

Diversity and Inclusion Plan

The original was submitted in 2018 for inaugural recognition. This version was edited for clarification on 11/16/2023.

Introduction

The plan detailed herein lays out strategies, measures, and targets for diversifying the student enrollment and the University of Texas at Tyler College of Engineering faculty.

The University of Texas at Tyler (UT Tyler) is a regional, comprehensive, doctoral-granting institution. The College of Engineering provides Bachelor and Master of Science degrees in Civil Engineering, Electrical Engineering, and Mechanical Engineering and Bachelor of Science in Construction Management to an enrollment of over 1,000 students. This fall, we will begin offering a Bachelor of Science in Chemical Engineering. Our main campus provides 4-year curricula for all four undergraduate degrees, while our Houston campus, known as the Houston Engineering Center (HEC), is a partnership with Houston Community College, where we offer upper-division Engineering and Construction Management coursework. At HEC, we provide completion curricula as a 2+2 for our four undergraduate degrees, which stacks on the two-year curricula for Houston Community College and other regional two-years such as Lone Star College and San Jacinto College. Additionally, our master's degrees in the engineering disciplines (i.e., Civil, Electrical, and Mechanical Engineering) are offered from the main campus face-to-face to students in Tyler and synchronously via video conferencing to students in Houston.

Student Population

As a multi-site college of engineering with campuses in Tyler and Houston, we serve a diverse population of students, including first-generation college-goers, veterans, underrepresented minorities, international students, and both rural and urban populations. We are likely the only college of engineering in the United States of its kind, given the distinct demographics of our two campuses – one a rurally located primarily white campus and the other an urban minority-serving campus. Approximately 55% of our students attend the Tyler campus and 45% the HEC. College-wide, over 60% of our enrollment are first-generation college goers, over 37% are underrepresented minorities (including about 8% Black or African American and 27% Hispanic), and about 16% are female. Campus-wise, in Houston, the enrollment is just under 50% underrepresented minority (including more than 35% Hispanic) and 18% female, while in Tyler, the enrollment is just under 30% underrepresented minority and just under 14% female. Figure 1 provides the racial and ethnic demographics for the enrollments in Tyler for the fall semesters of 2015 through 2017. Additionally, it includes a forecast for enrollment in 2024, which indicates that given our natural trends, assuming no further interventions, the enrollment would be over 35% underrepresented minorities. Similarly, Figure 2 provides demographics for the Houston campus and a forecast for the same years, which indicates we would maintain an enrollment of about 50% underrepresented minorities.

The College of Engineering draws its enrollment primarily from four regions in the State of Texas. Those include the greater East Texas region where the main campus is located, the Dallas-Fort Worth metroplex bordering just to the West, the Greater Houston area bordering just to the South, and the Austin area. The main campus resides in the City of Tyler and within the Tyler Independent School District (TISD). HEC is located at the Houston Community College Alief Hayes campus within the Alief Independent School District (AISD). Figure 3 compares the ethnic and racial

demographics of the College of Engineering at UT Tyler with TISD and AISD. Though we do not draw our enrollments solely from these school districts, the data does point to some disparity and potential opportunity to increase the participation of Hispanics and African Americans, in particular.

As Figure 3 illustrates, the percentage of Hispanics in AISD and TISD are 53.1% and 46.4%, respectively, while the College of Engineering is only 27.1%. African Americans only make up 7.9% of the enrollment in the College as compared to 29% of AISD and 28.3% of TISD.

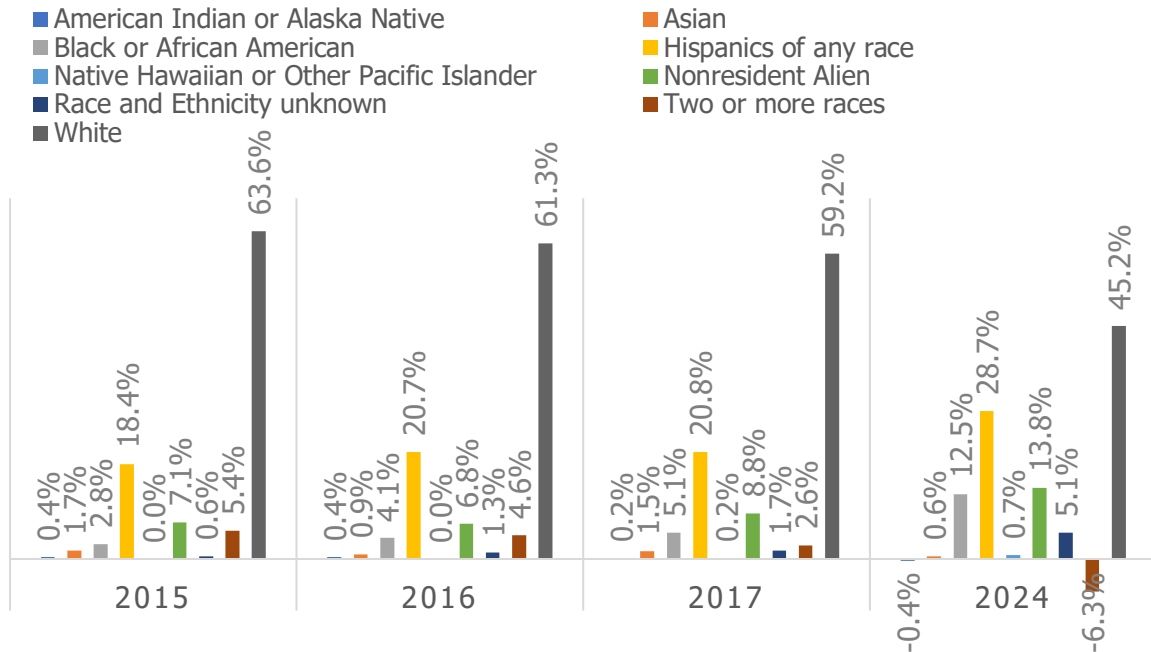


Figure 1: Tyler's racial/ethnic demographics.

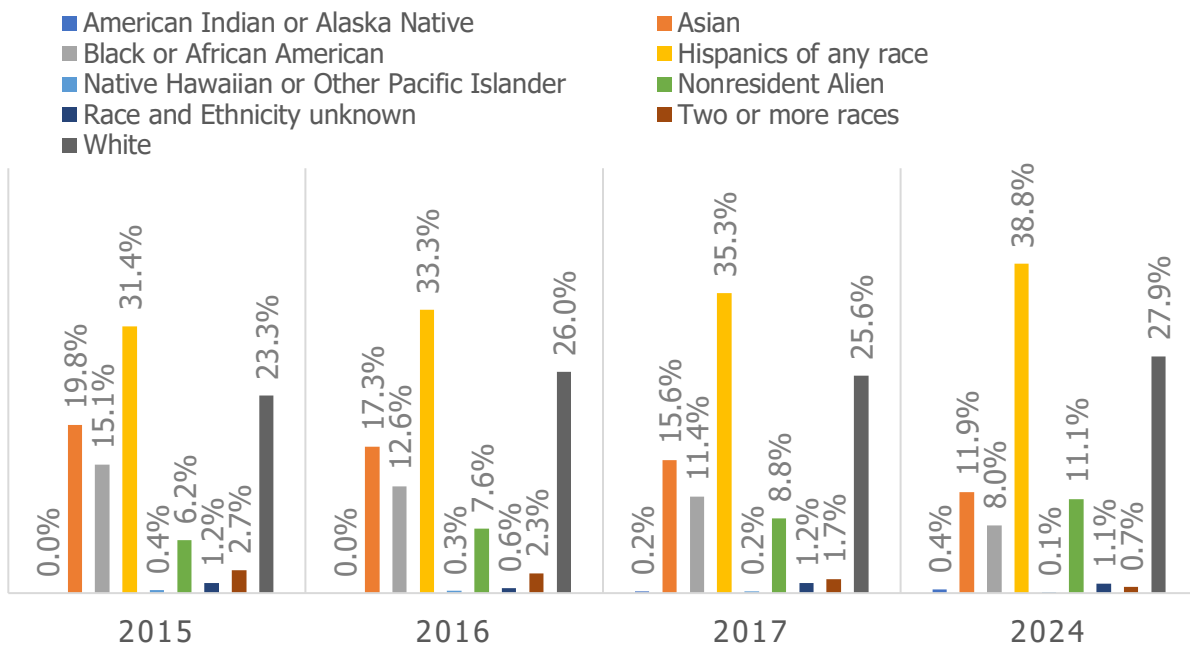


Figure 2: HEC racial/ethnic demographics.

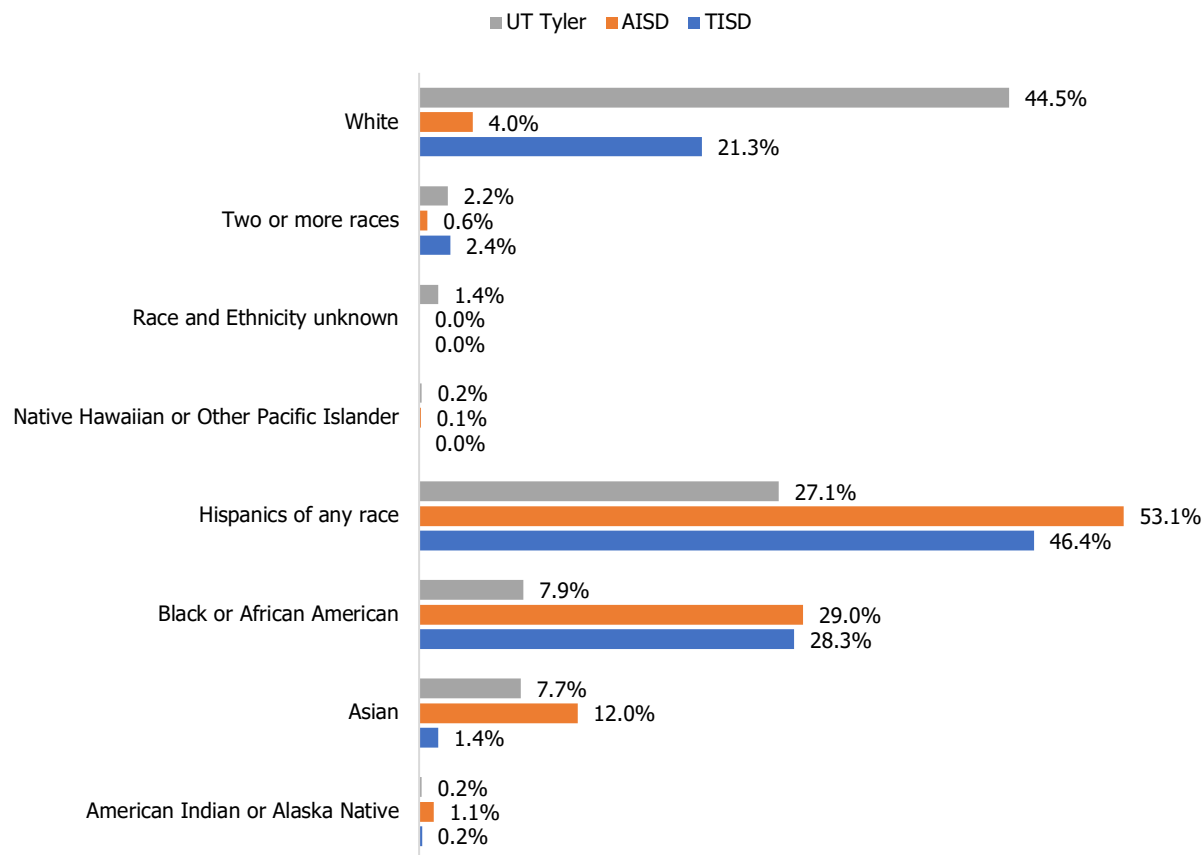


Figure 3: Demographics as compared to local school districts.

Student Strategies

As detailed above, over 60% of our enrollment is first-generation, over 37% are underrepresented, and 16% are women. Regardless of the campus location, there are disparities between the enrollment demographics and those of the local school districts. Hence, we believe substantial inroads can be made regarding recruiting and retaining women and underrepresented minorities. Additionally, our six-year graduation rate has hovered around 45% in recent years, our four-year graduation rate for transfers is about 50%, and our retention rate was recently 70%. By reducing demographic disparities and improving student success metrics such as retention, time-to-graduation, and job placement, we can substantially increase the participation of women and underrepresented minorities in our degree programs and within the organizations and industries that recruit our graduates. Our college-wide targets for the next five years are

- 50% enrollment of underrepresented minorities,
- 25% enrollment of women,
- 80% first-year retention,
- 50% six-year graduation rate for incoming first-year students,
- 75% four-year graduation rate for incoming transfers, and
- 100% participation in a student enrichment experience (i.e., internship, co-op, research, or service learning project).

To achieve the enrollment targets, we will focus our recruitment efforts in and around the immediate regions of our respective campuses. We have begun to enhance our outreach efforts in partnership with AISD, TISD, and other school districts in the Tyler region. This includes our **Cardboard Canoe Competition and Engineering Expo** and our **Popsicle Bridge Competition**. In Tyler, the Cardboard Canoe Competition invites Introduction to Engineering Students and teams from area high schools to participate in a challenge modeled after the ASCE Concrete Canoe Competition. In concert with this event, we invite students from the area's middle and high schools to explore our programs, participate in a mock class, tour laboratories, and attend the contest. For several years, HEC students have organized a Popsicle Bridge Competition in partnership with AISD. Thousands of K-12 students are bused to a central location to test their bridges. Hundreds of HEC students volunteered to run the competition. They designed and built the testing apparatus, including the structure and data acquisition. These events raise the profile of the College and its programs within the communities where our campuses reside.

Also, to boost our enrollments at the main campus, we offer Concurrent Enrollment credit for *Introduction to Engineering* and *Engineering Graphics*, mainly targeting area high schools. We are hiring a dedicated faculty member to coordinate Concurrent Enrollment in partnership with several school districts, especially TISD. These courses count for college credit in our undergraduate engineering degree programs. High school students can enroll in these courses as early as their first year. This provides us an opportunity not only to accelerate degree completion but also to advise them early about the curricular options in high schools, such as Physics and Calculus, that will enhance their engineering preparedness.

Our present articulation agreement with Houston Community College centers around the Associate of Science in Engineering Science or ASES degree. It is designed to be a foundational two-year degree upon which we stack a two-year completion curriculum. It functions as part of a 2+2 and has been adopted by other area two-year institutions such as Lone Star College and San Jacinto College. The two primary engineering colleges in the Houston area are the University of Houston Cullen College of Engineering and Rice University Brown School of Engineering. Both have competitive admittance requirements. Many highly qualified students from the Houston area are not admitted. Though they could qualify for admittance to other in-state engineering programs, they may not pursue such options due to finances, family commitments, cultural challenges, etc. The HEC provides an alternative that allows students to begin at a two-year close to them and complete their four-year degree in Houston. Many students attending HEC are non-traditional. Some are pursuing their second bachelors. Some started with a two-year technical degree and work full-time as technicians in a company that employs engineers. Some are working adults with families.

We are developing ASES 2.0 to improve retention further and optimize time-to-graduation. Whereas the original ASES was designed to be part of a stackable 2+2, many students only partially complete the ASES before transferring. Because it was intended to be foundational and more generic, the ASES does not include some sophomore-level engineering courses such as Digital Systems in Electrical Engineering, Mechanics of Materials in Civil or Mechanical Engineering, and Thermodynamics and Fluid Mechanics in Mechanical Engineering. Typically, four-year engineering degrees distribute general education requirements throughout the four years to balance coursework semester-to-semester. The stackable ASES program concentrates nearly all the general education requirements in the first two years. Consequently, many students are co-enrolling in a local two-year and UT Tyler ad hoc. As they begin to complete most of their core prerequisite coursework in Mathematics, Science, and basic Engineering, students apply for enrollment at UT Tyler and start taking courses toward the four-year degree. Hence, we are reformulating the ASES framework as a

Concurrent Enrollment structure whereby students can take courses at the two-year and UT Tyler in parallel, especially during the sophomore and junior years. This will allow students to better balance their coursework to improve retention, enhance performance, and optimize time-to-graduation.

To improve our students' retention and job placement, we are expanding opportunities to participate in a Student Enrichment Experience, including an internship, co-op, research, service learning project, or entrepreneurial project. Each of our programs presently provides course credit mechanisms for such experiences. Research experiences and service learning projects can be particularly attractive to underserved populations. Within the next five years, our goal is that 100% of our students graduate with at least one Student Enrichment Experience, and we are making investments and degree plan changes to facilitate and promote this.

To better foster success, we are establishing an ecosystem that intentionally and thoughtfully integrates the academic, co-curricular, and social experiences of Engineering and Construction Management Students at the Tyler campus and the Houston Engineering Center. The Engineering Student Success Centers (ESSCs) will provide a place where students can congregate, collaborate, innovate, and organize. The ESSCs will provide coordinated access to advising, tutoring, mentoring, and career placement optimized for Engineering and Construction Management.

Faculty Demographics

In 2018, the total number of full-time faculty was 28, including 18 tenured/tenure-track, 10 non-tenure-track, three women (~11%), 3 Hispanic (~11%), and 3 African American (~11%). Nationally, the percentage of women, African American, and Hispanic faculty is approximately 17%, 3%, and 5%, respectively. In any given year, the College might be recruiting, at most, a handful of faculty positions. By making some key changes, we can substantially improve faculty diversity with just a few hires, but we need to support their success and retain them. Towards that end, we are focusing on search committee training, targeted recruitment, and junior faculty development.

Presently, faculty searches are advertised by the University in the Chronicle of Higher Education and HigherEdJobs. In addition, the College will commit additional resources to advertise in at least two more venues. We will require that each committee advertise in venues targeting women and underrepresented minorities. Additionally, they will be tasked with reaching out through their network to identify female and/or underrepresented candidates to invite to apply. The shortlist will aim to include one or more highly qualified female and/or underrepresented candidates.

We are instituting several initiatives to enhance the junior faculty experience, improve retention, and promote success. The initiatives include mentorship, classroom coaching, and scholarship development. Together with the College of Education and Psychology, the Center for Teaching and Learning, and the Office of the Provost, we are working to establish a two-year development series addressing both teaching and scholarship. Topics will include creating a syllabus, writing exam questions, pedagogical best practices, active learning methods, writing your first proposal, establishing collaborations, involving students in your research, identifying and understanding funding opportunities, etc.