

Engineering @McLennan

Volume 3

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What's Happening

McLennan Engineering had another fantastic year. Although our student body grew by 20%, classes stayed small, with an average of just 18 students per class. This special attention paid off – our students continue to successfully transfer across the state of Texas and even to schools outside the state. Transfer students are finding challenging jobs and ultimately graduating from places such as Texas A&M, Texas Tech, Tarleton State University, the University of Texas at Arlington, and the University of Texas at Dallas.

We are proud of the partnership with our Engineering Advisory Council, whose members include prominent engineering employers in Central Texas. Working closely with our industry partners helps us ensure that we are giving our students the skills they'll need to be successful in the workplace. We especially would like to thank the City of Waco, Sonoco, L-3 Platform Integration, and the Perry Company for hiring McLennan engineering students and supporting their education.

We are now offering a set of linked courses where students can take Intro to Engineering and the Learning Frameworks course together. It promises to be a great opportunity to apply newly learned skills in student success immediately to the engineering coursework. Our partner in the education department, Dr. Michelle Powell, is excited about the collaboration, and we are excited to make her part of our engineering family.

This year, students performed a record number of volunteer hours, and even hosted their own booth at the Waco Comicon. We had students go to the Mars Desert Research Station again this year – they were even featured on Australian TV. We had a group of students that went on the Geology Field Course to learn the basics of Plane Surveying. Also, for the first time ever, McLennan Engineering went international. It has been a most exciting year!



Engineering Abroad

This year, McLennan engineering students traveled to Australia and New Zealand to study the international aspects of Engineering Economics.

Prof. Sidwell and ten engineering students worked on case studies pertaining to the Sydney Opera House, the use of geothermal energy in New Zealand, the ANZ Stadium (formerly Sydney Olympic Stadium), and explored how these two countries' economic decisions compare to those of the United States.

The students recorded short educational videos about amazing places such as Hobbiton, the Sydney Harbor, Featherdale Wildlife Park, and the Wai-o-Tapu Thermal Park. Additionally, students explored Sydney and Rotorua by geocaching in some of the most beautiful places on Earth. "As a student in college, I think it is easy to forget why we are here because we get caught up in studies and class projects," said Honors College and Engineering student Miles Milliorn. "My research on this trip enabled me to see what I have been working toward for the past couple of semesters as an engineering student. To see all the things I've learned put into real world practice was a great experience and it has been a big motivation for me as I continue my education."

This great study-tour will be available to students once again in the 2016 spring semester.



McLennan Engineering Experiences Geology in the Southwest

Every summer between spring finals and the first summer session, about 28 McLennan students and faculty travel to New Mexico, Arizona, and Utah through some of the most beautiful country in the world to learn about geology and earth science first-hand. Lectures on erosion take on a whole new level of meaning when given on the edge of the Grand Canyon! This year, four of our students joined the Geology Field Course to learn geological field methods and practice their skills on actual dinosaur digs. Using various precision instruments such as levels, theodolites, and total stations for collecting field data, they mapped out locations of important finds and provided their data to the lead researchers in the field. A very unique experience!

Research Presented at Mars Society Convention in Washington, D.C.

Four engineering students who conducted research at the Mars Desert Research Station (MDRS) presented their results at the 19th Annual International Mars Society Convention in Washington, D.C. Their research was part of the Mars 101 program, where students travel to the Southern Utah desert to live as future Mars colonists may one day exist, rationing water, eating shelf-stable food, wearing space suits to go outside, and living in a tiny habitat with other researchers. Each student developed his or her own research project and tested it out in the Mars habitat. Electrical Engineering student Arwhil St. Thomas encourages other students to apply for the program as it kicks off recruiting for the 2015-2016 field season.

"I am so glad that I participated in the Mars 101 program. I had never participated in any research program or any school related programs at this level. As a young kid, I was fascinated with things related to spacecraft and space. That admiration still continues today, which is why I want to study in engineering. At first, I felt like I didn't have enough credibility and expertise to bring to the table, but there are many professors who willingly open a time in



their busy schedules to partner with any students that are interested in joining the Mars 101 program. Because of them, I had a chance to take advantage of this very rare opportunity.

I have learned an enormous amount of material related in my major in such a short time and gained valuable experiences. I feel like my college life has lit a very bright spark. I want to continue on that trend and to be always mindful not to let opportunities go to waste. Go Mars!!!"

Where Are They Now?

Mark Berry (CE, UT Arlington, 2015) is beginning a Master of Engineering in Civil Engineering in Water Resources, Hydraulics and continues to work at TxDOT.

John Gibson (CE, Texas A&M, 2015) works for Jones & Carter in Austin as a design engineer.

Ryan Mezynski (ME, Texas A&M, 2015) works for a defense company as a design and production engineer.

Jesus Contreras (CE, Texas A&M, 2013) works as a Project Engineer at the Brazos River Authority in Waco.

Cody James (ME, UT Arlington, 2013) reports that business is good as a part-time dragon slayer, although he still puts in the necessary hours in his day-job as an applications engineer for Olympus Controls in Lake Dallas, TX.

Chris Button (ME, Texas Tech, 2014) passed the FE exam, and works for Halliburton in Hobbs, New Mexico as a field engineer position in Cased Hole Wireline.

Adam Steiner (EE, UT Dallas, 2015) landed an awesome job doing systems design work.

Tyler McAllister (ME, Texas Tech) has been interning with Lauren Engineers in Abilene, TX in the Project Management department.

Matthew Skopik is working at TxDOT and making progress toward his degree.

Keith Geisler (ME, Texas Tech) spent this summer interning at Cummins.

Victor Trujillo (EE, Texas A&M) spent another summer at NIST, an REU position that he first got as an McLennan student.

Josh MacFie (EE, Texas Tech) is enjoying his development classes involving FPGAs, which he first started using at McLennan.

Kensey Schretlen (ME, Texas Tech) is active in the Society of Women Engineers (SWE) chapter, volunteering and doing engineering outreach.

James Grisham (AE, UT Arlington) continues to make progress toward his Ph.D. His dissertation research involves using computational fluid dynamics and signal processing to shed new light on the physics of shock wave boundary layer interactions. Very cool.

Michael Vorderkunz (ME, Texas A&M-Kingsville) is conducting undergraduate research over a new concept for gas turbines and turbo pumps for rocket engines, using Ansys and SolidWorks for design and simulation.

Zak Fyke (CS, Texas Tech) and is looking into graduate school that he may become a university professor so that he can “destroy the happiness of students while also doing research in the Robotics field at the same time.” We are happy he has found his calling.

James Veselka (BAEN, Texas A&M) recently completed a five and half week study abroad in Belgium, which included the study of waste water treatment plants, drinking water production facilities, and management structures.

Brian Dempsey (EE, Texas A&M) serves on a team of researchers doing work in Polymeric Cantilevers for Personalized Medicine, which has received international attention for motion detection algorithms as well as pathogen concentration detection software.

Yuri Unterreiner (CompE, UT San Antonio) loves being in her senior year since now she gets to take technical electives, build more cool stuff, and “play around with fancy equipment.”

Susan Fry (ME, Texas A&M)

Josh Young (EE, Baylor)

Colin Mocek (AE, Texas A&M)

Andy Powell (EE, Tarleton State)

John Balch (CE, Lubbock Christian University)

Jessica Unger (ME, Texas Tech)

Drew Rankin (EE, Tarleton)

Bao Pham (IE, UT Arlington)

Kyle Flaherty (EE, Texas A&M)

Key

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| AE | Aerospace Engineering |
| BAEN | Biological and Agricultural Engineering |
| CE | Civil Engineering |
| CompE | Computer Engineering |
| CS | Computer Science |
| EE | Electrical Engineering |
| IE | Industrial Engineering |
| ME | Mechanical Engineering |

Our engineering students participated in a number of volunteering events, such as the 2015 Girl Genius STEMfest, hosted by the Girl Scouts of Central Texas.

The purpose of this event was to promote STEM education by doing hands-on workshops in engineering, physics, chemistry, etc. Our engineering students put together an electronic circuit-themed activity, in which the girls had to complete a circuit in order to make different sounds with speakers, buzzers, switches, and phototransistors. Everyone had a blast.

We also continued to support Heart of Texas BEST Robotics. H.O.T. BEST Robotics' purpose is “to inspire and motivate students towards STEM careers through a sport like robotics competition”. Test Drive Day was held in the Science Building, where McLennan engineering students provided help with set-up, support, and troubleshooting.

Volunteer and Outreach



Astronaut Speaks About Achieving Dreams

In October, McLennan was proud to host a special lecture by Jose M. Hernandez. After growing up as a migrant farm worker, Hernandez completed a B.S. and M.S. in Electrical Engineering and eventually became an astronaut at NASA, working as a mission specialist on the STS-128 mission. Engineering students hosted a special event and were able to speak with Hernandez in an inspiring discussion of how to turn every challenge into an advantage to ultimately achieve your dreams.



Don't Miss Out: Scholarship Opportunities

McLennan Engineering continues to offer merit-based scholarships for students planning on completing their engineering degree at McLennan. If you have a 3.0 GPA or higher in high school math and science courses and can complete the program within two years, you may be eligible for up to \$2500 per year to pursue your studies at McLennan! For more information, email engr@mclennan.edu.

Student Spotlight



This year, McLennan placed several students in Research Experiences for Undergraduates (REU) at research centers like the National Institute for Standards and Technology (NIST) and Texas A&M. Several students also landed some very interesting internships around the country.

Mechanical Engineering student and Mars 101 researcher Dave Moran was selected for the NASA Marshall Space Flight Center's (MSFC) Pathways Co-op program in Huntsville, Alabama. Dave reports that the experience was phenomenal: "I conducted friction and wear analysis of metals, and then transitioned to additively manufactured parts (3-D printed). The testing I did on the 3-D printed parts will be used to compare with parts that are aboard the International Space Station. The purpose of this testing is to see what effects zero gravity has on the materials used to 3-D print in space, as well as determine what materials are best suitable for printing repair parts for extended space travel missions (Mars)."

This will be the first of about three intern-style rotations, so there will be many more fascinating experiences to come!