



جامعة الإمام عبد الرحمن بن فيصل

IMAM ABDULRAHMAN BIN FAISAL UNIVERSITY

عمادة خدمة المجتمع والتنمية المستدامة

Deanship of Community Service and Sustainable Development

SDG 6.5.1

Water Management
Educational
Opportunities

2023-2024

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1. Introduction

IAU provides educational opportunities for local communities to learn about efficient water management. It offers various courses on water management for student community. It organizes field visit and summer program for students to learn about water pollution and management. It has participated in various exhibitions related to water. It owns wastewater analysis lab, water desalination unit and research groups related to water and wastewater.

Accessible to Local Communities

2. 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>

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



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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

- الواقع الافتراضي وللعزز
- الروبوت باستخدام روبوت كويكو
- بطارية الليمون من باسكو
- قياس الرقم الهيدروجيني في السائل
- تحدي القيادة باستخدام الليجو

موقع التسجيل وللمعلومات

موقع التدريب
جامعة الإمام عبد الرحمن بن فيصل - مركز التعليم المستمر - 679

سعر البرنامج
350 ريال
للأفراد 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

4. 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

Accessible to Public

5. 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

6. IAU Engineering College Students participated in the "EnviroSpill" Conference and Exhibition 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

7. 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

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Objectives

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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>

8. Wastewater / Organic Analysis Lab at 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

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

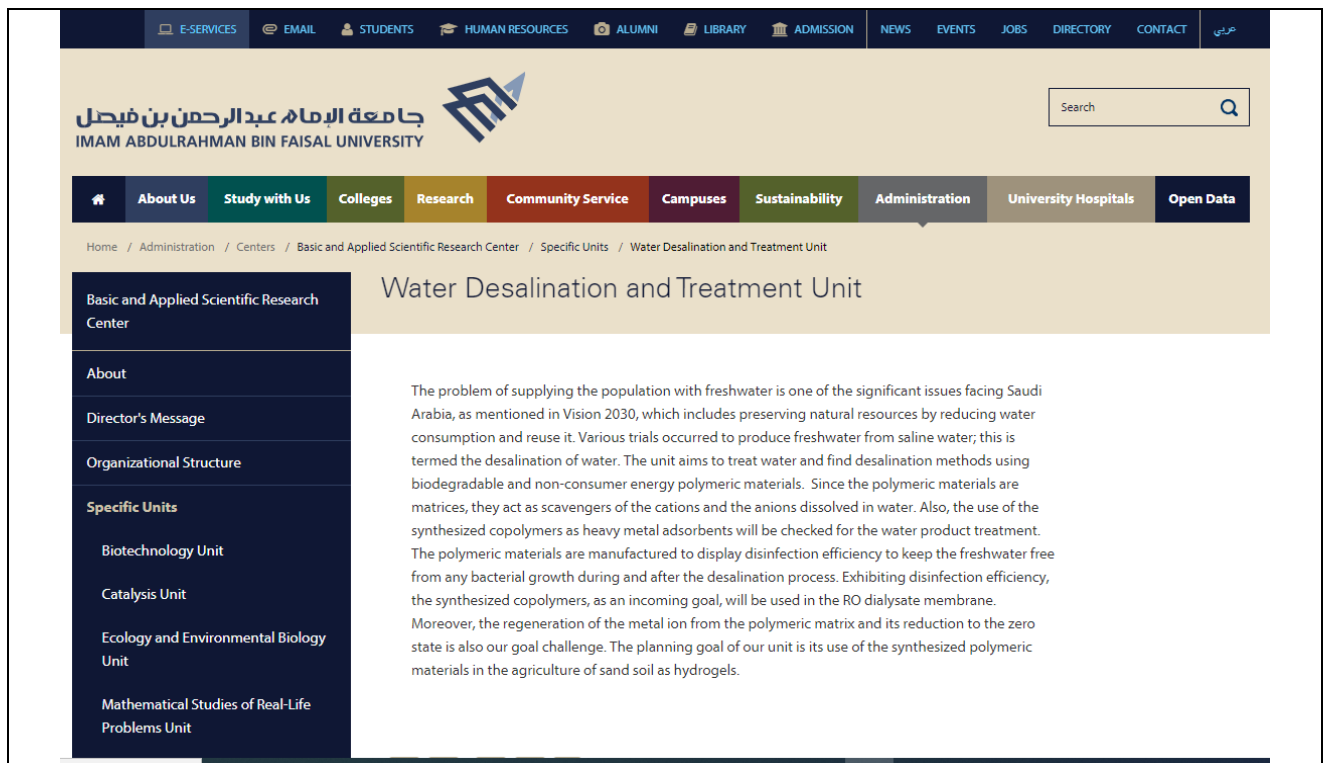
Wastewater / Organic Analysis Lab at IAU

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

9. 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 screenshot shows the website for the Water Desalination and Treatment Unit at Imam Abdulrahman Bin Faisal University. The page features a navigation menu with options like 'About Us', 'Study with Us', 'Colleges', 'Research', 'Community Service', 'Campuses', 'Sustainability', 'Administration', 'University Hospitals', and 'Open Data'. The main content area is titled 'Water Desalination and Treatment Unit' and contains a detailed paragraph about the unit's mission and research focus. A sidebar on the left lists various units under the 'Basic and Applied Scientific Research Center'.


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>

Accessible to Student Community

10. IAU courses offered related to Water



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Open Data

Home / Water Quality & Sanitation


Water Quality & Sanitation

Course Description

- General introduction.
- Water as an environmental community of micro-organisms .
- Distribution of micro-organisms in aquatic environments including (terrestrial, ophthalmic, rivers, natural and industrial lakes and sediments) .
- Factors influencing the growth and distribution of micro-organisms in different aquatic ecology microorganisms and water pollution .
- Microbial flora for wastewater.
- Micro-organisms in water and wastewater .
- Wastewater treatment methods .
- Role of micro-organisms in water purification.
- Methods of preparing drinking water and wastewater and other human uses.
- Methods of judging the validity of water for human use.

Practical content

field visits and sampling, physicochemical analysis of wastewater, chlorine residual , pH, turbidity, color, test and odor, conductivity, microbial analysis of wastewater and principal analytical techniques, analytical quality assurance and quality control



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Home / Ground Water Engineering and Contamination


Ground Water Engineering and Contamination

Course Description

This course will give a broad background of the area of ground water engineering and contamination and the following topics will be presented to the students: sources and types of groundwater contamination, contamination transport mechanisms, sorption and other chemical reactions, the numerical modeling of contaminant transport, non-aqueous phase liquids, groundwater remediation and design and basic definitions of terms used in this area of expertise. The students will also become knowledgeable in the following subjects: occurrence of ground water, ground water exploration, specifications, estimations of quantities, types of ground water aquifers, basic studies and investigations, ground water flow, hydraulics of ground water, well hydraulics, estimation of well discharges, observation wells, well design, well development, ground water quality as well as contaminant, transport management and remediation. The students will receive an introduction to ground water modeling and become familiar with the state of ground water in the Kingdom.

Course ID: ENVEN 573

Credit hours	Theory	Practical	Laboratory	Lecture	Studio	Contact hours	Pre-requisite
3	3					3	NONE



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Home / Geography of Water

Geography of Water

Course ID: GEOG 481

Credit hours	Theory	Practical	Laboratory	Lecture	Studio	Contact hours	Pre-requisite
3	3					3	-

Hydrogeography

Course Main Objective

Learn about how water exists in nature and its importance in dry environments through learning about its limited resources and problems a matter which helps form positive trends towards these problems and reduce water loss; realize role played by the Kingdom to develop the available resources and provide other unconventional resources.

Course Learning Outcomes

- 1. Knowledge and Comprehension
 - 1.1 Identify the relation between hydrogeography and other sciences and the hydrologic cycle and the various resources of water and how to preserve.
- 2. Skills
 - 2.1 Prove their knowledge of the human factors affecting water use and how to preserve it.
 - 2.2 Use computer technology, the statistical programs to perform some group and individual works.
- 3. Values
 - 3.1 Appreciate teamwork and community responsibility.

Course Content:


- First topic: an introduction to geography of water resources- amount of water and the hydrologic cycle.
- Second topic: precipitation (types, analysis, distribution).
- Third topic: full management of water under the sustainable development.
- Fourth topic: water in the Arab world in general and the international water conflicts.
- Fifth topic: water resources in Kingdom of Saudi Arabia.

Textbook (s)

- Al-Zouka, Muhammad.Kh. (2015). Hydrogeography. Dar Almarefa, Alexandria.
- Jouda, Fathy.A. (2005). Geography of Water Resources: A Contemporary Study in Basics and Application. 1sted. Saudi House for Publishing, Riyadh.


Course ID: GEOG 451

Credit hours	Theory	Practical	Laboratory	Lecture	Studio	Contact hours	Pre-requisite
2	2					2	-



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Home / Integrated Water Resources Management


Integrated Water Resources Management

Course Description

This course will focus on Integrated Water Resources Management or IWRM principles and will include: a definition of IWRM, how to implement IWRM (enabling environment, institutional role, management instruments), management and planning of natural and constructed water systems, integrated management and case studies of water use and environmental resources.


Course ID: ENVEN 513

Credit hours	Theory	Practical	Laboratory	Lecture	Studio	Contact hours	Pre-requisite
3	3					3	NONE



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Home / Waste Containment Structures


Waste Containment Structures

Course Description

Characteristics of solid waste and management, introduction to landfill techniques, classifications and basic functions of design materials, construction and management of safe and economic sanitary landfills, equipment and site planning for landfills are some of the topics for this course. Reduce, reuse and recycle, sanitary landfill, leachate and site planning for landfills will also be a part of this class.

Course ID: ENVEN 553

Credit hours	Theory	Practical	Laboratory	Lecture	Studio	Contact hours	Pre-requisite
3	3					3	NONE



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Home

Industrial Wastes Management


Industrial Wastes Management

Course Description

This course will cover the different types of industrial wastes, the origin of wastes process wise and their impact on human and environmental health. Different industrial wastes in plant control measures; evaluation, treatment facilities (physical, chemical, and biological) and management will also be presented.

Course ID: ENVEN 564

Credit hours	Theory	Practical	Laboratory	Lecture	Studio	Contact hours	Pre-requisite
3	3					3	NONE



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Home

Marine Pollution and Control

Marine Pollution and Control

Course Description

The present health of the Red Sea and Arabian Gulf will be studied along with the need for controlling pollution in these waters. The anthropogenic effects on estuarine and marine ecosystems from local, regional and global perspectives will be covered, along with the types of contaminants, pollutants, eutrophication, oxygen demanding waste, oil pollution and toxicity, polycyclic aromatic hydrocarbons (PAH), halogenated hydrocarbons, trace metals, radioactive waste, dredging and dredged-spoil disposal as well as the effects of electric generating stations. Global, regional and national marine pollution control activities will be reviewed along with selected case studies.

Course ID: ENVEN 544

Credit hours	Theory	Practical	Laboratory	Lecture	Studio	Contact hours	Pre-requisite
3	3					3	NONE

<https://www.iau.edu.sa/en/courses/water-quality-sanitation>

<https://www.iau.edu.sa/en/courses/ground-water-engineering-and-contamination>

<https://www.iau.edu.sa/en/courses/geography-of-water>

<https://www.iau.edu.sa/en/courses/integrated-water-management>

<https://www.iau.edu.sa/en/courses/integrated-water-resources-management>

SDG 6.5.1

Water Management Educational Opportunities

<https://www.iau.edu.sa/en/courses/marine-pollution-and-control>

<https://www.iau.edu.sa/en/courses/hydrogeography>

