BOB L. HERD

DEPARTMENT OF PETROLEUM ENGINEERING

TEXAS TECH
Whitacre College of Engineering

February 2026

NEWSLETTER

MESSAGE FROM THE CHAIR

It has been a busy and exciting fall and winter for the Bob L. Herd Department of Petroleum Engineering! Our department has enjoyed its fair share of the spotlight recently, and I'm thrilled to share a few highlights with you. Many of you reached out after spotting me in the Texas Tech commercial that aired throughout the football season. The ad was filmed at the Oilfield Technology Center and featured several of our petroleum engineering students as we proudly responded to the question of "who's out here in West Texas?" With our football team's outstanding Big 12 Championship win, we certainly had plenty of viewers taking notice! Most recently, ESPN's College Game Day, for basketball, set up on a snowy Texas Tech campus—and once again, petroleum engineering took the spotlight. Junior Jonathan Gregory represented our department in the half-court shooting contest, and host Rece Davis offered some wonderfully encouraging remarks about both petroleum engineering and the vital role of oil and gas in the Permian Basin. In the future, there is season 3 of Landman! We are going to drill a bunch of vertical clearfork wells that make 500 BOPD!

Our faculty and researchers have also been hard at work responding to shifts in the federal landscape by growing our partnerships with industry. You'll see throughout this newsletter several examples of how we've expanded our research collaborations. Dr. Scott is launching multiple industry-backed research consortiums, Dr. Leggett continues to grow our gas lift consortium, and we are strengthening our collaboration with the Texas Railroad Commission to enhance workforce training at the Oilfield Technology Center.

In emerging areas such as geothermal hydrogen technologies and produced water, we continue to thrive. Our department received additional grants from the State of Texas to support continued research and pilot projects in produced water management and assessment across the Permian Basin.

On the federal level, there's more good news. During my service as President of the Petroleum Engineering Department Heads Association last year, we successfully worked to include supportive language for university-led research in both the Senate and House Appropriations Committee bills. On January 25, the Senate passed the final Energy and Water bill with strong bipartisan support (82-15). The bill is now heading to the President's desk, and once signed, it will become law. We are particularly proud that the final legislation includes a 15% set-aside for university projects, supporting research in areas such as unconventional production, methane emissions, CCUS coupled with EOR, artificial lift in unconventional wells, wellbore integrity, produced water, and AI-enabled subsurface technologies.

Internationally, my recent trip to Mexico City was highly productive, and discussions continue regarding collaboration opportunities with Monterrey Tec. Domestically, our enrollment numbers remain strong, and we're looking forward to welcoming a large class of new freshmen this summer. As a college, this looks to be another record-breaking year—so much so that we're starting to feel the good problem of full classrooms!

To support our growing program, the department is in the process of hiring two new faculty members this year—one specializing in reservoir engineering and the other in rock mechanics.

It's truly an exciting time for Petroleum Engineering at Texas Tech. Thank you for your continued support and pride in our department. I hope you enjoy reading more about the incredible work of our students, faculty, and alumni throughout this newsletter. We hope to see you at NAPE, booth 1952, to share more about our department!

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Faculty Spotlight

Over Thanksgiving break, Dr. Watson met with Tecnologico de Monterrey in Mexico to discuss research and educational collaboration between Texas Tech University Whitacre College of Engineering and Monterrey Tec! Dr. Watson had the privilage of meeting with Ivan García - Director of Engineering, Miguel de J. Ramírez C. - National Director of Continuing Education, and Carlos Mercadillo - Head of Continuing Education. The department looks forward to working with Tecnologico de Monterrey in the future!

Dr. Stuart L. Scott was recognized as contributing to the new “Artificial Lift Playbook” in the January 2026 issue of the SPE JPT. The article highlighted his recent SPE-ATCE paper entitled “Surfactant Assisted Gas Lift (SAGL) - Large-Scale Lab Testing, Field Pilots and New Use for Frac Hit Recovery.” Of particular interest is the use of SAGL as a solution for Frac Hit gas lift wells. In this case, water-cuts are very high, and surfactants are particularly effective, shown to more than double water recovery rates, more quickly restoring production at low-cost.

Dr. Stuart L. Scott was the invited speaker at the SPE Permian Basin - January General Meeting in Midland. He gave a presentation entitled “EOR is Gaining New Interest in Unconventional Basins.” Dr. Scott noted that over half of US oil production comes from low permeability sands and shale plays in the Permian, Williston and Eagle Ford Basins, with an estimated original-oil-in-place (OOIP) of over 3 trillion barrels. So far, this production has been limited to “drill and drain” methods with the associated rapid decline and meager oil recoveries, leaving well over 90% of the OOIP in the reservoir. Recently, Enhanced Oil Recovery (EOR) has been gaining attention as a possible way to boost recovery and production from existing wells using existing infrastructure. His presentation discussed the potential of EOR in Unconventionals and highlighted Huff & Puff methods, some of which can now add reserves at a cost of less than $20/BO.

Department Research

Texas Tech Researchers Conduct Field Study at Utah FORGE Geothermal Site-

Dr. Smith Leggett and Ph.D. students Rion Nakamoto, Queen Nwabueze, Caio Morias de Almeida, and Hyojeong Seo recently spent two weeks in Milford, Utah, conducting a geothermal circulation test at the Department of Energy’s Utah FORGE enhanced geothermal system (EGS) site. The team installed a coiled tubing string equipped with advanced fiber optic sensors to monitor flow and temperature within the well, providing critical data on subsurface performance.

As part of the field campaign, the researchers also injected chemical tracers to estimate the heat exchange area of the geothermal reservoir. The results are providing key information for improving the efficiency and scalability of EGS technologies. This DOE-funded project represents a major step forward for Texas Tech’s visibility in geothermal energy research.

Notably, the same coiled tubing system was later used by Fervo Energy to monitor fracture operations in their adjacent commercial EGS wells, highlighting the collaboration between academic and industry partners driving innovation in renewable energy using petroleum engineering technologies.

Texas Tech Gas Lift Consortium Advances Production Optimization Research-

Dr. Smith Leggett and Ph.D. students Erasmus Mensah and Caio Morias de Almeida recently completed the second year of research under the Texas Tech Gas Lift Consortium. Supported by seven industry partners (Oxy, ConocoPhillips, ExxonMobil, Flowco, Diamondback Energy, Fasken Oil and Ranch, and Apache), the consortium continues to strengthen collaboration between academia and the energy industry.

This year’s efforts focused on intermittent gas lift experiments conducted on the Red Raider #2 test well at the Oilfield Technology Center. The team developed and delivered a new predictive model that helps determine the optimal time to transition from continuous to intermittent gas lift, providing operators with a data-driven method to improve production efficiency and reduce lift gas consumption. Consortium members are already applying the model to optimize operations across the Permian Basin, reinforcing Texas Tech’s leadership in artificial lift innovation.

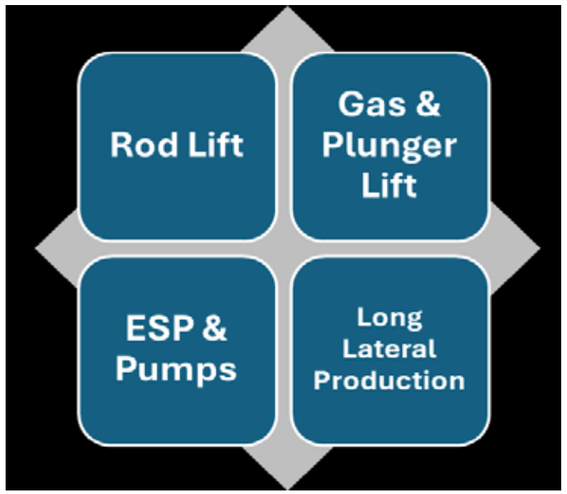
Texas Tech Petroleum Engineering Launches New Artificial Lift Center of Excellence (AL-COE)-

In 2026, Texas Tech Petroleum Enginnerig will launch a new Artificial Lift Center of Excellence (AL-COE). The goal is to establish Texas Tech as the preferred partner for Artificial Lift (AL) problem solving and training. The AL-COE will focus on solving real problems and seek to leverage cooperation across Texas Tech and with other Universities. Since “base production” is delivered through AL, the need for new ideas, product testing, research, and training, has never been more compelling.

The plan for governance will be through a Board comprised of representatives from oil & gas companies and faculty with deep industry experience. During the Fall 2025 semester, Dr. Scott held multiple conservations with Permian operators to define research and testing topics for ESPs, Rod Lift and Gas/Plunger Lift. Also, funds are currently being raised through alumni and corporate gifts and in-kind equipment donations. This is setting the stage to pursue substantial DOE funding on AL topics and the Texas University Fund (TUF) for a new building and infrastructure at the Oilfield Technology Center (OTC).

The scope of activities will include all lift types as well as solutions to the unique issues posed by long lateral production. The AL-COE can also serve as a focal point to organize and execute field pilots for operators. Funding will enable drilling a new horizontal well for testing in the curve and in the lateral. Note, it is anticipated that this well will be of shallow depth but with sufficient curve at the heal for testing AL methods.The AL-COE will build new test benches to support innovation, product testing, and undergraduate student projects. The intent is to expand Rod Lift testing capabilities, add new surface flow loops, and increase compressor capacity at the OTC. The AL-COE will also help bring automation, machine learning (ML), artificial intelligence (AI) to AL operations, and deliver next generation training to industry. Another key goal will be to provide graduate degree opportunities to experienced oilfield personnel.

For additional information contact Dr. Scott (stuart.scott@ttu.edu).



Southwestern Petroleum Short Course

SWPSC Hosts Successful Permian Basin Artificial Lift and Facilities Forum-

The Southwestern Petroleum Short Course (SWPSC) recently hosted the Permian Basin Artificial Lift and Facilities Forum, drawing more than 300 attendees from across the industry. This year’s event marked the first time the forum included a dedicated facilities component, expanding its scope and impact.

Participants praised the high-quality technical presentations and strong turnout, reflecting the growing interest in production optimization and field operations in the Permian Basin.

Texas Tech was well represented at the forum. Dr. Stuart Scott presented on surfactant-assisted gas lift for unloading frac-hit wells and highlighted a new initiative to be hosted in the petroleum engineering department.

Dr. Smith Leggett, Texas Tech professor and Executive Director of SWPSC, shared recent results from the Texas Tech Gas Lift Consortium, showcasing the university’s ongoing leadership in artificial lift research and collaboration with industry partners.

Landman for a Day & Roughneck Bootcamp

Landman for a Day-

As part of the ON&ON campaign events during Homecoming weekend, Dr. Marshall Watson and David Bishop led a group of donors through Landman for a Day—a class showcasing the Oilfield Technology Center and how it trains students and industry members for real-world experience. The two-hour, hands-on session was assisted by the Petroleum Engineering Industry Advisory Board and Society of Petroleum Engineers. Named as a reference to the OTC's use to train actors on the hit television series Landman, the class was part of a series of back-to-school experiences that shared the educational opportunities available to current Texas Tech students and was led by notable faculty members and alumni.

Roughneck Bootcamp-

We had an amazing turnout at our Roughneck Bootcamp in the Fall semester with 50 students-our biggest turnout yet!

Thank you to all of the faculty, alumni, and Texas Tech Petroleum Engineering Industry Advisory Board members for volunteering and providing our students with hands-on experience. We would like to give a special thank you to Jay Norton and Norton Energry Drilling for running our rig demonstration for our students and visitors!
We always have a great time showing the students around the Oilfield Technology Center. We look forward to hosting our Roughneck Bootcamp in the Spring.

Inaugural Hackathon

TTU Petroleum Engineering Hosts Its First Hackathon-

The Bob L. Herd Department of Petroleum Engineering marked an exciting milestone this November with the launch of the First TTU Petroleum Engineering Hackathon, a dynamic event that merges innovation, data analytics, and practical energy challenges. The two-part experience, beginning with a data analytics workshop and culminating in a full-day Hackathon, offered students a unique opportunity to enhance technical competency, collaborate under pressure, and showcase their problem-solving skills.

The event began on November 1, 2025, with a half-day data analytics workshop held at the Terry Fuller Petroleum Engineering Research Building. This preparatory session equipped students with foundational tools in data handling and interpretation, ensuring all participants were ready to engage in the complex production and operator-performance challenges presented during the Hackathon. A week later, on November 8, 2025, students arrived at the OTC facility for the Hackathon.

The Hackathon began with an early-morning check-in, followed by a formal introduction, event rules, and distribution of the challenge prompt. From 9:30 AM to 3:00 PM, teams worked intensively to develop data-driven solutions using real production datasets from Eddy and Lea Counties. The atmosphere was electric, fun, and engaging as students coded, analyzed, debated, and visualized insights under tight deadlines, mirroring the conditions engineers face in industry settings.

After project submissions, teams presented their analyses before a panel of judges, showcasing not only technical depth but also communication, clarity, and teamwork. Judges deliberated before announcing the top three teams whose outstanding work rose above a competitive field.

Award Winners-
•First Place – The Wildcatters
Abdulrahman Shahin, Bassel Eissa, Jemal W. Fentaw
•Second Place – Energy Mavericks
Mahmoud Abdellatif, Elie Bechara, Omar Abdelhak Mohamed
•Third Place – Unconventional Squad
Erasmus Mensah, Chibuzo Nwanwe, Jefferson Ogbuka, Michael Angelo Kyei

These teams demonstrated exceptional analytical thinking and applied engineering judgment, setting an inspiring benchmark for future TTU competitions. Throughout the event, professionalism and accountability were emphasized. Each team signed peer verification reflections to confirm equitable participation, and groups with full engagement received special recognition. These expectations reinforced the department's commitment to developing not just strong engineers, but strong collaborators and leaders.

The Hackathon's success was made possible by the dedication of mentors, organizers, and volunteers who guided students and ensured a seamless event. Special thanks are extended to Dr. Stella Eyitayo, Yogashri Pradhan, Jhanani Ramesh, Purushothkumar Santhana Mahalingam, Derrick Turk, and volunteers Naga Durga Chaitanya Ummadisetty and Satya Manikanta Yarra. Their contributions, along with sponsorship from the Bob L. Herd Department of Petroleum Engineering, played an instrumental role in shaping the inaugural event.
The First TTU Petroleum Engineering Hackathon stands as a testament to the creativity, skill, and drive of our students and faculty. As the department looks ahead, this event sets a strong foundation for future innovation and an enduring culture of experiential learning.

Society of Petroleum Engineers (SPE) Fall Activities-

During Engineering Kickoff this year, we had more than 100 people sign up for SPE! Thank you to Boomerang for sponsoring the polos.

The first home tailgate of the season was against Arkansas Pine Bluff. We appreciate Diamondbak Energy for sponsoring the food and Liberty Lift for sponsoring the soft drinks.

During the semester, Coterra Energy visited our department for an information session, gave a presentation on their operations, and answered students' questions.

SPE won Tailgate of the Day during Tech's game against Oregon State! Thank you to Baker Hughes for sponsoring the food and to Diamondback Energy for providing the soft drinks.

In the fall semester, 22 SPE members attended the SPE Annual Technical Conference and Exhibition in Houston. Thank you to Oxy for providing our members with the polos.

Plains Midstream visited our department and provided students with a presentation on the process of midstream facilities in the oil and gas industry.

We had a great time connecting with everyone duirng the family weekend tailgate against Oklahoma State University! Thank you to Innovex for sponoring the food and Diamondback Energy for providing the soft drinks.

TTU AADE & IADC Fall Activities-

AADE & IADC's Joint Golf Tournament was hosted at Hogan Park in Midland. This event served as a major fundraising and networking opportunity for students and industry professionals. Key sponsors included Premiere, WildWell, Liberty Lift, Petro Amigos, Mewbourne, Coterra, DrillChem, Tally Energy, and Superod.

Three students attended the 2nd Annual IADC Young Professionals Summit at Transocean's headquarters in Houston. This one-day conference offered professional development and networking. It also covered topics such as career advancement, navigating industry cycles, mental health and wellness, financial planning, work-life balance, AI's impact on the industry, and current oil & gas challenges.

JEMAL W. FENTAW – TEXAS TECH UNIVERSITY
PhD in Petroleum Engineering

SOFIA RODRIGUEZ – TEXAS TECH UNIVERSITY
Petroleum Engineering

AYANN TIAM – TEXAS TECH UNIVERSITY
PhD in Petroleum Engineering

DIANA MAURY FERNANDEZ – TEXAS TECH UNIVERSITY
PhD in Petroleum Engineering

Four of our students were selected to receive the the 2025 IADC Student Chapter Scholarship, a competitive award recognizing outstanding academic performance, leadership, and contribution to chapter activities. This scholarship represents IADC's commitment to supporting the next generation of drilling professionals and further strengthens our students' engagement with the industry.

We successfully hosted seven joint tailgates with SPE as part of the Terry Fuller Tailgate. These events were supported by more than 15 sponsoring companies, who provided food, cooking teams, and on site engagement. The tailgates created valuable social and networking opportunities for students, allowing them to interact directly with industry professionals in an informal, relationship building environment.

We have successfully hosted 13 joint information sessions with SPE, featuring presentations from companies including Oxy, Coterra Energy, EOG, Continental Resources, Wild Well, Liberty Energy, Liberty Lift, H&P, Mojave, Summit Casing, Plains, and Baker Hughes. These sessions allow industry professionals to share insights about their companies, current projects, and emerging technologies. They provide students with a deeper understanding of the energy sector and offer a highly interactive learning experience, strengthening the connection between academic preparation and real-world industry application.

Student Spotlight

TTU AADE & IADC Fall Activities-

Two of our students, Sofia Rodriguez (left) and Tristan Crawfrod (right), were awarded the prestigious AADE National F5 Andy Ellis Scholarship, which recognizes academic excellence, leadership, and commitment to the drilling industry. As part of the scholarship experience, both students were invited to Houston to attend the AADE F5 Fundraising Event.

AADE and SPE jointly supported sending five students to represent Texas Tech University at the 6th Annual Daniel Energy Partners Permian Basin BBQ Cook-Off. Sponsored by Daniel Energy Partners, this invitation-only event brings together executives from public and private operators, service companies, financial institutions, and influential energy investors. The cook-off provides a unique environment for high-level networking, industry exposure, and student engagement with senior professionals who play key roles in the development of the Permian Basin.

An AADE & IADC Golf Social, which was a student engagement event, sponsored by Mojave Energy Services and McGuire Industries, was held early in the semester to welcome new members and encourage involvement in chapter activities.

Alumni News-

Dr. Athar Hussain, a former PhD student in the Bob L. Herd Department of Petroleum Enginnering, was named the SPE Permian Basin Member of the Month for January 2026! We are extremely proud of Athar and all of the success he continues to have in the Petroleum Engineering industry!

Industry Involvement

Mojave Energy Services Informaion Session-

Our department hosted Mojave, a service company, for an educational session on wireline operations. Their team walked us through the different types of wireline services and explained which tools are used for each service. They also brought several tools for us to see up close, along with two wireline trucks so members could look inside and learn how the equipment works in the field.

To wrap up the event, they cooked steaks for everyone, and we enjoyed a small social afterwards.

ExxonMobil Visit to OTC-

The Oilfield Technology Center (OTC) recently welcomed visitors from ExxonMobil's training team. Derrick Meadows, Foundational Craft Skills Superintendent, along with Ian Hampton and Eddy Bizzell, toured the Petroleum Department labs on campus before continuing to the OTC.

Their visit focused on learning how the department blends classroom instruction with hands-on training to prepare students for the industry.

At the OTC, students benefit from a learning environment that pairs foundational coursework with real-world application using physical oilfield equipment. Inside the facility, they can engage with models of wellbores, production vessels, rod pumps, gas-lift systems, and other common oilfield components.

Outside, the experience is further enhanced by observing fully operational wells, one gas-lift and one with a pumping unit. The centerpiece of the facility is the drilling rig, which was running demonstrations during this year's Roughneck Bootcamp.

Following the visit, Mr. Meadows shared his impressions: "Having visited a number of similar academic and industry training facilities over my twenty-three-year career with ExxonMobil, I was particularly struck by the depth of technical capability, innovative training methods, and real-world applicability demonstrated throughout your program. The integration of hands-on learning with advanced technologies is among the most effective I've seen and speaks volumes about the leadership and vision Dr. Watson imparts to guide this department."

Texas Railroad Commission Visit to OTC-

On November 4th, leadership from the Oil and Gas and Critical Infrastructure divisions of the Texas Railroad Commission visited the Oilfield Technology Center for a tour led by Dr. Watson and Mr. Brasher.

Calling All Students!

We invite you to attend the 72nd Annual Southwestern Petroleum Short Course

APRIL 20-23 2026

Lubbock Memorial Civic Center

NEED MORE DETAILS?

Visit us at swpshortcourse.org

ROUGH NECK BOOTCAMP

Friday May 1st,1:00pm-4:00pm

Join us for a hands-on experience where you will receive training with industry equipment and have the opportunity to network with top industry experts! You will also be provided with resume and interviewing skills.

Interested in participating?

Arrive at the Petroleum Engineering building at 12:30 PM to register and get your free t-shirt. Transportation to OTC provided.

To RSVP please email Rose Cruz – rose.cruz@ttu.edu

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Alumni- please scan the QR code to participate in our curriculum survey. Your feedback on how we can improve our program is extremely valuable to us!

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