

# Engineering @McLennan

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Fall 2024

## What's Happening



The 2023-24 academic year was another successful year for McLennan Community College's Engineering program! The engineering department has experienced significant growth, and our students found new opportunities to learn both inside and outside the classroom. Our students competed for the third year in a row in the NASA MINDS competition, they hosted the Extra Life Fundraiser,

and over the summer a group of students began a research collaboration with NASA through NITARP. The engineering department also celebrated the solar eclipse in Waco in April by hosting a booth at the STEAMclipse event in downtown Waco. Representatives from Walker Partners brought equipment and demonstrated surveying techniques in the field for Professor Sidwell's surveying course.

This year, Tarleton State University signed a dual admission agreement with MCC to offer mechanical and civil engineering degrees to students in Waco. The first cohort of students have begun their coursework while being dually enrolled at both Tarleton State University and McLennan Community College this fall. We are excited that this partnership with Tarleton will bring new opportunities for civil and mechanical engineering students who wish to live in Waco while completing their bachelor's degrees.



Another successful Engineering Career Mixer was held in March, with students having the opportunity to meet with representatives from companies in and around the Waco area. The Industry Spotlight series also continued this year, with Abbvie, Walker Partners, and MCC's very own alum Jonathan Beechner from Microsoft coming to talk to our students. In the fall, Dr. Andreas, Professor Sidwell, and Professor Wright were invited to tour the Abbvie facility while learning about their manufacturing process and the types of careers available to our students.

Engineering Homework Nights continued this year, and were well attended. Tutors were available to help our students with their engineering and math homework. The Supplemental Instructor (SI) program continued, and the Introduction to Engineering, Graphics, Statics, Programming, Dynamics, and Mechanics of Materials courses had former or current MCC students employed to help provide extra help to the students in these courses. With the engineering program continuing to grow, we are excited to be able to continue providing these crucial resources to our students to aid them in their success!

## Engineering Arrives at the University Center

We are thrilled to announce that Civil and Mechanical Engineering students at MCC can now complete their degrees without leaving Waco! Through an exciting new partnership with the Mayfield College of Engineering at Tarleton State University, students can complete the final two years of their degrees locally. By combining in-person classes with synchronous Zoom sessions, students will build on MCC's fully transferable coursework, including the newly offered thermodynamics class, saving money and simplifying the transfer process.

This unique partnership allows students to be dually enrolled at both Tarleton and MCC, streamlining financial aid and enabling students to start upper-level engineering courses while finishing their general education at MCC for a lower cost.

We are excited to welcome our first cohort of students to this program starting in Fall 2024!



## Walker Partners Collaboration

Over the years, we have had the privilege of collaborating with many of McLennan County's employers through our Engineering Advisory Council. One standout partner this year has been Walker Partners. Jared Biermann, Claire Muska, and Megan Gilmore went above and beyond in their support, beginning with an excellent lecture for our students as part of the Industry Spotlight Series. They provided insights into Walker Partners' operations, which was both engaging and informative.

In addition, they played a key role in enriching our plane surveying class by offering a hands-on demonstration of current surveying techniques using the latest technology. Our students were thrilled to interact with their surveying team, ask questions, and learn about the impressive projects Walker Partners has been involved in—MCC's own baseball and softball fields among them!

We are incredibly grateful for their ongoing support and commitment to our program.



## Exploring Young Stars

For over a decade, NITARP (NASA/IPAC Teacher Archive Research Program) has partnered small groups of educators and their students with research astronomers at Caltech in Pasadena for year-long, original research projects. In 2024, MCC was selected to participate in this highly competitive program.

The team kicked off their research with a week-long visit to the Jet Propulsion Laboratory (JPL) on the Caltech campus, where they began investigating Young Stellar Objects (YSOs) using archival data from the NASA/IPAC Infrared Science Archive (IRSA). Their objective is to evaluate and refine AI and machine learning algorithms currently being used to drive astronomical research.

This project is funded by the NASA Astrophysics Data Program, and the four MCC students—

Mickaya Tosch (CE), Kivan Andreas (EE), Peter Newcomer (EE), and Andres Mar (ME) —began their research in the spring, continued through the summer, and are carrying it forward into the fall semester. The team will present their findings at the American Astronomical Society Convention in Washington, D.C., in January 2025.



## Dr. Andreas Recognized for Mentoring Achievements

In Spring 2024, Dr. April Andreas was nominated for the prestigious Presidential Awards for Excellence in Science, Mathematics, and Engineering Mentoring (PAESMEM). These national awards honor individuals and organizations that have made significant contributions to mentoring and, in doing so, helped shape the future of the U.S. STEM workforce. The PAESMEM program recognizes those who have mentored and supported individuals, particularly those from underrepresented groups, in gaining access to opportunities in STEM fields.

The National Science Foundation (NSF) administers the awards on behalf of the White House Office of Science and Technology Policy (OSTP), which selects both individual and organizational honorees. Each recipient receives a certificate signed by the President of the United States and a monetary award from NSF, and honorees are celebrated at an awards ceremony in Washington, D.C.

In March, Dr. Andreas was notified that she had been selected as a PAESMEM finalist and will advance to the next stage of the selection process. This process may take a few years as background checks are completed and final decisions are made by the OSTP. Further updates will be shared as available!



## Where Are They Now?

**Andrew Acosta** (ME, UT Arlington, 2022) is working at Lockheed Martin Aeronautics in Fort Worth as an Aeronautical Engineer focusing on CFD and propulsion. He and his wife welcomed their first son Luke in June.

**Jamie Andriot** (ME, UT Dallas, 2020; MS Sys Engr, SMU) is at Aeronautical Engineering, focusing on Flutter and Dynamics of the F16 and F22 at Lockheed. He and his wife Breanna welcomed their son Conrad into the world in June.

**David Cao** (ME, UT Arlington) is a fresh MCC engineering grad and will begin looking for internships/opportunities in the near future.

**Brian Dempsey** (EE, Texas A&M, 2016) is still doing TI design and technical articles, although is mostly kept busy by having a child in high school, middle school, and elementary school!

**Dylan Drapela** (ME, Texas Tech, 2018) is in his fourth year at Brazos Electric Power Cooperative as a Transmission Line Design Engineer in Waco. This past October he got married to his beautiful wife, Amanda, and is studying to take the PE exam this fall.

**Elijah Espinoza** (ME, Texas Tech, 2020) is a structural analyst at L3Harris and loving the technicalities of the job. He got married in May and can confidently say he did not miss his calling to be a wedding planner!

**Kyle Flaherty** (EE, Texas A&M, 2018) is working for United Launch Alliance, as a design RF engineer on a few of their development efforts and has been taking graduate courses at CU Boulder in Electromagnetics and Antennas.

**Mat Groh** (ME, U of Alabama, 2024) passed the 5-year mark working GoEngineer as a sales engineer. Now that he has graduated, his two-year-old daughter Charlotte is where 100% of his time and attention goes!

**Jaxom Hartman** (EE, Texas Tech, 2019; MS in EE, ASU, 2024) and his wife Jorie just welcomed their second baby in July and is hoping to learn soon if his first real RF box-level design works outside of simulations.

**Reagan Hughes** (ME, Baylor, 2020) is living in Idaho, skiing, mountain biking, camping, dirt biking almost every weekend. (Sounds super-duper rough, and we hope he can pull through this difficult time!)

**Cody James** (ME, UT Arlington, 2014) has spent much of his career in technical sales, which is a combination of engineering and business practice and is currently a Channel Sales Executive at Geek+ (warehouse robotics and automation). He and his wife just moved into a new house in The Colony, and enjoy taking their wiener dog Rocky on road trips in the camper van.

**Josh MacFie** (EE, Texas Tech, 2017) has been trying his hand at land lording and is looking to get back into design engineering and a bit further away from administration!

**David Moran** (ME, Arizona State, 2019; MS in ME, UT Austin) is the Responsible Engineer/Console Operator at the Launch Pad (LC-36) for one of the cryogenic propellants at Blue Origin and is looking forward to launching New Glenn in the future!

**Blaine Myers** (ME, Texas Tech) and his wife Jaclyn welcomed a daughter in June 2024, with plans to move back to the Waco area after graduating in December.

**Taylor Neilson** (Mech & Energy E, U of North Texas, 2024) worked in college as a Manufacturing Engineering Specialist at Safran Electric and Power, and recently accepted a new job at Southwest Airlines as an Associate Engineer for the 787-MAX8 aircrafts.

**Milan Patel** (ME, U of North Texas, 2024) works for E-Muscle Cars as a Project Engineer, turning classic cars into electric vehicles. He is involved in almost everything from making basic motor mounts to designing high-voltage electrical systems.

**Bao Pham** (IE, UT Arlington 2016) is desperately avoiding statics as the new President of the Society of Creative Anachronisms, a global 501(c)(3) non-profit organization focused on providing education and recreating pre-1600 life. He spends his free time with family in the quiet suburbs of Dallas.

**Garrett Rust** (IE, Texas Tech, 2021; MS in IE, Texas Tech, 2023) is at Los Alamos National Laboratory and develops discrete-event simulation models. He recently presented a paper at the 2024 IISE Conference in Montreal, Canada. He also welcomed a new cat named Bear.

**Noah Schatz** (ME, Texas Tech) just completed three AS degrees in Electrical, Industrial, and Mechanical Engineering, as well as an AS in Mathematics. We are thrilled to wish him well on his new academic adventures!

**Arwhil St. Thomas** (Math, Texas Tech, 2021) is a Mortgage Content Specialist for Optimal Blue working directly with mortgage investors and lenders on a daily basis through underwriting and pricing implementations. These investors love spreadsheets, but who doesn't right? He and his MCC sweetheart welcomed their daughter Aurora in 2022.

**Charles Stewart** (ME, Baylor, 2023) is working at Solar Turbines as a Gas Turbine Product Engineer and is the owner of Prominence Plumbing LLC in Waco.

**Brandon Trout** (ME, Texas Tech, 2020) and his wife have officially settled in sunny Southern California, with Brandon working at POWER Engineers. He recently passed the PE exam in Machine Design on the first try!

**James Veselka** (Biological & Agricultural E, Texas A&M, 2016) is at TRC companies working in civil engineering and enjoying every day of work, improving his management skills and getting to do a little project management and assign tasks to coworkers.

**Michael Vorderkunz** (ME, Texas A&M Kingsville, 2016) is still at the Corpus Christi Army Depot as a mechanical engineer for the facilities engineer division.

**Jon Zuniga** (EE, Tarleton) and his new wife recently welcomed a golden doodle puppy, Mila.

ME – Mechanical

EE – Electrical

IE – Industrial

## Engineering Faculty Participate in the AMPLIFY Institute

This year, Dr. Andreas and Professor Sidwell were selected to participate in the AMPLIFY Institute, designed to support engineering instructional faculty at Hispanic-serving institutions. The AMPLIFY Institute is part of an exciting NSF-funded research project bringing together a dynamic team of engineering education researchers, instructional designers, and faculty from The University of Texas at El Paso, Florida International University, and the University of Miami. Dr. Andreas and Professor Sidwell kicked off their journey with a 2-day workshop at UT El Paso, followed by 6-8 group coaching sessions—totaling over 25 hours of hands-on professional

development! Throughout the program, they embraced innovative, culturally responsive, and evidence-based teaching strategies, driving measurable change at their institution. As a result of their participation, they wrote a proposal to design an engineering workshop in the Science Building, which is now underway! Want to know more about the AMPLIFY Institute and its impact?

Check it out here:

<https://www.utep.edu/engineering/amplify/institute/>

## Alumni Spotlight – Megan Krupa

Megan Krupa was born and raised in Waco, Texas, and graduated from China Spring High School in 2017. At MCC, she explored various degree options before discovering her passion for civil engineering, drawn to its impact on local and global communities.

A highlight of her time at MCC was a two-and-a-half-week trip to Italy with the Engineering program, where she studied remarkable engineering feats and received her diplomas in St. Mark's Square in Venice. Megan graduated from MCC with an Associate of Science in both General Academics and Civil Engineering.

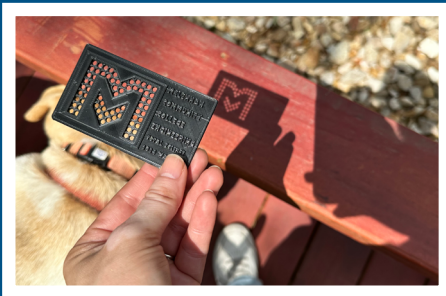
She is now pursuing a degree in Civil Engineering at Tarleton University in Stephenville, Texas, at the newly constructed Mayfield College of Engineering, set to graduate in Fall 2025.

In addition to her studies, Megan is an engineering intern at TXDOT in Stephenville, gaining hands-on experience by working on projects like designing turn lanes and right-of-way expansions, learning how crucial details shape our daily lives.

Reflecting on her time at MCC, Megan says, "MCC has been such a crucial part of my life and education in so many ways. It has given me so many amazing opportunities that I wouldn't have had otherwise and my amazing professors have been there every step of the way to guide me."



## STEAMclipse Event



In April, the Waco area was fortunate to be in the path of totality of a solar eclipse! The entire town was preparing to welcome tourists from all over, not least of all the MCC Engineering Department! MCC Engineering hosted a booth at the City of Waco's STEAMclipse event downtown in the Convention Center. 3D printers were set up to print pinhole viewers, and an activity explaining astronomical phenomena that was accessible to the visually impaired was set up. The engineering faculty, along with students Deion Rasberry, James Light, Mitchel Brown, Lloyd Alcorn, Moises Marquez, and Simon Guerrero met visitors from all over the world, handed out 3D printed pinhole viewers for safely watching the eclipse, and nerded out about this exciting solar event happening in our home town!

## Students Accept NASA MINDS Challenge



Under the guidance of Chemistry professor Larry Benton, two engineering students, Selma Cornejo Ibarra (ME) and Sean Stewart (ME & EE) accepted the challenge put forward by NASA MINDS (MUREP Innovative New Designs for Space), which aims to engage underrepresented students in higher education by challenging them to develop innovative engineering solutions that address NASA's mission needs, fostering diversity and preparing the next generation of the space workforce. Their team researched the nutrition and viability of cultivating crops in lunar soil for the upcoming Artemis Mission. Their successful cultivation of microgreens in a lunar soil simulant substrate blend provides insight into its potential as a food source while investigating the possibility of minimizing resource usage.

## Annual Engineering Career Mixer

Networking experiences are incredibly valuable for engineering students. They not only provide a chance to explore job opportunities, but also to gain insights into what different companies and industries are looking for in future engineers. Building these connections early can be key to securing internships, mentorships, and job offers after graduation. It's a win-win for students as they get to develop their professional network while learning more about the exciting career options available to them.

This past March, we once again held our annual Engineering Career Mixer. This event gave our students a fantastic opportunity to network with representatives from local engineering firms and discuss potential career paths. With over 40 people in attendance, the mixer was a huge success! Industry attendees included Capstone Mechanical, Howmet Engineering, L-3Harris, City of Waco Public Works, STV, Walker Partners, Abbvie, and Terracon.