

**Tickle College of Engineering Strategic Plan  
Executive Summary  
January 31, 2017**

**Mission**

The mission of the College of Engineering is:

1. To provide high quality education in the major engineering disciplines from the undergraduate through doctoral levels through a creative balance of academic, professional and extracurricular programs;
2. To foster and maintain mutually beneficial partnerships with our alumni, friends, industry and local, state and federal governments through public services assistance and collaborative research; and
3. To be a major contributor to our nation's technology base through scholarship and research to grow beyond disciplines by participation in ethics and leadership programs.

**Vision**

The College of Engineering is resolved to become one of the country's top 25 public engineering colleges. To bring this vision to reality, the college is committed to these five charges:

1. Attaining national and international recognition among peer institutions for excellence in both research and teaching;
2. Assembling a dynamic body of faculty who exemplify excellence and innovation in the pursuit and delivery of knowledge and will perpetuate the highest standards of engineering education for future generations;
3. Graduating students who are well educated in technical knowledge, who have solid communication and teamwork skills, and who can compete successfully in the global business world and contribute significantly to the national base of engineering education and technology;
4. Investing strategically in the college's most important resources—students, faculty and programs—through the vigorous acquisition of private gifts from individuals, corporations and foundations; and
5. Partnering with academic, industrial and government entities that share and enhance the mission of the College of Engineering, so that our educational and collaborative efforts result in the maximum, positive, economic impact locally, regionally, nationally and globally.

While the above vision statement is the college's formal vision statement, as approved by the faculty, the college's vision is fully supportive and consistent with the university's VolVision 2020 strategic plan and the strategic priorities and goals of the university. The college is also fully supportive of all of the campus goals outlined on page 8 of this executive summary.

## Strategic Priorities and Goals

### Priority One: Undergraduate Education

*Recruit, enrich, and graduate undergraduate students who are prepared to enter the global community as lifelong learners and authentic leaders.*

#### Guiding Statement

Graduating students who are well educated in technical knowledge, who have solid communication and teamwork skills, and who can compete successfully in the global business world and contribute significantly to the national base of engineering education and technology.

#### Goals

Summary of College/Division goals and related success metrics/criteria

Goal	Description	Success Metric/ Criteria
1	Improve retention through analysis and determination of intervention and advising needs for UG students.	Increase retention from 80% to 85% in the Freshman Program; increase 6 yr graduation rate from 60% to 65%
2	Increase capacity in the Freshman Honors Program by recruitment, advising and broadening acceptance criteria for admission.	Increase enrollment in Honors from 120 to 180 students
3	Identify and expand the TCE transfer agreement model to at least four of the most productive State of TN community colleges to attract top talent from the TN Promise/Drive to 55 initiatives.	Increase UG student transfer population from 75 to 150 students
4	Enhance student engagement through expansion of the Innovation and Collaboration Studio into a horizontally and vertically Integrated Engineering Design learning community, to be located in the New Engineering Complex.	Success in QEP learning outcomes 2 and 3 related to collaboration and solving real world problems
5	Improve the quality of teaching through the pursuit of awards such as a Revolutionizing Engineering Departments (RED) NSF award.	Receipt of funded awards and successful implementation of proposed attributes
6	Increase UG student international, cultural, co-op community project and research experiences to meet needs of the globally competent engineer. Insure at least one such experience for all students, and multiple for the majority.	Track continued growth in number of offerings and number of participating students

## Priority Two: Graduate Education

*Strengthen graduate education through an emphasis on excellence and improvement of the graduate student experience*

### Guiding Statement

Enhance graduate programs by using our accomplishments to inspire and recruit high quality students who will be major contributors to our nation's technology base through scholarship and research conducted with our faculty, and who, upon graduation, compete successfully in the global business world and contribute significantly to the global base of engineering education, innovation and technology.

### Goals

Summary of College/Division goals and related success metrics/criteria

Goal	Description	Success Metric/ Criteria
1	Enrich graduate student caliber through a college-wide coordinated recruitment effort that invites high quality applicants to campus for multidisciplinary events that showcase our commitment to excellence.	GRE (quant) average scores to be raised from 160 to that of aspirational peers (163)
2	Continue our commitment to offering competitive stipends through ongoing development of new top off programs such as the Tickle Fellows, SEC Deans Fellows, Top 100 Program and Bredesen Center Fellows.	Track and increase number of students with stipends of \$30K/yr or greater and compare to peers.
3	Utilize placement of graduate students as a quality metric using LinkedIn data. Develop a seminar that addresses self-marketing and encourages students to establish a LinkedIn profile and use this to develop a network by joining the existing TCE LinkedIn group.	Collect, track and increase the percentage of graduate students using LinkedIn
4	Promote and recognize the success of graduate students including publications, fellowships, awards, etc. that demonstrates the quality of our programs.	Track accomplishments through Elements system and enhance communication outlets
5	Increase the number of GTA positions proportionate to UG (6%/yr) and Graduate growth (6%/yr) to provide teaching-based education/training of graduate students and to ensure maintenance of an appropriate balance needed for faculty assistance in the UG teaching mission of the college/university.	Track the increase in enrollment and sch generated and work with Provost's Office to achieve the needed balance.

## Priority Three: Research, Scholarship, Creative Activity, and Engagement

*Strengthen our capacity, productivity, and recognition across our total portfolio of research, scholarship, creative activity, and engagement*

### Guiding Statement

Build on existing research and scholarship success by recognizing and enhancing faculty and student participation in creation of scholarly publications, new intellectual property, and increased research funding, while also increasing our focus and contribution to institutional safety culture.

### Goals

Summary of College/Division goals and related success metrics/criteria

Goal	Description	Success Metric/ Criteria
1	Pursue multi-faculty, multi-disciplinary programs that result in multi-year research programs with appropriate funding levels to support faculty/student research programs.	Track success, with goal of increasing annual external funding and expenditures of nominally 20% over five years. Examples include: NSF ERCs, JIAM-based center-scale awards, increased DOD funding, addition of Governor's Chairs, UTSI-based research
2	Increase tenure-line faculty participation in funded research using benchmarks based on minimum acceptable annual research expenditures and comparison to peer colleges.	Increase tenure line faculty participation to 80% over a five-year period
3	Partner with ORE Research Development to increase the number of Faculty Early Career Awards (NSF, DoE, DoD).	Receive 20 such awards over the next five years
4	Promote intellectual property and business startup success of faculty and alumni to enhance peer perception of our research profile.	Increase disclosures, license agreements, and funds raised from I.P.
5	Continue advancing Safety Culture in the operation of research laboratories in TCE: (a) Implement departmental policies; (b) Implement laboratory personnel checklist; (c) Implement full laboratory commissioning and closeout; (d) Success with EHS-managed Laboratory Safety Reviews; and (e) 100% compliance with Chemical Inventories.	Completion of the benchmarks in the description within five years

## Priority Four: Faculty and Staff

*Attract, retain, and recognize stellar faculty and staff who strive for excellence and proudly embody Volunteer values*

### Guiding Statement

Maintain a dynamic body of faculty and staff who exemplify excellence and perpetuate and contribute to the highest standards of engineering education for future generations.

### Goals

Summary of College/Division goals and related success metrics/criteria

Goal	Description	Success Metric/ Criteria
1	Continue to recruit talented faculty through a commitment to hire at salaries competitive with our aspirational peer public colleges of engineering.	Benchmark faculty salaries to ASEE salary database using our 16-32 metric.
2	Increase retention by expanding our tenure-track faculty mentoring program to invigorate early startup, proposal paths and teaching success.	Continue tracking research proposals/awards and teaching success of faculty members
3	Complete a human resource inventory for staff positions to identify a path of standardization for both succession planning and shared service modeling.	Completion of inventory document
4	Identify skill sets of staff position holders in order to develop an effective career path for internal growth. An existing example is the Advising Career Ladder	Establishment of career path documents.
5	Increase the number of National Academy Members from within our faculty base and by targeted hiring.	Increase by 3 over the next five years
6	Increase the number of prestigious awards to faculty members from professional societies and state/federal agencies.	Track number and types of awards and facilitate applications
7	Identify resources to increase the number of college-based awards to recognize outstanding teaching and service, including non-tenure track faculty and staff.	Track and increase percentage of college awards related to teaching and service

## Priority Five: Resources and Infrastructure

*Develop a resource base for the future; continue transformation of campus infrastructure*

### Guiding Statement

Strengthen our resource base through continued growth in donor support and effective management of our investment in human capital and physical infrastructure.

### Goals

Summary of College/Division goals and related success metrics/criteria

Goal	Description	Success Metric/ Criteria
1	Complete and exceed goals of the TCE \$150M capital campaign. Celebrate and possibly consider increasing the goal once the current goal has been exceeded.	Track total progress toward the campaign goal of \$150M goal which supports professorships, scholarships, fellowships and programs
2	Pursue operational efficiencies through development of shared service models using information captured by Human Resources inventory in Priority 4.	Successful implementation of model
3	Engage support staff in conversations regarding process improvements / cost reduction.	Quarterly brown bag lunches for college business staff to openly communicate
4	Continue to advocate for and build the new Engineering Complex. Coordinate interaction with design architects and facilities planning.	Completion of design, groundbreaking, construction and occupancy
5	Proactively partner with university administration to improve performance-based resource allocation models for overall campus success.	Track existing and new initiatives that are performance based, and recommend components that might be initiated

## Priority Six: Diversity and Inclusion

*Enhance diversity and inclusion to benefit our campus*

### Guiding Statement

Engineering is a profession in which diversity has been documented as needing significant improvement worldwide. This is aggravated by the shortage of underrepresented minorities who apply to engineering colleges as UG, Graduate students and as faculty. The college is committed to enhancing the number and percentage of URM at both the student, faculty and staff levels. URM in engineering includes women as well as other students/faculty defined as URM.

### Goals

Summary of College/Division goals and related success metrics/criteria

Goal	Description	Success Metric/ Criteria
1	Improve the mix of UG students with diverse backgrounds by targeting TCE Diversity Office recruitment efforts in TN locations with higher densities of URM K-12 students.	Track the increase in applications and matriculation of URM students
2	Develop recruiting media (brochures, postcards, site visits) targeted to URM applicants that link potential students with ambassadors of similar demographic, including focus on success stories.	Track the increase in applications and matriculation of URM students
3	Increase Graduate student diversity by continuing active recruiting and participation in GEM, TLSAMP, SWE, SYSTEMS, and similar programs.	Track the increase in number and % URM at the degree and department level (i.e. by discipline) with a goal of 30% URM
4	Increase faculty diversity by actively recruiting through both national searches and opportunity hires with a goal of major progress toward a 30% URM within five years.	Track and increase the number and % URM at the department and college levels with a goal of major progress toward a 30% URM within five years
5	Develop faculty and student mentoring programs to assist in retention of URM led by the Associate Dean for Faculty Affairs.	Track and increase retention

## Contribution to Campus Goals

Designate with an “X” the areas where Colleges and Divisions will contribute to campus goals. As applicable, Colleges and Divisions may provide specific goals aligned with their strategic plan (for example – graduate degree production, research expenditures).

Description	Campus 2014 Assessment	Campus 2020 Goal	College / Division 2020 Contribution
<b>Undergraduate Education</b>			
ACT Equivalent 75th/25th Percentile	29/24	Remain at Peer Range	X (College already above)
First-to-Second-Year Retention	87%	90%	X
Six-Year Graduation	69%	80%	X
<b>Graduate Education</b>			
PhD Degrees	317	365	X
Master’s/Professional Degrees	1,811	2,083	X
<b>Research and Engagement</b>			
Federal Research Expenditures	\$128 M	\$200 M	X
Total Research Expenditures	\$246 M	\$346 M	X
<b>Faculty and Staff</b>			
Faculty Salary Range (Full to Assistant Professor)	\$130K to \$76K	Narrow Gap with Peers	X
Undergraduate Student to Tenure-Line Faculty	19:1	Remain at Peer Range	X
Faculty Awards	12	Narrow Gap with Peers	X
<b>Resources and Infrastructure</b>			
Teaching and Support Expenditures/Student	\$19,487	\$22,400	X
Five-Year Average Philanthropic Support	\$83.5 M	\$100 M	X
<b>Diversity and Inclusion</b> In Development			X



### Additional Indicators of Excellence

The following indicators of excellence outline more specific College contributions to strategic priorities that were not included in previous sections. The list also includes metrics included in the U.S. News annual rankings of colleges of engineering. Although some would argue that many of the metrics used in the U.S. News rankings are not about excellence, the rankings do influence decisions made by alumni, parents, students and faculty, thus are included here for completeness.

Priority	Indicators of Excellence	2016 Baseline	2020 Goal
<b>1</b> <b>Undergraduate Education</b>	U.S. News UG Ranking (public coll.) HS GPA of freshmen Math ACT Freshmen retention rate 6yr graduation rate in engineering 6yr graduation rate at UT ABET accredited degree programs	32 <sup>nd</sup> 4.0 30.3 80% 60% 76% 100%	25 <sup>th</sup> 4.0+ 30.3+ 85% 65% 85% 100%
<b>2</b> <b>Graduate Education</b>	U.S. News Graduate Ranking US News metrics: Dean peer score (perceptive 1-5) Recruiter score (perceptive 1-5) GRE-Quant. Score of admitted PhD students Acceptance rate, % PhD enrollment/FT TT faculty PhDs granted/yr	36 <sup>th</sup>  2.7 3.1 160  31 3.3 85	25 <sup>th</sup>  3.2 3.4 163  25 3.8 110
<b>3</b> <b>Research, Scholarship</b>	US News metrics:* Research Expenditures* Research Expenditures/FT TT faculty *per ASEE criteria	\$64M \$348K	\$80M \$415K
<b>4</b> <b>Faculty and Staff</b>	US news metrics: % NAE members (of FT TT faculty)	2.2%	3.1%
<b>5</b> <b>Resources and Infrastructure</b>	TCE Capital campaign with \$150M goal	\$138M	>100%
<b>6</b> <b>Diversity and Inclusion</b>	All goals were stated in Priority 6		