Montana Technological University Energy R&D Capabilities

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About Montana Tech

- Established with land grant by the Statehood Act for Montana in 1889
- Opened in 1900 as Montana State School of Mines

**Mission:** Blending theory with practice and building on its heritage, Montana Tech provides exemplary undergraduate and graduate education, workforce development, research, and service to meet the changing needs of society and the responsible development and use of natural resources.

- Montana’s Special Focus, ~80% STEM university
  - ~2500 students, ~10% graduate students
- Includes Montana Bureau of Mines & Geology (MBMG)—a state agency
Many Accolades and High Rankings

#1 Best Value Engineering School in USA—2nd Year
Bestvalueschools.org 2019

#1 (tie) in Top Public Schools
US News 2018

Military Friendly School
Victory Media

Top-200 School for Native Americans—7th Year
American Indian Science & Engineering Society

#1 in USA for Advancing the Economy
Edsmart.org

#1 Best Value University in Montana
SmartAsset.com

#2 Best Value Occupational Safety Degree Program
College Values Online

A Top Public University for Return On Investment
The Wall Street Journal

Highly Ranked for Social Mobility
College Net
Energy-Related “Workforce Development”

- Pre-Apprentice Line, welding, & machining certificates
- Associate’s degrees in automotive technology, metals fabrication, drafting, & precision machining
- 12 ABET-accredited B.S., including petroleum, electrical, metallurgical & materials, mining, mechanical, geological engineering, occupational safety, & computer science
- B.S. in math, chemistry, biology, & business— with “Land Manager” option
- Distance master’s for “working professionals” in industrial hygiene, project engineering management, and many engineering specialties (M.Eng.)
- On-campus master’s include materials science & engineering, industrial hygiene, petroleum, electrical, mechanical, metallurgical & mineral processing, & geoscience
- Graduate certificates in computational science & ecological restoration
- Ph.D. in materials science (collaborative program with Montana State University)
Distinctive Research Infrastructure

- **Center for Advanced Mineral, Metallurgical, & Materials Processing (CAMP)**
  - Academic Center of Excellence engaging faculty & students across the campus in forefront sponsored research on materials, metallurgy, mineral processing, and agile manufacturing

- **Underground Mine Education Center**
  - >1 km tunnel, ~30 m underground on western edge of campus
  - Research & learning in mining, rock mechanics, safety, electrical engineering, UAV testing, geothermal energy, & other fields

- **Montana Bureau of Mines & Geology (MBMG): Montana’s state geological survey**
  - Groundwater & surface water,
  - Geological mapping, GIS, earthquake studies

- **Montana HPC Cluster:**
  - 26 nodes, 91 TB storage, ~20 TFLOPS
Energy-Related Research Examples

- Geophysical surveys and studies, including of Hanford
- Materials & manufacturing
  - Metallurgy, mining, minerals, & materials processing
  - Rare earth processing, separation, & recycling
  - Agile manufacturing: additive, welding, resonant mixing, nanotech
- Water: quantity, quality, hydrogeology, & geosciences
  - Groundwater, surface water, snowpack
- Energy: extraction, transmission, storage, security, & sustainability
  - Horizontal drilling & enhanced recovery of oil and gas
  - Electric grid control & reliability
- Restoration ecology & environmental engineering
  - Supporting capability: high performance computing, 3-D visualization; economic development, entrepreneurship, innovation & engineering management
Welcome to Montana Tech & Butte

- Graduates are in demand
  - Great education with ~93% placement rate
  - Highly discounted tuition for students from western states
- If your schedule allows, please sign up for 1-hour lab tour, to start at 11:30 am Wednesday
  - Nanotechnology cleanroom
  - Safety lab for instruction & research
  - Student project & machine shop facilities
  - Geophysical survey capability
  - Materials & manufacturing labs
  - Petroleum engineering labs
  - Montana Bureau of Mines & Geology