

COLLEGE OF ENGINEERING STRATEGIC PLAN

2021- 2026



IOWA

STRATEGIC PLAN 2021 - 2026

VISION

The College of Engineering at the University of Iowa is driven by talented faculty, staff, and students who are producing knowledge to address grand challenges around advanced technologies, health sciences, sustainability, energy, and the environment.

Our graduates are ethical, globally-aware citizens whose work while at the University of Iowa and throughout their careers make the world safer and our use of resources more efficient.

As a center of innovation and discovery, the people who make up the College of Engineering are undoubtedly improving quality of life for our Iowa community as well as for people across the United States and around the world.



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DIVERSITY, EQUITY, INCLUSION & COMMUNITY

GOAL: To create an environment in which all members of the collegiate community—students, staff, and faculty—are welcomed, supported, and able to thrive.

Critical Tasks	Tactics – Action Items	Indicators of Success
EQUITY Design and implement equitable policies and practices that ensure everyone can thrive.	<ul style="list-style-type: none"> Review current college policies, practices, and communication channels, using lenses from established DEI research, to ensure they are both transparent and equitable. Participate in university-wide DEI efforts (faculty, staff, and students). Work with other colleges to establish shared best practices and support coordinated efforts (workshops, minors, certificates, etc.). Ensure that administrators, faculty, and staff are accountable for implementing equitable practices. Create more opportunities for student, staff, and faculty feedback throughout the college. Conduct exit interviews of students, staff, and faculty. 	<ul style="list-style-type: none"> Transparent and equitable college policies, practices, and communication channels that align with best practices. Improvement of Campus Climate Survey, Working at Iowa Survey, and Student Experiences of Research Universities (SERU) survey results. Evaluation of faculty, staff, and administrators includes consideration of DEI engagement.

Critical Tasks	Tactics – Action Items	Indicators of Success
INCLUSION & COMMUNITY Create and sustain an inclusive and collaborative community that fosters a sense of belonging.	<ul style="list-style-type: none"> Educate and train students, faculty, staff, and administrators on inclusive learning experiences. Organize, support, and promote DEI-centric workshops, events, and recognition. Expand mentoring, engagement, and on-boarding programs for students, staff, and faculty. Assess, redesign, and reengineer organizational structures and processes to promote teamwork, collaboration, cross-functional operations, and transparency. 	<ul style="list-style-type: none"> Enhanced visibility of and knowledge about DEI efforts within the college and university. Increased faculty, staff, and student engagement with DEI efforts and initiatives. Increased participation in formal training and workshops devoted to DEI. Improved retention rates across all populations. Improved results on surveys including the Campus Climate Survey, Working at Iowa Survey, and both undergraduate and graduate Student Experiences of Research Universities (SERU) surveys. Improved access to well-being and mental health support.
DIVERSITY Diversify student, faculty, staff, and leadership populations	<ul style="list-style-type: none"> Invest in and develop best practices for recruiting that will increase the diversity of students, faculty, and staff populations. Collect, analyze, and share demographic data, as appropriate, with faculty, staff, and students at least annually. Develop policies and procedures that hold search and graduate committees accountable for the diversity of applicant and short-list pools, as compared to availability pools. Improved retention and promotion of underrepresented faculty and staff. 	<ul style="list-style-type: none"> Increased financial resources available to support DEI initiatives and recruiting. Applicant pools and short list pools of searches reflect demographics of appropriately identified availability pools. Demographic metrics of faculty, staff, and students at or above ASEE averages. Increased diversity of leadership populations.



We can meet our diversity, equity, inclusion, and community goal if we create and sustain an inclusive and equitable environment and recruit, retain, and advance a diverse student body, staff, and faculty.

STUDENT SUCCESS

GOAL: To provide a transformative and personalized educational experience that prepares our graduates to become an engineer and something more.

Critical Tasks	Tactics – Action Items	Indicators of Success
Attract, support, and graduate a diverse and high-achieving student body.	<ul style="list-style-type: none"> Identify and prioritize recruitment and retention efforts aimed at underrepresented student populations. Maintain an enrollment that continues to afford each student the opportunity to create their unique place within, and their unique mark on, our community. Increase scholarship funds available to underrepresented students and awareness of funding opportunities. Enhance resources (facilities, virtual modalities, faculty, and staff) to meet the growing demand for engineering education. 	<ul style="list-style-type: none"> Measurable increase in the number of applications and admits by, and degrees awarded to, underrepresented student populations. Reach a target undergraduate enrollment of 2,200. Student-faculty ratio equivalent to that of the university; consistent across departments.
Capitalize on our strengths within the college and within the broader university community to provide an extraordinary student experience.	<ul style="list-style-type: none"> Provide students with individualized attention to meet their changing personal and professional academic interests. Continue to identify, monitor, and address barriers to student success. Increase student perseverance and success by providing a collaborative learning environment and co-curricular activities that improves understanding of subject content, fosters critical thinking, and strengthens study skills (e.g., tutoring, study tables, supplemental instruction, virtual or hybrid instruction). Engage students in career preparation (e.g., resume writing and interview skills workshops, and career fairs). 	<ul style="list-style-type: none"> Continuous improvement of student success programs to meet evolving needs. Reduced disparities in retention, core course DFW rates, and 4- and 6-year graduation rates between historically under-represented students and their peers.

Critical Tasks	Tactics – Action Items	Indicators of Success
Provide a modern curriculum that instills both technical depth and the broad foundation of liberal arts essential for lifelong growth and achievement.	<ul style="list-style-type: none"> Continuously innovate both the core and major curricula. Establish new cross-disciplinary courses and projects in the college. Incorporate ethics and principles of equity and inclusion throughout the curriculum (undergraduate and graduate). Identify and promote additional opportunities for minors, dual majors, and certificates (e.g., ethics and social justice). 	<ul style="list-style-type: none"> Curricula continuously accredited. Review and revision of the core curriculum. Cross-departmental collaborative courses – 3. Students graduating with: <ul style="list-style-type: none"> UI honors: 15%, Honors in major: 5% Certificates: 10% Minors: 60%
Support and recognize excellence in teaching, learning, and innovation both in and out of the classroom.	<ul style="list-style-type: none"> Transform the classroom with the latest pedagogy and advanced tools for engineering education. Promote and encourage participation in initiatives offered by Distance and Online Education and the Office of Teaching, Learning, & Technology. Establish communities of practice and/or teaching circles aimed at innovative teaching (i.e., assessment strategies, remote laboratories, etc.). Adopt the end-of-course teaching evaluation questions and promote peer observation recommendations made by the UI ACE Task Force. 	<ul style="list-style-type: none"> Continued integration of classroom and online teaching to support student learning, based on shared best practices. NSF proposal submission in the area of undergraduate engineering education. Increased student participation in end-of-course teaching evaluations (> 5% annually).
To empower students to become everyday leaders by facilitating and encouraging opportunities for co-curricular learning, intentional engagement, self-reflection, and skill development.	<ul style="list-style-type: none"> Collaborate with campus and community partners to offer intentional and diverse leadership experiences and perspectives. Provide / facilitate meaningful opportunities for students to engage in the development, planning, and facilitation of various programs (i.e., student organizations, outreach activities, etc.). Expand opportunities for global experience. 	<ul style="list-style-type: none"> All undergraduates in the college of engineering participate in one or more of the following before graduation: research; study abroad; co-op/internship; a student organization; outreach; mentoring others (peer advisor, tutoring, etc.). Increased number of students assuming a leadership role.



We can meet our student success goal if we provide a world class, cost effective, undergraduate engineering education and become a college of distinction known for supporting student success.

RESEARCH

GOALS: 1) To lead signature areas of research and economic development to drive breakthroughs that have societal impact.

2) To train graduate students to become outstanding technical leaders and innovative researchers.

Critical Tasks	Tactics – Action Items	Indicators of Success
Focus and build on strengths of the college, in collaboration with centers, institutes, and other colleges/units	<ul style="list-style-type: none"> Invest in strategic research areas of strength by targeted faculty hiring and fostering research collaborations and interaction with centers, institutes other colleges and units, and industry. Maintain world-class research facilities; strategic investment in new infrastructure to enable research in current and emerging grand challenges in engineering. Actively coordinate writing proposals for larger, multidisciplinary research grants in identified research areas. Increase number of research and graduate student training proposals in targeted research areas. 	<ul style="list-style-type: none"> Enhanced activity and impact in focused interdisciplinary research areas which draw on strengths of the college, centers/institutes, other colleges, and industry Continued maintenance and access to existing infrastructure and acquisition of new infrastructure to support cutting-edge research. Hire and support faculty in strategic concentration areas, providing resources, startups, pre- and post-award support, and space allocations. Submit at least one large (multi-disciplinary) grant per year and successfully obtain two large grants in the plan period.
Maintain strong research funding and identify new sources of support for research/graduate programs	<ul style="list-style-type: none"> Maintain strong numbers and sizes of research proposals submitted by faculty and research staff as PI's, MPI's, and co-I's. Continue establishing strategic research partnerships on and off campus. Expand access to pre- and post-award support. 	<ul style="list-style-type: none"> The majority of eligible faculty receive competitive early career research grants (CAREER, YIP, etc.). Increase the number and variety of research funds obtained by faculty and staff from external agencies, both governmental and private. Provide training opportunities and other support to faculty and staff to enhance effective proposal submissions. Maintain faculty research grant expenditures per FTE at levels competitive with Big10.



We can meet our research goals if we:

1. Maintain and enhance our leadership position on campus and beyond when confronting the grand challenges of the 21st Century
2. Support a collegiate culture in which all faculty, staff, and students advance the research mission through their pursuit of excellence
3. Enhance the quality, size, and diversity of the graduate student body while focusing on graduate student success

Critical Tasks	Tactics – Action Items	Indicators of Success
Reward/support faculty, staff and students for achieving excellence in research and contributions to mission of the college	<ul style="list-style-type: none"> Develop a fair metric widely accepted by the faculty and staff that properly values diverse contributions of faculty and staff to the College/University mission. Develop a mechanism for broad appreciation of disciplinary and/or inter-disciplinary research contributions from faculty, staff, and students. 	<ul style="list-style-type: none"> Establish college-wide policy and implementation of metrics for evaluating faculty and staff contributions for promotion, tenure and other evaluations. Increase visibility of diverse contributions of faculty, staff and students in college's media and other outlets Establish and implement criteria and policies for identifying, defining and assigning credit for inter-disciplinary work, including educational and research collaborations with other colleges, industry, entrepreneurship, community service, K-12 outreach, and global contributions.
Focus on recruitment of high quality, diverse graduate student body	<ul style="list-style-type: none"> Increase the number of graduate students, especially PhD students. Improve recruitment practices of high-quality, diverse graduate student body across the college 	<ul style="list-style-type: none"> Increase PhD student per TT FTE number to > 2.5. Increase the number of female PhD students by 20%. Increase the number of underrepresented graduate students to Big10 levels. Develop a college-wide policy, infrastructure, and support (staff and funding) for actively recruiting graduate students via visits to area colleges, potential student visits to college and international recruitment outreach.
Focus on the educational/research experience and training/professional development of graduate students	<ul style="list-style-type: none"> Facilitate inter-department collaboration and sharing of best practices for mentoring, enhancing URM and female student representation, professional development, social and leadership opportunities; writing support, etc. Recognize and credit graduate students for their achievements. Improve graduate student life in the college and university. 	<ul style="list-style-type: none"> Establish improved training, career development, professional excellence opportunities for graduate students. Support faculty and staff for existing and new cross-disciplinary graduate-level courses and projects in the college and across the university. Establish a mechanism of bridging research funds for advisors/graduate students in case of funding gaps between grants. Increase funding amounts available to support graduate students (fellowships; stipends; awards). Maintain 4-5 year PhD student graduation time. Broadcast through website, social media and print achievements of graduate students at least once a month. Establish a Graduate Student Council and increase participation of graduate students in educational, social and networking opportunities.

ENGAGEMENT

GOALS: To engage in mutually beneficial partnerships, boldly communicate our achievements, and build influence with state and federal decision makers.

To acquire and steward private investments that strengthen the college and amplify our service for the common good.

Critical Tasks	Tactics – Action Items	Indicators of Success
Increase engagement and foster partnerships of the college with the community	<ul style="list-style-type: none"> Train and support faculty, staff, and students to better engage the public in local, state, national and global contexts. Incentivize and recognize faculty and staff participation in engagement. Increase in number of faculty, staff, and student participating in workshops on engaged teaching and scholarship. Develop tracking mechanism for engagement activities (STEM festivals, student organization activities, etc.). Use existing data from APR, FAS, CV to track engagement. Create new opportunities for professional education of engineering and informatics workforce based on industrial partnerships. Expand certificate and degree programs available beyond the main UI campus. 	<ul style="list-style-type: none"> 3-5 courses each year with community engagement integrated into the course content. 1-2 research publications each year in the area of engagement. Increase in number of Iowa counties reached by the College of Engineering via engagement. Develop and sustain cross-disciplinary professional Masters, certificate and continuing education programs offered beyond UI campus community.



We can meet our diversity, equity, inclusion, and community goal if we create and sustain an inclusive and equitable environment and recruit, retain, and advance a diverse student body, staff, and faculty.

Critical Tasks	Tactics – Action Items	Indicators of Success
Improve the visibility of the college, its faculty, staff and students to Iowa and the rest of the world	<ul style="list-style-type: none"> Provide training for faculty and staff to work with media and news organizations to explain the impact of CoE research and innovation. Utilize a range of communication platforms to spread CoE messages – print (Iowa Engineer, College Viewbook), digital, and social media. Leverage stories of successful alumni to increase CoE national and international visibility and impact, especially across industry and government agencies. Increase the number of faculty members nominated for high-level awards and national academies. Develop strategic communications to inform Iowans, including legislative stakeholders, about CoE strengths, value, and excellence. Develop a CoE brand, voice, and identity within the overall university brand. Engage the college, department, and center advisory boards in broadening participation and philanthropy. 	<ul style="list-style-type: none"> More than 60% of funded projects earning media attention in their project lifetime. Place three to five CoE news stories in Iowa news outlets each month. Annual increase in social media followers across all channels. Host 2-3 alumni events annually (outside of Iowa City) with attendance of 30 or more alumni. Double the number of partners that are strategically engaged as demonstrated by participation and investment in the college. Produce three to five high level award/academy nominations each year.
Influence and catalyze economic development and sustainable use of natural resources	<ul style="list-style-type: none"> Support entrepreneurial education, new venture creation, technology transfer, and innovation Partner with stakeholders across campus to make campus operations more environmentally sustainable. Measure and minimize, where consistent with other goals and critical tasks, energy use and greenhouse gas footprint of operations of the College of Engineering. Prepare a baseline report on energy use and carbon footprint for the College, choose targets for reduction, and recommend and monitor actions to achieve targets. 	<ul style="list-style-type: none"> Increase percentage of faculty and staff having formal collaborations with industry partners. Increase percentage of faculty, research staff, and PhD students submitting intellectual property disclosures. Participation of CoE faculty, staff, & students in key decisions regarding campus energy use and other sustainability goals. Participation in projects leading to positive changes in environmental and sustainability metrics such as energy and other resource use and waste streams.



The University of Iowa prohibits discrimination in employment, educational programs, and activities on the basis of race, creed, color, religion, national origin, age, sex, pregnancy, disability, genetic information, status as a U.S. veteran, service in the U.S. military, sexual orientation, gender identity, associational preferences, or any other classification that deprives the person of consideration as an individual. The university also affirms its commitment to providing equal opportunities and equal access to university facilities. For additional information on nondiscrimination policies, contact the Director, Office of Equal Opportunity and Diversity, the University of Iowa, 202 Jessup Hall, Iowa City, IA, 52242-1316, 319-335-0705 (voice), 319-335-0697 (TDD), diversity@uiowa.edu. W38273-06/19