



From the Ford Shop to SparkShop

Shonali Ditz and **Tiernan Murrell** launch a nonprofit to inspire Chicago-area fourth and fifth graders with hands-on engineering learning.

Northwestern Engineering alumnae Shonali Ditz ('13) and Tiernan Murrell ('16) first met in 2013 through the Formula SAE student group where they spent much of their time in the shop at the Ford Motor Company Engineering Design Center, designing and building formula-style race cars. Both became project managers for the team, and after graduation, both found jobs in the automotive industry in Illinois.

Given their common interests, the two eventually became roommates and, in 2017, quit their jobs to found SparkShop. The Chicago-based nonprofit aims to inspire and mobilize the next generation of engineers and innovators through hands-on STEM workshops in fourth- and fifth-grade classrooms throughout the Chicago area.

Since founding SparkShop, Ditz, who earned a manufacturing and design engineering (MaDE) degree, and Murrell, who studied biomedical engineering, have visited 15 schools where they taught more than 1,300 students.

"We wanted to use our engineering degrees to do something good and make an impact in our community," Ditz says.

"We wanted to build a program that would bring engineering and all the opportunities in our field to young kids."

SparkShop offers three courses: innovation and entrepreneurship, applied engineering, and materials and manufacturing. "Research shows that fourth and fifth graders are at a developmental sweet spot to pick up new interests, develop new strengths, and form new ideas about themselves," Ditz notes.

The team also provides supplementary lesson plans for educators to continue teaching engineering concepts in their regular curriculum in four other subjects: science, social studies, arts, and language arts. Explains Ditz, "We want to really lift up the teachers we work with to keep the momentum going for their students."

The team provides three hours of hands-on engineering content in each classroom, bringing along machinery like a 3D printer and laser cutter. Their work is gaining attention. In 2018, SparkShop received a grant from the Motorola Solutions Foundation to provide free and discounted programs to six low-income classrooms in Chicago's Hermosa and Austin neighborhoods.

"We want kids to realize that even if you're a really phenomenal communicator or artist, there's also a place for you in the technical fields. Historically, that's not been shared," Murrell says.

The McCormick School of Engineering's whole-brain engineering philosophy inspired their work. Their interdisciplinary experiences—leading student groups and taking a variety of classes—prepared them for the many challenges of running a nonprofit, from grant writing to facilities management and relationship building.

"Those soft skills, which are intrinsic to Northwestern's engineering program, gave me the capabilities and confidence I needed to start a business," Murrell says.

Murrell says SparkShop shares the whole-brain engineering mindset with the fourth and fifth graders in hopes of inspiring them to pursue STEM education through after-school and summer programs, and to eventually seek engineering-related careers.

"We are carrying that philosophy forward as we teach this next generation of engineers," Murrell says.

ALEXANDRIA JACOBSON

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SHONALI DITZ
