"We are in the business of creating the very future in which we, our students, and all humankind will live and work."

JOHN U. TREFNY
PRESIDENT, COLORADO SCHOOL OF MINES
Our vision...

Colorado School of Mines
...is a world-class institution, enhancing its leadership in knowledge creation, education, services, and solutions to serve its varied constituencies—individual and corporate, public and private—comprehensively and internationally, and especially in its areas of expertise in engineering and applied science related to Earth, Energy, Materials, and Environment.
...is a world-class institution, enhancing its leadership in knowledge creation, education, services, and solutions to serve its varied constituencies—individual and corporate, public and private—comprehensively and internationally, and especially in its areas of expertise in engineering and applied science related to Earth, Energy, Materials, and Environment.
Colorado School of Mines has remarkable strengths in its history, programs, and people. With an exceptional reputation, Mines ranks nationally in accomplishment and value. Among its greatest assets are the students it attracts, its specialized identity and capabilities, its connectedness, and its focus. While the School has already made a worldwide impact through its alumni and scholarly contributions, it is poised to further enhance its influence through the strategies presented in this plan.

With rapidly escalating global demand for energy, technology, and natural resources, Mines has both an opportunity and a responsibility to magnify its contribution to the worldwide community by asserting its leadership position in areas of expertise and reinforcing its long tradition of academic excellence. To achieve these objectives in a dynamic and rapidly evolving economic and technological environment, the School has developed a seven-part strategic plan for the next decade that will optimize, consolidate, and align institutional resources in support of key programmatic areas such as earth, energy, materials, and environment.

"This plan promotes a dynamic future and preserves the School’s long traditions of excellence. It assures that Mines will enhance its historic strengths in undergraduate and graduate education, while contributing to extraordinary advancements in research and public service. The efforts of all who contributed, and the bold strategies that emerged, are characteristic of Mines' well-established 'can-do' work ethic. We proudly pledge our support to this visionary plan."

— Michael S. Nyikos
President, Colorado School of Mines Board of Trustees

The goals outlined in the pages that follow are ambitious. The School’s challenges, too, are great. Facing decreased State support, Mines must work hard to secure the financial and human resources it needs to fulfill its mission. The strategies address these current financial challenges, while expanding the School’s reach and impact on many levels. This plan charts a course by which Mines will secure its reputation as a world-class institution, dedicated to making a difference in the lives of its students and in the future of all.
The Ten-Year Plan

This strategic plan sets forth seven major strategies for Colorado School of Mines to pursue in the decade ahead. Individually each has a direct or indirect bearing on the success of the others. Together they form the framework for the institution's future. These strategies will serve as the basis for broad decision-making, and the point of reference for subsequent detailed action plans.

- Cultivate World-Class Expertise in Key Focus Areas
- Enhance Mines' Distinction as a Research Institution
- Sharpen Mines' Distinction in Undergraduate Education
- Align Graduate Programs with Professional & Societal Needs
- Realign the Geographic, Demographic, & Programmatic Mix of Students
- Expand the Financial Resource Base
- Restructure the Deployment of Financial Resources & Capital Assets
Cultivate World-Class Expertise in Key Focus Areas

**Mines has long been differentiated** from its peers by a well-defined, focused mission. This strategic plan builds on the School’s specialized identity, making it a cornerstone for future growth and development. By making selective internal investments, and strategically building external partnerships, Mines will cultivate scholarly expertise in specific focus areas, which may evolve over time. Currently these are the

- development of the EARTH’s resources and its physical infrastructure;
- acquisition, conversion, distribution, and use of ENERGY;
- synthesis of advanced MATERIALS; and
- preservation and stewardship of the ENVIRONMENT.

These areas, blended across contributing disciplines, will be highly visible in Mines’ research, scholarly inquiry, education, and service activities. They will incorporate the newest developments in the natural sciences, the major and emerging engineering disciplines, economics, humanities, the social sciences, and mathematical and computer sciences. Harnessing its considerable intellectual resources, Mines will assert leadership in these mission-critical fields.

**Major innovation** within these focus areas frequently stems from fundamental breakthroughs in the sciences and the engineering disciplines. To successfully fulfill Mines’ specialized mission, the School must nourish breadth and depth in science, engineering, and other related fields of study. As excellence in the fundamentals strengthens the School’s overall expertise in the focus areas, it will also attract outstanding students and faculty in participating fields of inquiry. In this way, the School will maintain and develop high quality research and degree programs with broad appeal in engineering and the sciences, while consolidating expertise and recognition in its areas of specialization.

The School’s inherent interconnectedness will facilitate the implementation of this strategy since cross-departmental activity is critical for success. A new academic structure will be developed. Over time, departments will share authority in addressing the focus areas, and the institution will place increased value on the roles faculty play in group accomplishments.

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**Goals**

- Engage faculty from all disciplines to refine the near-term scope of focus areas.
- Assign or hire skilled and passionate leadership for each focus area.
- Develop academic and business plans for each focus area.
- Develop an organizational model to facilitate cross-departmental research, service, and partnership activities.
- Enhance reputation through significant grant activity, visibility, and external partnerships centered on focus areas.
Research Programs

ENGINEERING • APPLIED SCIENCE • TECHNOLOGY
Enhance Mines’ Distinction as a Research Institution

Research is essential for the advancement of humankind and critical to cultivating a dynamic and rigorous intellectual learning community. Developing both new and existing research programs at Mines will help solve societal problems while enhancing the School’s prestige, facilitating funding initiatives, and giving the School a competitive edge in faculty and student recruiting. With these benefits in mind, this strategic plan affirms sponsored research as an essential component of the Mines vision and establishes benchmarks for growth over the next ten years.

In the last decade, sponsored research expenditures at Mines have grown from about $20 million to about $30 million (constant dollars). For the next ten years, this strategic plan sets an ambitious goal that will significantly accelerate this growth in research volume. Where appropriate, Mines will pursue the commercialization of technologies developed through its research.

Goals

- Foster faculty and staff development in scholarly activities, including the development of membership in the national academies, and national and international scientific and engineering committees.
- Realign budgetary priorities to invest in research facilities, technology, student support, and the administrative and financial infrastructure to realize these goals.
- Develop faculty hiring plans and assignments that support growth in research programs related to focus areas.
- Establish a greater level of visibility for research programs through prominence in national rankings and presence in national research forums.
- Increase externally sponsored annual research expenditures to at least $50 million (constant dollars).
- Extend Mines’ research to benefit the public, and encourage innovation and entrepreneurship, through active technology transfer.
Sharpen Mines’ Distinction in Undergraduate Education

**Education is the bedrock** of the university and a core strategic priority for the School. Generations of Mines alumni have pointed to the School's balanced undergraduate curriculum with its emphasis on problem-solving and critical thinking as a highly valuable aspect of their education. These qualities are among the hallmarks of a Mines undergraduate education. In addition, the School has become a major national center for engineering education research. As this ongoing research inspires the School’s excellence in teaching, the Mines undergraduate curriculum will continue to be distinctive and exemplary among science and engineering institutions.

This strategy also focuses on enriching the undergraduate experience to better cultivate qualities of leadership and citizenship. The School recognizes that science and engineering education has a growing relevance in our modern society, as matters of science and technology are increasingly entwined with complex social, economic, and political issues. As a result, Mines will seek to prepare graduates for success in an increasingly wide range of career paths in which they can make important contributions to society within a world market of peer professionals. This will be accomplished by augmenting the undergraduate experience through additional curricular and extra-curricular offerings. By further enriching Mines’ undergraduate learning environment in these ways, the School will strengthen its competitive advantage in student recruitment, retention, and placement, while magnifying its contribution to the advancement of engineering and science education nationally and internationally.

**Goals**

- Strengthen and market undergraduate programs in ways that build on two longstanding and distinctive qualities of a Mines education: providing students with a real world context for their major discipline, and cultivating strong leadership and citizenship qualities.

- Continue to develop curricula in ways that support the versatility and relevance of engineering education, its societal context and its international scope, and in ways that are informed by leading research in science and engineering education.

- Increase opportunities for students to gain leadership and citizenship experiences through student government activities, study abroad, fraternity and sorority leadership activities, intercollegiate athletics, and professional society activities.

- Develop additional career pathway programming for undergraduate students through undergraduate research, public policy and service, entrepreneurship, engineering and technology management, and other avenues.

- Enrich the quality of student life through enhanced activities, programs, and facilities.

- Elevate the School's competitive profile as a high-value, top choice for science and engineering students, as reflected in various national rankings, numbers of applicants, enrollment yield, and retention.
Align Graduate Programs with Professional & Societal Needs

Graduate education at Mines must flourish in several ways. It will respond to professional and societal needs, while also being a venue for the creation of knowledge through research.

Mines continues to have more qualified graduate student applicants seeking research assistantships than the research sponsorship to support them. At the same time, the School is well positioned to be more active in professional and mid-career offerings in the fields that it serves. Accordingly, Mines must continue to evaluate and redesign its graduate programs and develop new means for funding talented research assistants. Most of the graduate enrollment growth will be targeted for doctoral programs that relate to research programs; non-thesis, professional master’s programs; and accelerated BS/MS programs. In addition, thesis-based MS degrees will continue to be among Mines’ offerings, but may vary in strength from discipline to discipline.

Goals

- Evaluate existing graduate programs, based on a combination of academic and market factors, and place them into three categories: grow, redesign, or phase out.
- Achieve significant growth in research-based doctoral and master’s students.
- Create and promote new professional and executive education programs for which there is strong market demand.
- Achieve significant growth in non-thesis master’s and five-year BS/MS students.
- Improve resources available for student financial support in research-based graduate programs.
- Identify and develop partnerships for new programs wherever appropriate.
- Market graduate education capabilities effectively to corporations, as well as to individuals.
Realign the Geographic, Demographic, & Programmatic Mix of Students

The student body forms the nucleus of the learning community at Colorado School of Mines. To a great extent, the strength of the institution is derived from the quality and composition of its students. To realize many of the goals articulated in this plan, the School must realign the demographic profile of the student body. Specifically, these adjustments will include a stronger representation of national and international students at Mines, with recruiting efforts focused on strengthening and expanding enrollments in disciplines closely related to the focus areas, and in specific research-based and professional graduate degree programs.

Goals

- Expand the national student base in terms of total numbers and the number of states from which students originate.
- Expand the international student base in terms of percentage representation within the student body.
- Expand the population of post-baccalaureate students in graduate and continuing education programs.
- Enhance academic programs and student life to attract an increased number of women and minority students.
- Increase non-resident freshman enrollments by 30 to 50 students per year for five years.
- Develop a detailed and deliberate marketing and recruiting program for non-resident undergraduate and graduate students, with financial aid resources applied strategically.
- Develop internal capabilities to market directly to corporations for executive, professional and continuing education programs, custom-designed as needed.
- Engage Mines alumni to assist with recruiting activities.
- Develop a recruiting organizational structure to facilitate these goals.
Expand the Financial Resource Base

**Dynamic growth** in financial resources is imperative to achieve the goals of this strategic plan. As State support for higher education wanes, Mines recognizes that it must increase its financial base through new revenue sources, moderate growth in student enrollment, strategic partnerships, and increased endowments.

Of particular promise is a boost in the enrollment of non-resident undergraduate students and professional/graduate students. Enrollment increases will be managed in concert with internal capacity, available facilities and personnel, and external fluctuations in recruiting and employment markets. A paramount concern is that the quality of Mines’ exceptional educational experience not be compromised by increased enrollment.

**Goals**

- Expand revenue sources such that State General Fund support is reduced from its current level of around 15 percent to less than 10 percent of the gross budget, which will allow the School more flexibility under existing statutes.
- Increase the School’s endowment and endowment commitments to at least $300 million.
- Grow tuition revenues by at least $25 million.
- Calibrate incremental increases in tuition for undergraduate and graduate students with appropriate balancing of costs with financial needs.
- Earn at least $2 million annually in new revenues from certificate and non-degree programs.
- Create and expand partnerships to leverage opportunities in research, education, and sponsorships.
- Maximize opportunities for auxiliary revenues or fees by expanding campus housing.
- Where viable, derive revenues from the commercialization of the School’s intellectual property.
Restructure the Deployment of Financial Resources & Capital Assets

Successful implementation of this plan will require the strategic alignment of expenditures, as well as the strategic use of assets. Future annual budgets will include recurrent (base) items, base growth items in that year, and non-recurrent items that seed new investments and may change from year to year. In addition, a plan will be developed to use faculty, staff, and facilities more efficiently through the judicious implementation of enrollment management and administrative reorganization. Instructional personnel will be added in step with growth in student enrollment—balanced against the need to expand faculty to meet strategic goals in research. In addition, since student and faculty growth will require more intensive use of space and facilities throughout campus, new procedures for allocating and scheduling space will be required.

Goals

- Build base expenditures in instruction, academic support, student support, institutional support, and plant facilities and maintenance, congruent with an increase of students and expanded research activity.

- Allocate incremental revenues to strategic investment priorities—leadership for the focus areas, research, infrastructure, national marketing, curriculum refinements, and seeding high priority partnerships.

- Develop a plan to incorporate additional faculty that enables academic units to balance new and existing instructional and research workloads.

- Establish the appropriate mix of tenure line, nontenure line, and adjunct faculty.

- Optimize use of the School’s existing physical plant.

- Reallocate, where necessary, existing space assignments in the context of national norms in science and engineering university facilities and also in the context of specific program needs.

- Develop plans for selective additions of space in needed categories.