



Mark Fontenot, Clinical Professor, Computer Science and Engineering, thrives in the living laboratory of Lyle to pursue his research in engineering education and how it applies to undergraduate engineering and computer science students' leadership development.

Chances are you have met Dr. Mark Fontenot if you've been a first-year engineering student at Lyle in the past 13 years. Serving as one of the first Faculty-in-Residence (FiR) members with the engineering Living and Learning community, he was also a founding FiR for the new Residential Commons opened in fall 2014, giving him plenty of opportunities to interact with and mentor students, both in and out of the classroom.

Fontenot teaches classes on software development, software engineering and database systems. He serves as a CSE undergraduate academic advisor and as a member of the Undergraduate Curriculum Committee. Over the past four summers, Fontenot has taken a group of CSE students to a small town outside of Leipzig, Germany, where he teaches an Introduction to Computer Science course as part of the Study Abroad program, offering students the chance to experience other parts of the world.

"The ability to get to know students really well has been one of the most enjoyable aspects of my time at SMU. My classes aren't so large that it's just a room of anonymous faces," Fontenot says. "Not to sound cliché, but the campus is beautiful too. That is nice when one needs to take a walk and clear his/her mind."

As an SMU grad student and a TA in Computer Science, Fontenot discovered a love for teaching. He feels he was in the right place at the right time when a new faculty position was created in 2005.

From the very beginning, his passion has been to educate the whole engineering student, teaching them not only the technical proficiencies, but also life skills and confidence to solve problems in the real world.

"Some examples of the types of questions that excite me are first, how can we foster innovative and creative problem-solving skills and behaviors in undergraduates they can use in industry? Second, how can we educate the next generation of computer science and engineering professionals to have the fundamental knowledge and skills to tackle the hardest problems—cybersecurity, internet of things, big data/data science/analytics?" Fontenot asks. "And third, how do we teach students to be independent learners and encourage them to teach themselves what they need to know in the face of an ambiguously defined problem?"

Putting his research into action, Fontenot helped create and was the first director of the Intro to Engineering Design course, informally known as KNW 2300, "Ways of Knowing," which satisfies University curriculum requirements. During this multidisciplinary design experience, first-year students participate in teams, where each student provides basic engineering capabilities in mechanical, software, electrical, civil and environmental systems. Each team designs a robot which should be able to achieve stated design objectives while operating autonomously, with as little human interaction as possible.

Fontenot says the course is about helping students learn how to work well with others in a more intentional way than what they've experienced in high school. "It's impossible for one student to do the robotics project alone while others sit back," he says. "There are scheduled deliverables, and students learn the hard way that humans don't always do exactly what they need to do when they need to do it, and because of the nature of robotics, the robot doesn't either." He believes students have the opportunity to reflect in a guided manner on how they, the humans on the team, have either positively or negatively affected the outcome, fostering a team-centered approach to solving a problem.

In 2017, Fontenot earned his Ph.D. in Applied Science with a dissertation based on engineering education and what behaviors are associated with innovativeness. The crux of his research was born out of the question, "If we have the Deason Innovation Gym and expose students to all the tools, materials and maker spaces, will it actually make them more innovative?" The answer is yes, if students are encouraged to develop the traits of innovative work behavior, which Fontenot says consists of three components: having creative ideas, the ability to communicate up the ladder to get buy-in from others, and the ability to take an idea from inception to prototype.

Fontenot is a strong educator and has received many accolades for his inventive teaching techniques. He earned the Frederick Terman Award in Computer Science in 2005 and the HOPE Professor of the Year Award in 2008, nominated by students and staff members as a professor who "has made a significant

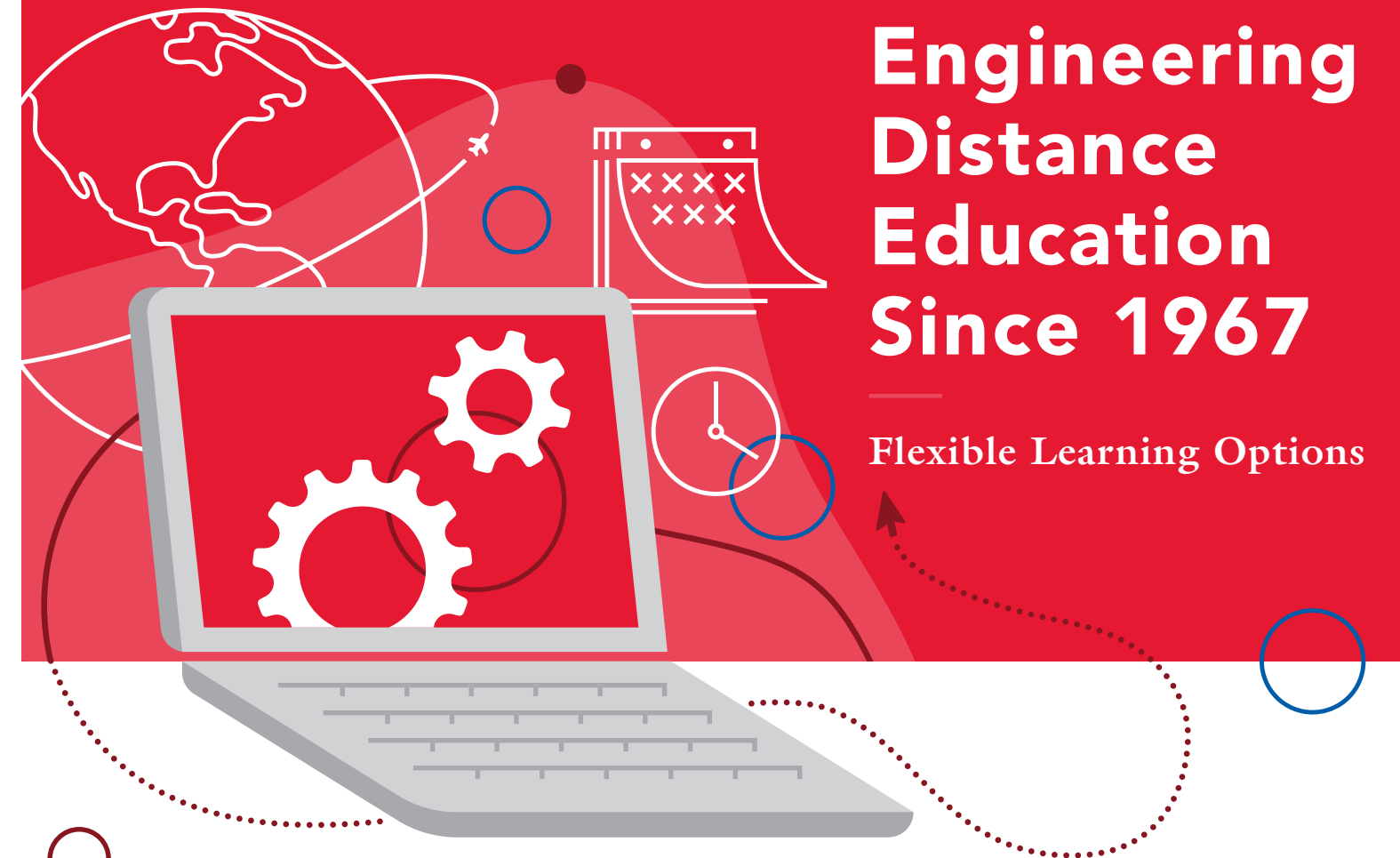
impact to our academic education both inside and outside of the classroom." Fontenot was honored with the Rotunda Professor of the Year Award in 2012; was the inaugural recipient of the Provost's Teaching Recognition Award in 2013, and earned the SMU "M" Award in 2015. In addition, he has been awarded the Outstanding Faculty Member-Department of Computer Science and Engineering award nine times.

Fontenot's connection with students resonates the most with him and those that know him. He likes to show students that faculty members are human, too. He remembers a transformational moment during breakfast with one of his resident assistants when he was a FiR. "Somehow the conversation came around to the idea that I have dreams and fears and aspirations and hopes," Fontenot recalls. He likes to open students' eyes to his personal side by sharing a hobby he's had since age 13: playing the piano. Since coming to Dallas 17 years ago, Fontenot has had a side job as a church organist at Saint Mark the Evangelist Catholic Church in Plano. It shocks students that he isn't only living and breathing computer science.

"I think it's essential for students, as they move through college and into the professional world, to see that people are not one-dimensional. I'm not just the person that stands up in front of a class and talks about data structures or algorithms; on the weekends I go to church and play the organ. It helps bring me out of what I do every day, to a different atmosphere and group of people." In Fontenot's opinion, this is an important life goal for every well-rounded engineer. ■

"I think it's essential for students, as they move through college and into the professional world, to see that people are not one-dimensional."

MARK FONTENOT



Engineering Distance Education Since 1967

Flexible Learning Options

Gain marketable skills, increase your earning potential, or grow as a professional in the SMU Lyle School of Engineering's Distance Education Program. Access a flexible, on-demand education that fits into your schedule — all delivered by a premier institution known for its long-standing success in online learning.

We bring expert teaching and the Lyle experience to graduate students, when and how they want it. In addition to 24/7 Canvas portal access, you can view lecture videos within 24 hours of the in-classroom session. Receive graded homework online, by email, or via regular mail. If desired, exams can be taken in person at pre-arranged locations.

Life doesn't stop because your career goals change. For more than 50 years, we've positioned graduates for success through diverse programming. You'll benefit from an immersive online experience that allows you to "be in the classroom," and our

supportive faculty and staff will guide you each step of the way. Plus, we have a long history of educating military personnel, veterans and federal government employees, offering exclusive savings on tuition to allow your G.I. Bill benefits to go farther.

We take pride in our distance education program, and in our reputation as a leading research institution. Our courses are taught live in tele-studio classrooms by expert faculty who have vibrant careers in academia and industry. Professors are easily accessible via email, phone or video conferencing to answer questions about academics and career opportunities.

To request more information, contact:

P.O. BOX 750335, DALLAS, TEXAS 75275 | ENGINEERINGLEADERS@SMU.EDU | 214-768-2002 | 800-601-4040