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-plus 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.

EXPECTATIONS OF INCOMING STUDENTS
Applicants must meet the minimum SD Mines graduate education requirements. In addition, they will be evaluated against the following criteria:

- A baccalaureate degree in mechanical engineering or a closely-related field;
- An undergraduate grade point average of 3.0 or greater;
- Scores on the GRE;
- And, for those applicants whose native language is not English, their TOEFL score.

GRADUATION REQUIREMENTS
Students entering the program must submit a program of study and choose a major professor by mid-term of the second semester. Students will also be required to form a graduate committee to evaluate individual student progress through the qualifying and comprehensive exams, and the dissertation defense process.

Graduation with an ME Ph.D. requires 72 credit hours beyond the B.S. degree. Those entering with an appropriate master’s degree may obtain credit for work done toward that degree. For more information, visit sdsmt.edu/GraduateEducation.

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

CONTACT
605.394.2401
Mechanical.Engineering@sdsmt.edu

APPLICATIONS
graded.sdsmt.edu

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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 academic programs, 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 advanced Intelligent Mechatronics Systems (AIMS) lab; Center of Excellence for Advanced Manufacturing and Technology (CAMP); Experimental and Computational Mechanics Laboratory (CEML); Fluids, Thermodynamics, and Heat Transfer lab; Joining and Mechanism of Polymers (JMP) lab; Laboratory of Engineered Multifunctional Materials and Production (LEMMAI); powerful high-performance computing cluster; and 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.

PH.D. STUDENT TESTIMONIALS

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

Farid Rouata, Ph.D student

"Mechanical engineering at SD Mines has a wonderful, academic atmosphere, which supports diverse teams in finding creative new approaches to existing problems in the world. From coursework, to classrooms, 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."

Subhajit Malik, Ph.D 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 Ph.D 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, Ph.D student

"My Ph.D 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 (Department Head)

Dr. Cassandra Diannik (solid mechanics of polymers)

Dr. David S. Birrenkott (fluid mechanics)

Dr. Daniel Rederth (magnetic quantum sciences, energy storage, combustion)

Dr. Albert Romkes (mechanics, experimental mechanics)

Dr. Prasoon Diwakar (plasma physics and diagnostics)

Dr. Jason A. Agh (experimental solid mechanics)

Dr. Karim Muci (design, design education, design thinking, engineering education)

Dr. Johnathan E. DiMeo (mechatronics and VMC machining)

Dr. Jason Agh (experimental solid mechanics)

Dr. Peter McKeon (structural health monitoring)

Dr. Khosro Shahbazi (computational fluid dynamics and turbulence)

Dr. Andrea Surenok (Architectural Mechanics and Biomimicry)

Dr. Aaron Lalley (Aerospace and ISR)

Dr. Rachel Adler (Design & Manufacturing)

Dr. Duane Abata (thermo-structural mechanics, micro/nano materials science)

Dr. Nickolas Bruno (plasma physics, laser materials processing)

Dr. Prasad Desai (computational fluid dynamics and turbulence)

Dr. Johnny Gates (plasma physics and materials science)

Dr. Hadi Fekrmandi (mechanisms and robotics)

Dr. K. Paul Birgenhead (solid mechanics of polymers)

Dr. Khosro Shahbazi (computational fluid dynamics and turbulence)

Dr. M. Alexander Rabinovitch (thermodynamics, energy storage, combustion)

Dr. Prasoon Diwakar (plasma physics and diagnostics)

Dr. Hadi Fekrmandi (computational fluid dynamics and turbulence)

Dr. Khosro Shahbazi (computational fluid dynamics and turbulence)

Dr. Andrea Surenok (Architectural Mechanics and Biomimicry)

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