Dr. Jihad Makki: aerodynamic measurements and plasma physics
- Dr. Prasoon Dwivedi: plasma physics and aerosol measurements
- Dr. Duane Abate: thermosciences, energy storage, combustion
- Dr. Jason Ash: experimental solid mechanics
- Dr. Hadi Fekomandi: mechanics and robotics
- Dr. Aaron Laitley: advanced manufacturing and VMC machining
- Dr. Jihad Makki: aerodynamic measurements and plasma physics
- Dr. Prasoon Dwivedi: plasma physics and aerosol measurements
- Dr. Duane Abate: thermosciences, energy storage, combustion
- Dr. Jason Ash: experimental solid mechanics
- Dr. Hadi Fekomandi: mechanics and robotics
- Dr. Aaron Laitley: advanced manufacturing and VMC machining
- Dr. Jihad Makki: aerodynamic measurements and plasma physics
- Dr. Prasoon Dwivedi: plasma physics and aerosol measurements

- Dr. Farid Rouata
- Dr. Albert Romkes
- Dr. Subhaaish Malik
- Dr. Eirik Valseth

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