Engineering for Humanity

Global TIES is UC San Diego's innovative humanitarian engineering program. Faculty-advised, interdisciplinary teams of undergraduates design solutions that matter for local and global nonprofit organizations and their clients.


Established in 2004 as TIES – Teams in Engineering Service by the renowned Jacobs School of Engineering, the program has designed engineering and technology solutions for Habitat for Humanity, United Cerebral Palsy, the National Federation for the Blind, and the UC San Diego Student-Run Free Clinic, among others.

In 2009, the program expanded its mission to include partnerships with non-governmental organizations working in developing countries. The program currently has projects with Gawad Kalinga in the Philippines, Casa de Paz in Mexico, and the Loloma Foundation in Fiji.

In 2012-13, Global TIES enrolled over 600 students in 15 projects. Of the students with engineering majors, 37% were women and 15% were underrepresented minorities.

Several Global TIES students have been selected to participate in the annual Clinton Global Initiative University, four have won Gordon Leadership Awards, and one was the first engineering student and first undergraduate to win a University of California Institute for International, Comparative, and Area Studies Human Rights Fellowship. Moreover, Global TIES has been featured as a model program at the Clinton Global Initiative University.

Global TIES provides a wonderful opportunity for students to achieve several UC San Diego learning outcomes at once – civic engagement, international citizenship, and real-world application of the major field.

Barbara Sawrey
Associate Vice Chancellor - Undergraduate Education
UC San Diego
Building a Better World by Building a Better Engineer

Academic Outcomes: Through its rigorous experiential curriculum, Global TIES students gain the knowledge and skills they need to succeed and lead in the 21st century. After just one quarter in the program, Global TIES students report increased confidence in all of the engineering and professional skills recommended by the Accreditation Board for Engineering and Technology (ABET):

- Ability to apply knowledge of mathematics, physics, and/or engineering to a project
- Ability to design a system, component, or process to meet desired needs
- Ability to function on a multi-disciplinary team
- Ability to identify and formulate engineering problems
- Ability to solve engineering problems
- Understanding of professional and ethical responsibilities
- Ability to make professional presentations to others
- Ability to write professional reports
- Understanding of the impact of technology on society
- Understanding of the issues facing community, country, and the world
- Ability to use the techniques, skills, and tools necessary for professional practice
- Ability to work effectively with individuals of different economic, social, and racial or ethnic backgrounds
- Recognition of the importance of engaging in lifelong learning.

Developmental Outcomes: Global TIES students grow in other crucial ways as well. After one quarter, students report self-perceived increases in the following important skills:

- Leadership skills
- Team/Collaboration skills
- Commitment to future service
- Knowledge and understanding of global issues
- Appreciation for diversity

Perhaps most significantly, students report a self-perceived increase in their belief that they can make a difference in the world.

Global TIES has helped me to apply the subjects I have learned in other classes to real situations and to make a difference in the San Diego and global communities. Through Global TIES, I have become aware of social as well as engineering issues throughout the world, and learned much about how to complete a team project with real-world constraints such as a budget and client. It has been a life-changing program, and has inspired me to continue in the field of humanitarian engineering after graduation.

Lauren Rueda
Class of 2011
Environmental Engineering

Just as Doctors Without Borders has done more for humanity than most, so can Engineers Without Borders and their junior counterparts. At UC San Diego, this is Global TIES. Support their dream. Maybe one day they will win the Nobel Peace Prize.

Geert Schmid-Schonbein, Ph.D.
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