The Colorado School of Mines isn't your typical university.
Located in Golden, Colo., CSM occupies a unique position among the world's higher learning institutions. While maintaining a small student base, the faculty's broad expertise has developed strong science and engineering curricula.

CSM's mission statement explains its methods: "...[CSM] shall be a specialized... research institution with high admission standards. The school shall be the primary institution of higher education offering energy, mineral and materials science and mineral engineering degrees..."

But if CSM isn't a gigantic educational conglomerate, how can it compete with larger universities for students or government funding? By maintaining a uniform focus and working for the same purpose. This focus stems from a strong sense of conviction and by being in tune with society.

"Our reputation is extremely important to us," CSM president John Trelny said. "It's a question of quality."

It's quality that compels pupils to become stewards of the Earth, while laying the foundation for successful professional futures.

Early Beginnings
In 1866, Bishop George M. Randall arrived in Golden to plan a university, including a school of mines. CSM finally opened under the auspices of the Episcopal Church in 1873.

A state institution since 1876 when Colorado attained statehood, early academic programs focused on assaying gold and silver. But as CSM grew, other engineering and science courses were added.

In 1879, the possibility of merging CSM and Colorado State University was discussed, but it was deemed inappropriate because of CSM's specialized focus.

Faculty and Staff
Balancing teaching responsibilities and research interests, the CSM faculty has pioneered many advances. More than 95 percent of the staff have earned doctoral degrees, including Levent Ozdemir, professor of mining, director of excavation engineering in the Earth Mechanics Institute (EMI) and director of the Center for Mine Mechanization and Automation.

EMI, regarded as one of the world's leading research organizations involved in the evaluation and development of mechanical rock excavation technologies, has developed unique testing methods and computer models for accurately assessing the performance of all types of mechanical excavators over the last 25 years. Three years ago,

The Rock-laden "M"-blem overlooks the Colorado School of Mines from the top of Mount Zion.
the mining engineering department expanded the graduate program to include underground construction and tunneling.

Ozdemir, who came to CSM from Turkey on a governmental scholarship, remained at his alma mater with a position in the research institute after graduating 23 years ago. Remaining close to his curriculum, he relishes the challenge of teaching a varied syllabus each semester.

"I'd probably get bored teaching the same course over and over again," Ozdemir said. "The university gives us intellectual freedom to develop new courses and update our teaching material."

Mechanical excavation is one of the research areas in the mining department, lab manager Brian Asbury said. Since the geological makeup of rock varies greatly, lab technicians must make allowances for specific conditions while evaluating new cutting technologies, said Asbury, an 11-year faculty member.

"The bulk of my duties is carrying out contract research at EMI with students and providing the results," he said. "We're getting students up to speed on state-of-the-art design procedures."

**Departments and Facilities**

Undergraduates are studying some of today's most advanced fields in more than 20 research centers and institutes. Programs focus on balancing resource availability with environmental integrity in 13 departments.

CSM is the largest U.S. institution dedicated to mineral engineering, offering master's and doctoral degrees in 14 engineering fields in earth resources. As such, U.S. News and World Report ranked CSM 24th in its Top 50 Public National Universities list this year.

The liberal arts and international studies divisions and athletic department also provide non-technical educational opportunities.

This allows CSM to maintain an outstanding international reputation for education and research.

**Financial Profile Tied Into Research**

During the 1999 fiscal year, $17 million was invested in CSM. Research awards total more than $20 million annually. These figures are key indicators of CSM's competitive strength, doing things relevant to businesses and industries, said Trefny, who also serves as vice president for academic affairs and dean of faculty.

CSM has invested heavily in research, splitting sources between private and public funds, Trefny said. Historically, EMI has been publicly funded, but private contributions have increased over the last five years, Asbury said.

Research is very important to faculty members. It not only brings CSM the needed financial resources to support graduate students, but also enables them to remain at the forefront of technological developments, Ozdemir said.

In the mining department, research, performed by graduate and undergraduate students at the EMI one-of-a-kind testing facility, is on a task-by-task basis, Asbury said.

"This is many of the students' first experience with machines," he said. "Testing also provides background thesis data."

The Office of Special Programs and Continuing Education (SPACE) administers all educational programs to off-campus audiences. Most are technical classes.

"There appears to be a continued demand for traditional short courses and face-to-face instruction continues to benefit clients," SPACE Director Gary L. Baughman said.

One reason for CSM's teaching and research success is the close working relationship between departments, Ozdemir said. You now need an interdisciplinary team of faculty to tackle large research programs, he added.

"You lose some of this close interaction at larger universities," he said. "We have a close interaction. We don't have professors stuck in a lab all day. We can tap into faculty in other departments for expertise needed to carry out research."

**At research facilities, students test sample cuts of rock (left) taken from job sites with equipment such as cutterheads (upper), Mining Department Laboratory Manager Brian Asbury (lower right).**
The Typical Student

CSM's excellence is reflected in its student body. Colorado residents comprise approximately 71 percent of the student population with international students, representing 70 countries, making up 11 percent. Keeping the student/faculty ratio at 15:1 remains important to CSM officials.

"The university's strength is the fact it's small," said senior Sara Himelein of Corpus Christi, Texas. "I know everyone in my senior class (only 58 in her major this year). When you have trouble with homework or a lab, you can call 57 people."

To earn a degree, students must complete 149 course hours. By comparison, University of Arizona students need 28 hours less, Ozdemir said. Averaging six or seven courses a semester, students work hard, he said.

However, pupils escape from the engineering world with activities unrelated to classwork. Himelein and friends enjoy kayaking, biking or touring the Coors Brewing Co.

But, hard work pays off in the long run. CSM produces graduates thriving in today's market. Nearly 80 percent of the Class of 1999 had a job offer with an average starting salary of $43,000 before graduation.

"They're very much trained for what to expect when they get out," Ozdemir said. "Our students are also taught to work in an international environment. You can practically go to any country in the world and find a Mines graduate, probably in a very high management position."

The best way for students to make connections is Career Day. Scheduled each semester, approximately 113 companies set up booths to recruit potential employees.

"It's amazing the number of contacts coming here," Himelein said. "By reading a description of open positions and exchanging your resume, you can get a job or internship."

Students also make connections through the alumni guide, listing graduates' locations and job status. Himelein, who will earn a bachelor's degree in chemical and petroleum engineering, has spoken to many willing to share what they've learned.

"This isn't like a big university," Ozdemir said. "We're a very close and tight community in a small town. CSM makes family values and closeness a priority."

Future Trends and Projections

Ozdemir believes CSM will remain small while retaining its high academic standards. One of the biggest upcoming changes he sees is distant learning; offering interactive courses through the Internet.

In places like China, sending students to CSM could be monumentally expensive. But with online courses, students could earn a degree without being physically present on campus, Ozdemir said.

"There's a tremendous student pool," he said. "In the information age we live in now, everybody has Internet access. This will allow us to reach farther corners of the world."

Educationally, Asbury hopes they will continue growing by transferring new knowledge to students. Treiny assures development will continue in knowledge and methods.

"We have our niche and a special role to play," he said. "Each day I find new reasons why the Colorado School of Mines is very special."

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