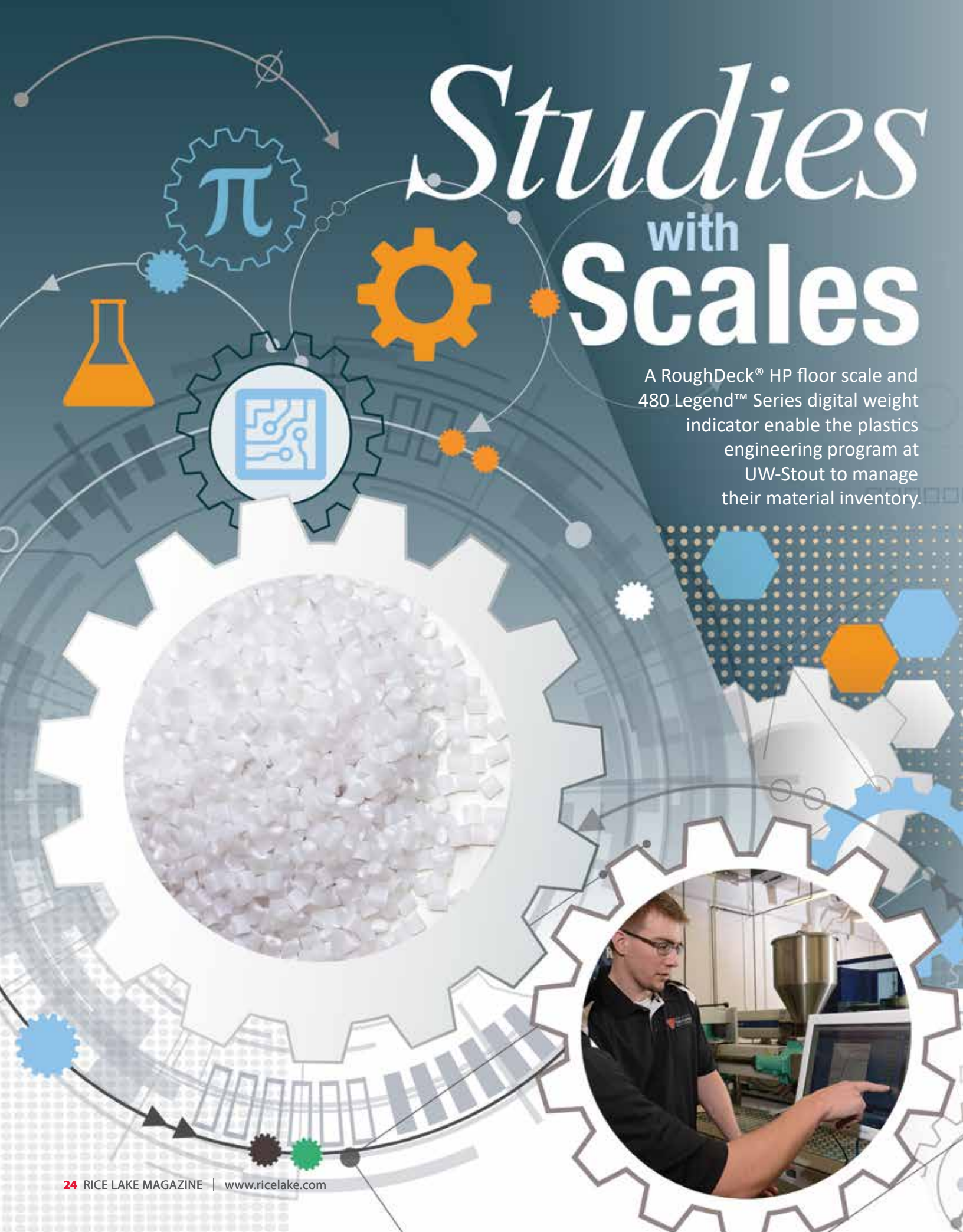
Studies with Scales

A RoughDeck® HP floor scale and 480 Legend™ Series digital weight indicator enable the plastics engineering program at UW-Stout to manage their material inventory.



Plastics engineering (PLE) students at the University of Wisconsin–Stout are required to produce a stunning senior design project in order to graduate. The PLE program utilizes sophisticated equipment; however, the inventory management system was sometimes a source of frustration for students and faculty alike. UW–Stout's PLE class of 2017 decided to overhaul the system for their senior project. At first, they weren't sure if it was possible but they decided to give it the old college try with the help of Rice Lake.

Students are drawn to the PLE program for its dynamic hybridization of computer software design, mechanical engineering and manufacturing. Considered a polytechnic university, UW–Stout turns out graduates who have specialized aptitudes molded around the job market. Upon graduation, PLE students are rewarded with top-notch job placement rates of 100 percent, with starting salaries averaging $59,000. With access to an institutional lab filled with materials and industry-leading machines used for injection molding, plastics extrusion and testing, PLE students prepare for careers in engineering, design and manufacturing of all types of plastic components.

As one of the college's most coveted programs, plastics engineering receives accolades for being one of only two PLE programs in the United States that is Accreditation Board for Engineering and Technology (ABET) accredited, a status highly sought after within science, computing and engineering sectors.

Students work with polymer resins throughout all coursework in the program's three core areas: material testing, plastics extrusion and injection molding. Across these fronts, an occasional problem lurked in the shadows, with the potential to completely halt operations: material scarcity. The program had no real data to show how much resin was used each semester. Therefore, purchasing accurate amounts of resin was more of an educated guess than a controlled plan. They needed a more refined system to ensure sufficient inventory.

> After installation, the senior design group wrote a program that could export weight data from the 480 Plus to active inventory files.

Travis Mullen, Bill Miller and Zach Schulz had an idea to improve the system. The three PLE students collaborated efforts to propose a solution that would track materials usage using a scale.

To begin the design project, the group searched the Internet for the most reliable, durable and accurate scales. They not only found matching results on Rice Lake's website, they also discovered the manufacturer was a mere 50 miles northeast of the university! Travis sent an email to Rice Lake Weighing Systems, explaining his group's project and asking how the university could acquire the needed equipment. Local dealer WIScale, LLC was recommended to visit the application and quote a solution.

John Nelson from WIScale suggested two RoughDeck® HP floor scales and a 480 Plus Legend™ Series digital weight indicator.

With the plan in place, the student design group wanted to go one step further. If they could integrate PC software to interface with the 480 Plus, data could be recorded for reporting and ordering purposes.

Once faculty approved the group's process design and budget, technical specialists from WIScale visited the PLE lab to set up the scales and indicator. They showed students and staff how the hardware and software worked and provided an operation overview. After the training, the students were so inspired it took them a mere two weeks to write a program in Microsoft® Excel® that could export weight data from the 480 Plus to active inventory files.

In Mullen's words, the 480 Plus is simple to use and will "plug and play into any laptop," resulting in a user-friendly, effective way to track resin.

Today, as materials are used in the lab, they are rolled onto the RoughDeck HP floor scales in 55-gallon storage drums or plastic storage bins and material weights are recorded using the student-authored software program. The RoughDeck floor scales are not only precise, they are also durable enough to hold up to the rigors of being moved and bumped often as other bulky equipment and materials are shifted for constant use in the lab.

Precise weights are a huge improvement over the previous process which relied on estimates. With the new data, UW–Stout's PLE program always knows how much resin they have on hand, and how much must be ordered to fulfill the needs for generations of students to come. ■