

**Department of Civil and Environmental Engineering Strategic Plan
Executive Summary
August 15, 2017**

Mission

Our mission is to integrate research and education in civil and environmental engineering through teaching that emphasizes both fundamentals and their application in engineering design; research that provides both the innovations of today and trains the innovators of tomorrow; a permeating culture of professionalism, ethics, innovation, and life-long learning; and service that supports, promotes, and nurtures the professional and educational communities in which we are engaged.

Vision

The Department of Civil and Environmental Engineering is resolved to become one of the country's top 25 departments at public institutions. We seek to extend to our historically-strong undergraduate and graduate programs to increasingly diverse students, while striving to enrich the quality of the programs through improved mentoring, experiential learning, and engagement with our community. We seek to promote and recognize impactful, high quality and productive scholarship and externally-funded research. Our educational and research programs are enabled through diverse and talented faculty and staff and supported through efficient use of all resources available.

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

We seek to recruit and retain diverse and high-quality undergraduates and provide an exceptional education to prepare them to be effective engineers ready to address 21st century issues.

Graduates of this program are expected to attain the following objectives:

- Solve engineering problems and contribute to successful projects.

- Advance with increasing technical and/or leadership responsibility.
- Continually increase engineering proficiency, pursue graduate or other advanced education, proceed toward professional licensure, and contribute to the profession and community with integrity.

Goals

Summary of Departmental goals and related success metrics/criteria

Goal	Description	Success Metric/ Criteria
1	Increase enrollment in the CE undergraduate program through intentional plans that leverage existing campus-level recourses.	Increase in UG student headcount by 7% per year over the next five years.
2	Improve first year retention in the CE major by creating opportunities for engaging with freshmen in the department.	Increase first year retention from ~50% to ~57% in the CE major.
3	Contribute to and leverage TCE transfer efforts to attract top talent from the TN Promise/Drive to 55 initiatives.	Double the enrollment of transfer students in the department.
4	Increase CEE student participation in TCE honors programs through advising, promotion, and targeted scholarships.	Double the number of Honors students in CEE.
5	Promote professional licensure by maintaining high FE exam pass rates.	Achieve and maintain >90% of students taking the exam and >90% passing rate among test takers.
6	Increase participation in Co-op and internship programs.	Track and seek to increase co-op and internship participation.
7	Promote study abroad through offered programs and travel scholarships.	Track number of students participating.
8	Promote leadership development through ASCE, AGC, Chi Epsilon, ITE, hydrovolunteers and other professional student organizations.	Increase student participation in student organizations an/d track recognition of achieve excellence.
9	Promote undergraduate research through awards for students and faculty mentors.	Track the number of students participating in EURECA, and award placements.

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 department-level recruiting events and effective use of top off fellowships.	GRE (quant) average scores to be raised to that of aspirational peers (163)
2	Develop improved understanding of the non-academic market for PhD grads in CEE. Develop department-level mentoring programs for graduate students for academic careers, and non-academic careers.	Number of awards, PhD placement.
3	Develop department-level mentoring programs to assist students in competing for NSF and other external fellowships, awards for conference presentations, and other external competitions. Promote and recognize the success of graduate students as a demonstration of the quality of our program.	Number of awards won and number of articles and social media posts about graduate student success.
4	Maintain vibrant graduate program through robust enrollments in PhD program.	PhD-student-to-faculty and graduates-to-faculty ratios comparable to aspirational peers.
5	Utilize 5-year BS/MS program and UG research to support a balanced number of MS students in program.	Track UG researchers (paid and unpaid separately), CE409 enrollments, EURECA participants. Do these activities lead to MS thesis degrees?

6	Utilize distance education programs to support MS degree productivity. Includes TDOT MS program, targeted 400/500 level offerings to other engineering programs in TN and other new opportunities facilitated through University level support.	Track enrollment in DE courses and degree programs.
7	Explore additional strategies to increase MS enrollment to serve needs of the profession.	Track overall MS degree enrollment.

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	Maintain vibrant department research profile in research funding through benchmarking.	Maintain research expenditures per tenure-line faculty comparable to aspirational peers.
2	Seek opportunities to pursue multi-faculty, multi-disciplinary programs. Support faculty efforts to lead those efforts through reduced teaching or service loads.	Track number of awards and success rate.
3	Utilize mentoring and ORE Research Development to increase the number of Faculty Early Career Awards (NSF, DoE, DoD). Seek funding for seed projects to support early career awards.	Track number of early career awards.
4	Promote and support publications in high quality journals.	Maintaining unique publication rates > 100 per year. Track impact factors and citations.

5	Promote patents, 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.
6	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.	Implementation of items in description.
7	Encourage and promote invited, keynote, plenary, and distinguished lectures, as well as media exposure (tv, radio, blogs).	Track number of occurrences and website and social media posts promoting these activities.
8	Encourage and promote outreach engagement. Give credit in annual review and tenure and promotion process.	Track number of website and social media posts promoting outreach engagement.

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, research and service 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 competitive start-up packages and salaries.	Successfully hiring high-quality faculty.
2	Expand the faculty commensurate with enrollment growth to invest in strategic areas, and address current unmet needs.	Track number of faculty over time.
3	Increase retention of CEE faculty and staff by offering competitive salaries and to expanding our tenure-track faculty mentoring program to	Continue tracking research proposals/awards and teaching success of

	invigorate early startup, proposal paths and teaching success.	faculty members and staff and faculty salaries.
4	Increase the number of faculty that hold professional engineering registration.	Track number of faculty with PE.
5	Identify critical staff skills and capabilities needed by the department and develop strategies for filling those needs through training or staff additions.	Track increasing capabilities and staff numbers.
6	Cooperate with the TCE to 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.
7	Encourage and support faculty members participating in prestigious professional service activities such as journal editorships.	Track number of prestigious service activities.
8	Continue to promote CEE faculty and staff for awards in the TCE and university level.	Track number of awards.
9	Increase the number of prestigious external awards to faculty members from professional societies and state/federal agencies.	Track number and types of awards and facilitate applications

Priority Five: Resources and Infrastructure

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

Guiding Statement

Strengthen our resource base through continued growth in donor and extramural support and effective management of our investment in faculty, staff and student capital as well as physical and academic infrastructure.

Goals

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

Goal	Description	Success Metric/ Criteria
1	Work with TCE Development to continue to develop endowments to support student scholarships; faculty awards, chairs and professorships; and graduate student support.	Track increase in department endowments.

2	Explore development of small annual donations program.	Increase in small annual donations.
3	Continue to work with TCE to secure laboratory spaces and graduate student offices to support expanding research and faculty growth.	Adequate space for students and research operations.
4	Continue to leverage SARIF, faculty start-up funds, and discretionary funds to maintain and expand research and teaching capabilities of the department.	Track increase in success of SARF proposal and amount of start-up funds.
5	Leverage resources of Oak Ridge National Lab	Track joint faculty appointments, Governor's chair faculty, and research partnerships

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's 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 partnering with TCE Diversity Office recruitment efforts in TN locations with higher densities of URM K-12 students.	Track and increase applications and matriculation of all URM students
2	Develop CEE recruiting media (brochures, postcards, site visits) targeting URM applicants and URM-serving high schools and link potential students with ambassadors of similar demographic, including focus on success stories. High school guidance counselors may have a key role in this effort.	Track and increase applications and matriculation of all URM students
3	Increase Graduate student diversity by continuing active recruiting and participation in GEM, TLSAMP, SWE, SYSTERS, and similar programs.	Track and 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	Increase exposure of pre-college and college URM students to the viable and affordable opportunities of studying at UT and the attainable career in academia. Mentor URM students on strategic preparation toward academic careers.	Track placement of URM in academic positions.
6	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	CEE 2020 Contribution
Undergraduate Education			
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
Graduate Education			
PhD Degrees	317	365	X
Master's/Professional Degrees	1,811	2,083	X
Research and Engagement			
Federal Research Expenditures	\$128 M	\$200 M	X
Total Research Expenditures	\$246 M	\$346 M	X
Faculty and Staff			
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
Resources and Infrastructure			
Teaching and Support Expenditures/Student	\$19,487	\$22,400	X
Five-Year Average Philanthropic Support	\$83.5 M	\$100 M	X
Diversity and Inclusion In Development			X

Additional Indicators of Excellence

The following indicators of excellence specific to CEE were not included in previous sections. The list also includes metrics included in the U.S. News annual rankings of colleges of engineering.

Priority	Indicators of Excellence	2016 Baseline	2020 Goal
2 Graduate Education	U.S. News Graduate Ranking	41 th	25 th
	US News metrics:		
	Peer perception score (1-5)	2.5	3.1
	PhD enrollment/FT TT faculty	2.9	3.2
	PhDs granted/yr	8	15
3 Research, Scholarship	US News metrics:*		
	Research Expenditures*	\$7.3M	Maintain Research Expenditures
	Research Expenditures/FT TT faculty *per ASEE criteria	\$331K	At Aspirational Peer Levels
	Refereed Journal Publications	105	>100