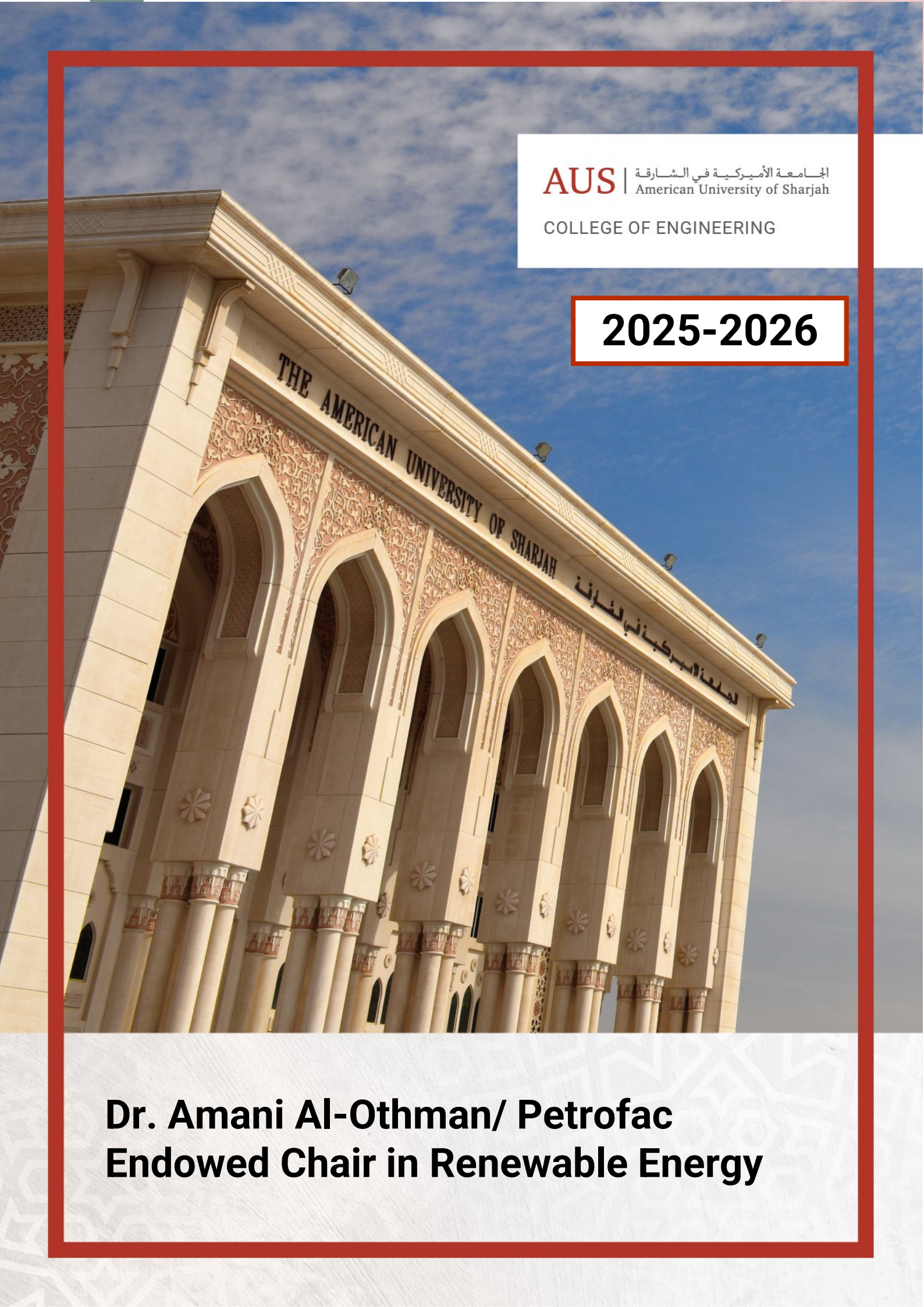




AUS | الجامعة الأميركية في الشارقة
American University of Sharjah

COLLEGE OF ENGINEERING

2025-2026

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

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Introduction

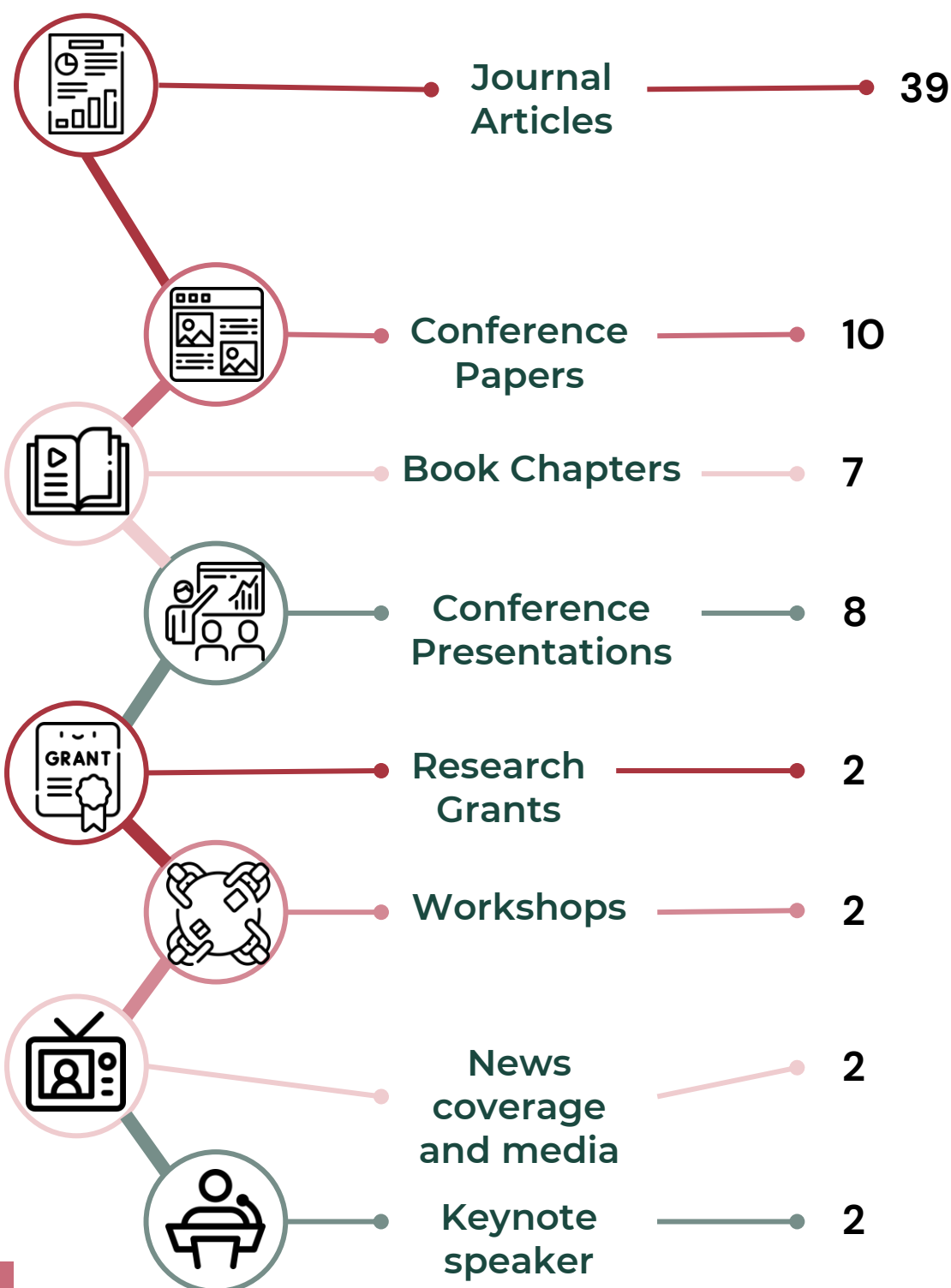
As the Petrofac Endowed Chair in Renewable Energy and a Professor of Chemical and Biological Engineering at the American University of Sharjah (AUS), I am pleased to present my annual activity report for 2025–2026. This report highlights my contributions to research, teaching, student supervision, international collaboration, community engagement and the advancement of sustainable energy technologies. My research focuses on hydrogen and fuel cell technologies, renewable energy, and the development of advanced nanocomposite membranes for hydrogen production and fuel cell applications.

As a theme leader at the Energy, Water and Sustainable Environment Research Center (EWSERC), I also contribute to advancing interdisciplinary research addressing critical energy and environmental challenges. My academic contributions have been recognized through several distinctions, including the University Excellence in Research Award 2026 and awards for excellence in research, teaching, international collaboration, and student supervision. These achievements reflect my commitment to research excellence, academic leadership, student development, and strengthening AUS's impact in sustainable energy and engineering.



Research 2025-2026

Highlights



Research

On-going research projects

Membranes for the electrolysis of water and hydrogen production from saline water as well as stretchable electronics



Research

On-going research projects

Materials for wearable and stretchable electronics

Next-Generation Biocompatible and Sustainable Electrode

Combining advanced performance with environmental responsibility.

- Biocompatible Material**
Safe for implantation and long-term use.
- Flexible & Conformable**
Adapts to dynamic tissue movements.
- High Electrical Conductivity**
Efficient signal transduction.
- Durable & Stable**
Maintains performance in physiological conditions.

Eco-Friendly & Green

Made from **natural polymers** (e.g., chitosan, cellulose, alginate) for a low environmental impact and biodegradability.

Sustainable Materials for a Healthier Future



Renewable
raw materials



Biodegradable



Reduced
environmental impact

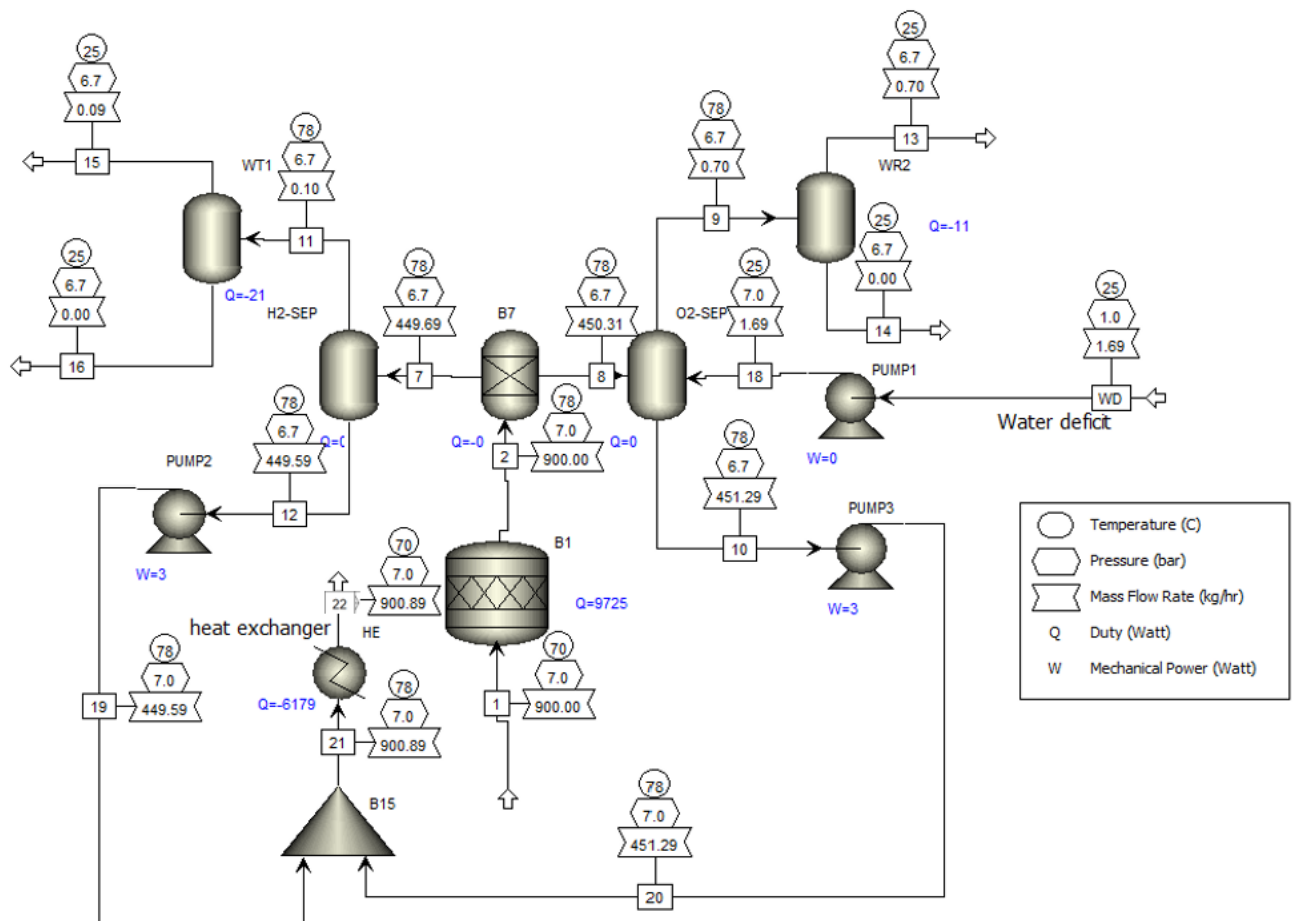


Supports
sustainable
biomedical innovation

Research

On-going research projects

Hydrogen Production Via direct water Electrolysis



Research

Selected Published Articles 2026

- Tawalbeh, M., Ka'ki, A., Bahutair, W., Al-Othman, A., & Shirazi, M. M. A. (2026). Membrane-driven and hybrid pathways for magnesium recovery from aqueous brines and industrial wastewater: a review. *Hydrometallurgy*, 106923.
- Sayyad, P. W., Alex, M., Al-Othman, A., Al-Nashash, H., & Al-Sayah, M. H. (2026). Pectin-Based Flexible and Wearable Bioelectrodes for EMG Signal Recording. *Macromol*, 6(3), 64.
- Ahmed, Tallah Magdi, Amani Al-Othman, Abdulrahim Shamayleh, and Muhammad Tawalbeh. "Experimental design in PEM fuel cell composite membrane for better water management." *International Journal of Hydrogen Energy* 259 (2026): 156639.
- Hlophe, Philani V., Muhammad Tawalbeh, Amani Al-Othman, and Phumlani F. Msomi. "Autonomous AI agents in ORR electrocatalyst discovery: a review of closed-loop workflows, materials bottlenecks, and energy system translation." *Materials Advances* 7, no. 13 (2026): 6474-6485.
- Sabri, Moin, Hisham Kazim, Amani Al-Othman, Muhammad Tawalbeh, and Abdulrahman Alraeesi. "Digitalization of Solar PV Systems in the GCC Countries: A Comprehensive Review on AI and IoT-Driven Approaches." *Energy Nexus* (2026): 100749.
- Abed, Heba, Joel Georgeous, Kushal Joshi, Basel A. Khader, and Amani Al-Othman. "A critical review of the recent biomaterial innovations for pelvic organ prolapse treatment: materials and design." *Materials & Design* 267 (2026): 116216.
- Tawalbeh, Muhammad, Moin Sabri, Hisham Kazim, Amani Al-Othman, and Fares Almomani. "Utilizing rejected brine from desalination processes for CO2 capture: Opportunities, challenges, and sustainable integration." *Materials Today Sustainability* (2026): 101373.

Research

Selected Articles-2026

- Alshraideh, Hussam, Fajer Al Ali, Mahmoud Awad, and Amani Al-Othman. "AI-based remaining useful life prediction of seawater desalination membranes." *Chemical Engineering Journal Advances* (2026): 101217.
- Tawalbeh, Muhammad, Ibrahim Shomope, Amani Al-Othman, Hussam Alshraideh, Phumlani Fortune Msomi, and Abdulrahman Alraeesi. "Machine learning-assisted optimization of PEM water electrolysis for maximized hydrogen production: a comparative study." *Energy Conversion and Management: X* (2026): 101869.
- Tawalbeh, Muhammad, Ibrahim Shomope, Amani Al-Othman, and Fares Almomani. "Machine Learning-Driven Ammonia Removal Efficiency in Moving Bed Biofilm Reactors (MBBRs): Insights Across Biocarrier Types." *Results in Engineering* (2026): 110600.
- Kazim, Hisham, Moin Sabri, Amani Al-Othman, Muhammad Tawalbeh, and Fares Almomani. "Nano-Enabled Solutions: Advancing Pesticide Detection and Remediation in Wastewater." *Results in Engineering* (2026): 110579.
- Nasser, Bshaer, Hisham Kazim, Moin Sabri, Muhammad Tawalbeh, and Amani Al-Othman. "AI in Membrane Design and Optimization for Hydrogen Fuel Cells." *Membranes* 16, no. 3 (2026): 97.

Research

Selected Book Chapters with AUS students-2026

- Mohamad, Aya Jasim, Muhammad Tawalbeh, Neda Halalsheh, and Amani Al-Othman. "Airborne Microplastics." *Microplastics Analysis and Characterization: Assessing Environmental Impact* (2026): 407-430.
- Al Kurdi, Bana, Maitha Alzaabi, Maria Almarzooqi, Yasamin Esmaeili, Amani Al-Othman, Ahmad Ka'ki, Moin Sabri, and Muhammad Tawalbeh. "Application of fuel cells." *Renewable Energy-Volume 3: Energy Storage Systems-Fuel Cells, Supercapacitors, and Batteries* (2026): 63-85.
- Sabri, Moin, Sara Maen Asaad, Muhammad Tawalbeh, and Amani Al-Othman. "Introduction to fuel cells." In *Renewable Energy-Volume 3: Energy Storage Systems-Fuel Cells, Supercapacitors, and Batteries*, pp. 3-36. Academic Press, 2026.
- Ahmed, Tallah Magdi, Abdullah Ali, Ahmad Ka'ki, Muhammad Tawalbeh, and Amani Al-Othman. "Case study on fuel cells." In *Renewable Energy-Volume 3: Energy Storage Systems-Fuel Cells, Supercapacitors, and Batteries*, pp. 143-167. Academic Press, 2026.
- Ahmed, Tallah Magdi, Sara Maen Asaad, Ahmad Ka'ki, Muhammad Tawalbeh, and Amani Al-Othman. "Analysis of fuel cells." In *Renewable Energy-Volume 3: Energy Storage Systems-Fuel Cells, Supercapacitors, and Batteries*, pp. 119-141. Academic Press, 2026.
- Ka'ki, Ahmad, Muhammad Tawalbeh, Tallah Magdi Ahmed, and Amani Al-Othman. "State of the art of fuel cells." *Renewable Energy-Volume 3: Energy Storage Systems-Fuel Cells, Supercapacitors, and Batteries* (2026): 87-117.

Research Honors and Awards

AUS الجامعة الأمريكية في الشارقة
American University of Sharjah

COLLEGE OF ENGINEERING
كلية الهندسة

World's Top 2% Scientists by Stanford University for 2025

 Dr. Abdulrahman Al-Ali Computer Science and Engineering "Career Long" category "Single Year 2025" category	 Dr. Amani Al-Othman Chemical and Biological Engineering "Career Long" category "Single Year 2025" category	 Dr. Fadi Aloul Computer Science and Engineering "Career Long" category "Single Year 2025" category	 Dr. Farid Abed Civil Engineering "Career Long" category "Single Year 2025" category	 Dr. Ghaleb Hussein Chemical and Biological Engineering "Career Long" category "Single Year 2025" category
 Dr. Imran Zuakernan Computer Science and Engineering "Career Long" category "Single Year 2025" category	 Dr. Jamal Abdalla Civil Engineering "Career Long" category "Single Year 2025" category	 Dr. Majid Warkiani Mechanical Engineering "Career Long" category "Single Year 2025" category	 Dr. Mohamed Ben-Daya Industrial Engineering "Career Long" category "Single Year 2025" category	 Dr. Mohammad Hamdan Mechanical Engineering "Career Long" category "Single Year 2025" category
 Dr. Rami Hawileh Civil Engineering "Career Long" category "Single Year 2025" category	 Dr. Sameer Al-Asheh Chemical and Biological Engineering "Career Long" category "Single Year 2025" category	 Dr. Sameh El-Sayegh Civil Engineering "Career Long" category "Single Year 2025" category	 Dr. Samir Emam Mechanical Engineering "Career Long" category "Single Year 2025" category	 Dr. Tamer Shanableh Computer Science and Engineering "Career Long" category "Single Year 2025" category
 Dr. Vincent Duffy Industrial Engineering "Career Long" category "Single Year 2025" category	 Dr. Habib Ur Rehman Electrical Engineering "Career Long" category	 Dr. Lotfi Romdhane Mechanical Engineering "Career Long" category	 Dr. Moncer Hariga Industrial Engineering "Career Long" category	 Dr. Rachad Dhaouadi Electrical Engineering "Career Long" category
 Dr. Sami Tabsh Civil Engineering "Career Long" category	 Dr. Tod Laursen Mechanical Engineering "Career Long" category	 Eiman ElGhanam Ph.D. Student Engineering Systems Management "Single Year 2025" category	 Dr. Mehdi Ghommem Mechanical Engineering "Single Year 2025" category	 Dr. Mehmet Orhan Mechanical Engineering "Single Year 2025" category
 Dr. Mostafa Shaaban Electrical Engineering "Single Year 2025" category	 Muhammad Qasim Chemical and Biological Engineering "Single Year 2025" category	 Dr. Nour AlSawafah Ph.D. Graduate Materials Science and Engineering "Single Year 2025" category	 Dr. Rabin Chakraborty Research Fellow Civil Engineering "Single Year 2025" category	 Dr. Sherif Yehia Civil Engineering "Single Year 2025" category
 Dr. Umit Cali Electrical Engineering "Single Year 2025" category	 Dr. Waad Abuwatfa Ph.D. Graduate Materials Science and Engineering "Single Year 2025" category	 Dr. Zied Bahroun Industrial Engineering "Single Year 2025" category		

www.aus.edu/cen

**World Top 2%
recognition**

Also recognized among the top 0.5%
in the field of energy and chemical
engineering as per GPS scholar

Research

Awards

Excellence in Students Supervision Award-College of Engineering April 2026



2025-2026

Research

Awards

**University Excellence in Research Award
2026-STEM category**



Research

Selected Invited Keynotes/ Workshops



WINNING COLLABORATIVE PROPOSALS



Dr. Amani Al-Othman

Associate Professor - Chemical and Biological Engineering, the American University of Sharjah and Petrofac Endowed Chair in Renewable Energy

Discover how to build strong research partnerships and craft impactful proposals in this session on "Winning Collaborative Proposals." Learn how to align multidisciplinary expertise, structure cohesive projects, and present a unified vision that stands out to funding bodies. Led by Dr. Amani Al Othman, Professor and Petrofac Endowed Chair in Renewable Energy at American University of Sharjah and a globally recognized researcher with over 140 publications, this session offers valuable insights from her extensive experience. Join us to strengthen your collaborative approach and boost your chances of funding success.



**FRIDAY,
24 APRIL 2026**



**2:30 PM -
3:30 PM**



**ONLINE
SESSION**

Teaching

CEN Lecture Series-Nov 2025

Dr. Amani Al-Othman, Professor of Chemical and Biological Engineering and Petrofac Endowed Chair in Renewable Energy, presented a lecture entitled, "Energy transition and hydrogen-opportunities and challenges", which was part of the CEN Lecture Series and hosted by Dr. Rana Sabouni, Associate Professor of Chemical and Biological Engineering.



Teaching

Selected Webinars/Seminars and Panel discussions

A group of AUS students accompanied by Dr Amani Al-Othman visited the SEE Institute – The Sustainable City, Dubai to attend the SEE Futures – Launch Event, and engaged in an in-person dialogue focused on careers and leadership in sustainability. Feb 2026



Teaching

Selected Webinars/Seminars and Panel discussions

A group of AUS students accompanied by Dr Amani Al-Othman attended Professor Lars Kolind's lecture titled: How to Build a Billion-Dollar Company – November 20, 2025



Teaching

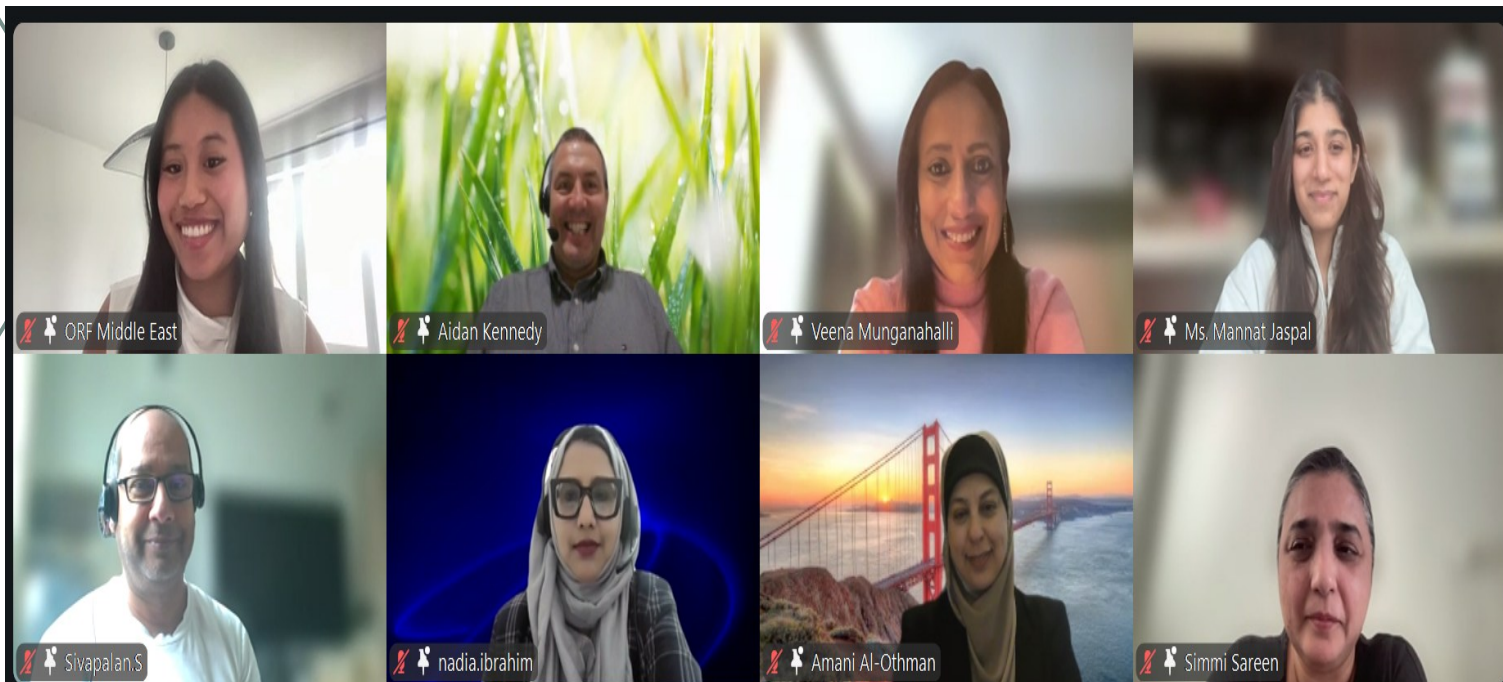
My PhD Student in Engineering Systems Management Graduation June 2026



Teaching

Selected Webinars/Seminars and Panel discussions

Dr Amani Al-Othman participated in a Panel discussion titled "From Market to Policy: Catalysing Waste-to-Energy Prospects in the Gulf and Beyond" Held by Observer Research Foundation Middle East. March 2026



Knowledge Transfer

Selected Conference Keynote Talks

Keynote speaker at the ANM 2026 conference held in Portugal, July 24-26, University of Aveiro, 2026.



2025-2026

Knowledge Transfer

Thesis Examiner-University of Sharjah-2026



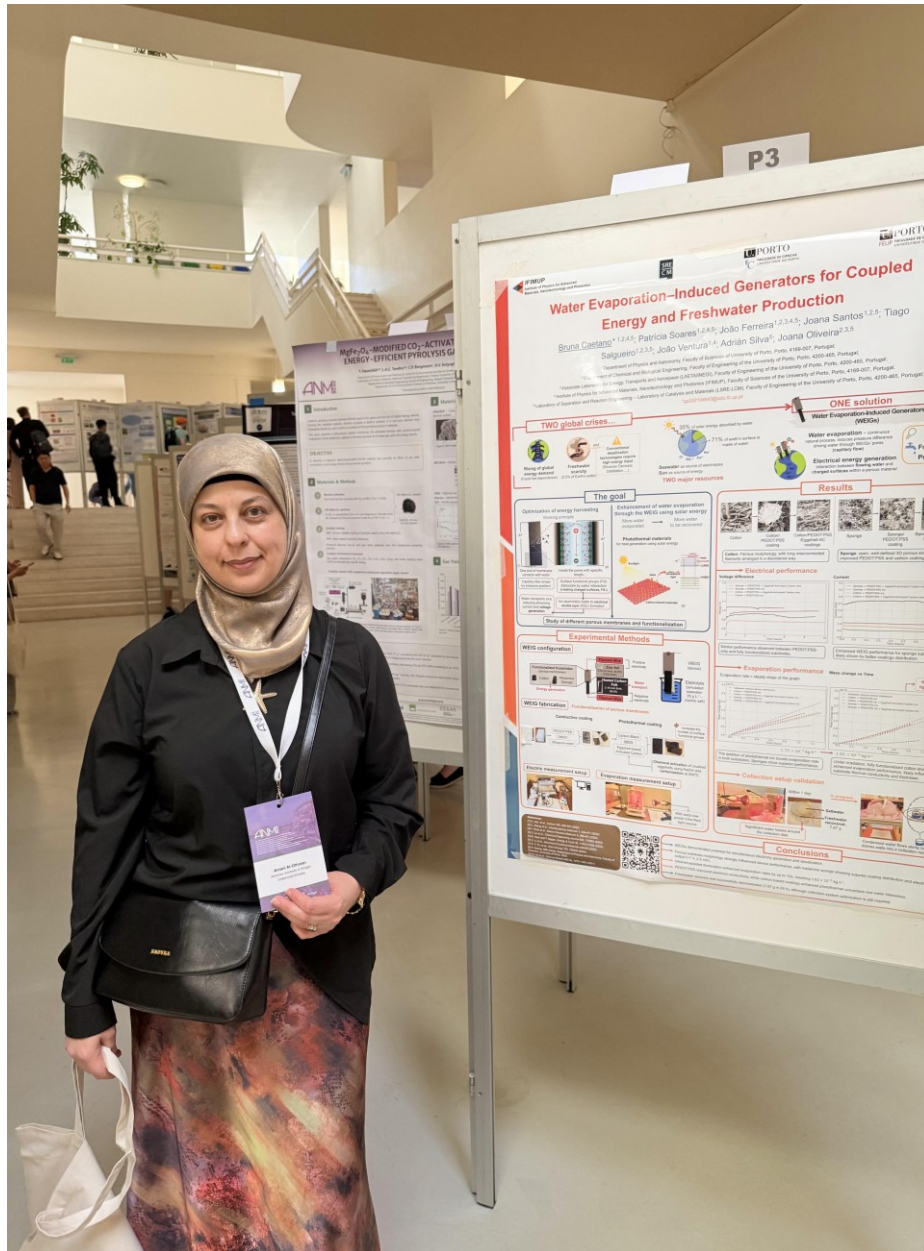
2025-2026

Knowledge Transfer

**Joined Amity University-
Biotechnology Industrial Advisory
Board Member July 2026**



Knowledge Transfer



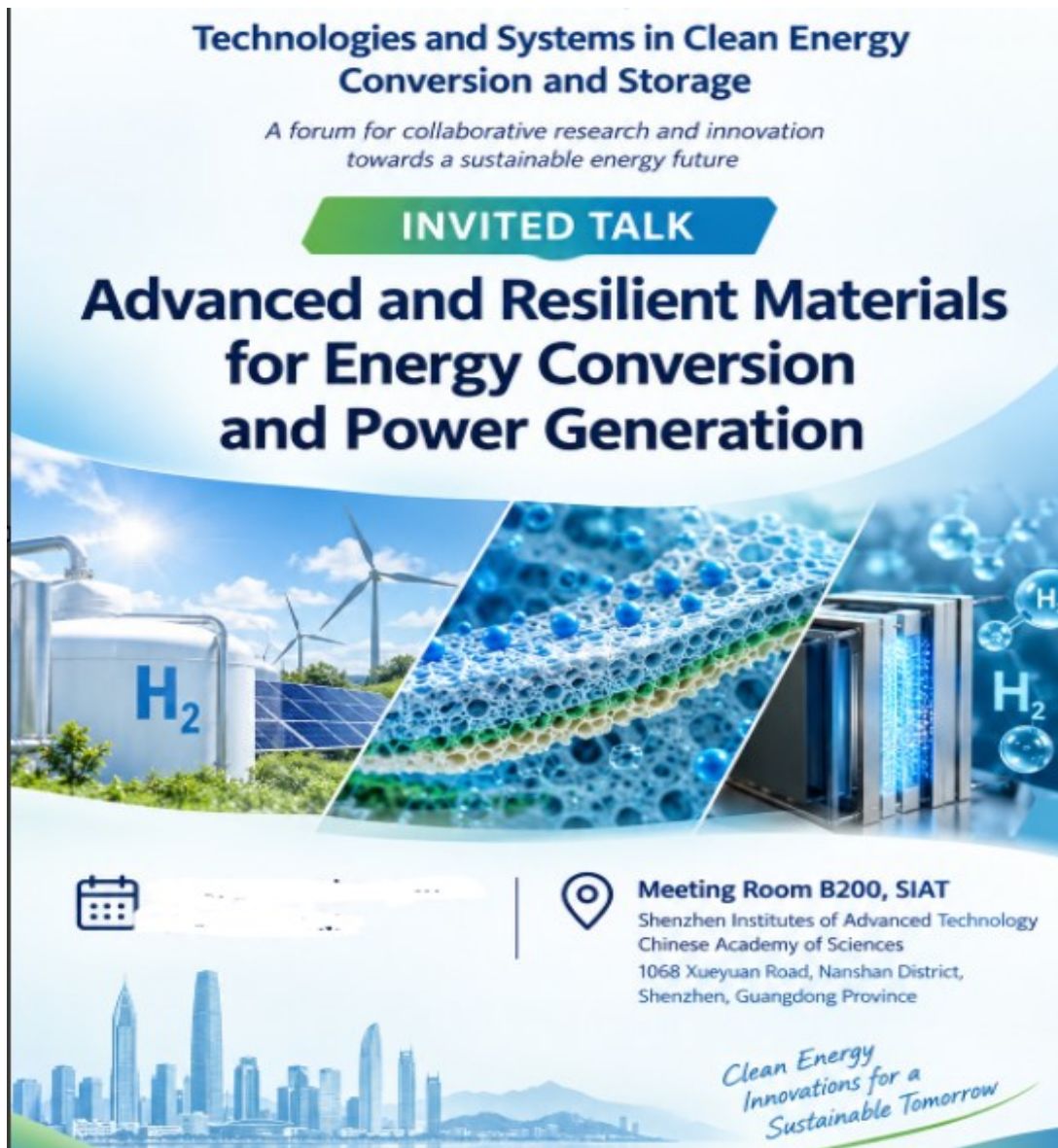
Dr. Amani Al-Othman participated at the ANM 2026 Conference held in Portugal-July 2026

Knowledge Transfer



**Dr. Amani Al-Othman Associate Editor
at the Elsevier Q1-International
Journal of Thermofluids**

Knowledge Transfer



On Dec 1st/2026, Dr Amani Al-Othman delivered an online talk at the Joint Workshop on Technologies and Systems in Clean Energy Conversion and Storage 1-2 December 2025 SIAT& AUS

Venue: Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences 1068 Xueyuan Road, Nanshan District, Shenzhen, Guangdong Province
Meeting Room B200, SIAT

Community Engagement

Emirates Biotech Roundtable Discussion Jan 2026

The College of Engineering (CEN) hosted a high-level "Emirates Biotech and Chemical and Biological Engineering" roundtable focused on the UAE's organic waste strategy in support of the UAE Green Agenda 2030. Led by Dr. Amani Al-Othman, Professor of Chemical and Biological Engineering and Petrofac Endowed Chair in Renewable Energy, the discussion brought together Dr. Daker El-Rabaya, CEO of BEEAH, as well as project leaders from the Ministry of Climate Change, Dubai Sustainability, UAE University, and the University of Sharjah. The roundtable was attended by Dr. Fadi Aloul, Dean of the College of Engineering; Dr. Mehdi Ghommem, Associate Dean for Research, Innovation and Outreach; and Dr. Sameer Al-Asheh, Professor and Head of Chemical and Biological Engineering, fostering collaboration on sustainable, circular solutions for organic waste management.



2025-2026

Clubs and Community Engagement

IEEE-EMBS Bio-hackathon 2025

The IEEE EMBS at AUS in collaboration with AURAK, brought together undergraduate students to explore innovative solutions at the intersection of biomedical engineering, healthcare, and technology. The event provided a collaborative, hands-on environment for students to apply their engineering knowledge, develop creative ideas, and strengthen their problem-solving and teamwork skills while addressing real-world biomedical challenges.

WELCOME REMARKS
ADVISOR OF AICHE AURAK

Dr. Sara Faiz
Department Chair, Chemical and Petroleum Engineering
Department at AURAK

IEEE-EMBS BIOHACKATHON 2026
AURAK · AUS

2025-2026

Clubs and Community Engagement

AICHE Treasure Hunt



The American Institute of Chemical Engineers (AIChE) Student Chapter hosted an engaging Treasure Hunt for engineering students, bringing participants together for a fun and interactive challenge. Students put their problem-solving and navigation skills to the test as they worked through a series of riddles and challenges across the Engineering and Sciences Building. The activity provided an opportunity to explore the building, connect with faculty members and fellow students and strengthen teamwork skills in an enjoyable setting. The winning teams were awarded prizes, and the event concluded with a celebratory dinner, giving participants the chance to socialize and celebrate their achievements.

Community Engagement



WINNING COLLABORATIVE PROPOSALS



Dr. Amani Al-Othman

Professor - Chemical and Biological Engineering, the American University of Sharjah and Petrofac Endowed Chair in Renewable Energy

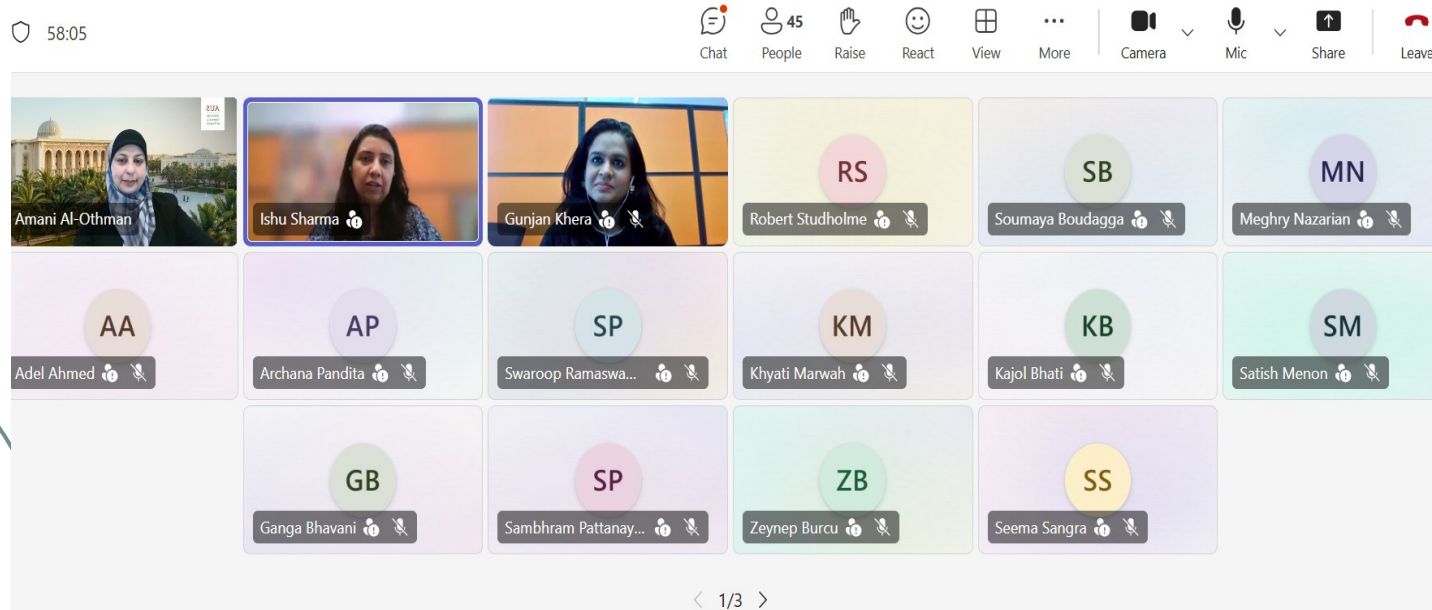
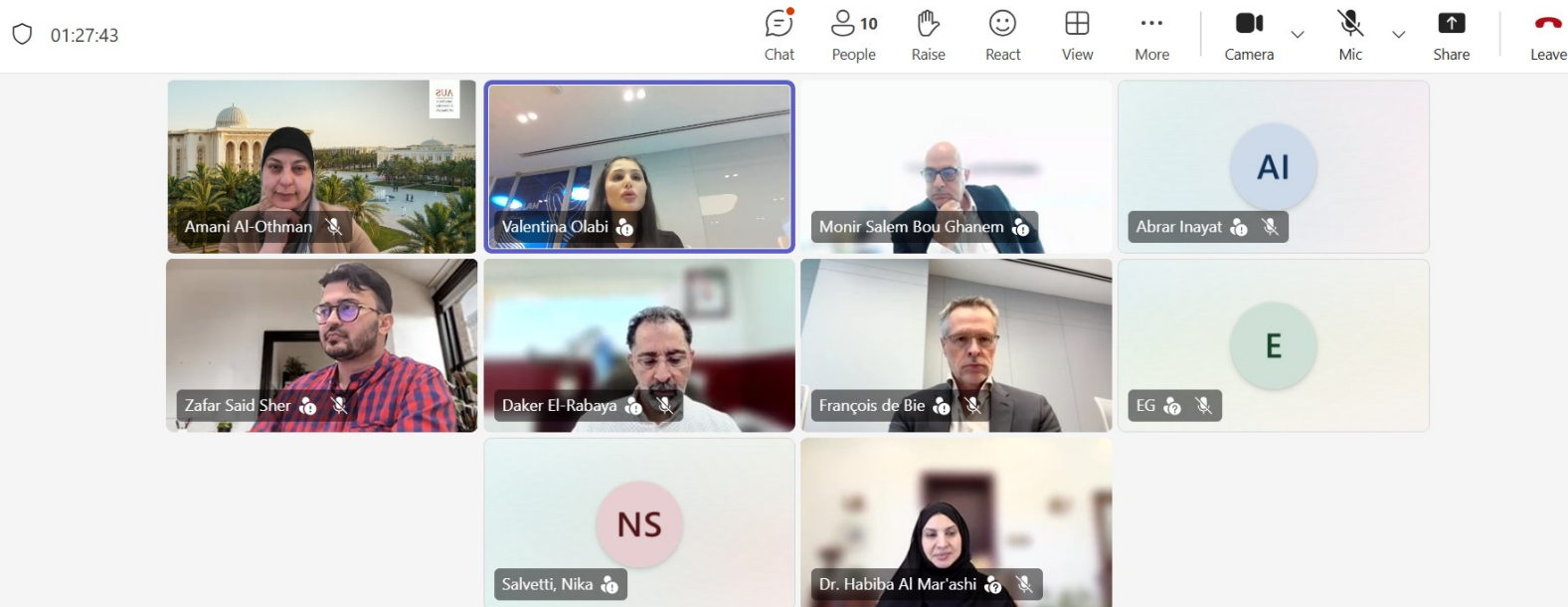
Discover how to build strong research partnerships and craft impactful proposals in this session on "Winning Collaborative Proposals." Learn how to align multidisciplinary expertise, structure cohesive projects, and present a unified vision that stands out to funding bodies. Led by Dr. Amani Al Othman, Professor and Petrofac Endowed Chair in Renewable Energy at American University of Sharjah and a globally recognized researcher with over 140 publications, this session offers valuable insights from her extensive experience. Join us to strengthen your collaborative approach and boost your chances of funding success.

2025-2026

Community Engagement

Selected Webinars and Workshops

Keynote at Amity University 2026 and Emirates Biotech Webinar 2026



Community Engagement

Women in Engineering Innovation Challenge for undergraduate students-at AUS 2026



Community Engagement

Co-organized with the Women in Engineering Society, the Pink October Event 2025



Community Engagement

Hosted a Guest lecture at the the EWSERC

AUS | الجامعة الأمريكية في الشارقة
American University of Sharjah

EWSERC

Energy, Water and
Sustainable Environment
Research Center

Water, Energy, and Carbon Footprint from Bioethanol Production

Wednesday, 21 January 2026

2:00 p.m. – 3:00 p.m.

Lecture Hall B, American University of Sharjah (AUS)



Dr. Atul K. Jain

Professor, Department of Atmospheric Science
University of Illinois, Urbana-Champaign

✉ jain1@illinois.edu

Lecture & Q&A

This lecture will provide a detailed analysis of the implications of expanding bioethanol crop production on water and energy resources, as well as greenhouse gas (GHG) emissions. The presentation will also examine how the increasing severity of extreme climate events, including droughts and heat waves, is shaping these critical factors across the United States.

HOST



Dr. Amari Luth Al-Othman
Professor and Petrofac
Endowed Chair in Renewable
Energy | Department of
Chemical and Biological
Engineering | CBE
Associate Editor-International
Journal of Thermofluids
(Elsevier)

Know more about the speaker

<https://climas.illinois.edu/directory/profile/jain1>



Community Engagement

Participated at the 27th edition of the Water, Energy, Technology, and Environment Exhibition (WETEX) 2025 took place from 30 September to 2 October 2025 at the Dubai World Trade Centre (DWTC) in the United Arab Emirates WETEX 2025 in Oct 2025



Community Engagement

Representing AUS at the Innovation Bridge 2025 organized by the Ministry of Higher Education and Scientific Research, Oct 2025.



Community Engagement

Participated with the EWSERC Advisory Board Meeting held at AUS Nov 2025



Media Coverage

AUS | الجامعة الأميركية في الشارقة
American University of Sharjah

COLLEGE OF ENGINEERING
كلية الهندسة



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 Coverage



Dr. Amani Al-Othman was prominently featured by the college of Engineering for her recognition in the University Excellence in Research Award, June, 2026.

Media Coverage

GULF NEWS DUBAI 32°C GOLD/FOREX PF

UAE

ASK GULF NEWS ABU DHABI DUBAI PEOPLE GOVERNMENT TRANSPORT COURT

UAE / Environment

UAE urged to rethink waste focus beyond plastics

Experts say organic waste poses bigger challenge for circular economy

Last updated: April 30, 2026 | 12:52
Ali Al Hammadi, *Reporter*

2 MIN READ

Add as a preferred source on Google Follow us + f X WhatsApp Link



The roundtable discussion held between AUS and Emirates Biotech was featured in Gulf News. 2026.

Media Coverage

HOME / UAE / EDUCATION

UAE: Fuel from sunlight, seawater? Students test hydrogen clean energy solution



Interview with Khaleej times to discuss progress on our work with Petrofac. More information can be found [here](#).

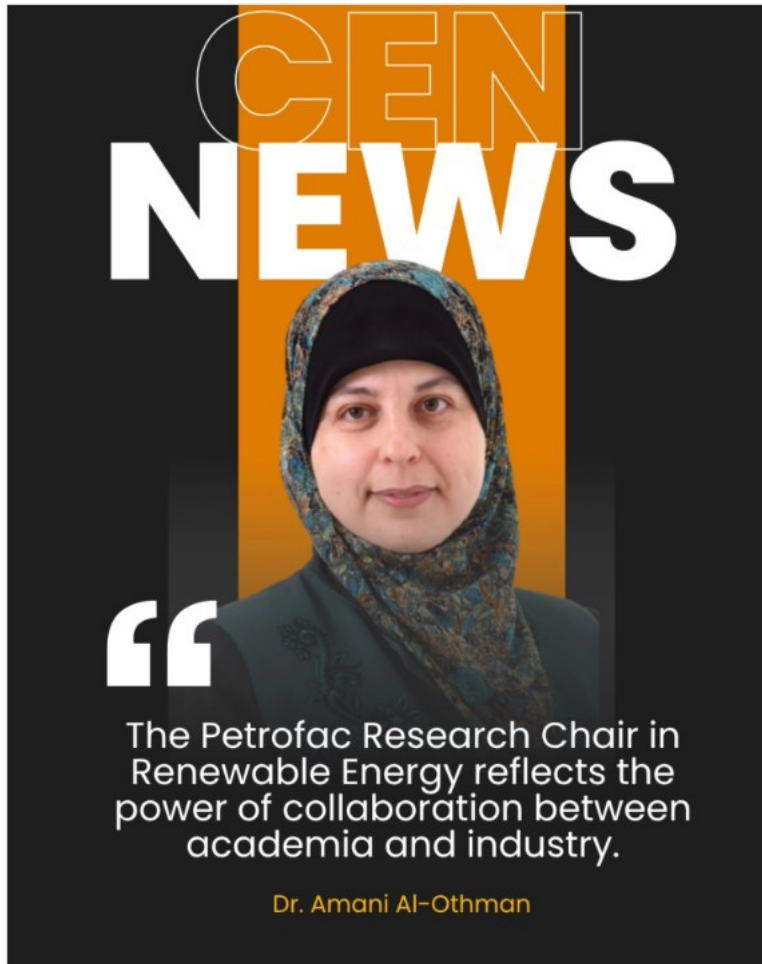
Media and E-Coverage

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](#).

Media and E-Coverage

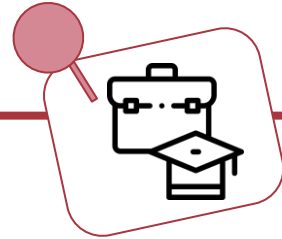


The Petrofac Research Chair in Renewable Energy at American University of Sharjah (AUS) has been awarded the Verified Sustainable Impact Project Stamp, a prestigious distinction granted by Majra, the UAE's National CSR Fund.

Future Activities



- **Participate In Middles East Energy Dubai 2027**



- **International Research Visits**
- **Participate in WETEX and Dubai Solar Show 2027**

The Team



Thank you

**Annual Report
Academic Year 2025–2026**

