Mission

The College of Engineering will uphold the land-grant mission of New Mexico State University by providing nationally recognized programs in education, research, outreach and public service.

Vision

The College of Engineering is committed to and passionate about ensuring access to a quality engineering education for New Mexico’s demographically and culturally diverse citizens. By 2020, the college will rank among the top 75 public engineering programs in the United States as determined by the US New and World Report. Faculty and staff who are engaged in fulfilling our program goals through the aspirations of our core - and grant beliefs will collectively contribute to the attainment of this ranking.
College of Engineering Program Goals

- To maintain undergraduate retention and six-year graduation rates within +/- 5 points of the national average (50 percent); delivering a curriculum that graduates industry and graduate school-ready engineers who value their education and the College of Engineering at the time of degree completion,
- To maintain a robust externally funded research program led by graduate faculty at an average expenditure rate of $100K/faculty/year as well as robust and stable funding of college-level research centers above the faculty base,
- To maintain a strong enrollment of high-achieving graduate students with a priority of graduating 25 Ph.Ds. per year,
- Grow the scholarly publication rate to an average of two publications/faculty/year,
- To lead the state in engineering outreach and public service initiatives that support our pre-college and professional engineering constituents.

College of Engineering Core Values and Beliefs

- We are highly committed educators who are passionate about our students and external constituents.
- We maintain a sense of pride and tradition, a history of effective teaching, research and service, and a belief that an engineering education can make life-changing impacts on graduates and society at large.
- We are highly regarded for the ability and commitment to fill the gap in educational attainment of New Mexico's demographically and culturally diverse citizens by ensuring access to a quality and relevant engineering education.
- We are dedicated to making a difference in how engineers are educated, an innovative approach to conducting research, and dissemination of outcomes that are regarded and valued by peers.
- Our developments translate into intellectual property that contribute to development of the state's economic engine.
- The outcomes of our research and public service are fundamental to successful development of New Mexico's economy, developing technology that stimulates industry and global competitiveness.

College of Engineering Philosophy

Engaged faculty and staff actively support the College of Engineering vision and mission and actively contribute to the college goals in the areas of teaching, research, service and outreach through:

- Implementation or development of state-of-the-art teaching practices,
- Publishing in high-quality journals and conference participation, securing external research funding and advising and mentoring graduate students,
- Participation in university and professional activities that improve the college, New Mexico State University and the engineering profession in general,
- Participation in initiatives that directly assist New Mexico citizens and raise the public profile of New Mexico State University.
Engineering Plan Goal 1: Academics and Graduation

Goal: Enhance higher education access and outcomes through effective programs, instruction and services.
Maintain undergraduate retention and six-year graduation rates within +/- 5 points of the national average (50 percent), deliver a curriculum that graduates industry and graduate school-ready engineers who value their education and the College of Engineering at the time of degree completion, and maintain a strong enrollment of high-achieving graduate students with a priority of graduating 25 Ph.Ds. a year.

Objectives and Strategies

♦ Recruit undergraduate students who are committed to engineering before they enroll in the college:
  ‣ Provide awareness and support of secondary school engineering-based programs through Project Lead the Way, Boosting Engineering and Science Technology Robotics and New Mexico Math Engineering Science Achievement.
♦ Implement a strong retention initiative that is built on understanding why engineering majors leave and a commitment to help students succeed:
  ‣ Incorporate new programs for freshmen and sophomores based on research focused on retention strategies of diverse populations of students (Freshman Year Experience, Sophomore Year Engagement and Transfer Student Opportunities),
  ‣ Develop a formal process to place and assess students in summer internship and co-ops by partnering with Career Services,
  ‣ Broaden co- and extra-curricular opportunities and professional society involvement to impact a larger student population, and
  ‣ Expand undergraduate research experience opportunities.
♦ Increase Ph.D. enrollment to support scholarly productivity and quality of our research programs:
  ‣ Grow a population of highly motived graduate students through fellowship opportunities and graduate enhancement stipends, and
  ‣ Encourage M.S. students to pursue the Ph.D.
♦ Provide on-line degree programs to serve practicing engineers in their professional development:
  ‣ Implement Master of Engineering degree.

Key Performance Indicators

♦ Time to graduation and improvement of success in program of study. Use national average engineering time to degree: 4.5-5 years,
♦ Retention and graduation rates. Use national average engineering retention and graduation statistics (+/- 5 percent) as a baseline: increase the first year to second year persistence from 64 percent to 75 percent, increase the second to third year persistence from 47 percent to 65 percent, increase the third to fourth year persistence from 38 percent to 60 percent, increase the four-year graduation rate from 11 percent to 30 percent, and increase the six-year graduation rate from 29 percent to 50 percent,
♦ Time to Ph.D. degree. Graduation of 1-2 Ph.D. students per year, per tenure-track faculty in Ph.D.-granting departments,
♦ Establish and track Master of Engineering degrees.
Engineering Plan Goal 2: Diversity and Internationalization

**Goal:** Ensure access to a quality and relevant engineering education for New Mexico’s demographically and culturally diverse citizens as well as to a diverse international population.

The College of Engineering takes pride in the diversity of the state of New Mexico. The college respects its land-grant mission, the designation as Hispanic and minority serving, its relationship with American Indians, and its associations with community colleges and international constituents — a truly global perspective. Broadening participation through diversity of gender, underrepresented minorities, and internationalization contributes directly to the quality of learning for all who participate in an engineering education. It is important for the college community to fully reflect diversity within the composition of its students, faculty and staff.

**Objectives and Strategies**

- Increase representation of women and underrepresented minorities in faculty and student ranks:
  - Develop a diversity plan addressing recruitment and retention of students and faculty, and
  - Target undergraduate students for research experiences.

- Increase the opportunities for students to transfer from New Mexico community colleges:
  - Build and maintain transfer agreements and advising strategies that offer pre or general engineering and technology programs.

- Increase international collaborations that support faculty interest areas and maintain opportunities for travel abroad as well as host international delegations:
  - Develop recruitment plans that represent a diverse international population through MOUs and MOAs.
    - Collaborative Ph.D. with Northern China University of Technology and the China Ministry of Transport Beijing,
    - 3+1 program with East China University of Science and Technology,
    - B.S. aerospace engineering and Ph.D. civil engineering with Universidad Autónoma de Chihuahua, Chihuahua, Mexico, and
    - M.S. to Ph.D. with COMSATS Institute of Information Technology, Pakistan, and Tomsk Polytechnic University, Russia.

- Increase opportunities for all students to participate in study abroad and exchange programs:
  - Work with International and Border Programs to develop a transparent study abroad-exchange process.

**Key Performance Indicators**

- Number of women and underrepresented minorities in student and faculty ranks,
- Number of transfer students with general and associate engineering degrees,
- MOUs with international universities or agencies, and
- Number of students participating in study abroad and exchange programs.
Goal: By 2020, the college will rank among the top 75 public engineering programs in the United States. Research and creative activity expand the frontiers of knowledge. Faculty who are actively engaged in research and creative activity provide a dynamic education for undergraduate and graduate students. Peers and constituents measure engineering programs on the basis of research and creative activity products. To grow our stature as an engineering college, we will focus on growing external funding and scholarly activity.

Objectives and Strategies

- Grow externally funded research led by graduate faculty to an average expenditure rate of $100K/faculty/year, in addition to a robust and stable funding of college-level research centers above the faculty base:
  - Provide stronger support for PIs, including both college and university web resources and pre-award communication,
  - Reduce administrative burden for PIs on award administration, including procurement support,
  - Implement a Shared Services Center,
  - Build on research strengths and emerging strengths with strategic hiring of future faculty, and
  - Pursue non-federal research funding, including state agencies, industry and local organizations.

- Grow the scholarly publication rate to an average of two publications/faculty/year:
  - Continue Graduate Enhancement Stipends, and
  - Implement Ph.D. publication requirements for promotion and tenure.

- Increase partnerships among faculty, across the college, across and among colleges, other institutions, as well as public-private partnerships:
  - Create opportunities for partnerships among faculty, across colleges and across institutions, through expertise lists and direct connections, and
  - Align research and creative activity with demonstrated community needs and potential partners.

Key Performance Indicators

- Standing in US News and World Report,
- Research expenditures and awards,
- Expenditures/faculty member,
- Scholarly output from faculty and research staff,
- Number of faculty participating in sponsored research,
- Number of applications to NSF I-corps, Arrowhead Studio G and Launch, patents awarded, provisional patents filed, and
- Partnerships created.
Engineering Plan Goal 4: Economic Development and Community Engagement

Goal: Increase outreach, public service and economic development initiatives.
Lead the state in engineering outreach and public service initiatives that support our pre-college and professional engineering constituents. Contribute to the fundamental mission of New Mexico’s land-grant program, creating and implementing technology that stimulates creation of industry and global competitiveness.

Objectives and Strategies
♦ Promote and expand engineering outreach and public service programming in support of a high-wage, high-technology workforce development to foster economic development statewide.
   ▸ Expand public school engagement in STEM outreach programs to broaden access to engineering outreach programs,
   ▸ Engage strong partnerships with industry and government agencies to identify and offer relevant short-courses and workshops, utilize faculty expertise to enhance business assistance programming (prototype and validation, automation and mechanization, etc.), and foster workforce readiness of undergraduate and graduate students through innovation and entrepreneurship educational programming, and
   ▸ Promote and support the economic development of New Mexico and regional communities through community engagement and partnership providing relevant research-based knowledge and information, educational programs and professional development training to achieve community and regional economic development.

Key Performance Indicators
♦ Track and monitor STEM engagement by program:
   ▸ Number of schools (private, public, charter, homeschool),
   ▸ Number of students (gender, ethnicity), and
   ▸ Geographic location.
♦ Track and monitor partnerships:
   ▸ Number of partnerships (industry, small business, government agency), and
   ▸ Quantify the partnership (sponsorship, co-partners for proposals, etc.).
♦ Demonstrate how community engagement efforts contribute to growth and retention in industries and employment:
   ▸ Number of companies participating in bi-annual career fairs, and
   ▸ Student employment (co-op, internships, permanent hires).
♦ Demonstrate community engagement impact on workforce preparedness, employer satisfaction, and collaborative innovations:
   ▸ Conduct annual survey of industry partners and report feedback.
Engineering Plan Goal 5: Resource Stewardship

Goal: Optimize resources to effectively support teaching, research and public service.

Alternative revenue streams are essential to quality education and fulfillment of our land-grant mission. Alternative revenues enable the college to offer scholarships, attract outstanding faculty, purchase equipment and renovate facilities, all of which are resources indispensable to excellence in education and research. While new revenue is essential to the achievement of our goals, the college strives for efficient operation through optimal resource allocation to minimize the cost and maximize the value of an engineering education.

Objectives and Strategies

- Enhance revenue to the college:
  - Seek opportunities and develop plans to receive external funding for unique engineering ventures through research and public service projects and other land-grant mission initiatives from state and federal agencies and private foundations,
  - Increase philanthropy to the college through donor cultivation and stewardship,
  - Cultivate an awareness and philosophy of philanthropy among students as future donors to the college, and
  - Cultivate opportunities to develop public-private partnerships.

- Effectively utilize existing resources of the college:
  - Increase faculty and staff knowledge of resource stewardship through participation in discussions to establish priorities for resource allocation in accordance with overall college budget priorities and strategic plan goals,
  - Incorporate the use of data-driven decision-making to allocate available resources across administrative and academic functions, and prioritize and transition resources as appropriate,
  - Improve classroom, research and administrative facilities, and
  - Develop opportunities to invest strategically in faculty and staff compensation.

Key Performance Indicators

- Funding and expenditures for RPSPs, federal and state agency grants, private grants, and impacts of public and private support,
- Alumni and corporate giving rates and gift revenues—endowments and current-use funding (scholarships, faculty support and naming of facilities),
- Resource stewardship discussions at college and department open forums (Fall Convocation and Spring Engineers’ Roundup) and Dean’s Advisory Council meetings), and
- Annual faculty and staff merit-pay assessment, rewards and recognition.