Mohammad Abu Rafe Biswas

Current Academic Rank and Appointment

Associate Professor
Department of Mechanical Engineering
The University of Texas at Tyler

Office Address

The University of Texas at Tyler
Houston Engineering Center
2811 Hayes Rd.
Houston, TX 77082
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Education

Doctor of Philosophy in Chemical Engineering May 2013
University of Florida, Gainesville, FL
Dissertation title: *Model Development and Control Design of Fuel Cell Systems to Power Portable Devices*. Advisor: Prof. Oscar Crisalle

Bachelor of Chemical Engineering May 2008
Auburn University, Auburn, AL
University Honors Scholar. Thesis title*: Investigation of non-chlorinated precursor compounds for molecular vapor deposition of silica.* Advisor: Dr. W. Robert Ashurst

Teaching Experience

Associate Professor (Mechanical Engineering) September 2020 - Present
Assistant Professor (Mechanical Engineering) January 2014 – August 2020
University of Texas at Tyler, Houston, TX

- Instructor of annually offered lecture and laboratory courses on control theory and thermal fluid sciences as well as technical elective courses on MENG 4330/5330 Process Control (typically every other year offerings) and MENG 4345/5345 Energy Conversion.
- Instructed or supervised sunset (no longer offered) courses on thermal fluid system design and Fundamentals of Engineering (FE) Exam preparation course.
- Faculty Advisor and NASA Mentor since 2018 to different undergraduate senior design project teams, supported (total of >$11,000) by NASA Johnson Space Center and Texas Space Grant Consortium (TSGC) over the past few years, to cover various projects including design and analysis of electrolyzer, regenerative fuel cell and aquaponic systems for fuel, energy and food production, respectively, on Mars or Lunar surfaces.
- Lead investigator of development of a laboratory-scale thermal fluid energy system with user-friendly and remotely accessible interface and course content for relevant undergraduate mechanical engineering courses as part of an innovative and integrated teaching model supported by the P&G Fund's Higher Education Grant Program (PI - $19,984 in 2022 & co-PI - $20,000 in 2023), the university's TLA award (co-PI - $2000) and the Open Educational Resources Grant Program (co-PI - $10,000) along with the Department of Mechanical Engineering..
- Project-based learning mentor and advisor to undergraduate senior design project teams including development and construction of a laboratory-scale heat exchanger system with user-friendly and remotely accessible interface and course material for undergraduate mechanical engineering course, supported by the Department of Mechanical Engineering.
- Thesis Advisor and Committee Chair of several graduate thesis students including a Texas Space Grant Consortium Masters Thesis Challenge Fellow, who was awarded $10,000 over a two year period of the project on the topic of 2-D steady state thermal fluid model of a ceramic transport membrane system for oxygen production on Mars surface. Moreover, led proposal development for grant sponsored by NSF.
- Independent study course mentor (2015 –2016) to multiple graduate students related to power model, analysis and management of hybrid fuel cell and battery unit powered aerial vehicle power systems. Moreover, led and assisted in proposal development for grants sponsored by various agencies including Google, NASA and FAA.

- Research course mentor (2014 –2016) to undergraduate students on a collaborative project on model development to predict residential building energy consumption. Moreover, led and assisted in proposal development for grants sponsored by various agencies including NSF and ASHRAE.
- Faculty mentor to 30-70 students annually to guide and develop academic and professional expectations and goals.
- Internship course mentor to student interns located within the Greater Houston area. Duties involved meeting with supervisors at their facilities as well as reviewing and evaluating reports.

Adjunct Lecturer August – December 2013
University of Texas at Tyler, Houston, TX
- MENG 3210, *Mechanical Engineering Laboratory I*. Responsible for execution of experiments focusing on measurement and instrumentation. Duties include directing laboratory activities, student training, grading of assignments and laboratory reports, and holding office hours. Fall 2013.
- MENG 3310, *Fluid Mechanics*. Duties include delivery of lectures on the analysis of fluid flow in a system, holding office hours, and grading of exams, quizzes and homework. Fall 2013.
- MENG 3301, *Thermodynamics I*. Duties include lectures on mass and energy balance analysis, holding office hours, and grading of exams, quizzes and homework. Fall 2013.

Graduate Teaching Assistant August 2010 - May 2011
University of Florida, Gainesville, FL
- ECH 4504, *Chemical Kinetics and Reactor Design* - Fall 2010. The work mainly included grading of Exams, giving lectures in the lab section of the class and holding office hours.
- ECH 4323 and 4323L, *Process Control Theory and Laboratory* - Spring 2011. The work mainly included grading of Exams, Computer Assignments and Homework, giving lectures in the absence of the primary instructor and holding office hours.

Research Experience

Faculty Research Associate (Engineer) May 2017 – June 2021
NASA Johnson Space Center, Houston, TX
- Part-time Assignee on unfunded project through Intergovernmental Personnel Act agreement in the Energy Conversion System Branch of the Propulsion division in the Engineering Directorate.
- Develop and analyze thermal fluid model of solid oxide fuel cell, solid oxide electrolyzer and steam methane reformer using physics based and machine learning based modeling approaches in electrical power and fuel delivery applications for deep space manned missions.
- Model and analyze regenerative fuel cell system using MATLAB® to help in feasibility of energy production for Lunar landers.

Faculty Fellow June – August 2020
NASA Glenn Research Center, Virtual
- Selected and participated in the 10-week NASA Glenn Faculty Fellowship Program
- Assist in thermal fluid analysis and model development of vent line system of Regenerative Fuel Cell system for Lunar analogous conditions.
- Deliver full report and MATLAB® code of model

Faculty Research Associate (Software Developer) July 2015 - May 2017
NASA Johnson Space Center, Houston, TX
- Part-time Assignee on unfunded project through Intergovernmental Personnel Act agreement in the Rapid Prototyping Laboratory in the Flight Operations Directorate.
- Assist Rapid Prototyping Laboratory on software verification of Orion Cockpit display software using EggPlant Functional and Python.
- Supervise regular reports and presentations for quality and help in three conference publications.

Patents

Crisalle, O. D., Biswas, M. A., Mudiraj, S. P., & Lear Jr, W. E. (2019). "Operational control of fuel cells." U.S. Patent No. 10,211,470.

Publications and Presentations

Journal Articles

Rahman, M.H. and Biswas, M. A. R. (2024). “Modeling of Dry Reforming of Methane Using Artificial Neural Networks.” Hydrogen, 5(4), 800-818. https://doi.org/10.3390/hydrogen5040042

Biswas, M. A. R., and Wilberforce, T. (2023). "Dynamic thermal model development of direct methanol fuel cell." International Journal of Thermofluids 17: 100294.

Khan, J.X., Biswas, M. A. R., and Wilberforce, T. (2023). Development of an Educational Fuel Cell System for Mechanical Engineering Course. International Journal on Engineering, Science and Technology, 5(1), pp.62-73.

Wilberforce, T. & Biswas, M. A. R. (2022). A Study into Proton Exchange Membrane Fuel Cell Power and Voltage Prediction Using Artificial Neural Network. Energy Reports, 8, 12843–12852. https://doi.org/10.1016/j.egyr.2022.09.104

Wilberforce, T., Biswas, M. A. R., & Omran, A. (2022). Power and Voltage Modelling of a Proton-Exchange Membrane Fuel Cell Using Artificial Neural Networks. Energies, 15, 5587. https://doi.org/10.3390/en15155587

Biswas, M.A.R. & Robinson, M. D. (2017). Prediction of Direct Methanol Fuel Cell Stack Performance Using Artificial Neural Network. Electrochemical Energy Conversion and Storage, 14(3), 031008-1-7.

Biswas, M.A.R., Robinson, M. D. & Fumo, N. (2016). Prediction of residential building energy consumption: A neural network approach. Energy, 117(1), 84-92.

Mudiraj, S., Crisalle, O., Biswas, M.A.R., & Lear, W. (2015). Comprehensive mass transport modeling technique for the cathode side of an open-cathode direct methanol fuel cell. International Journal of Hydrogen Energy, 40(25), 8137–8159.

Fumo, N., & Biswas, M.A.R. (2015). Regression analysis for prediction of residential energy consumption. Renewable & Sustainable Energy Reviews, 47, 332–343.

Biswas, M.A.R., Crisalle, O., Mudiraj, S., & Lear, W. (2014). Systematic approach for modeling methanol mass transport on the anode side of direct methanol fuel cells. International Journal of Hydrogen Energy, 39(15), 8009–8025.

Conference Proceedings

Biswas, M. A. R., Sundaravadivel, P., & Khanal, A. Using Video Creation to Develop the Entrepreneurial Mindset of Engineering Students. In 2024 ASEE Annual Conference & Exposition, Portland, Oregon: ASEE (June 2024). 10.18260/1-2—48245

Biswas, M. A. R., Garcia, O.; Reyes, L. H.; Hoshivar, S.; Salman, R.; Kurmishev, V. Energy and Cost Analysis of Ground Source Heat Pump Systems for Residential Application in Texas. In International Conference on Studies in Engineering, Science, and Technology (ICSEST). Antalya: International Society for Technology, Education, and Science (ISTES) (November 2022).

Biswas, M. A. R., & Khan, J. X. Internally Developed Open Educational Textbook for Thermal Fluid Laboratory Course. In International Conference on Studies in Engineering, Science, and Technology (ICSEST). Antalya: International Society for Technology, Education, and Science (ISTES) (November 2022).

Khan, J. X., & Biswas, M. A. R. Development of An Educational Fuel Cell System for Mechanical Engineering Course. In International Conference on Engineering, Science and Technology (IConEST). Austin: International Society for Technology, Education, and Science (ISTES) (October 2022).

Biswas, M., Al-Shalash, O., & Barakat, N. (2022). Remote Laboratory-Based Learning in A Thermal

Fluid Course Paper. In 2022 ASEE Annual Conference & Exposition, Minneapolis, MN. https://peer.asee.org/40425

Barakat, N., Al-Shalash, A., Biswas, M., Chou, SF., Khajah, T. (2022). Engineering Experiential Learning During the COVID-19 Pandemic. In: Auer, M.E., Hortsch, H., Michler, O., Köhler, T. (eds) Mobility for Smart Cities and Regional Development - Challenges for Higher Education. ICL 2021. Lecture Notes in Networks and Systems, vol 390. Springer, Cham. https://doi.org/10.1007/978-3-030-93907-6_105

Biswas, M. A. R., & Al-Shalash, A. (2021). Improve Technical Communication Using Scaffolding Method in Mechanical Engineering Courses. In 2021 Fall ASEE Middle Atlantic Section Conference. Virtual.

Biswas, M. A. R., Stilwell, B. L., & Reyes, E. "Simulated Laboratory-Based Learning In A Thermal Fluid Laboratory Course." In ASEE 2021 Gulf-Southwest Annual Conference. Waco: Baylor University (March 2021). https://peer.asee.org/36401

Biswas, M. A. R. & Reyes, E. "Thermal Model Development and Control Design Interface of a PEM Fuel Cell for Simulation Based Learning in a Mechanical Engineering Course." In 2021 ASEE Southeastern Section Annual Conference. Virtual: ASEE (March 2021).

Biswas, M. A. R., Rahman, M. & Biswas, M. A. S. "Thermodynamic Process Model Development of Selected Platinum-Group Metal Catalyst Based Steam Methane Reformer for Hydrogen Production." In Spring Meeting & 16th Global Congress on Process Safety. Virtual: AIChE (August 2020)

(Biswas, M. A. R.) & Robinson, M. D. (2017). "Model Prediction of Dynamic Performance Response of DMFC using Artificial Neural Networks." In: The 12th International Conference on Computer Science and Education. Houston: IEEE.

Ebrahimi, H., (El-Kishky, H.), Biswas, M. A. R., & Robinson, M. D. (2016). "Impact of pulsed power loads on advanced aircraft electric power systems with hybrid APU." In Power Modulator and High Voltage Conference (IPMHVC), 2016 IEEE International (pp. 434-437). IEEE.

Ebrahimi, H., (El-Kishky, H.), Erdle, J., Biswas, M. A. R., & Robinson, M. D. (2016). "Novel GSSA modeling and control of high power inverters for modern aircraft electric power systems." In Power Modulator and High Voltage Conference (IPMHVC), 2016 IEEE International (pp. 494-498). IEEE.

(Biswas, M. A. R.) & Robinson, M. D. (2015). "Performance Estimation of Direct Methanol Fuel Cell Using Artificial Neural Network." In *ASME 2015 International Mechanical Engineering Congress and Exposition* (Vol. 6B, p. 9). Houston: ASME.

Professional Workshops

Biswas, M. A. R., S. P. Mudiraj, L. D. Neal, C. C. Kuo, W. E. Lear, J. H. Fletcher, and (O. D. Crisalle). "Design and Characterization Techniques for a Liquid Barrier Layer for Use in Direct Methanol Fuel Cells." *Conference on Advanced Materials for Sensors, Electronic Devices and Renewable Energy*, Najran, Kingdom of Saudi Arabia, May, 2012.

Biswas, M. A. R., L. Kelley, (W. E. Josephson) and D. R. Mills. "Food Experiments in the Unit Operations Lab." *American Institute of Chemical Engineers Annual Meeting*, Salt Lake City, UT, November 2007.

Invited Talk

"Analysis of an integrated air-breathing direct methanol fuel cell hybrid system for portable electronic devices." Galveston Bay Section of the Institute of Electrical and Electronic Engineers (IEEE) Luncheon Meeting. NASA Gilruth Center, Houston, TX (February 2015)

Non-Refereed Conference/Poster Presentations

Biswas, M. A. R., Khanal, A., & Sundaravadivel, P. (2024, June), "Board 442: Data-driven Approach to Problem Solving in Renewable Energy and Engineering Education." In 2024 ASEE Annual Conference & Exposition, Portland, Oregon. 10.18260/1-2--47034

Khanal, A., Sundaravadivel, P., & Biswas, M. A. R. (2024, June), "Board 141: Incorporating Sustainability into Engineering Curriculum Through Project-Based Learning (PBL)." In 2024 ASEE Annual Conference & Exposition, Portland, Oregon. 10.18260/1-2—46700

Nikolov, K., Nguyen, X., Ortiz, V., & Biswas, M. A. R. (2021). Simulated Crossflow Heat Exchanger System Using Simulink Modeling. In 2021 Fall ASEE Middle Atlantic Section Conference. Virtual.

Aygun, G., Nguyen, A., Vasek, D., & Biswas, M. A. R. (2021, November). Design of a User Friendly Remotely Accessible Cross Flow Heat Exchanger. 2021 Fall ASEE Middle Atlantic Section Conference. Virtual Poster.

Pokhrel, S., Patel, S., Ahmed, I., & Biswas, M. A. R. (2021, November). A Comparative Analysis of Fuel Cell and Internal Combustion Engine in Automobile Application. 2021 Fall ASEE Middle Atlantic Section Conference. Virtual Poster.

Reyes, E., Biswas, M. A. R., Garcia, A. C., Stilwell, B. L., Sithideth, J. A., Puckett, C., Nobinger, C., & Ellis, C. "Design of An Innovative Module for Mars Habitation Paper." In ASEE 2021 Gulf-Southwest Annual Conference. Waco: Baylor University (March 2021). https://peer.asee.org/36371

Biswas, M. A. R. & Mwara, K. N. "Model Development of Solid Oxide Fuel Cell Thermal Performance Using Artificial Neural Network." In 2020 Spring Meeting & 16th Global Congress on Process Safety. Virtual: AIChE (August 2020).

Ogletree, S. & Biswas, M. A. R. "Thermal Fluid Analysis of a Solid Oxide Electrolyzer Cell for Oxygen Production from Carbon Dioxide. (Abstract)" In 2020 Spring Meeting & 16th Global Congress on Process Safety. Virtual: AIChE (August 2020).

Biswas, M. A. R. " Analysis of Fuel Cell System through Project Based Learning for Application of Classical Thermal Fluid Concepts in Mechanical Engineering Laboratory Course." In 2020 Spring Meeting & 16th Global Congress on Process Safety. Virtual: AIChE (August 2020).

Biswas, M. A. R. and Resende, F. (2020, August). Model Development of Jet Fuel Production From Hydropyrolysis Using Artificial Neural Network. Thermal and Fluids Analysis Workshop (TFAWS). Virtual: NASA Engineering and Safety Center (NESC).

Ogletree, S. & Biswas, M. A. R. "A Review of Solid Oxide Electrolyzer Cell (SOEC) Modeling of Dry Carbon Dioxide Electrolysis." In 2019 ASEE Gulf Southwest Annual Conference. Tyler: The University of Texas at Tyler (March 2019).

(Biswas, M. A. R.) & Mwara, K. N. "Thermal Fluid Model Development of Steam Methane Reformer using Artificial Neural Network." In 2018 Thermal Fluids Analysis Workshop. Galveston: NASA Johnson Space Center (August 2018).

(Ogletree, S.) & Biswas, M. A. R. "Proof of Concept Design and Analysis of heat Reutilization of a Solid Oxide Electrolyzer Cell for Oxygen Supply on Mars." In 2018 Thermal Fluids Analysis Workshop. Galveston: NASA Johnson Space Center (August 2018).

(Fuentes, K.), Ogletree, S. & Biswas, M. A. R. "Temperature Controller Design of a High Temperature Ceramic Transport Membrane System for Oxygen Production using a Lumped Thermal Modeling Approach." In 2018 Thermal Fluids Analysis Workshop. Galveston: NASA Johnson Space Center (August 2018).

(Biswas, M. A. R.), Robinson, M. D. & Rahman, M. H. "Dynamic Prediction of DMFC Performance Response Using Artificial Neural Networks." In the 3rd International Training Workshop And

Conference on Renewable, Conventional Power and Green Technology. Montgomery, AL: Universal Green Energy And Power LLC (December 2017)

Biswas, M. A. R. & Mwara, K. N. "Prediction of Solid Oxide Fuel Cell Performance using Artificial Neural Network." In The Dual Conference on Innovation and Automation. Houston: IEEE Galveston Bay Section (October 2017).

(Biswas, M. A. R.), Garcia, S., Prado, M., Souris, M., Hossain, S. & Morin, L. "Software Verification of Orion Cockpit Displays" In The 12th International Conference on Computer Science and Education. Houston, TX: IEEE University of Houston (August 2017)

(Auzenne S), Dumantay M., Issa M., Vidana J., Souris M., Biswas M. A. R., & Morin L. "Automated Testing of Orion Cockpit Displays using EggPlant Functional and Python Programming." In: ASEE Gulf Southwest Annual Conference. Richardson, TX: The University of Texas at Dallas, (March 2017)

(Dumantay, M.), Auzenne, S., Issa, M., Vidana, J., Souris, M., Biswas, M.A.R. & Morin, L. "Validation of Orion Cockpit Displays using EggPlant Functional and Python Programming." *IEEE Annual Dual Conference on Innovation and Automation*, Houston, TX (October 28, 2016)

(Issa, M.), Auzenne, S., & Biswas, M.A.R. "Development of a Low-Cost, User-Friendly Academic Advising App Using Python Programming." *IEEE Annual Dual Conference on Innovation and Automation*, Houston, TX (October 28, 2016)

Biswas, M.A.R., El-Kishky, H., Robinson, M. D. & et al. "Model and Control Development of Hybrid Fuel Cell and Battery Power System for UAS (Quadcopter)" (May 2016) Available at: http://works.bepress.com/mohammad-biswas/1/

(Gangone M. V.) & Biswas, M. A. R. "The Effects of Transitioning from a Face-to-Face Fundamentals of Engineering Review to a Virtual Environment." In: ASEE Gulf Southwest Annual Conference. Fort Worth, TX: Texas Christian University (March 2016)

(Henken, J.) & Biswas, M.A.R.. "Validation of Neural Network Model for Residential Energy Consumption." *ASEE Gulf Southwest Annual Conference*, San Antonio, TX (March 2015)

"Empirical Dynamic Process Models for a Direct Methanol Fuel Cell." *14th GRACE Annual Symposium*, Gainesville, FL (April 2013)

"Applications of Molecular Vapor Deposition of Precursor Materials on Different Surfaces." *22nd National Conference on Undergraduate Research*, Salisbury University, MD (April 2008)

"Investigation of Molecular Vapor Deposition of Precursor Compounds on Various Materials." *American Institute of Chemical Engineers Southern Regional Conference*, Auburn, AL (April 2008)

"Applications of Molecular Vapor Deposition of Precursor Materials on Various Surfaces." *American Institute of Chemical Engineers Annual Meeting*, Salt Lake City, UT (November 2007)

"Universal Application of Molecular Vapor Deposition of Precursor Materials on Various Surfaces." Fourth Annual University Undergraduate Research Symposium, Auburn, AL (April 2007)

"Universal Application of Molecular Vapor Deposition of Precursor Materials on Various Surfaces." *American Institute of Chemical Engineers Southern Regional Conference*, Columbia, SC (April 2007)

"Fabrication of Active Probe Structures for Atomic Force Microscopy." *NNIN REU convocation*, Santa Barbara, CA (August 2007)

"Friction on MEMS Device Dependent on the Structure of OTS Film." *Micro Nano REU Farewell Banquet*, Auburn, AL (August 2006)

Service Activities

Editorial Board
Assistant Editor, Energy Reports, Elsevier, 2020 - Present

Conference Chair
Session Co-Chair, International Conference on Studies in Engineering, Science, and Technology (ICSEST), Antalya, TURKEY (Virtual), 2022
Session Chair, ASEE Gulf Southwest Conference, Waco, TX (Virtual), 2021
Session Chair, ASEE Southeast Conference, Virtual, 2021
Session Chair, Experimental, Theoretical, and Numerical Analysis of Transport Processes in Flow Reactors I, 2020 Virtual Spring Meeting and 16th GCPS, 2020
Session Chair, Artificial Intelligence, The 12th International Conference on Computer Science and Education by IEEE, Houston, TX, 2017
Session Co-Chair, Fuel Cell Systems Design and Applications, ASME IMECE, Houston, TX, 2015

Reviewer
Journal Reviewer, Chemical Engineering, Elsevier, 2025
Reviewer, Department of Energy, 2024
Panel Member, ASEE and Department of Defense, 2016-2024
Invited Panelist, Department of Defense, 2016-2020 & 2022-2024
Proposal Reviewer, National Aeronautics and Space Association, 2018-2019 & 2021-2022
Journal Reviewer, Energies, Multidisciplinary Digital Publishing Institute, 2022
Journal Reviewer, ChemEngineering, Multidisciplinary Digital Publishing Institute, 2022
Reviewer, ASEE MAS Fall 2021 conference, Virtual, 2021
Invited Panelist, National Science Foundation, 2017-2018 & 2021
Journal Reviewer, Artificial Intelligence Review, Springer, 2017
Book Chapter Reviewer, Cengage Learning, 2017
Journal Reviewer, Sustainable Cities and Society, Elsevier, 2017
Validity Reviewer, FE Chemical Practice Problems, Professional Publications, Inc., 2016
Reviewer, Fuel Cells and Applications in Transportation, ITEC Conference, Dearborn, MI, 2015-2017
Reviewer (Abstracts), Multidisciplinary Engineering and Engineering Ethics Divisions, ASEE Annual Conference and Exposition, New Orleans, LA, 2015-2016
Journal Reviewer, Energy Efficiency, Springer, 2015
Journal Reviewer, Energies, Multidisciplinary Digital Publishing Institute, 2015
Reviewer (Paper), Technological and Engineering Literacy/Philosophy Division, ASEE Annual Conference and Exposition, Seattle, WA, 2015

Institutional, College and Departmental Services
Member, University Student Appeals Curriculum Committee, 2025 – present
Member, UT Tyler Mechanical Engineering Graduate Curriculum Committee, 2020 – present
Member, Faculty Senate, 2021 – 2024
Member, UT Tyler Main Campus (Mech. Engr.) Faculty Search Committees, 2024-2025
Member, UT Tyler Houston Engineering Center (Mech. Engr.) Faculty Search Committee, 2024
Member, UT Tyler Mechanical Engineering Undergraduate Curriculum Committee, 2021 – 2023
Member, UT Tyler Mechanical Engineering Tenure and Promotion Committee, 2020-2022
Member, UT Tyler Houston Engineering Center (Mech. Engr.) Faculty Search Committee, 2023
Member, UT Tyler Main Campus (Mech. Engr.) Faculty Search Committee, 2022-2023
Member/Chair, Faculty Affairs Committee, 2020 – 2022
Member, UT Tyler College Engineering Endowed Professorship Committee, 2021
Chair, UT Tyler Mechanical Engineering Awards and Recognition Committee, 2020 – 2021
Member, UT Tyler Chemical Engineering Faculty Search Committees, 2019-2020
Member, UT Tyler Houston Engineering Center (Mech. Engr.) Faculty Search Committee, 2019
Member, UT Tyler Main Campus (Mech. Engr.) Faculty Search Committees, 2018-2019
Member, UT Tyler Houston Engineering Center (Mech. Engr.) Faculty Search Committee, 2018

Faculty Mentor, UT Tyler Department of Mechanical Engineering, 2017-present
Member, UT Tyler Mechanical Engineering Department Chair Search Committee, 2017-2018
Member, UT Tyler College of Engineering Strategic Planning Committees, 2017
Member, International Programs Strategic Planning Work Group, 2017
Member, UT Tyler College of Engineering Faculty Governance Organization, 2015-present
Academic Advisor, UT Tyler Department of Mechanical Engineering, 2014-2017
Faculty Co-Advisor, ASHRAE Student Organization, 2014-2016
Faculty Co-Advisor, ASME & SAE Student Organizations, 2014-2015
Member, UT Tyler Houston Engineering Center (Mech. Engr.) Faculty Search Committee, 2016
Member, two UT Tyler Mechanical Engineering Faculty Search Committees, 2014-2015

Technical Committee
Member, ASHRAE Solar Energy Utilization technical committee, 2015-2017
Member, ASHRAE Thermal Storage technical committee, 2015-2017
Member/Contributing Member, ASME Thermal Energy Storage Safety committee, 2014-2021

Other Professional Services
Judge, Texas Space Grant Consortium Design Challenge Showcase (Poster and Video), 2020-2021
Judge, Virtual LSU Shreveport Regional Student Scholars Forum, 2021
Judge, 6th Annual Lyceum Student Research Showcase by University Honors Program, 2021
Journal Researcher, American Journal Experts, 2018 - 2020
Innovation/Researcher Panel, Elsevier, 2018 - 2020

Civic and K-12 Services
Organizer and Guest Presenter, TSGC Project Presentations on Lunar Marker – TSGC and Micro-G NEXT (Hastings Ninth Grade Center), 2022
Organizer, TSGC Project Presentation on Mars Base Design – TSGC (Hastings Ninth Grade Center), 2021
Invited Speaker, Presentation on Engineering (Hastings Ninth Grade Center), 2019
Judge, Science Fair (Iman Academy), Houston, TX, 2016
Organizer, Engineering Week Field Trip (Everest Academy), Houston, TX, 2015
Invited Speaker, Presentation on Engineering (Iman Academy & Everest Academy), 2015-2016
Representative for UT Tyler, T-STEM Challenge Scholarship Orientation, Houston, TX, 2014

Key Skills

Certification: Engineer Intern, State of Alabama Board of Licensure and ASME Standards & Certification course completion certificate
Software Proficiency: MATLAB with Simulink, LabVIEW, Eggplant Functional and Manager, Aspen Plus, Lyx with LaTeX, Microsoft Office, and Visual Basics Applications
Safety Training: Occupational Safety and Health Administration 10-hour General Industry Safety Certification
Continuing Education and Professional Development Hours (PDH): Entrepreneurial Mindset (EM) -Focused SOTL Focused SOTL (Scholarship of Teaching and Learning) Virtual Writing Group Workshop, Purdue University, Spring 2022; UT Tyler, Office of Instructional Design: Foundations for Online Learning, Instruction, and Outcomes course, Certification of Completion, Spring 2014; High Performance Building and HVAC 101 online course, Heatspring, Spring 2015; over 20 PDH from ASME, ASHRAE and AIChE.

Honors & Awards

Runners Up Team, inaugural EnergyTech University Prize - Faculty Track, Department of Energy Office of Technology Transitions, 2024
Research Fellows Program 2021, Office of Research and Scholarship, University of Texas at Tyler
Certificate in Effective College Instruction, The Association of College and University Educators (ACUE) and The American Council on Education

Top 8 Best Paper Award, Best Paper Nomination, The 12th International Conference on Computer Science and Education, IEEE, Houston, TX
2nd place best paper Award, 2016 ASEE Gulf Southwest Annual Conference, Texas Christian University, Fort Worth, TX
Order of the Engineer
UT Tyler Faculty/Staff Publications and Presentations Recognition Award, 2015 & 2016
Best Session Oral Presentation Award, *14th Annual GRACE Symposium,* University of Florida
Golden Key International Honour Society
Phi Lambda Upsilon Honorary Society

References Available Upon Request