

KHALIFA UNIVERSITY SUSTAINABLE DEVELOPMENT GOALS REPORT 2024



PRESIDENT'S MESSAGE



At Khalifa University, sustainability is at the heart of our vision for pioneering research, education, and innovation. As a leading educational institution in the UAE and a globally recognized center of academic excellence, we are committed to shaping a future that aligns with the United Nations Sustainable Development Goals (SDGs) and the UAE's Net Zero 2050 strategy.

As Chair of the Sustainability Taskforce, I am proud to witness the collective efforts of our staff, faculty, students, and researchers in driving meaningful progress toward a more sustainable world. Our university has integrated sustainability across disciplines, from cutting-edge renewable energy research and climate action initiatives to smart infrastructure solutions and policy-driven innovation. These efforts not only contribute to academic excellence but also translate into real-world impact, ensuring that we remain at the forefront of global sustainability advancements.

In 2024, Khalifa University has taken significant strides in advancing sustainability, including fostering green technologies, enhancing environmental awareness, and strengthening partnerships with industry, government, and academia. Our commitment is evident in initiatives such as the development of sustainable energy solutions, water conservation projects, and the promotion of eco-conscious campus practices. These actions reinforce our responsibility to drive change and inspire the next generation of sustainability leaders.

As we move forward, Khalifa University remains steadfast in its mission to accelerate research, innovation, and education for a sustainable future. Together, we will continue to push boundaries, embrace transformative solutions, and contribute meaningfully to the global sustainability agenda.

Dr. Ebrahim Al Hajri
President, Khalifa University
Chair, Sustainability Taskforce

SUSTAINABILITY TASKFORCE -VICE CHAIR'S MESSAGE



Sustainability is no longer an option; it is a necessity. As Vice Chair of the Sustainability Taskforce, I am proud to play a role in advancing Khalifa University's commitment to a greener, more resilient future. Our efforts are deeply aligned with the UAE's Net Zero 2050 strategy, ensuring that we drive impactful solutions that contribute to the global Sustainable Development Goals (SDGs).

At Khalifa University, we believe that true sustainability lies at the intersection of innovation, education, and collaboration. Over the past year, we have intensified our focus on clean energy technologies, water security, circular economy initiatives, and climate resilience. Our students and researchers continue to pioneer breakthroughs in renewable energy, carbon capture, sustainable materials, and AI-driven environmental solutions—each of which has the potential to shape a more sustainable world.

Beyond our research and academic contributions, we have also taken significant steps toward embedding sustainable practices within our campus and community. From reducing our carbon footprint and enhancing energy efficiency to fostering a culture of environmental responsibility, our university is leading by example. Moreover, by forging strategic partnerships with industry leaders, government bodies, and global institutions, we are amplifying our impact and accelerating progress toward a sustainable future.

The journey toward sustainability is an ongoing, requiring unwavering dedication and collective action. As we continue to push boundaries, I encourage every member of our university community to be a part of this transformation. Together, we can drive innovation, inspire change, and contribute to a future that is both prosperous and sustainable for generations to come.

Dr. Fatima Mohsen Abdulla AlFaqeeh
Manager, Environment Health and Safety

SUSTAINABILITY TASKFORCE

Through strategies that span every area of university life, Khalifa University is committed to reducing its greenhouse gas emissions, offering the most innovative teaching and research on climate change, and providing resources to establish a culture of climate awareness and stewardship that will help drive sustainable growth within the university, Abu Dhabi, the UAE, and the MENA region.

The objective of the Sustainability Taskforce is to focus on the Sustainability Pillars (Environmental, Economical & Social aspects) to ensure that KU operations are in line with the Sustainable Development Goals by reducing KU's carbon footprint. The taskforce comprises of Sustainability stewards from each of department across campus.

MEMBERS	
DR. EBRAHIM AL HAJRI	CHAIR
DR. FATIMA ALFAQEEH	VICE CHAIR
MR. ABDULLAH AHMED ABDULLAH AL-JABERI	PRESIDENT OF THE STUDENTS SUSTAINABILITY CLUB
MR. ABDUSSABUR MUHAMMAD	MEMBER (RESEARCH)
MS. AMNA MOHAMED ALSUWAIDI	MEMBER (EHS)
DR. AYESHA AL KHOORI	MEMBER (RESEARCH)
MR. HAMID ALBASTAKI	
MR. KHALED ALAMOUDI	MEMBER (PROCUREMENT)
DR. MAHMOUD AL-QUTAYRI	MEMBER (PROVOST OFFICE)
ENG. SALEM AL ALEFARI	MEMBER (FM)
MR. NASSER ALMEMARI	MEMBER (STUDENT SERVICE)
DR. PETER RODGERS	MEMBER (RESERACH)
MS. RACHEL THOMAS	SECRETARY
MS. RAJA AL MAAMARI	MEMBER (HR)
MR. SAMIR SHUKRI MOHHAMED	MEMBER (DIGITAL SERVICES)
DR. SAMUEL SHENG MAO	MEMBER
MR. SAYED AL HASHMI	MEMBER (MARKETING)
DR. WALEED AL AMERI	MEMBER (PROVOST OFFICE)

**OUR
SUSTAINABILITY
JOURNEY**



VISION AND STRATEGY

KU'S SUSTAINABILITY MISSION

Vision Statement To be a global leader in sustainability-driven education, research, and innovation, creating positive impact for society and future generations.

Mission Statement To advance sustainable development through cutting-edge research, transformative education, and innovative solutions that address global challenges while serving the UAE's strategic priorities.

CORE VALUES



Excellence in Sustainable Practices



Innovation for Social Impact



Environmental Stewardship



Collaborative Partnerships



Inclusive Development



Ethical Leadership

STRATEGIC PILLARS

SUSTAINABLE EDUCATION

- Embedding sustainability across curricula
- Developing future sustainability leaders
- Promoting lifelong learning for sustainable development
- Fostering interdisciplinary approaches

IMPACTFUL RESEARCH

- Advancing sustainability science
- Developing innovative solutions
- Promoting knowledge transfer
- Supporting evidence-based policymaking

OPERATIONAL EXCELLENCE

- Implementing sustainable campus operations
- Reducing environmental footprint
- Promoting resource efficiency
- Demonstrating best practices

COMMUNITY LEADERSHIP

- Engaging stakeholders
- Building partnerships
- Sharing knowledge
- Creating social impact

ALIGNMENT WITH UAE NATIONAL PRIORITIES





■ UAE VISION 2071

- Contributing to UAE's centennial goals
- Supporting knowledge economy development
- Advancing technological innovation
- Promoting sustainable practices

■ UAE NET ZERO 2050

- Contributing to UAE's centennial goals
- Supporting knowledge economy development
- Advancing technological innovation
- Promoting sustainable practices

■ UAE WATER SECURITY STRATEGY 2036

- Advancing water technology research
- Developing sustainable solutions
- Supporting water conservation
- Promoting efficient usage

UAE ENERGY STRATEGY 2050

- Supporting clean energy research
- Developing innovative solutions
- Promoting energy efficiency
- Advancing smart grid technology

UAE INNOVATION STRATEGY

- Driving technological advancement
- Supporting entrepreneurship
- Promoting innovation culture
- Developing future capabilities



IMPLEMENTATION FRAMEWORKS

01

Governance Structure

- Sustainability Steering Committee
- SDG Working Groups
- Faculty Champions
- Student Ambassadors

02

Management Systems

- Environmental Management System (ISO 14001)
- Energy Management System (ISO 50001)
- Quality Management System (ISO 9001)
- Sustainability reporting frameworks

03

Performance Monitoring

- Key Performance Indicators (KPIs)
- Sustainability metrics
- Impact assessment

04

Regular Reporting Mechanisms

- Stakeholder Engagement
- Internal communication
- External partnerships
- Community feedback
- Collaborative platforms

2024 HIGHLIGHTS



KEY ACHIEVEMENTS

UNIVERSITY NEWS (EXPANSION PLANS SUCH AS DORMS, RESTRUCTURING, GRADUATIONS, ETC.)

Abu Dhabi Investment Office (ADIO), in collaboration with Khalifa University of Science and Technology (Khalifa University), has awarded KUnneted Living, a multinational consortium led by Plenary Group, BESIX Group and Mazrui International, a project to develop world-class student accommodation facilities in Abu Dhabi. The project has now successfully reached commercial close.

The development is the largest student accommodation project in the GCC be developed under a public-private partnership (PPP) model, and includes a 23-year concession to design, build, finance and maintain 3,260 student rooms and communal facilities located across Khalifa University's Main Campus and its Sas Al Nakhl (SAN) Campus.

[VIEW LINK](#)

ACADEMIC ACHIEVEMENTS

Approval of the UAE Commission for Academic accreditation (CAA) to admit students with only bachelor's degrees directly to doctorate programs offered by the university. The approval provides high-performing bachelor's graduates the opportunity to directly pursue a doctoral degree in approximately five years.

[VIEW LINK](#)

Khalifa University launched the '**Arabic for Beginners**' specialization on Coursera, to further expand educational opportunities for learners worldwide. For the first time, the collaboration between Khalifa University and Coursera will enable 129 million learners across the globe to learn conversational Arabic and meet their professional development goals.

[VIEW LINK](#)

KEY ACHIEVEMENTS

RESEARCH AND INNOVATION (BREAK THROUGH INNOVATIONS, PATENTS, RESEARCHERS RECOGNITION, ETC.)

The UAE Government selected Khalifa University to locate the Polar Research Center. The dedicated polar research center is part of the UAE's plans to boost the country's status among global leaders in polar research. This project is a collaboration between the International Affairs Office at the Presidential Court, the Ministry of Foreign Affairs, the Ministry of Cabinet Affairs, the National Centre of Meteorology, and Khalifa University.

[VIEW LINK](#)

Scientists and researchers from Khalifa University's Environmental and Geophysical Sciences (ENGEOS) lab and Earth Science department have deployed Snow Ice Mass Balance (SIMBA), a special instrument to study ice in Antarctica. This is the first time scientists from any institution in the UAE have deployed operational instruments on the icy southern continent.

The project led by Khalifa University's Dr. Diana Francis, Head, ENGEOS lab, who is supported by five researchers. Two scientists from the Australian Antarctic Division are also working with the Khalifa University team.

[VIEW LINK](#)

MAJOR COLLABORATIONS/ PARTNERSHIPS (BIFURCATED INTO ACADEMIC, COMMERCIAL, GOVERNMENT, ETC.)

The partnership between LTME, Sanad, and Khalifa University's Advanced Research and Innovation Center (ARIC) marks a significant advancement in integrating artificial intelligence within the MRO industry. Together, they have developed an automated chord measurement system that combines an industrial robotic arm with a laser profiler, bringing cutting-edge technologies like AVIATAR to the forefront of aviation maintenance.

[VIEW LINK](#)

KEY ACHIEVEMENTS

Khalifa University's Centre for Membranes & Advanced Water Technology (CMAT) and Etihad Water and Electricity (EtihadWE) have signed a memorandum of understanding (MoU) to enhance water treatment and resource management in the UAE.

[VIEW LINK](#)

AgriFood Growth & Water Abundance (AGWA), Abu Dhabi's new food and water cluster, is joining forces with five of the UAE capital's leading universities and technology enablers to bolster innovation, talent development and advanced research, with the aim of tackling food shortages and water security globally. Led by the Abu Dhabi Department of Economic Development (ADDED) and Abu Dhabi Investment Office (ADIO), AGWA is set to become a global hub for novel food and ingredients, as well as for technologies that increase access to water resources and enable their efficient utilization.

[VIEW LINK](#)

Lockheed Martin, a U.S.-based global aerospace, security and technology leader, and **Khalifa University signed a Memorandum of Understanding (MOU)** to collaborate on research and academic initiatives that will advance technology and human capital development in the UAE.

[VIEW LINK](#)

Khalifa University and Arizona State University, US, launched a dual Master of Science program –first of its kind in the UAE –focused on embedding entrepreneurship and innovation in higher education. Students will earn a M.Sc. in Entrepreneurship and Innovation from ASU, which is delivered by faculty from the W. P. Carey School of Business and Herberger Institute of Design and Arts, and a M.Sc. in Engineering Systems and Management with a concentration in Technology Management, Innovation, and Entrepreneurship from Khalifa University.

[VIEW LINK](#)

KEY ACHIEVEMENTS

Khalifa University's Research & Innovation Center for Graphene and 2D Materials (RIC2D), and leading British climate tech firm Levidian signed a pioneering research partnership to help further the UAE's decarbonization efforts by exploring carbon capture from gas flaring and future applications for graphene.

[VIEW LINK](#)

Sustainability Conference

A two-week initiative towards driving sustainability solutions has now begun with the opening ceremony of the Young Future Energy Leaders (YFEL) German-Emirati Sustainability Days Conference 2024 at Khalifa University. The fourth edition of the conference, organized by the German Emirati Joint Council for Industry and Commerce (AHK), is supported by German firms including BASF, Linde, Siemens AG, and Wilo.

[VIEW LINK](#)

Infrastructure and Technology

Siemens Energy inaugurated a global innovation center at Khalifa University, as part of its efforts to accelerate the journey to net zero in the region and globally. The center will develop new partnerships, technologies and co-create research opportunities, promoting knowledge transfer, capacity building, and employment prospects.

Khalifa University's Ankabut and Siemens Industrial Forge Strategic Partnership

Khalifa University's Ankabut Information Technology and Siemens Industrial signed an MoU to collaborate on digital transformation and smart campus solutions for the higher education sector. The strategic partnership will cover a pilot project, market penetration, and enhanced research and innovation, in line with UAE's strategic goals for innovation in education and sustainability.

[VIEW LINK](#)

KEY ACHIEVEMENTS

Student Support and Engagement (Students experience, Students success, Students activities, etc.)

Sara Alkhoori, a Khalifa University PhD graduate, is featured among the Forbes Middle East's prestigious '30 Under 30' list in the Science and Technology category. Alkhoori who has made significant strides in advancing green fuel production, is one of 32 from the UAE in the Science and Technology category of the Forbe's list, which includes 120 entries and 153 individuals representing 24 nationalities.

[VIEW LINK](#)

Khalifa University and Tokamak Energy announced the first UAE National student has joined a team of engineers designing the first fusion energy pilot plant at Oxfordshire, under an internship program. Jassem Alhammadi, a Khalifa University senior student in the bachelor's program in Chemical Engineering with a minor in Nuclear Engineering, has become the first Emirati intern to join the Tokamak Energy team.

[VIEW LINK](#)

SDG CONTRIBUTIONS AND ACHIEVEMENTS



1



NO
POVERTY

SDG 1: NO POVERTY

Student Support

- Financial aid programs - The total amount of 129,016 AED for 8 students in 2024
- Student employment opportunities
- On campus employment, STL5680: KU Policy STL 5680 - On-Campus Student Employment
- A total of 94 students benefited from the program during 2024
- Graduate Employment Rate for 2024 is 84.1%
- Employer participation and job opportunities offered “Career Fair & On-Campus Recruitment” Job opportunities for alumni : 114 opportunities
- Total number of employer engagement activities with KU students and graduates: 16
- Total number of 2024 Interns: 645 students
- # of companies engages through the Internship Program (local/ international): 191 companies



2



ZERO
HUNGER

SDG 2: ZERO HUNGER

Awareness

- A segment towards the environment was dedicated to KU community during our Environment, health and safety Exhibition in April 2024.
- Part of the exhibition included engagement with Gracia Group to showcase their efforts (Gracia Group is an innovative model of future farming, created by an Emirati entrepreneur Hamed Al Hamed to influence and change the agricultural sector)

Campus Initiatives

- Food waste reduction
- Sustainable dining
- Community gardens

A series of online quizzes were circulated among KU community, two of the themes tackled sustainability gardening and sustainability diet. Total responses received for both editions is 486 responses and had 2 winners.

On World Environment Day for food loss and waste, a set of questions and “did you know?” facts were sent out to our KU community through Instagram Story .A total of 1,852 accounts were reached with 238 engagements



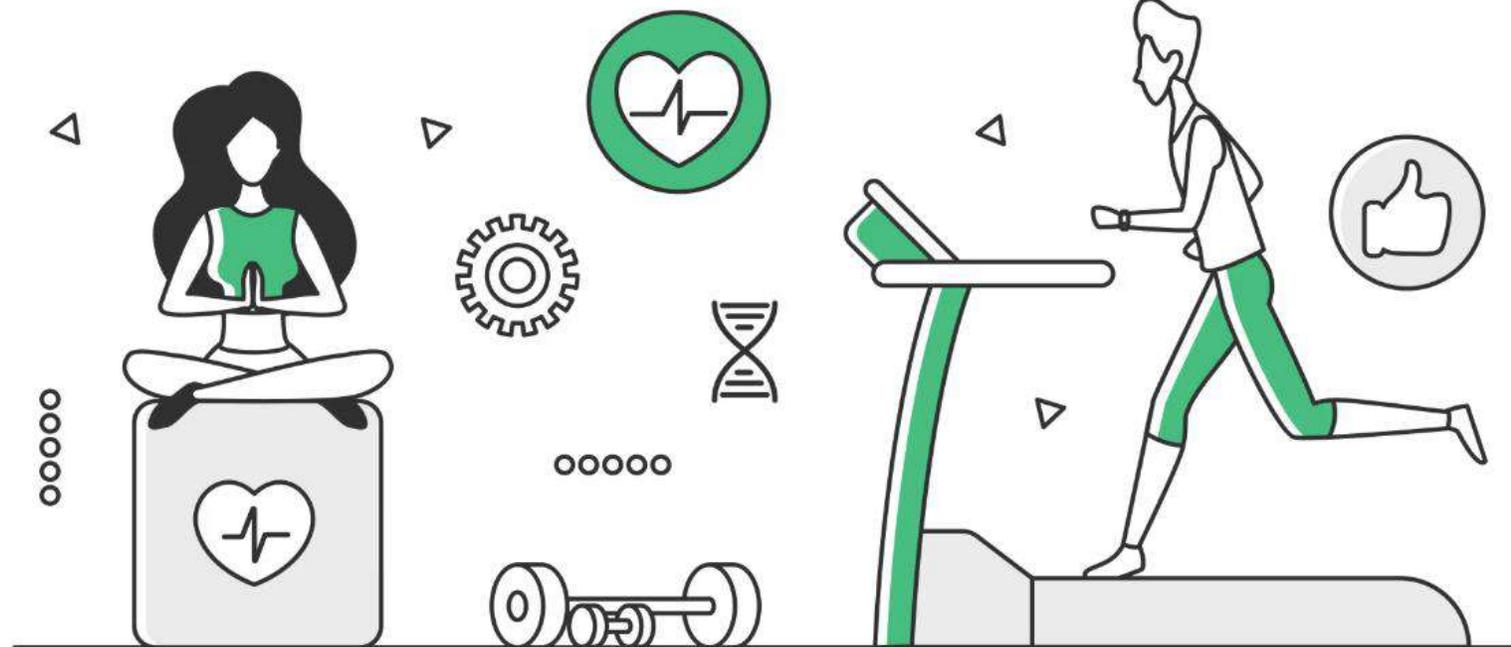
3



SDG 3: GOOD HEALTH AND WELL-BEING

Campus Health

- Student health services
- Mental health support – The Counseling Unit provided 922 sessions for students in 2024. 15 workshops were delivered to promote the overall well-being of KU students.
- Wellness programs were conducted



GOOD HEALTH
AND WELL-BEING

3



GOOD HEALTH
AND WELL-BEING

Community Health

Public health education

A segment towards public and general health was dedicated to KU community during our Environment, health and safety Exhibition in April 2024.

It included topics on nutrition, mental health, public health and much more.

HEALTHCARE PARTNERSHIPS

Medical outreach

3 health events were planned and conducted for KU community:

Breast Cancer awareness

In collaboration with Advance Cure Clinics, a breast cancer awareness event was conducted on Tuesday October 15th

- Health check-up for KU members was offered
- 55 persons engaged in a game
- Giveaways including handmade gifts by the University's crochet club and cookies were distributed
- An educational session by an oncologist and a breast cancer survivor was attended by 86 persons

Flu Vaccine

Over the course of 2 days, SEHA in collaboration with KU, successfully vaccinated 196 persons against the seasonal flu

- 13 number of Thiqa holders completed a comprehensive health screening

Blood Donation

Over the course of 2 days, SEHA in collaboration with KU, successfully collected 72 units of blood from our students, staff and faculty with only 15 deferrals.

- Each unit can save up to 3 lives, in other words KU community will help save up to 216 lives.
- A total of 12 student volunteers assisted in organizing the campaign

3



GOOD HEALTH
AND WELL-BEING



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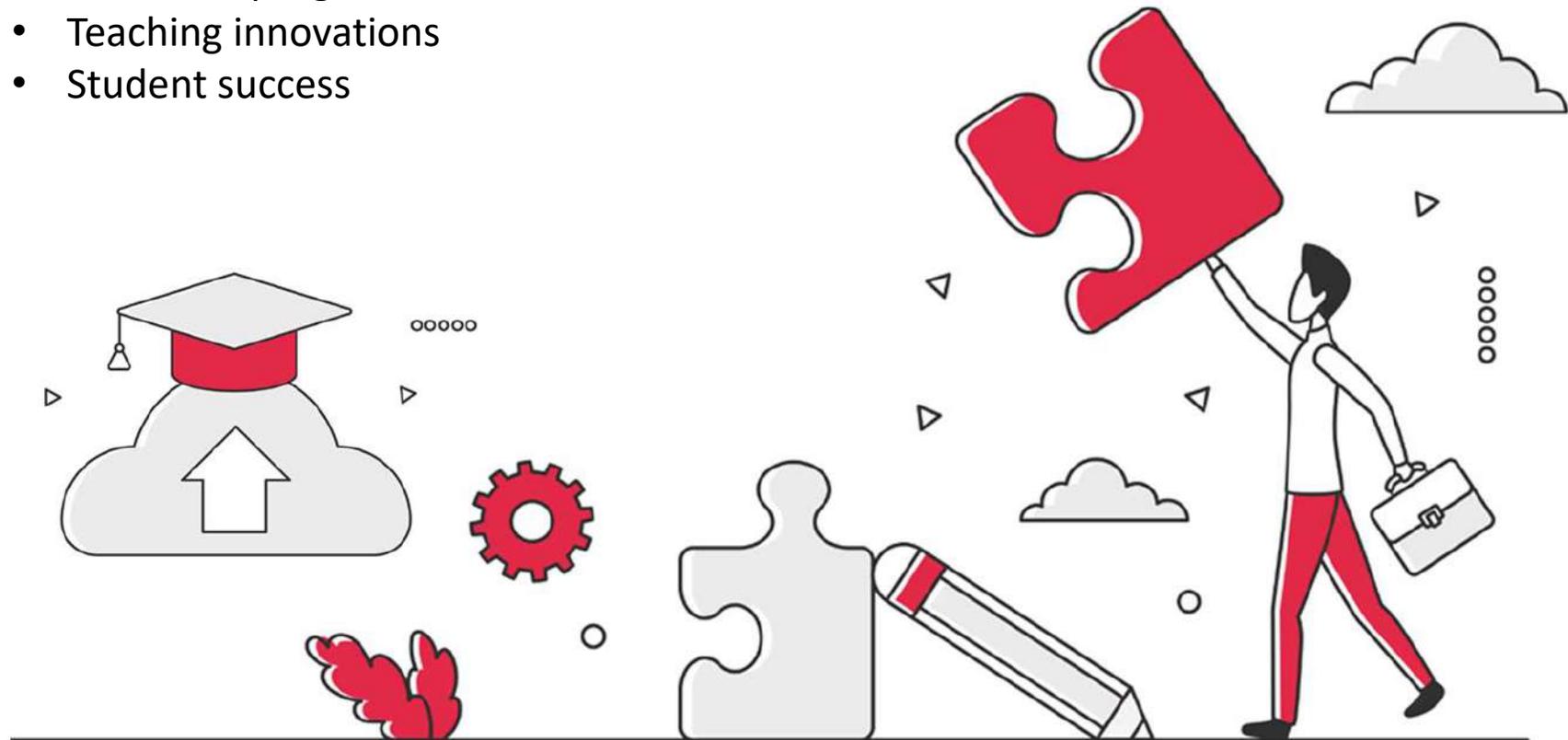


QUALITY
EDUCATION

SDG 4: QUALITY EDUCATION

Educational Excellence

- Academic programs
- Teaching innovations
- Student success



4



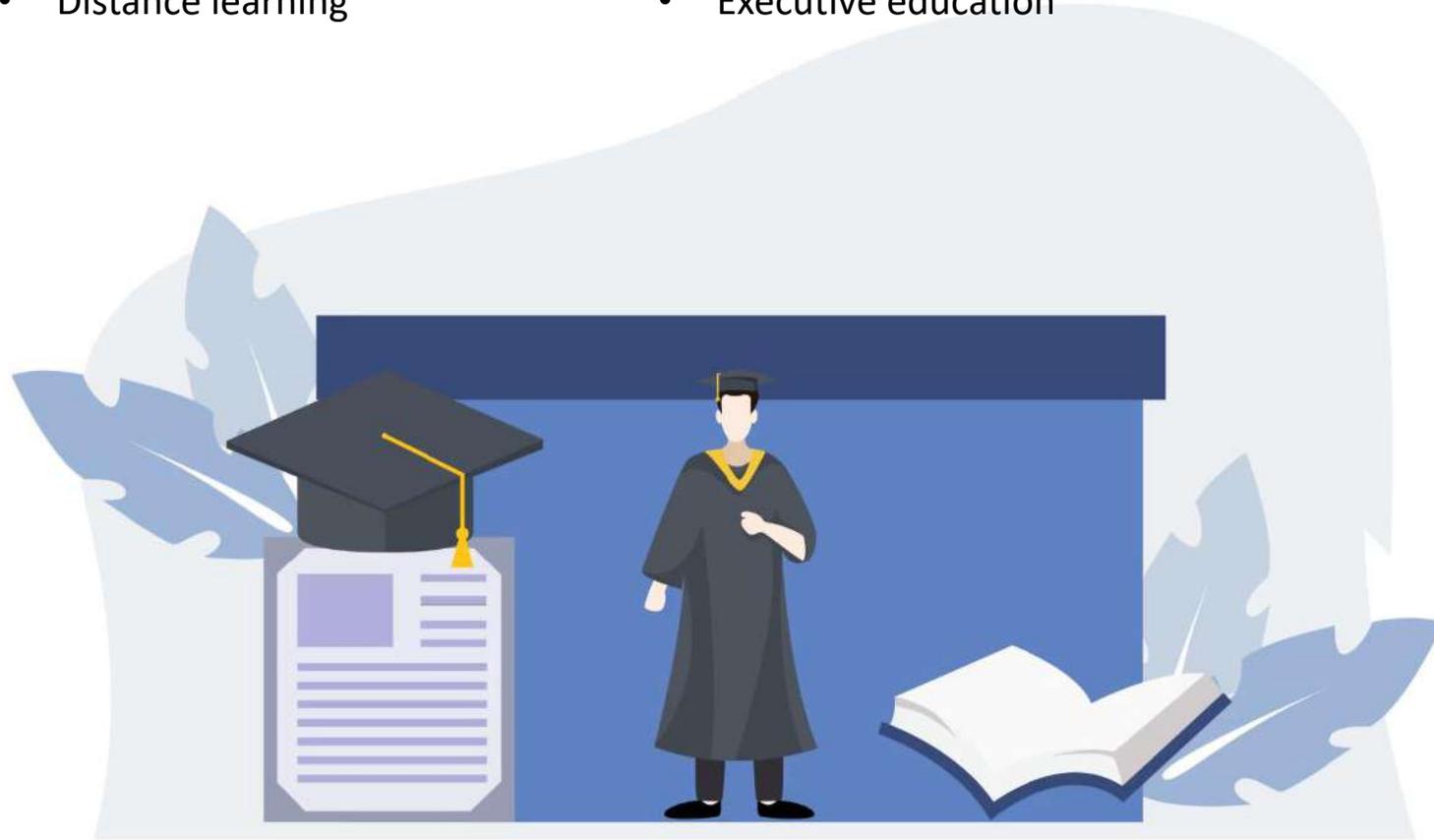
QUALITY
EDUCATION

Educational Access

- Scholarship programs
- Inclusive education
- Distance learning

Lifelong Learning

- Professional development
- Community education
- Executive education



4



QUALITY
EDUCATION

EDUCATIONAL EXCELLENCE

ACADEMIC PROGRAMS

- KU offers high-quality undergraduate (<https://www.ku.ac.ae/academics/undergraduate-programs#programs>) and postgraduate programs at the Master's and PhD levels (<https://www.ku.ac.ae/academics/graduate-programs#programs>). The programs are offered through the College of Engineering & Physical Sciences (<https://www.ku.ac.ae/academics/college-of-engineering#deans-message>), the College of Computing and Mathematical Sciences (<https://www.ku.ac.ae/college-of-computing-and-mathematical-sciences#deans-message>), and the College of Medicine and Health Sciences (<https://www.ku.ac.ae/academics/college-of-medicine-and-health-sciences>)
- KU recently launched a BSc in Energy Engineering. This is an interdisciplinary program that addresses various aspects of energy, including renewable energy.
- KU offers minors in (1) Renewable and Sustainable Energy and (2) Energy Transition.
- Sustainable Chemistry Integration: 52% of undergraduate (16/34) and 50% of graduate (9/18) courses offered in 2022-2024 incorporate sustainability topics, such as green chemistry, alternative energies, and pollution control
- The Management Science & Engineering Department has partnered with Siemens Energy to introduce a new Energy Transitions and Sustainability for Global Markets concentration, within the MSc Engineering Systems and Management program.

4



QUALITY
EDUCATION

EDUCATIONAL EXCELLENCE

ACADEMIC PROGRAMS

- All undergraduate students take the GENS 101 Grand Challenges courses in their freshman year. This course focuses on interdisciplinary, real-world applications, especially addressing Grand Challenge problems facing humanity. Students discuss ethical, social, economic, environmental, and technical aspects of Grand Challenges, and they contribute to collaborative and project-based activities.
- All undergraduate programs, in particular, integrate critical thinking, ethics, and sustainability principles throughout the curriculum. All undergraduate programs integrate artificial intelligence and data science.
- The senior design projects, in particular, emphasize an interdisciplinary approach that addresses real-world challenges, including various aspects of sustainability.
- All students have access to a variety of digital libraries, research databases, and virtual learning environments (<https://library.ku.ac.ae/lib>). Some examples include Academic Search Ultimate, Business Source Elite, IEEE Xplore Digital Library ... etc.

4



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EDUCATIONAL EXCELLENCE

Teaching innovations

- 2024 First Annual Solar Car Race, Bridging Theory and Practice: Integrating Engineering Courses Through a Solar Car Challenge (<https://www.linkedin.com/feed/update/urn:li:activity:7265354279341752320/>)
- Workshop organized on “Develop your own Digital Thermometer using Labview Software”, Nov 15,2024
- MEng in Health, Safety, and Environments Engineering (HSEG): integrates interdisciplinary learning by forming collaborative teams that include professionals from various industries such as engineering, healthcare, safety, and environmental science. The teams work on hands-on practical projects.
- MEng in HSEG: integrates modern educational technologies to enhance learning and accessibility. This includes the use of online learning platforms, virtual labs, and simulation tools.



IN-PERSON WORKSHOP

Develop your own Digital Thermometer using LabVIEW Software

Date:
+ FRIDAY, 15th of November 2024

Time & Location:
+ 10:30 AM - 12:50 PM @ Main Campus R2031

Meet Your Instructor

Engr. Hishar Ahmed Mansoor
Lab Engineer - Electrical Engineering Department

What You Will Learn

Theoretically	Practically
✓ Introduction to Characteristics of Measurement Systems	✓ Designing a Digital Thermometer Interface using LabVIEW
✓ Exploring various Temperature Sensors	✓ Building signal conditioning circuitry
✓ Understanding Signal Conditioning & Data Acquisition	✓ Acquiring Real-Time Data using IoT Hardware

REGISTER NOW

4



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Teaching innovations

Some of the teaching innovations that the Biomedical Engineering and Biotechnology Department uses include:

- **Flipped Classroom:** Students review lectures at home and engage in interactive activities in class.
- **Gamification:** Incorporates game elements like points and badges to motivate students.
- **Microlearning:** Breaks down complex topics into smaller, manageable chunks.
- **VR/AR/AI in Education:** Establishment of the MetaHub Lab as an immersive educational environment that uses VR/AR/AI to personalize learning experiences and provide immersive pathways with hands-on experiences and instant feedback.
- **Design Thinking:** Encourages solving real-world problems through structured processes.
- **Blended Learning:** Combines online digital media with traditional classroom methods.
- **Experiential Learning:** Involves learning through project-based learning and direct experience like internships and lab work (e.g., Mubadala-funded)
- **Personalized Learning:** Tailors education to meet individual student needs.
- **Active Learning:** Engages students in activities like discussions and group work during class.
- **Collaborative Learning:** Encourages teamwork and peer-to-peer teaching and learning.

Modeling the students' quality of interaction (QoI) with the Blackboard LMS, the quality of collaboration (QoC), and their affective state (AS) during learning provides tangible metrics for personalized feedback and optimization of the learning experience

4

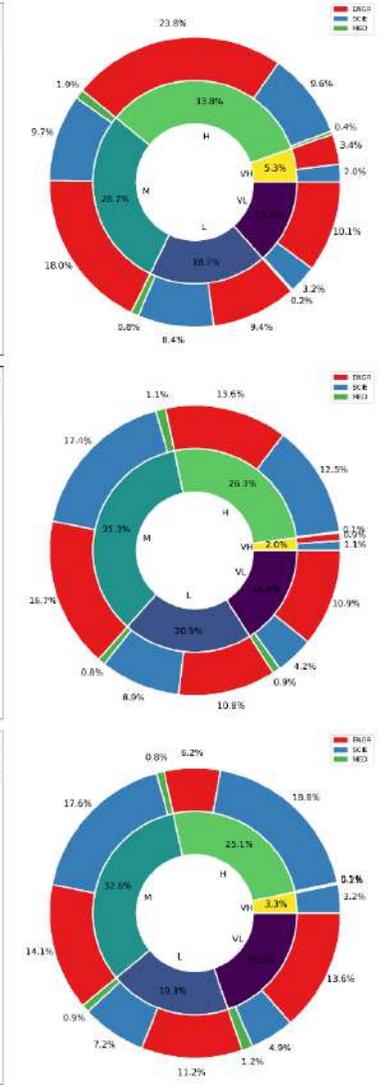
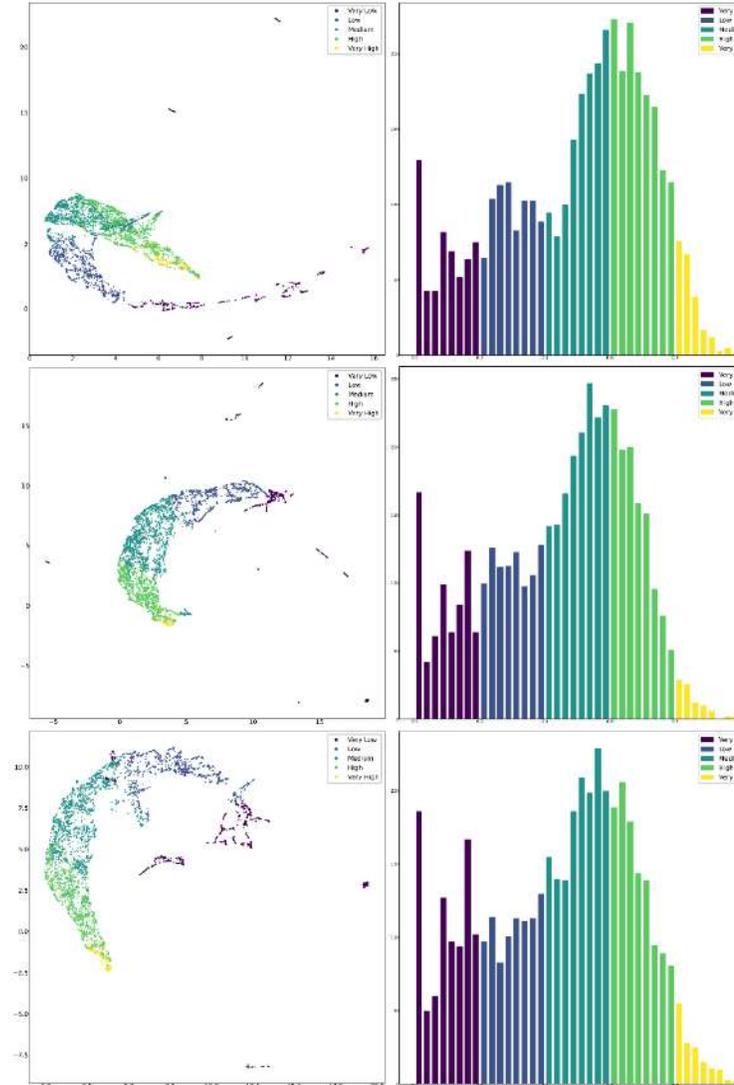


QUALITY EDUCATION

EDUCATIONAL EXCELLENCE

Teaching innovations

Innovations-Students' Quality of Interaction (QoI) with Blackboard across three academic years



4



QUALITY
EDUCATION

EDUCATIONAL EXCELLENCE

Teaching innovations

MetaHub Lab Concept



4



QUALITY
EDUCATION

EDUCATIONAL EXCELLENCE

Teaching innovations

Novel use of structural magnetic kits for in-class hands-on student learning of the principles of economical and stable design of truss-like structures in the second-year CIVE/AERO/MEEN200 Statics course.



4



QUALITY
EDUCATION

EDUCATIONAL EXCELLENCE

Student Success

- Dr. Nayfeh published with undergraduate student “ Fatima Al Hosani” a paper entitled Synthesis, Characterization and Antibiofilm Activity Against Pseudomonas Aeruginosa of ZnO-Ag Nanocomposite in the 2024 MRS meeting.
- The undergraduate project “Smart laptop stand with hybrid flywheel battery exercise bike” won 1st prize in the IEEE Student Day 2024. Supervisors are Drs. Tarek Elfouly and Ameena Al Sumaiti.
- 2024 Second Prize Paper Award for an article published in the IEEE Transactions on Industry Applications: A. A. Saafan, V. Khadkikar, M. S. E. Moursi and H. H. Zeineldin, "A New Multiport DC-DC Converter for DC Microgrid Applications," in IEEE Transactions on Industry Applications

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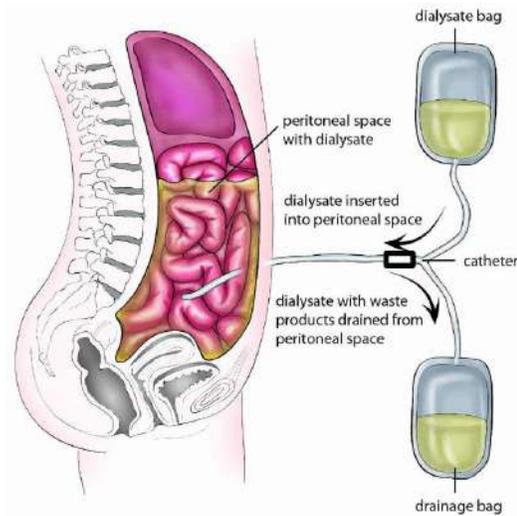


QUALITY EDUCATION

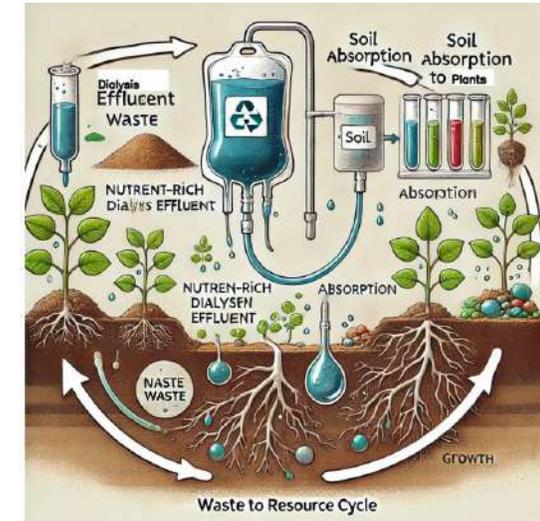
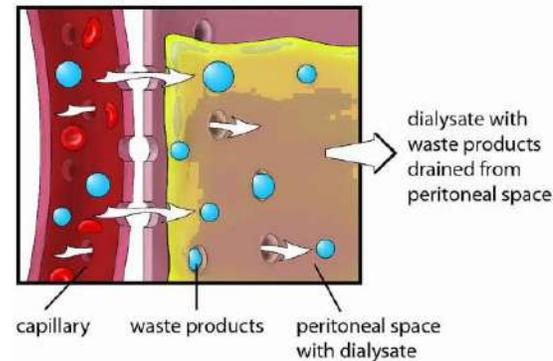
EDUCATIONAL EXCELLENCE

Student Success

Undergraduate Student Activities: 5 BMED UG students (supervised by Prof. Khandoker) took an initiative on health technology sustainability for Hemodialysis, which is essential for sustaining life but has a high environmental impact due to its carbon footprint and significant water usage. They proposed repurposing spent dialysate fluid, which contains valuable nutrients, as plant fertilizer instead of discarding it, though challenges like high salt and glucose content must be addressed. SEHA Kidney Care in Abu Dhabi accepted the proposal and wants to start the project in June 2025.



waste products cross the semipermeable membranes into the peritoneal space



4



QUALITY
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Student Success

Doua Kosaji, PhD student (supervision by Dr Khalaf and Dr Domingues): Competition Science Pitch @ Xpanse 2024, for early-career scientists and graduate students working at the edge of current scientific knowledge with impactful research. Pitch presented at the Science Lightning Pitch session during XPANSE 2024 in Abu Dhabi. Winner (\$5000)



4



QUALITY
EDUCATION

EDUCATIONAL EXCELLENCE

Student Success

Student Mohammed Khaldoun Al-Zaghir (supervised by Dr AlShehhi) has been selected for showcasing at Research & Innovation Exhibition 2025 to present “IGenRare: An AI Assistant Tool for Rare Genetic Diseases: Early Diagnosis and Management”



4



QUALITY
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EDUCATIONAL EXCELLENCE

Student Success

Student Eymaan Alhammadi (supervised by Dr AlShehhi) has been selected to showcase "AID: An Intelligent Combat Medic" at IDEX 2025 under the Tawazun Council.



4



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Student Success

PhD Student Ferial Abu Hantash (supervised by Dr AlShehhi) was honored with the Outstanding Graduate Student Award 2024 for her groundbreaking research in applying Artificial Intelligence (AI) to Alzheimer's disease.



4



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Student Success

(Biomedical Engineering and Biotechnology)

Students Jawaher Alblooshi, Danah Alhammadi, Alya Alnuaimi, and Mezoon Alblooshi (supervised by Dr AlShehhi) have been shortlisted to present at the Al Dhafra Health Forum 2024! They showcased their groundbreaking project, which utilizes Axivity AX3 wristbands for passive, remote functional assessment in neurodegenerative diseases



4



QUALITY
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EDUCATIONAL EXCELLENCE

Student Success

MedBio Hackathon Competition 2024, students supervised by Dr Elgendi won:
First Place – Moath Sabri and his team;
Second Place – Yousra and Amna;
Third Place – Layan Hattab, Dalya Ahmad, and their team.

Health 2.0 Conference – Young Achiever Award,
Student Aishah Alkindi (supervised by Dr Elgendi) was recognized as the only UAE recipient of the Young Achiever Award at the Health 2.0 Conference in Dubai for her contributions to healthcare innovation.

4



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Student Success

Deema Islayem (PhD student supervised by Dr Pappa) won 1st place for best oral presentation in The second AAU international conference on Pharmacy and Biomedical Sciences



4



EDUCATIONAL EXCELLENCE

Student Success

Aya Ghazal, ChE – USPTO application for Plasmonic Titanium Nitride-Containing Mixed Matrix Membranes and Related Membrane Distillation Methods

Page 1 of 3
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ELECTRONIC ACKNOWLEDGEMENT RECEIPT

APPLICATION # 18/665,067	RECEIPT DATE / TIME 05/15/2024 04:21:06 PM Z ET	ATTORNEY DOCKET # 097226-1438375 (008200US)
------------------------------------	-----------------------------------------------------------	-------------------------------------------------------

Title of Invention
PLASMONIC TITANIUM NITRIDE-CONTAINING MIXED MATRIX MEMBRANES AND RELATED MEMBRANE DISTILLATION METHODS

Application Information

APPLICATION TYPE: Utility - Nonprovisional Application under 35 USC 111(a)	PATENT # -
CONFIRMATION # 3537	FILED BY: Sarah Thompson

PTO/AIA/14 (01-22)
Approved for use through 6/21/2024 OMB 0351-0032
U.S. Patent and Trademark Office, U.S. DEPARTMENT OF COMMERCE

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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	097226-1438375 (008200US)	
		Application Number		
Title of Invention		PLASMONIC TITANIUM NITRIDE-CONTAINING MIXED MATRIX MEMBRANES AND RELATED MEMBRANE DISTILLATION METHODS		
Prefix	Given Name	Middle Name	Family Name	Suffix
	Aya	Issa	GHAZAL	
Residence Information (Select One) <input type="radio"/> US Residency <input checked="" type="radio"/> Non US Residency <input type="radio"/> Active US Military Service				
City	Abu Dhabi	Country of Residence ¹	AE	
Mailing Address of Inventor:				
Address 1	e/o Khalifa University of Science and Technology			
Address 2	P.O. Box 127768			
City	Abu Dhabi	State/Province		
Postal Code		Country ¹	AE	

QUALITY
EDUCATION

4



QUALITY
EDUCATION

EDUCATIONAL EXCELLENCE

Student Success

Malak Mohammed Amin
Abu Zaid, ChE – Best
Student Oral Presentation
at UAEGSRC 2024



4

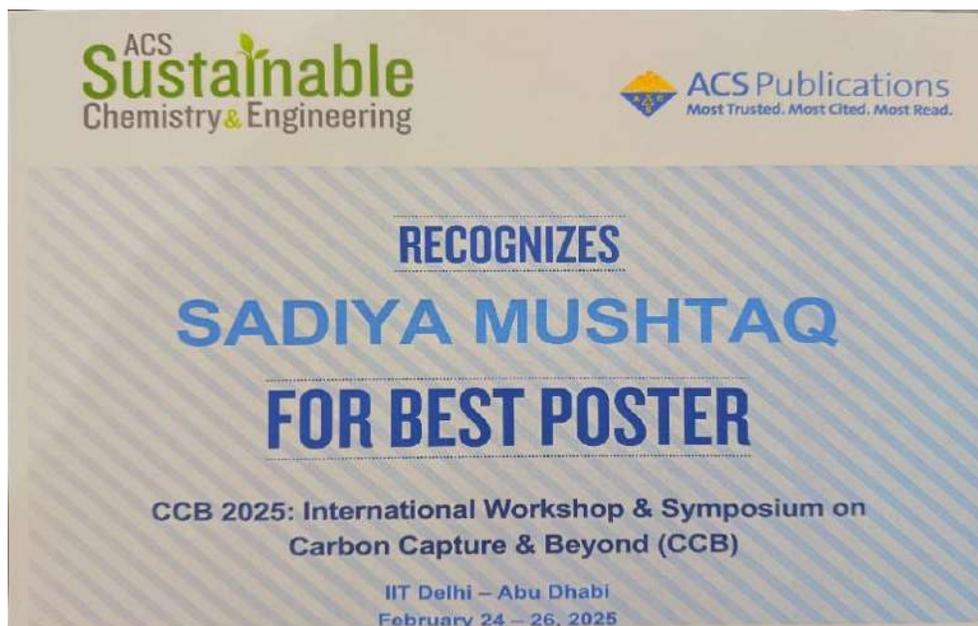


QUALITY
EDUCATION

EDUCATIONAL EXCELLENCE

Student Success

Sadiya Mushtaq, ChE – Best Poster Award during CCB 2025: International Workshop and Symposium on Carbon Capture & Beyond, Feb 26 to 26, 2025



4



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EDUCATIONAL EXCELLENCE

Student Success

- Adeel Ahmad, ChE – Outstanding Graduate Student Award from Khalifa University
- Waleed Diab, PE – Selected to represent the MENA region at the SLB Digital Forum 2024 in Monaco
- Johny Mouallem, PE - won the Experimental Learning Award at KU!
- Nine high school students as part of the KU-ADNOC Ro'ya Outreach Program, Summer 2024, SAN Campus, Khalifa University, participated in a project report work on “Sustainability in Oil and Gas Operations” supervised by PE program
- PE students of SPE KU Student Chapter arranged several initiatives for sustainability
- PE Students and Researchers Participations and winning in GOTECH Hackathon 2024 for AI and ML applications in energy

4



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Student Success

جامعة خليفة
Khalifa University

ADNOC

RO'YA PROGRAM SUMMER 1-2024
Cohorts 4

Project Report On:

Sustainability in Oil and Gas Operations

Authors (Team Members):

- Member #1- Jawaher Almaazmi-Leader (L)
- Member #2-Hamdan Albreiki-Co Leader (CL)
- Member#3-Abdulaziz Al Harmoodi
- Member#4-Ahmed Al Hadrami
- Member#5-Khaled Al Saari
- Member#6-Dhabia Alhammadi
- Member#7-Fakhra Al Hammadi
- Member#8-Ghalia Alnaqbi
- Member#9-Hajer Basahel

Abukari Idiris
Fall 2024

جامعة خليفة
Khalifa University

ADNOC

**RO'YA
PROGRAM**

BUILDING OUR YOUTH.
BUILDING THE UAE.

4



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Sustainability Activities



4



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Hackathon Competition in GOTECH



4



QUALITY
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Student Success

Chemistry Undergraduate Research Projects:

- During the period 2022-2024, 5 Senior Research Projects (SRPs) focused on sustainability, contributing to 20 conference presentations (e.g., “Photocatalytic Degradation,” “Water Purification via Peptide Coacervates”).
- 8 publications linked to SDGs (e.g., clean water, climate action) and two awards won at the Undergraduate Research Competition (URC) organized by Abu Dhabi University.

Chemistry Graduate Research Projects

- 17 sustainability-related PG Chemistry theses (11 PhD, 6 MSc) were initiated from 2022-2024. They resulted in 6 publications, 32 conference presentations, and 4 awards involving Chemistry students, including the L’Oreal UNESCO Award for 2024, which was won by PhD Chemistry student Israa Othman.

Undergraduate and graduate projects contributed to green initiatives like sustainability posters, COP28 and potential IPs/startups.

4



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Student Success



4



QUALITY
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EDUCATIONAL EXCELLENCE

Scholarship programs

- KU offers scholarships for undergraduate and graduate studies for all students (<https://www.ku.ac.ae/scholarships>)
- KU undergraduate students, both national and international, can apply to receive full or partial scholarships depending on their qualifications (<https://www.ku.ac.ae/undergraduate-scholarships>)
- KU graduate students, both national and international, can apply to receive full or partial scholarships depending on their qualifications and level of the program (Master's/PhD) they would like to study (<https://www.ku.ac.ae/scholarships-postgraduate>)

Inclusive education

KU accepts students to its programs, both undergraduate and postgraduate, regardless of their nationality, gender, religion, ethnicity, faith, identity, disability, or background. (<https://www.ku.ac.ae/undergraduate-catalog>) & (<https://www.ku.ac.ae/graduate-catalog>)

Distance learning

Master's programs that are delivered completely or partially through distance learning are under development.

4



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Lifelong Learning

Professional Development

- Engaged students and Organized the 17th International Workshop on Variable Structure Systems (VSS2024) at KU on Oct 21,2024 (pictures attached).
- Engaged students and Organized 2024 6th International Conference on Smart Power & Internet Energy Systems, Dec 4-6,2024 (SPIES 2024).
- Coursera courses in AI and Biomedical Engineering
- 5th International Water Energy NEXUS Conference, hosted by the Center for Membranes and Advanced Water Technology (CMAT), Yas Conference Center from 17th to 19th Feb 2025
- 3rd International Greenering Conference, KU main campus from 12th to 14th Feb 2025
- 1st Middle East Chemical Engineering Symposium, KU main campus
- 1st IEEE International Middle East Conference on Communications and Networking-2024
- 18th International Conference on Nanostructured Materials (NANO 2024)
- IEEE International Conference of Artificial Intelligence Circuits and Systems (AICAS) 2024
- The 2024 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2024)

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QUALITY EDUCATION

EDUCATIONAL EXCELLENCE



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QUALITY
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EDUCATIONAL EXCELLENCE



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QUALITY
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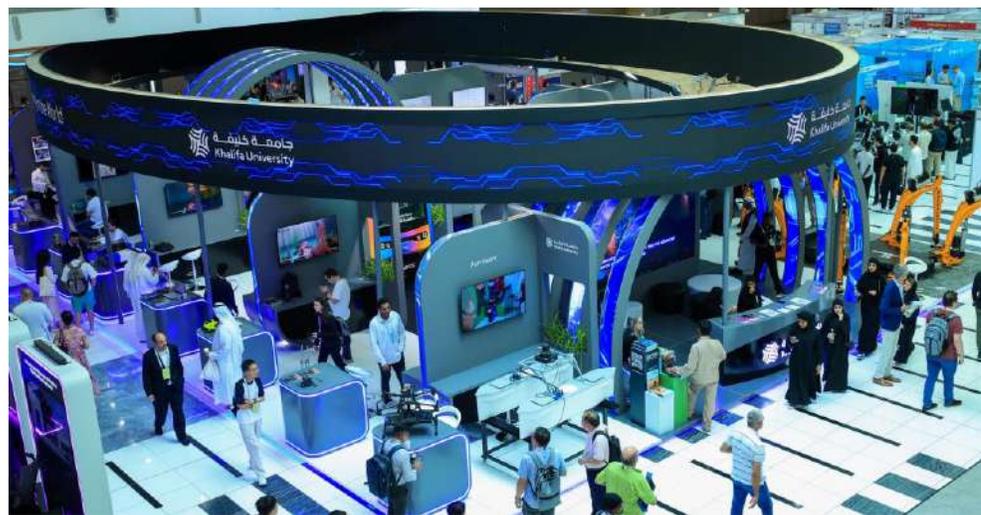
EDUCATIONAL EXCELLENCE



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EDUCATIONAL EXCELLENCE



QUALITY
EDUCATION

4



QUALITY
EDUCATION

EDUCATIONAL EXCELLENCE

Lifelong Learning

Professional Development Certified Carbon Literacy Program

- Organized the first Carbon Literacy Program, a certified training by the UK Carbon Literacy Project.
- The program equips students with knowledge, skills, and motivation to take meaningful action on climate change.
- Impact: 17 students completed the training and received official certification.



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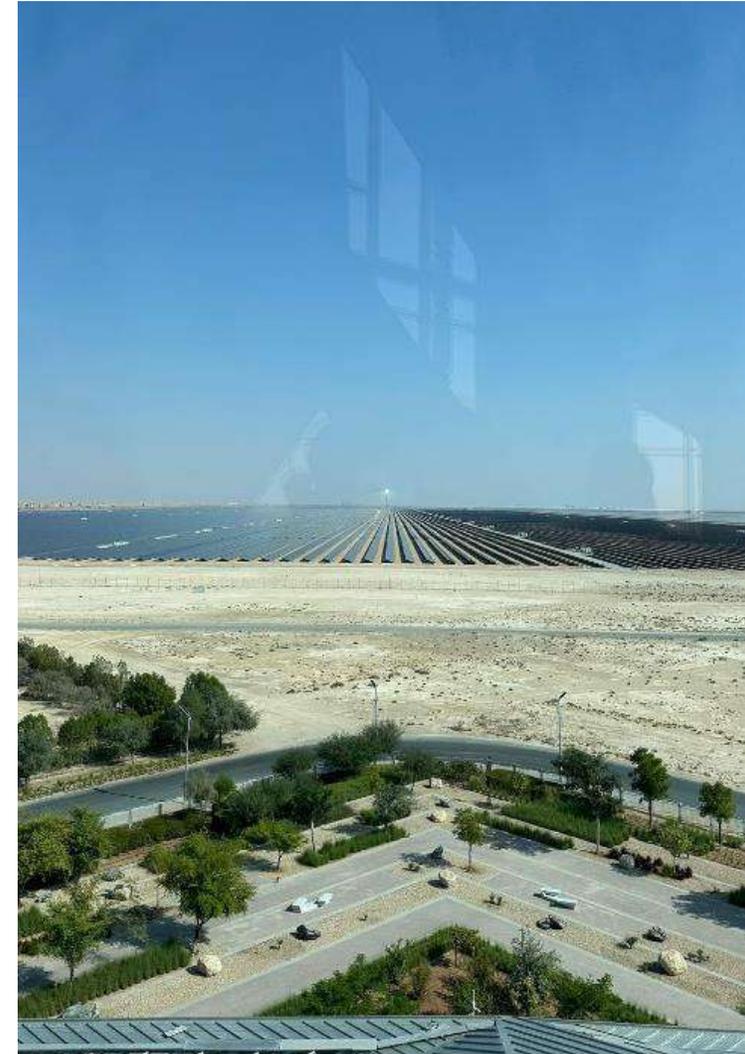
QUALITY
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Lifelong Learning

Community Education

- Field Trip for Undergraduate students to see DEWA solar system (pic attached).
- Course ECCE 426 Electric Drives and Renewable Energy Invited talk by Industry (Eng. Islam Y. Hegazy, Regional Product Line Manager, Industrial Control Division, Eaton)
- Course ELEN 421 Power System Analysis Invited talk by Industry (Dr Bruce Stedall, TRANSCO)
- SDP project “Powering Future Residences: Sustainable Energy Solutions for Female Accommodation” led by Dr. Khaled involved industry participation (Eng. Yasser Al Kuwaiti (Adnoc))
- SDP project “Small targets classification and position mapping using Thermal Camera Core with AI capabilities” led by Dr. Omar involved Dr Ilija Popadic (Vlatacom Institute)



4



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Lifelong Learning

Community Education

- Biomedical Engineering INTERACTION series: This series includes seminars and exhibitions aligning academic programs with labor market needs and advances in Biomedical Engineering and Biotechnology.
- Biomedical Engineering Education Community (BEEC): An IEEE EMBS community supports BME educators through events and discussions to enhance skills in AI, technology, data visualization, and health research.
- RICH (Research and Innovation Center on CO2 and Hydrogen) Center Open Day on 11th February 2025, in conjunction with Women and Girls in Science and Inventors Day
- Desalination Hackathon, 7th Dec 2024, Khalifa University, Arzanah Building, co-organized with ACWA POWER and the International Desalination Association.
- KU-ADNOC Ro'ya Outreach Program, Summer 2024, SAN Campus, Khalifa University, Petroleum Engineering (PE) program participated in providing lectures and hands-on lab sessions on Introduction to PE and Energy, to elite 10-Grade UAE High school students
- PE arranged several awareness sessions at SAN Campus of Khalifa University to attract students to the petroleum engineering major
- PE and ChE students participated and volunteered in all Abu Dhabi municipality activities, such as beach cleaning, mangrove planting, and around the mosques planting to ensure a healthy and sustainable environment in Abu Dhabi

4



QUALITY EDUCATION

EDUCATIONAL EXCELLENCE



IDRA | **ACWA POWER** | **جامعة خليفة**
Khalifa University | **CMAT** Center for Membranes and Advanced Water Technology

First Global Hackathon for Sustainable Water Desal and Reuse

Addressing Water Scarcity

Registrations are now open

<https://desalhack.com/>

Event details

- December 7th, 2024
- SAN Campus, Khalifa University, Abu Dhabi, United Arab Emirates



4



QUALITY
EDUCATION

RICH CENTER OPEN DAY



4



QUALITY
EDUCATION



4



QUALITY
EDUCATION

PE AWARENESS SESSIONS



4



QUALITY
EDUCATION

EDUCATIONAL EXCELLENCE

Lifelong Learning

Community Education

- AI for a Sustainable Future winter camp: it introduced fundamentals of AI to high school students. It had them engaged in practical sessions (Grand Challenge) to apply AI to classify objects as sustainable or non-sustainable, demonstrating real-world applications of AI for sustainability.
- Chemistry Department School Visit Program: Engaged 2,329 students across 10 schools in 2024 (e.g., Brighton College, Al Ittihad), with faculty showcasing chemistry careers and lab skills (e.g., IR spectroscopy).
- Chemistry Forensic Field Trips: Organized four trips (2021-2024), with the 2024 Dubai Police visit engaging 6 senior students in hands-on forensic experiments.
- Earth Science activities include:
 - Presentation at Yas Sea World (Dr. Ahmed Osman)
 - EAD Green Youth Majlis Talk (Dr. Aisha)
 - Arctic Circle Forum at Sustainability Week (Dr. Aisha)
 - Dr. Diana & Dr. Aisha are on the UAE Climate Task Force



4



QUALITY
EDUCATION

EDUCATIONAL EXCELLENCE

Lifelong Learning

Executive Education

- Internships via Healthcare Industry Collaborations focused on practical skills and knowledge that can be immediately applied in the workplace. These opportunities connect the trainees with the industry to advance their careers, often into leadership or executive roles.
- Meet-the-experts: focused seminars/lectures from experts in healthcare business topics through biomedical engineering and biotech lens, including funding strategies, product development, and intellectual property protection, enhancing leadership role skills.

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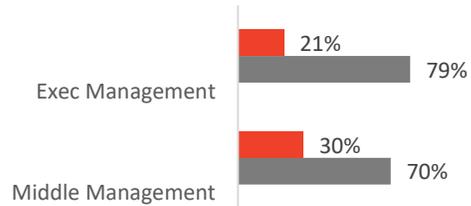
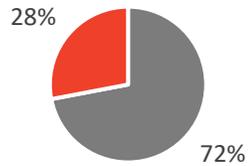
SDG 5: GENDER EQUALITY

YEAR 2024 STATISTICS

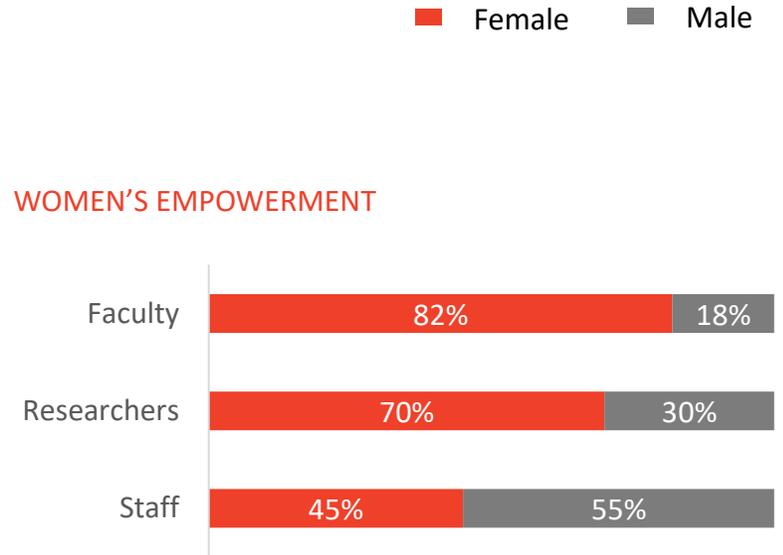
PROFESSIONAL TRAININGS

92

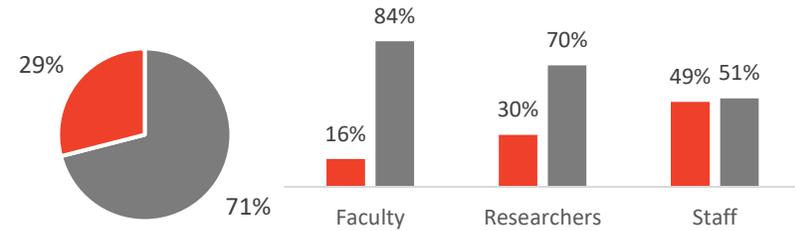
WOMEN IN LEADERSHIP



WOMEN'S EMPOWERMENT



WOMEN IN STEM



GENDER EQUALITY

6



SDG 6: CLEAN WATER AND SANITATION

Water Research

1. **AWG Sorption System:**
Solar-powered atmospheric water generation
2. **Desalination Device:**
Novel electromagnetic water purification
3. **PET Bottle Water Treatment:**
Recycled plastic membrane filtration
4. **Smart Hydroponic Chamber:**
Water-efficient plant growth system
5. **Self-Adhering Hydrogel:**
Water-based sustainable electronics



CLEAN WATER
AND SANITATION

6



Campus Water Management

- Water conservation
- Sustainable facilities
- Infrastructure improvements

Community Solutions

- Water access projects
- Sanitation initiatives
- Public awareness

Campus Water Management

- Water conservation
- Landscape renovation for SAN and Main campus

Infrastructure improvements

- Replacement of leaking grp paneled water tank, existing building, main campus

CLEAN WATER
AND SANITATION

7



AFFORDABLE AND
CLEAN ENERGY

SDG 7: AFFORDABLE AND CLEAN ENERGY

Energy Research

1. Hybrid Electric Drone:
Reduces carbon emissions through hybrid propulsion systems
2. Wave Energy Converter:
Harnesses renewable ocean wave energy
3. Bio-derived TENGs:
Creates sustainable energy harvesters from natural materials
4. E-bike Efficiency:
Improves electric vehicle energy recovery and usage



Multiple hydrogen projects
focused on green/blue
hydrogen production:

1. Atmospheric water to hydrogen
2. Wastewater to hydrogen
3. CO_x-free hydrogen from fuel gas

7



AFFORDABLE AND
CLEAN ENERGY

SDG 7: AFFORDABLE AND CLEAN ENERGY

Campus Energy

- Energy management
- On the occasion of Earth hour, we encouraged our community to switch off their lights for one hour from 8:30pm to 9:30pm on Instagram story and post • This activity on story reached 1709 accounts and had 7 engagements • This activity on post reached 4025 accounts and had 58 engagements
- Supply and installation of Energy monitoring system on both campuses
- Renewable adoption
- KU Logos replacement - Existing & new building (5 sets) with raw & Solar power
- Green buildings

Industry Impact

- Energy partnerships
- Technology transfer

Innovation project

- Supply & Installation of VPCR system
- Supply and Installation of LED Strip Lights for Link Bridge in Main Campus (between E & G building 1st floor)

8



SDG 8: DECENT WORK AND ECONOMIC GROWTH

Career Development

- Career services
- Professional training
- Entrepreneurship support

Economic Impact

- Job creation
- Industry partnerships
- Economic development



DECENT WORK AND
ECONOMIC GROWTH

9



SDG 9: INDUSTRY, INNOVATION AND INFRASTRUCTURE

Research

- Multisensor Flow Device: Advanced industrial monitoring
- AI Environmental Monitoring: Predictive pollution models
- Multiple sustainable construction/materials projects



INDUSTRY, INNOVATION
AND INFRASTRUCTURE

10



SDG 10: REDUCED INEQUALITIES

Campus Inclusion

DIVERSITY INITIATIVES

23

CULTURAL INITIATIVES

12

DISTINCT NATIONALITIES

90

REDUCED
INEQUALITIES

11



SUSTAINABLE CITIES
AND COMMUNITIES

SDG 11: SUSTAINABLE CITIES AND COMMUNITIES

Campus Sustainability

- Green infrastructure
- Waste management

Sustainable transport

- Supply and installation of redundant FAHU for BTC and Wastewater lab
- Supply & Installation of new package unit
- Umm Shaif Ducted AC units 33 Nos
- Replacement of AC Split Units San Campus wise
- Replacement of gate barrier in Arzanah - 4 Nos and Umm Lulu - 2 Nos



12



RESPONSIBLE
CONSUMPTION
AND PRODUCTION

Campus Operations

- Green procurement
- Waste management
- Resource efficiency

Community Education

- Sustainability awareness

A series of online quizzes were circulated among KU community, one of the themes tackled sustainability in general. Total responses received is 302 responses and had 1 winner.

- Consumer education
- Recycling programs

A Reverse Vending Machine has been placed on KU campus in collaboration with VEOLIA group. Ku members can receive points and redeem them in many food and shopping outlets whenever they return plastic bottles.

13



CLIMATE
ACTION

SDG 13: CLIMATE ACTION

Climate Research

Multiple projects reducing emissions through:

1. Clean energy generation (wave, hydrogen)
2. Efficient transportation (drones, e-bikes)
3. Waste reduction and recycling
 - Awareness Emailer on how to recycle was sent out on Global Recycling Day
 - An Envirotrivia theme on recycling that received 105 responses and had 1 winner
 - Revamped our Recycling bins with new and attractive icons for our community to better understand how to sort their waste
4. Sustainable materials and construction



CO2 EMISSIONS OF KU FROM TRANSPORTATION

KU Community Commute Stats (from KU buses) & CO2 Emission survey

Fuel from Contractor Transportation:

In 2024, a total of 458,234.19 litres of fuel was used by our contractor for KU community commute between campuses and other services. This translates to 1,053,959.34 kg of CO2 (using the UK emission factor for gasoline of 2.3kg of CO2 per Liter)

Private Transportation Community Survey:

A transportation survey was conducted among KU community to gauge the amount of CO2 emitted in 2024 from their personal commute from home to the workplace. The survey received 403 responses with an average of 1,95tCO2 per year per stakeholder from the total of 785.5tCO2

If we assume the same average of 1.95 tCO2 per stakeholder for all KU community (5,426 stakeholders) then 10,580.7 tCO2 was emitted in 2024 from private transportation

14



SDG 14: LIFE BELOW WATER

Marine Research

Multiple projects reducing emissions through:

1. **Digital Underwater Diving:** Marine ecosystem monitoring
2. **Wave Energy:** Clean ocean energy technology
3. **Pollutant Removal:** Water treatment and protection



Mangrove Planting activity

- On Thursday 7 th of November, a mangrove planting activity was conducted in Jubail Mangrove park
- An educational talk about the importance of mangroves was given to the attendees
- 19 community members of KU attended this activity and planted 19 mangrove saplings

LIFE
BELOW WATER

15



LIFE
ON LAND

SDG 15: LIFE ON LAND

Campus Environment

- Biodiversity protection
- Green spaces
- Native species

Environmental Impact

- Conservation projects
- Education programs

Community engagement

3 Community cleanups were conducted in:

- Al Wathba - February o Um Al lulu female dorms - February
- Al Bahia beach – September
- A total of 62 volunteers from KU community joined the clean ups collecting over 573 Kgs of waste

On World Environment Day, a set of questions and “did you know?” facts were sent out to our KU community through Instagram Story

A total of 1,707 accounts were reached with 108 engagements. The theme of 2024 was Land restoration, desertification and drought resilience.

15



LIFE
ON LAND

Al Bahia Beach Cleanup





KU'S STOCKCOUNT

IMPACT AREA	ITEM	2022	2023	2024	% REDUCTION	2024 TARGET
Energy and Carbon	Electricity Consumption (KWH)	85,261,357	90,653,586	82,008,956	9.53%.	3%
Paper	Paper Consumption (KG)	21,483	10,238	11,207	9.46% percent increase	N/A
Travel and Transportation	Fuel (Liters)	468,038	451,826	458,243	1.4% percent increase	N/A
Water	Water Consumption M3 (1000 liters)	497,022	520,960	447,444	14.1%	N/A
Waste	Non-Hazardous Waste Generated (KG)	168,477	161,252	172,163	6.7% percent increase	3%
	Hazardous Waste Generated (KG)	4,787	3,764	6,935	84.2% percent increase	
	Total Recyclable non-hazardous Waste (KG)	41,682	14,253	17,722	24.3% percent increase	



NEW CONSTRUCTION

- New building: Safe access doors for AHU / FCU (HVAC) etc. in student hub / Engg. Building.
- Sliding door upgrade with new controllers & unit - Existing building (G & R Building - 33 nos.)
- Fume hoods replacement (Ductless fume hood) 33 % (10 out of 30 nos.)
- Upgradation of existing FM 200 panel to addressable panel (Existing building)
- BMS Upgradation Project for HVAC & Other critical assets in Existing building
- Replacement of old and obsolete PAVA SYSTEM with New ATEIS PAVA System in G, L, R, M , K & Ruwais building.
- Repainting of internal wall surface for offices, labs, flats at SAN campus of Khalifa university

**THANK
YOU**

