MECHANICAL ENGINEERING (ME) PROGRAM SCOPE

We pride ourselves in having a strong hands-on curriculum that emphasizes the connections between fundamental engineering analysis and practical engineering design. Our graduates find jobs in aerospace, fossil and renewable energy, manufacturing, and the biomedical and automotive industries, or they continue their education in graduate school at top institutions.

$70,887 Average starting salary for bachelor’s graduates*

4 Nationwide student competition teams: Shell Eco-marathon, FSAE, NASA Mars Challenges, AIAA Design/Build/Fly

OUT-OF-CLASS EXPERIENCES

STUDENT ORGANIZATIONS
Network with peers and industry leaders, hold leadership positions on campus and receive mentoring from faculty club advisors.

- American Institute of Aeronautics and Astronautics (AIAA)
- American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE)
- American Society of Mechanical Engineers (ASME)
- Formula SAE
- Maker Society
- Robotics Club

CAPSTONE DESIGN @ MINES
The ME senior design experience features over 50 multidisciplinary, industry-driven, year-long capstone projects. Within senior design, the Human Centered Design Studio also provides opportunities to design adaptive technologies within the SD experience.

INTERNSHIPS & TOP EMPLOYERS
85 percent of ME undergrads participate in internships. The Mines Career Center invites 300+ companies to career fairs held each semester. Top full-time employers of ME graduates include:

- Lockheed Martin
- Kiewit
- Raytheon
- Sierra Nevada
- Solar Turbines
- IMI Precision
- Puget Sound Naval Shipyard
- United Launch Alliance
- Ball Aerospace
- Epic Systems
- ExxonMobil
- Ford AV
- Schlumberger

AREAS OF STUDY

DEGREES
Mechanical Engineering (ME)
Bachelor’s, master’s and PhD offered

POPULAR MINORS
+ Advanced Manufacturing
+ Aerospace Engineering
+ Biomechanics
+ Computer Science
+ Electrical Engineering
+ Robotics & Intelligent Systems

AREAS OF EMPHASIS
+ Aerospace
+ Automotive

PROJECT-BASED COURSE SEQUENCE
+ Introduction to Design
+ Programming & Hardware Interface
+ Design and Fabrication
+ Instrumentation & Automation
+ Mechanical Integration & Design
+ Capstone Design @ Mines

*Information is from the 2019-20 Mines Career Center Outcomes Survey
OPPORTUNITIES IN MECHANICAL ENGINEERING
MECHANICAL.MINES.EDU

MECHANICAL ENGINEERING DIVISIONS

BIOMECHANICS
Biomechanics is the application of traditional mechanical engineering concepts to human motion. Our faculty conduct research and teach classes in disciplines including both computational and musculoskeletal biomechanics, as well as modeling and simulation of human movement, with a focus on immersive, hands-on experience.

ROBOTICS & AUTOMATION
Robotics and automation are prevalent in our lives in the form of diverse applications in areas such as surgery, human movement, manufacturing, and defense. Mechanical engineers working in this field are responsible for physical design and feedback control while routinely collaborating with electrical engineers and computer scientists.

SOLID MECHANICS, MATERIALS, & MANUFACTURING
Advanced materials and cutting-edge manufacturing processes are driving innovation in aircraft structures, biological implants, nuclear energy containment and battery technology. Mechanical engineers study process-structure-property interfaces on a range of length scales to develop novel solutions to real-world industrial problems.

THERMAL FLUID SYSTEMS
Mechanical engineers are essential contributors to energy technology industries. In the Thermal Fluid Systems division, students participate in research and pursue careers in alternative fuels, fuel cells, structural energy efficiency, smart grids and clean energy processes. We work closely with researchers at the National Renewable Energy Laboratory.

INTERDISCIPLINARY PROGRAMS

Advanced Manufacturing
manufacturing.mines.edu

Operations Research with Engineering
orwe.mines.edu

Space Resources
space.mines.edu

FEA Professional
mines.edu/feapro

Advanced Energy Systems
everysystems.mines.edu

PROJECT-BASED CURRICULUM
During students’ second and third years, they participate in four project-based courses that supplement their first-year design experience as well as the experiences that will follow in their fourth year. The courses integrate design concepts and ME applied skills in programming, machining, GD&T and instrumentation. These experiences prepare students for a year-long multidisciplinary senior design course, which provides project experiences from industry, the community and national competitions.