



جامعة الإمام عبد الرحمن بن فيصل  
IMAM ABDULRAHMAN BIN FAISAL UNIVERSITY



SDG 7

Affordable & Clean  
Energy

Sustainable  
Development Report  
2022-2023



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## 1. Clean Energy Patent registered by United States Patent Office for an inventor from IAU

United States Patent Office registered a patent to the Associate Professor of Organic Chemistry at IAU, Dr. Asma Al-Sharif, 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.

Dr. Asmaa Al-Sharif indicated that the idea of the invention includes producing and preparation of advanced nanomaterials consisting of carbon nanotubes grafted with acrylic acid and acrylamide polymer to act as nano filters remove and absorb toxic phenolic materials from industrial wastewater which pose a threat to living organisms, pointing out that the toxic phenolic compounds is one of the most important serious problems of industrial wastewater, as it is used in many different industries, and therefore it is necessary to get rid of these compounds for avoiding health risks.

She explained that this technology is promising for water desalination and purification companies and industrial wastewater plants, and it saves effort and time, highly effective and low cost. Thus, it achieves sustainable development and production of treated water, indicating that the most prominent feature of this invention beside low cost it is easily to be prepared in research laboratories compared to preparing other nanomaterials, which need expensive devices and equipment and complex preparation methods.

Al-Sharif confirmed the possibility of benefiting from these nano-filters several times and recycling them while maintaining their high efficiency and thus achieving sustainable development and production of treated water, which has a significant environmental impact, with a great possibility to apply this invention due to its environmental importance in production of treated water along with economic cost.

It is noteworthy that Al-Sharif, who obtained the patent, is an associate professor of organic chemistry at Imam Abdul Rahman bin Faisal University and obtained a specialized certificate in clean energy from the Massachusetts Institute of Technology in the United States of America. She has many published research articles in field of organic preparations and clean energy. She worked as a

visiting researcher and participated at many conferences in several countries around the world.



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

## 2. IAU Organizes an Exhibition and Workshops to Increase Environmental Awareness

Imam Abdulrahman bin Faisal University is taking part in the activities of the Saudi Environment Week, which was launched under the patronage of His Royal Highness Prince Saud bin Nayef bin Abdulaziz Al Saud, Governor of the Eastern Province, under the theme "Our Environment is our Responsibility". The event was organized by the branch of the Ministry of Environment, Water, and Agriculture in the Eastern Province at Al-Khobar Corniche.

Dr.Eng. Tufail bin Youssef Al-Yousef, Chairman of the Participating Committee, and General Supervisor of Public Relations and Media (IAU) Said: the university's participation this year came under the guidance of His Excellency Dr. Abdullah bin Muhammad Al-Rubaish, President of the University. He noted that a committee was formed to organize the participation and

contribution of the university in this key event. The university highlighted its efforts for increasing knowledge of the most important environmental issues in the Kingdom and stimulating environmental commitment. It showcased a number of its sustainable initiatives to support the "Green Saudi Arabia" initiative, launched by His Royal Highness Prince Mohammed bin Salman, the Crown Prince. Another initiative is the "Green University without Carbon," which aims to activate the university's smart afforestation model and launch a mobility service using clean energy bicycles and e-scooters, by the Deanship of Community Service and Sustainable Development.

The university also initiated a number of student projects in which students from the College of Architecture and Planning participated by presenting their innovative design projects for resorts and residential schemes in the Eastern Province, with the goal of contributing to desertification reduction and stimulating tourism diversity in the province, and creating job opportunities for the local community. Also, students from the College of Public Health's Department of Environmental Health, presented a number of projects to reduce the negative effects of climate change on the Kingdom of Saudi Arabia and Arab countries. Students from the College of Engineering presented a variety of engineering projects focusing on indoor air quality, renewable energy projects, and waste transformation using environmentally friendly technologies.

The pavilion displayed several patents obtained by university employees, including the ecological tree for the production of electric power and air purification, as well as the patent that uses green plants treated with nano-titanium oxide to remove air pollutants.

A scientific program presented by a number of university environmental specialists is also included in the participation. Dr. Wafaa Al-Tisan, Associate Professor of Plant Environment from the College of Science, gave a lecture on the first day titled "The Environment is a National Decision for a Sustainable Future Vision," and a number of environmental awareness topics were covered during the event.

Dr. Al-Yousef went on to say that this year's participation was part of the university's important role in preserving the environment through its academic projects, colleges, and employees, as it was eager to prepare all means to preserve the



environment in its buildings and facilities and to clarify the importance of this through messages and year-long awareness initiatives. Al-Youssef urged community members and specialists to take advantage of the exhibition, which is being held to protect the environment and this land so that everyone can live in a society that understands the value of the environment.

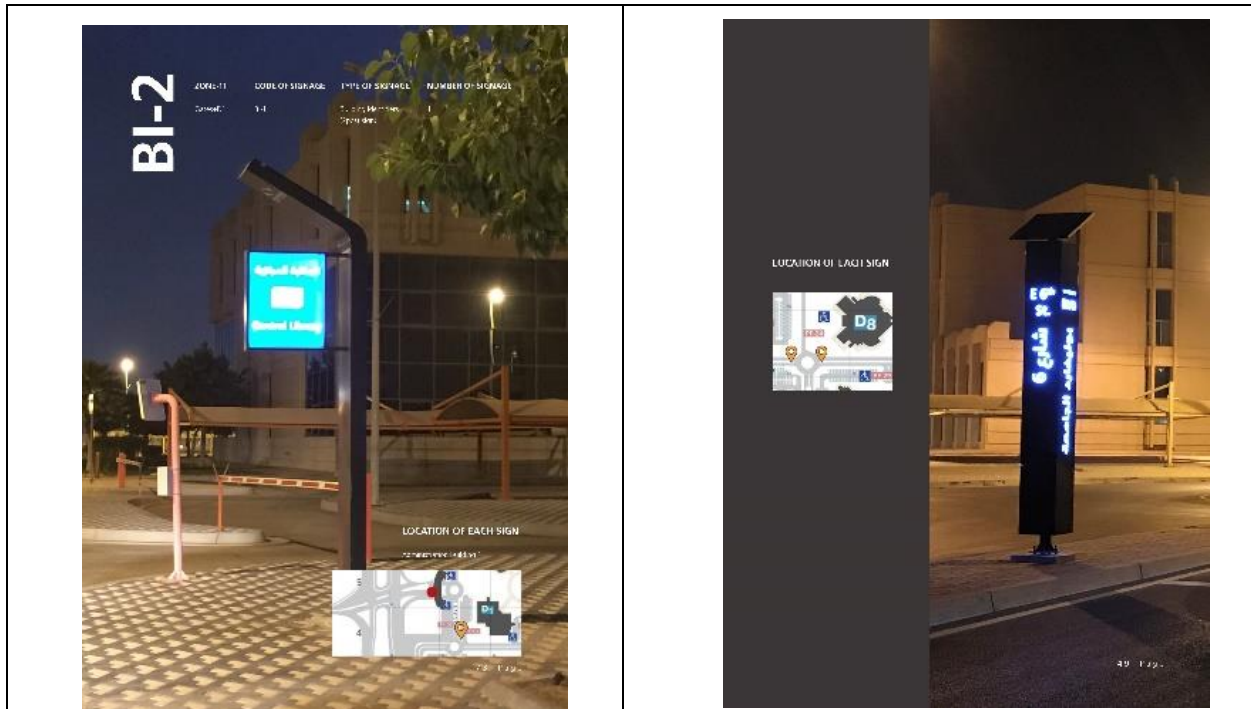


<https://www.iau.edu.sa/en/news/iau-organizes-an-exhibition-and-workshops-to-increase-environmental-awareness>

### 3. Clean Energy through Solar Panels



**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**



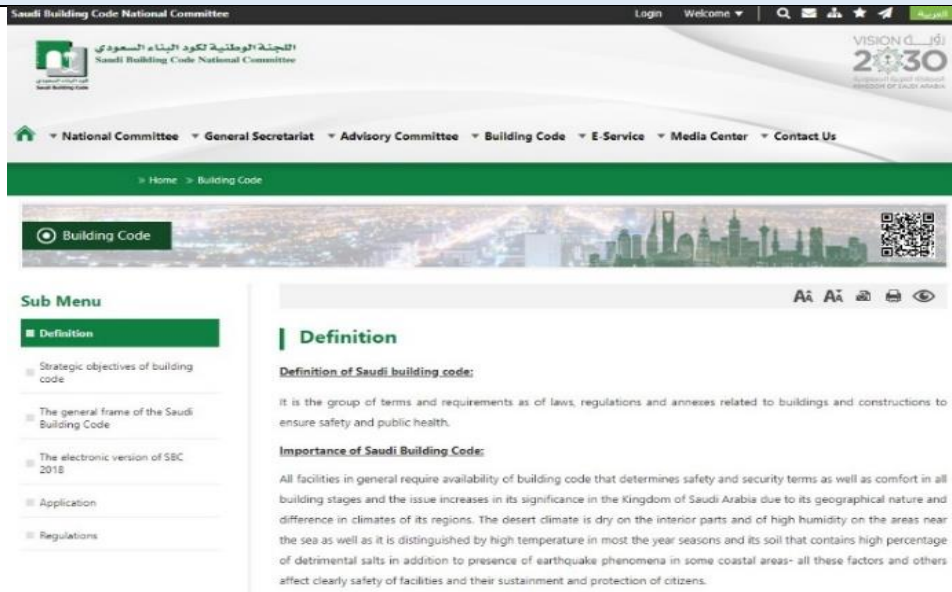
**DAY-VIEW OF SOLAR OUTDOOR SIGNAGE IN IAU CAMPUS**



## 4. Elements of Green Building Implementation as Reflected in All Construction and Renovation Policies



Natural Ventilation in the class room and office corridors



IAU follow Saudi Building Standards in all his buildings

## 5. E-scooter means of Transport to save energy

Dr. Abdullah Al-Rubaish, president of Imam Abdulrahman Bin Faisal University, Dammam, launched the Smart Mobility initiative at the lobby of the College of Architecture and Planning on the university campus here on Wednesday.

The initiative, which was commissioned by the Deanship of Community Service and Sustainable Development, comes as part of using clean energy within the university campus and make available its health benefits to the members of the campus community.

Dr. Al-Rubaish said that the university launched the pilot phase of the smart mobility service so as to achieve the Kingdom's Vision 2030 towards providing new opportunities for transportation.

"This is through generating clean energy within the university campus by bicycles and e-scooters with the WAYZ application, which will facilitate for its users the rapid mobility feature at the university through an electronic mobile application," he added.

For her part, Dr. Fatima Bint Abdullah Al-Mulhim, head of the Deanship of Community Service and Sustainable Development, said that the new experiment is based on using clean energy for the mobility inside the university campus.

"We launched earlier the initiative of 'Green University without Carbon,' under which these scooters, which are charged and operated with solar energy will be used. It is a service available to all educational and administrative staffers of the university as well as to male and female students," she said.

She noted that it has many health benefits, including the fight against obesity and the promotion of being environmentally friendly and serving the members of society with its environment.

According to Dr. Fatima, the goal is also to be sustainable through the presence of solar-powered stations.

"Today is the beginning of an experimental start and work is continuing in order to equip stations to charge these devices powered by solar energy.

"All the university people, including male and female students, administrators and members of the educational staff, as well as university security personnel, will benefit from this service.

This will facilitate their freedom of movement without cars, and the initiative received a lot of encouragement and demand," she said while noting that safe corridors have been provided inside the university campus.

"This is one of our priorities to ensure the safety of the beneficiaries of this service, and it will be included in the first stage inside the university campus until the infrastructure and private roads are provided at the university for this type of initiative that is reflected in reducing the proportion of carbon.

"Now we are in the process of working with faculty members who obtained a patent in measuring carbon levels in the atmosphere, and we aim for the measurements and they will be returned according to the research scheme prepared for that," she added.



An initiative IAU GREEN without CO2, inaugurated by H.E. the President of IAU



E-Scooter initiative in IAU, in an effort to reduce Greenhouse gas emission



## 6. Initiative: A Green University without Carbon

Imam Abdulrahman bin Faisal University, represented by the Deanship of Community Service and Sustainable Development, in cooperation with the Ministry of Environment, Water and Agriculture, Eastern Region Branch, and the "Nabatak" digital platform, continued the reforestation campaign for the second month, which was launched by the President of Imam Abdulrahman bin Faisal University, Dr. Abdullah Al-Rubaish under the slogan "A Green University Without Carbon" last September, in conjunction with the Kingdom's celebrations of the 91st National Day.





The president of the university, Dr. Abdullah Al-Rubaish:

Al-Mulhim added that the campaign attracted more than 500 volunteers, from members of the educational and administrative staff, male and female students, which reflected the extent of the love of giving and volunteering in the hearts of the employees and their awareness of the importance of volunteer work and the serious pursuit of everyone for the importance of having a clear imprint in light of the global crises and their challenges and their importance in the development process. Which the Kingdom is witnessing, under its wise leadership, which attaches to building the homeland and strengthening its civilized presence its first priority in harnessing scientific and practical energies and directing them in the appropriate path for them.

