Summer jobs for high school students can take many forms. But Rachel Hauber’s stint at CIRAS this past summer might be one of the most unusual. The Ames High School graduate worked in her Howe Hall office overlooking the C6 Cube, methodically testing disposable plastic cutlery until sometimes they broke.

Well not just any plastic cutlery. The knives, forks, and spoons Hauber tested were made from biobased materials. “It’s cutlery made from renewable resources like corn and potatoes,” she explains.

Hauber’s job was to precisely measure the strength of each utensil she tested using a machine called a deflection indicator. The work was in support of a CIRAS program called BioPreferred. Underwritten by the U.S. Department of Agriculture, one of BioPreferred’s missions is to evaluate the performance of biobased products. Since the Farm Security and Rural Investment Act became law in 2002, federal agencies have been required to purchase biobased products. But those products must meet government-established price and quality specifications. Rachel’s work was aimed at determining which biobased cutlery brands would meet federal cutlery performance requirements.

The job was also designed to provide Hauber with some additional valuable benefits. She was one of a relatively small number of participants in a special Iowa State College of Engineering program called SPEED (Summer Program to Enhance Engineering Development). The eight-week program gives women and multicultural students the chance to take college-level courses and participate in actual research projects before beginning their first semester at Iowa State.

The SPEED program contains two tracks: an academic track and a research track. The academic track, which enrolled 13 students this past summer, prepares participants for their upcoming freshman year. As a result, students are able to take freshman-level math and physics courses instead of prerequisite courses. Meanwhile, the students taking part in the research track—12 were selected for summer 2009—receive hands-on experience, working on active research projects.

Besides acquiring valuable classroom learning, SPEED students also take part in professional and leadership development activities, including workshops and industrial field trips. The experience gives students an opportunity to develop stronger study habits and build a support network of peers, faculty, and staff. There is a monetary incentive for the completion of work and participation through a weekly stipend.

Summer at CIRAS

Each SPEED student’s summer experience varies, of course, depending upon the kind of research project they get involved with or courses they take. Jessica Riedl, program coordinator at CIRAS, who served as Hauber’s supervisor gives some hints about what Hauber’s experience was like at CIRAS. “I like to think of working at CIRAS as an undergrad as something like an internship or a pre-workforce job, where you have to be self-motivated to succeed,” Riedl says.

Besides working with Riedl, Hauber was also mentored by CIRAS director Ron Cox, with whom she met weekly. Cox and Hauber toured CoE facilities, and Cox even discussed proper lab techniques. “Rachel showed exceptional maturity and a strong willingness to learn,” Cox says.

One of the lessons Hauber learned from the program is that engineering demands plenty of attention to detail. On the job, she methodically tabulated the results of her testing work just as any researcher or engineer would. As Riedl explains, “The federal government’s performance standard for cutlery consists of several tests. The first is a deflection test. A deflection test of a fork, for example, would simulate putting food on the fork, or using the utensil to lift up food. To test this ability, a one-pound weight is applied to the tines of a fork.” Hauber’s spreadsheet reveals by how much the utensils bent or if they broke.

Hauber presented the results of her tests during a final meeting of Iowa State SPEED students. While she’s not sure what area of engineering she’ll eventually take up, it may well focus on renewable energy or water purification. Both are growing fields that will require the best young minds to tackle in the years ahead.

But regardless of where she chooses to spend her time, she believes the SPEED program will provide a long-term contribution to her success. “I think this program will be really good for my engineering career in that I’ll have some experience working somewhere and some lab experience,” she says.

To learn more about SPEED, e-mail leadprogram@iastate.edu, or call 515-294-9802. To learn more about BioPreferred, contact Jessica Riedl at 515-294-5416; jesriedl@iastate.edu. CIRAS enlists Iowa State students and faculty to help Iowa companies. To learn what CIRAS can do for your company, contact us at 515-294-3420; ciras.info@iastate.edu.