Changing the Face of Engineering

UT Diversity Initiatives Opening Doors

In 1973, Fred D. Brown Jr., began a tradition of excellence at the University of Tennessee by developing the Minority Engineering Scholarship Program (MESP). As an African-American beginning his career in a public institution at a time when integration was still very young, Brown saw the need to provide better educational opportunities for minority students. Over the next 13 years, his efforts paid off with an increase of African-American students in the College of Engineering (COE) from 26, in 1972, to 133 in 1985, when Brown retired.

For years afterwards, minority student enrollment in the COE increased substantially, and in 1999, the program had a face-lift. The MESP was renamed the Diversity Engineering Scholarship Program (DESP) and incorporated into the Office of Cooperative Engineering and Professional Practices (OPP); the Minority Engineering Program was renamed Engineering Diversity Program (EDP). UT added the Tennessee Louis Stokes Alliance for Minority Participation (TLSAMP), a program sponsored by the National Science Foundation, which works to double the number of minority students attending college and graduating with degrees in engineering, science, technology and math. With these changes came new possibilities for minority students in engineering through pre-college summer programs for middle and high school students, bridge programs for new freshmen, targeted recruiting initiatives to potential minority students and mentoring and retention programs.

"The COE offers a host of programs to promote involvement and develop a community of students," said Amy Bugyis, a junior in the Department of Industrial Engineering. "I believe the team program all engineers go through in the first years at UT contributes to the community atmosphere and helps recognize diversity."

"There are also a number of clubs and organizations formed around minorities," said Sarah Yoder, also a junior in the IIE department. Minority student organizations such as the National Society of Black Engineers and the Society of Women Engineers contribute to the base of support minority engineering students have in the college.

"As a former leader of the Society of Women Engineers, I found overwhelming support, financial and otherwise, in all departments within the COE," said Lana Carnel, a junior in the Department of Electrical and Computer Engineering. "These organizations perform the important functions of providing professional opportunities and a sense of community among students."

The DESP also promotes the recruitment of minority students, and with UT's corporate partners, gives financial support and relevant work experience for minority students through the OPP. As a result, the COE has been ranked in the top 25 universities for African-American engineering graduates during the last two decades.

"When I'm on campus, I see a lot of different people from different countries and cultures," said Wenjun Zhao, a senior in electrical engineering.

Female engineering students *(left to right)* Chidinima Iwueke, Lana Carnel and Wenjun Zhao excel in their respective disciplines and exemplify the college's commitment to diversity.

"I think UT's population is becoming more diverse," said Robyn Chaplin, a junior in the Department of Chemical Engineering. "With the Quality Enhancement Program, the International House and the Black Cultural Center, UT is moving in the right direction, though we still have a ways to go."

Exceptional programs do not become exceptional on their own, however. Chidinma Iwueke, a senior in the Department of Nuclear Engineering, believes the COE diversity program succeeds because of mentors such as James Pippin, director of the EDP.

"Individuals like Mr. Pippin are priceless," said Iwueke. "They are necessary in order to increase the retention of minorities in the engineering program."

Pippin, who has always had a passion for working with students, said he has to earn respect from the students in order to be an effective director.

"I have to understand the mindset of the stu-

New Pipeline Program Emphasizes Research Opportunities for Minorities

Over the past two decades, minority enrollment in the College of Engineering (COE) at UT has risen above national averages, due primarily to the Minority Engineering Scholarship Program (MESP) and the Engineering Diversity Program (EDP). In 2005 the COE added the Pipeline Engineering Diversity Program to its efforts in minority recruiting and retention. With a comprehensive approach to engineering education, the program provides a channel through which both undergraduate and graduate students can reach their potential in the field of engineering.

"The COE Pipeline program is unique because of its emphasis and support of research opportunities for African-Americans," said Brandice Green, a third-year Ph.D. candidate in the Department of Materials Science and Engineering. "Pipeline does not just stress undergraduate and graduate recruitment, but also has a pre-college component."

Funded by the Department of Energy, Pipeline introduces underrepresented middle and high school students to engineering, provides academic support during undergraduate study and offers financial assistance for graduate level students in engineering.

Pipeline co-sponsors three one-week COE summer programs, giving middle and high school students the opportunity to learn about and prepare for a major in engineering. Once the students are accepted into the college, they participate in a two-week Summer Bridge Program, which is designed to facilitate the transition from high school to college.

"Another appeal of the Pipeline program is that it provides financial support and opportunities for participants to spend time at research facilities, such as Oak Ridge National Laboratory," said Green. "This allows students to incorporate cutting edge technology with their research and interact with prominent scientists."

Ph.D. candidate Brandice Green *(right)* works with Materials Science and Engineering Professor Dr. Peter Liaw in his research lab.

Through the competitive Graduate Research Partnership Program, focus is placed on matching qualified minority graduate students with research initiatives available at COE labs and centers, as well as at the Oak Ridge National Laboratory (ORNL).

"Pipeline graduate research assistantships make it possible for graduate students to work directly with faculty accomplishing funded research," said Dr. Masood Parang, Associate Dean of Student Affairs. "The nature of the assistantship, type of research and the amount of the stipend are unique."

The $25,000 annual stipend is available to master's students for up to two years, and to doctoral students for up to four years.

The Pipeline program did not become a standard for excellence on its own, however. Mr. James Pippin, Director of the EDP, is a key component to the success of the Pipeline program. According to Green, his concern and advocacy for underrepresented students is what makes UT's COE diversity program stand out.

Pippin began his career in the MESP in 1984 as the assistant director under Fred Brown, founder of the MESP. When Brown retired in 1986, Pippin became director of the Engineering Diversity Program.

"When Fred Brown retired, he said to me, 'This is the torch; keep it lit,'" said Pippin. "I try to look at the students as my family because part of my responsibility while they are here is to support them throughout their education."

Pippin believes the Pipeline initiative is unique because efforts are made to get more students into research and Ph.D. positions. The program is specifically tailored for minorities in order for them to succeed in the field of engineering.

"My passion has always been to work with young people. By utilizing Fred Brown's techniques of proactively recruiting students state-by-state, we have a history of minority students who do exceptionally well."

"The EDP does an excellent job of recruiting students," said Green. "I believe continued success in attracting underrepresented students to the COE can be ensured by continuing support of the EDP and the Pipeline program."

For more information on COE diveristy programs, contact the EDP office at (865) 974-1956.

–Story by Amanda Womac

dents," said Pippin. "I watch MTV and BET in order to utilize the culture and link it to a math or science program. I am not only an administrator, but also understand where they are coming from."

Although the increase in minority student enrollment at UT has become evident through diversity programs, some minorities still find it difficult to compete with their peers.

"It seems that as a minority, often we must prove ourselves," said Iwueke. "We are challenged to show that we deserve to be in this field of study and that we deserve the same respect as our peers."

The COE is also seeing an increase in female enrollment, although, females still encounter difficulties in the traditionally male-dominated field of engineering.

Rebecca Lind, a senior in Civil and Environmental Engineering, finds herself intimidated sometimes because many of the male students have experience with construction and are more familiar with the terminology and real life application of civil engineering. But, she says, that does not stop her from succeeding.

"I find myself wanting to do my absolute best to prove myself to my peers," said Lind. "I don't want the fact that I'm a woman to be my excuse for not fully understanding my chosen field of study."

Scholarship programs available through the EDP open doors to the world of engineering for minority students.

"As minorities in the College of Engineering at UT, we are very fortunate when it comes to monetary rewards," said Iwueke.

Brown's legacy lives on through the Fred. D. Brown Jr. Memorial Scholarship, and combined with other financial aid for minority students, the UT COE is a U.S. leader for retention of minority students with an overall rate of 60%. UT's recruitment package for minority students is one of the most attractive packages in the country, and over the past three decades, hundreds of minority students have received engineering degrees from the University of Tennessee.

"From what I have seen, the best part about UT's diversity program is that it does not single out anyone; rather, it encourages minorities in their academic goals without giving them any unfair advantage over someone who is not a member of a minority group," said Emily Pritchard, a senior in biomedical engineering. "By catering to the academic needs of students of varying backgrounds, the faculty at COE tries to create the best learning environment for each student regardless of race or gender."

–Story by Amanda Womac