

# EngineeringNews



## DEAN'S MESSAGE

Recruiting is an exciting challenge for Rowan Engineering. We seek outstanding students along with industrial partners to complement our faculty. We enjoy showing them what to expect at Rowan, and visitors can briefly experience the thrill of our engineering clinics and the personal attention of involved professors during open houses and other activities.

Industrial partners look closely at the value we offer through the clinics: Committed faculty balancing technical expertise with teaching energy. Involved students delivering fresh, new perspectives. The opportunity to assess student performance on relevant projects during periods of several months that leads to strong career recruiting. These are a few of the direct benefits that our partners know and value.

Students and business partners also are aware of our national reputation. We proudly celebrate the College's position of 20th in the 2007 rankings by *U.S. News and World Report* (among about 150 undergraduate through master's institutions). Additionally, in the past two years, the ChE, ME, CEE and ECE programs have ranked as high as third, 10th, 11th and 14th, respectively.

I hope you enjoy the reading about these highlights of our work.

**Regards,**  
**Dianne Dorland**  
**Dean of Engineering**

## College of Engineering Hosts Open House

Jamie Ginn (ChE '04) credited Rowan's College of Engineering, particularly its clinics, for her professional success when she spoke to more than 500 guests, including 191 prospective students, at a recent Engineering open house. "Every course I had in engineering at Rowan applies to my job," she said.

An engineer in the E. I. du Pont de Nemours and Co. engineering evaluations and sustainability area and Miss Delaware 2006, Ginn said, "In my career, I need presentation skills and writing skills, which Rowan Engineering developed very well. Thanks to my presentation skills, I got my job at DuPont and continue presenting my ideas to clients. Thanks to my writing skills, I have my first patent pending at DuPont. Again, I cannot stress enough the importance of the engineering clinic in shaping my life and career."

During the half-day open house, visitors gained a first-hand, detailed look at the diverse projects in the College's four engineering disciplines and spoke with students and professors about the curriculum. Students demonstrated engineering projects in labs throughout Rowan Hall. Visitors learned about a 25-foot, computer-controlled distillation column; watershed research; clean energy projects; the bio-fidelity of crash test



*Jamie Ginn (ChE '04) spoke about the value of her Rowan Engineering education at the College's recent open house.*

dummies; and other areas currently engaging Rowan students.

"We are a premier engineering school and it carries over to our open house," said Dr. Steven Chin, associate dean. "We want to showcase our outstanding program."

Dr. Dianne Dorland, dean of the College, said, "It's critical that we recruit our best high school students to enter engineering. One of the ways to do that is to show them what their education at Rowan will look like."



*During the open house, Dr. Eric Constans, associate professor of mechanical engineering (left), and Terrance Hopely, a junior mechanical engineering major (second from left), explained the mini-Baja® competition, for which students design and race a dune buggy-type vehicle.*

## Project Lead the Way Comes to Rowan



**Steven Stumpo**, principal of Williamstown High School, and **Dr. Dianne Dorland**, dean of the College of Engineering, speak with students about future career possibilities.

In a new agreement geared toward advancing engineering as an educational option and career choice, Rowan has become the New Jersey affiliate for Project Lead the Way (PLTW).

A nationwide initiative, PLTW introduces middle and high school students to engineering and technical careers through targeted courses and specially trained teachers. Dr. Dianne Dorland, dean of the College of Engineering, serves as Rowan's PLTW program director.

"PLTW allows us to create a program for training and renewal in high schools and involve master teachers from the region as well as engineering faculty," Dorland said. She added that the program will help students understand how their interests and engineering complement each other.

Williamstown High School is one of four PLTW certified high schools in the State of New Jersey. The school has an agreement with Rowan through which qualified graduates of its Engineering Academy gain automatic admission into the College of Engineering, and it has a positive sense of the PLTW curriculum. Principal Steven Stumpo said, "The U.S. is producing a small percentage of the world's engineers, and as the world economy evolves, we need to encourage more high school students to pursue engineering majors in college."

"Project Lead the Way will expose high school students to engineering and technical fields and ultimately broaden our impact in South Jersey by providing a more technically proficient work force," Dorland said.

## Engineers Partner with Navy on Cryogenics Project

One of the latest engineering projects at Rowan University is leading faculty and students across the Delaware River and down to  $-196^{\circ}\text{C}$ .

The Naval Surface Warfare Center in Philadelphia and an engineering clinic team under the guidance of Dr. John Chen, chair of Mechanical Engineering, are developing a device to test the reliability of high-temperature superconductors. The superconductors are ceramic wires that can be cooled to the temperature of liquid nitrogen,  $-196^{\circ}\text{C}$ , at which point they increase their ability to convey extremely high electrical current loads.

"We're building a device to repeatedly submerge the wires in and out of liquid nitrogen – that's thermal cycle testing – to determine the ability of superconductors to stay superconductors," Chen said.

Traditionally, those tests have been done manually. The Rowan team is developing an automated device to test the degradation of superconductors after going through numerous cold/warm cycles, the type of situation they might face in actual use by the Navy.

Electrical and computer engineering students are developing the computer interface and data acquisition for the system, and mechanical engineering students are building the device that actually will lower and raise the test subjects.

"It's an important project because it's a real-world project," Chen said. "It's important, too, because it's a project from a prospective employer. Navy Philadelphia has turned out to be one of the biggest employers of our mechanical engineering students. The staff there knows what they are getting from us and the educational value of their work for our students."



**Engineering students** construct the framework for a new device to test superconductors.

# Educating Global Engineers: Rowan Expands International Outreach

Fresh drinking water will be supplied to the 118 homes in Caserío El Amatón in El Salvador through a project by a Rowan student/faculty engineering team. The work, an Engineers Without Borders - USA™ (EWB) project, is just one of the international efforts undertaken by the College of Engineering. The College is exploring and expanding its international approach through a recent EWB conference and a new group focused on such initiatives in the College.

To discuss further international cooperation among area college and university EWB chapters along with professional EWB chapters, the College held the First Annual Mid-Atlantic Regional Conference in October. Dr. Yusuf Mehta, associate professor of civil and environmental engineering and advisor for the campus EWB chapter, said the conference began to help build relationships between the chapters and further their shared goal of implementing global sustainable engineering projects.

EWB is an important part of the College's expanding international outreach. "It is a natural link with our engineering clinics," said Dr. Zenaida Otero Gephardt, associate professor of chemical engineering and chair of the College's International Initiatives Committee. "We will be preparing students to enter the workplace where the global market is the driver, and we are committed to using engineering to improve the quality of life of people around the world."

The committee includes representatives of all engineering disciplines, the EWB chapter advisor and the directors of the campus International Center and International Student Services office. Its purpose is to assist in developing international initiatives and to foster such collaborations.

One recent international clinic project involved students traveling to Chile and working with a team from La Universidad del Norte Sede Coquimbo. The group developed LabVIEW™ software



**Stanley L. Laskowski**, lecturer and advisor at the University of Pennsylvania, has been an executive, leader, teacher, scientist, advisor and mentor in his career in environmental protection. He gave the keynote speech at the First Annual Mid-Atlantic Conference for Engineers Without Borders - USA™ hosted by the College of Engineering in October.

programs to monitor and control temperature, pH and dissolved oxygen in tanks used to farm abalone, and they installed both programs and equipment to perform these tasks.

"Students need to understand how different cultures can work together, and how we can use engineering to improve the quality of life of people around the world," Gephardt said.

## NJTC Recognizes Rowan University

The New Jersey Technology Council has honored Rowan with the 2006 Excellence in Technology Award. The statewide organization, based in Mt. Laurel, recognized the University for its plans for the South Jersey Technology Park at Rowan University and for its achievements in technology education in the Colleges of Engineering, Liberal Arts & Sciences and Business at the Tenth NJTC Awards Gala at the New Jersey Performing Arts Center in Newark in November.

"Rowan is honored to be recognized by the New Jersey Technology Council. The council works diligently to maintain our state's technology leadership role, and Rowan pursues the same goal," said Dr. Donald Farish, president of Rowan.

Rowan University broke ground in April for the Technology Park's first building,

a 45,000-square-foot structure that will include a mix of laboratories, a technology business incubator and laboratory/office space for private technology-based firms and for Rowan-sponsored research.

Located on Rt. 322 near the junction with Rt. 55 in Mantua Township, the Technology Park will provide competitively priced, first-class facilities for start-up and established companies to bring innovative technologies to the marketplace and serve as a home for researchers, inventors, entrepreneurs, professors and students.

Rowan's Colleges of Engineering, Liberal Arts & Sciences and Business are recognized locally, regionally and nationally for outstanding programs and achievements in engineering, science and entrepreneurship.



The New Jersey Technology Council honored Rowan for its plans for the South Jersey Technology Park at Rowan University and for its achievements in technology education in the Colleges of Engineering, Liberal Arts & Sciences and Business. Here, **Dr. Krishan Bhatia**, assistant professor of mechanical engineering, discusses steam engines and compressors that students design and build as part of their mechanical design and thermodynamics course.

# Professor Mends Interests in Engineering and Sports

Dr. Jennifer Kadlowec believes in taking mechanical engineering to new levels.

This year, while on sabbatical, the associate professor is looking at the mechanical behavior of biological tissues, which may lead to improved injury treatments as well as additional projects for her students. "In terms of the mechanical behavior of materials, it's a nice extension to look at biotissues and the clinical relevance of the work beyond my current work with polymers and elastomers," Kadlowec said.



*Dr. Jennifer Kadlowec*

In a new grant-funded investigation, Kadlowec, an avid runner, continues to explore new approaches to her field through "Engineering Principles Through Sports, Sports Equipment and Sports Performance." She is principal investigator for the project, funded by a National Science Foundation grant, which includes engineering and health and exercise science teams at Rowan, Drexel University and Gloucester County College.

"The overall goal of this project is to develop a course on the engineering principles of sports and a series of hands-on laboratory modules that will be implemented in courses at the three participating institutions," said Kadlowec. "The basis of the project is that the study of sporting equipment, sports performance and sports ethics can be analyzed using multidisciplinary engineering principles."

## Engineering News

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*U.S. News & World Report* continues to rank the College of Engineering a standout. From the 2006 to 2007 "Best Colleges" edition, Rowan jumped from 32nd to 20th among the nation's best undergraduate engineering programs whose highest degree is a bachelor's or master's. In the two most recent editions, the chemical engineering, mechanical engineering, civil engineering, and electrical and computer engineering programs have ranked as high as third, 10th, 11th and 14th in the nation, respectively.

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