COLLEGE OF ENGINEERING

Momentum!

Spring 2013

Engineers Without Borders

Oregon State UNIVERSITY

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ON THE COVER
Oregon State's structural engineering graduate student Jessy Cawley traveled to Lela, Kenya with Engineers Without Borders to help build a drinking water well and rainwater catchment system. She and others like her represent a new generation of engineers, marked by an increased awareness of Global responsibility (Photo by Justin Smith).

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Momentum!

Spring 2013

Welcome to the first issue of Momentum!
We will be publishing this insert three times each year in the Oregon Stater to keep you informed about research activities, academic programs and other happenings at the College of Engineering.

We're thrilled to introduce you to Christine Kelly, associate dean for academic and student affairs, and Irem Tumer, associate dean for research and economic development. As Kelly and Tumer settle into their newly created positions, they join Dean Sandra Woods, Executive Associate Dean Jim Lundy and the unit heads to move the college forward. You'll learn more about them in these pages.

Also included here is a story highlighting the dynamic and well-established Energy Efficiency Center. In addition, we summarize two potentially far-reaching research projects: Chris Hagen's pioneering research in energy production and David Hurwitz's studies in infrastructure and traffic safety.

As always, we are extremely grateful for our supporters' generosity. In this issue, we shine the light on Mike and Judy Gaulke and Tom and Carmen West, who made major contributions to support our faculty and students.

Thanks for all you do to help us achieve our mission of educating tomorrow's engineering leaders. With your help, we will keep creating impactful learning experiences for our students and conducting innovative research that addresses global challenges within a collaborative and diverse culture.

Sandra Woods
Dean, Oregon State University College of Engineering

TIMELINE

1976	BS, Civil Engineering, Michigan State University
1980	MS, Civil Engineering, University of Washington
1985	PhD, Civil Engineering, University of Washington
1984–2001	Civil Engineering faculty member, Oregon State University
2001–2004	Department Head, Civil and Environmental Engineering, Colorado State University
2004–2012	Dean of Engineering, Colorado State University
2012–present	Dean of Engineering, Oregon State University

Coming home. Advancing excellence.

By Gregg Kleiner

Sandy Woods has come home.

She returned to Oregon State in July, to a place she fondly refers to as "the university I love." Woods served on the Oregon State faculty from 1984 to 2001. She credits former dean Ron Adams with stellar leadership that left the College of Engineering in an excellent position on many fronts. As the new dean of the college, she's excited about the existing collaborative culture and the opportunities on the horizon.

"The college is moving in a very good direction, and my goal is to simply help that continue," said Woods, whose return to Corvallis follows an 11-year tenure at Colorado State University, where she served as department head, vice provost and dean. "Here at Oregon State, we have hundreds of great faculty and staff, more than 6,000 wonderful students wanting to change the world and alumni who are supportive and highly regarded. To help these people become the most productive they can be is our job as leadership of the college."

Woods is home, but she's certainly not resting. She's pulling the team together to continue working toward the college's common vision of academic and research excellence. As a team player, she believes in engaging faculty, staff, industry and alumni in decisions about strategic investments that will serve students while fundamentally improving the college. To help her and Executive Associate Dean James Lundy drive the college's vision forward, she hired two new associate deans (see stories on pages 12 and 13) this fall.

"The exciting part for me, as dean, is engaging faculty, industry, staff and students about where to strategically make investments. We have a great team of people, and although I don't see them everyday, I want them involved in decisions as we go forward together."
— Sandra Woods

Her biggest immediate challenge? Strategically responding to record-breaking enrollment, which increased by more than 700 undergraduate students this year alone. But Woods sees opportunity in rapid growth, which also includes many added faculty and infrastructure improvements. She's looking forward to overseeing this exhilarating period of growth and change in the College of Engineering.

OSU-Cascades faculty pioneers natural gas vehicle research

By Thuy T. Tran

Domestic production of natural gas is projected to increase significantly within the next decade. Chris Hagen, assistant professor in energy systems engineering, believes that this growth in natural gas production, coupled with advancements in methane-fueled vehicles, holds great promise for relieving America's dependence on foreign oil.

Hagen is spearheading a research program at OSU-Cascades to develop a self-contained natural gas vehicle with an engine that can compress the fuel and power the car, thus eliminating the need for fueling stations.

Hagen's research is one of 13 new cutting-edge projects funded by the Department of Energy's Advanced Research Project Agency–Energy (ARPA-E) through its new Methane Opportunities for Vehicular Energy (MOVE) program. The program supports development of transformational technologies that reduce the barriers to mass adoption of natural gas in vehicles — by enabling natural gas vehicles to be fueled at home, for example.

"One of the hurdles to using natural gas for transportation is being able to fuel your car," Hagen said. "There are just not enough stations, and stations are expensive to construct."

The challenge is the same for all researchers: they must meet the specifications set by the ARPA-E grant for cost, efficiency, weight and compressor location (inside or outside the car).

"Technologies for compressing natural gas already exist," said Hagen. "We can buy a natural gas reciprocating compressor that operates separately and can fuel your car in eight hours. The question is whether we can come up with a commercially viable solution."

Hagen's research is unique and far-reaching. While all other ARPA-E grant awardees focus on two activities — developing lower-cost garage model compressors to enable home fueling and optimizing on-vehicle storage tanks — Hagen is taking a different approach.

"We're the only one trying to modify the actual vehicle engine," he noted. "Our project involves using the internal combustion engine of the vehicle part-time as a compressor so that it can fuel itself with high-pressure natural gas."

In a nutshell, Hagen's design would keep the number of added components to a minimum by combining the compressor and combustion engine into one system and making that entire system a modification to an existing vehicle.

"The concept is to deactivate the intake and exhaust valves of one cylinder and use the other cylinders to drive that one cylinder to compress," explained Hagen. "When you're in filling mode in the garage, the engine is smart enough to do its own modification and use that one cylinder to compress. As soon as you pull out of the garage, you're in commute mode, and it's back to a regular combustion engine."

Hagen's first task is to prove the concept, which involves building a test model. His team will build a double-ended dynamometer — a measuring device for engine output — that has an internal combustion engine on both ends. They will attempt to get one engine to combust and the other to compress. When both sides work well independently, the next step will be to get them to work together as one unit.

"At that point, we'd have an engine that can act as a compressor coupled to an AC motor so that it can behave as if in a car," said Hagen.

The system will then be tested using nitrogen, then air and finally natural gas. It will be optimized for size, weight and cost while keeping safety features and performance metrics the same. Finally, it will be put in a car.

To meet the ARPA-E proposal specifications, the system will cost less than $400 and weigh approximately 30 pounds. The vehicle will be street drivable at the conclusion of the project, less than two years from now.

Although not everyone agrees with the idea of using natural gas to fuel cars, Hagen feels good about working on a project that could lead to less dependence on oil. "People have a lot of opinions about natural gas, but the truth of the matter is that it's domestic, it enables energy security, the economics are favorable for natural gas and from some perspectives, it has environmental benefits," said Hagen. "Working on a project that is relevant to national interests is pretty exciting."

Energy Systems Engineering

Students interested in addressing the world's energy challenges can earn a bachelor's degree in Energy Systems Engineering at Oregon State's branch campus in Bend. The small class sizes, experienced faculty, real-world projects with Central Oregon energy companies, and opportunities for internships with national companies make for an exceptional hands-on learning experience.

Learn more:

OSUcascades.edu | 541-322-3100

cascadesadmit@osucascades.edu

Alumni couple gives with gratitude

By Lori Brandt

Life has been good to alumni Mike ('68) and Judy ('65) Gaulke. So when they were deciding how they would share their good fortune, they chose institutions that were meaningful in their lives. Topping the list was Oregon State University.

The Gaulkes pledged $3.5 million to create the Michael and Judith Gaulke Chair of Electrical Engineering and Computer Science — the largest endowed faculty position to date for the College of Engineering. Electrical Engineering Professor John Wager, an award-winning teacher and dedicated researcher, will hold the inaugural chair.

"I am honored to hold this title and grateful for the generous support of the Gaulkes," says Wager, who is internationally recognized for his leading role in developing transparent electronics, a technology used in the Apple iPad®.

The gift leverages the Provost's Faculty Match Program, which provides an additional $450,000 over five years. The school plans on adding a faculty position focused on sensor technology research and teaching.

"Oregon State provided me a great education and leadership opportunities that launched me on a successful business career. It is with great pleasure that we are able to endow the first chair ever in the School of Electrical Engineering and Computer Science and hope that others will join us in supporting a program that continues to grow and excel."
— Mike Gaulke

Mike went to work for Procter & Gamble after graduation. In 1972, he earned an MBA from Stanford University and joined McKinsey & Company as a management consultant. He held executive positions with Spectra Physics, Inc. and Raynet Corporation before joining Exponent, Inc. a leading engineering and consulting firm that performs in-depth investigations into the causes of accidents and failures, such as the collapse of the World Trade Center and destruction caused by Hurricane Katrina. Mike retired from Exponent in 2009 after 18 years with the firm, including 13 as its CEO, but remains chairman of its board. Mike was inducted into the Oregon State Engineering Hall of Fame in 2008.

Judy (Mellenthin) Gaulke is a successful artist and also credits Oregon State for launching her career. In Judy's senior year, Pan American World Airways recruited her as a flight attendant on a campus visit, and she spent four years flying around the world. But it was her home economics degree that landed her a job as the cookbook editor at Sunset Magazine, where she wrote 16 cookbooks. She became director of new restaurant concepts for a large corporation and then a successful food stylist before returning to her true calling as an artist.

The Gaulkes both grew up in Hood River, Ore. Judy's father, an Oregon State professor in pomology horticulture, ran the Hood River horticultural experiment station. "I was a Beaver born and a Beaver bred," says Judy.

Today the Gaulkes live in Atherton, Calif. Both are pilots and enjoy traveling. Mike, ever the engineer, has taken apart and rebuilt things all his life, and his most recent project is a racecar, painted Beaver orange, black and white.

A darn good deal

By Cathleen Hockman-Wert

Some people give from the heart. Others give, well, from their heads.

"If I know my gift is going to have a multiplying effect so that it's more than just my bucks, then I'm all for it," says Tom West ('76), an emeritus faculty member from the College of Engineering. "That kind of mindset is in the breed for engineers."

Tom would know: he co-wrote two classic texts on engineering economy.

Through their gifts, Tom and his wife Carmen illustrate three great ways Oregon State donors can leverage additional support for the university.

"Getting bright young people into our programs and enhancing their understanding of the way things work — that's what education is all about. A lot of time is wasted trying to get little bumps out of the road. My philosophy is that if just a little nudge will let you make a large leap, you need to smooth the way."
— Tom West

Employer Match: Employer matching programs can double or even triple the impact of a charitable contribution. The Wests' first gifts established an endowed scholarship to support undergraduate students in industrial and manufacturing engineering (IME), the department where Tom earned his doctorate and later taught. Some of their gifts were matched by Hewlett-Packard, where Carmen worked for many years.

See the OSU Foundation's website for details on the Employer Match Program: osufoundation.org/howtogive/matching_gifts.htm

The West Endowment Challenge: Tom's Oregon State career spanned nearly 30 years, including service as department head, associate dean and interim dean. He recalls a time when the college was offered nearly $500,000 in state-of-the-art equipment from corporate donors, but the lab in Dearborn Hall had an inadequate power supply and lacked the air conditioning and furniture needed for the technology. A small internal investment would make a huge difference in student learning, yet it was difficult to find the funds.

Future administrators will have an easier time. In 2008, the Wests helped create an unrestricted endowment fund for IME. They designed their gift as a challenge, offering to match up to $25,000 in donations from alumni and friends. The endowment fund balance now stands at almost $150,000. For more information, see: osufoundation.org/news/featurednews/current/ime/index.htm

Provost's Faculty Match: Most recently, Tom and Carmen created an endowment for an IME faculty member. Their gift is part of the Provost's Faculty Match Program, which encourages donors to create faculty endowments that support the priorities in Oregon State's strategic plan. Their $250,000 gift will leverage an additional $62,500 from the Provost's Office to support College of Engineering initiatives. Visit the campaign website at: campaignforosu.org/fundraisingpriorities/facultyinitiative/provostmatch.htm

Harnessing wave power through a winning university-industry partnership

By Thuy T. Tran

At Oregon State University's O.H. Hinsdale Wave Research Laboratory, a small yellow buoy bobs up and down in mechanically created waves. Although it may not look like much to the casual observer, the apparatus is a test model for a next-generation device intended to capture energy from the continual movement of the ocean. Rigorous testing of this model is necessary before researchers begin assessing much larger units off the Oregon coast.

The new wave-power technology was made possible by a unique partnership between the university and Columbia Power Technologies. "Columbia Power Technologies is an example of a long-term partnership where the company has advanced their technologies through work with OSU," said Belinda Batten, director of the Northwest National Marine Renewable Energy Center (NNMREC). "It has licensed some of Oregon State's intellectual property, and several students have graduated and gone into this industry. That, for us, is a real success."

From a broad perspective of economic development, university-industry partnerships make good sense, but collaborating with academia is a new concept for most companies. The Oregon State–Columbia Power partnership provides a case study that illuminates the benefits when industry and academia join forces.

World-class physical facilities

Oregon State's world-class wave-testing facilities, combined with numerous top-notch interdisciplinary researchers in engineering and sciences, can be made available for collaborative efforts similar to the Columbia Power project. The wave laboratory offers two exceptional shared-use coastal test facilities: the largest combined wave and tsunami flume in North America and a tsunami wave basin capable of generating multiple wave types and characteristics.

"The long-term partnership with Oregon State and access to local wave tanks have been an important part of our technical development," says Ken Rhinefrank, vice president of research at Columbia Power. "Over the years we have had a number of discoveries and design improvements that led to performance gains of five or six times higher than in the early stages of our relationship."

Precursor to economic development

In the past, complex university-industry partnerships like the one with Columbia Power began through informal connections or even by chance rather than through established institutional mechanisms. For example, professors of electrical engineering Annette von Jouanne and the late Alan Wallace, pioneers and national leaders in ocean wave energy, developed several direct-drive ocean buoys capable of converting the power of ocean waves to electrical energy. To take advantage of their expertise, the founders of Columbia Power Technologies initiated discussions with Oregon State and eventually developed the mutually rewarding relationship that funded wave energy research efforts.

These types of successes led Oregon State to make improving the effectiveness of university-industry partnerships one of its strategic goals. Ron Adams, Oregon State's executive associate vice president for research, is leading a new initiative aimed at expanding engagement with the private sector.

Adams says major incentives for firms to partner with universities include access to great technology and unique capabilities, the opportunity for collaborative research and development and the potential acceleration of time-to-market.

"The protection of intellectual property rights remains a key concern and the primary reason many companies aren't quick to jump into such relationships. But when the university can make major and unique contributions that affect bottom-line business success, these concerns often can be addressed in a mutually beneficial manner."
— Ron Adams

Adams and other experts in the university's Research Office guide and shape the conversation between researchers and potential industry partners. Transparent and clear discussions establish trust and forge strong relationships.

High-caliber graduates fill the skills gap

University-industry partnerships also facilitate the education-to-employment transition. A recent McKinsey multinational study reports that although nearly three-quarters of education providers believe their graduates are work-ready, fewer than half of the employers surveyed say new graduates are adequately prepared for the workforce. The study concludes that to begin closing the skills gap, educational institutions and employers must work together to gain a common understanding of the situation.

Columbia Power's collaboration with Oregon State made numerous opportunities possible for graduate and undergraduate students. "In one case, we had a very promising mechanical engineer we'd hired on as a MECOP intern in 2009," said Rhinefrank. "As soon as he graduated, we hired him." The company currently employs six Oregon State graduates and will likely add two more this coming year.

NNMREC's Belinda Batten also sees value for graduates in sustaining industry-university collaborations. "Industry-university partnerships are key to graduating engineers that have the full experience and are ready to go out into industry," said Batten.

	Number of Assessments	Recommended Energy Savings (MMBtu)	Recommended Cost Savings ($US/yr)	Implemented Cost Savings ($US/yr)
IAC	600	805,778	$130,935,396	$87,629,300
REAP	37	11,404	$452,069	N/A
REDA	5	853	$12,349	N/A
Other	26	30,708	$3,961,321	N/A
Total		**848,743**	**$135,361,135**	**$87,629,300**

IAC: Industrial Assessment Center | REAP: Rural Energy Assessment Program | REDA: Renewable Energy Development Assistance

The Energy Efficiency Center: Students reduce waste while building skills

By Abby P. Metzger

Mike Knapp knows how costly a small inefficiency can be to a business. The MBA student with a master's in chemical engineering from Oregon State has learned that missing a single bean every ten seconds on a food production line can result in several million dollars worth of product loss.

Knapp, along with 16 other engineering students, has been helping enterprises save money through the Energy Efficiency Center (EEC), a student-run and faculty-supported program in the College of Engineering that performs assessments for rural and industrial clients throughout the Pacific Northwest.

"Companies get several eyes evaluating their processes, and then we provide recommendations on where they can save on energy and productivity," said Knapp. "It also gives the students real industrial experience on energy consulting while providing networking opportunities."

Surprisingly, the EEC is not a product of the university's recent sustainability efforts. The center has been around since the 1980s and receives steady funding from the Department of Energy. Today, the EEC houses the Industrial Assessment Center and Rural Energy Assessment programs.

The Industrial Assessment Center, the longer-standing program of the two, has conducted 600 manufacturing assessments in diverse industries — from logging operations to food processors — and recommended $131 million in cost savings. The Rural Energy Assessment Program is a recent expansion supported by the U.S. Department of Agriculture, and its clients range from wineries and nurseries to small farms and dairies.

Energy Efficiency Center assessments are quite thorough. Once students have identified a client, they request utility statements and other energy-use documents for analysis. A student lead establishes communication with the company to understand its energy and production goals and needs. A small team performs the assessment and, depending on the scope, a faculty member also may be involved. The team looks at lighting, insulation, refrigeration, heating, productivity and other pertinent areas.

Knapp said that no two assessments are alike. "One day I went to a brewery, the next day a food processing center. You learn to look at new problems all the time," he said.

Data collected at the site assessment turn into a formal report of recommendations and suggestions for implementation, followed by a check up to see how and where the company has integrated the recommendations.

"We prioritize the recommendations based on what we feel would be best for the company," Knapp explained. "Sometimes that means the biggest money savers are last because they require a large capital investment. Another recommendation might be simply pushing a button to change the temperature, which could save $10,000 annually."

Industries clearly benefit through reduced costs. The planet benefits from less strain on natural resources. And since students come from diverse engineering backgrounds and interact with a broad scope of clients, they often recommend creative solutions that specialized consulting firms might overlook. Another bonus is that industrial assessments are free, and rural clients pay only a small fee of about $370.

Most importantly, students receive tremendous benefit by learning real-world skills. Joe Junker, director of the EEC, experiences first-hand the center's value to student development.

"Companies are benefiting from the students' efforts, and at the same time, the students are benefitting from applying theory they've been consuming in class," he said. "It's really different to take a bunch of facts and run a calculation as opposed to walking into a facility and seeing a big, noisy machine and saying, 'well, what do you need to know about this machine to understand how it works?' "

Such practical experience often translates into job prospects for EEC students. They have been hired by energy consulting firms, utility companies, and even by former clients.

"I've been told by students that when they're trying to get their first job, they end up talking about what they've done here at the center because it really demonstrates something rare for students coming out of school," said Junker.

Knapp agrees: "I quickly found out what I needed to do to improve my career path. The hands-on, practical side of this work is both what I enjoy and what will help me in the future."

Info: mime.oregonstate.edu/facilities/eec

Simulator lab aims to reduce traffic accidents

By Abby P. Metzger

Traffic accidents kill more than 30,000 people each year in the U.S., and David Hurwitz, an assistant professor in civil engineering, is trying to understand why.

"I'm interested in how transportation system users respond to the built environment," said Hurwitz. "If we can understand drivers' abilities and limitations, we can design the system more effectively."

In assessing those abilities and limitations, Hurwitz developed a simulator lab where he and his students can test crash scenarios in a controlled environment. Sophisticated equipment enables him to analyze reaction times, track users' eye movements and collect a host of other valuable data that may help planners design safer transportation systems.

"In the safety of a simulated driving environment, we can expose people to very risky crash scenarios without having them encounter the danger that would be inherent in these phenomena."
— David Hurwitz

The lab has several unique features, including a specially designed 2009 Ford Fusion that mimics the driving environment. Its equipment includes a rear projection screen and digital computer screens in the side-view mirrors. While virtually in motion, drivers can interact in a realistic three-dimensional setting where visuals refresh at about the same rate humans process information.

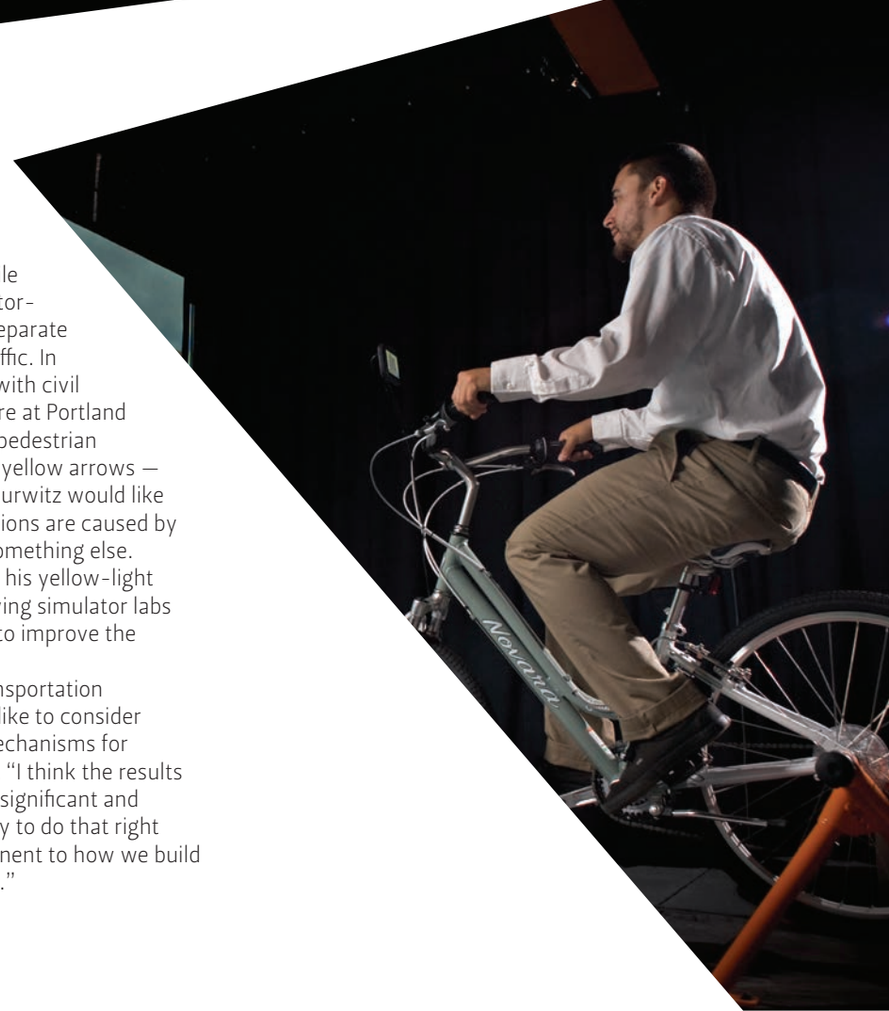
"You're looking at those visuals in real time, just as you might be looking around the room right now," Hurwitz explained. "It sounds like a bit of a motion odyssey movie ride, but it's a pretty rigorous research tool."

Hurwitz and his team also developed a bicycle simulator, integrating it into the lab to allow the two transportation modes to interact. Oregon State has the only lab in the country with such capabilities, and the unique setup will provide important information about how blind spots impact biker safety, how drivers respond to adjacent cyclists and other valuable data.

Although the lab has been running for less than two years, Hurwitz has launched several transportation studies. He and his team looked at the "dilemma zone" — the space before a stoplight intersection where the traffic light turns yellow and the driver isn't sure whether to stop or go. Drivers can stop too suddenly and risk being rear-ended or speed through the intersection and face a serious crash.

Hurwitz' team conducted a comprehensive literature review, collecting a spectrum of driver responses such as deceleration rates and the time between perceiving a yellow light and tapping on the brake pedal. Then, in the simulator lab, he replicated intersections described in the literature to see if he could generate similar results. He did.

"We were able to predict what drivers were going to do within a 90 percent threshold," he said. "The deceleration rate for stopping vehicles and the perception-reaction time of the drivers responding to the yellow light mapped very closely to field-collected data. We think models of that type can be used to change the way we time yellow lights; it could provide information on where we put the advance vehicle detectors and the way we design these systems for safety."



Hurwitz is also working with construction engineering management professor John Gambatese to study how drivers respond to mobile work zone barriers, which are tractor-trailer trucks driven into place to separate workers from adjacent through traffic. In another study, he is collaborating with civil engineering professor Chris Monsere at Portland State University to assess vehicle-pedestrian accidents that result from flashing yellow arrows — indicating a permissible left turn. Hurwitz would like to understand whether these collisions are caused by incomprehension, inattention or something else.

Given the encouraging results of his yellow-light study, Hurwitz sees a place for driving simulator labs in preventing crashes and helping to improve the built environment.

"As we look toward building transportation alternatives for major projects, I'd like to consider driving simulation as one of the mechanisms for evaluating those designs," he said. "I think the results that can be acquired in our lab are significant and unique, and there isn't another way to do that right now. It could be a powerful component to how we build and deliver transportation projects."

Christine Kelly
Associate Dean for Academic and Student Affairs

Engineering student success

By Gregg Kleiner

Christine Kelly's first job as a process chemical engineer in industry was to help design a $36 million crystalline fructose manufacturing plant in rural Tennessee. As the College of Engineering's new associate dean for academic and student affairs, Kelly will put her process design expertise to work, but instead of dealing with sugars and stainless steel tanks, she'll be helping students by supporting faculty to produce top-notch, well-rounded engineers.

At the heart of her vision for the college is innovating a better overall learning experience by helping faculty acquire new teaching tools to educate a rapidly growing number of engineering students.

"The whole point of this new position is to help faculty and staff improve the learning experience for our students," said Kelly, who knew she wanted to be an engineer by the third grade. "As our enrollment grows, we must maintain the high quality of teaching we're known for and build on that excellence."

"As far as the quality of engineering instruction, Oregon State is one of the top schools — the teaching here is second to none. I firmly believe this, because I've seen other programs. We will continue to build on that excellence."
— Christine Kelly

Her priorities? Increase students' experiential learning opportunities through service and overseas experiences, expand students' global awareness, boost student retention rates, build a more diverse student population, foster deeper connections with industry to expand internship opportunities, advance student success in national competitions and increase the number of students qualifying for the professional school.

TIMELINE

1989	BS, Chemical Engineering, University of Arizona
1991–1992	Process Engineer, A. E. Staley Corporation, Loudon, Tenn.
1997	PhD, Chemical Engineering, University of Tennessee
1998	Post-Doc, Environmental Biotechnology, University of Tennessee
1998–2004	Assistant Professor, Department of Chemical Engineering and Materials Science, Syracuse University, Syracuse, N.Y.
2000	Research Scientist, Kodak, Rochester, N.Y.
2004–present	Associate Professor, School of Chemical, Biological and Environmental Engineering, Oregon State University

Irem Tumer
Associate Dean for Research and Economic Development

Ambassador. Matchmaker. Bridge builder.

By Gregg Kleiner

Irem Tumer's enthusiasm for her new job as associate dean for research and economic development is palpable as she ticks off a list of goals behind her vision: double the number of doctoral students, build new bridges to industry and alumni, help faculty find funding opportunities, boost the college's reputation for research and grow industry funding.

That's a lot of moving parts, but as a professor of complex systems design, Tumer seems ideally suited to succeed.

"This position gives me the opportunity to do all the things I love about academia, but on a much larger scale," said Tumer, the daughter of engineering parents who was born in the U.S. and grew up in Europe. "I'm very passionate about research and graduate students, and I like to promote other people's work and develop relationships with industry."

Having logged nearly a decade at NASA Ames Research Center, Tumer is intimately familiar with managing multiple research projects and she knows how to pitch research expertise to industry investors.

"In this new role, I see myself as an ambassador, a matchmaker of sorts," she said with a smile. This includes not only connecting faculty teams with funding opportunities and matching industry needs with Oregon State expertise, but also assembling teams that can build new programs ranging from humanitarian engineering to sustainable manufacturing.

Her personal Holy Grail? A National Science Foundation-funded engineering research center at Oregon State's College of Engineering.

"The best part of this job is talking with faculty to better understand what they do and then helping put together teams to go after what's really the future of research funding: large, collaborative, interdisciplinary projects."
— Irem Tumer

TIMELINE

1991	BS, Mechanical Engineering, University of Texas at Austin
1996	MSE, Mechanical Engineering, University of Texas at Austin
1998	PhD, Mechanical Engineering, University of Texas at Austin
1998–2006	Research Scientist, Program Manager and Group Lead, Complex Systems Design and Engineering Group, Intelligent Systems Division, NASA Ames Research Center, Moffet Field, Calif.
2006–present	Associate Professor, Design/ Mechanics, Oregon State University
2006–present	Director, Complex Engineered Systems Design Laboratory, School of Mechanical, Industrial and Manufacturing Engineering, Oregon State University

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College of Engineering