

# Robots Open Doors at MSJ

POSTED ON SEPTEMBER - 25 - 2010



On September 15, students in math teacher Mehebus Karmali's fifth and sixth periods were given the opportunity to assemble their own light-responsive robots in a hands-on electrical-engineering activity, thanks to the help of two Santa Clara University (SCU) students.

Laura Bica, a rising senior majoring in computer engineering, and Jocelyn Wong, a graduate student working towards her Master's Degree in mechanical engineering, presented and discussed engineering and its various sub-fields in efforts of getting students, especially girls, interested in engineering as a career path.

"Historically, only four of my female students have gone into engineering," Karmali says. Similarly, Bica, one of only three women at SCU in her major, said, "it's different, but you get used to it...I have a lot more guy friends now!"

Karmali emphasized that he is trying to address this lack of female representation in math and science related fields. For although women make up nearly half of today's workforce, they constitute only one-fifth of the nation's engineers, one-third of chemists, and approximately a quarter of computer and math professionals.

Karmali had the idea to bring in Bica and Wong after his fellowship this summer through Industry Initiatives for Science and Math Education (IISME), during which he worked at the Robotic Systems Lab at SCU. IISME, founded in 1985 between a consortium of San Francisco Bay Area companies in partnership with the University of California at Berkeley, "provide[s] teachers with experiences and tools they need to adapt their practices...so that all students are prepared to be lifelong learners...and productive employees," according to their website.

The robot presentation is one example of how Karmali has been applying the ideas he learned in his fellowship to his classroom.

After a brief introduction to engineering, in which Bica and Wong expanded their interest in engineering and the types of work they do (Bica, for example, helps write the software that "talks" to the satellites NASA launches into space) the students got to work assembling their robots.

Bica and Wong had already programmed the robots to move forward in the presence of sunlight and spin around "in search" of light in the shade, so Karmali's students had to figure out how physically assemble the robot's parts and wires.

A self-professed "science geek," Junior Anna Demchuk said, "[The activity] was an out-of-this-world experience; I've never done anything like it before...there was a lot of new learning."