

Best in the Nation

Engineering majors create upsurge in efficiency

ENGINEERING STUDENTS AND FACULTY are helping mid-size manufacturers become more productive and energy efficient. Their reward: being named the best university-based Industrial Assessment Center in the nation in 2008 by the U.S. Department of Energy.

From its inception through 2008, the IAC identified an average savings of \$173 million per year for its clients.



In the TABASCO® factory, from left, Blakeley Blanchard and Aaron Artigue check the air compression system, while Ryan Kelley takes readings with a thermal-imaging camera.

DOUG DUGAN

The IAC conducts free, on-site assessments to evaluate energy use, waste disposal and productivity. Established in 2000, it is one of only 26 university-based centers across the country and the only one in Louisiana. Since its inception, the center has worked with more than 200 businesses. It serves a wide area: all of Louisiana, most of Arkansas, plus portions of Texas and Mississippi. Team members have worked in printing plants, food processing facilities, shipyards and oil refineries. They've traveled 1,300 feet underground to evaluate a salt mine and more than 200 miles offshore in the Gulf of Mexico to examine an oil platform.

In early May, team members visited Avery Island, La., to assess the McIlhenny Company's TABASCO® pepper sauce factory. It was a return visit for the IAC, which conducted an assessment for the company nine years ago. "We believe in continuous improvement," said Troy Romero, McIlhenny's vice president of operations. "We're happy to be a partner with the university, giving students the opportunity to fulfill their roles as learners and helpers in industry."

Mechanical engineering senior Blakeley Blanchard and two juniors, Aaron Artigue and Ryan Kelley, spent four hours in the factory, analyzing everything from the conveyor belt to the factory's emergency lighting system. They took measurements with sophisticated equipment, including a thermal imaging camera and an electronic light reader. The trio analyzed the factory's air compression system, checking it for air leaks.



Aaron Artigue inspects the production line, where a batch of bottles are destined for Brazil.

Dr. Ted Kozman, associate professor of mechanical engineering and the center's director, accompanied the student team.

As they do after each assessment, team members will create a detailed report with recommendations for the McIlhenny Company's factory. Depending on their findings, those recommendations may be as complex as installing a new energy system or as simple as placing motion sensors in rooms to prevent lights from being left on unnecessarily.

About nine months after the assessment, Kozman makes a follow-up call to find out which, if any, of the IAC recommendations have been implemented. From its inception through 2008, the IAC

identified a total of \$173 million per year in utilities savings for its clients. "In reality, we've had \$34 million per year implemented," said Kozman.

The students are paid for their work. Brittany Aulds, a graduate student in mechanical engineering, is the team's student leader and lead report writer. "Instead of working at a desk or at McDonald's, I have a job that's going to contribute to my understanding of engineering and energy," she said. Graduate and undergraduate students in any field of engineering may be part of the team.

Kozman said he enjoys the camaraderie. "I enjoy the students having fun, more than anything else. Engineering, to me, is fun. It's a hobby, in addition to being a vocation. So, I want our students to view it the same way – working in energy efficiency is just a means to make that happen."

Dr. Jim Lee, professor of engineering and technology management and the team's associate director, said the real-world problems identified by the IAC often fuel research. "We're getting recognition in high-quality academic jour-

nals and presenting papers at national and international conferences." He pointed out the university strives for balance in teaching and research. "So, we're doing both. We train our students. Our students will learn all the things they need when they graduate, so that's the educational side. At the same time, we've got some good research going on."

And that seems to be a winning combination for graduates. The U.S. Department of Energy tracks IAC students beyond graduation. "About 70 to 75 percent of our students end up in energy-related fields," Kozman said. ■

STUDENTS GAIN EXPERIENCE

Mechanical engineering student Aaron Artigue pays attention to detail. That's because, as part of the Industrial Assessment Center, he is responsible for making sure that all calculations in a client's final report are accurate and complete.

Even though he is still a junior, Artigue has conducted more than 80 assessments over the past two-and-a-half years.

IAC students like him are highly sought after in the energy industry because of the training and knowledge they receive.

Students and graduates receive support from the U.S. Department of Energy through a web site and online forum that includes scholarship opportunities and links to companies that were founded by or employ IAC alumni.

Nationwide, more than half of employed IAC graduates receive a starting wage of \$50,000 to \$99,999, which indicates that IAC graduates begin at salaries above the average of \$50,892 for salaries across engineering disciplines, according to the National Association of Colleges and Employers.

The Department of Energy tracks IACs alumni to learn how many are employed in energy-related fields. An estimated 70 to 75 percent of UL Lafayette engineering alumni who have participated in the IAC move on to pursue careers related to energy or energy efficiency, as compared to 56 percent of graduates nationwide. ■



Students use a thermal-imaging camera to measure the efficiency of the factory's lights.

AmeriCorps Student Becomes Fairy Godmother For a Day

WHAT IF YOU have a date to the prom, but can't afford a gown?

Thanks to Amanda Noble, a sophomore nursing major and member of UL Lafayette AmeriCorps, more than 100 girls received free prom dresses this spring. It was the second year she came to the aid of some real-life Cinderellas.

"Last year we gave away about 50 dresses. This year we had a goal of doubling the number of dresses we gave away and we actually exceeded that goal," she said.

Local media helped Noble spread the word that she was seeking gowns that she could offer to young women who needed them.

During the one-day giveaway, recipients got to try on the dresses. "That makes it more special. They actually get to pick out something they like," Noble explained. Some teens also received spa gift certificates that were donated for the project.

Noble wrote a \$625 grant, funded by Lafayette Junior League, to increase the capacity of the prom dress recycling program. The money helped pay for

storage racks and hangers, as well as a steam cleaner — tools to keep the donated dresses looking their best. Donors were also encouraged to pass on accessories, such as shoes and evening bags, to complete the outfits.

AmeriCorps set up a drop box at Our Lady of Wisdom Catholic Church on campus. "I'm really just amazed at the response, at how many people donated dresses and how many people came to help at the giveaway event," Noble said.

AmeriCorps members regularly participate in group activities, such as tutoring at-risk elementary school students and helping build homes through a partnership with Habitat for Humanity.

Each AmeriCorps participant is



Amanda Noble

also required to design his or her own community service project. Students must come up with an idea, then conduct research to find out whether the project is needed and feasible.

Noble drew on her hometown for inspiration. "I am from New Orleans and the (New Orleans) Hornets basketball team had a program like this. It had a big impact back

home," she said. "I did some research and couldn't find a program here."

Noble said she hopes to build on the project's success. "We'll definitely do it again next year. This program helps girls who don't have prom dresses, while at the same time promoting recycling and community service, which is what AmeriCorps is all about."

CHOICE WORDS: STUDENTS REVEAL WHAT THEY READ FOR FUN

For the first time in more than 25 years, American adults are reading more literature, according to a 2008 study by the National Endowment for the Arts. As it turns out, despite all their twittering and iPhoning, young adults – ages 18 to 24 – are leading the literary pack.

Nationwide, the younger demographic shows the biggest and most rapid increases in reading in four literary forms: novels, short stories, plays and poems. Since 2002, 18- to 24-year-olds have seen the biggest increase – 9 percent – in literary reading, and the most rapid rate of increase – 21 percent.

The literary good news left *La Louisiane* wondering what UL Lafayette students in the same age group might be reading. About 69 percent of UL Lafayette's student body are ages 18-24, enrollment records show.

So, *La Louisiane* conducted an informal survey

to find out. Of the 119 students who responded, 74 percent said they are either reading or plan to read a work of fiction that is not part of a class assignment.

UL Lafayette students who are ages 18 to 24 are finding plenty to sink their teeth into, citing more than 140 titles. Among those, books in the vampire-romance *Twilight* series – *Twilight*, *New Moon*, *Eclipse* and *Breaking Dawn* – were mentioned most often. Others are jumping on their *Harry Potter* broomsticks for literary escape.

Students are following the stories of superheroes-turned-vigilantes in the pages of the comic-book series, *Watchmen* and exploring the fantasy world created by Christopher Paolini. *Brisingr*, the third book in Paolini's *Inheritance Cycle*, features helpful dragons and elves, troublesome dwarves and a magic sword.

Students are dipping into the pages of perennial favorites such as *Catch-22*, *Slaughterhouse Five*, *The Hitchhiker's Guide to the Galaxy*, *The Hobbit* and *Lord of the Rings*. But they are also tasting more rarified reads, including Cormac McCarthy's *The Road*, the poetry of Langston Hughes, the short stories of Gabriel Garcia Marquez and the plays of William Shakespeare.



WHY WALK, WHEN YOU CAN CRAWL?

- 176 roller bearings
- 12 aluminum legs
- 2 cordless drills
- 1 inspired mechanical engineering class

It all adds up to the Cajun Crawler, a one-of-a-kind people mover designed and built by UL Lafayette students. It resembles a Segway, but instead of wheels, it has mechanical legs.

Discovery Channel Canada sent a New Orleans production crew to shoot the Crawler on campus in early May. It featured the vehicle on its science show, "Daily Planet," on May 14.

A video that shows the Crawler in action has been viewed on YouTube more than 235,000 times.

The vehicle's development began in Fall 2008, when Dr. Terrence Chambers' students were brainstorming a design project. He's an associate professor of mechanical engineering and associate dean of the College of Engineering.

"One of the students in the class suggested we look at the work of Theo Jansen," Chambers recalled. Jansen is a Dutch artist and engineer who creates larger-than-life moving sculptures. His fantastic "beests," as he calls them, are immense, intricate skeletons made of yellow plastic tubing, some as much as 20 feet tall. Harnessing the wind, they walk along the beaches of Holland, stepping gracefully across the wet sand.

Chambers' students borrowed Jansen's beest leg design for the legs of the Cajun Crawler.

Don Tomasaitis, a graduating senior who led the design and construction team, explained the design's appeal: "When a person walks, you kind of have this up-and-down movement: whenever you take a step, some of your energy is going toward lifting your weight. Jansen's design avoids

that up-and-down movement."

So, the Cajun Crawler's platform remains parallel to the ground, while the feet below move like a mechanical chorus line. "The way these all work together, it transfers the weight from one foot to the next without any of that vertical movement," Tomasaitis said.

Before they began building the Crawler, students tested the design in a lab, using computer-aided drafting software. "We did a lot of 3-D modeling," Tomasaitis said.

Five UL Lafayette alumni were part of the team: Chris Menard, Dustin Prejean, Kevin St. Aubin, Kurt Trahan and Spencer Malsh. They all graduated in December 2008.

The Cajun Crawler is powered by two cordless drills. The triggers, incorporated into the left and right sides of the handle, set the Crawler's legs in motion. The drills' motors and rechargeable batteries are tucked neatly beneath the platform.


"It made sense to use something that was already put together as a working system. It also helped keep the cost down," Tomasaitis said.

He estimated that the Crawler cost about \$1,200. Students contributed about \$600; cash and in-kind donations from area businesses covered the rest. One company donated aluminum. Another cut the metal into parts.

Asked whether the Cajun Crawler has any practical applications, Tomasaitis shrugged. "Not really," he replied. "It might be a cool toy, if somebody wants to be the first on their block to have one."



Don Tomasaitis

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