



Photo by student Nathan Montgomery

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## Family Foundation Supports Department with Controls Lab Upgrade

A spirit of generosity runs in Chris Olinger's family. Now, the senior mechanical engineering major from California is making a difference for future students.

"We've had this urgent need," explained Dr. Bradley Burchett. Rapidly changing technology had outpaced the upgrades in the department's dynamics and controls lab. The equipment, which enables students to gain hands-on experience integrating controls into mechanical systems, was in need of new interface cards.

"We can't upgrade any further until we replace some of the hardware," Burchett said.

Enter student Chris Olinger. His family runs a charitable foundation, founded by his grandmother in 1995.

The Geraldine C. and Emory M. Ford Foundation was originally established to support conductors, composers and musicians seeking to establish careers. In 2004, the foundation broadened the scope of its charitable endeavors to include general support of a range of non-profits.

"Really, just out of the blue, my student Chris asked if we had any ME projects that needed funding," Burchett said. "This is a lab that has a lot of impact [on student learning]."

He estimates that the equipment serves more than 300 students each year. "Every mechanical engineer is in this lab—four times sophomore year and six times as upperclassmen," he added. The lab enables Rose-Hulman students to gain hands-on experience that other institutions don't often offer at the undergraduate level.



*Student Chris Olinger and Dr. Burchett display new hardware slated to be installed in the Moench Hall controls lab next spring.*

Olinger felt that the need was a good fit for the foundation's mission and resources. "We like focusing on projects where our money will make a significant impact."

Thanks to the generosity of the Geraldine C. and Emory M. Ford Foundation, the dynamics and controls lab will be upgraded with new PCI interface cards by early June. "Rose-Hulman gave me a merit scholarship, so this is a way I could give something back," Olinger stated.

"I'm just really excited that I could give back in a meaningful way."

## Transitions

### Olson Takes Mechanical Engineering Department Helm



The department began a fresh academic year with new department head, Dr. Lorraine Olson. She replaces Dr. David Purdy, who has returned to a teaching position with the Institute.

Olson joined the faculty of Rose-Hulman in 2002.

She earned her bachelor's, master's and doctorate at Massachusetts Institute of Technology, and was awarded the Rose-Hulman Board of Trustees Outstanding Scholar Award in 2013. Her scholarship activities have included finite element methodology applied to non-traditional areas, and some of her research involves early detection of breast cancer.

Her ubiquitous can of Tab never out of reach, Olson swung into her new role with gusto. One of her first initiatives was the creation of the newsletter, MoMEntum,

to engage with the department's alumni. She hopes that the publication will help alumni stay connected and keep them abreast of the latest ME news.

Also high on her list is enhancing professional development opportunities for faculty. "I want to make sure that I'm helping the department grow and helping the people in the department grow," she explained. To that end, Olson hopes to bring in colleagues from other colleges to share ideas.

She also plans to expand opportunities for students, by offering a more diverse selection of electives. "We're trying to get to the place where we can offer more electives and a greater variety of electives with more balance," she added.

In addition to her administrative responsibilities, Olson is teaching one course per quarter. Currently, that class is ME430 Mechatronics.

"Everybody's been very supportive. The students have been good about it, too. So, that's nice."

### Duggins Retires, Denny Joins Department



There's a new face behind the front desk in the department this year. Susie Denny has taken over the reins as the ME department secretary after the retirement of Paula Duggins this past summer.

Susie comes to Rose-Hulman from Indiana State University, where she worked in the Office of Admissions.

Paula, who was a fixture in the department for 31 years, remained in the office part-time for several weeks to train Susie. Since then, Susie said she's only had to contact her predecessor a couple of times for help.

"She's been very gracious. If I have something I've needed I can always get in touch with her," she added.

Although she worked in higher education before, Susie said that her previous job involved working much more with parents than students. At Rose-Hulman, she enjoys being in direct contact with younger people, some of whom may need a little encouragement from time to time.

"I like working with the students, I think that makes it interesting. Sometimes they need somebody that's not a professor--just asking them questions and listening," she observed.

## Transitions

### The Last Pink Shirt Thursday: Stienstra Retires



*Students gave Dr. Stienstra a fitting send-off on his last Thursday of class, donning pink in honor of his traditional Pink Shirt Thursdays.*

Longtime Rose-Hulman Professor of Mechanical Engineering, David Stienstra, retired from teaching last spring. Widely known for his Pink Shirt Thursday habit, Stienstra was surprised on his last Thursday in the classroom when faculty and students alike joined in the pastel tradition.

Since his retirement, Stienstra has spent time doing what he loves, including nurturing his inner rock hound.

"He is spending a lot of time driving around the country digging up rocks and going to rock shows," relates friend and former colleague, Dr. Olson. "He has collected some lovely geodes which he is working on cleaning and cutting with his new saw."

Rumor has it that Stienstra is also enjoying having more time to go to auctions. No word yet on whether or not his Thursday attire continues to involve pink.

### Leturgez Joins ME Department



Jerry Leturgez recently became the ME department's newest technician, replacing Ray Bland, who moved to a position in ABBE. Jerry previously worked for Numerical Concepts in Terre Haute, an equipment manufacturer for the commercial printing industry.

Once a journeyman machinist, he said, "I got involved with research and development, and after much training—mechanical, hydraulic, pneumatic, electrical—I became a field service technician for our products. I traveled all over the U.S. and abroad."

Jerry later earned a degree in computer science, and did double duty at Numerical Concepts, working in engineering and performing tasks for the information technology department.

"I think the part I enjoy the most about working here at Rose-Hulman is the opportunity to work with the students," he said. "The different personalities and brilliant minds make every day a new adventure."

In his free time, Jerry enjoys "camping, fishing, hiking, ziplining, and range shooting with the love of my life Sondra."

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## Global Experiences

### Cultural Immersion: Teaching and Learning in the Heart of Peru

Professor Thom Adams went to Peru looking for a Spanish-language immersion experience. He came away with much more. Adams recently spent five months at the Pontificia Universidad Católica del Perú (PUCP), in Lima, where he taught a course in micro electrical mechanical systems (MEMS).

“Rose-Hulman is one of the first places that taught this material to undergraduate students,” Adams said. “The university in Peru had never had [MEMS] taught. They saw an opportunity for someone who had expertise to come in and teach it.”

Likewise, Adams recognized an opportunity to gain the experience he wanted. At PUCP, he could teach in English while still having the language immersion he needed to become fluent in Spanish. Although he had previously studied Spanish, Adams prepared for his time in Peru by sitting in on a Spanish language sequence at Rose-Hulman.

“I literally sat beside my own students in these language courses,” he said.

Though he taught the MEMS course in English, Adams said, “About three or four months into it, I was called on to give a number of talks about MEMS in Spanish.”

At Pontificia Universidad Católica del Perú, which Adams said is widely considered to be the best university in Peru, “Being an American engineering professor gives you kind of a rockstar status.” Part of the awe may be attributed, he observes, to the pervasive lack of confidence that seemed to plague his Peruvian colleagues.

“It’s very interesting to be in a second world country,” Adams said. With no MEMS labs in Peru, the engineers there seemed to think themselves somehow less than their first world counterparts.

“I would actually tell people to stop with this inferiority complex you have,” Adams recalled. “They’ve got the talent and know-how to do all of the things we do.”

In his mind, the biggest difference between the Peruvian academics and their colleagues in the U.S. might also be where the South American country has a leg up.

“It seems that they don’t have this false dichotomy between research and teaching as we do in the U.S. All the professors [at PUCP] care about students deeply and they also are very actively engaged in generating new knowledge. That was very refreshing to me.”



*Representing Rose-Hulman Abroad: Faculty members Thom Adams and Gustavo Garcia (associate professor of Spanish) at the Pontificia Universidad Católica del Perú in Lima.*

Adams said that he believes that engineering educators from both nations could learn a lot from each other. He hopes to facilitate future collaborations between Rose-Hulman and PUCP to enhance global ties and professional development opportunities for all, while fostering the same kind of cross-cultural understanding he gained.

“The big epiphany for me in terms of what I learned about people and life in general is that people are the same around the world, but they are the same in different ways.”

## Global Experiences

### Fine Teaches Across Culture and Language in China

Dr. Jerry Fine is no stranger to the Chinese culture. His daughter has lived there since 2004 with her Chinese husband and their children. It was this family connection that provided him the recent opportunity to teach a course in the finite element method at Kunming University of Science and Technology.

Teaching across language—Fine continues to improve his Chinese language skills—and cultural barriers provided an academic challenge for the veteran engineering educator. Colleagues at the university welcomed him, including him in faculty meetings and lunches, and helping him become more proficient in the language.

“I was deeply appreciative of the way the Chinese professors treated me. My colleague, Professor Huang, the foreign studies director of the college, was particularly friendly and helpful,” Fine said.

Unlike their American counterparts, active participation does not come naturally to Chinese students. His Chinese students were also hesitant to approach the professor one-on-one. “Out of maybe 30 students, only two or three would come to my office,” he said, noting that those who did were “really sharp, and could speak English well.”

He attributes some of that to the emphasis that Chinese culture places on age, and the inherent hierarchical nature of the people’s mindset. However, he stresses that the Chinese students were all very hard working and capable.

“It’s a challenge as an educator to think ‘what is a basic way to communicate across a language and cultural barrier?’ I’m eager to try it again,” he added.



*Dr. Fine teaches students at Kunming University of Science and Technology in Kunming, China.*

## On Campus

### Faculty Collaborate On Tech Comm Tome

In the field, engineers must be adept at communicating and collaborating with a variety of project stakeholders. Now, mechanical engineering professors Richard Layton and Sean Moseley have teamed up with English professors Richard House and Jessica Livingston to develop a text to help engineers develop their technical communication skills.

*The Engineering Communication Manual* is scheduled for release in early 2016 by Oxford University Press. The manual contains modules organized into categories, from general communication skills to tailoring communication to different constituencies, types of audiences and genres, the writing process, and visual presentation elements.

“It started with a prior collaboration between Richard Layton and Rich House,” explained Moseley. “They had collaborated on individual assignments to raise expectations placed on students. I was invited to join them. Having recently had disappointing experiences with student writing, I was in a position to see the need.”

Many times, Moseley added, his students dismiss the importance of writing skills. “For students who are drawn to the analytical world, writing can be kind of scary. It’s a defense mechanism—you’re not good at it so it’s not important,” he said.

Recognizing that students who are successful communicators are more successful in their careers,

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## On Campus

*(Tech Comm Faculty Collaboration, cont.)*

the group sought to develop a resource specifically designed to be relevant and applicable to engineers.

“There are not a lot of tech comm books that specifically focus on engineering in a compelling way,” said Moseley. “We also wanted a resource that someone teaching a mechanical engineering course could refer to.”

The authors believe that one aspect of the manual that will help it stand out compared to other texts is the inclusion of real world examples from practicing engineers “to help reinforce the message that [the ability to communicate effectively] is a fundamental tool in your engineering arsenal.”

Moseley adds that while students may grumble about the lessons now, “Ultimately, I think it’ll make our students much more successful. It’s something they’ll really see the benefit of a few years after they graduate.”



*Faculty members Richard House, Sean Moseley, Jessica Livingston and Richard Layton are penning a manual to help foster better communication skills.*

## Program Integrates Engineering and Sustainability

Now in its fourth year, the Home for Environmentally Responsible Engineering (HERE) is a multidisciplinary program aimed at integrating sustainability into the educational experience of Rose-Hulman students. In this living-learning community, students take a set of core courses with an overarching sustainability theme, and learn to apply sustainable principles in both academic study and

lifestyle. Coursework is reinforced by residential and co-curricular experiences.

The program’s impact is evident across campus.

“The coolest accomplishments are what we get to do in the freshman design class,” explained Professor of Mechanical Engineering, Patricia Brackin. As freshmen, the HERE students are tasked with identifying areas and systems on campus that would benefit from a sustainability makeover, and then designing and implementing those improvements. The projects are made possible by a generous grant from Procter & Gamble.

Brackin points to several HERE projects that have increased sustainability and energy efficiency on campus. One group replaced outdated lighting on the quad that reduced electrical costs by 77 percent. More recently, students acquired an Indiana State University grant to design and help build a passive solar greenhouse on Rose-Hulman’s campus.

The structure will be shared by the Facilities Department and HERE; the former growing ornamental landscaping plants, and the latter growing food. “They’ve gotten a lot of in-class experience but also a lot of hands-on experience,” said Brackin. “It’s just the kind of learning you want freshmen to have.”



*HERE freshmen partnered with facilities staff to construct a passive solar greenhouse on campus.*