



جامعة الإمام عبد الرحمن بن فيصل
IMAM ABDULRAHMAN BIN FAISAL UNIVERSITY



SDG 7.2.4

Plan to reduce Energy
Consumption

2022-2023

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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 Active Participation in Global Event to the rationalization of Energy Consumption

The given IAU Webpage link (refer to 1st paragraph) shows the participation of IAU in Earth Hour, a global event by turning off external and unnecessary lights of the university campuses buildings for one hour. This attempt contributes to the rationalization of energy consumption to confront global warming.



<https://www.iau.edu.sa/en/news/iau-participates-in-earth-hour-by-turning-off-buildings-lights>

3. 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:

SHUTTLE OPTION 1

Shuttle V Electric Transit Buddy 13 Passenger LE Hand Door Shuttle




SHUTTLE OPTION 2

Marsheel DM-13C Series 13-Seater Enclosed Electric Resort Car



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



4. 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.

Home / Administration / Centers / Institute of Consulting Studies / Services / Experience Houses / Consulting Center for Buildings Energy

Institute of Consulting Studies

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Consulting Center for Buildings Energy

About

It is a body accredited by IAU Institute of Consulting Studies to deliver training and consulting services in field of engineering related rationalization of energy consumption.

Vision

Toward a specialized hub for consulting services and training in field of buildings energy.

Mission

High quality services of innovative methods for achieving development socially, economically, and environmentally.

Objectives

- To invest the capabilities available at the university in terms of laboratories, simulation software,

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

5. Signed a memorandum of understanding with the Gulf Laboratory Company for Electrical Equipment Inspection.

His Excellency the President of IAU Prof. Dr. Abdullah Al-Rubaish, signed a memorandum of understanding with the **Gulf Laboratory Company for Electrical Equipment Inspection**. The company was represented by CEO Eng. Saleh Al-Omari, in the presence of the Dean of the College of Engineering, Dr. Murad Al-Thubaiti.



3:21 PM - Oct 24, 2022

https://twitter.com/IAU_KSA/status/1584520569055490048

6. 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





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

PART B

<p>GATEWAY SIGNS</p> <p>DIRECTIONAL SIGNS</p> <p>CAMPUS MAPS</p> <p>BUILDING IDENTIFIERS</p>	
<p align="center">OUTDOOR SIGNAGE IN C1-EAST CAMPUS</p>	

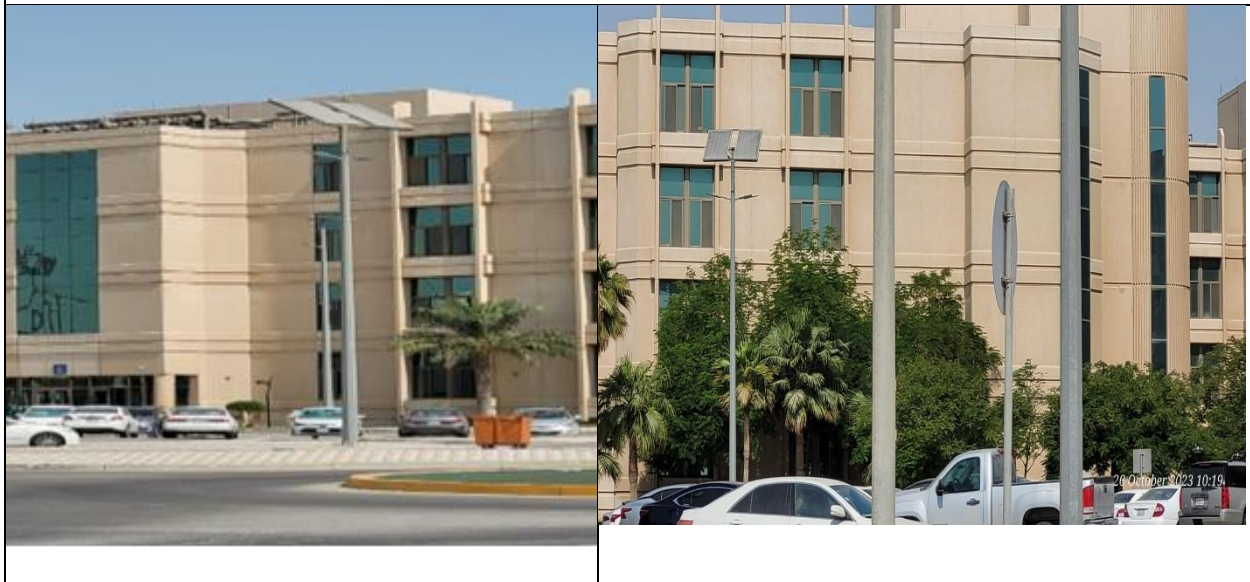


Example of Energy Efficient Appliances Usage: Solar energy for map direction and board and light outside

EXAMPLES OF SIGNAGE & SOLAR LIGHTS IN IAU CAMPUS

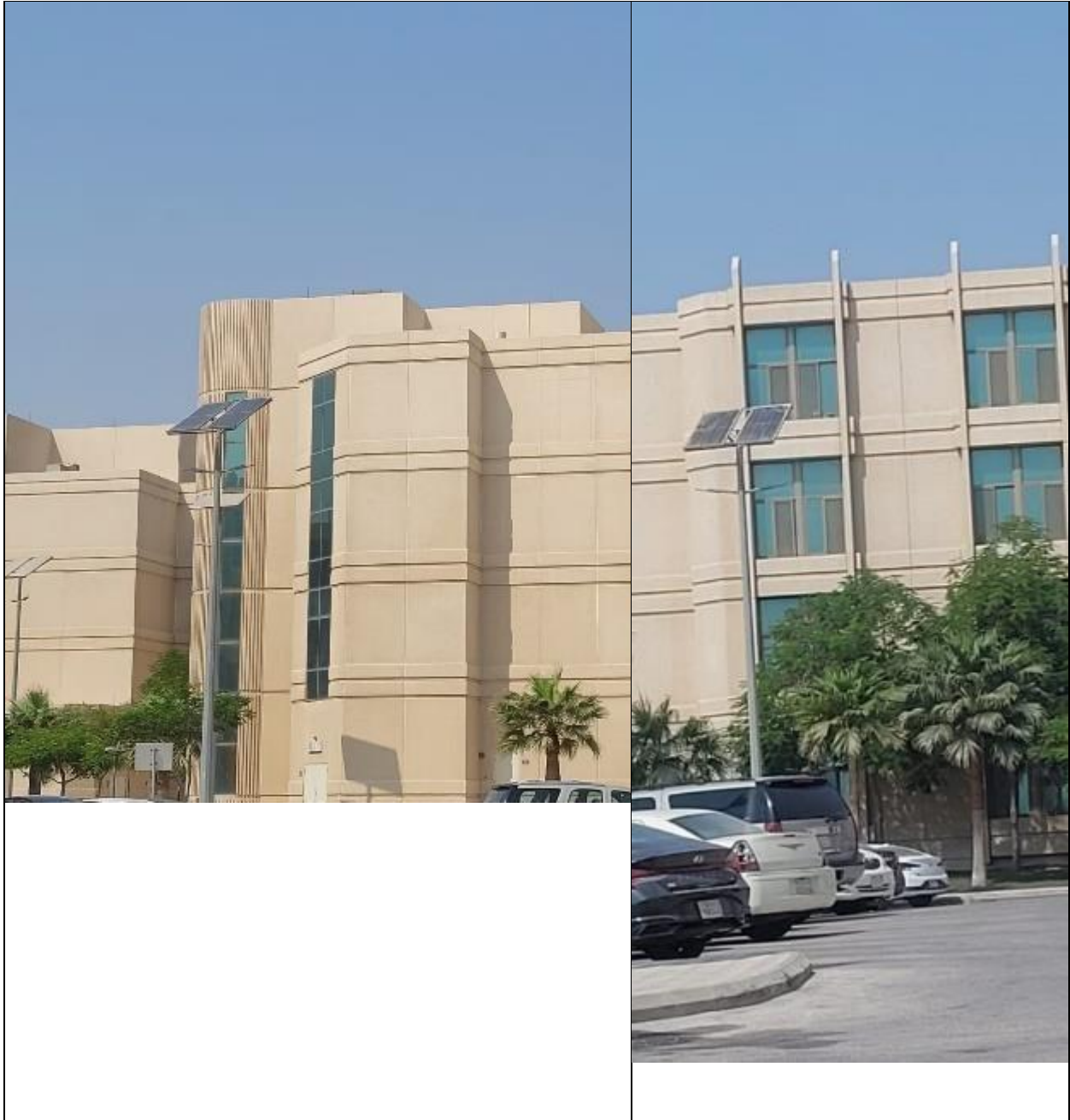
https://www.iau.edu.sa/sites/default/files/resources/energy_efficient_building.pdf

7. Renewable Energy Sources in IAU Campus





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.



**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.



8. Mechanical and Energy Engineering Laboratories at IAU

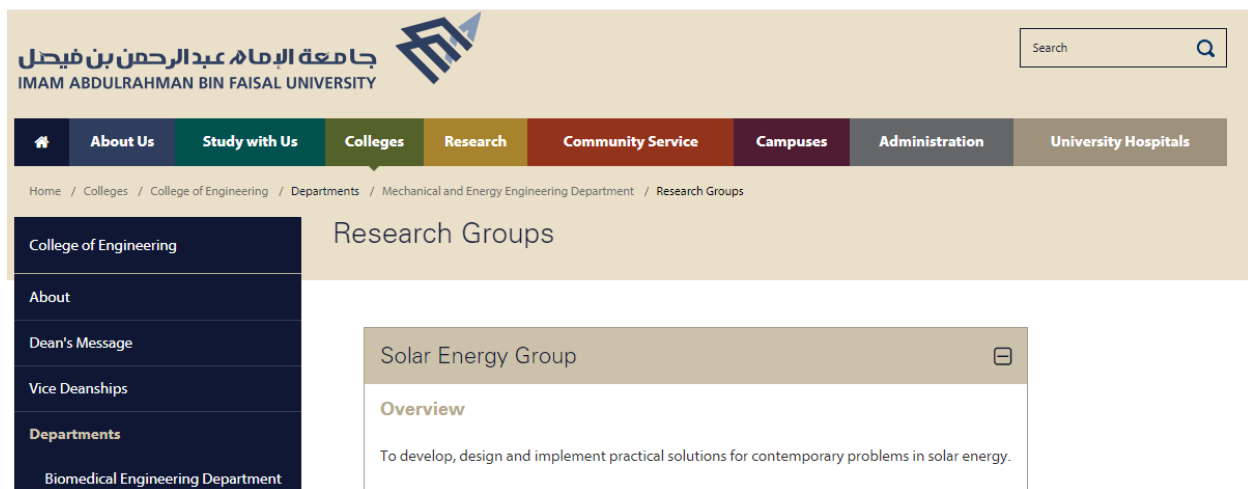
The given webpage link (refer to Mechanical and Energy Engineering Laboratories) shows the presence of the **Mechanical and Energy Engineering Laboratories** in the College of Engineering of IAU. Among various labs, **the renewable energy lab** is the one that has essential equipment with full instrumentation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

The screenshot shows the website for the Mechanical and Energy Engineering Laboratories at Imam Abdulrahman Bin Faisal University. The page has a dark blue sidebar with a menu including 'College of Engineering', 'About', 'Dean's Message', 'Vice Deanships', 'Departments', 'Programs', 'Academic Calendar & Registration Scheule', 'Labs and Equipment', 'Biomedical Engineering Laboratories', 'Civil & Construction Engineering Laboratories', and 'Environmental Engineering'. The main content area is titled 'Mechanical and Energy Engineering Laboratories' and lists five labs: Thermodynamics Lab, Fluid Mechanics Lab, Refrigeration and Air Conditioning Lab, Heat and Mass Transfer Lab, and Renewable Energy Lab. The Renewable Energy Lab section is expanded to show an 'overview' with the text: 'The Renewable Energy lab houses some essential equipment with full instrumentation to allow'.

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

9. Research Groups at IAU for Renewable Energy

The given webpage link (refers to research groups section) shows the presence of the **research groups** in the College of Engineering of IAU. The research groups include **solar energy group, wind energy group, and air conditioning and energy storage group**. These research groups aim to develop, design, and implement **practical solutions for contemporary problems** in solar energy, wind energy, and air conditioning and energy storage. The objectives of these groups encompass conducting **market-relevant commercial research**, supervising students, cooperating with research, and publishing high-quality papers.



The screenshot shows the website interface for Imam Abdulrahman Bin Faisal University. The top navigation bar includes links for About Us, Study with Us, Colleges, Research, Community Service, Campuses, Administration, and University Hospitals. The breadcrumb trail indicates the path: Home / Colleges / College of Engineering / Departments / Mechanical and Energy Engineering Department / Research Groups. The main content area displays the title "Research Groups" and a card for the "Solar Energy Group". The card includes an "Overview" section with the text: "To develop, design and implement practical solutions for contemporary problems in solar energy."

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

10. 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	05 Physical, chemical, and biological procedures and mechanisms accountable for the proclamation, conveyance, alteration and preservation of pollutants.
02 Professional training for environmental specialists and technicians	06 Pollutant control procedures (predominantly the exclusion of trace & toxins or pollutants).
03 Short and long Certificate programs in environmental specialists and engineering field	07 Basic ideologies of physical, chemical, and biological conduct know how for water, wastewater and solid wastes scums or residues from different sources.
04 Third-party inspection and opinion work to ensure compliance with the project specifications, codes, and standards.	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.
- Industrial waste collection and disposal
- Landfill and incineration design
- Medical waste management, disposal, and incineration
- Best applicable technology
- Radioactive waste management
- Oil waste management and reuse
- 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 modeling, 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 Modelling
- 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



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Integrated Environmental Solutions and Consultancy office

One-Stop-Shop.
Backed up with our well-equipped laboratories enables us to test and diagnose prior to consultation



FLIP LINK
<https://simplebooklet.com/Y3PjySVJ0PTkaCE6vOKo5y>

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

11. 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>

12. Conducting Workshops on Energy Efficiency and Sustainability

1. Workshop on “The Sustainable Kingdom”:

Under the patronage of His Excellency the President of IAU and in the presence of the Vice President of the University for Development and Community Partnership, Dr. Nihad Al-Omair and the College of Engineering

organized a workshop entitled: **“The Sustainable Kingdom”** in cooperation with **Saudi Aramco**, at the headquarters of the College of Architecture and Planning.



https://twitter.com/IAU_KSA/status/1605518297738248192

https://twitter.com/IAU_KSA/status/1604409270782640129

2. Workshop on Energy Efficiency:

The Engineering Club, in cooperation with the **Saudi Center for Energy Efficiency**, invites you to attend the **'Energy Efficiency' workshop** in Al-Khwarizmi Hall in the College of Engineering.



2030
النادي الهندسي
مركز كفاءة الطاقة السعودي

كفاءة
النادي الهندسي
مركز كفاءة الطاقة السعودي

يدعوكم النادي الهندسي
بالتعاون مع المركز السعودي لكفاءة الطاقة لحضور ورشة:
كفاءة الطاقة

ماجد عبدالله الهويمل
خبير توعوي

راكان حمود الحربي
خبير تنمية قدرات بشرية

الدعوة عامة

6 نوفمبر 2022
قاعة الخوارزمي

الأحد
12:00 م

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@EC_iau

https://twitter.com/EC_club_iau/status/1588485055260811266

