

MoMEntum
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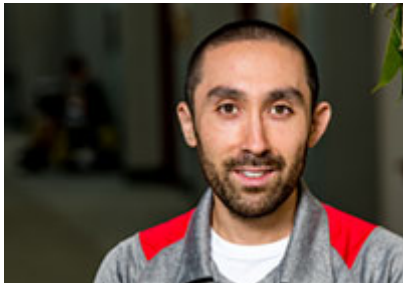
Patsy Brackin Recognized as Distinguished ASME Fellow



Veteran Rose-Hulman educator Patsy Brackin has been named a distinguished Fellow of the American Society of Mechanical Engineers (ASME), one of the mechanical engineering profession's highest honors.

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Mechanical Engineering Professor Earns National Distinction



His engineering college professors left such favorable impressions on Daniel Kawano that he decided to become an educator himself.

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Lab Improvements Make Material Difference

New equipment, extra space, and better design in an expanded Materials Lab means hands-on student projects can keep pace with the syllabus. And, the improvements are already paying dividends.

Two parallel processing lines mean two teams can work on projects at the same time. For the 200 or so students who use the lab for the required ME 328 or other courses, the doubled capacity is a noticeable difference. Floor space is almost double what it had been, and the lab now has a high-temperature furnace and ovens donated by longtime corporate partner ArcelorMittal.



“It’s not the dungeon anymore,” says professor Ashley Bernal. “Students were bumping into one another. They used to get their data and get out—now, they want to hang out there.”

Part of the lab is designed to be a flexible space, with five tables seating four to five students each and drop-down power lines for laptop computers or other equipment. The improvements, part of Rose-Hulman’s ongoing commitment to continual upgrading of facilities (see story on [STEM investment](#)), also reflect an emphasis on hands-on study under the leadership of Bernal and professor Patrick Cantwell. “Students like all the hands-on projects,” Cantwell says. “Previously, they had to use their imagination. Now, they can really experience it. Having a nice space means they’ll enjoy it more.”

Moorhead returns after a year in Iceland



Not many of us can say that a sabbatical abroad provided opportunities to hike past an active volcano, mentor a racing team, and give policymakers grounding in geothermal energy.

Michael Moorhead is back from his sabbatical as visiting professor at Reykjavik University in Iceland, sharing what he learned about geothermal energy and Iceland’s remarkable terrain. Highlights, he says, included a daylong hike past the volcano that disrupted air travel in 2010 and working with the team readying a Formula student car for its first

competition.

In addition to courses in thermal fluid mechanics and thermodynamics, like those he teaches at Rose-Hulman, Moorhead taught “Introduction to Energy Technology” in Reykjavik University’s Icelandic School of Energy. Students included lawyers and those interested in making or influencing public policy. As Moorhead notes, “They have an interest, but not the technical understanding of what they’re trying to argue for or against to make policy. Giving them some background can help.”

The greatest surprise during his year abroad? “It wasn’t as cold as expected, especially in winter.” Some Indiana winter days can hit -20°F or more—colder than the volcanic island he called home for the 2015-16 academic year. All in all, the scenery was breathtaking, the native language was daunting, and he can’t wait to return to Iceland with students.

New Faculty Passionate About Teaching

Rebecca Bercich has conducted research in the areas of biomedical devices and neuromuscular disorders. Matt Riley specializes in engineering design, computational mechanics and material design. They share a passion for teaching.

“They say you should play to your strengths,” Bercich says. “I know what my strengths are and what I’m passionate about.” Bercich left Purdue in May 2016, Ph.D. in hand, and headed straight for Rose-Hulman to teach mechatronics, measurement systems and introduction to design this year. The opportunity to work closely with undergraduates while continuing her research in biomedical engineering trumped an offer from a major research institution.



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Riley was teaching at such an institution and was drawn to Rose-Hulman for similar reasons. “It’s a very student-focused environment,” he says, “which is exactly what I’d hoped for. That’s not always the case.” Riley, a native Midwesterner (Ohio), teaches Mechanics of Materials. He looks forward to working with students to validate the research he began at the University of Idaho.

Bercich notes that, while the emphasis at Rose-Hulman is strongly on teaching, the Institute encourages ongoing personal and professional growth of its faculty. For many that involves the continuation of research efforts. This is a fertile time for biomedical engineering research, including her interest in developing quantitative models for neuropathic pain.

Don Richards' Legacy: ConApps, Sophomore Engineering Curriculum, Cluttered Office



Professor Don Richards arrived at Rose-Hulman the year of the internet's first computer worm, and the year the Hubble Space Telescope became operational. It was 1988, and Richards had been teaching at Ohio State. As he prepares to retire after the 2016-17 academic year, Richards is reflective about the timing of his move to Rose-Hulman. The institution was poised for growth and distinction, determined to earn what is now its enviable national reputation.

Richards calls going coed “probably the most positive and significant change since I’ve been here. I worked with others in those first few years to get it changed.” Much else has changed, including technology. “I brought a 10MB hard drive from Ohio State,” he recalls. “Now I have emails bigger than that.”

His legacy is embodied in the Sophomore Engineering Curriculum he helped create through a multi-institutional effort. ES201-Conservation & Accounting Principles (ConApps) is one of his favorite courses to teach because it embodies the approach to the sophomore curriculum. Richards says “Working to develop this curriculum was where I learned that the soft stuff—dealing with people and ideas—is really the hard stuff. It was a thrill to help develop and then teach it.”

Richards plans to remain active writing, traveling and enjoying his three grandchildren. “First,” he admits, “I have to figure out where to move my office. It looks like faculty offices do after many years. There’s one chair not covered with books, files and papers.”

Generalist Research Grows at Rose, Blossoms at Budapest

Mechanical Engineering professor Thom Adams used the prestigious platform of keynoting an international conference to extol the virtues of searching for trends, connections and relationships amid the sea of data that specialized research generates.

Non-engineers might talk of missing the forest for the trees—that is, focusing on details and failing to see the big picture. The remedy, according to Adams, is “The Scholarship of Generalization,” as presented in his keynote address to the Third International Conference on Heat Transfer and Fluid Flow in Budapest, Hungary, in August.



Adams says his approach counters the trend across academia toward greater specialization—allowed, in part, by advanced software and ever-increasing computational power. “The idea of generalist scholarship goes beyond making connections only between the various technical disciplines,” he says. “It extends to the arts, humanities, and social sciences as well. I for one have always considered engineering to be a sub-discipline within the humanities, in that engineering is a human activity. Engineers are humans who, thinking and behaving like humans, solve problems for humans, while interacting with other humans. Not to understand engineering in this context leads to missed opportunities for innovation at best, and invites disaster at worst.”

Rose-Hulman is the ideal academic home for Adams, who graduated in 1990 with a minor in philosophy. He loves

the emphasis on teaching—lacking at some research-focused institutions—and Rose-Hulman’s unique approach to blending the arts and humanities into the study of science, engineering and mathematics.

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