ROWAN UNIVERSITY
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DEAN'S MESSAGE

Engineers have always been problem solvers, creative thinkers who revel in changing the world. What makes educating our future engineers so challenging is that with each advancement the field enters new, uncharted territory. In fact, we presently are preparing students for jobs that in many cases don't exist yet, jobs where they will use technologies that have yet to be invented in order to solve problems we can't even anticipate today.

While engineers must possess core technical competencies, the key to educating tomorrow's engineers today is training that includes development of team skills, experiential learning, multidisciplinary understanding, a liberal education foundation, a global perspective and strong communication skills. The advantage will go to graduating engineers with core technical knowledge delivered in an active multidisciplinary environment, who have a global perception and communicate well.

Rowan's College of Engineering, as the sampling of activities highlighted here illustrates, proudly embraces this comprehensive approach to education.

Regards,

Dianne Dorland

Dianne Dorland
Dean of Engineering

Rowan Professor's Heart-Cooling Technology May Save Heart Attack Victims' Lives

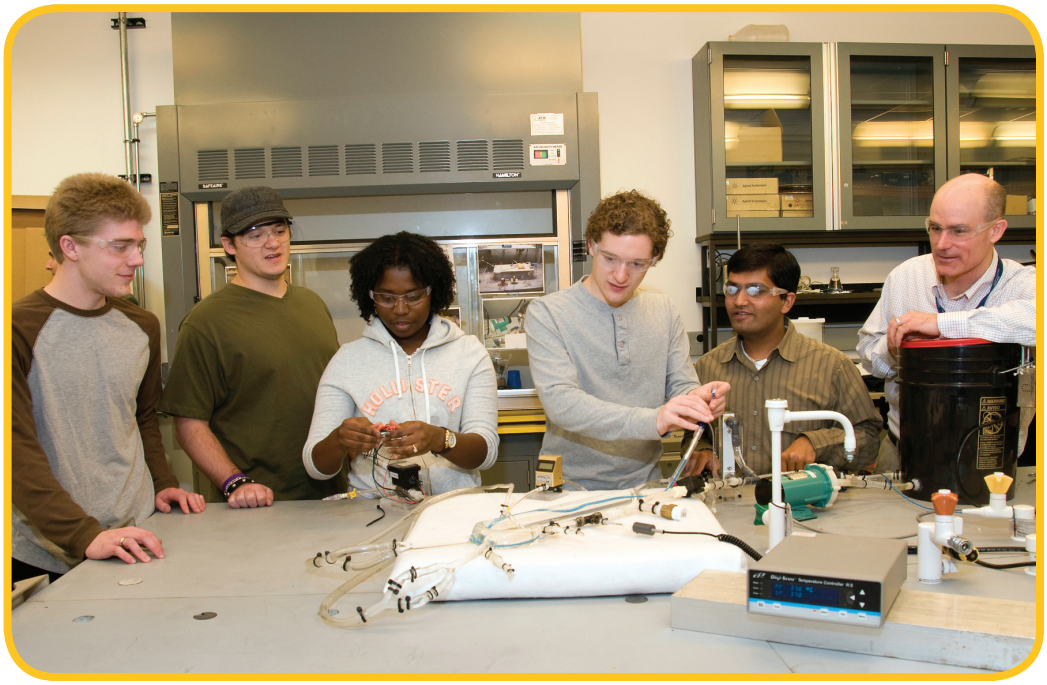
Students working with Dr. Thomas Merrill are developing a mock circulatory system designed to test a new catheter that cools the heart about 10 times quicker than competitive technology. The hope, according to Merrill, is that quicker cooling will help save vital organ tissue, reducing the number of deaths due to heart attacks.

"The test rig will mimic the temperature and flow conditions in the cardiovascular system, and we will use what we call a cool-guide catheter to cool the blood directly at the heart," said Merrill, who joined the College of Engineering as an assistant professor of mechanical engineering in January.

The team will use this test rig to evaluate catheter cooling capabilities prior to costly and complicated animal studies. What makes the catheter unique is its ability to provide localized cooling to just the heart. Competing technologies cool the entire body, eventually cooling the heart in about 45 minutes.

The project is sponsored by FocalCool, LLC, in East Windsor, which recently received a two-year, $1-million National Institutes of Health grant to study the effects of the cooling catheter on organ tissue. Merrill co-founded the research company with financial assistance from Dr. Jay Yadav, CEO of CardioMems, Inc. of Atlanta, in 2004.

Merrill's early work on the catheter involved designing prototypes in his basement with the help of his wife, and hopping into the family minivan and driving all night to reach a research facility. Those personal lessons in accountability and follow-through are points he stresses with his students as they work on the project.



Mechanical engineering students (l-r) ***Chris Rakus, Larry Greco, Casey Oware, John Zacharkow,*** *and* ***Dhaval Naik*** *work with* ***Dr. Thomas Merrill*** *on their mock circulatory system, which is designed to test a new catheter capable of cooling the heart nearly 10 times faster than present technology.*

Peers Honor Dorland as Delaware Valley Engineer of the Year

The Delaware Valley Engineers Week Council has selected Dr. Dianne Dorland, dean of the College of Engineering, as the 2008 Engineer of the Year. Comprising engineers in various fields from throughout the region, the council honored Dorland at two events during National Engineers Week in February.

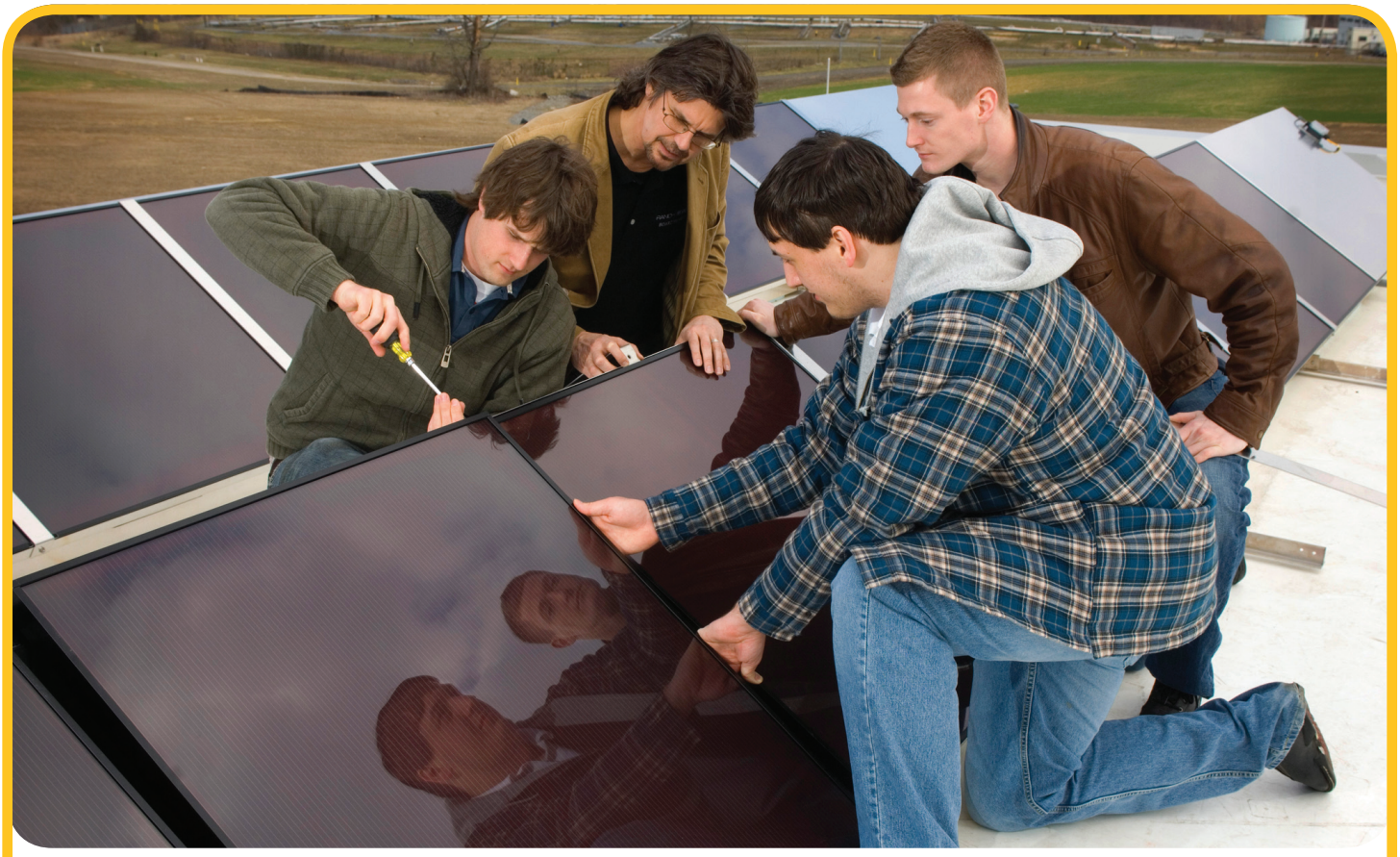
"I'm proud to have an educator recognized as the Delaware Valley Engineer of the Year," said Dorland, who received citations from President George W. Bush, the governors of New Jersey and Pennsylvania and Philadelphia's mayor. "I think it emphasizes that engineering education is our future."

Dorland's work in educating future engineers was a factor in her nomination, noted William Celenza, P.E. and D.E.E., of the local section of the American Institute of Chemical Engineers, who co-nominated her for the award.

> "It's good to have a strong base of students who want to become engineers and stay in the profession, and Dianne is helping build that base."
>
> – Louis Picciano, P.E.

"I think some of her initiatives as dean have been good for the engineering community, students in particular," said Louis Picciano, P.E., a past president of the New Jersey Society of Professional Engineers, which also touted Dorland for the award. "There's been such a push lately to keep engineering exciting for the students. It's good to have a strong base of students who want to become engineers and stay in the profession, and Dianne is helping build that base."

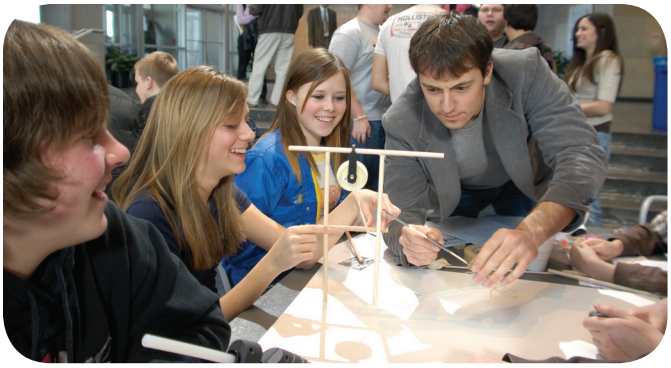
Under Dorland's leadership, the College of Engineering has been widely recognized for its undergraduate programs. The 2008 edition of *U.S. News & World Report's* "America's Best Colleges" ranks Rowan Engineering 16th among 172 institutions whose highest degree is a bachelor's or master's degree. The four engineering disciplines rank even higher, with Chemical 2nd, Electrical and Computer 8th, Mechanical 9th, and Civil and Environmental 11th.



*Electrical and computer engineering associate professor **Dr. Peter Jansson** (second from left) works with students **Andy Hak** (left), **Dane Green** (front right) and **Ulrich Schwabe** to install solar panels on the South Jersey Technology Park's Samuel H. Jones Innovation Center as part of a renewable energy project sponsored by Kaneka, the world's largest manufacturer of thin-film photovoltaic modules. Tenants in the 45,000-square-foot building will include Rowan Engineering, the Rowan Center for Innovation and Entrepreneurship and the Rowan Business Incubator. Space still is available for start-up and established technology businesses in the Technology Park, which is a public-private venture based in Mantua Township, about a mile from Rowan. For more information, visit www.sjtechpark.com.*

Engineers Week Events Focus on the Future

From moving marbles to networking for jobs, Rowan was the site of two spirited community outreach events in February as part of Engineers Week. While eighth graders from Estell Manor Middle School and ninth graders from the Atlantic County Institute of Technology competed to construct the best marble mover during a program on February 19, an estimated 600 Rowan students connected with 136 prospective employers at the annual Career Fair on February 26.



Atlantic County Institute of Technology students (l) ***Mason Thompson****,* ***Deanna Rainear*** *and* ***Ashley Greenwood,*** *work with Rowan electrical and computer engineering student* ***David Lester*** *to construct their marble-moving mechanism during the Engineers Week Rube Goldberg competition.*

As part of the weeklong celebration, a total of 50 students participated in a Rube Goldberg competition, splitting into 10 teams to construct a mechanism that could use six simple devices to move a marble to ultimately propel a Matchbox car. The inventive designs used everything from a balloon to a mousetrap to a Styrofoam cup to help navigate marbles through the course. The students also enjoyed campus tours and a planetarium show and attended an informative presentation on engineering educational opportunities.

College of Engineering students got a taste of the future that awaits them at the largest Career Fair in Rowan's history at the close of Engineers Week. Hosted by the Colleges of Engineering, Business, and Liberal Arts and Sciences, and the Career and Academic Planning Center, the event offered students the opportunity to network with representatives from DuPont, Lockheed Martin, Johnson Matthey, BAE Systems, Fluor Corporation, Inductotherm, NAVAIR, PennDOT, PSE&G, Verizon, and Zenith. Several engineering alumni also attended the event to meet students interested in employment and internships.

"Engineers Week activities such as the Career Fair are always a win-win situation," said Dr. Dianne Dorland, dean of the College of Engineering. "Our students benefit from the experience and access to career opportunities, and our industry partners appreciate the direct link to a highly qualified pool of employees."

Engineers Week events also included a lecture by professional engineers Kevin Becica and Paul LaPierre, who addressed the benefits of professional licensing and the steps to obtaining licensing. The program was a sponsored activity of the National Society of Professional Engineers.

Rowan Engineers Work on Pedal-Powered Grain Crusher

Three Rowan engineering students are working with Dr. Beena Sukumaran, a civil and environmental engineering associate professor, to develop a bicycle-powered grain crusher that can help residents of Third World countries produce food. Senior civil engineering majors Heather Klein of Toms River and John Bonzella of Mullica Hill, along with senior mechanical engineering major Kevin McGarvey of Williamstown, all age 22, have been working on the two-year-old project.

As part of a Rowan Engineering Clinic, the team has built an aluminum grain crusher that attaches to a standard bicycle, which is mounted on a stand. As the rider pedals, the back wheel moves a contact element that turns a pulley. The pulley moves plates in the crusher to grind the grain – including corn, lentils, split peas and barley – into fine particles suitable for cooking. Variations of the grain crusher exist, but generally feature store-bought, hand-operated grinders that are extremely labor-intensive.

Sukumaran hopes the students can create a workable design they can transfer to developing nations to produce themselves. "That's why we didn't want a very complicated design," she said. "We wanted to come up with some kind of mechanized device that does not depend on power."

The student team is working with Rowan's Center for Innovation and Entrepreneurship on a business plan and is considering patenting the device, which Sukumaran estimates will cost under $200. Their next project again will focus on food production as they pursue developing a mechanical soil tiller.

Civil engineering student ***Josh Bonzella*** *and* ***Dr. Beena Sukumaran*** *demonstrate their mobile grain crusher.*

On Campus this Summer

Students and teachers from across the region will participate in these summer programs at Rowan's College of Engineering:

RISE High School Engineering Workshop, July 8 to July 10, 2008
RISE (Rowan's Introduction for Students to Engineering) will offer high school students interested in engineering a three-day workshop including hands-on projects, lab clinics, interaction with professors and students, and campus and industry tours.

SJ GAMTTEP High School Scholars Program, July 8 to August 7, 2008
The Garrett A. Morgan Technology and Transportation Education Program will instruct South Jersey high school students in transportation engineering, offering research work with university professors, field trips, seminars and $1,500 for their research work. Sponsored by the Federal Highway Administration, Millville Board of Education and Rowan University.

Engineering Clinics for Teachers (ECT), July 13 to July 17, 2008
Middle school teachers enrolled in the program will work with faculty on experiments they can duplicate in the classroom. ECT is designed to help teachers successfully integrate engineering content into the classroom.

Project Lead the Way Teacher Training, July 20 to August 1, 2008
High school teachers selected to attend the program will be trained to implement the courses "Introduction to Engineering Design" and "Principles of Engineering" in their classrooms.

AWE Workshop for Middle School Girls, July 22 and July 23, 2008
AWE (Attracting Women into Engineering) will introduce girls entering 7th or 8th grade in September 2008 to the wonders of engineering in two single-day workshops.

For information on the College of Engineering and its programs visit www.rowan.edu/engineering or call 856-256-5300.

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*Philadelphia Mayor **Michael Nutter** congratulates **Dr. Dianne Dorland,** dean of the College of Engineering, at a ceremony in her honor as Delaware Valley Engineer of the Year.*