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Diversity Conference: Crystal City, Virginia Apr 29

Panel Discussion: Addressing the needs of students from underrepresented and low socio-economic backgrounds when developing STEM-based Residential Programs

Miss Dawn Anita Hunter, The University of Texas at Austin

Dawn joined the Texas Advanced Computing Center (TACC) in February 2016. She is responsible for recruitment, outreach, logistics and program implementation for broadening participation of underrepresented student in STEM. Before TACC, Dawn was the recruitment coordinator for the Equal Opportunity in Engineering (EOE) program at the UT Cockrell School of Engineering. In EOE, she managed and lead the outreach and recruitment efforts to increase the population of underrepresented minority students in engineering at UT Austin. Prior to UT, Dawn spent over 10 years holding positions such as Vehicle Development Engineer, Customer Service Engineer, and Product Development Engineer in the automotive industry while living in Michigan.

Mr. Efren Enrique Dominguez, University of Texas, Austin

Mr. Enrique Dominguez is the Director of the Equal Opportunity in Engineering Program at the Cockrell School of Engineering at the University of Texas at Austin. He has been Director for over 4 years and is currently the Region D Chair for the National Association for Multicultural Engineering Program Advocates (NAMEPA). Enrique graduated from the Cockrell School of Engineering with a Civil Engineering degree and pursued industry experience for seven years where he held positions such as Project Engineer, Lead University Recruiter, Logistics Engineer, Cost Engineer and Project Manager.

Ms. Tricia S. Berry, University of Texas, Austin

Tricia Berry, Director of the Women in Engineering Program (WEP) at The University of Texas at Austin, is responsible for leading the efforts on recruitment and retention of women in the Cockrell School of Engineering. She concurrently serves as Director of the Texas Girls Collaborative Project, connecting Texas organizations, companies and individuals working to advance gender equity in science, technology, engineering and math fields. Berry received her B.S. Chemical Engineering degree from the University of Texas, Austin in May 1993 and her M.B.A. from the University of Houston, Clear Lake in May 1999. She has been a member of the Women in Engineering ProActive Network (WEPAN) since 2001, most recently serving on the WEPAN Board as President Elect, President and Past President from 2007 - 2010.

This panel will discuss best practices for supporting underrepresented and low socio-economic status students during K-12 STEM-based residential and non-residential programs.

We are living in an era where technology drives breakthrough discoveries across various disciplines. The U.S. Bureau of Labor statistics projects a 20-33% increase in scientific and technical occupations within the coming decade [1]. There is a critical need for computationally trained STEM professionals who will fuel the nation's economic growth. There is also a need to increase diversity in the STEM pipeline, which currently has a low share of minority and women participation. Reports by the President's Council of Advisors on Science and Technology and the U.S. Department of Commerce, point to the critical importance of recruiting and training additional diverse individuals for STEM fields [2]. The nation faces a large discrepancy between the number of African American, and Hispanic individuals becoming Science and Engineering professionals when compared to non-Hispanic Whites and Asians [3]. This has been linked to the disparities in exposure to technology both in the home and school [4].

Panelist 1 – Provides equal and equitable opportunities for underrepresented ethnic minorities and students with marginalized identities

The Cockrell School of Engineering at the University of Texas (UT) at Austin established the Equal Opportunity in Engineering (EOE) Program in 1970 to promote the recruitment and academic development of African American, Hispanic, and Native American students interested in pursuing careers in engineering. Since that time, EOE has expanded its goals and now seeks to increase the diversity of its student body by supporting students who come from historically underrepresented population groups in Texas or students who have backgrounds or experiences that will contribute to the overall diversity of the Cockrell School of Engineering.

EOE runs the MITE Enrichment Summer Camp, established in the 1980s. The program was created to increase the number of minority students in engineering. The MITE Enrichment Program is a free, six-day residential program that offers 100 current high school juniors the opportunity to discover engineering through hands-on projects and interactions with engineering students, faculty, staff and alumni. All program expenses (including housing and food) are paid for, with the exception of travel to and from the university. During the day, students learn about undergraduate engineering disciplines at UT Austin through lectures given by faculty. MITE counselors, who are current engineering students, serve as mentors to their teams and give various tours of the campus and engineering labs.

Panelist 2 – Promotes the success and advancement of women in engineering

The Women in Engineering Program (WEP) is a college student service for all engineering women, creating a network of engineering peers and professionals by providing academic, career and leadership opportunities. Established in 1991 at UT Austin, WEP strives to recruit and retain female engineering students, increase the percentage of female engineering graduates, and provide a supportive structure that encourages the success of women in the Cockrell School of Engineering.

WEP hosts two residential summer programs (WEatUT, and CREATEatUT) for 140 (2 cohorts of 70 students) high school females interested in engineering. Over four days, WEatUT and CREATEatUT introduces students to a variety of engineering studies and exciting career options, exposes students to female engineering role models through hands-on workshops and engineering sessions facilitated and attended by engineering students, faculty and industry professionals. Participants in these programs explore how engineering benefits society and impacts the world.

Panelist 3 – Broadens awareness and participation of students who are historically underrepresented in STEM

The Texas Advanced Computing Center (TACC) at UT Austin designs and operates some of the world's most powerful computing resources. The center's mission is to enable discoveries that advance science and society through the application of advanced computing technologies. Since its inception in 2001, TACC high performance computing resources have enabled scientific computation and visualization that has contributed to thousands of research projects around the world. TACC's Education and Outreach group engages K-16 African American, and Hispanic students along with students from low socio-economic backgrounds and their families in meaningful, educational experiences that teach the societal impacts of technology.

In 2015, TACC created the CODE @ TACC summer programs. In 2017, TACC began offering three sessions of CODE @ TACC summer programs for 100 students. CODE @ TACC I – Introductory level (free, residential); CODE @ TACC II – Intermediate level (day camp, tuition based with scholarships); and CODE @ TACC DesignSafe (free, residential). Each program is one week for students in high school and incorporates a project-based learning approach to expose students to STEM careers. Students foster their talent and creativity by being introduced to the principles of computing technology using microcomputers and real-world examples. In addition to interactive, hands - on activities and high-level engagement with TACC researchers and scientists, the program includes panel presentations from undergraduates and professionals and industry site visits to increase awareness about STEM careers in computing.

[1] U.S. Bureau of Labor Statistics, http://www.bls.gov/bls/newsrels.htm
[2] President's Council of Advisors on Science and Technology, "Prepare and Inspire: K-12 Education in Science, Technology, Engineering, and Math (STEM) for America's Future," September 2010
[3] National Center for Science and Engineering Statistics, National Science Foundation Women, Minorities, and Persons with Disabilities in Science and Engineering: 2017
[4] Google, "Google Diversity Gaps in Computer Science, Exploring the Underrepresented on of Girls, Blacks and Hispanics", https://services.google.com/fh/files/misc/diversity-gaps-in-computer-science-report.pdf, 2016