GREETINGS FROM NORTHWESTERN ENGINEERING

Design is having a moment. The process of identifying a user’s needs, prototyping and iterating ideas, observing user testing, and getting feedback has become a buzz-worthy approach across industries. One of our most prominent alumni, IBM CEO Virginia Rometty, was recently featured in a New York Times article on the company’s new strategy. “Design thinking is at the center,” she was quoted as saying.

At Northwestern Engineering, we have been teaching design thinking as an essential skill for 20 years. Design puts humans at the center of the process. What do users want? What do they need? What is the real problem behind the perceived problem?

It begins at the beginning with our first-year students: Every engineering student must enroll in Design Thinking and Communication, a two-quarter course in which they work in teams to design solutions for real clients. Many projects involve clients at the Rehabilitation Institute of Chicago. One patient, for example, needed a way for his walker-leg gliders to slide more easily. Another patient wanted a way to crochet with one hand.

These projects, and our design-thinking approach, were highlighted by The Wall Street Journal in February. The article underscored how these problems teach our students resiliency: how to observe the problem in action, brainstorm several solutions, prototype their ideas, conduct user testing, fail, reframe their approach, and try again.

I am pleased to feature our approach to design innovation in this issue of the magazine. Through the Segal Design Institute, we teach these skills across undergraduate and graduate programs, and, increasingly, across the University. Design innovation empowers leaders to develop meaningful solutions, create new value, and envision new possibilities. At the highest level, design unlocks creativity and the ability to imagine a new future.

Another skill our undergraduates are increasingly seeking is proficiency in computer science. Programming skills have become necessary in every field, and students from across Northwestern are taking computer science courses to prepare for a multitude of careers. Our Fundamentals of Computer Programming class enrolls students from nearly every school at the university and fills our biggest classroom. This is an area of increasing focus for us, and we will continue to revamp courses and broaden our offerings.

This issue also features ways our faculty are working toward energy sustainability. Sossina Haile, who we welcomed as a new materials science and engineering professor in 2015, is working to make liquid solar fuels a reality. Civil and environmental engineering professor Kimberly Gray’s vision for a living city involves an entirely redesigned system that reimagines how energy, water, and information should flow. This issue shows this is an exciting time to be an engineer. I hope you agree.

As always, I welcome your feedback.

JULIO M. OTTINO
Dean, McCormick School of Engineering and Applied Science

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