جامعة الإمام عبدالرحمن بن فيصل
IMAM ABDULRAHMAN BIN FAISAL UNIVERSITY

SDG 7.2.4

Plan to reduce Energy Consumption

2024-2025

Table of Contents

Imam Abdulrahman Bin Faisal University (IAU) promotes reduced energy consumption through various means.

Find below some of our reduced energy consumption related events.

1. IAU Strategic Plan 2018-2025

The given webpage link shows the Strategic plan of IAU 2018-2025. This plan explained its alignment between KSA Vision 2030 and IAU strategic goal V-Sustain IAU campus environment.

Under IAU Strategic Goal V, refer page no. 100, 101, 144, and 147, which describes about the energy efficiency:

- Initiative 5.1.1.5,
- KPI 5.1.1.5,
- Initiative 2.4.1,
- Initiative 3.2.1,
- Initiative 3.2.4,
- Initiative 3.2.5

https://www.iau.edu.sa/sites/default/files/iau_straplan_en_20jun2019.pdf

2. IAU Consulting Center for Buildings Energy

The given webpage link (refer to About section and Scope of work section) describes about the "consulting center for buildings energy", a body accredited by IAU Institute of Consulting Studies to deliver training and consulting services in field of engineering related rationalization of energy consumption. Its scope of work includes training, education and workshops in the areas of sustainability, green buildings and energy conservation. It also includes energy efficiency studies and audits of existing buildings; consultations about the efficiency of air conditioning systems; and consultations about the solar energy.

https://www.iau.edu.sa/en/administration/centers/institute-of-consulting-studies/services/experience-houses/consulting-center-for-buildings-energy

3. IAU Achieves 100% in the Field of Improving Energy Efficiency Consumption 2022

Imam Abdulrahman bin Faisal University obtained 100% in the scorecard for the year 2022 and the excellence award for the first category in the field of improving energy efficiency consumption, during a ceremony honoring distinguished government agencies in improving energy consumption for the year 2022, which was held by the Saudi Center for Energy Efficiency, in the presence of the Vice President for Administrative and Financial Affairs, head of the university's energy efficiency team, Prof. Dr. Abdulwahed Al-Mazrou, and many officials and representatives of government agencies. The university's win came for achieving 100% in the scorecard, which includes achieving levels of commitment in energy consumption after implementing a set of internal initiatives to improve energy consumption rates in all university facilities and buildings and university hospitals, including the application of the necessary standards to raise the efficiency of consumption, the adoption of the necessary models and guidelines, and the holding of technical workshops.

https://www.iau.edu.sa/en/news/iau-achieves-100-in-the-field-of-improving-energy-efficiency-consumption-2022

4. Energy Efficient Building Practice at IAU

The given PDF link describes energy efficient usage in IAU in the following Parts:

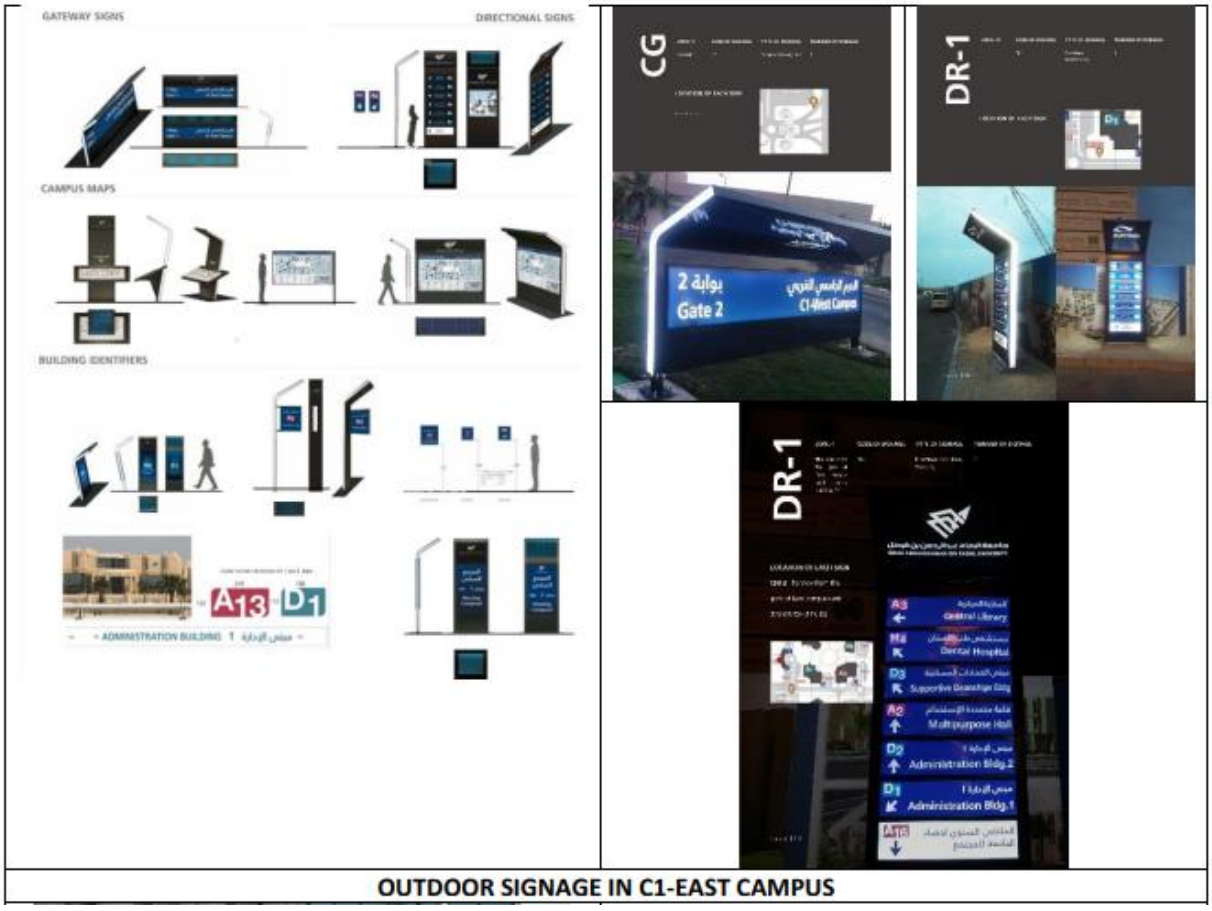
- PART A: Sustainable system for Outdoor Signage
- PART B: Optimized Eco-friendly Buildings

Part A

Energy Efficient Appliances Usage in all the Buildings of IAU: Use of LED & fluoracent lighting and lamps with central clock system, centralized speaker & LCD Announcement screen

	
(Precast Concrete insulated panels and Curtain wall) Administration Building- IAU	**IAU implement and abide by Saudi Building Code in its all Construction and Electricity plan**

PART B



OUTDOOR SIGNAGE IN C1-EAST CAMPUS

Example of Energy Efficient Appliances Usage: Solar energy for map direction and board and light outside

EXAMPLES OF SIGNAGE & SOLAR LIGHTS IN IAU CAMPUS

https://www.iau.edu.sa/sites/default/files/resources/energy_efficient_building.pdf

5. Awareness lecture on "The Impact of Smart City Applications in Combating Desertification" by IAU

In conjunction with the launch of the #Green_Homeland_Sustainable_Tomorrow #Our_Environment_is_a_Treasure event, I was delighted today to represent @IAU_Arch at the kind invitation of @IAU_DCP and in collaboration with @ncvcksa , where IAU delivered an awareness lecture titled: The Impact of Smart City Applications in Combating Desertification.

https://x.com/Aboodkoa/status/1920386053124296992

6. Participation of College of Engineering Students of IAU in developing the High Concentrated Photovoltaic (HCPV) system

Supported by #ImamAbdulrahmanBinFaisalUniversity, #Engineering College participated in developing the High Concentrated Photovoltaic (HCPV) system in collaboration with King Abdullah City for Atomic and Renewable Energy and the American company "Arzon Solar," achieving highly efficient results under harsh desert conditions and high temperatures.

https://x.com/CE_IAU_SA/status/1916507044275798342

7. College of Engineering of IAU participated in the Solar Energy and Storage Exhibition

Dean of College of Engineering of IAU, Prof. Dr. Fahd Al-Omari, and Head of the Mechanical and Energy Engineering Department, Dr. Mosaid Al-Zahrani, participated in the Solar Energy and Storage Exhibition, and presented two scientific papers that enhance the college's research and industrial role in sustainable energy in support of the Kingdom's Vision 2030.

https://x.com/CE_IAU_SA/status/1983180226118201404

8. Participation of College of Engineering Students of IAU in the events of the third Renewable Energy Symposium and Exhibition

The #College_of_Engineering of IAU concluded the events of the third Renewable Energy Symposium and Exhibition, after days filled with scientific contributions and fruitful workshops, thanking all participants and supporters for their contributions to the success of this event.

https://x.com/CE_IAU_SA/status/1912930146014703621

9. Participation of College of Engineering of IAU in Energy Debate

#College_of_Engineering of IAU proudly participates with its teams in the Energy Debate at King Fahd University of Petroleum and Minerals, where the college team secured second place 🎖 among the universities of the Eastern Region.

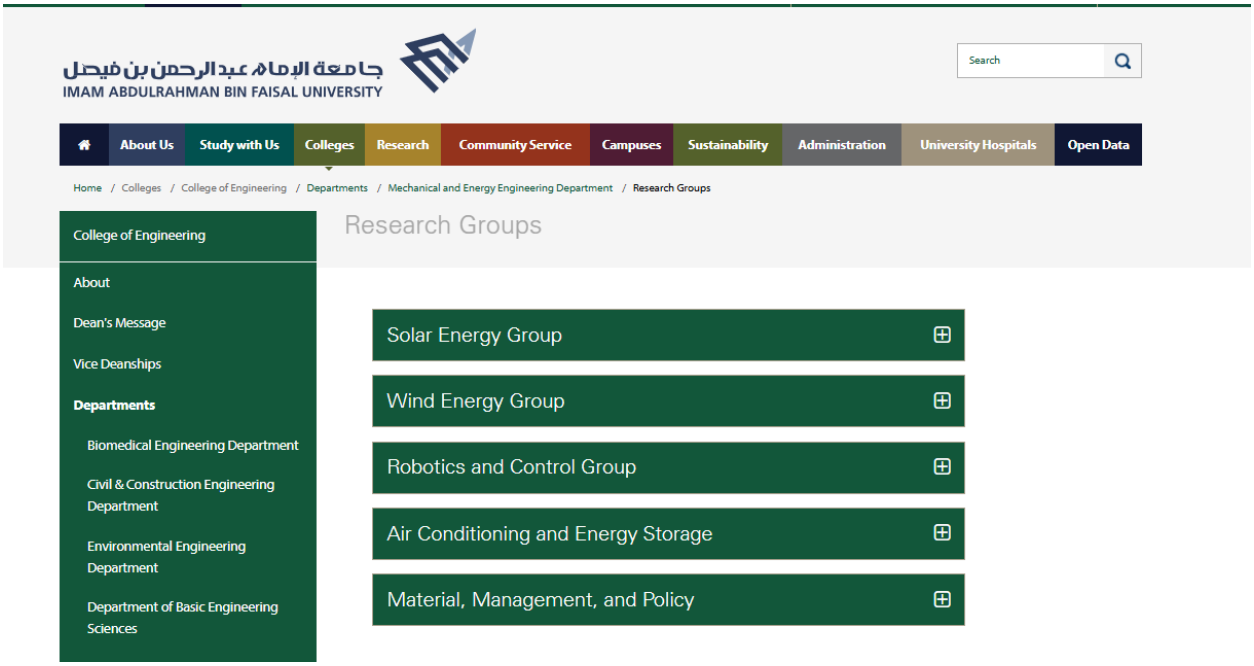
https://x.com/CE_IAU_SA/status/1884486325786604026

10. Participation of College of Engineering of IAU in Energithon Event at King Fahd University of Petroleum and Minerals

As #College_of_Engineering of IAU proudly shares, its team participated in the "Energithon" event at King Fahd University of Petroleum and Minerals as the only team from outside the university, achieving second place 🎖️.

https://x.com/CE_IAU_SA/status/1884528765310517480

11. Research groups on Energy at IAU



https://www.iau.edu.sa/en/colleges/college-of-engineering/departments/mechanical-and-energy-engineering-department/research-groups

12. Approval for the Establishment of Saudi Building Code Academy by IAU

The happiness of the Dean of #College_of_Engineering, Dr. Murad Al-Thubaity, appreciates the Cabinet's approval for the establishment of the Saudi Building Code Academy, which will mark a qualitative leap in the development of engineering education, and enhance the academic and technical efficiency of students and engineers in the civil engineering sector.

https://x.com/CE_IAU_SA/status/1899946964969476345

13. IAU Initiatives to achieve higher Energy Efficiency

The given PDF link explains the initiatives taken by IAU to achieve higher energy efficiency.

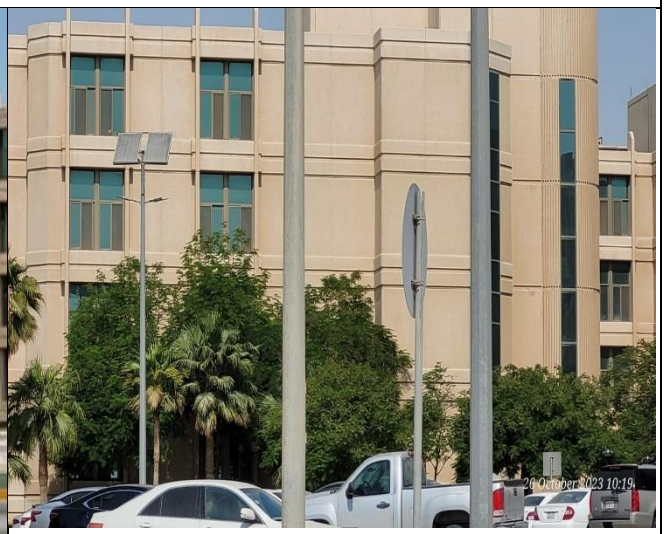
Photo solar systems installation initiative to reduce monthly electricity bill payments:

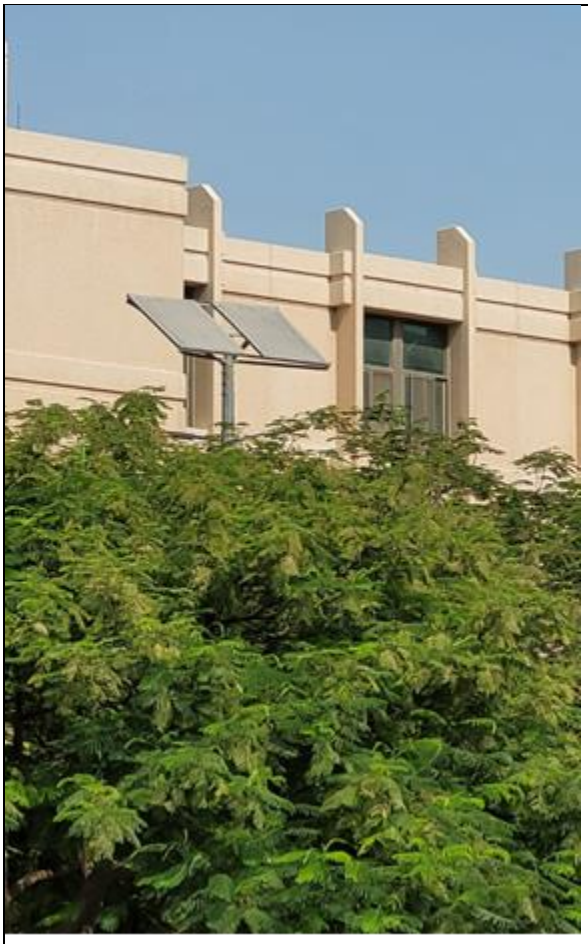
Electric and affordable shuttle buses for the student and faculty

https://www.iau.edu.sa/sites/default/files/resources/reduce_overall_energy_consumption_2022.pdf

14. Renewable Energy Sources in IAU Campus

In all IAU Campuses the roofs of the buildings are installed with Solar panels





Solar Panels spread at IAU Campuses

Solar Panels installed all over the campus to provide energy for the purposes of lighting, heating, cooling, running university laboratories, etc.

NIGHTVIEW OF SOLAR OUTDOOR SIGNAGE IN IAU CAMPUS

DAY-VIEW OF SOLAR OUTDOOR SIGNAGE IN IAU CAMPUS

Description:

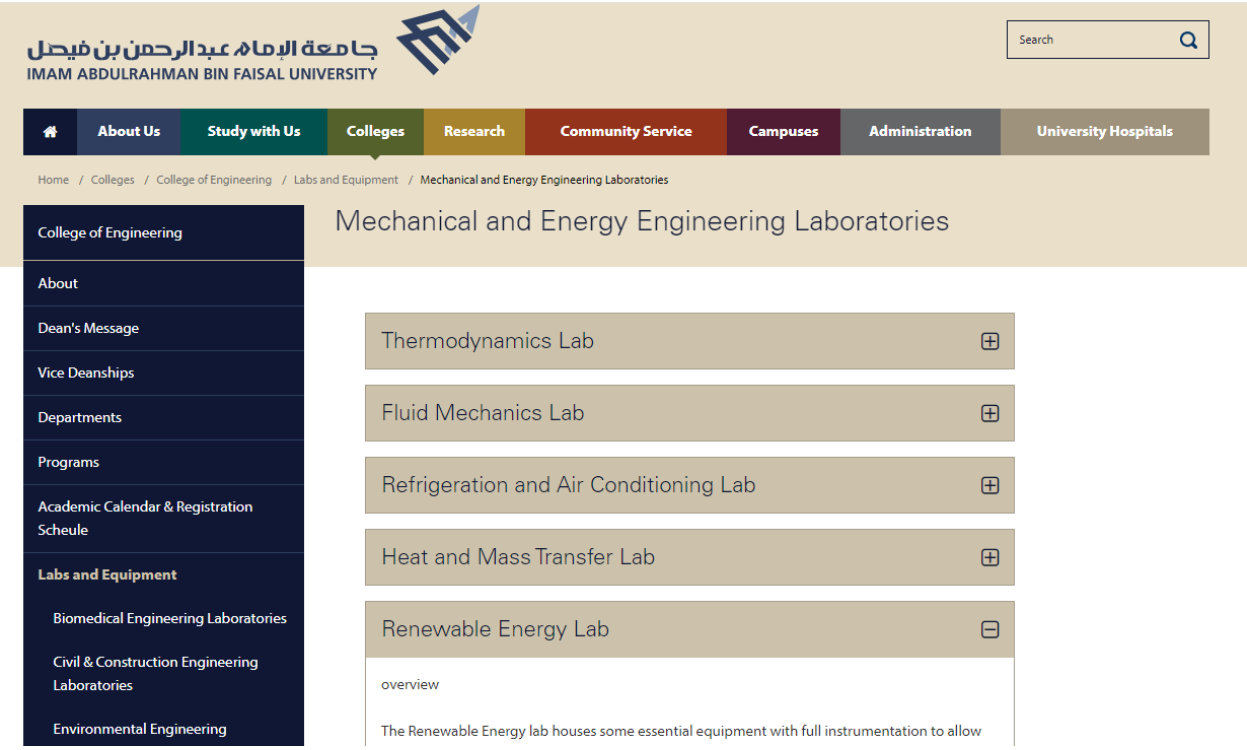
Currently, solar energy is used only for campus lights and signage in main campus.

The mega project is in pipeline to install solar panels in the university to have an alternate source of energy, which will help to be less dependent on electricity and reduced the electricity consumption.

Wind power plants are installed in IAU Campus as part of alternate sources of energy. Based on the initial observations and usage relevance to IAU campus many Wind power plants are going to be installed on the open spaces of IAU.

15. Mechanical and Energy Engineering Laboratories at IAU

The given webpage link (refer to Mechanical and Energy Engineering Laboratories) shows the presence of the Mechanical and Energy Engineering Laboratories in the College of Engineering of IAU. Among various labs, the renewable energy lab is the one that has essential equipment with full instrumentation to allow students to investigate the effective use of solar energy as a renewable, environmentally friendly energy source.



https://www.iau.edu.sa/en/colleges/college-of-engineering/labs-and-equipment/mechanical-and-energy-engineering-laboratories

16. Integrated Environmental Solutions and Consultancy Office

INTEGRATED ENVIRONMENTAL SOLUTIONS AND CONSULTANCY OFFICE (GAMEP Authorized)

The department of environmental engineering is considered as a pioneer since it is the first department to offer the bachelor's degree environmental engineering in the kingdom of Saudi Arabia.

The Integrated Environmental Solutions and Consultancy Center established by Imam Abdulrahman Bin Faisal University in 2020 and Authorized by the Presidency of General Authority of Meteorology and Environment Protection (GAMEP).

The distinguished experience, expertise, and capabilities are utilized to develop engineering solutions that meet the customers' needs and local standards. The services include providing optimum air quality management and solutions on the indoor/outdoor air pollution and industrial emissions from oil and gas, energy, mining, and minerals sectors.

The Consulting and Engineering Office is dedicated to working with clients to implement compliance solutions using innovative approaches and advanced technologies. The measurement and analysis are conducted following stringent environmental laboratory protocol and best quality practice.

The multi-disciplinary consultants engineering office includes:

01 Environment services including environmental studies, design, and supervision

02 Professional training for environmental specialists and technicians

03 Short and long Certificate programs in environmental specialists and engineering filed

04 Third-party inspection and opinion work to ensure compliance with the project specifications, codes, and standards.

05 Physical, chemical, and biological procedures and mechanisms accountable for the proclamation, conveyance, alteration and preservation of pollutants.

06 Pollutant control procedures (predominantly the exclusion of trace & toxins or pollutants).

07 Basic ideologies of physical, chemical, and biological conduct know how for water, wastewater and solid wastes scums or residues from different sources.

08 Pollutant control measures for Air, other contaminants removal from air & its monitoring (gases, Particulate matters & Meteorological parameters etc.).

1. Division of Solid and Hazardous Waste Management

This consultation office offers consultation services, conducting studies, third-party testing, inspection, and training in the field of environmental engineering and waste management, including industrial, medical among all other types of solid waste. In Addition, we offer short courses related to the area of solid waste management. The office is part of the Integrated Environmental Solutions and Consultancy Center established in 2020 by Imam Abdulrahman Bin Faisal University. All laboratory analysis are conducted following an approved environmental laboratory protocol.

Our services include:

- Inspecting, analysis, and assessment of all types of hazardous waste.
- Landfill and incineration design
- Best applicable technology
- Oil waste management and reuse
- Industrial waste collection and disposal
- Medical waste management, disposal, and incineration
- Radioactive waste management
- Contaminated solid purification

2. Division of Wastewater Treatment and Reuse:

water/wastewater team in IAU consultation office specializes in providing solutions for the industry's water/wastewater treatment challenges. We can guide you for the operations of wastewater system, provide troubleshooting, and can help or manage your analytical testing. We offer consulting services for both water and wastewater treatment plants. We offer consultation services, conducting studies, measurements, and training in the field of wastewater engineering, treatment, optimization, reuse, and design.

Our consultation services and laboratory analysis are authorized by the Presidency of Meteorology and Environment (GAMEP).

- Conducting analysis and modelling on the existing design of wastewater engineering systems and finding cost-saving opportunities that provide a return on investment.
- Designing, implementing, and upgrading wastewater treatment systems
- Advice on best practicable and cost-effective solutions for wastewater treatment.
- Wastewater analysis and characterization
- Marine pollution and deep discharge design
- Blue flag services and consultation
- Water footprint calculations and simulations
- Wastewater plant modelling and simulation studies

3. Division of Air Quality and Emission Control

Offering consultation services, conducting studies, third-party testing, inspection, and training in the field of environmental engineering, indoor and outdoor air quality assessment, emission inventory calculation, dispersion modelling, health risk assessment, dose calculation.

- Mobile station air quality monitoring for EIA studies
- Stack Gas Monitoring
- Designing Innovative Air Pollution Control Technologies
- Optimizing Current Air Pollution Control Technologies
- Short courses and training
- Calibration and maintenance
- Bioaerosol Sampling and Analysis
- Noise Pollution Monitoring, Mapping, Modeling, and Control
- Monitoring of Meteorological Parameters
- Air Toxics Health Risk Assessments
- Dispersion Modelling
- Source Apportionment Modeling
- Air Quality Program Management
- Air Pollution and Air Quality Mapping
- GIS maps for measured pollutants
- Source and stack emission monitoring
- Ambient air quality studies
- Mobile lab services
- Environmental management plan (EMP)
- Environmental impact assessment studies (EIA)
- Life cycle assessment studies (LCA)
- Pollutants dispersion modelling (AREMOD)
- Risk assessment and dose calculation
- Auditing and inspection
- Energy efficiency
- Carbon footprint
- Global warming and greenhouse gases
- Ambient/Indoor Sampling, Monitoring, Analysis of Air Pollutants

Mobile Air Quality Monitoring Station

https://www.iau.edu.sa/sites/default/files/resources/general_introduction-compressed.pdf

17. Clean Energy Patent registered by United States Patent Office

The given webpage link (refer to 1st and 2nd paragraph) shows that the United States Patent Office registered a patent to an IAU faculty member (Organic Chemistry), in field of Clean Energy for her innovative method of producing nano-sorbent material consisting of carbon nanotubes grafted with acrylic acid and an acrylamide polymer. The idea of this invention acts as nano filters remove and absorb toxic phenolic materials from industrial wastewater which pose a threat to living organisms.

https://www.iau.edu.sa/en/news/clean-energy-patent-registered-by-unitedstates-patent-office-for-an-inventor-from-iau