

TRANSFORMATIVE EDUCATIONAL EXPERIENCE 2022 GRANT PRESENTATIONS

Title: The Development of a Short Course on Sustainable Energy for Students in Education City



Principal Investigator: Dr. Aziz Rahman

Bio: Dr. Aziz Rahman is an Associate Professor in the Petroleum Engineering Program at Texas A&M University - Qatar (TAMUQ). Dr. Rahman received his Ph.D. from the University of Alberta, Canada, in 2010. Since then, he has been involved in several research collaborations with companies, including Total Energies, Qatargas, NEL, Syncrude Canada, GRI Simulations, and Petroleumsoft. During this time, Dr. Rahman secured around \$2.5 million in research funding from organizations such as Qatar Foundation, Natural Sciences and Engineering Research Council of Canada, and Newfoundland Research & Development Corp. He is a registered Professional Engineer in Alberta, Canada, and an active member of organizations such as SPE and ASME.

Team Members: Dr. Tanvir Alam (HBKU), Dr. Yusuf Bicer (HBKU), Dr. Ibrahim Hassan (TAMUQ), Dr. Aziz Rahman (TAMUQ), Omer Abedrabbah (s-HBKU), and Aditya Bhagat (s-TAMUQ)

Abstract:

The current technology in the petroleum industry and its dependence on fossil fuel is in the substantial transformation to environmentally safe and sustainable technology with the aid of automation, renewables, data analytics, and artificial intelligence. In the TEE project, we have combined renewable energy, carbon neutrality, and artificial intelligence (AI) with traditional Oil and Gas applications. As one of the outcomes of the project, we are going to offer a short in the Education City through a multiversity approach. Due to the multidisciplinary nature of the short course, the students will also be exposed to a diversified learning environment. The skillset from the proposed multiversity course will be an essential part of their future workplace experience. To enhance the motivation and student engagement in the short course, we have developed several 3-D models, and we will display these table-top modules to the students for better understanding during the lecture of the short course. We will teach the students with the traditional approach and subsequently with the new approach with 3-D models. We will also perform a survey. The survey will assess the student learning experience with and without the aid of 3-D models.

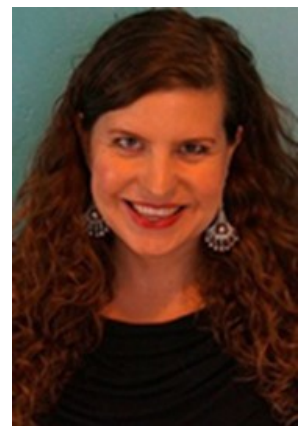
Title: Enhancing Student Progress and success: A reevaluation of the foundation English Courses at TAMU-Q

Principal Investigator: Dr. Sara Hillman

Bio : Sara Hillman is an instructional assistant professor of English in the Division of Arts and Sciences at Texas A&M University at Qatar. She teaches courses in academic writing and reading and intercultural communication, and coordinates the Foundations of English program. She is also a scholar of applied linguistics, second language pedagogy, sociolinguistics, and intercultural communication.

Team Members: **Dr. Aymen ElSheikh, Dr. Naqaa Abbas, Dr. Bryant Scott, Fadwa Abbas (s), and Abdullaziz Al-Balushi (s)

**All TAMUQ*



Abstract:

Our project was to conduct a program evaluation of the Foundation English program at TAMUQ to make recommendations that will enhance our student success and progression. Our data collection and analysis were based on several guiding questions: 1) Are students generally satisfied with their Foundation English courses? 2) What kinds of pressures do students face being placed in Foundation English courses? 3) Are there other program models for English language support that might work better for our students? Our student partners conducted multilingual interviews with 73 current and former Foundation students, and our faculty team met with members of administration and staff from TAMUQ, TAMU-College Station, and other QF partner universities. We will highlight several findings and recommendations, and our student partners will reflect on their role and what they learned through participating in the project.

Title: Creating Creative Educational Opportunities Among Engineering and Arts Students.



Lead Principal Investigator: Dr. Yasser Al-Hamidi

Bio : Dr. Al-Hamidi holds a Ph. D. degree in Mechatronics from the University of Bourgogne Franche-Comté (UBFC), France, and currently working as the Mechanical Engineering Laboratories Manager at Texas A&M University at Qatar. He joined Texas A&M University at Qatar in 2007 coming from University of Sharjah. Dr. Al-Hamidi had been appointed as a visiting lecturer in 2018 to teach design related courses in the mechanical engineering program. He specializes in product design, instrumentation, controls, and automation. Dr. Al-Hamidi founded the Engineering Enrichment Program in 2016, which is currently one of the Center for Teaching and Learning pillars. He received three Transformative Engineering Education grants related to multidisciplinary education in 2018, 2021 and 2022. In 2021 Dr. Al-Hamidi received the Dean's Achievement Award to recognize his contribution to the campus within that year. In 2015 he received the Association of Former Students AFS Distinguished Achievement Award as a recognition for his commitment, performance and positive impact on Aggie students

Principal Investigator: Dr. Marwan Khraisheh (TAMUQ)

Team Members: Abdullah Ibrahim (s-TAMUQ), Roudha Al-Khaldi (s-TAMUQ) Doaa Emam (s-VCU-Q)

Abstract:

This TEE grant was meant to introduce new multidisciplinary activities between students from the Engineering and Arts majors. It sheds the light on how engineering students can be prepared to become 'outside the box thinkers' by interacting and working on common projects with students from the arts and design majors. It shows also how engineering-art connection works in the opposite direction, where arts students can gain vision on how to bring their ideas to life more realistically. The results of this collaborative work in the form of two art installations will be additionally presented.

Title: Petroleum Engineering Critical Thinking Reinforcement Platform

Principal Investigator: Dr. Mohamed Fadlelmula

Bio: Dr. Mohamed Fadlelmula is an Instructional Assistant Professor of Petroleum Engineering at Texas A&M University at Qatar (TAMUQ). He received his PhD in Petroleum and Natural Gas Engineering from Middle East Technical University, Ankara, Turkey in 2012. Dr. Fadlelmula is dedicated to teaching excellence and since he joined TAMUQ in 2016, he has participated in several projects to improve students' learning experience, motivation and engagement. He has received different teaching awards such as the TAMUQ Teaching Excellence Award 2022, and the Distinguished Achievement Award in Teaching, College Level, TAMU AFS in 2020. His research interests include reservoir modeling, geostatistics, rock mechanics and uncertainty analysis. Dr. Fadlelmula also serves as the ABET coordinator of the Petroleum Engineering Program since 2018.



Team Members: Dr. Nayef Alyafei (TAMUQ), Janessa Paderes (s-TAMUQ), Ayesha Hussein (s-NU-Q)

Abstract:

This project was aimed to stimulate and reinforce critical thinking in TAMUQ students. The team created an Instagram account, Decode.qa, in which four types of content were posted over a span of 14 weeks. Students were also encouraged to participate with the chance of winning a gift card if they answered correctly. Additionally, the team hosted the Decode with SPE event to advertise the account and encourage students' critical thinking through a fun event, around 70 students participated. The impact of this project is that it enhances students' learning through competition and active learning strategies. The team conducted a focus group and concluded that the next best course of action is for Decode.qa to be a student organization.

Title: PETE Essentials: Course Concepts Summarized and Illustrated for Easy learning.



Principal Investigator: Dr. Nayef Alyafei

Bio: Dr. Nayef Alyafei earned his PhD in Petroleum Engineering from Imperial College London in 2015 and an Associate Professor of Petroleum Engineering at Texas A&M University at Qatar (TAMUQ). Dr. Nayef earned his BSc in Petroleum Engineering from TAMUQ in 2009, and is the first graduate to earn a PhD and return to his alma mater to join the faculty. During this period, he developed and taught many of the courses in the TAMUQ freshman and Petroleum Engineering Program curricula. Subsequently, it became apparent that Dr. Nayef possessed exceptional abilities as an educator. As a result, he was named an Energy Influencer of 2020 by the Society of Petroleum Engineers (SPE). Since he joined TAMUQ, he has gone on to achieve many awards and distinctions. He has earned the TAMUQ Teaching Excellence Award, and the Association of Former Students (AFS) Distinguished achievement College Level Teaching Award, both in 2019.

Team Members: Sahar Mari (TAMUQ), Saba Khan (s-TAMUQ), Fatima Abdulla (s-TAMUQ), Romeo Indico (s-TAMUQ)

Abstract:

In this project, we created four magazines/booklets that summarized various petroleum engineering courses lucidly. The idea of this project stemmed from my first magazine, "Reservoir Rock Properties Essentials," which summarized my PETE 311- Reservoir Petrophysics course succinctly. The plan, then, was to create more of these Essentials to cover more of the petroleum engineering curriculum. These magazines will continuously be used by the instructors and students in TAMUQ and beyond. All the professors were given a digital copy of the magazine and 50 copies of the magazine. In addition, physical copies were given to all our students. Also, the electronic copies were shared with various schools in the region and publicly shared via LinkedIn. For the remaining physical copies, a number was shared with the industry (Qatar Energy, Qatar Gas, and North Oil Company). The rest are left in a stand in the petroleum engineering suit for public use. These magazines aid in understanding various topics as well as assist our seniors in our compressive exams. Industry professionals find these magazines to be a handy refresher and quick access to fundamental knowledge in petroleum engineering.

Title: Open Educational Resource: The Labor and Environmental Dimensions of the Oil and Gas Industry in Qatar

Principal Investigator: Dr. Albertus Retnanto

Bio: Dr. Albertus Retnanto is the Petroleum Engineering Program Chair and Professor of the Practice at Texas A&M University at Qatar. He held a Principal position with Schlumberger and has over 18 years of experience worldwide in technical and management positions.

Team Members: Dr. Anto Mohsin (NU-Q), Zaina Aloudeh (s-TAMUQ), Tayyib Kazim (s-NU-Q)



Abstract:

This TEE project is joining forces to create an online open educational resource (OER) in the form of shared course materials that touch on the technoscientific, historical, and social aspects of Qatar's oil and gas industry. In addition to the three modules that have been finished, the two additional modules cover the labor and environmental dimensions. The fourth module aimed to provide insight into the roles and contributions of Southeast Asian and South Asian workers in the industry. Their backgrounds, skills, knowledge, and technical and managerial know-how have helped develop the oil and gas industry and, to a large extent, the economic development of the Gulf. The fifth module examined the industry's sustainable energy initiatives as mandated by the QNV 2030 and the UN SDGs. The team drew from publicly available documents and sustainability reports produced by oil and gas companies in Qatar, news coverage, and interviewed key personnel who have intimate knowledge of the company's green energy and climate action initiatives and practices. Our findings are an online OER at historyofoilgasinqatar.com. An impact of the project is that it supports the QF Multiversity goals. In addition, as an OER, it has the potential to reach a large audience and the modules that could be used over time.

Title: Teaching Entrepreneurial Writing for Engineering Excellence in Qatar



Principal Investigator: Dr. Tehmina Pirzada

Bio: Dr. Tehmina Pirzada is an instructional assistant professor of English in the Liberal Arts Program at Texas A&M University at Qatar. Her research bridges visual studies, postcolonial literatures, South Asian literatures, and youth cultures. Her recent publications appear in *South Asian Popular Culture*, *Girlhood Studies*, and *The Journal of Commonwealth Literature*.

Team Members: Dr. Maria D. Lombard (NU-Q), Dr. John Timothy Sherrill (QU), Hayyam Iqbal (s-TAMUQ), Imane Kahramane (s-TAMUQ)

Abstract:

Our study presents preliminary findings about the impact of a Professional Writing assignment sequence on developing entrepreneurial writing skills for students in Qatar. The assignment sequence was shared across three collaborating institutions in Doha. As part of the course, students attended guest lectures by industry experts from the US, Canada, and Qatar. Although data collection was not fully completed due to IRB delays and challenges of collaborating across multiple institutions, initial results suggest that the assignment sequence improved students' workplace writing skills and boosted their confidence in pursuing entrepreneurship. Further research is needed to assess the role of student identity in workplace preparedness for writing tasks, and to revise local professional writing courses accordingly.

Title: Technical and Professional Communication Course Redesign –The Power of Writing in Engineering

Principal Investigator: Dr. Naqaa Abbas

Bio: Dr. Naqaa Abbas is Instructional Assistant Professor at Texas A&M University at Qatar. She has more than seventeen years of teaching and administrative experience in North American, European, and Middle Eastern institutions. Before joining TAMUQ, Dr. Abbas taught a variety of composition and literature classes at Western University, Zurich University, and the University of Saskatchewan. She has also taught Business Writing and Communication, Post Foundation as well as EAP classes in various institutions including the University of Saskatchewan Language Centre as well as Saskatchewan Polytechnic. She most recently taught Essay Writing and Professional Writing classes at Qatar University, where she was Assistant Professor of Writing. Dr. Abbas' research interest include Writing communities, cultural awareness in writing pedagogy, writing and communication in STEM



Team Members: Dr. Mary Queen, Dr. Reza Tafreshi, Dr. Patrick Linke, Lana El-Ladki, Wellage De Silva (s-TAMUQ)

Abstract:

Our TEE Grant project comprises of a collaboration between Engineering and English faculty and examines the initial impact of our team's reorganization of a required Technical Professional Writing (ENG 210) course on engineering students' educational experience as they learn effective and relevant professional communication skills in the field of engineering; as they network with mentors from various industries in Doha; and as they train to be effective writers and competitive candidates in their engineering fields. While many engineering programs require a number of technical writing and writing intensive (WI or WIC) courses in their study plans, our undergraduate engineering students at Texas A&M University Qatar take only ONE course in Technical Professional Communication (ENGL 210). The objective of the course is to provide students practice in technical and professional writing and communication. Yet, engineering faculty at TAMUQ express concern that students in their upper-division and capstone courses struggle with expressing their knowledge in oral and written genres.

Our research group is comprised of two Engineering faculty and two English faculty (one of whom is also a Writing in the Disciplines Coordinator – WID). Through extensive meetings and discussions, sharing of assignments and students' work, and review of course objectives and assessments, our team redesigned the required ENGL 210 to focus on what engineering faculty identify as relevant aspects of writing in the field of engineering: problem statements, research and literature reviews, project proposals, progress reports, and scientific poster design, with additional focus on integrating UX design and data visualization in the students' projects. We created assessments that more closely align with engineering faculty and industry professionals' expectations for effective oral and written communication. We also brought industry professionals to campus to discuss topics such as the importance of clear communication in engineering workplaces and effective team collaboration. We will discuss the successes and challenges of this collaboration, and we will argue that the significant collaboration between English and Engineering faculty in developing assignments, providing feedback to students throughout their projects, and assessing students' final products, as well the partnership with various partner industries, considerably improves our students' writing journey at TAMUQ as they learn effective and relevant professional communication skills in the field of engineering.