Issue date: 2/9/07 **Section:** News

Stair-climbing robots introduce young engineers to Penn

SEAS course challenges students to invent stair-climbing robots in effort to boost interest

Helen Yoon

When Pia Ramchandani first signed up for "Introduction to Electrical and Systems Engineering" last semester, she expected a typical lecture course.

But for this Engineering freshman, the class turned out to be a bit more exciting.

Students in this course, which takes two semesters to complete, learn how to program robots.

But not just any robots: These six-legged robots, so-called edubots, were developed by designer Haldun Komsuoglu. Each one is a miniature version of a RHex, a robot modelled after a cockroach.

Their ultimate challenge: to get the robot to climb the stairs of the Philadelphia Museum of Art in Rocky-esque fashion.

The course "is a pretty radical departure from traditional introductory courses," Weingarten said.

Geared toward freshmen, it seeks to build critical thinking and problem-solving skills - "skills needed by engineers to become the innovators of the next generation," Weingarten said.

The course, which currently is comprised of about 40 students, also aims to inspire

more people to study engineering and the sciences, he said.

Weingarten pointed out that, in China, 50 percent of students receive a degree in engineering and the sciences, whereas in America, only 15 percent do.

"It's important for us to change the way engineering is typically taught," Weingarten said.

And, it seems, that's exactly what the course is doing.

The "first year of engineering can be really tough because it's a whole new field that's not taught in high school," Engineering sophomore Sam Russem said.

Thus, he said, a major benefit of this course is the opportunity it offers to learn concepts and ideas in a "hands-on way" and not just in abstract terms.

Although the course, which consists of two lectures and a project-based lab, is a lot of fun, it's also a lot of work, students say.

"You have to put a lot of time into it," Engineering freshman Jason Joo said.

Ramchandani added that "some of the work is difficult and frustrating because you don't have someone telling you how to solve the problem."

And for Ramchandani and Joo, the edubots are something of a source of fame as well.

On Monday, the two went with their course lecturer, Joel Weingarten, to the National Science Foundation Open House Exhibits in Washington D.C.

The pilot version of the course, taught in the fall 2005 semester, was funded by a grant from the National Science Foundation, a Virgina-based government-funded organization that promotes the study of science.

Be the first to comment on this story

- Name: (required)
- Email: (required)
  - NOTE: Email address will not be published
- Website:

Notify me of followup comments via e-mail

Type your comment below (html not allowed)

I am not posting spam. I understand posting spam or other comments that are unrelated to this article will cause my comment to be flagged for deletion and possibly cause my IP address to be permanently banned from this server.

Post