



COLLEGE OF ENGINEERING

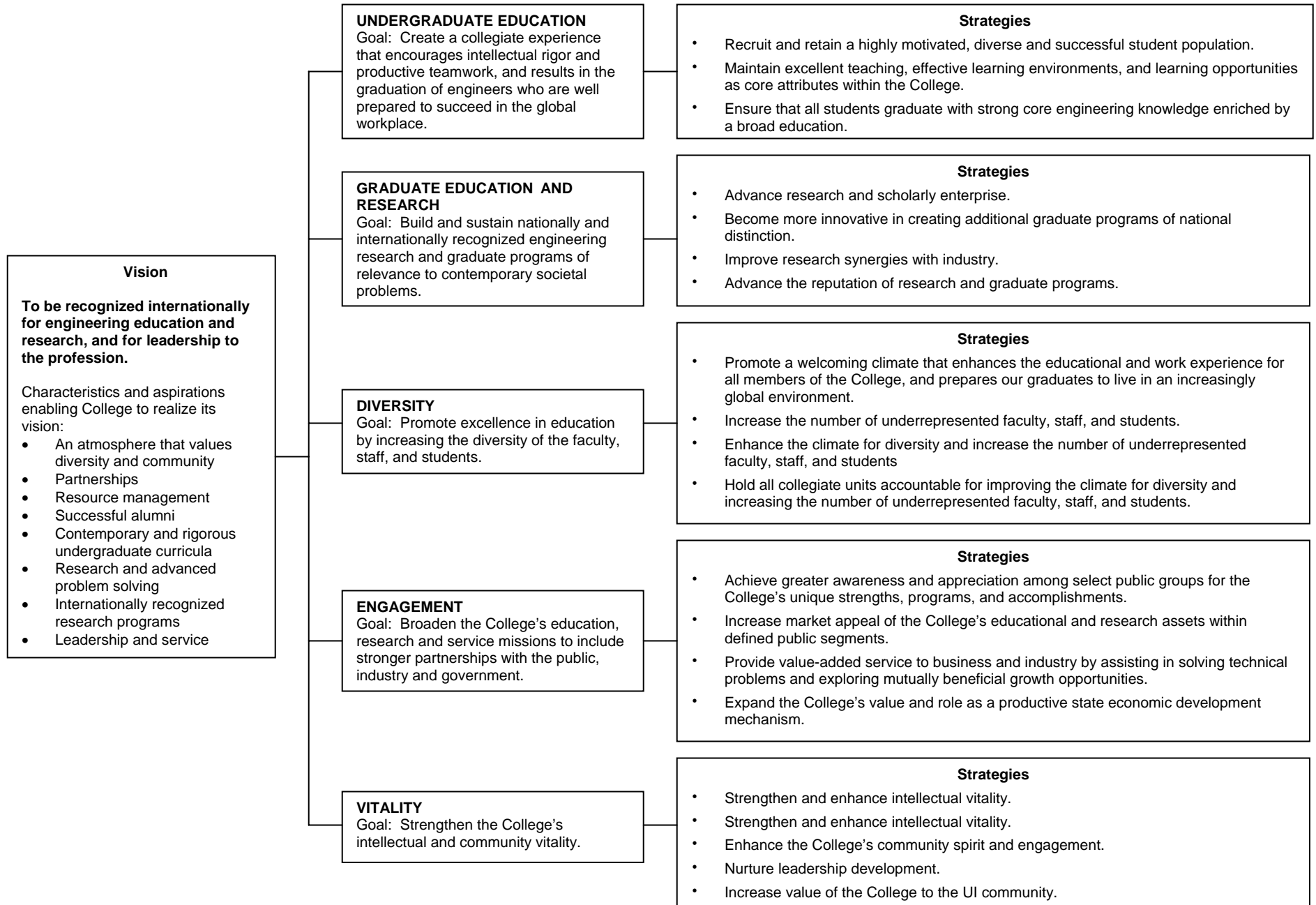
Office of the Dean

3100 Seamans Center for the
Engineering Arts and Sciences
Iowa City, Iowa 52242-1527
319-335-5764 Fax 319-335-6086
www.engineering.uiowa.edu

College of Engineering Strategic Plan Academic Years 2005-2010

The University of Iowa College of Engineering

Strategic Plan Summary for Academic Years 2005-2010



College of Engineering Strategic Plan Academic Years 2005-2010

I. MISSION

To serve the state, the nation, and the world by graduating talented, broadly educated engineers, conducting high quality research, developing new technologies, and creating, disseminating and preserving knowledge.

II. VISION

To be recognized nationally and internationally for education, research, and leadership to the engineering profession.

The following strategic characteristics and aspirations will enable the College to realize its vision:

- **An atmosphere** that facilitates personal commitment to the educational success of students in an environment that **values diversity and community**
- Education and research **partnerships** with health sciences, business, and other UI colleges, and with targeted agencies, universities, and industries
- Prudent and accountable **resource management**
- Highly **successful alumni** who contribute to the profession in the global society
- **Contemporary and rigorous undergraduate curricula** that prepare graduates for successful careers
- Graduate education that prepares students for **research and advanced problem solving** needed to address complex, interdisciplinary engineering problems
- **Internationally recognized research programs** with strong support from professional constituencies
- Recognized **leadership and service** in advancing the engineering profession to meet society's needs

III. GOALS AND STRATEGIES

UNDERGRADUATE EDUCATION

Goal: Create a collegiate experience that encourages intellectual rigor and productive teamwork, and results in the graduation of engineers who are well prepared to succeed in the global workplace.

Strategy 1: Recruit and retain a highly motivated, diverse and successful student population.

- Increase retention rate of first-year students.
- Increase undergraduate student population (2010 Target: 1,500).
- Promote the value of and provide experiential learning opportunities for all students (2010 Target: 90% participation rate).
- Provide facilities for student-chapter activities.
- Promote the opportunities an engineering degree offers, including the option to enter into other professions.
- Extend recruitment activities to cover more metropolitan centers outside the State of Iowa.

Strategy 2: Maintain excellent teaching, effective learning environments, and learning opportunities as core attributes within the College.

- Recognize and reward excellence in teaching.
- Acquire and reallocate resources to support excellence in teaching.
- Continuously evaluate the effectiveness of each course (an ABET objective).
- Integrate written and oral communication skills throughout the curricula.

Strategy 3: Ensure that all students graduate with strong core engineering knowledge enriched by a broad education.

- Prepare students with the ability to use the techniques, skills, and modern engineering tools necessary for modern engineering practice (ABET outcomes a-e, j, k)
- Prepare students for ethical and professional leadership (ABET outcome f).
- Prepare students to communicate effectively among global and diverse audiences (ABET outcome g, h).
- Prepare students for lifelong learning and professional improvement (ABET outcome i).

GRADUATE EDUCATION AND RESEARCH

Goal: Build and sustain nationally and internationally recognized engineering research and graduate programs of relevance to contemporary societal problems.

Strategy 1: Advance research and scholarly enterprise.

- Recruit and retain faculty and research staff with outstanding research and scholarship potential (2010 Target: 10 national/international research awards/year)
- Provide faculty and research staff with the support and facilities commensurate with a top-ten public engineering college in the U.S.
- Identify and support programs and areas of emerging distinction that are central to the College's mission (2010 Target: 6 of 8 graduate programs ranked in top 25 of public research universities).
- Identify opportunities for investment at the intersection of existing strengths and funding opportunities.
- Reallocate financial resources within the College to support programs and areas of excellence and emerging distinction (2010 Target: reallocate 2% of GEF/year).
- Dismantle barriers to faculty participation in collaborative and multidisciplinary research.
- Enhance research collaborations with other units in the University.
- Support mid-career faculty in reinvigorating or pursuing new research programs.

Strategy 2: Become more innovative in creating new graduate programs of national distinction.

- Identify and support novel multidisciplinary graduate programs (2010 Target: develop 1 new program).
- Continually update and strengthen existing graduate curricula.
- Aggressively recruit a highly qualified and diverse graduate student body (2010 Targets: 20% with prestigious fellowships).
- Increase graduate student population (2010 Target: 410).
- Provide competitive financial support for graduate students (2010 Target: rank in top 4 of Big-10 public institutions).
- Establish comprehensive programs for postdoctoral scholars.
- Encourage participation by Ph.D. students in teaching programs.

Strategy 3: Improve research synergies with industry.

- Stimulate long-term, mutually beneficial industrial collaborations (2010 Target: all faculty with at least one industry research/consulting contact per year).
- Expand opportunities for College involvement in economic development.
- Educate faculty about technology transfer.
- Increase appreciation of entrepreneurship among students and faculty.

Strategy 4: Advance the reputation of research and graduate programs.

- Aggressively market, at the state, national, and international levels, the College's research enterprise and graduate programs.
- Market the College's expertise to a broad audience.

DIVERSITY

Goal: Promote excellence in education by increasing the diversity of the faculty, staff, and students.

Strategy 1: Promote a welcoming climate that enhances the educational and work experience for all members of the College, and prepares our graduates to live in an increasingly global environment.

- Further develop activities of the Faculty and Staff Fostering Inclusion Group.
- Improve retention and graduation rates for students of color.
- Improve interaction among domestic and international faculty, staff, and students.
- Improve retention for women and underrepresented minority faculty and staff (2010 Target: 15% female faculty, 10% minority faculty, 50% female staff, 15% minority staff).

Strategy 2: Increase the number of underrepresented faculty, staff, and students.

- Educate faculty and staff on the value of diversity and community, and develop best practices for recruiting underrepresented faculty, staff, and students.
- Develop a more effective marketing strategy and recruit more effectively from high schools, community colleges, and colleges and universities with substantial populations of underrepresented students.
- Partner with schools to understand and address the needs of at-risk students and the disparities in K-12 education.

Strategy 3: Enhance the climate for diversity.

- Develop diversity performance measures by which to evaluate the success of the strategy, and integrate into evaluations and reviews.

ENGAGEMENT

Goal: Broaden the College's education, research and service missions to include stronger partnerships with the public, industry and government.

Strategy 1: Achieve greater awareness and appreciation among select public groups for the College's unique strengths, programs, and accomplishments.

- Increase involvement of students, faculty, staff, alumni, and friends as active advisers, inventors, and contributors.
- Create and expand relationship-building programs that serve key public groups.

Strategy 2: Increase market appeal of the College's educational and research assets within defined public segments.

- Stimulate public involvement in conferences, lectures, and seminars.
- Strengthen the K-12 education system through outreach to students and teachers.
- Utilize emerging technologies and activities, such as electronic mail and electronic distance learning.

Strategy 3: Provide value-added service to business and industry by assisting in solving technical problems and exploring mutually beneficial growth opportunities.

- Engage additional companies and expand participation of existing companies in 16 key identified partnership categories (i.e., recruiting students, supporting scholarships, EI² sponsorship, student project sponsorship, guest seminars, adjunct faculty, continuing education, information exchange, briefings at college, advisory board membership, support facilities, library privileges, faculty consulting, sponsored research, laboratory use, technology transfer).

Strategy 4: Expand the College's value and role as a productive state economic development mechanism.

- Establish an environment conducive to the development and promotion of faculty, staff, and student intellectual property.
- Increase partnerships with economic development organizations that participate in business recruitment, retention, and growth activities.
- Facilitate transfer of technology and intellectual property to businesses.
- Develop and deliver courses or curricula that enrich the learning experience of our students, and serve as continuing education or training/re-training for industry.

VITALITY

Goal: Strengthen the College's intellectual and community vitality.

Strategy 1: Strengthen and enhance student body vitality.

- Provide opportunities for undergraduate research experience.
- Provide resources for students to attend and participate in conferences and meetings of professional societies.
- Provide resources for student organizations to participate in competitions at national level.

Strategy 2: Strengthen and enhance intellectual vitality.

- Provide nationally competitive faculty salaries (2010 Target: rank in top 4 of Big-10 public institutions)
- Provide resources to support developmental leave.
- Increase applications for faculty scholar awards (2010 Target: 5 applications/year.
- Encourage and support junior faculty mentor program.
- Make effective use of post-tenure effort allocation process.
- Investigate the merits of establishing a Research Professor track.
- Provide peer-competitive staff compensation (2010 Target: TBD).
- Increase staff participation in continuing education experiences (2010 Target: 33%/year participation rate).
- Recognize staff and faculty excellence with internal award procedures and through nomination of staff and faculty for University, national and international awards.

Strategy 3: Enhance the College's community spirit and engagement.

- Highlight faculty, staff, and student achievements on the College's website, in news releases, and through annual College award events.
- Encourage and promote awareness in cultural diversity for faculty, staff, and students, through initial training at time of hire or admission and with continuing education opportunities (2010 Target: 33%/year participation rate).
- Involve staff in planning and implementation of collegiate goals through the establishment of a shared-governance staff council and through membership on appropriate college committees.
- Engage faculty and staff in dialogue on new ideas to advance the College.
- Promote a culture that respects, values, and supports all College employees.

Strategy 4: Nurture leadership development.

- Increase opportunities and support for leadership development.
- Nurture student involvement and leadership in the College by appointing students to College committees.
- Promote staff leadership and engagement through participation on University and external committees, boards, and professional organizations.
- Reward successful leadership as an integral component in advancing the College.

Strategy 5: Increase the value of the College to the UI community.

- Develop courses and academic programs for non-engineering majors.
- Increase intellectual property assets generated by the College (2010 Targets: 6 patents/year, \$20,000 income/year).

**COLLEGE OF ENGINEERING STRATEGIC PLAN METRICS
ACADEMIC YEARS 2005-2010**

Goal, Strategy	Metric	2004-2005	College Target (by 2009-2010)
Undergraduate Education, Strategy 1	Percent of undergraduate students reporting experiential learning (e.g., co-ops, internships, faculty mentored research, study abroad) ¹	82%	90%
Undergraduate Education, Strategy 1	Enrollment	1,193	1,500
Undergraduate Education, Strategy 1	BS degrees/year	219	300
Undergraduate Education, Strategy 3	Career placement ²	N/A	95%
Graduate and Research, Strategy 1	Number/funding of research applications	301/\$47M	320/\$60M
Graduate and Research, Strategy 1	Research productivity/year/faculty, rank in peer group ³		
	Research expenditures	\$346K, 7/9	\$420K, top 5
	Peer-reviewed publications	2.5, N/A	3.0, N/A
	MS degrees	0.93, 9/9	1.0, top 5
	PhD degrees	0.44, 4/9	0.5, top 4
Graduate and Research, All strategies	Number of national/international faculty/staff research awards	N/A	10/year
Graduate and Research, All strategies	Number of graduate programs ranked in top 25 of public research institutions	4 of 8	6 of 8
Graduate and Research, Strategy 1	Peer ranking of graduate assistant compensation (salary + tuition)	N/A	top 4
Graduate and Research, Strategy 2	Annual re-allocation to support emerging research programs	N/A	2% of GEF
Graduate and Research, Strategy 2	Multidisciplinary graduate programs	N/A	1 new program
Graduate and Research, Strategy 2	Enrollment	393	410
Graduate and Research, Strategy 3	Industry-sponsored faculty research/consulting	N/A	1 contact per faculty
Graduate and Research, Strategy 3	Patents held by faculty and staff	60	90
Graduate and Research, Strategy 4	Percent of faculty participating in professional activities (society committees, editorships, etc.)	N/A	85%
Graduate and Research, Strategy 4	Percent of graduate students with prestigious fellowships ⁴	~10%	15%
Diversity, Strategy 2	Underrepresented minority and female tenure-track faculty	7% women 2% minority	15% women 10% minority
Diversity, Strategy 2	Underrepresented minority and female professional and scientific staff	27% women 6% minority	50% women 15% minority
Diversity, Strategy 2	Underrepresented minority student enrollment		
	BS	4.3%	10%
	MS	4.7%	10%
	PhD	8.8%	15%

1 Metric is defined as % of students who participate at least once during their undergraduate studies.

2 Metric is defined as % of students with employment or graduate/professional school acceptance six months after graduation.

3 Peer Group includes public Big-10 engineering schools: Illinois, Iowa, Michigan, Michigan State, Minnesota, Ohio State, Penn State, Purdue.

4 Metric is defined as NSF, NASA, AGEP, GANN, DoD, DoE, and UI Presidential Graduate Fellows

**COLLEGE OF ENGINEERING STRATEGIC PLAN METRICS
ACADEMIC YEARS 2005-2010 (CONTINUED)**

<u>Goal, Strategy</u>	<u>Metric</u>	<u>2004-2005</u>	<u>College Target (by 2009-2010)</u>
Vitality, Strategy 2	Peer ranking of faculty salaries	4/9 in peer group	top 4
Vitality, Strategy 2	P&S salaries	N/A	TBD
Vitality, Strategy 2	Applications for Faculty Scholar Awards	2/year	5/year
Vitality, Strategy 2	Percent of faculty holding named chairs, professorships, or fellowships	17%	25%
Vitality, Strategy 3	Faculty and staff participation in cultural competency activities	N/A	33%
Vitality, Strategy 3	Staff participation in professional development activities	N/A	75%
Vitality, Strategy 5	Annual non-GEF and non-grant expenditures		
	Stores	\$644,079	\$750,000
	Gifts (includes scholarships)	\$1,508,028	\$2,500,000
	Fees (CSS + other)	\$546,480	\$1,000,000
	Intellectual property income	\$10,000	\$20,000

ENVIRONMENTAL SCAN

The College's 2005-2010 Strategic Plan sets forth goals, strategies, action items and metrics in five key areas. Positive movement towards advancing the goals will move the College towards a higher national ranking and improved reputation amongst our peer institutions. The rate at which the College accomplishes its strategic goals will be a function of its critical resources, including—in addition to its most critical resource, its faculty and staff—the budget, facilities, student body size and demographics. The plan gives College leaders a context for judicious decisions about effective resource allocation.

The College has a student population of approximately 1,550 students, including more than 1,200 undergraduates. Over the next five years, the College will strive to grow both the undergraduate and graduate populations to 1,500 and 410, respectively, while maintaining our high admission standards and decreasing our time-to-degree for graduate degrees. By achieving these goals, the College will be better placed to make a case for additional resources given the increasing fraction of General Education Funds derived from tuition.

IMPLEMENTATION

Voting faculty endorsed The College of Engineering 2005-2010 Strategic Plan and Metrics on May 9, 2006.

Primary responsibility for overall implementation of the College Strategic Plan lies with the Dean. The Dean will, in consultation with the Engineering Administrative Council and appropriate faculty members or representatives, make resource decisions that are consistent with the plan.

Strategic planning will be an ongoing, open, and participatory process involving faculty and staff of the College. The Strategic Planning Committee, under leadership of the Dean, will review the plan at least annually, ensuring consistency between the College and the University. In conjunction with this, the Committee also will review annual progress reports from the College, departments, and research units. In addition, the Committee will propose modifications to the College plan, including annual priority tasks, and will carry such proposals through appropriate faculty approval stages.

The Dean will prepare an annual progress report for the faculty and staff that includes a comparative summary to prescribed plan metrics.