

## Application

Students who are interested in the Mining and Minerals Engineering Graduate Program at Virginia Tech and would like further information on application materials and requirements should consult the following resources available online:

**Virginia Tech Graduate Application**  
<http://www.grads.vt.edu/homeapply.html>

**Virginia Tech Graduate Requirements**  
<http://www.vt.edu/academics/gcat/gcdMinE.html>

**Mining & Minerals Engineering Graduate Program**  
<http://www.mining.vt.edu/academics/graduate.html>

Questions regarding the program not addressed by the above resources should be directed to the Mining and Minerals Engineering Department at

[mineinfo@vt.edu](mailto:mineinfo@vt.edu)



## Department of Mining & Minerals Engineering

100 Holden Hall  
Virginia Tech  
Blacksburg, VA 24061-0239  
Phone: (540) 231-6671  
Fax: (540) 231-4070



[mineinfo@vt.edu](mailto:mineinfo@vt.edu)  
[www.mining.vt.edu](http://www.mining.vt.edu)

---

*Virginia Tech does not discriminate against employees, students, or applicants on the basis of race, sex, handicap, age, veteran status, national origin, religion, political affiliation or sexual orientation. Anyone having questions concerning discrimination should contact the Equal Opportunity/Affirmative Action Office.*



## Mining & Minerals Engineering Graduate Program

*Preparing mining and mineral engineers for high-level, challenging efforts in research, development, design, industry, university teaching, and government*



## Tradition

**THE MINING AND MINERALS ENGINEERING DEPARTMENT** at Virginia Tech was established in 1872, producing the first graduate from the university's College of Engineering.

Our graduate program offers the M.S., the M. Eng., and the Ph.D. degrees in mining and minerals engineering. In addition, interdisciplinary programs of study leading to the degree of M.S. and Ph.D. are available in environmental science and engineering, material science and engineering, computer science and applications, and systems engineering. The graduate program also recognizes and meets specific needs of the industry and its professionals. In addition to its academic goals, the graduate program strives to upgrade technological skills of practicing engineers, encourage the pursuit of doctoral-level work among qualified industry professionals and provide an opportunity for professionals to further their education and reorient their career opportunities.

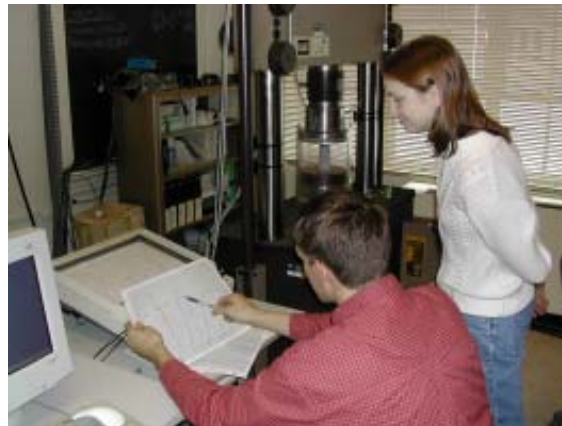


In addition to the excellent financial support available for research, graduate students receive a wide variety of funding and financial support through programs such as assistantships, fellowships, federal traineeship grants and departmental grants.



## Research

Each graduate student has the opportunity to participate in some of the most creative and challenging research projects in mining and minerals engineering. More than 13 million dollars has been awarded to department research proposals over the last five years. Consequently, our research centers and laboratories offer students access to state-of-the-art equipment and facilities. The Department of Mining and Minerals Engineering is also the site of two acclaimed research centers: the **Virginia Center for Coal and Energy Research** and the **Center for Advanced Separation Technologies**.



Currently, our program is conducting a number of industry and government-sponsored research projects in a wide range of concentrations, including areas such as

- *Mine-to-Mill Optimization of Aggregate Production*
- *Reduction of Mining Electrical Hazards through Improved Engineering Controls*
- *Fracture Toughness-Based Models for the Prediction of Power Consumption in Rock Fragmentation*
- *Development of a Core-Based Wedge Test for the Rapid Determination of Mode I Rock Fracture Toughness*
- *Stress Redistribution Imaging for Rock Failure Prediction*
- *Adaptive and Real-Time Geologic Mapping, Analysis and Design of Underground Space*
- *Advanced Dewatering Systems Development*
- *Development of a Novel Fine Particle Centrifuge*
- *Development of Novel Ultrafine Sizing Methods*
- *Modeling of Froth Flotation from First Principles*
- *Direct Measurement of Surface Forces in Flotation Systems*
- *Novel Surfactants as Collectors for Froth Flotation*
- *In-Plant Testing of High-Efficiency Hydraulic Separators*
- *Carbon Sequestration Technologies*
- *Carbon Management*
- *Coalbed Methane Mitigation*
- *Sustainable Development Indicators*
- *Virtual Reality Training Systems*
- *3-D Mining Visualization Techniques*
- *Real-Time Optimization of Mining and Construction Operations*
- *Smart-Sampling: Geostatistical Characterization for Mining and Environmental Applications*
- *Utilization of GPS and Simulated Data in an Expert Decision Support System for the Improvement of Earthmoving Operations*
- *Haulage Trucks Transmission Lockout in Vehicle Collision Prevention*
- *GPS Applications for Reducing Jarring and Run-Over Injuries in Surface Mines*
- *3-D Dynamic Vehicle Environments Based on GPS: A Terrain Profiler and Proximity Warning System for Autonomous Vehicle Research*

# Mining and Minerals Engineering