



# Engineering

## *Community News*



Fall 2023 | Issue 12



# Engineering *Community* News

Fall 2023 | Issue 12



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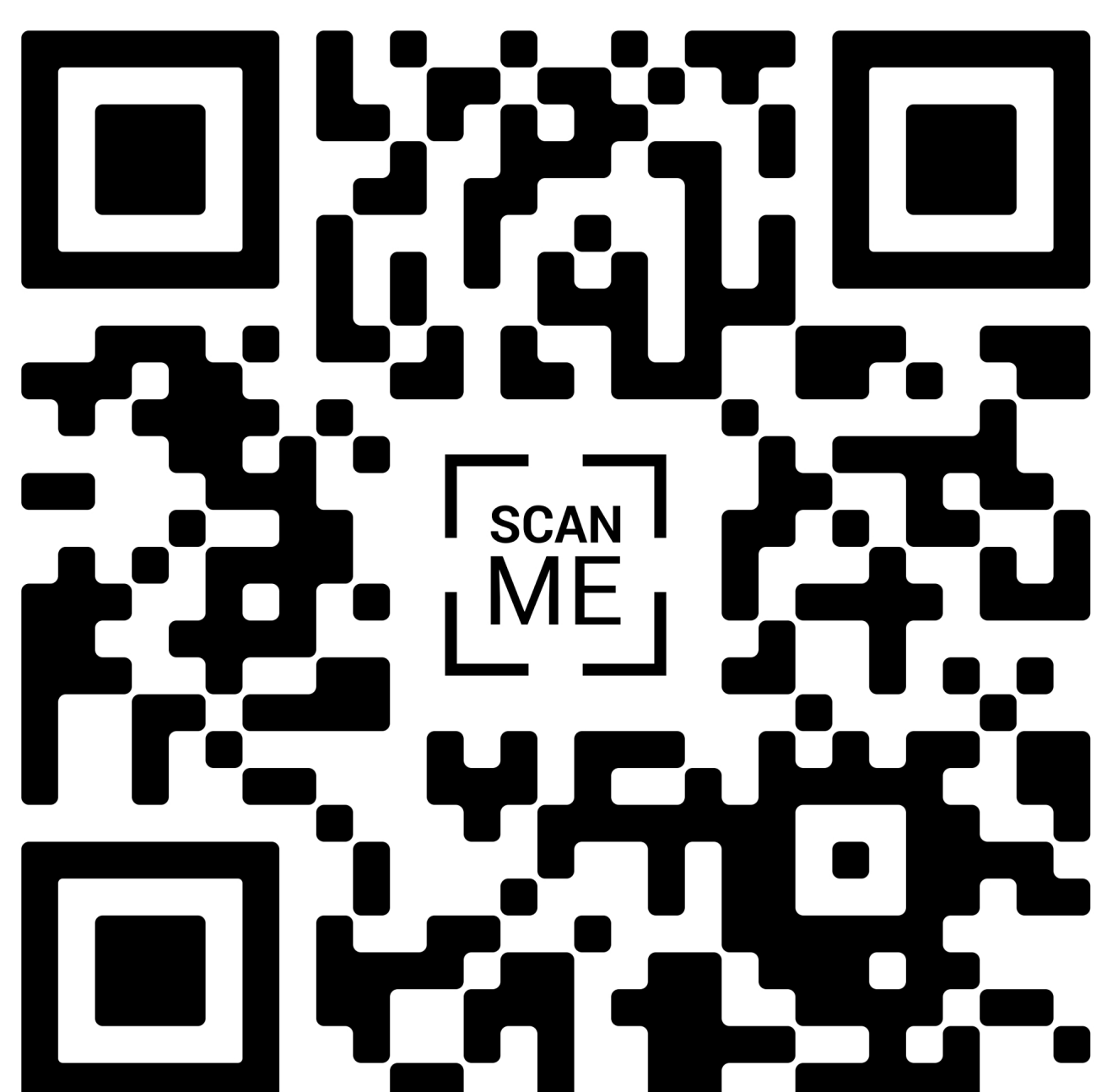
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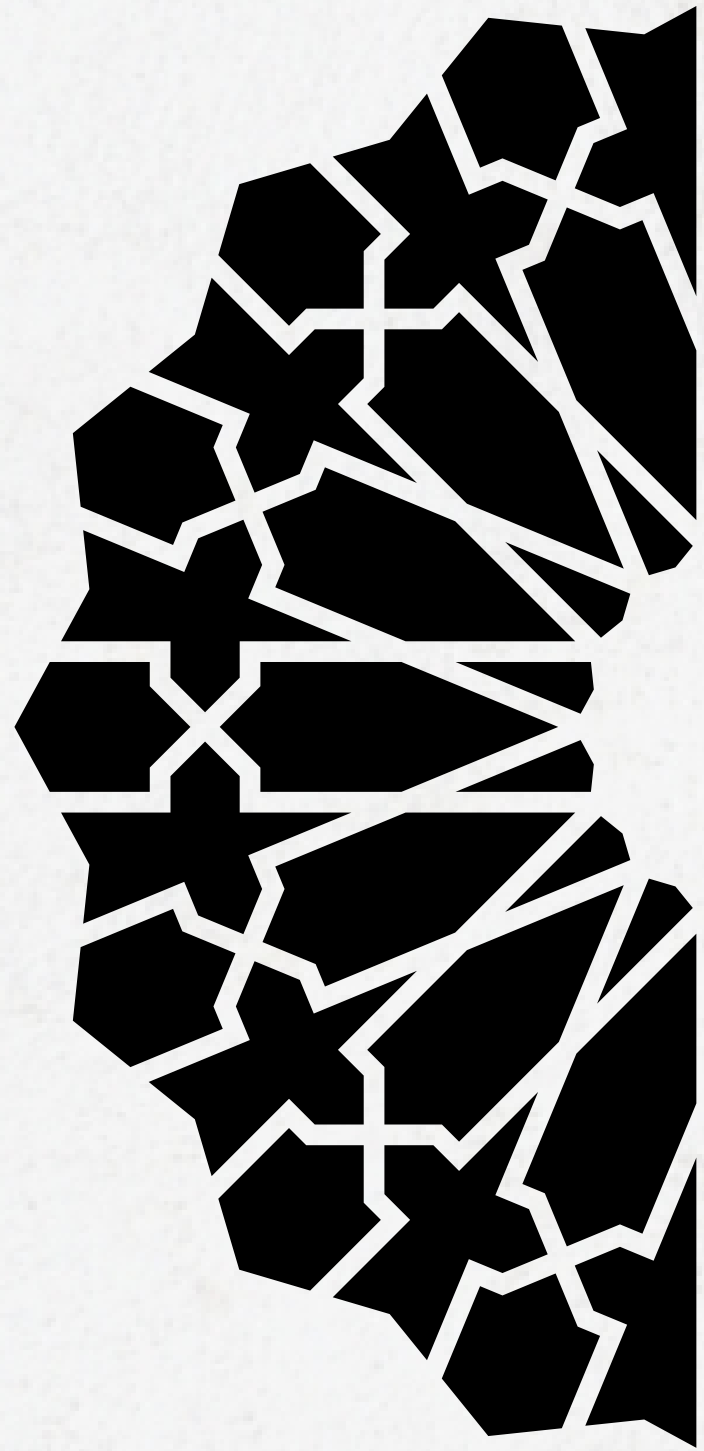


# Community news

## New Appointments



**Hakan Fehmi Oztop**  
Professor  
Mechanical & Nuclear  
Energy Engineering



**Muhammad Mubasshir  
Shaikh**  
Assistant Professor  
Electrical Engineering



**Waqar Ahmed Khan**  
Assistant Professor  
Industrial Engineering &  
Engineering  
Management



# Community news

## Achievements & Awards

### College of Engineering Undergraduate Programs Have Been Reaccredited by ABET

The Engineering Accreditation Commission (EAC) of ABET has evaluated the following programs at University of Sharjah:

- Architectural Engineering (Bachelor of Science)
- Civil Engineering (Bachelor of Science)
- Electrical and Electronics Engineering (Bachelor of Science)
- Industrial Engineering and Engineering Management (Bachelor of Science)
- Mechanical Engineering (Bachelor of Science)
- Nuclear Engineering (Bachelor of Science)
- Sustainable and Renewable Energy Engineering (Bachelor of Science)



## INAUGURATION CEREMONY FOR IRF MEMBERSHIP



The International Road Federation (IRF Global) has officially welcomed the University of Sharjah, as its new member. On October 5, 2023, the IRF delegation, led by Dr. Kamil Elias Kaloush, IREF Chair and Professor at Arizona State University, took part in the official ceremony with the leadership of the University, represented by Dr. Abdul Wahab Mohammad, Dean of the College of Engineering, Dr. Ghazi Al-Khateeb, Chairman of the Civil and Environmental Engineering Department, Dr. Waleed Zeiada, Associate Professor in the Civil and Environmental Engineering Department and other faculty members.



# Community news



## Faculty Incentive Award for Research Category

Prof Mohammad Ali AbdelKareem (SREE)

Dr. Tareq Samer Zaki Salameh (SREE)

## Faculty Incentive Award for Teaching Category

Dr. Eqab Almajali (EE)

Dr. Waled Zeiada (CEE)

## Faculty Incentive Award for Community Service Category

Dr. Mohamed G Arab (CEE)

## Best UAE National for Scientific Research

Dr. Khawla Al Najjar (EE)

## Sharjah Islamic Bank Award for Best Research Paper

Dr. Muhammad Tawalbeh (SREE)

## Eng. Osama Adel Hassan Received the Distinguished Employee Award (8th edition 2022-2023)

Eng. Osama Adel Hassan Received the Distinguished Employee Award (8th edition 2022-2023) in the Administrative/ Technical category at the University of Sharjah, in recognition of his dedication, efforts, and continued contributions towards his duties at the University and beyond.





## News & Activities

### College of Engineering Gathering

A social gathering, organized by the College of Engineering Social Affairs Committee, was held on December 12, 2023, in the student forum building. The event was hosted in the presence of Prof. Yousef Haik Vice Chancellor for Academic Affairs, Prof. Esam Agamy Vice Chancellor for Academic Affairs, Prof. Abdul Wahab Bin Mohammad, Dean of the College of Engineering, as well as a large number of the college of Engineering's faculty and staff members. In this forum, a certificate of appreciation was awarded to each department of the college in recognition for their contributions and achievements in the ABET accreditation. The certificates were received by the department chairs and distributed by Prof. Yousef Haik, Prof. Esam Agamy, and Prof. Abdul Wahab Bin Mohammad. It has also been a great opportunity in this event to congratulate faculty members who recently got promoted and to welcome the newly joined faculty members to the College of Engineering. Moreover, there was a recognition of seven faculty members with significant achievements, as well as five resigned faculty and staff members at the event.





# Architectural Engineering

AE department hosted Dr. De Marco organizing a series of events in Digital Heritage



During the month of October 2023, the Department of Architectural Engineering hosted Dr. Raffaella De Marco, a Fellow Researcher at the University of Pavia, Italy. Dr. De Marco was visiting our institution as part of her successful Erasmus+ Staff Mobility agreement, and her stay extended for two weeks. During her visit, a series of engaging activities to maximize her contribution to our academic community were planned:

**1. International Workshop:** “Digital Discoveries in Architectural Heritage: From 3D Mapping to Phygital Experiences” spanning two days, Tuesday, October 10th, and Thursday, October 12th. This workshop primarily targeted undergraduate students from various departments within the College of Engineering.

**2. Discussion Panel:** “Digital Heritage Features: Strategies of Connection between Data, Tools, and Stories” scheduled for Monday, October 9th. This session was dedicated to students enrolled in the Master Program “Conservation Management of Cultural Heritage”.

**3. Public Lecture:** “Digital Heritage Practice: Experiences from Survey to the Fruition of 3D Databases and Virtual Modelling Environments” on Wednesday, October 11th, was held at the Sharjah Museum of Islamic Civilization.



## AE students won 3 places in collaborative Design Competition organized by Mohamed Bin Rashid Housing Foundation

The Mohammed Bin Rashid Housing Foundation honored the winners of the collaborative design competition in the Department of Architecture at the University of Sharjah.

Exceptional recognition was bestowed by the Mohammed Bin Rashid Housing Foundation to the students and supervisors of the Department of



Architecture at the University of Sharjah. This recognition was in appreciation of their outstanding contribution to the collaborative design competition, where they achieved the first three positions among participating universities.

This competition provided a unique opportunity for our students and supervisors to showcase their skills and creativity in the field of architectural engineering and the design of ideal villas using different approaches. Their achievement of the top positions reflects the diligence and dedication they put into this project, enhancing the level of excellence and superiority in the university's research and development environment.

Dr. Aref Maksoud, the principal supervisor of the three winning projects, was also honored for leading and supporting the team toward achieving this remarkable accomplishment.





Virtual Vistas Exhibition - Fusion of Architecture and Artificial Intelligence  
Transitioning from mere users of artificial intelligence platforms to creators and innovators in the fields of artificial intelligence and architecture.



Under the patronage of the Chancellor, Prof. Hamid Al Naimiy the AE department held the Virtual Vistas exhibition, which was supervised and coordinated by Dr. Aref Maksoud.

The exhibition was a unique and innovative showcase that highlighted the use of the latest technologies in artificial intelligence within the field of architecture. It featured a collection of posters, including realistic visual drawings, interactive physical models, and smart video clips, providing a glimpse into the future of architecture where humanity, art, and technology merge seamlessly.

As the first of its kind in the United Arab Emirates, the event showcased the inspiring work of our second-year students who utilized the power of artificial intelligence platforms to envision the future buildings of Sharjah.

Furthermore, the exhibition included informative videos that employed artificial intelligence-supported techniques to explain the evolution of concepts and the use of various artificial intelligence platforms to showcase the beauty of buildings in Sharjah, such as the House of Wisdom and King Faisal Mosque. This unique approach ensured that visitors not only witnessed the final results but also gained valuable insights into the creative process behind these future designs.



Datasets have been input into the artificial intelligence platform, which astonishingly possesses imagination and creativity akin to humans. With the generation of over 1000 images and designs, the exhibition reveals a compelling vision of architecture seamlessly blending humanity, art, and technology.

Emphasis was placed on challenging traditional design thinking and opening up new creative possibilities. The students showcased examples where the original model served as a source of inspiration, and how artificial intelligence transformed it into a diverse set of creative ideas and different options.

The exhibition explored the adaptability and creative potential that artificial intelligence can bring to architectural design, offering exciting possibilities for architects and designers.

### Eco-Sand wall exhibited at Dubai Design week by AE students under supervision of Dr. Aref Maksoud



The "Eco-Sand Wall," a groundbreaking project realized as part of research related to sustainability and 3D printing along with parametric design and the usage of AI from design to Fabrication was exhibited in the prestigious Dubai Design Week.

The Eco-Sand wall has been designed and fabricated by Dr. Aref Maksoud and Students of the University of Sharjah College of Engineering - Architectural Engineering Department.

The concept for this project originated from the selected idea from a pool of over 20 ideas that were generated during the parametric design course led by Dr. Aref.

Eco-sand wall is an innovative and environmentally friendly architectural feature that combines sustainable materials and nature-inspired design principles. It consists of 3D-printed bricks made from a biodegradable and sustainable plastic called PLA (Polylactic Acid) mixed with sand. These bricks are not only durable and structurally sound but also eco-conscious due to the use of PLA, which is derived from renewable resources like cornstarch or sugarcane.

The unique and groundbreaking aspect of the Eco-Sand wall lies in its ability to facilitate plant growth directly on the wall's surface. This is achieved by embedding seeds within the brick material during the 3D printing process. The seeds are evenly distributed throughout the bricks, allowing them to sprout and grow when exposed to water.



## "Echoes of Islamic Architecture" Exhibition: When Artificial Intelligence Meets the Beauty of Islamic Architecture

The "Echoes of Islamic Architecture" exhibition stood out as one of the prominent cultural events in the world of architecture and design, providing an opportunity to showcase the works of students from the Department of Architecture. This exhibition was organized through the collaborative efforts of Dr. Aref Maqsood and Dr. Asil Ali Hussein, with the primary goal of connecting the concept of artificial intelligence with the aesthetics of Islamic architecture.

Under the supervision of Professor Hameed Al Nuaimi, the exhibition was inaugurated with the participation of the Head of the Department of Architecture, Prof. Emad Mushtaha, and the Dean of the College of Engineering, Prof. Abdulwahab bin Mohammed. This exhibition was a unique experience reflecting the university's commitment to providing opportunities for students to develop their skills and showcase their creativity.

The students' works were characterized by designing buildings that expressed various exciting



Islamic themes. The students successfully integrated traditional concepts of Islamic architecture with contemporary applications of artificial intelligence. They excelled in designing structures that merged Islamic traditions with technological innovation. This exhibition added a special charm to the university, attracting numerous visitors, including students, professors, and professionals in the fields of architecture and design. The exhibition served as an excellent platform for discussion and interaction, where students provided comprehensive explanations of their works and projects. The "Echoes of Islamic Architecture" exhibition reflects the university's commitment to promoting creativity and research in the field of architecture, fostering the design skills of students. The vision of integrating Islamic architecture and artificial intelligence represents a remarkable opportunity to explore boundaries and develop new concepts that blend tradition with modern technology.

The Department of Architectural Engineering continues to organize such exhibitions and events that encourage creative thinking and foster innovation in the field of architecture. We look forward to more excellence and creativity in the future.

We hope that the "Echoes of Islamic Architecture" exhibition serves as a pinnacle for applying the concept of artificial intelligence within Islamic architecture and becomes a source of inspiration for designers and researchers in this field.



AE Faculty Dr. Aref Maksoud collaborates with Sharjah Private Education Authority (SPEA) to present the applications of AI in Education, Architecture and Arabic



Under the patronage and presence of His Highness Sheikh Dr. Sultan bin Muhammad Al Qasimi, the Ruler of Sharjah, may Allah preserve and protect him, Dr. Aref Maqsood successfully presented a cooperative project between the Department of Architectural Engineering at the College of Engineering, University of Sharjah, and the Sharjah Private Education Authority at the Roots and Innovation Forum. This project utilizes modern artificial intelligence technology to highlight the beauty of the Arabic language and Arabic calligraphy in the context of architectural and Islamic engineering for educational buildings in the Emirate of Sharjah, under the title "Where Education Flourishes through Architecture."

Our deep gratitude to His Highness Sheikh Dr. Sultan bin Muhammad Al Qasimi for the valuable opportunity he has granted us to share our vision and achievements with him. His continuous support and interest in our work inspire us to reach new horizons and continue our mission to enrich the architectural heritage of Sharjah. During his speech at the second International Forum for Arabic Teachers, Dr. Aref Maqsood, faculty member at the Department of Architecture at the University of Sharjah, discussed the importance of encouraging architecture students to incorporate Islamic decorations and the Arabic language in their designs due to their richness and beauty. He also shed light on the efforts of the Sharjah Private Education Authority and the University of Sharjah, outlining their future visions in this field, especially their initiative "Where Education Flourishes through Architecture," aimed at providing a set of approved architectural designs for educational institutions and making them available to investors to contribute to the advancement of the education sector in the Emirate.



## In collaboration with the Directorate of Town Planning and Survey, AE department provides consulting services to enhance the urban appearance of the Sharjah City Entrance

In its vision to enhance the urban appearance of the Sharjah City Entrance the Directorate of Town Planning and Survey, Sharjah (DTPS) is collaborating with the Architectural Engineering Department (AED) seeking its professional expertise and consultancy services.

The aim of the study is to enhance the urban appearance of the Sharjah City entrance – Sheikh Mohamed Bin Zayed Road. The objectives of the study include solutions for deformities and negative factors, suggestions for improvement guidelines of standards and planning, provision of phased short-, medium- and long-term work plans to develop and maintain the urban appearance of the studied area. Furthermore, it includes, suggestions for improving living conditions, raising awareness, and identifying the responsibilities of landowners towards beautifying, maintaining, and complying with the proper aesthetic urban appearance image. To conclude, the study targets to develop a strategy to upgrade the road's urban appearance, raise the road's economic value, upgrade the retail value, and provide financial benefits for landowners. Moreover, improve the demography of the road, buildings, and retail along the road, with an affordable cost for implementation without putting extra financial burdens on companies, building owners, and developers.

The study aims to reach a level of beautifying the city that meets the best-adopted standards in the world and implement the SDTPS vision.

## 120 000 AED for a Competitive research grant on Architectural Planning and Sustainable Development of Governmental Housing in the UAE, The case of Sheikh Zayed Housing Program (SZHP).

This research aims to improve the architectural and urban design of the UAE governmental housing under the Sheikh Zayed Housing Program (SZHP), assessing the Al-Raqai Community in Ajman as a case study. This project investigates the relationship between indoor and outdoor environments and focuses on studying the boundaries where comfort environments (indoors and outdoors) could be provided. The proposed design will help increase Emirati citizens' satisfaction as well as reduce the amount of energy consumed by residential villas. In addition, the project will lead to an increase in the quality of outdoor spaces by enhancing the thermal environment outdoors. Herein, the research starts with an intensive literature review on UAE house development, including the SZHP and Space Syntax analysis.

Furthermore, the study investigates the climate impact and the ideal approach to achieving Net Zero Energy Building (NZEB). Simultaneously, a set of outdoor microclimate simulations targeting outdoor thermal comfort are planned.



A survey will be conducted among the residents of the housing complex in Ajman to measure their satisfaction with the existing green buildings. Besides, focus group interviews will be held with the SZHP management team and engineers to consult the proposed approach resulting from the literature, Climate Consultant software, and the survey. Consequently, the achieved list of NZEB strategies and urban design considerations with priorities as per experts' opinion will, respectively, be tested in (i) buildings using Energy Simulation Software packages such as IESVE, BEopt, and Design builder and (ii) outdoor microclimate simulations using ENVI-met, RayMan, and SimScale. The results from the proposed design's simulation studies will be compared with the existing situation. Finally, a proposal of the most suitable layout with NZEB strategies will be introduced, expecting a self-sufficient house that matches the needs of UAE citizens.

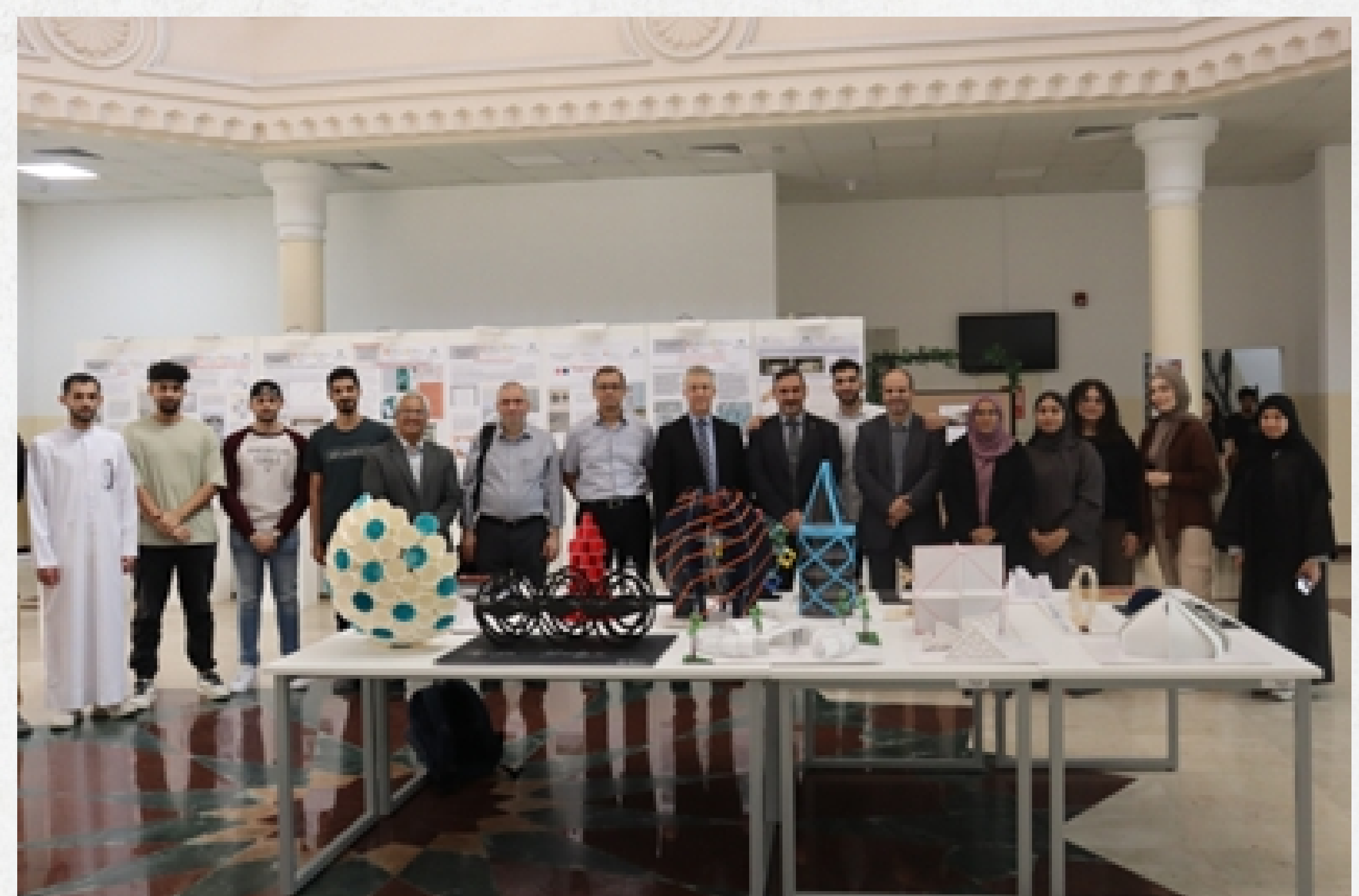
## AE Orientation Day



The Architectural Orientation Day was an informative event, setting the stage for a successful academic journey ahead. Faculty members and senior students welcomed newcomers, guiding them through the architectural study plan and course flow. The session emphasized extracurricular involvement, spotlighting the Society of Architectural Students (SASA) as a hub for collaboration and creativity, encouraging active participation for a well-rounded university experience.

## AE in collaboration with the Mathematics department organizes Mathematical Geometry in Architecture Exhibition

Under Dr. Mostafa Zahri's guidance and the college of engineering, an Analytic Geometry exhibition by architecture engineering students showcased their deep grasp of geometric concepts and imaginative application. The exhibition demonstrated their strong foundation in geometry, setting a promising tone for their future in design and architecture.





## Workshop on Reviewing Floorplans by Eng.



The workshop on "Reviewing Architectural Floor Plans of Your House," led by an experienced architect, participants learned structured points for identifying and correcting design mistakes. The session included informative advice and examples, providing insightful guidance and illustrative examples, showing a comparative analysis of well-designed villas and spaces against poorly designed counterparts. This approach allowed participants to develop an understanding of design principles and gain practical insights to enhance the effectiveness of their architectural floor plans.

## SASA organizes World Architecture Day

World Architecture Day is celebrated on the 2nd of October both globally and in UOS. It's an informative and engaging event for our students. This year, we held a gathering with our alumni where we learned from their experience and got an insight into the work field and opportunities ahead of us. Architecture Day was a dynamic gathering offering a



wealth of expertise and inspiration to the audience. The event's lively atmosphere created a memorable occasion for learning, networking, and celebrating the art of architecture.

## SASA organizes Breast Cancer Awareness Day

Breast Cancer Awareness Day, an annual event organized by SASA, collaborated with the Medical Student Association (MSA) this year to amplify public awareness and reduce stigma surrounding breast cancer symptoms and treatment. The event featured games, food, and informative lectures, aiming to educate attendees about the disease and its impact.





# Civil & Environmental Engineering

## Department Achievements

### 1. Orientation Day:

In collaboration with the ASCE and ACI clubs, the Department of Civil and Environmental Engineering organized an Orientation Day on September 14, 2023, to warmly welcome and guide the newly enrolled students in the civil engineering undergraduate program. The event aimed to provide an informative and engaging introduction to their academic journey ahead.

During the Orientation Day, the department's chairman, faculty members, and senior students shared insights into the various aspects of the civil engineering program. They covered essential academic information, program requirements, and the department's facilities, laboratories, and resources available to support their academic endeavours.





## 2. IRF Membership Ceremony

The International Road Federation (IRF Global) has officially welcomed the University of Sharjah as a new member of the IRF. On October 5, 2023, the IRF delegation, headed by Dr. Kamil Elias Kaloush, IRF Chair and Professor at Arizona State University, participated in an official ceremony. The ceremony was attended by Prof. Abdul Wahab Mohammad, Dean of the College of Engineering, Prof. Ghazi Al-Khateeb, Chairman of the Civil and Environmental Engineering Department, Dr. Waleed Zeiada, Associate Professor in the Civil and Environmental Engineering Department, and other esteemed faculty members.



## 3. The Pavement Research Lab received a prestigious honor with the visit

of His Highness Sheikh Sultan bin Ahmed Al Qasimi, the University President and Deputy Ruler of Sharjah, along with the esteemed University Chancellor, Prof. Hamid Al Naimiy, and other higher management officials. This visit represents a significant milestone as His Highness Sheikh Sultan bin Ahmed Al Qasimi unveiled our newly established academic and research labs. Our state-of-the-art pavement research lab is equipped with cutting-edge technologies and advanced equipment dedicated to advancing the field of transportation engineering and paving the way for groundbreaking developments in roads infrastructure.





#### 4. Participation in the Sharjah Roads and Transport Authority (RTA)'s 52nd National Day Event:

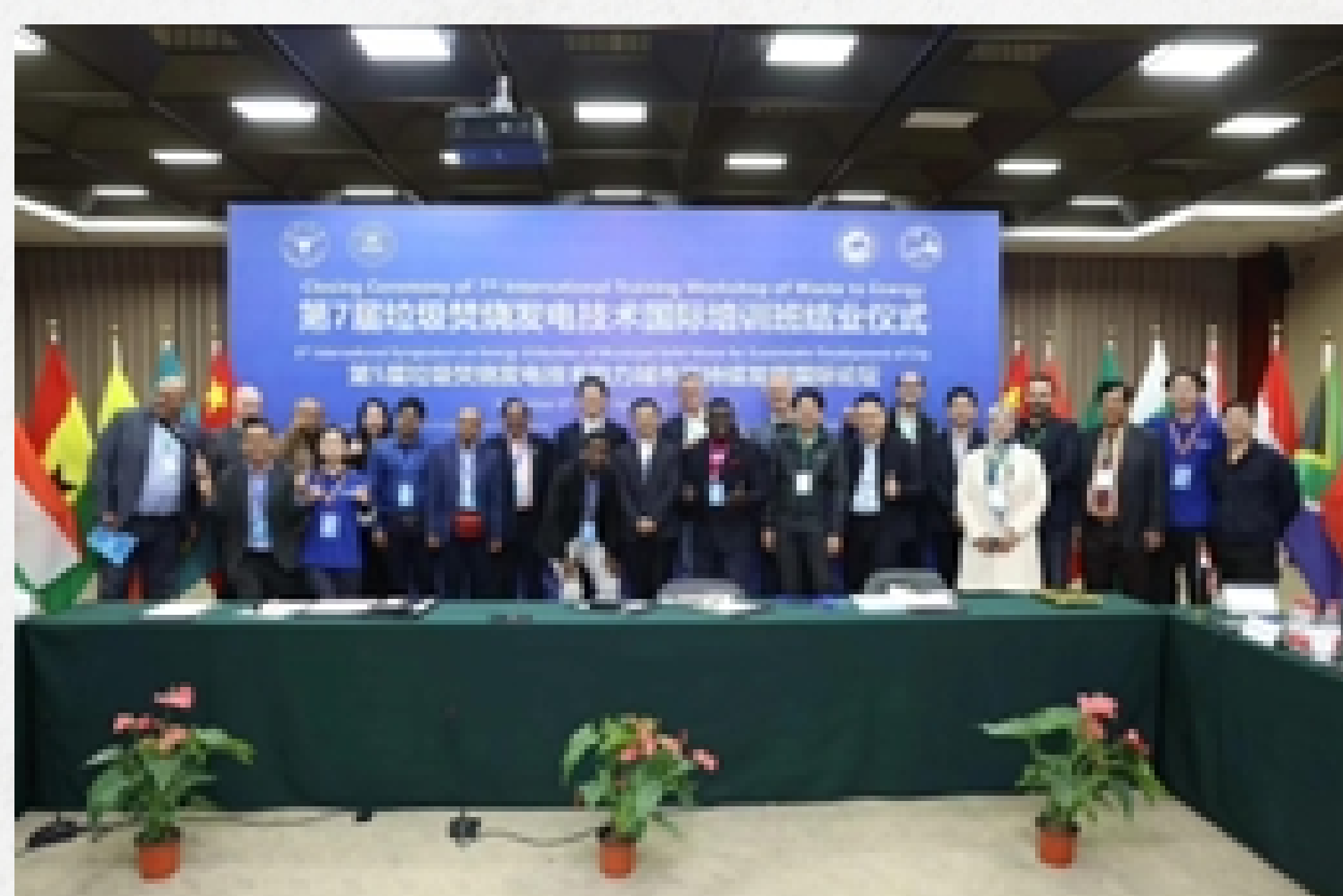
The participation of the Department of Civil and Environmental Engineering at the University of Sharjah in the Sharjah Roads and Transport Authority's (RTA) 52nd National Day Event on November 27, 2023, marks a significant engagement in celebrating the 52nd National Day. During this event, the department, represented by the department chairman, Prof. Ghazi Al-Khateeb, Dr. Waleed Zeiada, and Eng. Faiza Naser and three groups of senior undergraduate students showcased their senior design projects in the area of transportation and pavement engineering. The event provided a platform for networking, collaboration, and knowledge exchange, fostering connections between the department and various stakeholders, including professionals from the Sharjah Roads and Transport Authority (RTA). This participation not only celebrated the spirit of the 52nd National Day but also reinforced the department's commitment to academic excellence, research, and its role in contributing to Sharjah's broader community and infrastructure development.





## Faculty News

- **Prof. Salah Al-Toubat** was honored by the American Concrete Institute (ACI) and elected as a Fellow of ACI in recognition of his contributions to the ACI's work.
- **Prof. Maher Omar** from CEE, as the Director of the Institute of Leadership in Higher Education, announced the launch of the third batch of the Emirati Future Leadership Initiative. Welcoming 34 senior Emirati students, this six-month program is a key part of the Institute's commitment to supporting the Emiratization policy of the United Arab Emirates and enhancing the University of Sharjah's corporate social responsibilities.
- **Prof. Radhi M Alzubaidi** attended the graduation ceremony for Professional Diploma which was covered in the media outlets.
- **Prof. Rami Al-Ruzouq** secured a research fund of 250,000 AED from Fujairah Research Center for a project titled "Mapping Vegetation and Tree Species from Very-High Resolution Satellite Using Deep Learning." He was also an invited speaker at the Fujairah International Conference on Bee Research, where he presented on the utilization of remote sensing and artificial intelligence for efficiently mapping vegetation and honeybee habitats.
- **Dr. M. Talha Junaid** from CEE department won the best oral presentation award for his paper presented at the two joint conferences, the 7th International Conference on Building Materials and Materials Engineering (ICBMM 2023) and the 7th International Conference on Structural and Civil Engineering (ICSCE 2023) that was held in Porto, Portugal during September 14-16, 2023.
- **Dr. Waleed Zeiada** received the University of Sharjah Teaching Incentive Award for the 2022/2023 academic year.
- **Dr. Mohamed Abdallah** attended the World WtERT Congress organized by the Global Council of Waste-to-Energy Research & Technology (WtERT) in Hangzhou, China, between 6 and 8 November 2023. He represented the University in this conference as the Chair of the WtERT UAE Office.







## Conferences, Seminar & Special Invitations

### 1. Seminar: High Precision GNSS towards Mass-Market Applications (28 Aug 2023)

The Department of Civil and Environmental Engineering along



with the Research Institute of Sciences and Engineering hosted Dr. Yang Gao, Professor and Associate Head of the Department of Geomatics Engineering at the University of Calgary. The presentation discussed the demand, opportunity, and challenges in developing precise GNSS positioning and navigation systems for mass market applications.

### 2. Seminar: Soil Engineering: Coupled Processes and Applications (19 Sep 2023)

Professor Hossam Aboel Naga, Head of the Department of Engineering at La Trobe University, Australia, delivered a seminar exploring soil behavior coupled processes and its various applications. The presentation provided valuable insights into the world of soil engineering and its wide-ranging applications.






# Electrical Engineering

## Activities and Achievements

1. Prof. Abdul Kadir Hamid Grant of US Patent 11,715,312 entitled “Smart information recognition for user health identification through COVID-19 applications” with Eng. Mena Maurice Farag and Eng. Walid Obaid

A system and a method for smart information recognition for user health identification are disclosed. The system and the method comprise a display unit, a color code detection unit, an image filter, an optical character recognition unit, a code detection unit and an elimination unit. The display unit contains a user information. The color code detection unit is associated with the display unit to split at least one of the user information by analyzing at least three colors in an image. The image filter detects at least one of the user's information. Further, the optical character recognition unit recognizes a text of the user information. The code detection unit detects an image code and the elimination unit is used for eliminating a binary object that is close to an image border. The proposed system and method ensure complete security to prevent abuse of an individual's personal information.



US011715312B1

(12) <b>United States Patent</b> <b>Hamid et al.</b>	(10) <b>Patent No.:</b> <b>US 11,715,312 B1</b> (45) <b>Date of Patent:</b> <b>Aug. 1, 2023</b>
(54) <b>SMART INFORMATION RECOGNITION FOR USER HEALTH IDENTIFICATION THROUGH COVID-19 APPLICATIONS</b>	OTHER PUBLICATIONS
(71) Applicant: <b>University of Sharjah, Sharjah (AE)</b>	Somasekar et al., “Withdrawn: Machine learning and image analysis applications in the fight against COVID-19 pandemic: Datasets, research directions, challenges and opportunities”, PMC PubMed Central, National Library of Medicine, Mater Today Proc., 2020, 10.1016/j.matpr.2020.09.352. 1 page.
(72) Inventors: <b>Abdul Kadir Hamid, Sharjah (AE); Mena Maurice Farag, Sharjah (AE); Waleed Obaid, Sharjah (AE)</b>	“WHO Coronavirus (COVID-19) Dashboard   WHO Coronavirus (COVID-19) Dashboard With Vaccination Data.” <a href="https://covid19.who.int/">https://covid19.who.int/</a> , website accessed Feb. 10, 2021, 2 pages.
(73) Assignee: <b>UNIVERSITY OF SHARJAH, Sharjah (AE)</b>	Nishant Renu, “Technological advancement in the era of COVID-19”, Sage Open Medicine, 2021, vol. 9, pp. 1-4, 4 pages.
(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.	Umair et al., “Impact of COVID-19 on IoT Adoption in Healthcare, Smart Homes, Smart Buildings, Smart Cities, Transportation and Industrial IoT”, Sensors, 2021, vol. 22, Issue 3838, 33 pages.
	(Continued)

Hamid, Abdul Kadir, Mena Maurice Farag, and Waleed Obaid. "Smart information recognition for user health identification through COVID-19 applications." U.S. Patent No.11,715,312.1 Aug.2023.



## 2. Participation in the 50th international conference on computers and industrial engineering (CIE50) hosted at American University of Sharjah

Prof. Abdul Kadir Hamid has participated in the CIE50 conference at AUS, being coauthor in 3 scientific research papers that revolve around solar energy applications within clean energy integration as well as geothermal energy.

## 3. Part of Ideas and Innovation box advisory committee

Prof. Abdul Kadir Hamid is the lead of the Ideas and Innovation box advisory committee in assessment of innovative ideas submitted for potential marketing and development of such ideas.



### Prof. Ismail Shahin

Prof. Ismail Shahin has been designated as the world's top 2% of scientists by the U.S.-based Stanford University for the year 2022. The list represents the top 2 percent of the most-cited scientists in various disciplines.

### Dr Mahmoud A. M. Albreem

for the 3rd consecutive year, Mahmoud A. M. Albreem has been ranked in the top 2% in the field of networking and telecommunications

### Prof. Ramesh Bansal

Prof. Ramesh Bansal has been designated as the world's top 2% of scientists by the U.S.-based Stanford University for the year 2023. The list represents the top 2 percent of the most-cited scientists in various disciplines.

#### Books Published:

S. Dhundhara, Y. Arya, and R. C. Bansal, "Advanced Frequency Regulation Strategies in Renewable Integrated Modern Power Systems", Elsevier, 2023.





## Students' Activities:

### 1. Opening ceremony

The IEEE Club's opening ceremony was a vibrant gathering that brought together 80 enthusiastic attendees from diverse engineering majors. The event, marked by a spirit of collaboration and innovation, showcased the club's commitment to fostering interdisciplinary connections within the engineering community. As students mingled and shared their passion for technology, the ceremony set the stage for a dynamic and inclusive academic year ahead.



### 2. Breast cancer Awareness

The Breast Cancer Awareness Day event was a collaborative effort between the Biotechnology, Industrial Engineering, and Chemical Engineering clubs, uniting expertise from diverse fields to raise awareness about breast cancer. With 100 enthusiastic attendees, the event featured insightful discussions, informative presentations, and a shared commitment to advancing knowledge and support for those affected by breast cancer. This multidisciplinary collaboration underscored the power of collective efforts in addressing crucial health issues.





### 3. Panel Talk & Midterm Relief

The panel talks event featured insightful discussions by three senior Electrical and Electronic Engineering (EEE) students who shared their valuable experiences, providing a unique perspective on the challenges and achievements within their field. Dr. Hissam Tawfik complemented the dialogue with a succinct lecture on artificial intelligence, adding an enriching layer to the event. With an impressive turnout of 100 attendees, the gathering fostered knowledge exchange and inspired the next generation of engineers.



### 4. Chips Designing Webinar

The EE Department and the IEEE and WIE clubs organized a webinar "Training the Next Generation of Chip Designers", which was held on November 9<sup>th</sup>. The webinar was given by Prof. Moustafa Nawito, who is Professor of Electronics and Dean of Engineering at the IU International University for Applied Sciences in Germany. He is also the founder and CEO of the electronics design company Polymath Analog in the city of Stuttgart. As a chip design engineer with over 22 years of experience, a professor and a senior



IEEE member, Prof. Moustafa has great personal and professional interest in empowering young engineers and students, especially in the Arab world, to enter and succeed in the field of microelectronics due to its critical importance.

### 5. Promising Generations Participation and Field Trip to SRTIP & SoiLab





# Industrial Engineering & Engineering Management

## Activities and Achievements

1. Prof. Atidel Aboubaker Ep Ben Hadj Alouane organized and chaired, with colleagues from the IEEM dept, a special session on Decision Support Systems for Sustainability in the 50th International Conference on Computer & Industrial Engineering- CIE50, held in the American University of Sharjah, 30 Oct. – 02 Nov. 2023.



2. Prof. Imad Alsyounf was recognized in the Top 2% Global Scientists 2023 list published by Stanford University and Elsevier for the second year.

3. Prof. Imad Alsyounf represented the University on, behalf of the chancellor, at the International Forum for Government Communication. Prof. Imad participated in the session "The Role of Media and Education in Achieving the Sustainable Development Goals".

4. Dr. Concetta Semeraro participated in the opening of the elective data-driven techniques in industrial application.

5. Dr. Concetta Semeraro organized Odoo workshop for the IEEM faculty members on 17 Oct. from 12:00 PM to 02:00 PM in M3 hall Al-Massoudi. This workshop aimed to present an ERP system and a card game that is used to introduce various functions and activities of a company to students.

6. Dr. Concetta Semeraro joined as an editorial board of the journal: Production & Manufacturing Research.

7. Dr. In-Ju Kim was invited to participate in the UAE-Korea Science and Engineering Forum 2023, Abu Dhabi, UAE, 28 Nov. 2023. The Korea Advanced Institute of Science & Technology (KAIST), Republic of Korea, sponsored and organised this forum.



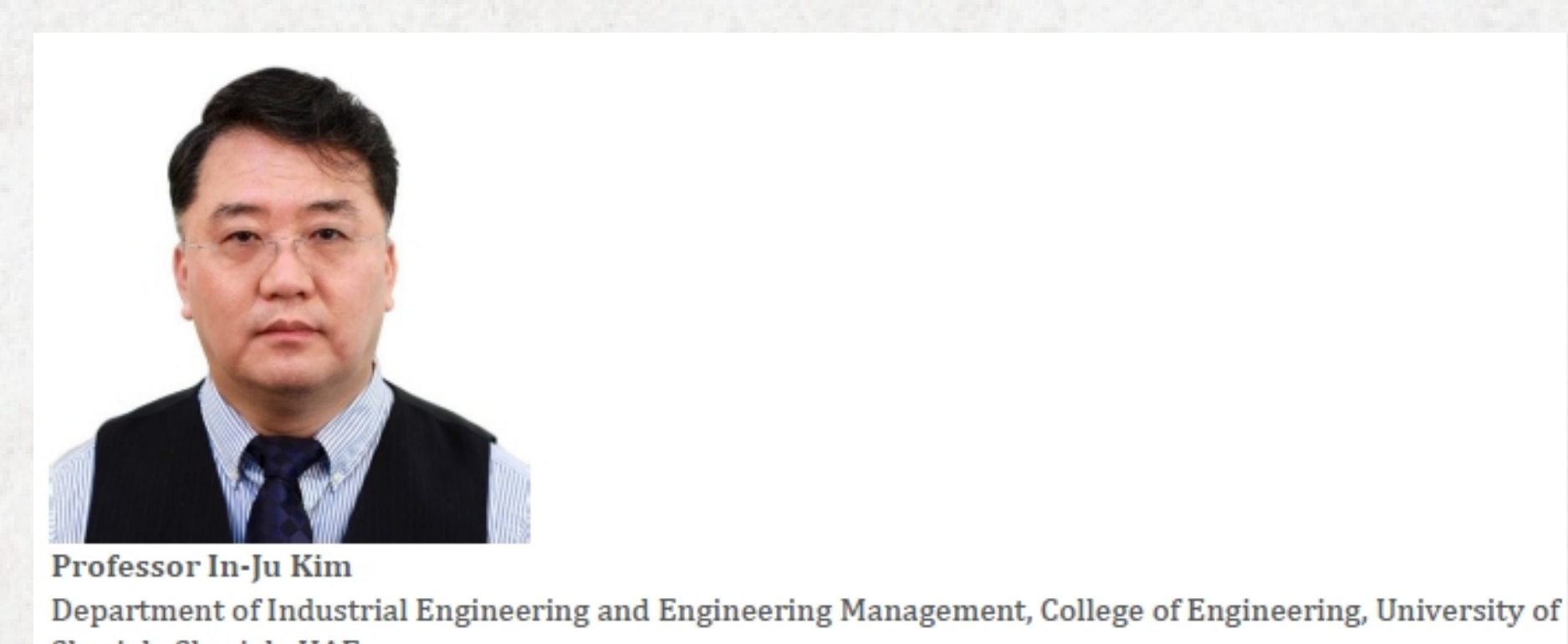
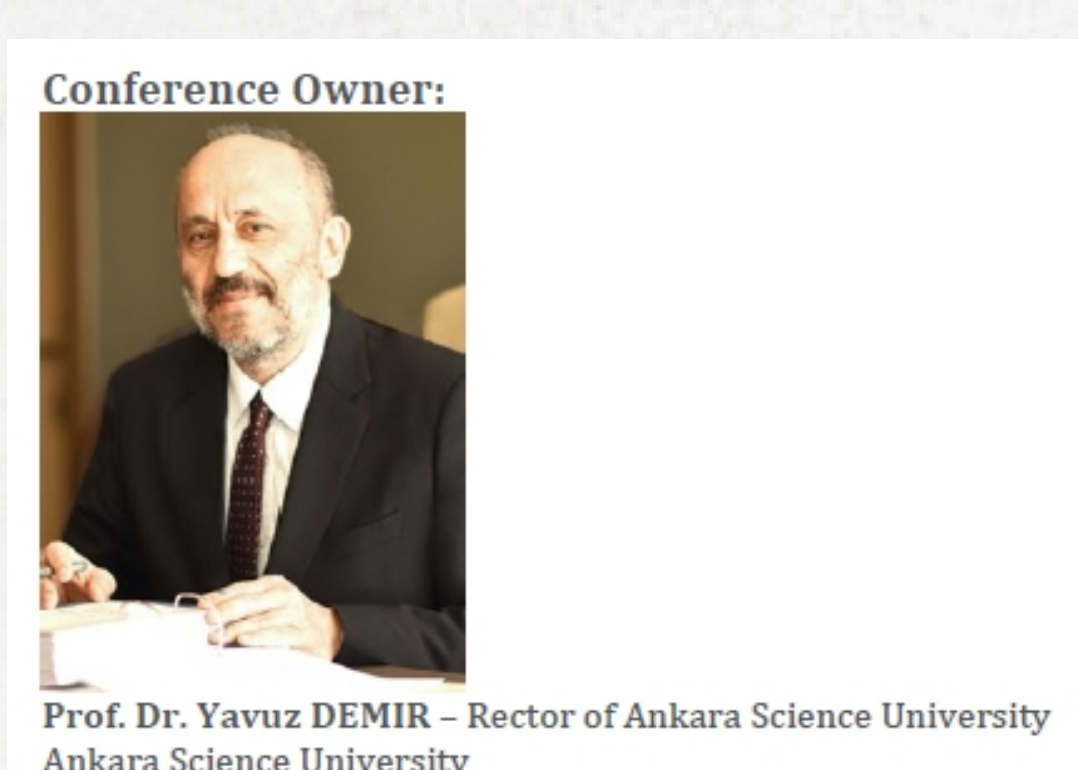


8. Dr. In-Ju Kim initiated, arranged and organized the memorandum of understanding (MOU) between the Korean Basic Science Institute (KBSI) and the University of Sharjah on 27 Nov. 2023. The signing MOU Ceremony was conducted by the Chancellor, Prof. Hamid Al Naimiy from the UoS and Dr. Sung-kwang Yang (President, KBSI). Prof. Maamar Bettayeb, Prof. Abdallah Shanableh, Prof. Abdul Ghani Olabi, Prof. Abdelaziz Soufyane, Prof. Mohamed Adel Serhani, Dr. Hussain Al Awadhi, and Dr. In-Ju Kim attended the event.

9. Dr. In-Ju Kim was invited as a reviewer for a book chapter from B P International Book Publisher, London, UK and acknowledged and appreciated with a certificate on 18 Oct. 2023.



10. Dr. In-Ju Kim was invited as a Conference Editorial Boards from The 7th International Conference on Engineering Sciences (ICES 2024), which will be held from 9-10 February in Ankara, Turkey.



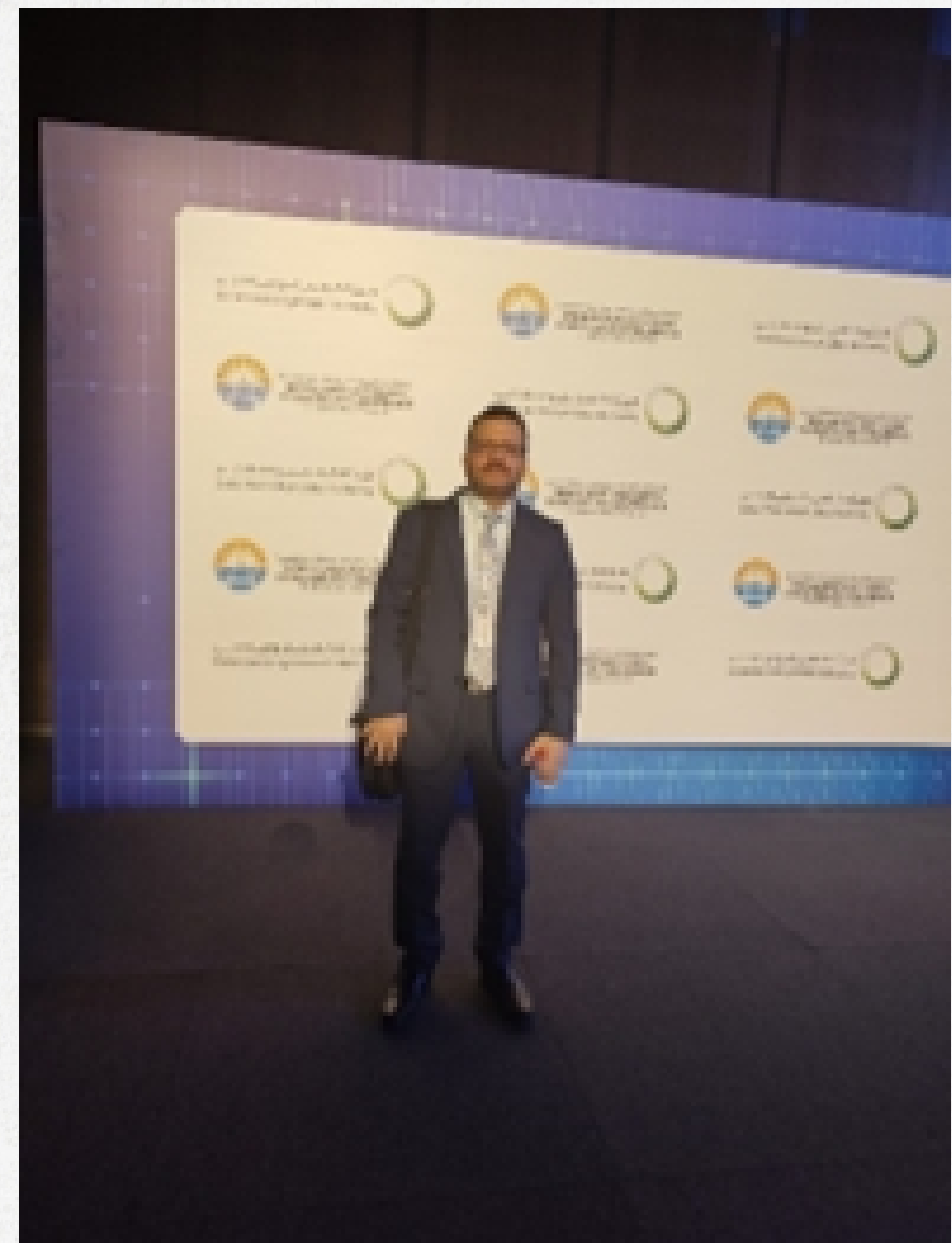
11. Dr. In-Ju Kim was appointed as an Editorial Board member of the PLOS ONE Journal and has served since Feb. 2023.



# Sustainable & Renewable Energy Engineering

## Conference activities

Dr. Ahmed Abokhalil, chaired the power electronics panel at DEWA Solar Conference 2023. As the chairman, he delivered a keynote address that delved into the significant impact of power electronics on the development of modern power systems. Dr. Abokhalil discussed the dual nature of power electronics as both a boon for control and efficiency and a challenge for system stability. He advocated for the development of advanced control mechanisms and robust infrastructure to navigate the complexities introduced by these technologies. His talk underscored the critical need for cutting-edge research to mitigate the risks associated with the high penetration of power electronics and to fully leverage their potential.



## Seminar activities

UNIVERSITY OF SHARJAH  
COLLEGE OF ENGINEERING  
Sustainable and Renewable Energy Engineering Department (SREEE)

Would like to invite all members of the College of Engineering to attend the following:

**Seminar Announcement**

**Seminar Title:**  
Approaches to Car Aerodynamics Enhancement

**Date:** Monday 16<sup>th</sup> October 2023 **Time:** 12:30pm to 1:30pm **Location:** Ibn Al Nahas (GWS-Th001)

**Abstract**  
Car manufacturing companies have always focused on cars exterior design not just for the purpose of making it look good but also for the purpose of making it fuel economic. Recently making the car environmentally friendly is a goal. Consequently, this seminar will focus historically on how the science of aerodynamics contributed to the design of cars, what are the taken process to optimize their shape. Furthermore, the seminar will talk about the methods used in the process of aerodynamic enhancement.

**About the Speaker:**  
Dr. Ahmed Al Mahdy, Assistant Professor, SREEE Department, College of Engineering, UoSh, is a faculty member at the Department of Sustainable and Renewable Energy Engineering (SREEE) at the University of Sharjah since August 2021. Previously, Dr. Ahmed completed his Ph.D. in Mechanical Engineering from the University of the West of Scotland (UWS) specialized in the quantification of carbon dioxide emissions from different real site locations. Dr. Ahmed is internationally known in the Computational Fluid Dynamics (CFD) community for being an active member in research and development. Dr. Ahmed worked on numerous designs and CFD projects. Dr. Ahmed has worked on several projects, including aircraft and jet engine design projects. Furthermore, while working at the University of West of Scotland, Dr. Ahmed helped in resolving leakage issues in electrolyzers being developed by Shell Scientific. In the industrial sector, Dr. Ahmed optimized the design performance of a 1 MW tidal turbine while working in at the University of the West of Scotland as CFD research associate. Dr. Ahmed has published more than 18 journal papers and 17 Conference Paper. Paper topics span between CFD modelling in Fluid Cells, Finite Media, Tidal and Reaction Systems.

With greetings and hoping to take you with us in useful scientific research journey.

Sustainable and Renewable Energy Engineering Department  
P.O. Box, 27122 Sharjah, UAE  
Tel: 06971 4 3059350  
Webpage: <http://www.sharjah.ac.ae/EngLab/Academics/>

UNIVERSITY OF SHARJAH  
COLLEGE OF ENGINEERING  
Sustainable and Renewable Energy Engineering Department (SREEE)

Would like to invite all members of the College of Engineering to attend the following:

**Seminar Announcement**

**Seminar Title:**  
Power Electronics in Power Systems

**Date:** Monday 17<sup>th</sup> December 2023 **Time:** 12:30pm to 1:30pm **Location:** M16-Library Theater

**Abstract**  
The rapid development of renewable energy sources is indicating a profound transformation in the power grid, presenting both technological challenges and opportunities for electrical engineers. This talk provides a comprehensive overview of the evolving role of power electronics in power systems, a trend primarily driven by the shift from conventional power plants to renewable-based generation from renewable sources like wind and solar. This shift is not just a change in the source of electricity, it represents a fundamental physical transformation of the grid's infrastructure and operational dynamics. A significant aspect of this transformation is the need for new transmission infrastructures to support large-scale renewable projects, particularly in remote locations. High Voltage Direct Current (HVDC) transmission emerges as a preferred solution, owing to its efficiency over long distances and its capability to enhance or block local grid loads. The increasing reliance on HVDC systems is a testament to the existing nature of power transmission and distribution. The transformation extends beyond generation and transmission, the grid is increasingly influenced by converter-based loads, including electronic motor drives and electric vehicles, creating a future grid that markedly differs from traditional power systems. The talk delves into the fundamental differences between conventional and modern machines, highlighting the unique challenges posed by a grid dominated by power electronics.

**About the Speaker:**  
Dr. Ahmed G. Abokhalil received his Ph.D. degree from Yungnam University, South Korea. Before joining the faculty at University of Sharjah in 2021, he was an associate professor at Hailuwan University, Saudi Arabia, where he worked for eight years. Prior to that, he was an assistant professor at Assiut University, Egypt, from 2010 to 2012. He is currently an associate professor of the SREEE Department at University of Sharjah. Abokhalil's research is in the general area of sustainable energy, power electronics, power systems, and modeling and control of renewable energy systems. Dr. Abokhalil received several national and external funding and he has authored and co-authored more than 100 publications.

With greetings and hoping to take you with us in useful scientific research journey.

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## 1. The 1st Engineering Endowed Chairs Symposium on Building Sustainable Solutions Towards Net Zero Emissions | Poster Competition.

Student Name: Allaa Ammar Macharka

Student Number: u19103269

## 2. COP28 Participation



The Sustainable and Renewable Energy Engineering (SREE) Department at the University of Sharjah student participated in edge-cutting presentations in COP28. Those presentations were under the supervision of Dr. Ali Radwan, Dr. Ammar A. T. Alkhalidi, Prof. Ibrahim AlSharkawy, Prof. Abdul Hai Alalami, and Prof. Chaouki Ghenai.

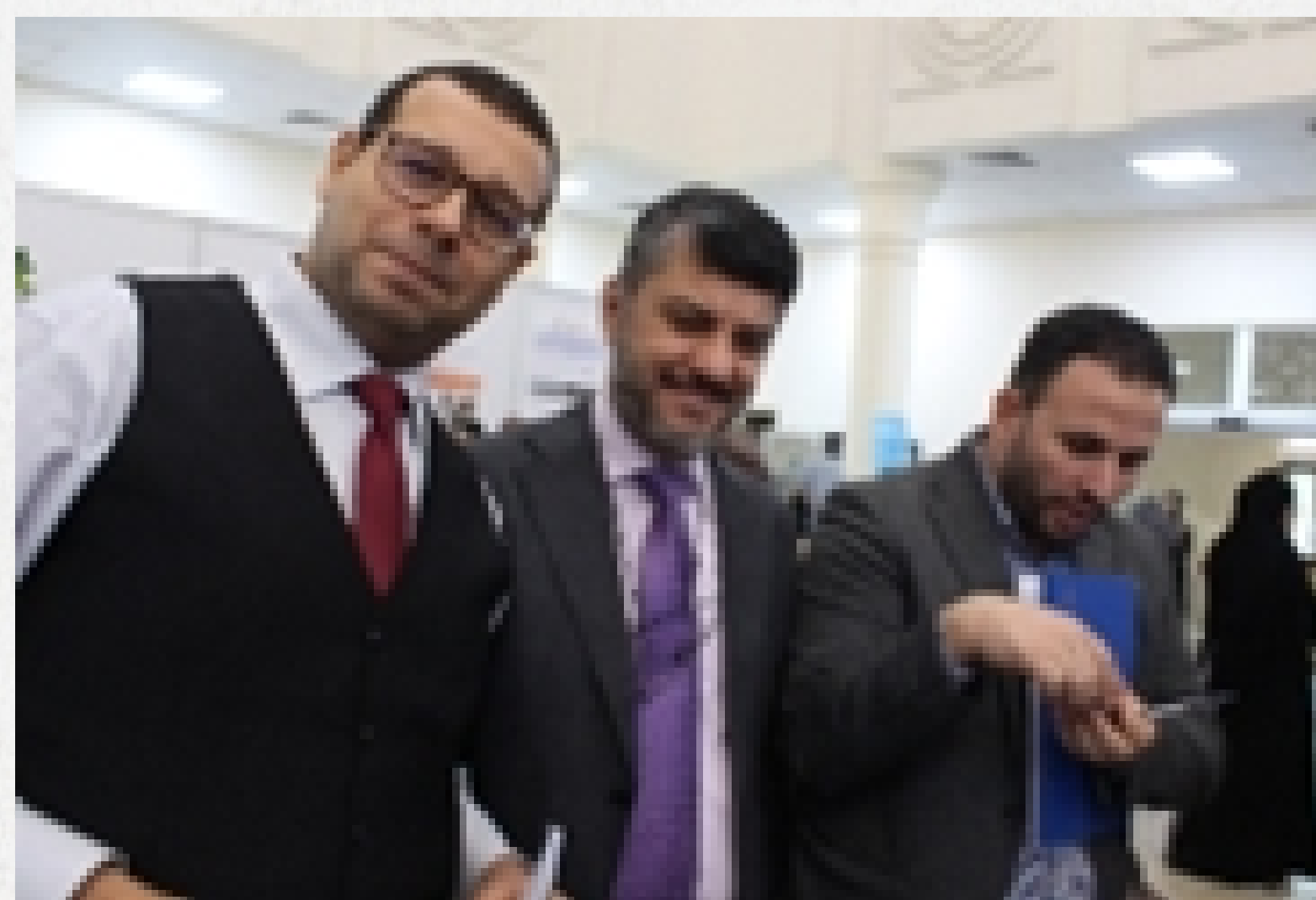
### COP 28 Media participation:

The Sustainable and Renewable Energy Engineering (SREE) Department at the University of Sharjah participated in news coverage for COP28. Prof. Abdul Hai Al-Alami had multiple news interviews to discuss topics related to global warming, Renewable energy, and other topics discussed in COP28.

## 3. 20th Renewable Challenge on 9/11/2023

On 9 November 2023, the 20th Renewable Challenge was held under the presence of the dean of the College of Engineering, Prof. Abdul Wahab Bin Mohammad, and chair of the SREE department, Prof. Abdul Hai Al Alami. The course instructor, Prof. Ibrahim El-Sharkawy, and the SREE club coordinator, Dr. Ahmed Al Makky, organized the event for 20 projects in renewable energy. The first-place winner in the previous semester has competed with the first-place winner this semester to make the competition more exciting. The evaluation committee consisted of Prof. Mohammad Ali, Dr. Tareq Salameh, and Dr. Ali Radwan.





## SREE Club Events in Fall 2023-2024 Events

### 1. Orientation Day:

12:30–2:30 pm, September 7th, 2023: SREE's Orientation Day was an event welcoming student to the new academic year, introducing them to the department and club members, and letting them enjoy a segment of fun activities.



The event was presented by the club's Presidents, Abdalla Hassan and Meera al Ali, who introduced the event with a recitation of the Holy Quran and displayed respect for the national anthem. Afterwards, inspirational words were shared by our esteemed Head of Department, Prof. Abdul Hai al Alami, and the SREE club's coordinator Dr. Ahmed al Makky. After that, the President introduced the club members and their positions followed by an



announcement marking the start of the activities. The activities consisted of Kahoot, 'Guess the Picture!', Charades, Finger Basketball, Bottle Hoops, and Pictionary. The winners received a gift customized by the SREE club.

## 2. SREE Day:

12:30–3:00 pm, September 14th, 2023: SREE Day was an event motivating students to expand their knowledge of their major and allowing them to voice their ideas and concerns to the club members. The event consisted of an educational segment and an entertainment segment. Walking into the M9 building



students were greeted and directed to Vice President Seif Tahayneh, presenting the upcoming innovations related to sustainable and renewable energy and the major UAE-based organizations supporting SREE's cause. Models of renewable energy resources such as solar panels and wind turbines were on display to inform students on the inner

workings of these resources. After that, students were encouraged to write their ideas and concerns on a 'SREE' poster, aiding the SREE club in creating a fruitful plan for the year. Lastly, students were welcome to enjoy a series of activities, food, and beverages. The activities consisted of face painting, a photo booth, and a game of 'Snakes and Ladders'. The photobooth was an opportunity to collect their friends together and take vintage pictures with the SREE club's polaroid camera in front of the "SREE" logo.



### 3. Green Youth Majlis & Youth 4 Sustainability Workshop:

12:30 pm, September 21st, 2023:  
The SREE club hosted a workshop on both the “Green Youth Majlis”, represented by Climate Change Committee Leader and student Anood Shalabi, as well as “Youth 4 Sustainability”, represented by Eng. Hasan and SREE Club President, Abdulla Al Shamsi. The presenter Anood Shalabi, with her impactful



communication skills, was able to highlight important initiatives the youth of the United Arab Emirates have been working on from across the countries Emirates. The representatives introduced their organization’s programs, causes, values, and collaborations inviting students to join their initiative, and welcoming inquiry once concluded their presentations.

### 4. CV Workshop:

12:30 pm, September 26th, 2023:  
SREE’s Head of Department, Prof. Abdul Hai Al Alami, delivered a workshop on how to write a CV. The workshop taught students arriving from several majors how to write a precise CV that would keep recruiters engaged and consider employment. Prof. Abdul Hai started writing a CV from scratch to



teach the students the meaning and effect of every step, displaying the most effective format, and tone. Students also addressed important topics and questions, hence clarifying some of their concerns. Prof. Abdul Hai was also able to correct some of the common misconceptions that students had in mind. The workshop was recorded live on the SREE media platform for the students unable to attend in person.



## 5. CAD & CFD Workshop:

1:00 pm, October 3rd, 2023: Dr. Ahmed Al Makky delivered a workshop on the use of CAD and CFD Software in developing environment-friendly technology. The workshop was attended by several students from the SREE Department, many of whom were interested in



getting a head start when it comes to the use of such software. The workshop began with Dr. Makky giving a brief introduction about his experience with such software before showcasing a few examples of the work he has done with his colleagues from all over the world regarding Computational Fluid Dynamics and how these advancements in technology have been of great benefit to the field. The workshop then concluded with Dr. Makky stressing the importance of students familiarizing themselves with such software to remain conversant in the field and answering students' questions regarding any tutorials they can start with.

## 6. Breast Cancer Awareness Event:



12:30–3:30 pm, October 4th, 2023: SREE's Breast Cancer Awareness event was held in honor of the fighters and survivors of Breast Cancer. The event mainly consisted of an educational lecture presented by student Taqi Alwazzan as well as the distribution of flowers, food, beverages, hosting of fun activities,

and pink ribbons in support of the breast cancer awareness cause. The lecture enlightened students on the signs, symptoms, causes, and statistics of breast cancer. The floor was open for questions once concluded. The activities available were finger painting, sport stacking, 'Pop the Ballon for a Breast Cancer Insight' and writing a positive message on a poster for passing readers.



## 7. Hydrogen Fuel Car Technology Workshop:

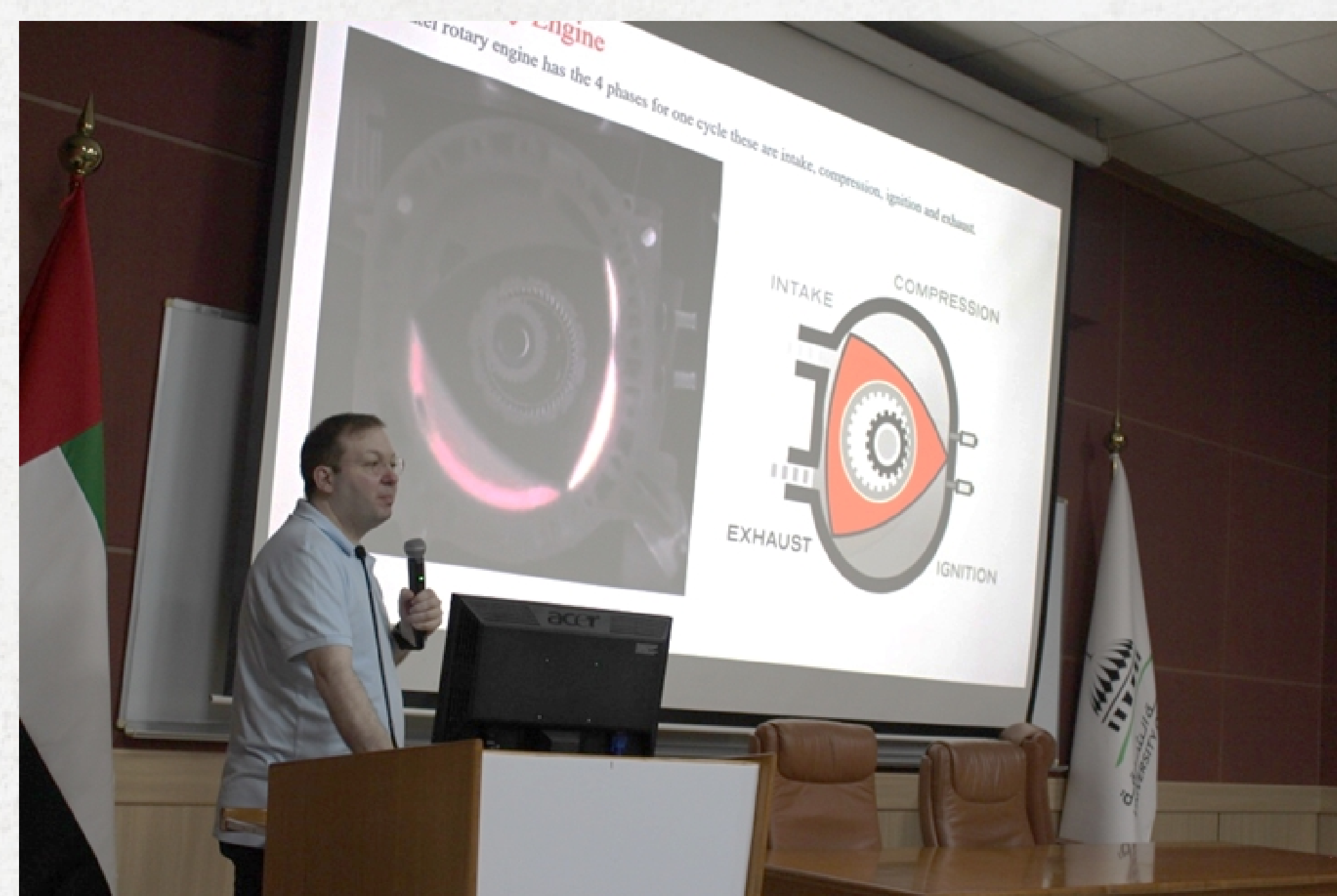
12:30–2:00 pm, October 5th, 2023: Dr. Ahmed al Makky delivered a workshop on Hydrogen Fuel Car Technology to interested students and fellow professors. Dr. Ahmed al Makky began the workshop with an overview on the Evolution of Automotive Prime Movers, ensuring



students understood the building blocks to comprehend Hydrogen Fuel Car Technology. To further students' understanding, he compared Fuel Cells with Combustion Engines and engaged with the audience to then fully explain the technology. After concluding the presentation, Dr. Ahmed al Makky, Prof. Mamdouh El Haj Assad, and Dr. Tareq Salameh dove into a discussion on the topic, sparking questions from the audience.

## 8. Latest Combustion Technologies in Automobiles Workshop:

12:30 pm, October 10th, 2023: Dr. Ahmed Al Makky delivered a workshop discussing the different technologies being used in cars' combustion engines to a variety of engineering students as well as professors. The workshop showcased the history of combustion engines, how they improved



over time, and what advancements were made to these engines. Additionally, Dr. Makky illustrated how car manufacturers test their engines and what are some of the unique technologies some car companies use in their car engines that other companies don't. Moreover, Dr. Makky provided explanations of the engineering principles utilized in these technologies; greatly intriguing the attendees. The workshop was then wrapped up after an insightful question and answer session.



# Mechanical & Nuclear Engineering

## Events

1. Dr. Muhammad Zubair served as Session Chair at the 1st International Conference on Advanced Materials & Sustainable Energy Technologies-2023 (AMSET2023) held at Sunway University, Malaysia, from Oct 30-31st, 2023



2. Sharjah Wastewater Treatment Plant: Mechanical and Nuclear Engineering Department Students visited the Sharjah Wastewater Treatment Plant on September 13, 20, and 27, 2023.



3. Abu Dhabi International Petroleum Exhibition and Conference: Mechanical and Nuclear Engineering Students attended the Abu Dhabi International Petroleum Exhibition and Conference on October 2, 2023.





4. COP28: Dr. Adewale Giwa served as a panelist at the COP28 Technology Stage, Dubai on “Empowering Communities for a Just Transition through Technology and Skills” on December 8, 2023, at COP28, Expo, Dubai.

### Empowering Communities for a just transition through technology and skills

Moderator: Justina Nixon-Saintil



**Amy Brachio**  
Partner, Global Vice Chair - Sustainability  
Ernst & Young  
United Kingdom



**Kanika Chawla**  
Director and Chief of Staff  
SEforALL  
Austria



**Justina Nixon-Saintil**  
VP and Chief Impact Officer  
IBM  
United States



**Adewale OlatokunGbwa**  
Assistant Professor, Chemical and Water Desalination Engineering Program  
University of Sharjah  
United Arab Emirates

Learn more about the Innovate for Climate Tech Coalition by scanning this QR code:

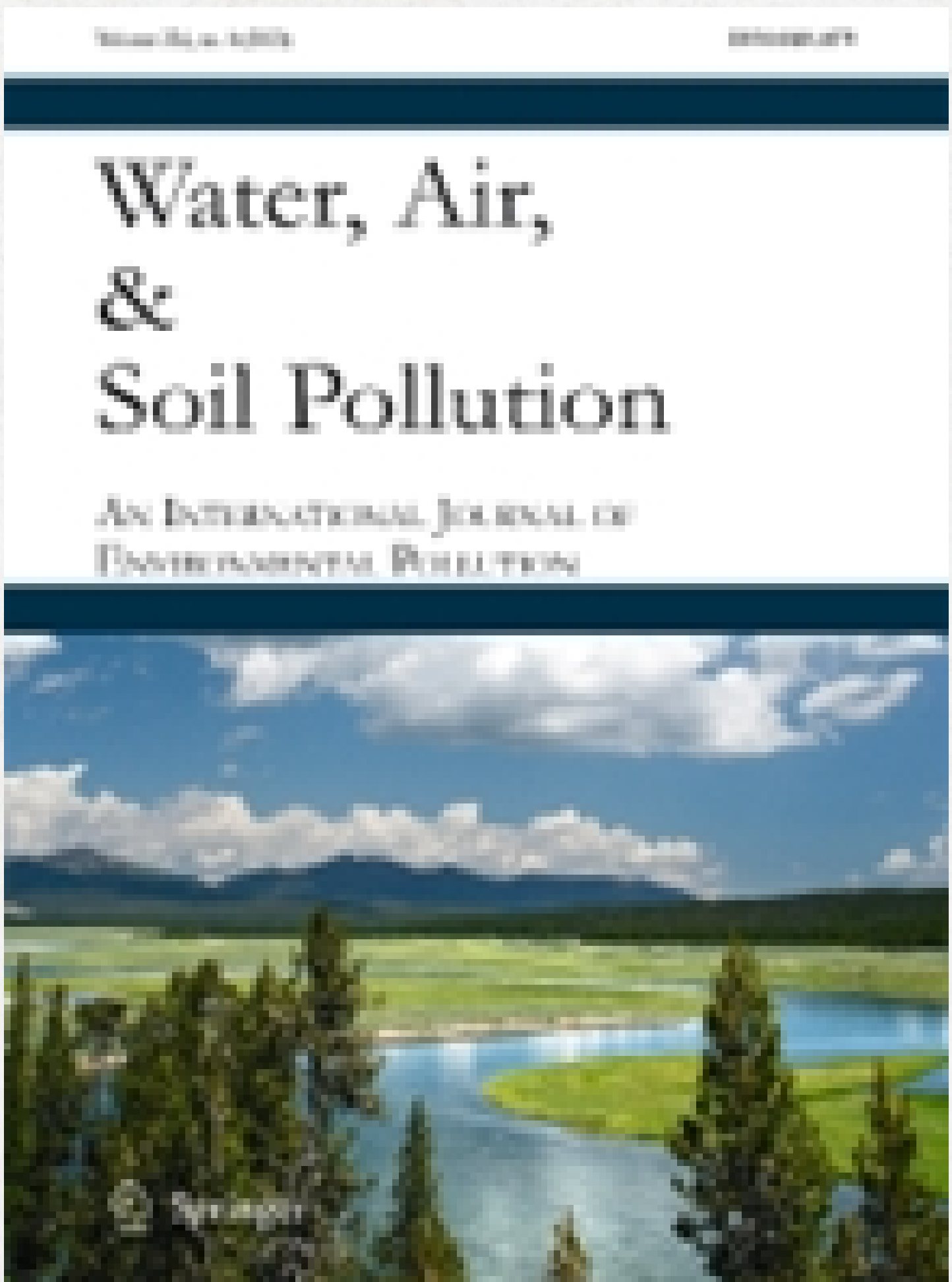


5. Dr. Ihsanullah Obaidullah presented a seminar to graduate students entitled “Potential of Carbon Nanotubes in Water Treatment and Desalination” organized by the Department of Mechanical and Nuclear Engineering, College of Engineering, University of Sharjah.

6. Dr. Ihsanullah Obaidullah is appointed as conference co-chair for the First international conference on Environmental Design, Material Science and Engineering Technologies to be held at Abu Dhabi University, Dubai Campus, UAE from April 22-24, 2024.

7. Dr. Ihsanullah Obaidullah served as an International Technical Committee Member for the 1st International Conference on Advanced Materials & Sustainable Energy Technologies that was held from October 30-31, 2023 at Sunway University, Malaysia.

8. Dr. Ihsanullah Obaidullah has been appointed as an Associate Editor of the Springer Nature Journal, Water, Air, & Soil Pollution (WATE).





9. On September 7, 2023, a team from the Forensic Science Department of Dubai Police visited the University of Sharjah. Following that, on September 21, 2023, a team from the Nuclear Engineering program and Applied Physics Science at the University of Sharjah visited the Dubai Police International Center for Forensic Sciences. The purpose of these meetings was to explore and discuss potential collaborations between the University of Sharjah and Dubai Police.



Achievements

1. Grant: Dr. Adewale Giwa received a grant from IBM to develop a model and application for monitoring water sustainability indicators and predicting extreme weather events including flood and drought.





2. Grant: Dr. Adewale Giwa received a grant from United Nations Education Scientific and Cultural Organization (UNESCO) to develop 3D-printed bioplastics from wastes and green solvents.

3. Visiting Scholar Appointment: Dr. Adewale Giwa was appointed as a Visiting Scholar in the School of Mechanical Engineering at Purdue University, West Lafayette, Indiana, United States of America, for Winter 2023 (December 2023). Visiting Scholars are invited to Purdue University to engage in scholarly activities for their own academic enrichment and that of the department in which they have an appointment.

4. Grant: Professor Muataz Ali Atieh and Dr. Ihsanullah Obaidullah of Chemical and Water Desalination Engineering received a grant from Al-Mardia Holding Group Qatar with a total fund of USD 75,000 to conduct a study entitled "Brine Recovery using MED Desalination driven by Solar Energy".

5. Book: Dr. Adewale Giwa authored and edited a new book titled "Electrochemical Membrane Technology" published by Elsevier.

6. A team from the University of Sharjah has clinched 2nd place in the Students Hackathon hosted by Federal Authority for Nuclear Regulation (FANR). The challenge unfolded under the theme "Nuclear Science for Environmental Sustainability and Combating Climate Change" – a crucial journey on the Road to COP28.

The UoS team – Ronak Radkiany, Mahra Aljaradi, Amna Abdulla, Nabeel Jasim, and Saadiyah LiakhatAli – consists of various academic backgrounds, including the Department of Mechanical and Nuclear Engineering, Sustainable and Renewable Energy Engineering, Applied Physics and Astronomy, and Chemistry.





# Thank You



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