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For some industries, transitioning to green technology may not always translate to saving green on the bottom line.

This is a challenge that students in North Carolina A&T's Sustainable Infrastructure Materials (SIM) Laboratory are facing head-on.

Led by Assistant Professor of Civil Engineering Elham "Ellie" H. Fini, Ph.D., P.E., students are on the cutting edge of groundbreaking technology in the field, which is garnering the attention of researchers and industry professionals worldwide.

"Students are getting the attention of authorities in the field and in government by showing how we can reduce the carbon footprint while reducing cost," she said. "When you say that you actually can save money and reduce cost it draws a lot of attention."

Fini joined the university in 2008 after receiving her doctorate in civil engineering from the University of Illinois at Urbana-Champaign. In addition to her role as director of the SIM lab, she is a research scholar at the Massachusetts Institute of Technology (MIT) and president of the American Society of Civil Engineers in North Carolina's Northern Branch.

The development of the SIM lab began in 2009. It became operational with the start of experiments in 2010. Currently there are nine students actively working in the lab, leading six national science projects.

"It's a very state of the art lab, and it's unique in the Southeast region and in the state of North Carolina," Fini said. "We're working with other schools in North Carolina and sharing equipment, so they can benefit from having these resources in the state."

In the lab, students are capable of such tasks as evaluating the surface energy of any liquid and determining the compatibility between different surfaces used in the construction industry. They also have the capability to synthesize and blend material using blending units, examine the technology used in making recycled rubber for sustainable construction, and simulate the loading of truck traffic on pavement or an airfield.

Major research in the lab currently involves creating an alternative to petroleum-based adhesives used for items such as carpeting, roofing and paving.

"We depend on foreign sources and we're trying to replace that with local sources and an alternative made from biomass," Fini said. "If you consider how much oil we are importing these days, right now, the consumption of liquid asphalt is 147 million barrels a year. So, with that, we have to import a lot of foreign petroleum to cover those needs."

In addition, increased fuel prices have led to a number of refineries ending liquid asphalt production, resulting in a shortage of liquid asphalt when demand increases and a rapid increase in price since 2004, Fini said.

Creating an alternative resource to decrease dependence on foreign sources and increase the need for local sources would be a big boon overall, Fini said.

The lab's sought-after research gets a lot of attention from institutions and companies interested in the technologies, both domestically and abroad.

Amid research collaborations with French institutions and industry partners, students have the opportunity to meet professionals, experience production settings and be involved in similar research.

"They have the opportunity to help with a global understanding of the technology and to learn about not only culture, but research and about sustainability in other countries," Fini said.

Here in the U.S., students work with several companies interested in the technology by doing development and helping with technology transitions.

"This technology is the first of its kind," Fini said. "Students can see the challenge and see how they can contribute to the industry while making room for new research and development."

POINTS OF PRIDE



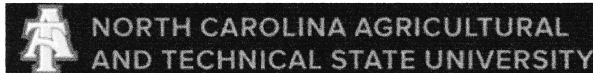
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