Texas Program Provides Opportunities for Girls to Experience Engineering
By Tricia Berry, The University of Texas at Austin

From bubble-wand design to aluminum foil boats, the Women in Engineering Program (WEP) at The University of Texas at Austin (UT Austin) is transforming the perception of engineering for precollege students through engaging, hands-on activities. At a variety of day camps, workshops and interactive events, WEP shares the excitement of engineering and provides student, faculty and industry mentors to more than 1,400 first through 12th-graders annually.

These activities include Introduce a Girl to Engineering Day, or Girl Day, for elementary and middle-school students, and Consider Every Option (CEO) for high-school students. WEP is also making a difference in the precollege science, technology, engineering and math (STEM) community across Texas by leading the Texas Girls Collaborative Project, an initiative aimed at connecting organizations and individuals committed to informing and motivating girls to pursue STEM careers.

Girls only

Introduce a Girl to Engineering Day is celebrated annually around the world during Engineers Week. At UT Austin, students and their parents or educators are invited for an afternoon of engineering fun. UT’s national award-winning Girl Day, presented by WEP, gives more than 1,000 first to eighth-grade students a chance to:

- Have fun doing grade-specific, hands-on engineering activities and explore engaging demonstrations hosted by engineering student volunteers, student organizations, corporate partners and community organizations.

- Interact with more than 300 students, professors and engineers from industry.

Participating Girl Scouts can receive a Girl Day patch available through partnership with the Girl Scouts of Central Texas. Current engineering students are provided leadership and presentation skills development opportunities.

Girl Day has grown from hosting 95 precollege students in 2002 to 753 students in 2005 and 1,162 in 2008. In 2008, 96% of participants were female, 11% black, 25% Latina, 6% Asian, 1% Native American and 55% white, with 2% indicating “other” or “unknown” as their ethnicity. Participants came predominately from local areas, with more than 90% from central Texas and some from as far as Dallas and Houston. Volunteers have grown from 51 in 2002 to 326 in 2008. UT Austin’s Girl Day program received the 2006 National Engineers Week Introduce a
Girl to Engineering Day Award and is recognized annually with a proclamation from the City of Austin.

Consider Every Option

CEO is a hands-on, nonresidential day camp that exposes high-school girls to engineering. Students may choose to attend one or more of the five topic-focused days: body, mind and medicine; toys, music and media; energy, earth and beyond; communities, environment and transportation; and fashion, food and forensics. Each day, participants have the opportunity to:

- Meet engineers and current students.
- Learn through hands-on experiences.
- Discover what it means to be an engineer in these fields.
- Explore ways to benefit society and impact the world through engineering.

CEO hosts approximately 100 students during the week, with an average of 60 students attending each day. An average of 40 faculty, industry and student engineers volunteer daily as presenters, “lunch with an engineer” participants and mentors. By focusing on broad themes each day and the cross-disciplinary aspects of engineering, WEP strives to share the limitless possibilities for careers in engineering and the ways engineers make a difference in our lives and the world.

CEO draws on the research from the National Academy of Engineering’s “Changing the Conversation: Messages for Improving Public Understanding of Engineering” report and the messages from Engineer Your Life. In 2008, 91% of participants indicated an increase in understanding of engineering as a career, and 84% indicated an increased interest in studying engineering in college.

A Collaborative Affair

The Texas Girls Collaborative Project (TxGCP) connects organizations and individuals across Texas who are committed to informing and motivating girls to pursue STEM careers. Led by the WEP, with assistance from UT Austin’s Leadership Team and Champions Board, the TxGCP connects leaders and advocates from nonprofits, K-12 schools, higher-education institutions, companies, museums and organizations across the state of Texas. The TxGCP provides many opportunities for individuals and organizations across Texas to meet or
reconnect, learn about each other’s work and develop ways to work together to better serve girls and young women in STEM.

The TxGCP will join forces with the Women in Engineering ProActive Network (WEPAN) in Austin on June 19 to participate in “STEM Event as Big as Texas” at the WEPAN Annual Conference, which will feature a showcase of best practices from across the state and nation. This fall, the TxGCP will host interactive forums across the state in which participants will have the opportunity to network and find possible collaborative partners, gain ideas for programs, learn about other programs and resources, learn more about how to assess programs effectively, gain access to easy-to-use and easy-to-implement assessment instruments and learn more about the TxGCP.

The TxGCP is part of the National Girls Collaborative Project (NGCP), which has similar regional collaborative events across the nation. TxGCP activities build on the five themes that surfaced at the April 2008 TxGCP Kick-off Conference about the needs in the state and where the TxGCP can provide leadership in precollege STEM initiatives targeting girls. The five activities are:

- Build community and collaborations.
- Provide a forum to share resources, ideas and questions.
- Catalogue and share information on STEM programs and informal learning curriculum.
- Build community, public and political awareness.
- Create standards or common assessment of programs.

Through precollege initiatives and collaborative efforts such as Girl Day, CEO and the Texas Girls Collaborative Project, WEP is making a difference. Enrollment at UT Austin has remained steady for women in engineering—22% undergraduate enrollment—and above the national average, while many other institutions have seen a decline. Retention of UT Austin female engineering students is equivalent to that of their male counterparts, and the retention of students who participated in WEP precollege initiatives exceeds that of their peers by more than 15%. WEP connects precollege and college students to opportunities and careers in engineering and introduces them to mentors, peers and resources in the field.

WEP’s mission is to educate girls and women about engineering, inspire women to pursue the unlimited opportunities within the world of engineering and empower women engineers to benefit society. With its breadth of activities, level of participation and measured
success, WEP has become a leader in precollege engineering outreach, recruitment and retention initiatives.

**Bibliography**
Engineer Your Life, [www.engineeryourlife.org](http://www.engineeryourlife.org).

**Learn more about the programs mentioned in this article:**
Women in Engineering program: [www.engr.utexas.edu/wep](http://www.engr.utexas.edu/wep).
Girl Day: [www.engr.utexas.edu/wep/precollege/girlday.cfm](http://www.engr.utexas.edu/wep/precollege/girlday.cfm).
Consider Every Option: [www.engr.utexas.edu/wep/precollege/ceo.cfm](http://www.engr.utexas.edu/wep/precollege/ceo.cfm).
Texas Girls Collaborative Project: [http://texasgirls.engr.utexas.edu](http://texasgirls.engr.utexas.edu).

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![A UT engineering alumna (left) works with her daughters to test their puff mobiles during the 2003 Introduce a Girl to Engineering Day.](image1)

![During the 2007 Consider Every Option program, a high school participant (left) and Katie Kizziar, a Women in Engineering staff member make a circuit.](image2)