

# STRATEGIC PLAN

## COLLEGE OF ENGINEERING

Executive Summary

2021 - 2026



# Executive Summary

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College of Engineering  
University of Iowa  
2021 - 2026

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# Dean's Message



The University of Iowa College of Engineering has a long and distinctive history of producing breakthrough knowledge, training the next generation of engineers, and translating our work for broad impact in our Iowa community, across the nation, and throughout the world.

As we developed our revised College of Engineering Strategic Plan, we asked ourselves what will propel this college for the next five years and beyond, reinforcing our academic excellence while also ensuring that we are accessible, welcoming, and unique. This new plan represents the culmination of the dedicated work of our college community and external stakeholders in a review process that focused on being forward-looking, building on our strengths, recognizing where we may have fallen short, and identifying opportunities for growth and recalibration.

In the pages of our executive summary and in the full Strategic Plan as well as on our Strategic Plan website, you will learn more about our work to improve the college climate and to diversify our faculty, staff, and students; our plans to enhance the student experience with a particular focus on recruitment and retention; our support for groundbreaking research innovations and the growth of our graduate student body; and our commitment to engaging with the community and partnering with industry, government, and funding agencies.

Strategic planning is about setting ambitious but achievable goals. Without a doubt, this plan positions us for continued research excellence and establishes this college as a destination that attracts the best and brightest students as well as innovative faculty and staff. It is our ability to come together as a community with a shared vision and mission that will continue to move our college forward as a leader in engineering education and research.

We are grateful and dedicated to everyone who believes in the future of the University of Iowa College of Engineering.

With excitement and commitment to our CoE community,

**Harriet B. Nembhard**  
Dean, College of Engineering  
Roy J. Carver Professor of Engineering

# Our Vision

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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.

# Our Mission

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- To build an inclusive, diverse and responsible community recognized for:
  - providing an accessible, modern education in engineering and science for future, interdisciplinary leaders.
  - advancing knowledge through fundamental and applied research.
  - facilitating life-long learning and economic development.





# College of Engineering

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## summary of strategic goals

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Our goals reflect our values and our plans for the future. They are both a recognition of where we can do more and better but they are also a concrete reflection of where we expect to take the college in the years to come.

### 1. Diversity, Equity, Inclusion and Community

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

### 2. Student Success

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

### 3. Research

- To lead signature areas of research and economic development to drive breakthroughs that have societal impact, and
- To train graduate students to become outstanding technical leaders and innovative researchers.

### 4. Engagement

- 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.

# Diversity, Equity, Inclusion and 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.

## EQUITY

Design and implement equitable policies and practices that ensure everyone can thrive.

- 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.

## INCLUSION and COMMUNITY

Create and sustain an inclusive and collaborative community that fosters a sense of belonging.

- 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.

## **DIVERSITY**

Diversify student, faculty, staff, and leadership populations.

- 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.

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*.

- **Attract, support, and graduate a diverse and high-achieving student body.**
  - 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.
  
- **Capitalize on our strengths within the college and within the broader university community to provide an extraordinary student experience.**
  - 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).
  
- **Provide a modern curriculum that instills both technical depth and the broad foundation of liberal arts essential for lifelong growth and achievement.**
  - 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).





- **Support and recognize excellence in teaching, learning, and innovation both in and out of the classroom.**
  - 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.
- **To empower students to become everyday leaders by facilitating and encouraging opportunities for co-curricular learning, intentional engagement, self-reflection, and skill development.**
  - 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.

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

- **Focus and build on strengths of the college, in collaboration with centers, institutes, and other colleges/units.**
  - 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.
  
- **Maintain strong research funding and identify new sources of support for research/graduate programs.**
  - Maintain strong numbers and sizes of research proposals submitted by faculty and research staff as PI's, MPI's, and co-I's.
  - Continue to identify, monitor, and address barriers to student success.
  - Expand access to pre- and post-award support.
  
- **Reward/support faculty, staff and students for achieving excellence in research and contributions to mission of the college.**
  - 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 interdisciplinary research contributions from faculty, staff, and students.



- **Focus on recruitment of high quality, diverse graduate student body.**
  - Increase the number of graduate students, especially PhD students.
  - Improve recruitment practices of high-quality, diverse graduate student body across the college.
- **Focus on the educational/research experience and training/professional development of graduate students.**
  - 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.

We can meet our research goals if we:

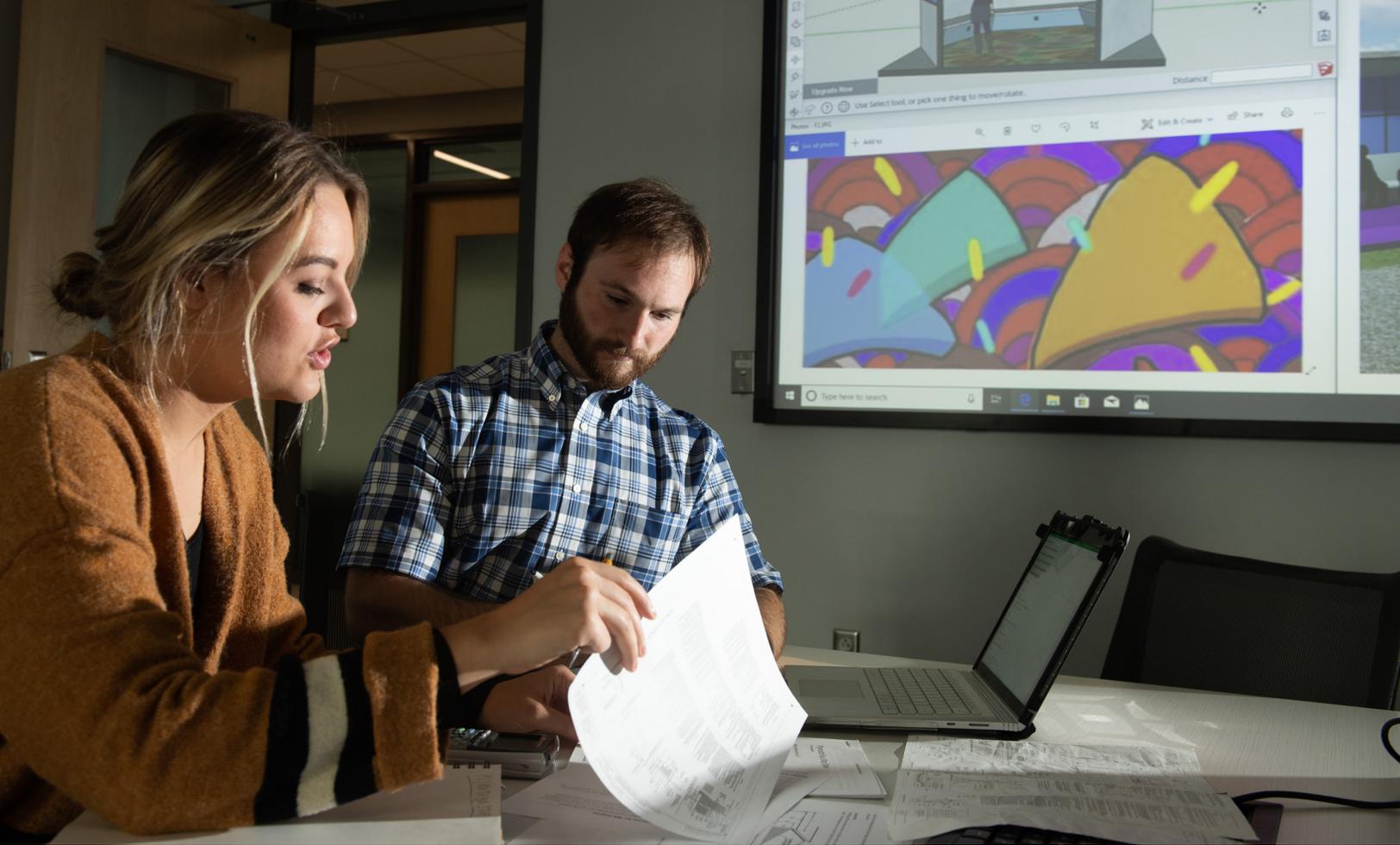
1. Maintain and enhance our leadership position on campus and beyond when confronting the grand challenges of the 21st Century.
2. Support a collegiate culture in which all faculty, staff, and students advance the research mission through their pursuit of excellence.
3. Enhance the quality, size, and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



# Engagement

**GOALS:** 1) To engage in mutually beneficial partnerships, boldly communicate our achievements, and build influence with state and federal decision makers, and 2) To acquire and steward private investments that strengthen the college and amplify our service for the common good.

- **Increase engagement and foster partnerships of the college with the community.**
  - 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.
  
- **Improve the visibility of the college, its faculty, staff and students to Iowa and the rest of the world.**
  - 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.



- **Influence and catalyze economic development and sustainable use of natural resources.**
  - 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.

We can meet our engagement goals if we:

1. Pursue opportunities for high-value engagement through teaching, scholarship and other programs.
2. Enhance visibility of the college faculty, staff, and students.
3. Deploy CoE expertise to catalyze economic development and sustainability.
4. Progressively build relationships with our alumni based on our engagement, sustainability, and advocacy efforts.

## **In conclusion**

**We will continue to innovate in labs and classrooms, support our students with hands-on learning and dynamic programming, and produce research that will change the world through improvements in healthcare, breakthroughs in autonomy and artificial intelligence, and stewardship of the environment.**

**The College of Engineering at the University of Iowa has a bright future ahead of it.**







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](mailto:diversity@uiowa.edu). W38273-06/19

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