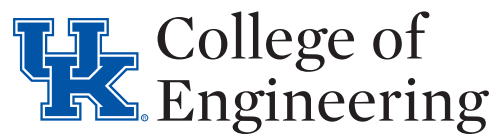


**COLLEGE OF ENGINEERING**

**2019 STRATEGIC PLAN**



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## VISION

We will be a highly networked academic ecosystem that prepares professionals for their future. We will enable discovery and purpose-driven research and create clear pathways for our innovation, understanding and collective ability to benefit society.

## MISSION

We create a world that works by generating, transferring and preserving knowledge across the engineering disciplines, and by preparing professionals ready to sustain societal well-being.

## VALUES

We value diversity in people and thought. We believe in access and inclusion to all. We believe in collaboration, integrity, trust and transparency in the pursuit of excellence.

## FOUNDATIONS

This strategy document replaces the UK College of Engineering Top 50 Plan for the period of 2014-2019. It also builds upon the UK College of Engineering Plan for Growth.

The College of Engineering Diversity and Inclusion Action Plan is a companion document to this plan.

## BACKGROUND AND CURRENT CONDITIONS

The following factors are high-level drivers shaping the current strategic plan.

**Meeting the demand for engineers.** The national and global need for engineering talent continues to increase. Sustainable growth of our global society requires high-quality engineering talent in significant quantity.

**UK Engineering Growth.** The college seeks to increase undergraduate enrollment to 5000 undergraduates and 1000 graduate students by 2025. At the same time the college seeks to increase the scope of its research portfolio. To assure quality education and robust research, we must increase the tenure-track faculty by 70. This campaign will be supported by investments in associated faculty, staff and facilities.

**Globalization of engineering.** Engineering is an international endeavor. Our students must be prepared for the international dimension of the profession by training with and among students from other parts of the world, or by learning in venues away from home.

**Diversity and inclusion.** Diversity in culture, ethnicity and background, and consideration of all perspectives is essential to ensure the effectiveness of the engineering professions. Diverse and inclusive environments where learning, discovery and innovation occurs is essential to ensure that the knowledge created, and the students produced are relevant and connected to the needs of our evolving global society.

**Distinguishing areas of research strength.** In determining direction for strategic investment, we aim to respond to global need by building upon our strengths. These include energy production and distribution, transportation and logistics, manufacturing and materials. We are building towards opportunities in autonomous mobility, sustainable systems and structures, engineering for human health, computing and information, and cyber-physical systems and security.

**New modes of teaching and learning.** The centuries-old model for creating learning communities by aggregating teachers and learners in the same place at the same time is now being extended to our massively connected electronic world. High-bandwidth communications, data storage and rendering that span the globe allow us to port the traditional classroom experience across distance and time. This enables us to reach new kinds of students and develop educational programs going far beyond the reach of traditional programs.

**Supporting expanded undergraduate degree programs.** Undergraduate enrollment has doubled since 2008. This growth has placed significant demands on faculty, staff, space and fiscal resources. The college has not adapted to this growth and elements supporting undergraduate educational programs must be reinforced and modified.

**Communication.** We must ensure that the excellence of UK Engineering, its students, staff, faculty and their accomplishments are widely known.

## SWOT ANALYSIS

The Dean's Advisory Council has reviewed and discussed the external and internal environment in which the College of Engineering operates. Council members were asked to comment on the college's strengths, weaknesses, opportunities, and threats (SWOT). While this list is not exhaustive, it provides a framework for further discussion and planning. Key SWOT issues are identified below.

### STRENGTHS

- **Undergraduate Programs** – Undergraduate programs appear to be strong, attracting good students; our graduates are well-prepared.
- **Quality Student Services** – Strong administrative support of academic programs and student services contributes to the quality of our students, including the faculty-student ratio and the personal attention that students receive. Staff are talented and dedicated, student-focused, strongly engaged, regularly flex outside of their job descriptions. Staff could benefit from opportunities for leadership development and a greater voice in college affairs.
- **Outreach and Community Engagement** – Our outreach is supported by passionate and experienced staff, it is well-integrated across Kentucky, and will be a focus of the university.
- **Leadership Development** – The Pigman Engineering Leadership Institute provides an opportunity for engineering leadership development and exposure to leaders in industry, academia and government.

- **University Campus** – We have a very attractive campus located in vibrant city of Lexington, Kentucky—the “Horse Capital of the World”—in the heart of the state’s Bluegrass Region. The University of Kentucky (UK) plays a critical leadership role in promoting diversity and inclusion, economic development and human well-being. The University is one of just eight in the country with a major academic health center and a full spectrum of academic colleges and professional schools on one contiguous campus. As such, UK is an incubator for multidisciplinary research. These collaborations allow researchers to address the rapidly changing needs of a global society.
- **Positive Campus Climate** – A positive climate increases morale among employees; the quality and collaboration among senior leadership, faculty and staff; and the overall feeling of safety and well-being on campus.
- **Economic Force in the Community** – The University’s impact on the local economy is significant, and the college plays a vital role in upholding our “Kentucky promise.”
- **New Residence Halls** – Old residence halls have been replaced with new facilities. The Living Learning Program (LLP) offers potential for higher GPA; successful and steady progress toward degree; increased sense of community; engagement with faculty, staff and students; and participation in connected courses and academic experiences. In addition, students involved in the LLP are retained at higher rates, are more engaged in university life and adjust more quickly to the academic demands of college.
- **Culture of Continuous Improvement** – There is a willingness to recognize weaknesses and make improvements, e.g., administration’s willingness to openly discuss challenges the college faces: recruitment, retention, lack of diversity and develop plans for making improvements.

## WEAKNESSES

- **Limited Financial Resources** – Reductions in state funding; the need for additional faculty to support projected growth; the necessity to update and expand programs and services; and rising fixed costs contribute to limited available financial resources.
- **Capacity for Growth** – There is no capacity for enrollment growth without faculty growth.
- **New Engineering Building** – Will provide space for research, teaching, and labs—also needed to accommodate current and projected growth. Substantial funding is needed to construct new engineering facilities—and upgrade existing facilities.
- **Graduate Programs** – Multi-year enrollment decline, recruitment challenges, concerns about quality and funding gaps; focus more on preparing students for academia and research, less so on positions in industry.
- **Research** – Several world-class research groups; facilities are good, some outstanding; recent upward trend in awards; highly collaborative and collegial environment. However, portfolio is too small for size of faculty; research brand not strong nationally; 50 percent of research expenditure from 14 principal investigators;

grants management is an unresolved issue; current university research agenda does not favor engineering. Opportunity to involve more faculty members in research through incentives. Increased external funding is an opportunity to increase revenue through indirect cost recovery.

- **Industrial Engagement and Support** – Limited industrial financial support base. Proximity to industries and R&D organizations is also a challenge.
- **External Recognition of Faculty** - Faculty are not recognized nationally and internationally for research and leadership in respective fields.
- **Diversity and Inclusion** – Intentions are good; awareness of demographic imbalances is present; little awareness of culture and climate issues by majority; little formal programming; internal support structures present, but activity level is low; little ability to put good intentions into practices.

## OPPORTUNITIES

- **Comprehensive Campaign** – Increase fundraising efforts and alumni understanding of funds needed for future success. With support from donors—industry, alumni and friends—campaign can serve as a catalyst to a better future. The campaign will also enable and empower the college to provide scholarships to attract and retain students; recruit, develop and retain distinguished faculty; provide fellowships and funding for research and graduate education; and construct new engineering facilities, and enhance infrastructure.
- **Change Vision and Strategy** – Under leadership of new dean, develop a shared vision of the future with common goals and objectives. Clearly communicate expectations, accountabilities and responsibilities. Reaffirm what’s important (the priorities) in advancing the mission of the college.
- **Industry Engagement** – Establish stronger relationships with industry and R&D organizations. Increase and strengthen internal collaborations with other colleges and external collaborations.
- **Expanded Global Focus/Partnerships** – Opportunities for fresh perspectives, programs and partnerships—and maximize potential of Centers of Excellence.
- **Center of Excellence in Biomedical Engineering** – A growing field that applies cutting edge technologies and modern engineering techniques to issues in healthcare and medicine. At the collegiate level, programs in bioengineering attract ambitious students who want to combine their love of problem solving with their desire to help others. UK has the opportunity to transform students’ lives—like nowhere else—toward developing rewarding and productive careers and to make a difference in patients’ lives. Within a short walking distance, students can collaborate with experts in the college’s seven engineering departments, the Colleges of Medicine, Dentistry and Pharmacy—and the top-ranked hospital in the state. A thriving undergraduate program also has the potential to help boost the college’s enrollment and enhance its diversity of students.

- **Communications** – Increasing publicity in areas of excellence, value and quality. Expand and improve the effectiveness of marketing of the college through digital and other media. Increase national and regional recognition and enhance public perception of the college as the top college of engineering in Kentucky.

## THREATS

- **Economic Affordability/Funding for Success** – Unmet financial need is a critical impediment for students. Additional funding needed to ensure accessible and affordable education. Funding also needed to attract/retain exemplary scholars and researchers; enable interdisciplinary endeavors, providing real solutions to critical challenges; and accommodate current and projected growth.
- **State/Federal Funding Reductions** – A continuing reduction of state support and the need to generate new streams of revenue from non-traditional sources; keeping the cost of attendance affordable.
- **State/Federal Public Policy Changes** – Policy changes, such as limiting the college to 128 credit hours for an undergraduate engineering degree.
- **Competition** – Community colleges and other higher education institutions in the State and region recruit from the same student pool; perception that the University of Louisville is the top school of engineering.
- **Poor Academic Preparation** – A challenge that some students are not prepared to perform college-level work (especially in math); need for remedial classes; continuous improvement in first-year program.

## **GOALS STATEMENTS**

### **EDUCATION**

1. Make UK Engineering a preferred destination for high quality undergraduate students.
2. Produce savvy, competitive, intellectually agile and culturally attuned problem solving engineering graduates from a comprehensive range of accessible, affordable and innovative academic programming.
3. Develop sought-after post-graduate professionals through high caliber graduate education and research programs.
4. Support the career development of practicing engineers through distinctive and enabling professional on-campus and on-line educational programming.
5. Connect students, staff and faculty to the international dimensions of the engineering disciplines and make access to international learning and research venues a distinctive aspect of UK Engineering.

### **RESEARCH**

1. Provide scientific and technological leadership in areas of strength: energy production and distribution, transportation and logistics, manufacturing and materials, and build toward opportunities in autonomous mobility, sustainable systems and structures, engineering for human health, computing and information, and cyber-physical systems and security.
2. Develop and invest in research collaborations to address high relevancy research issues and to promote translation of research to public and commercial domains.
3. Drive innovation and entrepreneurship and align with, engage and support the state and regional business and industry.

### **ALUMNI RELATIONS, CORPORATE RELATIONS AND PHILANTHROPY**

1. Increase the depth and breadth of alumni engagement leading to meaningful relationships and engendered loyalty.
2. Build a collaborative, well-integrated and productive college philanthropy team that engages the college's external alumni and corporate constituencies to attract resources and opportunity to the college mission.
3. Build corporate relationships to help fulfill our Land Grant mission and attract opportunity to the college's educational and research missions.

### **DIVERSITY AND INCLUSION**

1. Enhance diversity among our students, faculty and staff.
2. Create and sustain a college environment that values inclusion and equity and demonstrates those values through individual and collective action.

### **FACULTY AND FACILITIES**

1. Build a world-class faculty to address research and teaching priorities.
2. Expand the college's physical footprint, increase the quality of its teaching and research space, and optimize utilization of space resources.



**GOALS, STRATEGIES AND**

**METRICS STATEMENTS**

**EDUCATION**

**Goal** – Make UK Engineering a preferred destination for high quality undergraduate students.

<b>STRATEGIES</b>	<b>METRICS</b>
Expand collaborations with high schools by offering engineering education opportunities.	<ul style="list-style-type: none"> <li>• Introduce Transition to Engineering Program (articulated agreement) to 10 pilot high schools in Summer 2019 and expand program by 10 schools each year. Over 100 students take the assessment for Transition to Engineering Program by 2021</li> <li>• Increase number of students coming from pilot schools by 10% by 2023 (Currently = 89 students total on average each year)</li> </ul>
Expand outreach activities to K-12.	<ul style="list-style-type: none"> <li>• Increase number of students participating in outreach activities by 5% each year (Currently = approximately 700 students including Science Olympiad)</li> <li>• Develop URM camp by 2020</li> <li>• Develop general population camps by 2020</li> <li>• Expand to four-weeks of camps by summer 2021</li> <li>• Develop three new outreach programs by 2021</li> </ul>
Expand recruiting efforts of high-quality students both in-state and out-of-state.	<ul style="list-style-type: none"> <li>• Recruit 850 FTF for AY19-20 an increase each year to 1320 FTF for AY24- 25 (Fall 18 cohort = 776)</li> <li>• Increase % of out-of-state full-time freshmen by 10% each year (Fall 18 cohort = 24%)</li> <li>• 5000 undergraduates enrolled by 2025 (AY 18-19 = 3398)</li> <li>• Increase % of calculus-ready freshmen from to 80% by AY 24-25. (not including engineering tech) (Fall 18 cohort = 70%)</li> <li>• Recruit 20 international freshman students for AY 19-20 and increase to 30 for AY 24-25 (Fall 18 cohort =16)</li> </ul>
Expand collaborations with KY regional schools and community colleges.	<ul style="list-style-type: none"> <li>• Recruit 152 transfer students for AY 20- 21 and 190 transfer students for AY 2024- 25 (AY 18-19 = 142)</li> </ul>

Expand marketing activities including social media and videos to better highlight our college.	<ul style="list-style-type: none"> <li>• Increase traffic to website by 5% annually and social media pages by 10% annually</li> <li>• Increase number of freshman applications to 3000 for AY 19-20 and to 4300 for AY 24-25 (Fall 18 = 2771)</li> <li>• Increase number of transfer application to 340 for AY 19-20 and to 490 for AY 24-25 (Fall 18 = 312)</li> </ul>
Contain cost of attendance for students.	<ul style="list-style-type: none"> <li>• Maintain market-competitive pricing within 5% of benchmark institutions</li> <li>• Fundraise for \$2 million in new, annual need-based scholarship support by 2023 (Currently = \$500k)</li> </ul>
Increase merit-based scholarship opportunities for students.	<ul style="list-style-type: none"> <li>• Increase merit-based undergraduate scholarship support to \$1.6m by AY 20- 21. and increase by approximately 20% each year after (Currently = \$740,000)</li> </ul>
Expand program offerings for students.	<ul style="list-style-type: none"> <li>• Biomedical Engineering by 2020</li> <li>• Aerospace Engineering by 2021</li> <li>• Engineering Technology by 2022</li> </ul>
Assess admission criteria to remain competitive with benchmarks and recruit high-quality students.	<ul style="list-style-type: none"> <li>• Increase admission criteria to MA ACT of 25 and HSGPA of 3.0 for AY 20-21. (Currently = MA ACT 23)</li> <li>• Consider increasing MA ACT to 27 when engineering technology comes on board</li> </ul>

**Goal** – Produce savvy, competitive, intellectually agile and culturally attuned problem-solving BS engineering graduates from a comprehensive range of accessible, affordable and innovative academic programming.

STRATEGIES	METRICS
<p>Increase retention rates and graduation rates from undergraduate engineering programs.</p>	<ul style="list-style-type: none"> <li>• 90% University second-year retention rate by 2021 (Currently = 86.2%)</li> <li>• 80% Engineering second-year retention rate by 2021 (Currently = 75%)</li> <li>• &gt; 75% university six-year graduation rate by 2024 (Currently = 68.9%)</li> <li>• &gt; 55% Engineering six-year graduation rate by 2024 (Currently = 48%)</li> <li>• Develop a process for tracking retention and success of transfer students</li> </ul>
<p>Expand access and diversify graduating classes as measured by reduced graduation rate gaps.</p>	<ul style="list-style-type: none"> <li>• Graduate gaps &lt; 10% for underrepresented minorities, first generation students and Pell Grant recipients (Current University values: URM = 14.8%, Pell = 29.9%, First Generation = 22.3%. Current college values: URM = 24.6%, Pell = 20.1%, First Generation = 17.2%)</li> </ul>
<p>Strengthen First-Year Engineering and expand content across the curriculum</p>	<ul style="list-style-type: none"> <li>• Provide designated space including offices and classrooms to support FYE and growth by 2020</li> <li>• Continue to hire FYE faculty to support growth</li> <li>• Have curriculum collaboration plan in place with A&amp;S by Fall 2020</li> <li>• Collaborate with three engineering programs to expand content of FYE in their curricula by Fall 2020</li> <li>• Provide stable process for hiring TA's to support the program</li> </ul>
<p>Continue to strengthen in-class instruction.</p>	<ul style="list-style-type: none"> <li>• Increase number of accessible, active learning classrooms to six by 2021 (Currently: four)</li> <li>• Review class size and impact on teaching effectiveness</li> <li>• Increase number of teaching faculty to assist with growth</li> <li>• Clear plans in each program for continuous evaluation and improvement of classes and curriculum</li> <li>• Increased hands-on opportunities in courses based on assessment and benchmarking</li> </ul>

	<ul style="list-style-type: none"> <li>• Each program utilize makerspace in two additional classes by 2021</li> <li>• A clear plan for instructor remediation regarding classroom instruction</li> <li>• Assessment and improvement of capstone design in all programs by 2022.</li> <li>• Increase number of accessible, active learning classrooms to six by 2021 (Currently: four)</li> </ul>
Continue to expand and increase Living Learning Program participation.	<ul style="list-style-type: none"> <li>• Increase % of incoming freshmen choosing the LLP by 10% each year with a goal of filling all 700 beds by AY 24-25 (Currently = 56%)</li> <li>• &gt;90% second-year retention in the college's LLP students by 2021 (Currently =82%)</li> </ul>
Increase cocurricular participation: co-op, internship, study-abroad, service learning, research.	<ul style="list-style-type: none"> <li>• 100% participation in a cocurricular activity by 2023 (Currently = 78%)</li> <li>• Increase co-op participation to 30% by 2024 (Currently = 18%)</li> <li>• Grow education abroad participation rate to 18% by 2024 (Currently = 12% of 2017-18 graduates had a formal education abroad experience)</li> <li>• Provide formal research program for students wanting to pursue graduate school by 2021</li> </ul>
Contain cost of attendance for students.	<ul style="list-style-type: none"> <li>• Maintain market-competitive pricing within 5% of benchmark institutions</li> <li>• Fundraise for \$2 million in new, annual need-based scholarship support by 2023 (Currently = \$500k)</li> <li>• Increase merit-based undergraduate scholarship support to \$1.6K by AY 20-21 and increase by approximately 20% each year after. (Currently = \$740,000)</li> </ul>
Support advising, mentoring, counseling, mental health functions for students.	<ul style="list-style-type: none"> <li>• Student to adviser ratios no greater than 285:1</li> <li>• Training of faculty on advising roles by Spring 2020</li> <li>• Active engagement with university counseling offices for engineering students</li> </ul>

**Goal** – Develop sought-after post-graduate professionals through high caliber graduate education and research programs.

STRATEGIES	METRICS
Increase recruitment to graduate programs through on-campus recruitment, recruitment from international programs and enhanced graduate fellowships.	<ul style="list-style-type: none"> <li>• Increase graduate enrollment to 500 by 2020 800 by 2023 with a focus on domestic student recruitment</li> </ul>
Increase student gender and ethnic diversity.	<ul style="list-style-type: none"> <li>• 20% increase over current levels</li> </ul>
Provide financial support for graduate education.	<ul style="list-style-type: none"> <li>• 100% of PhD students supported on RA, TA, GA, fellowships or scholarships</li> </ul>
Create graduate program impact.	<ul style="list-style-type: none"> <li>• Sustain an annual PhD graduation rate equivalent to 20% of PhD enrollment</li> </ul>
International programs.	<ul style="list-style-type: none"> <li>• Graduate program enrollment of 20% of total by 2023</li> </ul>
Specialty MS programs.	<ul style="list-style-type: none"> <li>• Computer Engineering MS and PhD program by 2020</li> <li>• Two additional programs by 2020</li> <li>• Five additional programs by 2023</li> </ul>
Certificate Programs to meet needs.	<ul style="list-style-type: none"> <li>• Eight new programs by 2020</li> <li>• Five additional programs by 2023</li> </ul>
Career planning and placement across a range of trajectories.	<ul style="list-style-type: none"> <li>• 100% placement within one year of graduation</li> </ul>

**Goal** – Support the career development of practicing engineers through distinctive and enabling professional on-campus and on-line educational programming.

<b>STRATEGIES</b>	<b>METRICS</b>
Increase recruitment to Graduate Programs through distance education.	<ul style="list-style-type: none"> <li>&gt; 300 graduate students enrolled in distance education programming by 2023</li> </ul>
Develop standard approaches for distance education delivery modes.	<ul style="list-style-type: none"> <li>complete by 2020</li> </ul>
Emplace college-level support group for distance education delivery.	<ul style="list-style-type: none"> <li>complete by 2020</li> </ul>
Develop Supply Chain Engineering professional MS program.	<ul style="list-style-type: none"> <li>complete by 2020</li> </ul>
Develop Data Science/Data Analytics professional MS program.	<ul style="list-style-type: none"> <li>complete by 2020</li> </ul>

**Goal** – Connect students, staff and faculty to the international dimensions of the engineering disciplines and make access to international learning and research venues a distinctive aspect of the UK Engineering.

<b>STRATEGIES</b>	<b>METRICS</b>
Make UK Engineering a preferred destination for international students for learning and research opportunities in the US.	<ul style="list-style-type: none"> <li>&gt; 100 new international undergraduate students enrolled through international partnership agreements by 2021</li> <li>Develop programming, support staff and infrastructure to host international students, researchers to facilitate their on-campus engagement</li> </ul>
Build partnerships with international university partners through faculty engagement.	<ul style="list-style-type: none"> <li>10% of the faculty engaged in teaching and research exchanges with international partner institutions annually</li> </ul>
Focus international engagement for engineering education on core strategic partner universities.	<ul style="list-style-type: none"> <li>Create a foundation of four to six strategic international partner universities</li> </ul>
Create pathways through strategic partner universities for UK engineering students to study or research abroad.	<ul style="list-style-type: none"> <li>10% of UK Engineering undergraduates involved in study abroad or international visitations annually through partnership agreements</li> </ul>

**GOALS, STRATEGIES AND**

**METRICS STATEMENTS**

**RESEARCH**



**Goal** – Provide scientific and technological leadership in areas of strength: energy production and distribution, transportation and logistics, manufacturing and materials, and build towards opportunities in autonomous mobility, sustainable systems and structures, engineering for human health, computing and information, and cyber-physical systems and security.

STRATEGIES	METRICS
Increase research capacity, by investing in faculty, researchers, and facilities.	<ul style="list-style-type: none"> <li>• &gt; \$70 million in annual research expenditure by 2023.</li> <li>• Two large externally funded centers (ERC, MRSEC, EFRC or equivalent) by 2023</li> </ul>
Increase research capacity of existing faculty, researchers and facilities.	<ul style="list-style-type: none"> <li>• PI annual research expenditures of \$450K/year by 2023</li> </ul>
Diversify funding sources.	<ul style="list-style-type: none"> <li>• Non-NSF funding streams of 40% of the college level research portfolio</li> </ul>
Elevate the efficiency and effectiveness of administrative support system for research operations.	<ul style="list-style-type: none"> <li>• Timely transactions in pre- and post-award business</li> </ul>
Increase opportunities for undergraduate participation in college research.	<ul style="list-style-type: none"> <li>• One-third of undergraduates participating in research experiences</li> </ul>
Promote awards and recognitions for research.	<ul style="list-style-type: none"> <li>• 15 international recognitions per year</li> <li>• 30 national recognitions per year</li> <li>• 50 professional society fellowships or equivalent</li> <li>• Three National Academy members</li> </ul>

**Goal** – Develop and invest in research collaborations to address high relevancy research issues and to promote translation of research to public and commercial domains.

STRATEGIES	METRICS
Promote research collaboration by investing in joint faculty appointments that address high relevancy research needs.	<ul style="list-style-type: none"> <li>• 10% of new faculty appointments are made as joint appointments</li> </ul>
Create and invest in research centers and institutes and initiatives that cross department and college boundaries.	<ul style="list-style-type: none"> <li>• 30% of new research initiatives involve investigators from different academic units</li> </ul>
Establish formalized partnerships with other colleges at UK that focus on major cost sharing investments in infrastructure, technology and faculty support.	<ul style="list-style-type: none"> <li>• Establish one new partnership per year. Refresh and redirect existing partnerships as needed</li> </ul>
Utilize the Proposal Development Office and COE's research expertise to capture major research programs aligned with signature research areas, and grow the size and the scope of the Proposal Development Office to increase the faculty's effectiveness in securing external research funding.	<ul style="list-style-type: none"> <li>• Three new proposals of \$5 million or greater each year by 2021</li> <li>• One new proposal of \$10 million or greater each year by 2021</li> </ul>

**Goal** – Drive innovation and entrepreneurship and align with, engage and support the state and regional business and industry.

<b>STRATEGIES</b>	<b>METRICS</b>
Partner with Office of Technology Commercialization to educate and engage faculty, researchers and students on policies and procedures for developing intellectual property and IP-based businesses.	<ul style="list-style-type: none"> <li>• Workshop for researchers on IP creation and management developed</li> <li>• Workshop for researchers on small business creation from academic research developed</li> <li>• 100 new invention disclosures by 2021</li> <li>• Five new small-business starts by 2021</li> </ul>
Create opportunities for industry to shape and invest in research programming	<ul style="list-style-type: none"> <li>• Five pathways for industry to invest in college research or research infrastructure created and in use</li> <li>• \$5 million in industry investment in research secured by 2023</li> </ul>
Capitalize on the University's Corporate Engagement Office and the Industry Liaison Office to connect industry funded research with Federal and State programs.	<ul style="list-style-type: none"> <li>• Grow industry-sponsored research expenditures to 10% of the college's research portfolio</li> </ul>
Create focused, high impact events to inspire and engage student innovation and entrepreneurship.	<ul style="list-style-type: none"> <li>• At least one Hack-a-thon event hosted per year</li> <li>• At least three Make-a-thon events hosted per year</li> </ul>
Revise Promotion and Tenure criteria to recognize the value of research with industry, creating intellectual property, businesses, and tangible products	<ul style="list-style-type: none"> <li>• Revise and approve new criteria no later than 2020</li> </ul>

**GOALS, STRATEGIES AND**

**METRICS STATEMENTS**

**ALUMNI RELATIONS,  
CORPORATE RELATIONS  
AND PHILANTHROPY**

Section III. **ALUMNI RELATIONS, CORPORATE RELATIONS, AND PHILANTHROPY**

**Goal** – Increase the depth and breadth of alumni engagement leading to meaningful relationships and engendered loyalty.

STRATEGIES	METRICS
Develop substantive relationships with younger alumni.	<ul style="list-style-type: none"> <li>• Achieve a 30% contact rate by 2021</li> </ul>
Develop and execute programming to increase involvement and communication with alumni and alumni groups around the country.	<ul style="list-style-type: none"> <li>• Develop on-campus program options by 2019</li> <li>• Execute off-campus programs starting in 2018</li> </ul>
Expand industry access to engineering students.	<ul style="list-style-type: none"> <li>• One-third of students engage in internships or co-ops</li> <li>• More than 250 corporate participants in the Engineering Career Fair by 2020</li> </ul>

**Goal** – Build a collaborative, well-integrated and productive college philanthropy team that engages the college’s external alumni and corporate constituencies to attract resources and opportunity to the college mission.

STRATEGIES	METRICS
Build the Philanthropy Team.	<ul style="list-style-type: none"> <li>• Recruit a senior director of development by 2019</li> </ul>
Develop philanthropic support for the college’s academic mission.	<ul style="list-style-type: none"> <li>• Doubled undergraduate scholarship support</li> <li>• Enabling graduate fellowship support</li> </ul>
Develop philanthropic support for college facilities.	<ul style="list-style-type: none"> <li>• Lead gift for Central Engineering Building</li> <li>• Five naming gifts for laboratories and facilities</li> </ul>
Develop philanthropic support for the college’s research mission.	<ul style="list-style-type: none"> <li>• Investments in each department and research center made</li> </ul>
Develop philanthropic support for faculty growth.	<ul style="list-style-type: none"> <li>• Six new endowed chairs created</li> <li>• An endowment for junior faculty fellowships created</li> </ul>

Section III. **ALUMNI RELATIONS, CORPORATE RELATIONS, AND PHILANTHROPY**

**Goal** – Build corporate relationships to help fulfill our Land Grant mission and attract opportunity to the college’s educational and research missions.

STRATEGIES	METRICS
Invite industry to be involved with student curricular activities.	<ul style="list-style-type: none"> <li>• Industry involved in over 50% of capstone projects</li> <li>• Industry sponsorship of undergraduate laboratory spaces in each department</li> <li>• Industry leaders invited as seminar speakers and guest lecturers in every curricular major</li> </ul>
Invite industry to be involved with student cocurricular activities.	<ul style="list-style-type: none"> <li>• Industrial involvement with 50% or more of student organizations</li> <li>• Three industry-sponsored student hack-athons, make-a-thons or shark tank programs each year</li> </ul>
Engage experienced industrialists in courtesy or part-time faculty appointments	<ul style="list-style-type: none"> <li>• Appoint 10 industry professionals by 2023</li> </ul>
Develop industry support for research programs.	<ul style="list-style-type: none"> <li>• Develop three large investments in college research centers or laboratories by 2023</li> </ul>
Involve industry in faculty recruitment.	<ul style="list-style-type: none"> <li>• Have industry partners formally appointed to search committees</li> <li>• Have industry support 10 start-up packages for new faculty by 2023</li> </ul>

**GOALS, STRATEGIES AND**

**METRICS STATEMENTS**

**DIVERSITY AND INCLUSION**

**Goal** – Enhance diversity among our students, faculty and staff.

STRATEGIES	METRICS
Increase gender and ethnic diversity among faculty, staff and students	<ul style="list-style-type: none"> <li>• Attain record value diverse student recruitment two of three years to AY 2021-22</li> <li>• Attain record value diverse faculty recruitment two of three years to AY 2021-22</li> <li>• Exceed Office of EEO Utilization rates for women and underrepresented groups</li> </ul>
Expand need-based scholarships as a means to ensure affordability and access	<ul style="list-style-type: none"> <li>• Implement a holistic scholarship review process</li> <li>• Fundraise for \$2 million in new, annual need-based scholarship support by 2023</li> </ul>

**Goal** – Create and sustain a college environment that values inclusion and equity and demonstrates those values through individual and collective action.

STRATEGIES	METRICS
Elevate the awareness of climate, culture and its impact on diverse persons.	<ul style="list-style-type: none"> <li>• Create college-level diversity office by 2020</li> </ul>
Integrate diversity and inclusion performance measures in annual performance evaluations for college, departmental, center and staff leaders.	<ul style="list-style-type: none"> <li>• Revised college and departmental governance documents to explicitly include expectations for faculty and staff to promote equity and an inclusive climate</li> </ul>
Develop annual programming around diversity and inclusion themes relevant to engineering disciplines.	<ul style="list-style-type: none"> <li>• Create faculty, staff and student awards that recognize efforts to promote equity and inclusion</li> <li>• Develop a slate of regularly recurring events and recognitions for diversity engagement and accomplishment by 2020</li> </ul>



**GOALS, STRATEGIES AND**

**METRICS STATEMENTS**

**FACULTY AND FACILITIES**

**Goal** – Build a world-class faculty to address research and teaching priorities.

STRATEGIES	METRICS
Hire to faculty goals focused on strategic themes, emphasizing diversification.	<ul style="list-style-type: none"> <li>• 220 tenure track faculty by 2025</li> <li>• 10% Joint appointment faculty by 2022</li> <li>• Attain record value diversity recruitment two of three years to 2022</li> </ul>
Develop recruiting best practices to attract rising stars and NAE-caliber faculty.	<ul style="list-style-type: none"> <li>• At least one successful mid-career faculty recruitment per year</li> <li>• At least one successful senior faculty recruitment per year.</li> <li>• One successful prominent faculty recruitment per year</li> </ul>
Embed professional development and professional success programs to enhance faculty and staff effectiveness.	<ul style="list-style-type: none"> <li>• Institutionalize the Faculty Professional Development Program by the end of 2019; Staff Professional Development by 2020</li> </ul>
Formalize extramural awards nomination process for faculty	<ul style="list-style-type: none"> <li>• Produce 15 national or international awards or career recognitions per year by 2023</li> </ul>

**Goal** – Expand the college’s physical footprint, increase the quality of its teaching and research space, and optimize utilization of space resources.

STRATEGIES	METRICS
Renovate the Enoch Grehan Building.	<ul style="list-style-type: none"> <li>• Occupancy by early 2020</li> </ul>
Design and build the Central Engineering building.	<ul style="list-style-type: none"> <li>• Occupancy by 2025</li> </ul>
Create space utilization efficiencies in the college’s existing space footprint.	<ul style="list-style-type: none"> <li>• Conduct space utilization assessment by 2019</li> <li>• Informed reorganization and renovation to support program growth</li> </ul>

<b>DEMOGRAPHIC PROFILE</b>	<b>2013</b>	<b>2015</b>	<b>2017</b>	<b>2019</b>
Tenure track faculty	122	123	122	
Non-tenure track faculty	11	14	17	
Lecturers	<10	10	15	
Women faculty (all tracks)	16	20	28	
Underrepresented minority faculty (all tracks)	<10	12	13	
Undergraduate Students (Major + Pre-Major)	2733	3085	3382	3398
Men	2333	2523	2718	2696
Women	400	562	675	702
Underrepresented minority	199	299	374	364
Graduate Students	499	483	466	449
Men	401	390	378	351
Women	98	93	88	98
Underrepresented minority	19	21	18	25

<b>REPUTATIONAL PROFILE</b>	<b>2013</b>	<b>2015</b>	<b>2017</b>	<b>2019</b>
USNWR Graduate Ranking Among National Public Universities				55
USNWR Undergraduate Ranking Among National Public Universities				