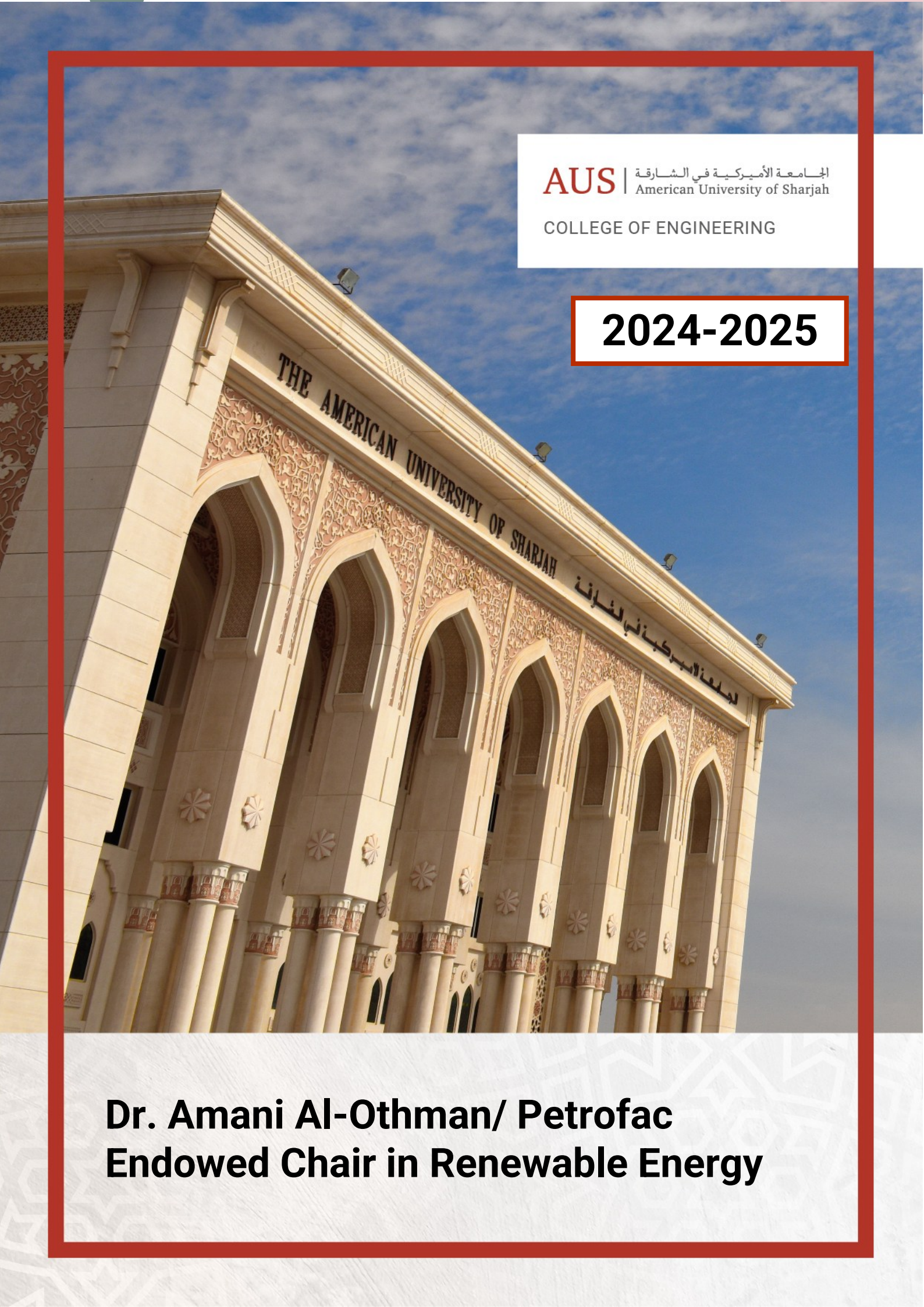




AUS | الجامعة الأميركية في الشارقة
American University of Sharjah

COLLEGE OF ENGINEERING

2024-2025

**Dr. Amani Al-Othman/ Petrofac
Endowed Chair in Renewable Energy**

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Introduction

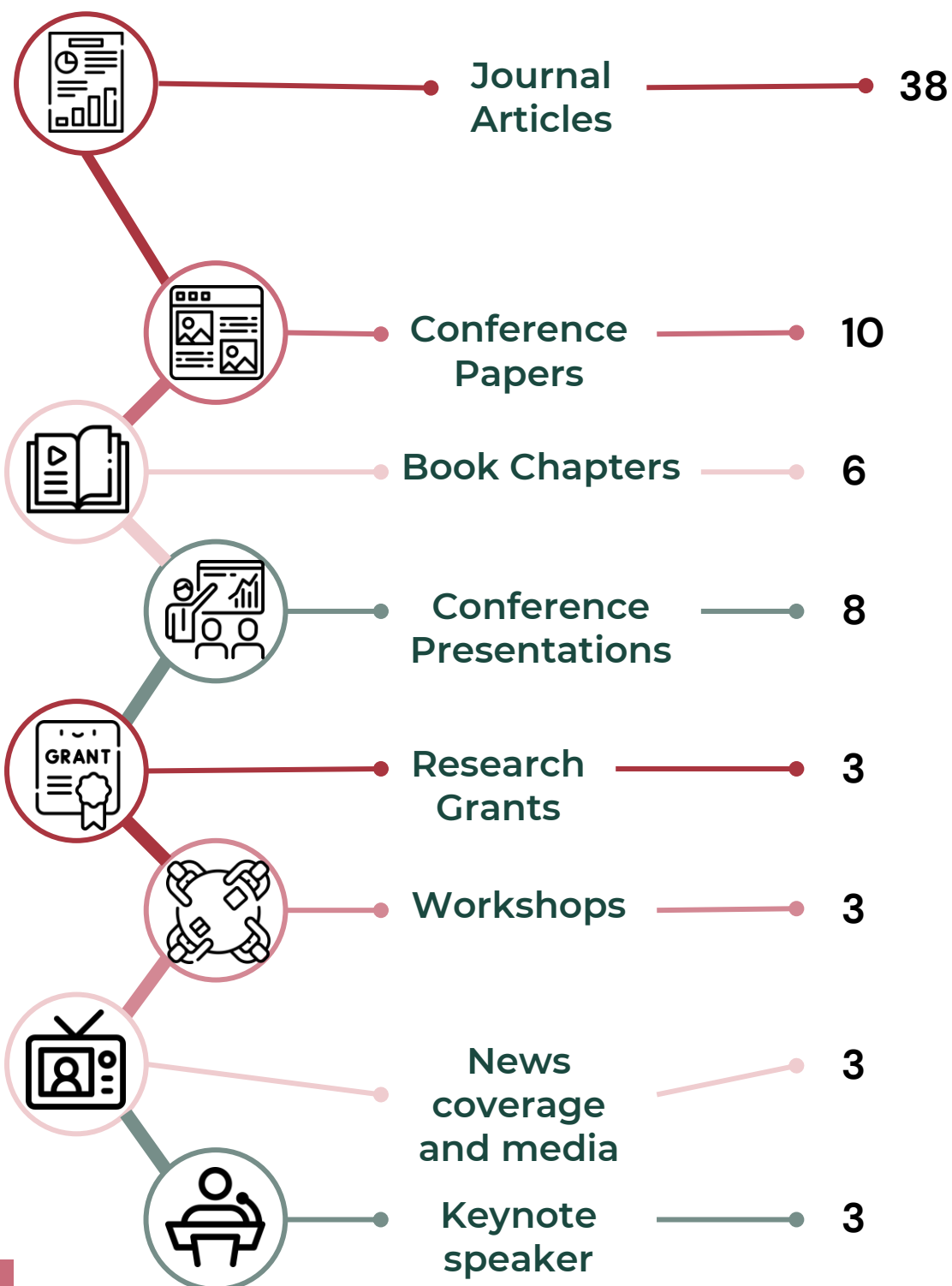
As the Petrofac Endowed Chair in Renewable Energy at the American University of Sharjah, I am pleased to present my annual activity report for 2024-2025. This report marks an exciting milestone as it reflects on the foundational achievements and strategic vision that have been set in motion for this prestigious role. Embracing this esteemed position entails not only an honour but also a unique opportunity to drive advancements in sustainable technology. My research focuses primarily on fuel cell technology and renewable energy solutions, with a keen interest in developing nano-composite materials for fuel cells and hydrogen production.

In addition to my research, I have taken on the leadership of the energy group and theme within AUS as well as the Energy, Water and Sustainable Environment Research Center (EWSERC), where our team is dedicated to pushing the boundaries of energy research and education. In this inaugural year, my primary objectives have centred on mentoring students, leading research initiatives, and establishing joint research projects designed to develop innovative solutions for the renewable energy sector. Through these efforts, I aim to establish a strong foundation for long-term goals and strategic initiatives that will guide the future of renewable energy research and education at the university.



Research 2024-2025

Highlights



Activities Highlights

AUS top-output scholar for the past 5 years.

Keynote speaker at Amity University Dubai-Women in Science and Engineering-Sep 2024

Featured in the Middle East Energy website.

Editorial Board Member at Elsevier Journal of Water Process Engineering

Associate editor at Elsevier International Journal of Thermofluids.

Featured in Springer Nature Emergent Materials Journal - Women in Science edition.

Advisor of IEEE-EMBS, AIChE, and The Honor Society students' clubs.

Published a total of 38 Journal papers all Scopus indexed.

Secured several national and international research grants.

Advised various graduate and Senior Design students

Co-organized the first symposium on Neuroscience and Engineering Symposium (NSES'25) held in April 2025

Keynote speaker at the Middle East Energy held in April 2025 Dubai World Center

Keynote speaker at the 15th International Conference on Hydrogen Production (ICH2P-December 2024 held at the University of Sharjah.

Co-organizer and a speaker at the AUS-SEWA Energy workshop held at AUS-Oct 2024.

Research

On-going research projects

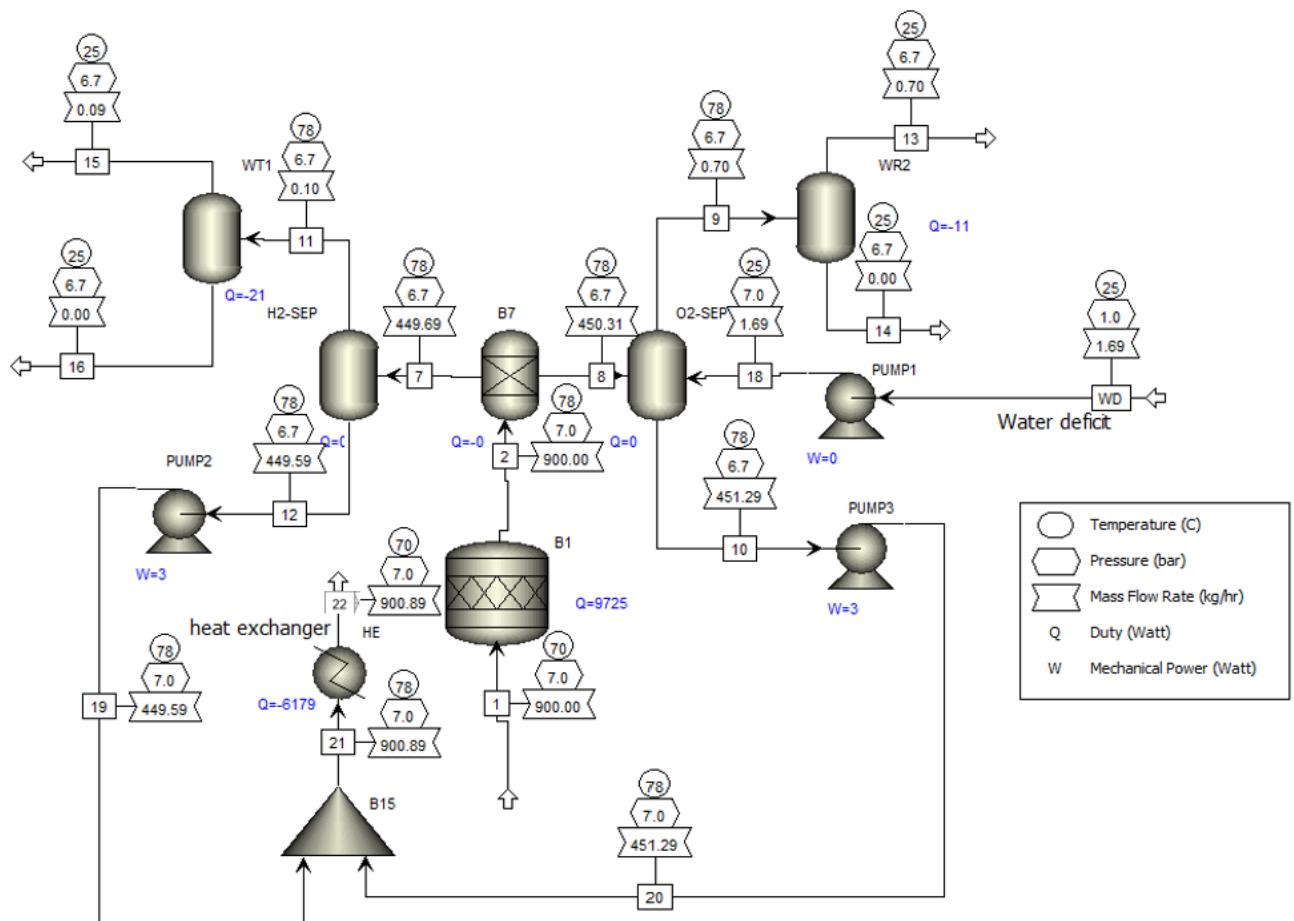
Membranes for the electrolysis of water and hydrogen production from saline water



Research

On-going research projects

Hydrogen Production Via direct water Electrolysis



Research

Honors and Awards

AUS الجامعة الأمريكية في الشارقة
American University of Sharjah

COLLEGE OF ENGINEERING
كلية الهندسة

Excellence in CEN Publications 2023

Top 1% Journal Publications 2023

 Dr. Farid Abed Professor Civil Engineering	 Dr. Hasan Al-Nashash Professor Electrical Engineering	 Dr. Mohamed Ben-Daya Professor Industrial Engineering	 Dr. Mohammad AlHamaydeh Professor Civil Engineering	 Dr. Rami Ay'ad Associate Professor Industrial Engineering	 Dr. Usman Tariq Associate Professor Electrical Engineering
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Top 2% Journal Publications 2023

 Dr. Akmal Abdelfatah Professor Civil Engineering	 Dr. Amani Al-Othman Associate Professor Chemical and Biological Engineering 3 Publications	 Dr. Mahmoud Ibrahim Professor Electrical Engineering 2 Publications	 Dr. Mehdi Ghommem Associate Professor Mechanical Engineering	 Dr. Mehmet Orhan Associate Professor Mechanical Engineering	 Dr. Nabil Abdel Jabbar Professor Chemical and Biological Engineering
 Dr. Paul Nancarrow Professor Chemical and Biological Engineering	 Dr. Rana Sabouni Associate Professor Chemical and Biological Engineering	 Dr. Sherif Yehia Professor Civil Engineering 2 Publications	 Dr. Taleb Ibrahim Professor Chemical and Biological Engineering	 Dr. Vian Ahmed Professor Industrial Engineering	 Dr. Zied Bahroun Professor Industrial Engineering

Top 3% Journal Publications 2023

 Dr. Amani Al-Othman Associate Professor Chemical and Biological Engineering 3 Publications	 Dr. Mahmoud Ibrahim Professor Electrical Engineering	 Dr. Malick Ndiaye Professor Industrial Engineering	 Dr. Mamoun Abdel-Hafez Professor Mechanical Engineering 2 Publications	 Dr. Mehdi Ghommem Associate Professor Mechanical Engineering
 Dr. Mostafa Shaaban Associate Professor Electrical Engineering	 Muhammad Qasim Lab Instructor Chemical and Biological Engineering 2 Publications	 Dr. Rana Sabouni Associate Professor Chemical and Biological Engineering 2 Publications	 Dr. Tariq Ali Professor Civil Engineering	 Dr. Vian Ahmed Associate Professor Industrial Engineering

www.aus.edu/cen

Top 2% publications recognition



The top 0.5% in the field of energy and chemical engineering as per GPS scholar and earned the best paper award-Membranes MDPI Journal 2025

Research

Selected Published Articles

- R.D. Al Bostami, A. Al Othman, M. Tawalbeh, A.G. Olabi, Advancements in Zinc-Air Battery Technology and Water-Splitting, *Energy Nexus* 17 (2025) 100387.
- H. Mortada, H.B. Kerrouchi, A.Al-Othman, M. Tawalbeh, The potential of biomass pellets as biofuels for more sustainable solutions, *Waste and Biomass Valorization* (2025). <https://doi.org/10.1007/s12649-024-02873-x>.
- T.M. Ahmed, A. Al Othman, A. Shamayleh, M. Tawalbeh, Water management and conductivity studies in novel polymer zirconium based membranes for PEM fuel cells, *Case Studies in Chemical and Environmental Engineering* Volume 11 (2025) 101081.
- A. A. Ali, A. Al-Othman, M. Tawalbeh, A. Ali, C.A. Quist-Jensen, M.M.A. Shirazi, Membrane Technologies for Sustainable Development Goals: A Critical Review of Bright Horizons, *Journal of Environmental Chemical Engineering* 13 (2025) 114998.
- I. Shomope, A. Al-Othman, M. Tawalbeh, H. Alshraideh, Fares Almomani, Machine learning in PEM water electrolysis: A study of hydrogen production and operating parameters, *Computers & Chemical Engineering* Volume 194 (2025) 108954.
- I. Shomope, M. Tawalbeh, A. Al-Othman, Fares Almomani, Predicting Biohydrogen Production from Dark Fermentation of Organic Waste Biomass Using Multilayer Perceptron Artificial Neural Networks (MLP-ANN), *Computers & Chemical Engineering* 192 (2025) 108900.
- H. Kazim, M. Sabri, A. Al-Othman, M. Tawalbeh, Utilizing scrap metals in electrocoagulation: Revolutionizing water treatment with AI applications for enhanced resource recovery, *Journal of Resource Recovery* 2 (2024) 1024.
- H. Kazim, M. Sabri, A. Al-Othman, M. Tawalbeh, Functionalized conducting polymers in photocatalysis and opportunities for artificial intelligence applications, *Nano-Structures & Nano-Objects* 40 (2024) 101371.
- Z. Alinejad, N. Parham, M. Tawalbeh, A. Al-Othman, F. Almomani, Progress in green hydrogen production and innovative materials for fuel cells: A pathway towards sustainable energy solutions, *International Journal of Hydrogen Energy*, In Press, Sep. 2024
- W. N. Bahutair, A Alhajar, A. Al Othman, M. Tawalbeh, MXenes and MXene composites in dye-sensitized solar cells, *Process Safety and Environmental Protection*, Accepted. Sep. 2024.

Research

Selected Book Chapters

- S.M. Asaad, M. Tawalbeh, A. Ali, S.R. Al Kindi, A. Al-Othman, Definition of bioenergy, Chapter 3.1, Renewable Energy— Volume 2: Wave, Geothermal, And Bioenergy, 1st Edition, ISBN: 978-0-323-95211-8, 215-243 (2024). <https://doi.org/10.1016/B978-0-323-95211-8.00004-X>.
- M. Tawalbeh, S.M. Asaad, A. Ali, S.R. Al Kindi, A. Al-Othman, Developments of bioenergy, Chapter 3.2, Renewable Energy— Volume 2: Wave, Geothermal, And Bioenergy, 1st Edition, ISBN: 978-0-323-95211-8, 245-273 (2024). <https://doi.org/10.1016/B978-0-323-95211-8.00006-3>.
- S.M. Asaad, M. Tawalbeh, A. Ali, A. Al-Othman, Applications of bioenergy, Chapter 3.3, Renewable Energy— Volume 2: Wave, Geothermal, And Bioenergy, 1st Edition, ISBN: 978-0-323-95211-8, 275-293 (2024). <https://doi.org/10.1016/B978-0-323-95211-8.00001-4>.
- R. Darra, M. Tawalbeh, A. Ali, S.M. Asaad, A. Al-Othman, Review of bioenergy systems, Chapter 3.4, Renewable Energy— Volume 2: Wave, Geothermal, And Bioenergy, 1st Edition, ISBN: 978-0-323-95211-8, 295-316 (2024). <https://doi.org/10.1016/B978-0-323-95211-8.00019-1>.
- A. Ali, M. Tawalbeh, S.M. Asaad, R. Darra, A. Al-Othman, Case studies and analyses of bioenergy systems, Chapter 3.5, Renewable Energy— Volume 2: Wave, Geothermal, And Bioenergy, 1st Edition, ISBN: 978-0-323-95211-8, 317-224 (2024). <https://doi.org/10.1016/B978-0-323-95211-8.00008-7>

Research

Selected Conference Keynote Talks

Keynote speaker at the ANM 2024 conference held in Portugal, July 24-26, University of Aveiro, 2024.



Research

Selected Conference Keynote Talks

Middle East Energy 2025-Dubai Trade World Centre



Research

Selected Conference Keynote Talks

Keynote speaker at the 15th International Conference on Hydrogen Production held at the University of Sharjah-Dec 2024



Research

Award

Best Paper Award



membranes

Best Paper Award

In recognition of the paper

A Critical Review on the Use of Ionic Liquids in Proton Exchange Membrane Fuel Cells

Authored by: Adnan Alashkar, Amani Al-Othman, Muhammad Tawalbeh and Muhammad Qasim
Membranes 2022, 12(2), 178; <https://doi.org/10.3390/membranes12020178>

S. Tochev

Stefan Tochev
Chief Executive Officer

Basel, January 2025



an Open Access Journal
by MDPI

Impact Factor 3.3
CiteScore 6.1
Indexed in PubMed



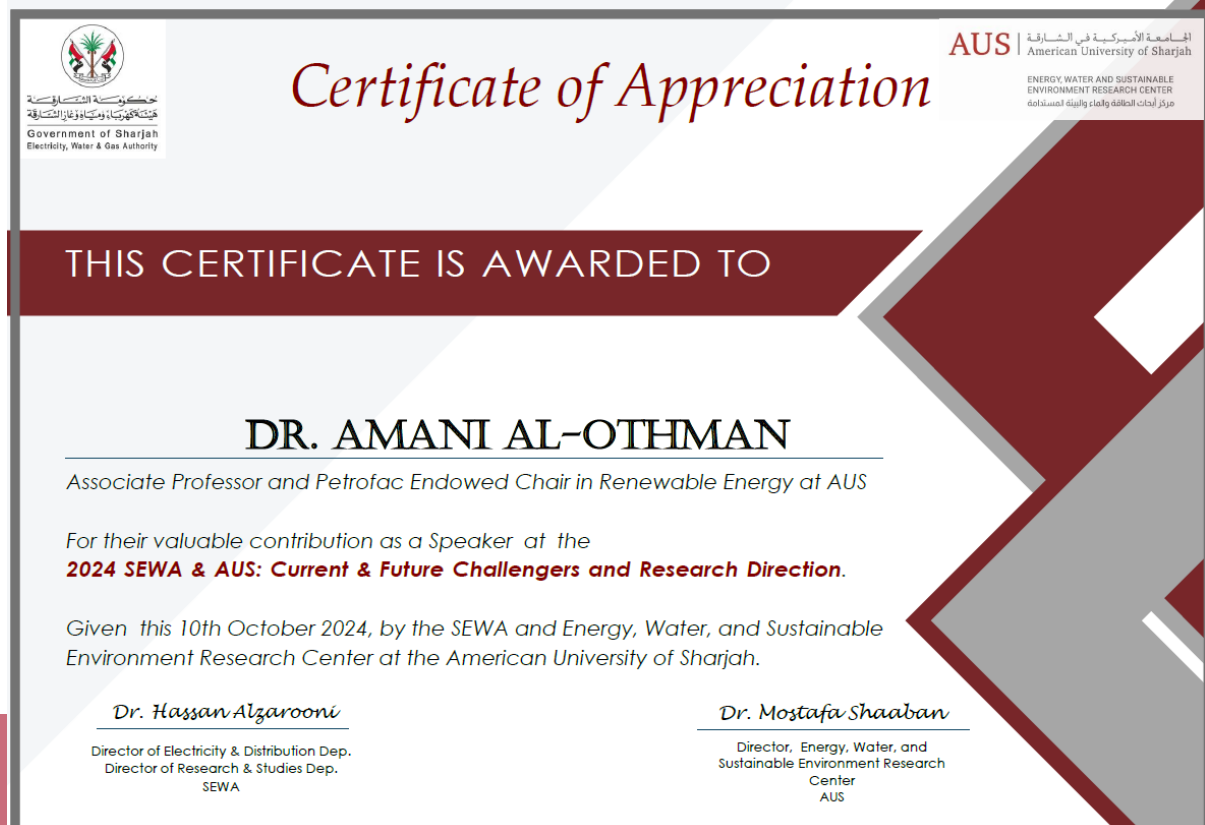
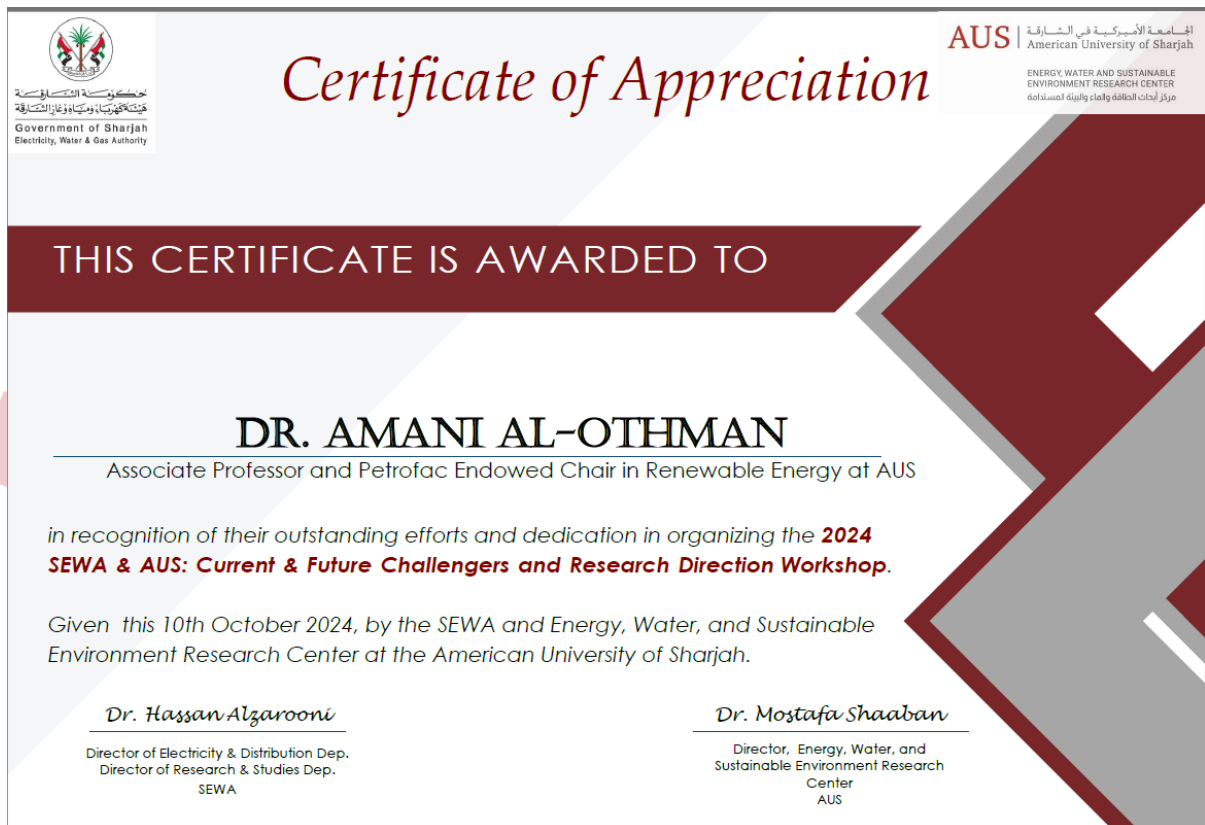
Research

Research Visit to McGill University in Canada to start a collaboration



Research

Co-organizer and speaker at the AUS-SEWA workshop-Oct 2024.



Teaching- Developed and Taught the Energy Systems Course-Spring 2025



- Applied active learning techniques in the classroom.
- Practiced project-based learning various courses
- Practiced technology and mobile-student survey system to conduct quizzes in all courses.

Teaching- Organized an educational fieldtrip Politecnico di Milano-Italy with the AICHE club- January 2025



Knowledge Transfer

Keynote Speaker



Dr. Amani Al-Othman participated in the Middle East Energy Conference held in the World Trade Center-Dubai-April 2025 . Dr. Amani showcased her most recent research on hydrogen production.

Knowledge Transfer

Keynote speaker at Sharakah Women's Day- March 2025



In celebration of International Women's Day, female principals and counselors from Sharakah Schools are invited to attend an empowering and joyous event dedicated to honoring the achievements and resilience of women everywhere.

Knowledge Transfer



Dr. Amani Al-Othman played a pivotal role as a scientific committee member at The Water Energy NEXUS 2025 held at Khalifa University, Feb. 2025 and in the coming 11th International Conference on Material Science & Smart Materials "MSSM 2025" to be held in Vienna.

Community Engagement

Co-organized the NeuroScience and Engineering Symposium (NSES'25). April 2025

Reinforcing its role as a hub for advanced scientific research and interdisciplinary dialogue, the College of Engineering (CEN) hosted the NeuroScience and Engineering Symposium (NSES'25). The symposium gathered leading scholars, researchers and students to explore the latest developments in the field. Topics covered included brain-computer interface, computational neuroscience, neural signal processing, generative AI, neuroprosthetics, neuroimaging, neuromorphic computing systems, cognitive neuroscience, rehabilitation technologies, neuroplasticity and more.



Community Engagement

AUS-SEWA Panel Chair-October 2024

This workshop included experts from SEWA and from across the UAE which provided valuable learning opportunities and showed the region's commitment towards fostering sustainable solutions



Community Engagement

Participated in the Dubai Municipality Research Forum-October 2024.

The College of Engineering (CEN) recently hosted a Dubai Municipality Research Forum to discuss research initiatives aligning with municipal interests. The event began with opening remarks from Dr. Fadi Aloul, Dean of College of Engineering, and Eng. Hind Mahmoud, Director of Central Labs at Dubai Municipality. Following a presentation on the AUS Engineering Al Nukhba Program by Ms. Dana Saleh, Senior Manager of Internships, Placement and Executive Education Coordination, CEN faculty members engaged in roundtable discussions, where each professor presented their research relevant to Dubai Municipality's areas of interest. The event featured three discussion sessions, fostering dialogue on impactful research collaborations and future municipal projects.



Community Engagement

Visit to Petrofac

Dr Amani Al-Othman visited Petrofac and met with Mr. Ali Abdulla UAE Country Chair, Petrofac to discuss the next sustainability projects and Petrofac's vision on energy transition and hydrogen production.



Community Engagement

Women in Engineering Day at AUS

Dr Amani Al-Othman participated and chaired a panel in the AUS College of Engineering (CEN) marked International Women's Day 2025 with an inspiring celebration under the theme Accelerate Action, highlighting the achievements of women in STEM . More information is found [here](#)



Media and E-Coverage

AUS Petrofac Research Chair in Renewable Energy awarded prestigious Majra endorsement. SHARJAH, 28th April, 2025 (WAM) -- The Petrofac Research Chair in Renewable Energy at American University of Sharjah (AUS) has been awarded the Verified Sustainable Impact Project Stamp, a prestigious distinction granted by Majra, the UAE's National CSR Fund. More information is found [here](#).



Media Coverage

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MEET THE FACULTY

Dr. Amani Al-Othman
Associate Professor of Chemical and Biological Engineering

PhD, University of Ottawa, Canada

Research Areas
Renewable Energy, High Temperature PEM Fuel Cells, Nano-composite membranes, Solid Proton Conductors, Solar Cells, and Implantable Electrodes

Joining Year
2013

www.aus.edu/cen/community/faculty

Dr. Amani Al-Othman was prominently featured by the college of Engineering "meet the faculty page". This recognition highlights Dr. Al-Othman's significant contributions to the field of materials science, particularly in the areas of renewable energy and advanced nanocomposites. The feature underscores her impactful research, leadership in academia, and her role in inspiring the next generation of female scientists. More information is available [here](#)

Media and E-Coverage

ENDOWED CHAIRS

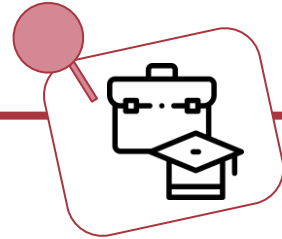


In collaboration with the CEN Endowed Chairs, Dr. Rami A. Hawileh, who holds the Riad T. Al-Sadek Chair in Civil Engineering, and Dr. Farid Abed, the Dana Gas Chair in Engineering, participated in a video production that showcased the professors' areas of research and expertise, and future visions. The full video can be seen [here](#).

Future Activities



- **Participate In Middles East Energy Dubai 2026**



- **International Research Visits**
- **Participate in WETEX 2025**

The Team



Thank you

**Annual Report
Academic Year 2024-2025**

