



The University of Texas at Austin
Cockrell School of Engineering

Broadening Participation in Engineering Plan

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1. CONTEXT

The University of Texas at Austin (UT Austin) is a flagship R1 institution in Texas and is home to the nationally and internationally recognized Cockrell School of Engineering. The state of Texas has a significantly larger Hispanic and Latinx population and labor force (around 40% of the total population) than nationally (around 7%). Among Texas residents aged 18-22, 45.8% are Hispanic, 12.5% are Black, and 48.6% are women. UT Austin is located in the Austin Independent School District, where the 2020-2021 demographics included 55% Hispanic students and 6.6% Black students. These numbers are in contrast to the population of the Cockrell School of Engineering and its constituent departments. In 2021-2022, 19.5% of UT Austin engineering undergraduate students were Hispanic, 3.2% are Black, and 29.4% are women (n = 6074 total students). Among graduate students, 5.9% are Hispanic, 1.3% are Black, and 24.5% are women (n = 2174). Further, 48% of the engineering graduate students are “International” by NSF’s definition and therefore not counted in these demographics. However, we acknowledge that international students contribute to diversity in complex and significant ways and are part of our efforts to improve the climate and promote diversity. [When using for a department-specific purpose, insert analogous department or program specific information.] The overall UT Austin demographics also lag the state population; across the campus, 24.2% of students are Hispanic, and 5.2% are Black. In 2020, UT-Austin met the requirements to be designated a *Hispanic Serving Institution (HSI)* and was awarded the *Seal of Excelencia* in recognition of a commitment to support success and community of Hispanic/Latino students and community members.

2. GOALS, ACTIVITIES AND METRICS

It is the mission of the UT Austin Cockrell School of Engineering to substantially increase the percentage of enrolled, retained, and graduated students from historically excluded populations over the next five years to better reflect the demographics of the university, state, and local Austin populations. These groups include students who identify as women, gender non-binary, Black, Native American, Pacific Islander, and/or Hispanic. We focus our goals across four focal areas: (1) recruiting undergraduate students through K-12 outreach; (2) recruiting graduate students; (3) retaining undergraduate students; and (4) retaining graduate students. In the following, we address each focal area in turn, listing specific, measurable, attainable, relevant, and time-bound activities for each area.

GOAL 1, G1

Increase the diversity of enrolling undergraduate students by expanding and supporting existing recruiting efforts for students from historically excluded groups.

Our goal is for our incoming student population to be 40% women, 30% Hispanic students, and 6% Black students by 2028. [Cockrell School contact for **G1**: Kiersten Fernandez, DEI Outreach Program Coordinator]

- » [A1.1] Expand Saturday programs and summer camps, e.g., programs offered currently or previously include the *Longhorn Engineering Summer Camp* (a day camp for rising 8th and 9th graders); *My Introduction to Engineering (MITE)* (a residential camp for rising 12th graders); *Girl Day* (a one-day event promoting STEM among K-12 women students); *Black Youth Day* (a day of hands-on engineering activities for middle and high school students); and *World of Engineering* (a one-day event for K-8 students and families). Over the next five years, we will expand existing camps and weekend programs to include 8 weeks of free summer programming. We will continue to collaborate with UT Austin’s Division of Diversity and Community Engagement (DDCE) to recruit students from underserved middle and high schools. **Opportunities for engagement:** Faculty, staff, and students can develop and deliver research-relevant hands-on activities within the established programs. Students can serve as paid or volunteer counselors for summer programs.
- » [A1.2] Develop collaborations with K-12 schools in Texas. Over the next five years, we will collaborate with DDCE to expand our intentional collaborations to include 15 high schools, 15 middle schools, and 10 elementary schools. These programs will include outreach for engaging students in engineering activities, recruitment for high-school students to apply to UT Austin engineering, and

professional development for teachers. **Opportunities for engagement:** Faculty and staff can engage in this activity by developing *Research Experiences for Teachers* under a larger umbrella of such efforts or by creating and delivering in-school engineering activities. Students and alumni can help with direct outreach efforts in school classrooms.

- » [A1.3] Expand intentional yield efforts for students from historically excluded backgrounds, e.g., through outreach via phone calls, letters, and yield events. The Cockrell School of Engineering already hosts multiple on-campus yield events. Over the next 3 years, we will ensure that each department has an organized yielding plan, with a process for receiving admitted student information and generating contacts from current students, staff, and faculty. **Opportunities for engagement:** Faculty and staff can contribute directly by helping to develop department-specific yielding plans; faculty, staff and students can all contribute to realizing the yielding plan through outreach to admitted students.

GOAL 2, G2

Increase the diversity of enrolling graduate students by creating and expanding intentional efforts to recruit students from historically excluded groups.

Our goal is to establish recruiting relationships with specific minority-serving institutions with the goal of reaching 30% women graduate students, 10% Hispanic graduate students, and 5% Black graduate students by 2028. [Cockrell School contact for **G2**: TBD (for the time being, contact Christine Julien, Associate Dean for Diversity, Equity, and Inclusion)]

- » [A2.1] Offer intentional outreach and recruiting opportunities for prospective graduate students to learn about the Cockrell School's graduate programs and the life of a UT graduate student. We will host an annual GEM G.R.A.D. Lab event to recruiting graduate students from historically excluded groups, and we will continue to sponsor and attend events like the NSBE Convention, the SACNAS conference, and O4U Engineering. **Opportunities for engagement:** Faculty, staff, and graduate students can personally attend events and conferences to recruit prospective graduate students.
- » [A2.2] Expand and extend summer research and research experience for undergraduate (REU) programs to positively impact students' enrolling in graduate programs, e.g. including programs like those that currently exist or have previously existing like the ECE Next program, the BME CUREs Cancer REU, or the EOE Summer Research Program. Within the next two years, we will create integrated supplementary activities for all summer REU participants across the Cockrell School. We will also connect with engineering programs at at least five other Minority Serving Institutions across Texas so that we can meet and recruit students to REU programs and to our graduate programs. **Opportunities for engagement:** Faculty can directly host and support REU students in their research labs; faculty and staff can create and participate in the supplementary activities for all students, and graduate students can serve as mentors for REU participants.
- » [A2.3] Create student-run Graduate Application Assistance Program for applicants to Cockrell School graduate programs. Individual programs already offer some workshops, followed by personalized guidance for participants. Within two years, we will formalize a Cockrell School-wide program, and within three years, we will expand on this to create "research days": sessions at the beginning or end of winter break to help undergraduate students from UT Austin and beyond learn about graduate school in our departments. **Opportunities for engagement:** Faculty can provide mentoring-at-a-distance, controlling for conflict of interests in application review; graduate students can provide direct mentoring; staff can participate in sessions for prospective students and provide program support

GOAL 3, G3

Build institutional climate and practices to ensure that all students are included and engaged, have access to opportunities to develop and hone their technical and professional skills and to establish their identities as professional engineers.

Our goal is to create equity-centered curriculum changes across all seven engineering departments by 2025 and to develop multiple meaningful out-of-class DEI-related learning opportunities for

undergraduate students. [Cockrell School contact for **G3**: TBD (for the time being, contact Christine Julien, Associate Dean for Diversity, Equity, and Inclusion)]

- » [A3.1] Integrate learning outcomes related to DEI as graduation goals of all of our students, consistent with proposed revisions to the ABET accreditation criteria. Within the next five years, we will identify course-specific learning outcomes and adapt or add course content to address these new outcomes. Through syllabus reviews, workshops for faculty and teaching assistants, and other resources, we will ensure that every pathway through any Cockrell School engineering degree has multiple instances where each DEI learning outcome is addressed. **Opportunities for engagement:** Faculty can participate in workshops to learn about integrating DEI into the regular curriculum and participate in classroom observations, syllabus reviews, etc.; graduate students who serve as teaching assistants can similarly participate in trainings and observations; staff can participate in trainings on inclusive advising and support observations, development of materials, etc.
- » [A3.2] Expand existing First-year Interest Group (FIG) program to include inclusivity, anti-bias, and equity focused trainings. Over the next two years, we will collaborate with DDCE to develop and revise materials for the FIG program to supplement current offerings for all first-year students. Rather than having student FIG mentors present this material, we will connect the FIG mentors with experts in DEI for these sessions. We will also create connections between the offerings in the FIGs and the students' first year technical courses to achieve curricular DEI connections. **Opportunities for engagement:** Faculty, staff and students can serve as mentors and presenters for FIGs, and they can all participate in trainings and workshops to learn to deliver the new content.
- » [A3.3] Provide DEI professional development to make students more competitive for jobs and to enable them to be more successful when transitioning into academic or industry positions. Within the next two years, we will partner with the Engineering Career Assistance Center (ECAC) UT-Austin's Texas Career Engagement (TCE) office to develop a DEI Certificate with content applicable to all fields, such as Bystander Intervention and Learning about Anti-Racism, as well as engineering-focused content and context. **Opportunities for engagement:** Faculty and staff can contribute to the development and delivery of the certificate content, in collaboration with ECAC and TCE; faculty can also encourage and support integration of the certificate content into their course offerings.

GOAL 4, G4

Ensure students enrolling in our graduate programs feel included and supported throughout their tenure in the program.

We will ensure that every graduate student has access to individualized peer and faculty mentoring (not research supervision) by 2025. [Cockrell School contact for **G4**: TBD (for the time being, contact Christine Julien, Associate Dean for Diversity, Equity, and Inclusion)]

- » [A4.1] Refine graduate peer mentoring programs. Starting in 2021, first-year graduate students in the Cockrell School had the opportunity to join community groups led by more experienced graduate students who assist in acclimating to their new city, university, and, in some cases, a new country. Students are paired with peer mentors outside of their research group or area, often based on shared interests or demographics. Within two years, the goal is to offer this opportunity to *all* new graduate students and to extend to include faculty mentors across all departments. **Opportunities for engagement:** Faculty and graduate students can serve as mentors for new students and develop experiences and events to encourage inclusion and engagement.
- » [A4.2] Develop programming to include the Cockrell School international graduate student population in DEI activities. Building on a pilot program started in the Biomedical engineering department in 2022, we will create a series of seminars and working meetings to educate international students on the meaning and relevance of diversity, equity, and inclusion in engineering in the United States and solicit their unique perspectives and ideas for broadening engagement to include international graduate student concerns. **Opportunities for engagement:** Faculty, staff and graduate students can contribute to the elicitation of the concerns, seminars, and working groups; all can also contribute to the longer-term implementation of the generated ideas.
- » [A4.3] Extend the DEI certificate to include programming relevant for graduate students. While the certificate described in A3.3 will be generally applicable to all students, we will develop additional content and workshops that are more specific to the graduate student experience, including

mentoring, inclusive research, etc. **Opportunities for engagement:** Faculty and staff can contribute to the development and delivery of the content; faculty can also encourage and support integration of the certificate content into their graduate courses and research groups.

To measure the success of these programs, we will collect demographics of participants, including K-12 students, undergraduate and graduate students, faculty, and staff involved in these programs to better understand both program acceptance and success. We will collect information on demographic changes of our applicant pools, admitted students, and matriculated students. We will also use surveys and other qualitative feedback mechanisms to measure changes to our culture and participants' views on programs.