



COLLEGE OF ENGINEERING LAMAR UNIVERSITY



Engi-NEWS

GREETINGS FROM THE DEAN



As Dean of the Lamar University College of Engineering (LUCOE), one of my greatest points of pride is the education value we provide to our engineering and technology students and the quality of our graduates entering the workforce career ready. We remain #1 in the State of Texas for our engineering education's return on investment, our graduates are among the leaders in earnings after one year and four years post-graduation, and graduate with among the lowest loan as percentage of year one salaries in the State. As fresh engineering talent continues to be more challenging for industry to find the LUCOE will continue to graduate more talented, career ready engineers.

As we celebrate Lamar University's Centennial this year, we look back at the previous 100 years as the foundation to launch into the next 100 years. The LUCOE was created 72 years ago, in 1951, under Dean Frank Tiller.

On September 1st, 2023, the new Energy and Petrochemical Institute (EPI) in the LUCOE was launched. The EPI is a State of Texas Legislative Appropriation that will provide unprecedented support for the academic and career success opportunities for our students. We are also in the early phases of renovation the former bookstore on Rolfe Christopher to serve as the LUCOE's new Center for Engineering Academic and Career Success (CEACS). The CEACS was made possible by an extremely generous gift and will be formally announced soon.

The LUCOE enrollment increased 5% this fall vs. fall 2022, primarily from our explosive growth of our graduate programs. Many of LUCOE's 25 student organizations continue to thrive and are active on campus and in our community. Several of our faculty recently completed a weeklong externship with Motiva, seeing up close the control processes, the variety of refinery process, cooling towers, and water treatment, etc., we held our largest and best LUCOE career fair this fall, with 81 companies and hundreds of engineering students, and the LUCOE alumni, faculty, staff, and students won the Lamar

University Red Day giving challenge. As we wrap up 2023 and move into 2024, I encourage our students, alumni, faculty, and staff to keep in touch with the LUCOE. As we continue to modernize our curriculum and laboratories, look for some additional exciting changes as we begin a significant renovation of the Cherry Engineering Building. We are active on the most popular social media platforms, and you are always welcome to contact our offices. In this issue of EngiNews, we look back, highlighting our first ever hosting of the Vex Robotic Competition, our outstanding summer camps, and highlighting some of our many interns and faculty.

An engineering degree from Lamar University can literally take you anywhere you want to go.

With Cardinal Pride,

A handwritten signature in blue ink, appearing to read 'B. Craig', written in a cursive style.

Brian Craig, PhD, PE, CPE
Dean of Engineering
Charles and Eleanor
Garrett Endowed Chair

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EDITOR & DESIGNER

Abigail Zuniga

FEATURED WRITERS

*Abigail Zuniga,
Shelbe Rodriguez,
April Marble*

LU ENGINEERING GRADUATES REMAIN TOP IN STATE, THIRD IN NATION

By Shelbe Rodriguez

It's always a great time to be a Cardinal, but it's especially great to be a Lamar University graduate. For the second consecutive year, Lamar University engineering graduates remain top in the state of Texas and third in the nation for return on investment, as noted by PayScale.com.

PayScale, an online salary information company, conducts an annual report that measures the return on tuition investment 20 years after graduation for hundreds of public and private institutions. The report also analyzes in-state and out-of-state tuition costs, graduation rates and the number of years it takes to earn a degree.

The publications recent [2023 rankings](#) show the return on investment, or ROI, of alumni from colleges who work in the engineering field and beyond citing, "if you want to set yourself up for real financial success, you want to choose a college that has a proven track record for producing alumni who receive a solid return on their education investment."

According to the 2023 report, the 20-year net income of engineering graduates from Lamar University is \$1,143,000. With the new rankings, according to PayScale.com, LU surpasses larger institutions in the country such as Stanford University (\$1,001,000), Rice University (\$984,000), and Massachusetts Institute of Technology (\$926,000) in 20-year net income.



In comparison, the estimated cost of a four-year degree at Lamar University is \$89,000, about a third of the cost at MIT (\$276,000), Stanford University (\$282,000), and Rice University (\$256,000), as reported by PayScale.com.

"The [Lamar University College of Engineering](#) maintaining the return-on-investment rankings of No. 1 in Texas and No. 3 in the U.S. further demonstrates the ongoing success of the continuous improvement efforts of our engineering faculty and staff and the resulting impact to our students' educational experience," said Dr. Brian Craig, dean of the College of Engineering. "Much of this success is also only attainable through working closely with our industrial partners. Our ROI rankings demonstrate the value we provide to our engineering students and how our graduates are valued by the diverse employers that hire them."

With multiple degrees across five departments ranging from bachelor's to doctoral levels, it was no surprise that the Lamar University College of Engineering has retained a top position on the list ahead of MIT and Stanford.

[See a full list of rankings](#)

LU'S COLLEGE OF ENGINEERING GRADUATES RANKED FIRST IN STATE, 4TH IN NATION FOR HIGH SALARY EARNERS

By April Marble

Lamar University's College of Engineering has earned high-rankings from the Department of Education's [College Scorecard](#) for producing career-ready graduates who are soaring in their early career earnings.

Mechanical, chemical and biomolecular engineering and industrial technology graduates ranked first in earnings after four years – outperforming every public university in Texas. At the national level, LU's chemical engineering ranked fourth amongst all universities in the United States.

The success of Lamar University's engineering graduates highlights the institution's commitment to providing a world-class education that prepares students for rewarding and financially rewarding careers.

“We are consistently working with industry leaders to understand what knowledge our students will use in their field and continually improving and modernizing our curriculum to ensure that our students are prepared,” Craig said. “We also ensure that our faculty have the tools that they need to educate our students.

Lamar University's College of Engineering graduates also have the added benefit of working with the necessary equipment needed to succeed long before their graduation day, making for career-ready candidates.

“We put a huge emphasis on exposing our students using the equipment that they will be using in the field,” Craig said. “Our facilities make this possible. We have recently added the Flowserve Educational Resource Center and the Emerson Advanced Technology Center that have technology that students will be using throughout their careers.”

As the institution continues to nurture future engineers, it remains steadfast in its commitment to producing career-ready graduates who not only thrive in their chosen fields but also contribute significantly to the economic growth of their communities.

“We are producing graduates that are career ready through academic preparation and through our relationships with the local industry. Through industry focused curriculum, plentiful internships and industry partnerships, our graduates enter their careers prepared to add value from day one, making them highly sought after candidates.”

-Dr. Brian Craig, Dean

COLLEGE OF ENGINEERING GRADUATES RANKED FIRST IN FIRST- YEAR SALARIES BY TEXAS CREWS

By April Marble

In a recent report released by [Texas Crews](#), Lamar University's industrial engineering and industrial technology emerged as frontrunners ranking first in first-year income and along with chemical engineering, boasting the lowest loan burden as a percentage of their one-year salaries among all Texas universities. Electrical engineering ranked second lowest loan burden as a percentage of their one-year salaries and civil and mechanical engineering fourth.

Texas Crews data comes from a joint project between the Texas Higher Education Coordinating Board (THECB) and the Texas Workforce Commission (TWC). Together they analyze state employment records and student loan statistics to evaluate the financial success of engineering and technology graduates from Texas universities. Lamar University's engineering programs and technology program stood out from the competition, surpassing some of the well-known engineering institutions in the state.

"This exemplifies the return on investment that you can get with an engineering or technology degree from Lamar University," Dean of the College of Engineering Dr. Brian Craig said. "Our students are graduating with smaller loans and making more money in their first year than graduates from larger universities who graduate with loans that may equal half of their first-year salaries or more."

The College of Engineering's emphasis on modern curriculum, practical training and industry-relevant skills has undoubtedly contributed to the remarkable success of its engineering graduates.

"Having our graduates rank first in one-year salaries and student loans as a percentage in the state is a testament to the hard work committed to both our students and faculty," Craig said. "We strive to provide our students with the education that equips them with the skills required to be career ready when they graduate and excel in their careers."

This recognition comes as a testament to Lamar University's dedication to providing exceptional education and preparing students for successful careers in the competitive engineering and technology fields. With this achievement, Lamar University's reputation as a leading institution for engineering and technology in Texas is further solidified.



ENGINEERING STUDENT ORG REELS IN DONATIONS AT LU ASCE REDFISH CLASSIC FISHING TOURNAMENT

By Abigail Zuniga

On Saturday, April 15, LU student organization, American Society of Civil Engineers (ASCE), raised over \$4,000 in proceeds at the annual LU ASCE Redfish Classic Fishing Tournament. The purpose of this event is to help fund projects to participate in competitions, such as, the ASCE Southeast Texas Symposium in Concrete Canoe and Steel Bridge.

"We managed to raise over \$4,000 and donated 10% to the American Cancer Society," said Tyler Tran, Vice President of LU ASCE. "We would not have been able to achieve the success we did without the help of faculty and staff in the College of Engineering. We hope the board members of the 2023-2024 ASCE can have an even more successful event than we had!"

The tournament consisted of 27 teams, in total, with entry fee of \$250 per teams of two which included tickets for the Captain's Dinner at Sweet Basil. The event began at 6:30am and lasted until weigh-in at 2pm. The competition had challengers competing for up to \$2,000 cash prizes.

"Being a part of LU ASCE for the past 3 years has truly changed me and has been one of the best parts of my journey with LU," said President of ASCE, Frisda Rosenbaum. "I joined LU ASCE in pursuit of an internship. Not only did I succeed in obtaining an internship, but I also met some incredible people along the way. LU ASCE has prepared me to be the best civil engineer I can be."

The tournament was a success, ending with six winners in total. LU COE and LU ASCE is excited for the future of the Redfish Classic Fishing Tournament and hope to catch more participants next year.



MECHANICAL ENGINEERING RIDES OFF WITH GRAND PRIZE AT 2023 SENIOR DESIGN SYMPOSIUM

By Abigail Zuniga



On Friday, April 28, LU College of Engineering hosted the annual Senior Design Symposium. Graduating seniors presented their final capstone projects, representing the culmination of a year of work, to industry judges. “Senior Design helped us become better communicators. This is a career skill that we can use forever,” said 'Tyler County

Airport Runway Expansion' member, Mason Wyche. “We had to communicate with the Tyler County office and contractors, as if it were a real project. Senior Design is a great opportunity to learn and grow your skillset for the real world.”

This year, a total of 35 teams from Civil and Environmental, Chemical, Electrical, Industrial and Mechanical Engineering competed to win a chance to become the grand champion. Teams ranged in sizes from 3 to 14 members.

“Winning a big project as a team filled me with a sense of accomplishment and joy,” said 'The Benchwarmer' member, Bailey Beard. “We felt a great sense of pride in the project we worked on, as it required extensive research, planning, and collaboration with the team to accomplish our goals. Working on this project has not only allowed us to contribute to a valuable endeavor, but it has also equipped us with new skill sets that I can leverage in my future career, providing me with a competitive advantage in the job market.”

Department winners included 'The Benchwarmers' for chemical and biomolecular engineering, 'Weather Data to Autonomous Drone via RF' for electrical engineering, 'Impeller Casting' for industrial engineering, 'Tyler County Airport Runway Expansion' for civil and environmental engineering, and interdisciplinary team, 'Bahama Mamas Baja Team.' 'RUST-EEZE' claimed the winning slot for mechanical engineering department winner and the grand champion of the 2023 Senior Design Symposium.

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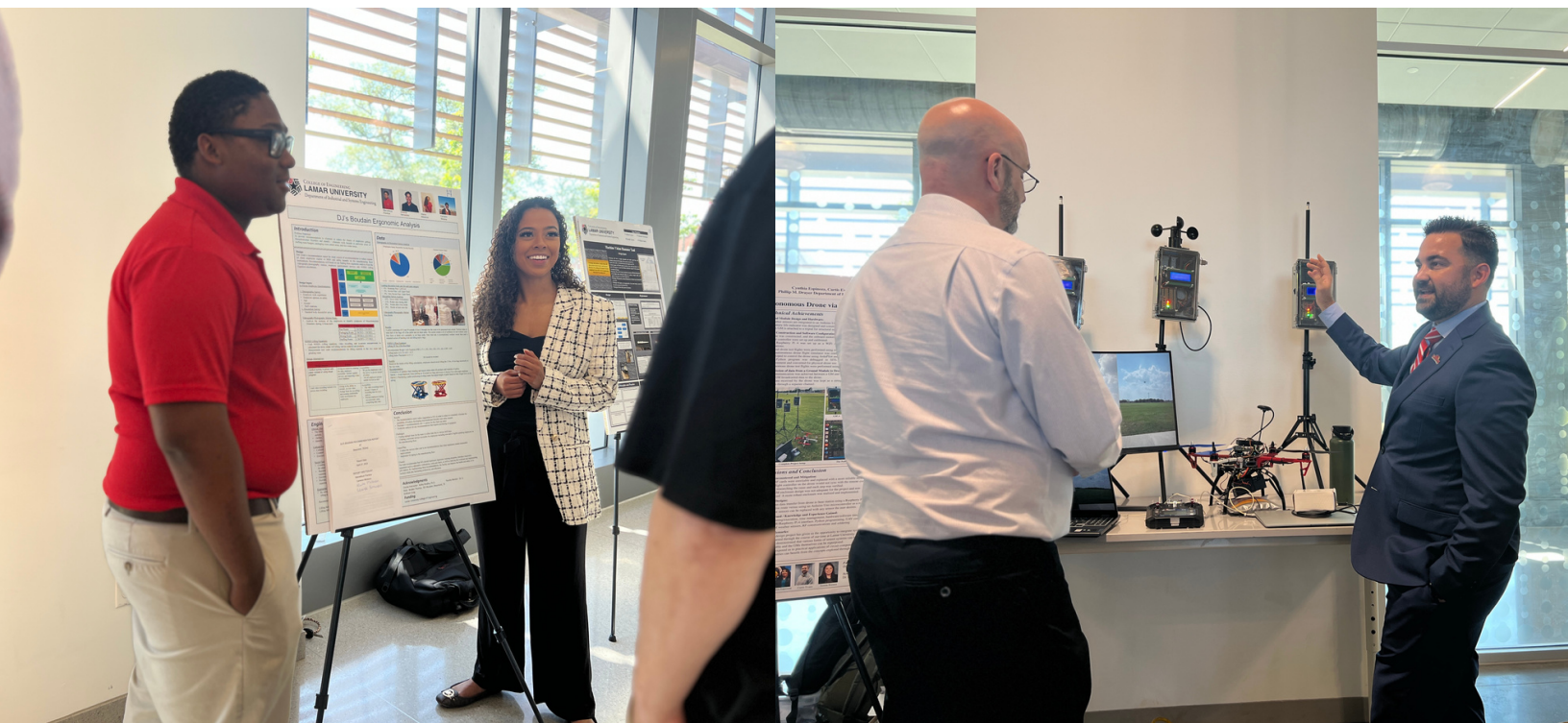
Department winners included 'The Benchwarmers' for chemical and biomolecular engineering, 'Weather Data to Autonomous Drone via RF' for electrical engineering, 'Impeller Casting' for industrial engineering, 'Tyler County Airport Runway Expansion' for civil and environmental engineering, and interdisciplinary team, 'Bahama Mamas Baja Team.' 'RUST-EEZE' claimed the winning slot for mechanical engineering department winner and the grand champion of the 2023 Senior Design Symposium.

"We began working on the design of our project in August 2022 and started implementing the whole system around March of this year," said 'Weather Data to Autonomous Drone via RF' member, Emma Breau. "It was an amazing feeling to get our drone to fly autonomously and the first time the whole project worked successfully, we all sighed in relief. Senior Design has been both challenging and rewarding. I am grateful for the skills I have learned throughout the process. Although I am happy that the stress of deadlines and the uncertainty of our project's success is over, it is bittersweet to know that my time here at Lamar University is coming to an end."

While there could be only one symposium winner, judges from ExxonMobil had difficulty in choosing. The returning judges ultimately chose project 'RUST-EEZE', a stirring engine powered go-kart that the students affectionately named, 'Striking McQueen'.

"Throughout the year, if we had a class together, we stuck with our Senior Design team. This made working on our project much easier and we really got to know each other," said 'RUST-EEZE' and Senior Design Symposium winning member, Grafton Conger. "This made winning the Senior Design Symposium so much better than it already was! Knowing that we made it through tough challenges in our project and seeing it all payoff together was amazing! My heart was pounding whenever they called our name as the overall winners! Through Senior Design, I was able to get a lot of hands-on experience that I haven't been able to get from my other classes. I will be able to apply my experience to my future projects in the workforce!"

The Senior Design Symposium would not be possible without our industry partners, including ExxonMobil, Chevron Phillips Chemical, Cheniere Energy, Valero Energy, Westrock and many other donors and volunteers for mentoring and sponsoring our students.



LU STUDENTS COLLAB TO BRING ROBOTICS TO SOUTHEAST TEXAS

By Abigail Zuniga

From a young age, Christine Osborne, recent graduate with a [Bachelor of Business Administration in Marketing](#), and senior, Ryan Shugart, a triple major in [electrical engineering](#), [mechanical engineering](#), and [mathematics](#), have been interested in robotics. The pair have been involved in robotics since they attended Pasadena Memorial High School. Once attending LU, the two knew they wanted to continue their love for robotics.

Both students recognized an opportunity that ignited a passion to make robotics a staple in Southeast Texas. Through trial and error, the two created Robotic Cardinals, LU's first ever robotics club.

"I believe robotics is important because it creates a variety of challenges though many fields like mechanical, electrical and computer engineering," Shugart said. "You learn all of this in class, but you can't apply it in everyday life until you have your career. Robotics competitions allow students to apply classroom learning to be applied in real experiences."

After Robotic Cardinals began, the Beaumont Independent School District saw a need for automation education and reached out to Cardinal S.O.A.R., Student Outreach and Academic Readiness, for a partnership with LU. Cardinal S.O.A.R. had the perfect team in mind, Osborne and Shugart. Cardinal S.O.A.R. contacted the two because of their impact on Project Engineer, an engineering robotics summer camp, and requested Robotic Cardinals to mentor local teachers on starting a robotics program in their schools.



All their hard work over the years led up to the inaugural LU VEX Robotics Competition. VEX Robotics is an organization that brings robotic programs to students of all ages. Through VEX Robotics, Robotics Cardinals was able to host an official competition where a certified VEX Robotics judge was present.

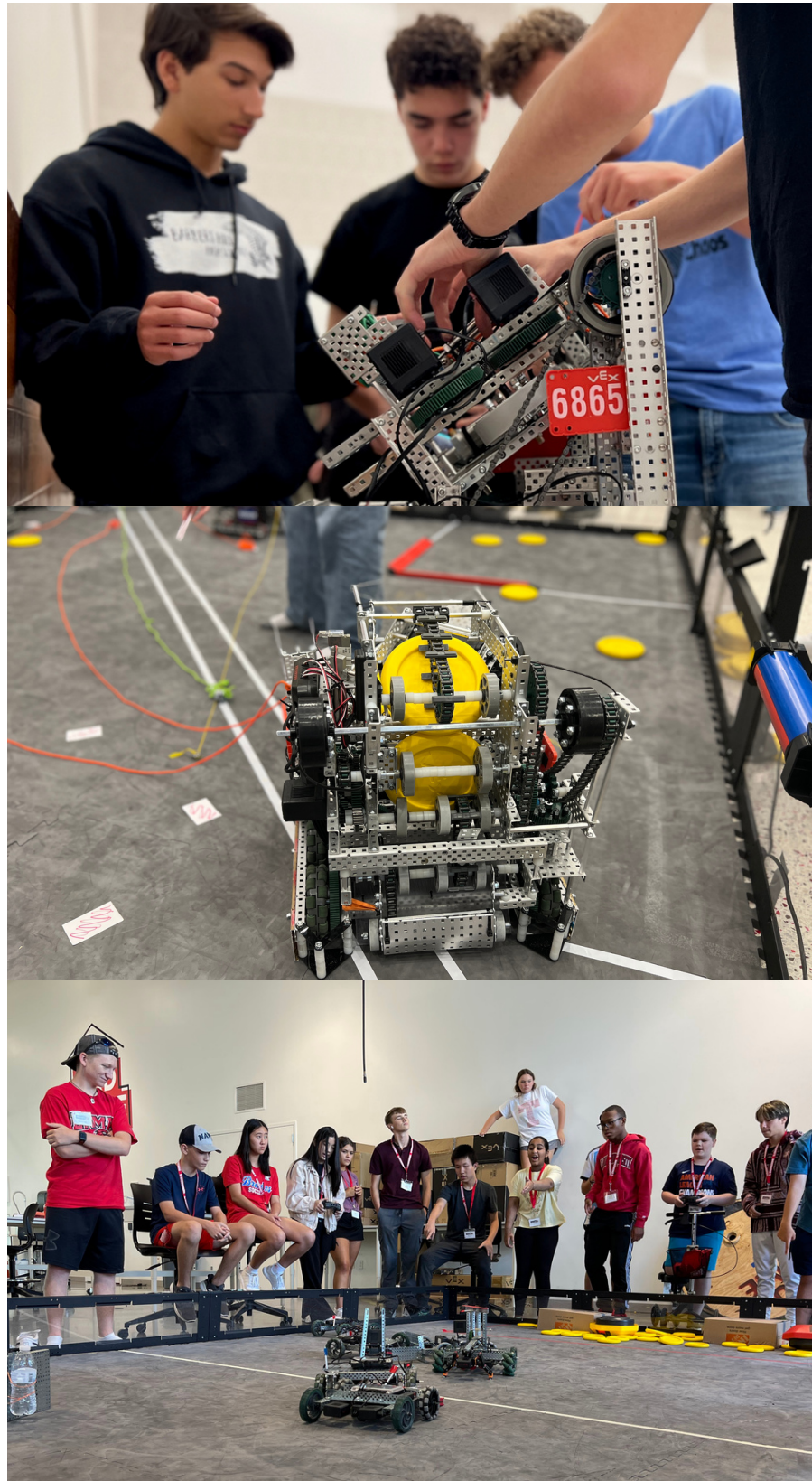
"Thanks to the help of the Reaud Honors College and Texas Academy for their volunteer help, we were able to make the LU VEX Robotics Competition happen sooner than we expected," Shugart said. "Seeing the students light up when their creations come to life was gratifying. I hope to see this continue to grow for years to come."

With a total of 9 teams, the competition was a success. Silsbee High School, better known as Red Alliance, took first place in a close competition. The students upload software to manage the robot. The students are very involved in programming with lots of trial and error to ensure dependability. This year's competition was a disc sport where the robot must toss discs into a chain basket for points.

With the two student's LU journey coming to an end, Osborne and Shugart have worked hard to build a lasting student organization that will not only benefit LU, but the community as well. The Lamar University College of Engineering is thrilled to be a part of the future generation of robotics.

“ This was beyond my wildest dreams. We've been wanting to do this since freshman year and seeing it come to life was amazing. This started small, but it was incredible. Seeing the students light up was amazing. The students had so much emotion and devotion to their creations. This was their playoffs and they came to play.”

-Christine Osborne



COLLEGE OF ENGINEERING SHINES A 'L.I.T.E' TO ENGINEERING ON YOUNG MINDS

By Abigail Zuniga

Lamar Introduction to Engineering Camp or L.I.T.E Camp, returned this year with record numbers. L.I.T.E Camp is a STEM summer program targeted towards rising 7th and 8th grade students, hosted by the College of Engineering, that is offered free of charge, with the generosity of returning sponsors, BASF, ExxonMobil, Motiva and TotalEnergies.

Launching in 2014, L.I.T.E Camp has played a role in the development of future engineers.

"L.I.T.E camp provided an amazing group of 7th and 8th graders the opportunity to gain knowledge in science, technology, engineering, and mathematics, while also developing important skills like teamwork, creativity and determination," said Aaron Moore, ExxonMobil Beaumont Public and Government Affairs Advisor. "Talents like these are vital to their successes in the future."

With hands-on experiments from engineering professionals, engaged counselors and a trip to NASA, local students were able to receive an impactful introduction to engineering. The activities presented, showcase the many pathways of STEM offered by the College of Engineering, where students were able to discover engineering in a new light.

"The BASF Beaumont site has actively engaged LITE campers in hands-on activities since 2014. Our staff enjoys sharing science and engineering with young people to inspire the next generation," said Ryan Underdown, BASF Site Development Leader. "This year, eight engineers and four engineering interns worked with 58 middle school students to conduct an experiment with water bottles and glow sticks to understand the effects of temperature on chemical reactions. We look forward to working with the students next year."



UNLEASHING INNOVATION AND INGENUITY AT PROJECT ENGINEER, A HIGH SCHOOL ROBOTICS SUMMER PROGRAM

By Abigail Zuniga

In a world increasingly driven by technology, Project Engineer, a College of Engineering summer program for high school students, inspires young minds to embark on a journey of exploration and innovation.

"It's amazing to me to be able to see new and returning campers come back year after year and see how they apply their knowledge to STEM," said Lead Project Engineer Counselor, Christine Osborne.

Project Engineer is not your typical classroom experience. Instead, it is a dynamic and immersive hands-on learning environment that enables students to engage directly with cutting-edge technology.

"Project Engineer is a good opportunity for students to work as a team and design robots and compete in a friendly competition," said Project Engineering Intern, Brynn Baker. "As a former summer program counselor, it was rewarding to return this year as a judge and see each student engaged in STEM activities."

Under the guidance of LU student mentors, high school participants get their hands dirty, building and programming robots from scratch. This hands-on approach kindles excitement and curiosity, ensuring that learning becomes an unforgettable adventure.

"The imagination behind this year's robots was incredible as every team rose to the challenge, using their collective knowledge and skills to build winning robots," said Osborne. "The campers and counselors had a blast and I can't wait until next year!"

Through hands-on learning, creativity, and collaboration, participants are equipped with the tools they need to shape the future as innovators and leaders. As these students leave Project Engineer and venture into the world, they carry with them a profound appreciation for robotics and an unwavering determination to make a difference in the world through the power of technology.



THANK YOU TO OUR SUMMER

CORPORATE SPONSORS

Chevron Phillips

ExxonMobil

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INTERN DIARIES

Students navigating the professional playground

First name: Bharath Goud
Last name: Degam
Major: Master Of Engineering In Civil Engineering
Internship/co-op company: Consor Engineering, LLC
Internship/co-op job title: Roadway Design Intern

“**T**he most important lesson I learned during my internship as a roadway design intern at Consor Engineers, was the importance of effective teamwork and communication to complete projects successfully. I also improved my ability to concentrate and focus on even the slightest things. I am thankful for this opportunity, which will influence how I approach my work as an engineer designing roads in the future. Learning from knowledgeable mentors was beneficial. I appreciate Lamar University for providing me with this opportunity. I want to express my gratitude to Dr. Venkatesh Uddameri for encouraging and assisting students in their pursuit of knowledge.”



First name: Elyce
Last name: Burce
Major: Electrical Engineering
Internship/co-op company: TC Energy
Internship/co-op job title : Engineering Intern under the Engineering Development and Program Performance, Continuous Improvement

“**T**he wealth of knowledge waiting for me has no end; be eager to listen to everyone. That said, I've also realized that while anyone can learn, not everyone is inclined to do so. Allowing myself to be led by curiosity throughout it all and fostering a growth mindset has been the decisive factor in what has made my experience very meaningful.”



INTERN DIARIES

Students navigating the professional playground

First Name: Ruth
Last Name: Pena Sanchez
Major: Mechanical Engineering
Company: BASF TotalEnergies Petrochemicals LLC
Job Title: Mechanical Engineer Intern

“ One of the most valuable lessons I have learned during my internship is to not be afraid to ask questions. While completing this internship many of my projects required a lot of research and individual work. Not being afraid to be curious and communicate my questions/concerns with individuals working alongside me helped me succeed in my projects and make lasting connections! ”



First name: Kimberly
Last name: Cuellar
Major: Civil and Environmental Engineering
Internship/co-op company: CONSOR
Internship/co-op job title : Roadway intern



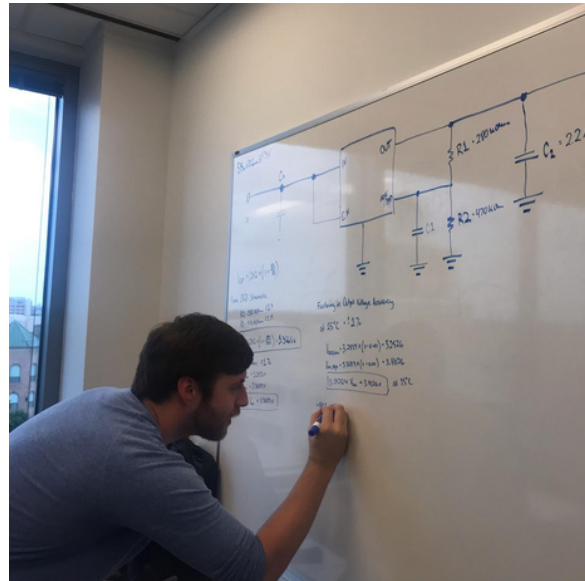
“ CONSOR has thought me soo many things. But the most important lesson I learned is to work as a team. Everyone is open to teach me their knowledge as civil engineering and CAD technicians. Also it motivates me to teach others what I have learned through out my year of experience. Support the new interns that join the company and support other students that are looking for an internship. ”

INTERN DIARIES

Students navigating the professional playground

First name: Matt
Last name: Schuldt
Major: Mechanical Engineering
Internship/co-op company: Octavo Systems
Internship/co-op job title : Systems Engineer

“I owe this opportunity to LU's incredibly knowledgeable and experienced faculty. My mentor, Dr. Doranga, encouraged me to pursue the research through which I was first introduced to Octavo. Dr. Doranga was instrumental in preparing me for the internship and my subsequent full-time employment.”



First name: Tioluwaniiyin
Last name: Akinwunmi
Major: Electrical Engineering with a minor in mathematics
Internship/co-op company: LyondellBasell
Internship/co-op job title: Instrumentation and Electrical reliability co-op

“The most valuable lesson I learned is the exposure to newfound knowledge, how what is taught in college is applied in the real world (industry), and how there is a connection between theoretical concepts and the application.”

INTERN DIARIES

Students navigating the professional playground

First name: Casandra

Last name: Leal

Major: Chemical Engineering

Internship/co-op company: ExxonMobil

Internship/co-op job title : Process Engineering

Intern- Low Pressure Polyethylene

“**T**he most valuable lesson I have learned is the importance of soft skills and applied learning. Going into industry, communication is highlighted as a major skill that enhances understanding

when convey ideas and sharing knowledge in a collaborative setting. Additionally, the significance of understanding engineering fundamentals and their application is highlighted constantly when encountering a variety of scenarios throughout day to day operations. All in all, internships are rewarding experiences that provide learnings and exposure to new concepts that extend beyond the traditional classroom setting.”



First name: Jerry

Last name: Kohler III

Major: Chemical Engineering

Internship/co-op company: TotalEnergies

Internship/co-op job title : Environmental Intern

“**M**y favorite thing about Lamar University is how accessible the professors are, especially in the Chemical Engineering department. Many times, my professors have stayed late after class to help other students and I with topics we may not fully understand. The professors at Lamar University are great at setting their students up for success in and out of the classroom.”

ENGINEERING MARVELS

Faculty Spotlight



**DR. ANNETTE HERNANDEZ, PH.D., P.E., CIVIL AND ENVIRONMENTAL
ASSOCIATE PROFESSOR**

"I am teaching environmental courses at the undergraduate and graduate level. I really like my Intro to Environmental Engineering course because the students ask so many questions and I get to learn about environmental engineering from a new perspective. As a civil engineer, my students might be expected to put together environmental impact assessments, (EIA) which detail the consequences and benefits of proposed projects. This semester, the final project will have students put together an EIA so that they can have experience in real world based work. It'll be a fun and useful way to learn about some of the considerations they must consider when designing civil infrastructure."

**DR. AJIT PATKI, D.E., MECHANICAL
VISITING ASSISTANT PROFESSOR**



Embarking on a journey of exploration and growth this semester, we aim to delve deeper into our subjects, foster a community of collaborative learning, and transcend the boundaries of traditional knowledge. Through active engagement, innovative methodologies, and unwavering passion, we seek to not just master our coursework, but also to cultivate a mindset of lifelong learning and holistic development. Here's to a semester of possibilities, discoveries, and breakthroughs!"

Check out Dr. Patki's book on Amazon: [EXISTENCE – HOW THE GAME WORKS](#)

**DR. GLEB TCHESLAVSKI, PH.D., ELECTRICAL
ASSOCIATE PROFESSOR**



As a university faculty, I strongly believe that the research is my top priority. I conduct research related to the signal processing with the focus on the analysis of the Electroencephalogram, aka, the brain waves. This semester, I am planning to start two new projects: on the auditory perception and on the affect of roadside distractions.

ENGINEERING MARVELS

Faculty Spotlight



**DR. ROBERT KELLEY BRADLEY, PH.D., INDUSTRIAL AND SYSTEMS
ASSISTANT PROFESSOR**

"I work with undergraduate Industrial Engineering students at the start of their LU journey in Intro to Engineering and near the end in Senior Design course. I teach undergraduate and graduate students on how to use their engineering knowledge to create value through developing new products in Technology Entrepreneurship and Advanced Technology Entrepreneurship courses.

Entrepreneurship students will participate in Cardinal Ideas, the annual pitch deck competition hosted by the Entrepreneurship Institute at LU. My research includes work with undergraduate, masters, and doctorate students. Saeed Vaezzadeh, a doctoral candidate, has developed a material testing device to measure creep behavior of thermoplastic composites; work supported by the Center for Midstream Management and Science. The initial creep test rig "Creeper 1" was duplicated by freshman Industrial Engineer, Victoria Nguyen, through an Office of Undergraduate Research Summer Undergraduate Research Fellowship so she could study composite samples she created using milled oyster shells. Both Vaezzadeh and Nguyen will continue their work with me through the coming semester."

**DR. RUHAI WANG, PH.D., ELECTRICAL
PROFESSOR**



"As Fall Semester 2023 just started, we see a significant increase in student enrollment in Drayer Department of Electrical Engineering. That is very encouraging. While some of our students still chose to go with our online learning method, I expect none of our students left behind in content delivery and active learning. While we have been working hard in developing the Computer Engineering program in our EE department, I expect the program will be ready to offer by the end of Fall 2023. I can't wait to see our first class of Computer Engineering in Spring/Fall 2024."

ENGINEERING MARVELS

Faculty Spotlight



**DR. BERNA TOKGOZ, PH.D., INDUSTRIAL AND SYSTEMS
ASSOCIATE PROFESSOR**

"I anticipate dynamism, engagement, and enjoyable experiences. I look forward to witnessing my students actively participating in campus-wide events as they enhance their engineering skills. Additionally, I hold the expectation that my students achieve academic and professional success during this semester."

**DR. JAMES HENRY, PH.D., CHEMICAL AND BIOMOLECULAR
ASSOCIATE PROFESSOR**



"This semester is going to be crazy! In addition to taking over teaching the unit operations lab and starting an overhaul of the course, I have way too many projects! I would try to write a paragraph describing the projects, but I'm going to go with bullet points, because I'm an engineer and love lists 😊"

- **Utilizing augmented reality (AR) and standard alarm management practices to provide real-time information to refinery workers in high-stress, dangerous environments:** We're looking at using AR as a HUD display to drive emergency response in high-stress and low-visibility environments. This will allow for concise, simple instructions to be displayed to the responder, resulting in a quicker and likely, more accurate response to a situation
- **Data mining of oil storage site microflora data to identify potential correlations and predictive patterns:** By analyzing the microflora growth and response to environmental and human stimuli, we hope to find ways to decrease equipment corrosion, improve process throughput, and modify current techniques for processing.
- **Creating a digital chemical process lab for academic and industrial training:** This is a long-term project, but we are working with our strategic partner, Emerson, to create a digital unit operations laboratory (in addition to the overhaul discussed previously) to allow more student and industry exposure to complex operational units.

ENGINEERING MARVELS

Faculty Spotlight



**DR. THINESH SELVARATNAM, PH.D., CIVIL AND ENVIRONMENTAL
ASSOCIATE PROFESSOR**

This upcoming Fall semester, I am excited about the opportunity to lead our Intro to Civil Engineering Class for the incoming freshman students. The course will embrace a project-based approach, allowing us to delve into various facets of Civil Engineering. Through this curriculum, our students will become acquainted with essential tools and techniques like Fusion 360, MATLAB, and 3-D printing. In the research front, I will be working on the fabrication of pilot-scale bioretention systems for stormwater remediation (EPA-funded project). Furthermore, I will be working on developing resilience indicators that will serve to guide Lamar's Center for Resiliency in identifying both current and future research priorities (Resilience Research Initiative-Funded by the Center for Resiliency).

**DR. CLAYTON JEFFRYES, PH.D., P.E. CHEMICAL AND BIOMOLECULAR
ASSOCIATE PROFESSOR**



I'm so happy to see my students back for Fall '23! I kicked off the semester with an externship at Motiva where I spent time with their engineers, shadowed them on their projects and worked together with them to come up with new ideas to bring to the classroom. It's exciting to know I'll be bringing information to my students that I know meets industry's needs. I'm working with some other great professors at Lamar, as well as UT Austin, to advance our Department of Energy project's work on tracking and remediating environmental wastes. I'm also preparing for my upcoming USDA project where I'll be modeling and simulating the conversion of agricultural wastes from the wine and olive oil industries into chemical additives used to extend road life. If you took my Bioprocess Engineering class, you know what software we'll use and how to use it, so there might be a student job for you!

COLLEGE OF ENGINEERING PROFESSOR GOES GLOBAL, WINS EUROSIME AWARD

By Abigail Zuniga

Mechanical engineering professor, Dr. Xuejun Fan, was awarded the EuroSimE Achievement Award in Graz, Austria for his fundamental research and industrial application in thermal, mechanical and multi-physics simulation and experiments in microelectronics and microsystems.

The EuroSimE is an annual international conference focusing on thermal, mechanical, and multiphysical simulations and experiments to meet research and development needs in microelectronics and microsystems. The award committee selects the best and outstanding papers and presents an Achievement Award to someone within the EuroSimE.

Fan specializes in the characterization, modeling and reliability of materials, components, and systems in micro-/nano-electronics manufacturing and packaging.

Back in the 1990s, 'popcorn' failures of plastic-encapsulated semiconductor devices, referring to explosive failures during the manufacturing process, were attributed to water vapor bursts caused by residual moisture inside at elevated temperatures," Fan recalls. "Since then, I have worked on this subject matter."

Fan is a renowned scholar in his field, receiving multiple awards for his work in engineering, including TSUS Regent's Professor Award, the University Scholar Award and the Distinguished Faculty Research Fellow.

The College of Engineering is proud to have illustrious staff members and continues to support their drive for exploration and innovation.



“It was a wonderful surprise to me to receive this call from the Netherlands. I felt honored and humbled knowing my colleagues and I are making significant contributions to the field.”

-Dr. Xuejun Fan

COLLEGE OF ENGINEERING'S DR. HAMIDI AWARDED \$173,636 TEXAS DOT GRANT

By Abigail Zuniga

In a significant stride toward enhancing maritime transportation, Lamar University professor Dr. Maryam Hamidi has been granted \$173,636 in research funding by the Texas Department of Transportation, or TxDOT, for a research study titled “Gulf Intracoastal Waterway – Automatic Identification System (AIS) Application.” The primary goal of this project is to evaluate and analyze the movement of ship and barge traffic along the Texas Gulf Intracoastal Waterway and within Texas gulf coast ports using AIS data.

“This study aims at improving the efficacy and efficiency of ship and barge transit along the Texas Gulf Intracoastal Waterway,” said Center for Advances in Port Management Director Robert Dubois. “Prior research that analyzed shipping congestion and the movement of vessels within the Port of Houston made TxDOT aware and interested in this research and the broader scope of maritime transportation.”

Dr. Hamidi’s innovative work in transportation engineering has earned Lamar University this grant, which signals a substantial step forward for maritime logistics in the gulf coast region. “By attending the Houston Pilot meetings, I noticed one of the biggest challenges of waterway operation is vessel delays,” Hamidi said. “Vessels can spend hours of their port time waiting for services. This can increase fuel consumption, emissions, and risk of collision. AIS data can be used to investigate the transit behavior of vessels, such as travel time, speed, and origin-destination docks. This grant provides the opportunity to analyze such data set and share the results among stakeholders including terminal operators, tug companies, pilots, and VTS to increase efficiency.”



Hamidi’s efforts to enhance the efficiency and effectiveness of ship and barge transit along the Texas Gulf Intracoastal Waterway hold immense promise for revolutionizing maritime logistics.

“Through Lamar University’s Center for Advances in Port Management, my research team could develop an AIS tool that reports waiting time at sea buoy, service time at terminal, and travel time through the channel,” Hamidi said. “Quantifying such metrics is the first step to address delays and increase productivity.

By creating a more efficient, eco-friendly, and resilient transportation system, this research endeavor aligns with the broader goals of sustainable infrastructure development. As the project unfolds, it will leave a mark on both academic research and the practical world of maritime transportation.



**ENGINEERING
PRESENTS:**

A GUIDE TO WELLNESS

Discover a Path to Inner Harmony and Vitality in Our Guide to Wellness. In this special section, brought to you by the brilliant minds of our engineering students, faculty, and staff, we explore the intersection of innovation and well-being. Discover how these technical trailblazers apply their problem-solving prowess to enhance their own lives. From inventive ergonomic solutions for workspace comfort to data-driven approaches to fitness tracking, join us in celebrating the marriage of engineering ingenuity and holistic health. Let our community inspire you to engineer a life that thrives on both intellectual achievements and total wellness.



THE EFFECTS

By Tyler Tran



When the Body Moves, the Brain Grooves!
-Tyler Tran

Hello everyone, my name is Tyler Tran, I graduated this spring with a bachelor's in civil and environmental Engineering! I have accepted a full-time position as a Transportation Roadway Modeling Engineer in Training for Jacobs in Houston Texas. One of the largest Civil Engineering firms in the world! College in general can be mentally and physically challenging with all the long hours of studying and trying to balance life, but I believe that having a consistent fitness routine can help unlock potential that you may not have believed you could achieve!

How Fitness has made a positive impact in all aspects of my life

Fitness is a general term; it can be anything from walking 10 minutes a day, weight training to some of the extremes of running a marathon every other weekend. For me I have fallen in love with the process of weight training. I have been weight training consistently for almost 6 years now and it is still one of my passions. Being consistent in weight training though may sound cliché has been one of the biggest reasons for my successes and being able to get through some of the low moments of my college career. There are many physical benefits but mentally I believe the two biggest lessons that I have learned is how to be consistent and resilient. I believe the way you do one thing is how you do everything, being consistent in my workout routine has made me consistent in other aspects of my life and academically. Success can be built on just consistency. One of my favorite books is "Atomic Habits" by James Clear. He speaks about how tiny changes can lead to massive success. The power of compounding can be leveraged, getting just 1% better each day can lead to

OF FITNESS

THE EFFECTS OF FITNESS

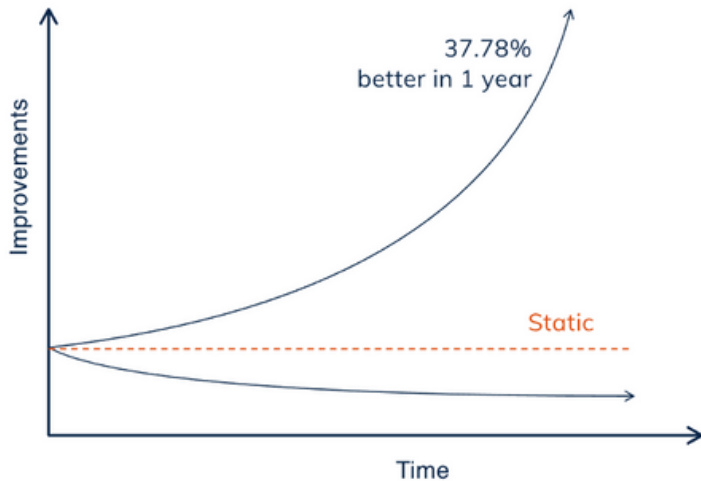
improving by 37.78 times (see figure below)! This can be implemented in just about anything you are trying to achieve. Resilience paired with consistency are a powerful combo. Fitness/weight training broken down is basically you are attempting to increase the amount of stress on your body to become physically and mentally faster/stronger. Sometimes in life we are thrown things that are out of our control. All we can do is be prepared for it! Training has really helped me manage my stress during school, this has led to me being more objective on the task needed to be done without letting my emotions take control. I am not perfect but over the years I have noticed so much growth just by implementing these lessons from training to everyday life!

What is my routine?

The Power of Tiny Gains

1% better every day $1.01^{365} = 37.78\%$

1% worse every day $0.99^{365} = 0.03\%$



Credit: JamesClear.com

For me the simpler you can make something the easier it is to follow the same when it comes to routine. I follow a simple upper lower weight training (Duration:1hr per workout). I try to progressively get better by adding more weight to a workout or doing more sets than I would usually do each month/week. My favorite time to work out is in the morning before my classes to get a strong start on the day at 6am to 7:15am four times a week during the semester. I use this time as my time of solitude where I think about the task needed to get done and how they will get done before going about my day.

My routine is as followed below

Monday: Upper day (Chest Focused)
Tuesday: Rest Day
Wednesday: Lower Day (Quad focused)
Thursday: Rest Day
Friday: Upper Day (Back focused)
Saturday: Lower Day (Hamstring focused)
Sunday: Rest

How can you start your own routine?

The great thing about fitness is that there is no right or wrong way of going about it! It is all about personal preference of what you like to do. Doing activities that you are passionate about are great such as weekly sports, running, walking, weight training, dancing and many more activities can be implemented into some type of time efficient routine to consistently do if you can find a community or friend to join it helps as well. The hardest part however is the start but starting small is a great way to build consistency. Instead of trying to show up 5 times a week for 1.5hrs to the gym is very difficult to do physically and mentally as a beginner. What I would suggest is trying to show up to the gym 3 times a week for 15-30 minutes and just leave for 3-4 weeks. Once this becomes easy you may add more days or extend the duration of the workouts. The goal is not to workout, the long-term goal is to turn your identity to a person that workouts 3-5 times a week! The act of simply showing up daily helps with building these habits which will help you stay disciplined for the days you don't want to go. These methods can be used for any other endeavors you are striving for.

Conclusion

I am grateful to Lamar University College Engineering for allowing me to share my thoughts on the benefits of fitness and I hope that you can gain benefits to some of the things I wrote about! One last thing to remember is that your own progress is all that matters, there is no need to compare to others, focus on how you can improve, and the rest will follow!

THE IMPORTANCE OF SELF-CARE

By Melody
Youwakim



Howdy! My name is Melody Youwakim, and I'm a senior Chemical Engineering junior at Lamar University. Engineering is arguably one of the most difficult college majors, and engineering students are often encouraged to push themselves to the limit as often as they can. However, hustle culture can take a big toll on young adults. Engineering majors generally complain of poor mental health, lack of work/school-life balance, and lack of sleep. In college and in our careers, there is a lot of pressure to make perfect grades and have more co-ops than everyone else. I'm here to tell you that nothing is more important than your personal well-being.

This past semester, Spring 2023, I worked as a process engineering co-op part time at Valero's Port Arthur Refinery while juggling 14 credit hours. I wouldn't have made it through without knowing my limits as a person and being able to gauge what I could handle at work and still complete all my assignments/study for exams. One thing I do to blow off some steam between work and school is rock climbing. Lamar University's Recreation Center has a 40 ft rock wall that you can often find me at. We all know it is important to take care of your physical health, but working out/playing a sport can also improve your mental status by physically releasing excess stress we might feel from our classes.

Another thing I like to do to take care of myself is have at least one afternoon a week to focus on myself. This could be finishing some chores I've been putting off, doing a skincare routine, or just taking a walk.

AS AN ENGINEERING MAJOR

THE IMPORTANCE OF SELF-CARE AS AN ENGINEERING MAJOR

For example, when I do my skincare routine, I'm taking care of my physical wellbeing, which in turn improves my mental state. As silly as it sounds, taking a few extra minutes to put serums or moisturizers on your face can drastically improve the status of your day. It's easy to get stuck in a mental state where you feel overwhelmed and like you can't handle everything life is throwing at you. Sometimes it helps to just walk away and recenter yourself. Personally, I like to put things into perspective. One test does not define you, it does not decide your future, and your self worth should never depend on your GPA. I have worked 2 previous internships in chemical plants, and I completed a 3rd summer internship this summer. With this amount of industry experience,



and your attitude towards the work itself matter much more than many people are willing to admit.

This brings me back to the importance of your mental state. If you take proper care of yourself, have the right attitude, and the drive to learn something new every day to grow into the engineer you're meant to be, you will succeed in everything you do.





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