

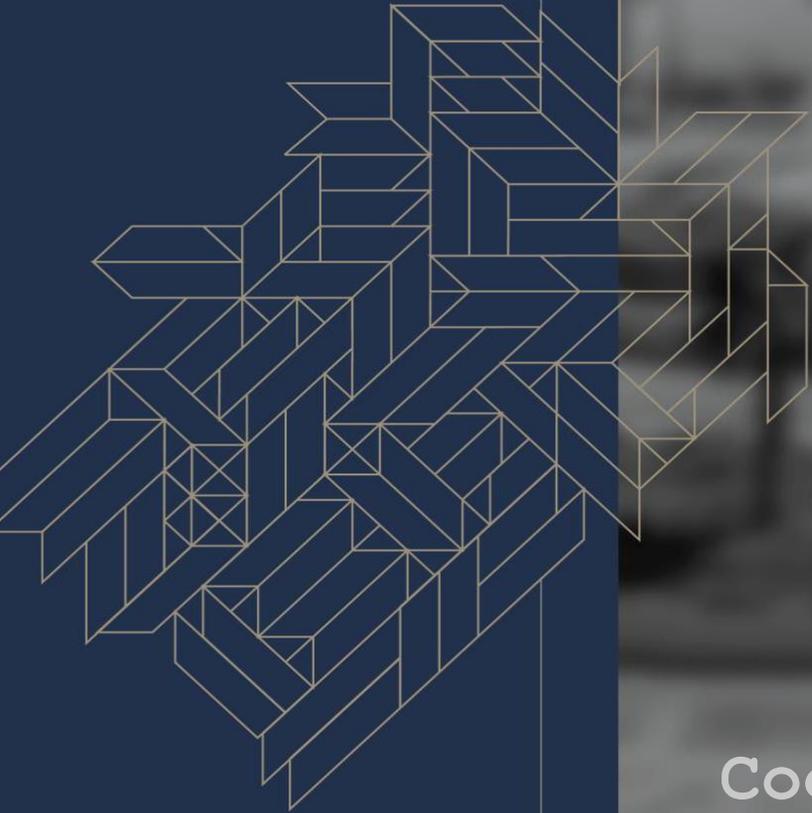


جامعة الإمام عبد الرحمن بن فيصل

IMAM ABDULRAHMAN BIN FAISAL UNIVERSITY

عمادة خدمة المجتمع والتنمية المستدامة

Deanship of Community Service and Sustainable Development



SDG 6.5.5

Cooperation on Water  
Security

2023-2024

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## 1. Introduction

IAU cooperate with local, regional, national or global government on water security. It actively works along with government to sustain water security.

### Local

## 2. Memorandum of Understanding between IAU and Ministry of Environment, Water and Agriculture



### 3. Report on IAU's Water Consumption Rationalization Initiative



وزارة التعليم  
Ministry of Education  
043

جامعة الإمام عبد الرحمن بن فيصل  
IMAM ABDURRAHMAN BIN FAISAL UNIVERSITY

المملكة العربية السعودية  
Kingdom of Saudi Arabia

الإدارة العامة للمباني - General Administration of Facilities

#### تقرير عن مبادرة ترشيد استهلاك المياه بالجامعة

المحترم سعادة / المستشار للشؤون الفنية المشرف العام على الإدارة العامة لخدمات

السلام عليكم ورحمة الله وبركاته؛

اشارة إلى شرح سعادتك رقم 2559 في 1446/5/8هـ بشأن برقية معالي وزير البيئة والمياه والزراعة ن رئيس مجلس إدارة المركز الوطني لكفاءة وترشيد المياه رقم 25000300 وتاريخ 1446/4/26 المتضمنة بان المركز يعمل على تكريم الجهات التي ساهمت في تحقيق مستهدفات مبادرة ترشيد استهلاك المياه في الجهات الحكومية للوصول الى مستهدف الترشيد لعام 2024 بنسبة 10 % من استهلاك الجهة للحفاظ على الثروة المائية واستدامتها طلب تزويد المركز بالجهود التي تمت في مجال ترشيد استهلاك المياه واسهمت في تحقيق مستهدفات المبادرة المشار اليها.

نفهد سعادتك بان الإدارة العامة للمباني قامت باتخاذ عدد من الإجراءات للعمل على تنفيذ المبادرة كما ان بعض الاعمال التي تقوم بها الادارة تسبب في تنفيذ المبادرة وتسهم في تحقيق مستهدفاتها على النحو التالي:

**أولاً: بشأن المبادرات المضمنة:**

1. تم تعيين منسق عام ( م / محمد بن عبد الله الوهيب) مسؤولاً عن متابعة تنفيذ مبادرات ترشيد استهلاك المياه على مستوى الجامعة مع فريق عمل يتكون من منسق لكل موقع.
2. تم تخفيض ضغوط تشغيل شبكات المياه داخل مباني الجامعة بكل المواقع بحيث تقلل من معدلات التصريف للمياه.
3. تم تشغيل محطات التحلية والتي تخدم بعض المواقع على أعلى نسب استرجاع متاحة فنياً بالتنسيق مع الشركات المتخصصة ويجري متابعتها.
4. يتم استخدام مياه الآبار ومياه الصرف الصحي المعالجة في المواقع المتوفرة بها في عمليات الري للزراعات.
5. يتم استخدام المياه الغير معالة في أعمال الغسيل العادية.
6. توجد شبكة مياه معلاة خاصة بالمعامل والمطابخ الخاصة وهي مفصولة عن شبكة الاستخدام العام.
7. تم التواصل من قبل مسؤول مبادرات الترشيد مع شركة المياه الوطنية لتزويد الجامعة بأدوات الترشيد اللازمة لديهم.
8. تم التعميم على تضمين المواصفات للمباني والمشاريع الجديدة استخدام صناديق الطرد الأقل حجماً في استخدام المياه واستخدام صناديق المياه الموفرة الميكانيكية.
9. في كل المباني الجديدة يتم فصل شبكة المياه الرمادية عن السوداء تمهيداً لإعادة استخدامها ببعض الخدمات بالمباني وهي تحت التطوير.
10. تم تحديث شبكات المياه وإطفاء الحريق المتراكمة بمعظم مواقع الجامعة ويجري استبدال البالي طبقاً لخطة الاحلال بالجامعة.
11. يتمثل الساكن المؤمن له سكن من مسوبي الجامعة تكاليف فاتورة استهلاك المياه.

الرسم: 2009  
التاريخ: 2024/05/01  
المشرف على: [Signature]

الرقم: Dammam 31441 P.O.Box 1982 www.iau.edu.sa  
Fax: +966 13 333 0333 Tel: +966 13 333 0000 info@iau.edu.sa

VISION رؤية  
2030

**Water Consumption Rationalization Initiative at IAU according the Ministry of Environment, Water, and Agriculture, KSA**

#### 4. Field Visit to the Marine Pollution Control Department at Aramco by IAU Faculty and Students



##### **Field Visit to the Marine Pollution Control Department at Aramco by IAU Faculty and Students**

I had the honor of organizing a field visit to the Marine Pollution Control Department at Aramco - Tanura Opinion. Many thanks to Aramco for allowing the future engineers to have this unique experience and wonderful organization.

<https://twitter.com/Omer2AGA/status/1755169090157637914>

## 5. Visit of the Delegation of the Saline Water Conversion Corporation to IAU

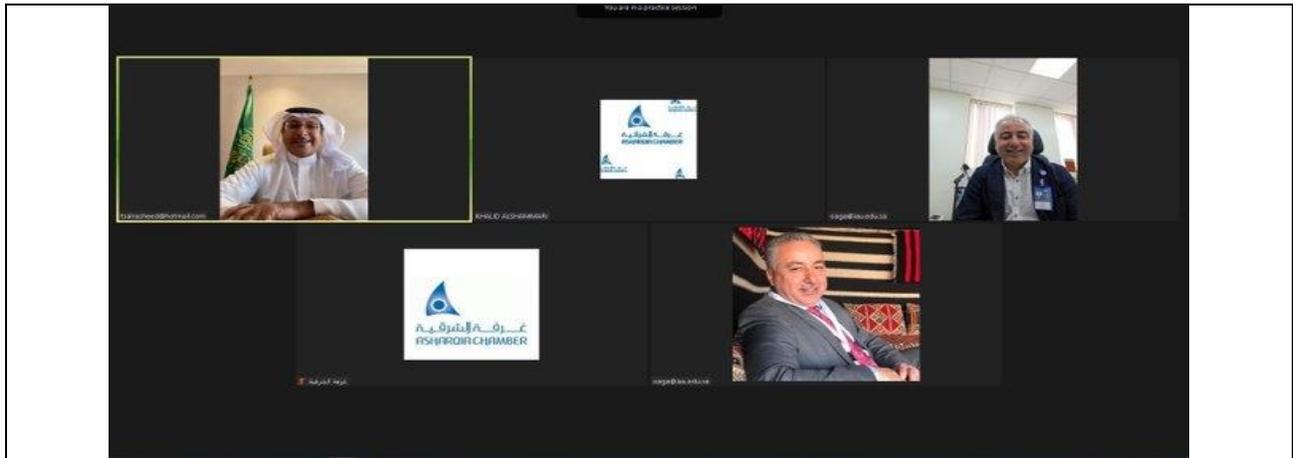


### **Visit of the Delegation of the Saline Water Conversion Corporation to IAU**

Part of the visit of the delegation of the Saline Water Conversion Corporation to Imam Abdulrahman Bin Faisal University, which included a tour of: 1) Research Center, Faculty of Science, 2) Faculty of Computer Science and Information Technology, 3) Faculty of Engineering

[https://twitter.com/IAU\\_KSA/status/1604581022351368192](https://twitter.com/IAU_KSA/status/1604581022351368192)

## 6. IAU meeting with Environmental Committee at Eastern Chamber for Sustainability



 An event flyer for a meeting. At the top left is the logo for the Eastern Chamber for Sustainability (ASHARQIA CHAMBER). The main text in Arabic reads: "دعوة لقطاع الأعمال للمشاركة في لقاء يستعرض .. الفرص المستدامة وإيجاد الحلول للمشاكل البيئية للصناعات بالمنطقة الشرقية". Below this, two speakers are listed: "أ. طلال الرشيد" (Mr. Tawfiq Al-Rashid) and "أ. د. عمر آغا" (Dr. Omar Agha). A QR code is provided for registration. At the bottom, there is a section for "الرعاة الرئيسيون لإعلانات العرفة" (Main Sponsors) listing various organizations like Asharqia Chamber, Asharqia Group, and others.

### IAU Participation in the Meeting Organized by Environmental Committee at Eastern Chamber for Sustainability

The College of Engineering, IAU had participated in a meeting organized by the Environmental Committee at Eastern Chamber on Sustainable Opportunities and Solutions to Environmental Problems for Industries in the Eastern Province.

<https://twitter.com/AsharqiaChamber/status/1706659305737638113>

<https://twitter.com/AsharqiaChamber/status/1704861814368932103>

## National

# 7. Rehabilitation of IAU Buildings with Water Conservation/Saving Devices according to the National Water Company



وزارة التعليم  
 Ministry of Education  
 043

**جامعة الإمام عبد الرحمن بن فيصل**  
 IMAM ABDULRAHMAN BIN FAISAL UNIVERSITY

المملكة العربية السعودية  
 Kingdom of Saudi Arabia

الإدارة العامة للمباني - General Administration of Facilities

**ثانياً: فيما يخص إعادة تأهيل المباني:**

1. تم التعميم على القسم الهندسي و أقسام الصيانة والتشغيل تضمنين المواصفات لعمليات إعادة التأهيل للمباني القديمة استخدام المراحل الأكثر كفاءة والصفقات الموفرة.
2. جاري التنسيق مع الشركة الوطنية للمياه لاستخدام أدوات الترشيد المتاحة لديهم عند استبدال التالف من صنادير المياه او ما يتم استبداله طبقاً لبرامج الصيانة.
3. جاري دراسة تركيب عدادات بعض المناطق والمباني لمتابعة الاستهلاك لكل مبنى على حدة.
4. يتم استخدام مياه الآبار في عمليات الغسيل في المواقع المتوفرة بها آبار للمياه.

**ثالثاً: فيما يخص التغييرات في البنية التحتية:**

1. تقوم فرق الصيانة وكذلك فرق الطوارئ بكل موقع من مواقع الجامعة بمرأية والنهية عن التسريبات في البنية التحتية او الانابيب الخارجية أولاً بأول ومتابعة الاصلاح.
2. يتم متابعة أداء شبكات المياه بشكل مستمر من خلال فرق وبرامج الصيانة والمتابعة والاابلاغ عن التسريبات بالخطوط ومعالجتها.
3. سيتم التواصل بشكل دوري من خلال مسؤول متابعة تنفيذ المبادرات بشركة المياه الوطنية لتحديث كافة الأدوات والبرامج الخاصة بترشيد استهلاك المياه.
4. جاري العمل على وضع مقياس لكل مبنى يمكن فصله على حدة لمتابعة الاستهلاك وتحديد الوفورات لكل مبنى والوقوف على أية تسريبات قد لا تكون ظاهرة.

والله الموفق وعلى هذا جرى التوقيع.

م / حسام الاحمري	مدير التشغيل والصيانة
م / محمد الوهيب	مُنسق مبادرات ترشيد المياه
م / علي السليمان	مستشار المر افق والميكانيكا

مدير المشاريع  
م / كاظم اليوسف

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الرضخ:  
 التاريخ:  
 المصفوحات:




## Rehabilitation of IAU Buildings with Water Conservation Principles

## 8. IAU in cooperation with the Saudi Water Academy for "Generations Summer Program" for Children



جامعة الإمام عبد الرحمن بن فيصل  
IMAM ABDURRAHMAN BIN FAISAL UNIVERSITY  
مركز التعليم المستمر  
Continuing Education Center

Kids | الأكاديمية السعودية للمياه  
SAUDI WATER ACADEMY

# برنامج أجيال الصيفي

يسر مركز التعليم المستمر بجامعة الإمام عبد الرحمن بن فيصل وبالتعاون  
الأكاديمية السعودية للمياه عن إطلاق برنامج أجيال الصيفي

### الأنشطة التدريبية

- البرمجة باستخدام روبوت كويكو
- قياس الرقم الهيدروجيني في السائل
- تحدي القيادة باستخدام الليجو
- روبوت اسفيرو وملعب كرة القدم
- بطارية الليمون من باسكو
- الواقع الافتراضي وللعزز
- النزل الأخضر

التسجيل وللإعلامات

موقع التدريب  
جامعة الإمام عبد الرحمن  
بن فيصل - مركز التعليم  
المستمر - 879

سعر البرنامج  
350 ريال  
لطاقم محدودة

الفئة المستهدفة  
الأطفال من  
7 - 12 سنوات

موعد البرنامج  
14 يوليو 2024  
9:00AM - 12:00PM  
15 ساعة تدريبية

الهيئة السعودية للمياه  
Saudi Water Authority

SAUDIWACD | WWW.SWACADEMY.COM

### IAU in cooperation with the Saudi Water Academy for "Generations Summer Program" for Children

The Continuing Education Center is pleased to #Imam\_AbdulRahman\_Bin\_Faisal\_University In cooperation with the Saudi Water Academy. The announcement of the launch of "Generations Summer Program". The Target group is Children from (7 years to 12 years).

[https://twitter.com/IAU\\_KSA/status/1808112744589070344](https://twitter.com/IAU_KSA/status/1808112744589070344)

## Regional

### 9. IAU Participation in the Middle East Water Week Conference and Exhibition



#### IAU Participation in the Middle East Water Week Conference and Exhibition

The Environmental Engineering section of Faculty of Engineering Imam Abdulrahman Bin Faisal University participated in the Middle East Water Week Conference and Exhibition and presented a number of projects aimed at treating water.

[https://twitter.com/CE\\_IAU\\_SA/status/1736717131863962024](https://twitter.com/CE_IAU_SA/status/1736717131863962024)

## 10. IAU Active Participation in the “EnviroSpill” Conference and Exhibition under the patronage of Minister of Oil and Environment at Bahrain



### Participation of IAU Engineering College Students in the EnviroSpill Conference and Exhibition at Bahrain

Part of the participation of College of Engineering students of IAU in the conference sessions specialized in combating pollution through the EnviroSpill Conference and Exhibition, which was held in the Kingdom of Bahrain to learn about the latest technologies in combating oil spills under the patronage and attendance of His Excellency the Minister of Oil and Environment in Bahrain.

[https://twitter.com/IAU\\_KSA/status/1582358003483029504](https://twitter.com/IAU_KSA/status/1582358003483029504)

## Global

### 11. Services provided by Wastewater / Organic Analysis Lab of IAU

The IAU Environmental Engineering Laboratory is a teaching & research facility that affords students pro-active prospects to explore for all kinds of fields comprising of **water treatment, solid waste, wastewater treatment, and air-pollution control**. The IAU comprises of nine laboratories with necessary sufficient space, instrumentation, and other dedicated devices for laboratory courses offered in the undergraduate program: water chemistry, environmental microbiology, physical and chemical processes, and microbiological processes, in addition to the usual analytical equipment and other pilot-scale treatment modules.

#### Wastewater/Organic Analysis Lab

##### *Equipment/Service*

- Gas chromatography coupled with mass spectrometry (GC-MS)
- Ion chromatography
- High-performance liquid chromatography (HPLC)
- Radioactivity Meter
- Solid phase extraction system
- Furnace
- Rotary evaporator
- Automatic titration unit

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

#### Laboratory Analysis and Environmental Services offered by IAU

[https://www.iau.edu.sa/sites/default/files/resources/price\\_list\\_for\\_env\\_analyses\\_-\\_2017.pdf](https://www.iau.edu.sa/sites/default/files/resources/price_list_for_env_analyses_-_2017.pdf)

## Wastewater/Organic Analysis Lab

### Supervisors

**Dr. Ismail Anil**

**Email:** ianil@iau.edu.sa

**Location:** College of Engineering, A13 Building

### Equipment/Service

- Gas chromatography coupled with mass spectrometry (GC-MS)
- Ion chromatography
- High-performance liquid chromatography (HPLC)
- Radioactivity Meter
- Solid phase extraction system
- Furnace
- Rotary evaporator
- Automatic titration unit

Laboratory Analysis & Environmental Services Price List

### Wastewater / Organic Analysis Lab at IAU

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

## 12. Research Groups of IAU for Water and Wastewater

### Overview

Water and wastewater research group exerting continuous efforts in the areas of water and wastewater treatment.

#### *The main focus area include:*

- Water and wastewater quality monitoring
- Sustainable innovative adsorbents for water purification
- Solar disinfection
- Photodegradation of polyaromatics and pharmaceutical contaminants
- Biodegradation of organic pollutants
- Sewage sludge treatment
- Bio based membranes for desalination

### Objectives

To develop, design and implement sustainable solutions for solving global water and wastewater pollution control and treatment problems.

Vice Deanships

**Departments**

Biomedical Engineering Department

Civil & Construction Engineering Department

**Environmental Engineering Department**

Commercial Services

**Research Groups** >

Senior Design Projects

Students Enrollment and Graduation Data

Department of Basic Engineering Sciences

Mechanical and Energy Engineering Department

Transportation and Traffic Engineering Department

Programs

Academic Calendar & Registration Scheule

### Water and Wastewater

**Overview**

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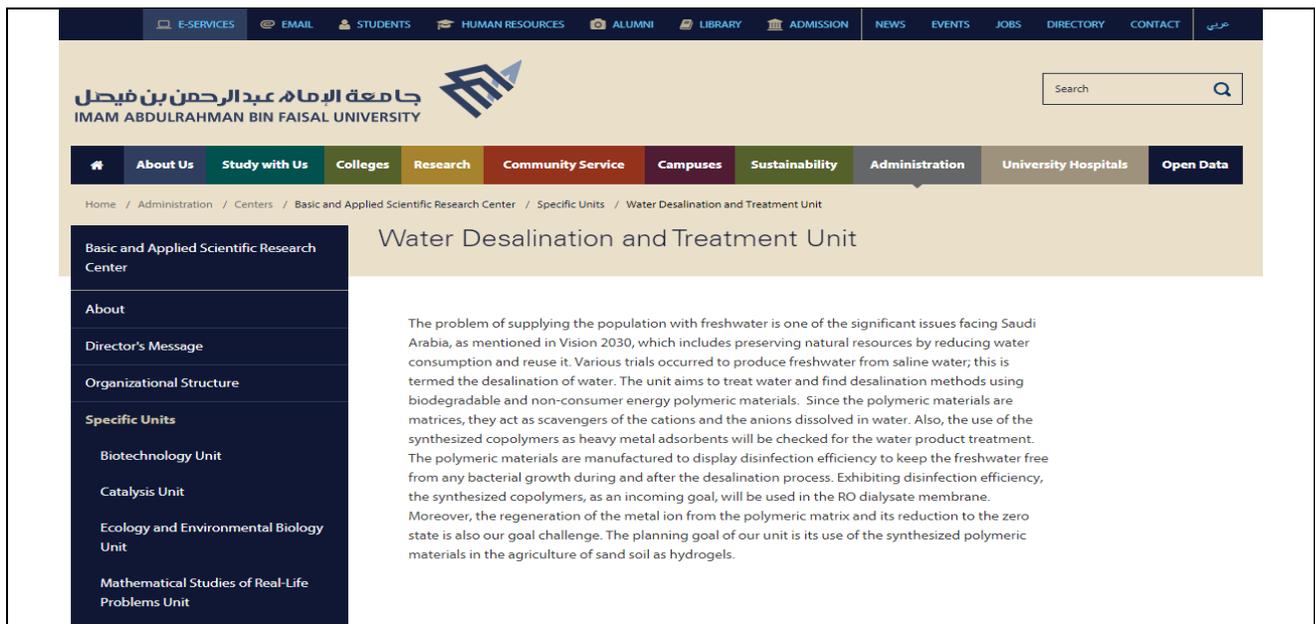
Group Members Names	Position	Contact
Dr. Nuhu	Associate Professor	nmdalhat@iau.edu.sa
Prof. Cevat Yaman	Professor	cyaman@iau.edu.sa

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

## 13. Water Desalination and Treatment Unit of IAU

### Water Desalination and Treatment Unit

The problem of supplying the population with freshwater is one of the significant issues facing Saudi Arabia, as mentioned in Vision 2030, which includes preserving natural resources by reducing water consumption and reuse it. Various trials occurred to produce freshwater from saline water; this is termed the desalination of water. **The unit aims to treat water and find desalination methods using biodegradable and non-consumer energy polymeric materials.**



The problem of supplying the population with freshwater is one of the significant issues facing Saudi Arabia, as mentioned in Vision 2030, which includes preserving natural resources by reducing water consumption and reuse it. Various trials occurred to produce freshwater from saline water; this is termed the desalination of water. The unit aims to treat water and find desalination methods using biodegradable and non-consumer energy polymeric materials. Since the polymeric materials are matrices, they act as scavengers of the cations and the anions dissolved in water. Also, the use of the synthesized copolymers as heavy metal adsorbents will be checked for the water product treatment. The polymeric materials are manufactured to display disinfection efficiency to keep the freshwater free from any bacterial growth during and after the desalination process. Exhibiting disinfection efficiency, the synthesized copolymers, as an incoming goal, will be used in the RO dialysate membrane. Moreover, the regeneration of the metal ion from the polymeric matrix and its reduction to the zero state is also our goal challenge. The planning goal of our unit is its use of the synthesized polymeric materials in the agriculture of sand soil as hydrogels.

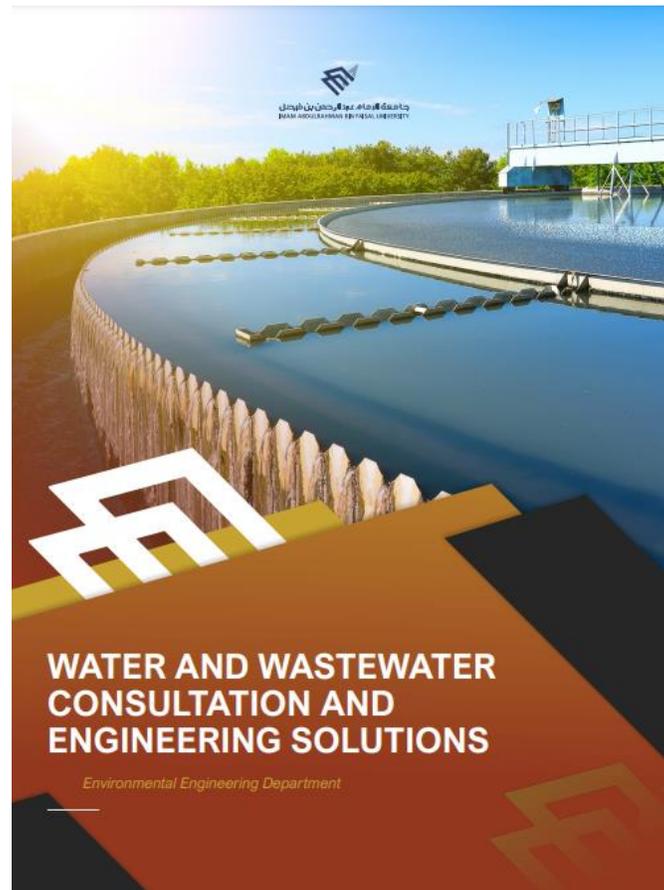
### Water Desalination and Treatment Unit

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<https://www.iau.edu.sa/en/administration/centers/basic-and-applied-scientific-research-center/specific-units/water-desalination-and-treatment-unit>

## 14. Water and Wastewater Consultation and Engineering Solutions by IAU

The **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. **Water and wastewater consultation services and laboratory analysis** are authorized by **General Authority of Meteorology and Environmental protection (GAMEP)**.



## WATER AND WASTEWATER CONSULTATION AND ENGINEERING SOLUTIONS (GAMEP Authorized)

The 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. Water and wastewater consultation services and laboratory analysis are authorized by General Authority of Meteorology and Environmental protection (GAMEP).

### Our services include:

- Analytical testing, troubleshooting & solutions
- Water and wastewater quality monitoring
- Periodic on-site water treatment plant visits
- Evaluation of water treatment processes (including chemical analyses)
- Preparation and results reporting
- Water system maintenance
- Sludge removal and dewatering solutions
- Expert witness

We also offer short courses related to the area of water and wastewater treatment. The office is part of the Integrated environmental solutions and consultancy center established in 2020 by Imam Abdulrahman Bin Faisal University and accredited by the regulatory environmental accreditation body in Saudi Arabia - General Authority of Meteorology and Environmental protection (GAMEP). All laboratory analyses are conducted following an approved environmental laboratory protocol.

### EXAMPLES OF LAB ANALYSIS

Wet analysis	Elemental analysis	Chromatographic analysis	Microbiology & Toxicity analysis
Conductivity	Total Organic Carbon	Fluorine	Total Coliform
Turbidity (NTU)	CHNS Analysis	Chlorine	Fecal Coliform
Total Solids	Sulfur	Bromide	Total Bacteria Count
Suspended & Dissolved Solids	Sulfate	Mineral oils	E. Coli (MPN)
Settleable & Volatile Solids,	Phosphorous	Organics	Chlorophyll a, b, and c
Fixed Solids	Nitrate	PAHs	Fish Biological Experiment
Water Content	COD	PCBs	
pH	Phenol	BTEX	
Ion Mobility	Heavy metals	VOCs	
Zeta Potential	Trace metals		
Acidity			
Dissolved Oxygen			
Color			
Alkalinity			
Total Hardness			

### Wet analysis

Free Chlorine, Total Chlorine, Sulphur, Kjeldahl Nitrogen, Organic Nitrogen, Ammonium Nitrogen, Total Nitrogen, Total Phosphor, Phenols, Oil and Grease, Biological Oxygen Demand (BOD5), Chemical Oxygen Demand (COD), Chromium (VI), Fluoride (F-), Chloride (Cl-), Bromide (Br-), Nitrite (NO<sub>2</sub>-), Nitrate (NO<sub>3</sub>-), Sulfate (SO<sub>4</sub>2-), Phosphate (PO<sub>4</sub>3-) and Cyanide (CN-) are all tested in our lab.

### Elemental analysis

(TOC Analyzer), analysis by Individual Test Kits (UV Spectrophotometry) (S<sub>2</sub>-, SO<sub>4</sub> 2-, P, NO<sub>3</sub> -, B, Cr6+, Cl-, CN-, NO<sub>2</sub>-, COD, F-, Phenol), Heavy & Trace Metals by ICP-OES, ICP-MS, and AAS instrument that includes: Silver (Ag), Indium (In), Aluminum (Al), Potassium (K), Boron (B), Lithium (Li), Barium (Ba), Magnesium (Mg), Bismuth (Bi), Manganese (Mg), Calcium (Ca), Sodium (Na), Cadmium (Cd), Nickel (Ni), Cobalt (Co), Lead (Pb), Chromium (Cr), Strontium (Sr), Copper (Cu), Thallium (Tl), Iron (Fe), Gallium (Ga) and Zinc (Zn).

### Chromatographic analysis

F-, Cl-, Br-, NO<sub>2</sub>-, NO<sub>3</sub>-, SO<sub>4</sub> 2-, PO<sub>4</sub>2- and cations by Ion Chromatography, Mineral Oil Analysis in Water Samples, Organics; PAHs, PCBs, BTEX, VOCs by HPLC & GC-MS.

### Microbiology & Toxicity analysis

HPC, Toxication Thinning Factor (ZSF) among others analysis.

## INSTRUMENT



### 01 INDUCTIVELY COUPLED PLASMA / ICP-MS

The Tisch Environmental PM<sub>2.5</sub> and PM<sub>10</sub> high volume air sampler is a Federal Reference Method sampler for collecting fine and coarse particulate matter fractions. Its primary uses are for regulatory sampling and institutional studies.



### 02 INDUCTIVELY COUPLED PLASMA / ICP-OES

ICP-OES offers the highest resolution along with high sensitivity and stability for the most demanding applications. It is trace-level, elemental analysis technique that determines concentrations of trace to major elements in part per million (ppm) and can detect most elements in the periodic table. Applications are drinking water, wastewater, other examples of environmental studies, petrochemistry, food, hydrogeology, and others.



### 03 GAS CHROMATOGRAPHY MASS SPECTROMETRY / GC-MS

GC-MS covers volatile to semi-volatile analytes, oil, petroleum derivative and petrochemical analysis, in matrices ranging from simple air and drinking water to the most complex food and soil/sludge. Additionally, it is equipped with Gerstel sample introduction system that expands the GC-MS capabilities such as automated sampling handling, head space sampling and solid phase micro extraction "SPME".



### 04 HIGH PERFORMANCE LIQUID CHROMATOGRAPHY- HPLC

High performance liquid chromatography with photo diode array detector, HPLC-PDA has been increasingly employed for the analytical control of environmental pollution levels. It appears promising for the identification and determination of non-volatile or strongly polar compounds in air and in surface, waste, and drinking water.

	<b>05</b> <b>INDUCTIVELY COUPLED PLASMA / ICP-MS</b>	The Tisch Environmental PM <sub>2.5</sub> and PM <sub>10</sub> high volume air sampler is a Federal Reference Method sampler for collecting fine and coarse particulate matter fractions. Its primary uses are for regulatory sampling and institutional studies.
	<b>06</b> <b>ATOMIC ABSORPTION SPECTROMETER</b>	Atomic absorption spectrometry (AAS) is a single element technique that measures the concentrations of elements. Applications; water and environmental analysis, geochemical analysis, food analysis and metallurgical analysis.
	<b>07</b> <b>ELEMENTAR CHNS</b>	Elementar CHNS system is used to detect Carbon, Hydrogen, Nitrogen and Sulfur in inorganic and other types of materials. Being fast and accurate are among the advantages of this system. CHNS can handle a wide variety of sample types including solids, liquids, volatile and viscous samples.
	<b>08</b> <b>ROTARY EVAPORATOR</b>	A rotary evaporator is a device used in chemical laboratories for the efficient and gentle removal of solvents from samples by evaporation. Rotary evaporators are also used in molecular cooking for the preparation of distillates and extracts. Besides being used in the Rotary Evaporator chemistry laboratories; It is also applied for necessary processes in fields such as pharmaceuticals, cosmetics, food, petrochemical and R&D.
	<b>09</b> <b>MICROBIOLOGICAL TESTING</b>	Our Microbiology lab is equipped with many kinds of microscopes, safety cabinet, laminar flow, incubators, and autoclave to test samples for bacteria, larvae and fungi.



#### EXAMPLES OF PREVIOUS PROJECTS AND STUDIES

- Corrosion inhibition in oil and gas industries using new fine-tunable pH-responsive polymers
- Beach Well Filtration as Pre-Treatment for RO desalination in eastern province-Saudi Arabia
- Electro-decontamination of toxic phenolic wastewaters under different direct current supply modes"
- Pulsed-current electrokinetic remediation of groundwater contaminated with heavy metals"
- Water quality in higher education institutions



#### EXAMPLES OF PREVIOUS REFEREED JOURNAL PAPERS

- Systematic modeling of municipal wastewater activated sludge process and treatment plant capacity analysis using GPS-X.
- Sewage sludge ZnCl<sub>2</sub> activated carbon intercalated MgFe-LDH nanocomposites: insight of sorption mechanism of improved removal of phenol from water.
- Sustainable wastewater treatment by biochar/layered double hydroxide composites: Progress, challenges, and outlook
- Adsorption behavior and mechanism of methylene blue, crystal violet, eriochrome black T, and methyl orange dyes onto biochar-derived date palm fronds waste produced at different pyrolysis conditions
- Response surface modeling and optimization of sludge activated carbon production conditions for phenolic compounds removal from water

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جامعة الإمام عبد الرحمن بن فيصل  
IMAM ABDULRAHMAN BIN FAISAL UNIVERSITY

## WATER AND WASTEWATER CONSULTATION AND ENGINEERING SOLUTIONS

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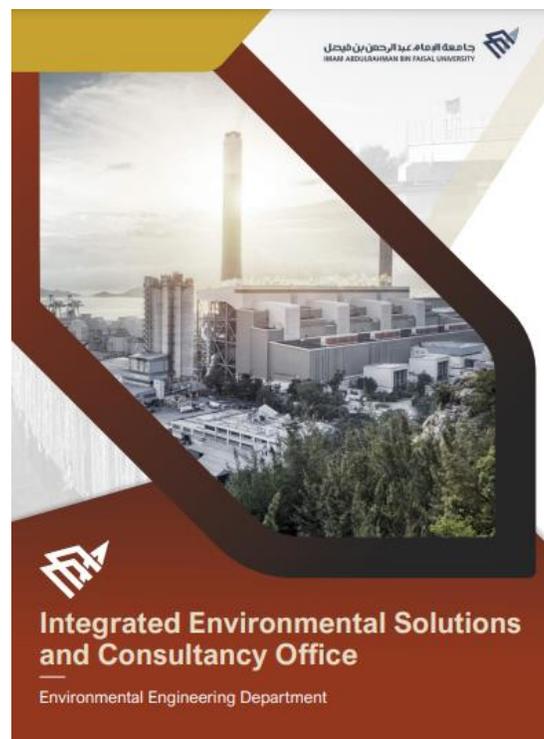
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## 15. Integrated Environmental Solutions and Consultancy Office at IAU

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



## 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:**

<p><b>01</b> Environment services including environmental studies, design, and supervision</p> <p><b>02</b> Professional training for environmental specialists and technicians</p> <p><b>03</b> Short and long Certificate programs in environmental specialists and engineering field</p> <p><b>04</b> Third-party inspection and opinion work to ensure compliance with the project specifications, codes, and standards.</p>	<p><b>05</b> Physical, chemical, and biological procedures and mechanisms accountable for the proclamation, conveyance, alteration and preservation of pollutants.</p> <p><b>06</b> Pollutant control procedures (predominantly the exclusion of trace &amp; toxins or pollutants).</p> <p><b>07</b> Basic ideologies of physical, chemical, and biological conduct know how for water, wastewater and solid wastes scums or residues from different sources.</p> <p><b>08</b> Pollutant control measures for Air, other contaminants removal from air &amp; its monitoring (gases, Particulate matters &amp; Meteorological parameters etc.).</p>
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### 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 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 Modeling
- 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**



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IMAM ABDULRAHMAN BIN FAISAL UNIVERSITY



## 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



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