جامعة الإمام عبدالرحمن 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

2024-2025

Table of Contents

1. Articles for Water conservation and water pollution control in Reputed Journals

Open Access Article

Evaluating the Influence of Reverse Osmosis on Lakes Using Water Quality Indices: A Case Study in Saudi Arabia

by Mohammed T. Aljassim * , Abdulaziz A. AlMulla , Mahmoud M. Berekaa and Abdulmalik S. Alsaif

Department of Environmental Health, College of Public Health, Imam Abdulrahman Bin Faisal University (IAU), P.O. Box 1982, Dammam 31441, Saudi Arabia

* Author to whom correspondence should be addressed.

Water **2024**, *16*(10), 1351; https://doi.org/10.3390/w16101351

Submission received: 25 March 2024 / Revised: 4 May 2024 / Accepted: 5 May 2024 / Published: 10 May 2024

(This article belongs to the Special Issue Sustainable Water Treatment and Contaminants Control: Technologies and Strategies)

https://www.mdpi.com/2073-4441/16/10/1351

ORIGINAL RESEARCH article

Front. Mar. Sci., 27 August 2020

Sec. Marine Ecosystem Ecology

Volume 7 - 2020 | https://doi.org/10.3389/fmars.2020.00600

Perceptions of Marine Environmental Issues by Saudi Citizens

Hanan Almahasheer[1*] Carlos M. Duarte[2]

[1] Department of Biology, College of Science, Imam Abdulrahman Bin Faisal University (IAU), Dammam, Saudi Arabia
[2] Red Sea Research Center and Computational Bioscience Research Center, King Abdullah University of Science and Technology, Thuwal, Saudi Arabia

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Edited by

Michelle Jillian Devlin

Centre for Environment,

https://www.frontiersin.org/journals/marine-science/articles/10.3389/fmars.2020.00600/full

https://www.tandfonline.com/doi/abs/10.1080/07900627.2023.2236245

https://inis.iaea.org/records/r85q5-0gy07

Developing a Sustainable Water Conservation Strategy for Saudi Arabian Cities

Abdulaziz I. Almulhim*[1], & Ismaila Rimi Abubakar [2]

[1] Department of Urban and Regional Planning, College of Architecture and Planning, Imam Abdulrahman Bin Faisal University, Dammam 31451, Saudi Arabia. aialmulhim@iau.edu.sa
[2] College of Architecture and Planning, Imam Abdulrahman Bin Faisal University, P.O. Box 1982, Dammam 31441, Saudi Arabia. irabubakar@iau.edu.sa

Highlights

- Water scarcity and unsustainable water management practices in Saudi Arabia are studied.
- The study evaluates the sustainability of water management practices in Jubail Industrial City
- It employs mixed-method approach: literature review, case studies, and document analysis.
- It proposes water conservation strategy: demand management, water efficiency, governance framework.
- Water conservation, optimization and reuse are significantly relevant to industry settings

https://www.sciencedirect.com/science/article/abs/pii/S2352801X23001418

Synchronous management of public green spaces: The case of Imam Abdulrahman bin Faisal University's eastern campus – Dammam, Saudi Arabia

Ali O. Al-Sulbi [a], Abdullah A. Alghanem [b]

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[b] Landscape Architect, Bödeker Parteners Landscape Architects, Kloster Lehnin, Germany

Received 14 April 2021, Revised 12 September 2021, Accepted 30 September 2021, Available online 19 October 2021, Version of Record 23 December 2021.

https://www.sciencedirect.com/science/article/pii/S2090447921003701

Arabian Journal of Geosciences (2021) 14: 1950
https://doi.org/10.1007/s12517-021-08353-z

ORIGINAL PAPER

Sustainable water planning and management research in Saudi Arabia: a data-driven bibliometric analysis

Abdulaziz I. Almulhim [1] · Mohammad Aqil [2] · Shakil Ahmad [2] · Isam Mohammed Abdel-Magid [3]

Received: 31 May 2021 / Accepted: 26 August 2021 / Published online: 5 September 2021

https://link.springer.com/article/10.1007/s12517-021-08353-z

2. Courses related to Water Pollution offered at IAU

Water Quality & Sanitation

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

Ground Water Engineering and Contamination

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

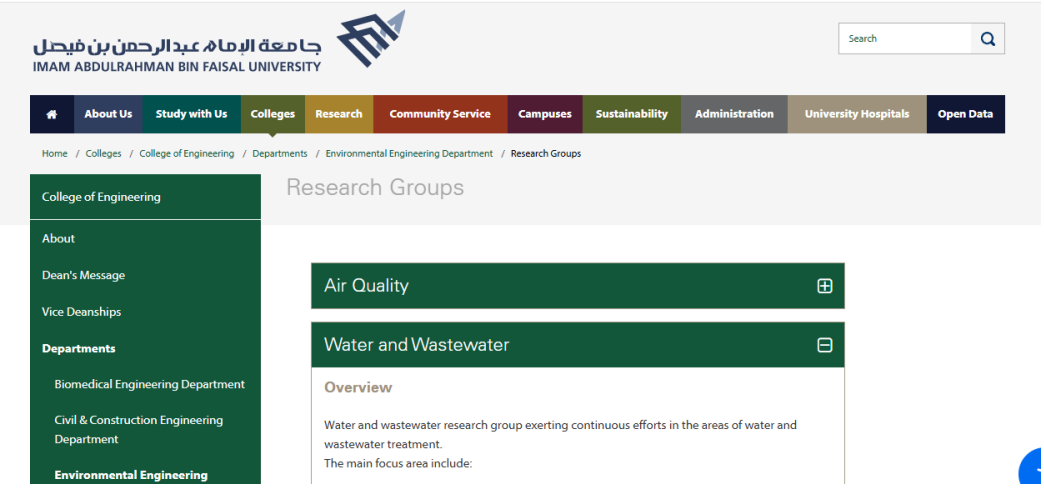
Water Quality

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

Marine Pollution and Control

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

3. Research Groups on Wastewater at IAU



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

4. Water Research Community Initiative organized by the Saudi Water Authority

Imam Abdulrahman bin Faisal University (IAU) Participation in the fifth edition of the Water Research Community Initiative organized by the Saudi Water Authority.

We are proud of the participation of the Mechanical and Energy Engineering Department in the fifth edition of the Water Research Community Initiative organized by the Saudi Water Authority, through the presentation of two research papers and the participation of the department head, Dr. Mosaed Al-Zahrani, as a speaker in one of the dialogue sessions.

https://x.com/CE_IAU_SA/status/1968561503134437880

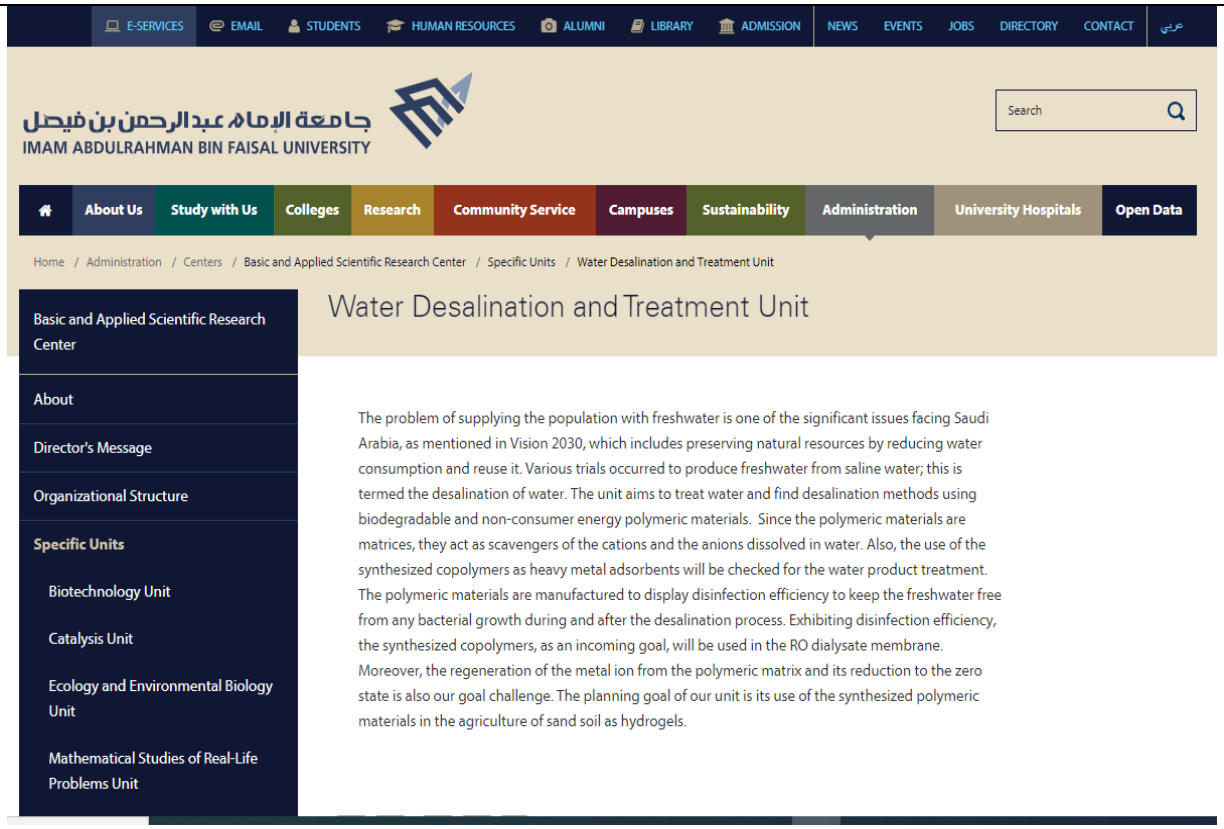
5. Marine Engineering students field visit

Marine Engineering Students of IAU had a Field Visit to the Zamil Shipbuilding and Repair Company organized by the Saudi Water Authority.

The Department of Marine Engineering organized a field visit for the first cohort students to Zamil Shipbuilding and Repair Company, where the students were introduced to the various fields of work in the shipbuilding industry, as a step aimed at enhancing the practical aspect and preparing them for the job market.

https://x.com/CE_IAU_SA/status/1976558183708848151

6. Water Desalination and Treatment Unit



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.

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

7. Wastewater/Organic Analysis Lab

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

8. 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

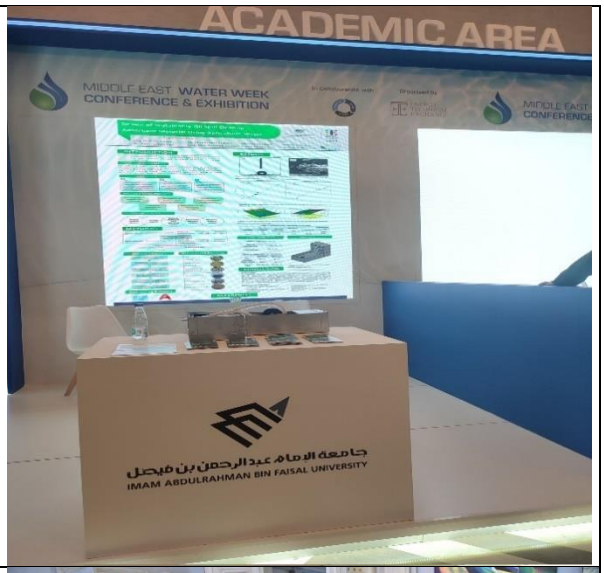
9. IAU in cooperation with the Saudi Water Academy for “Generations Summer Program” for Children

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

10. 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

11. 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

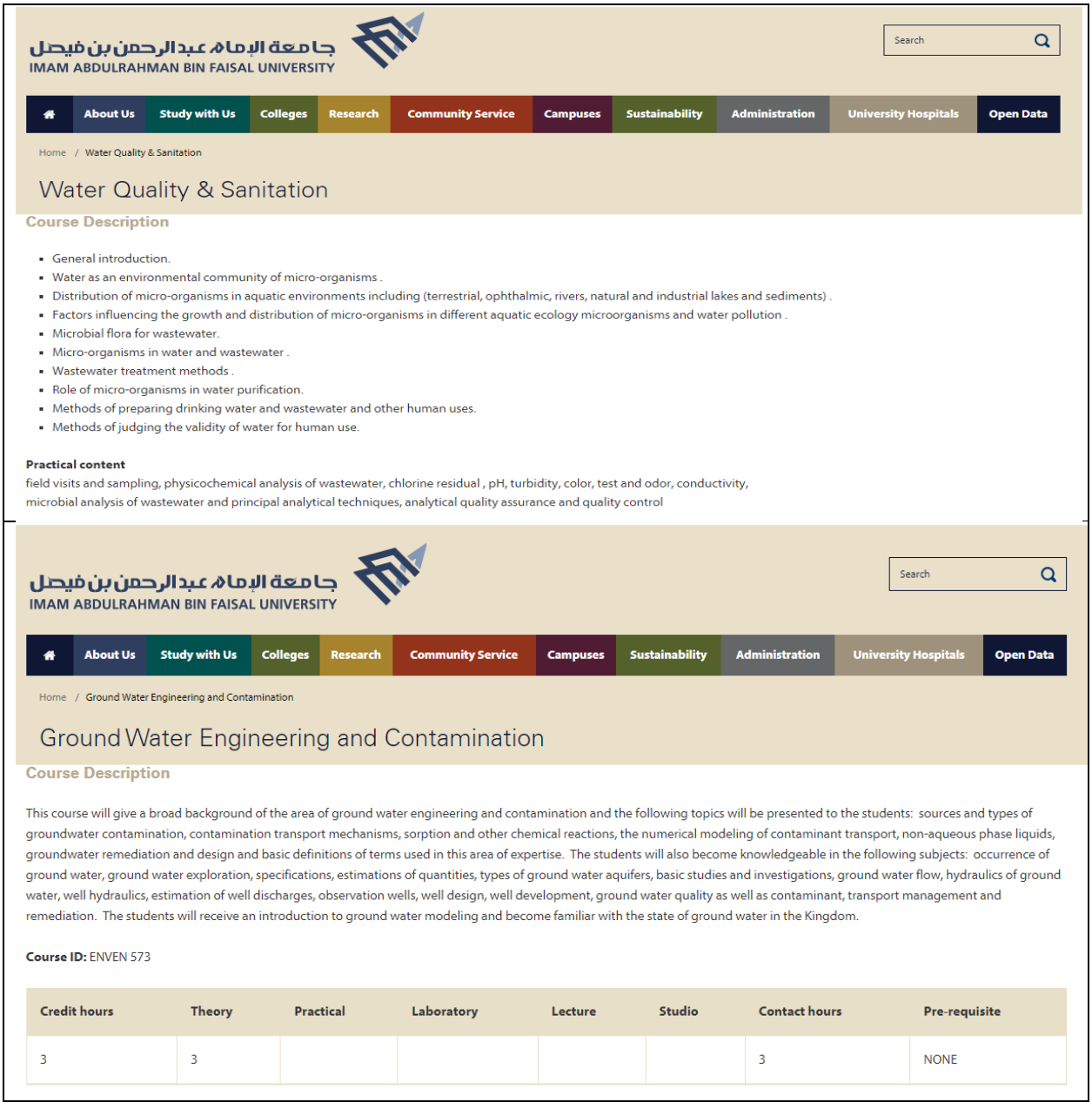
12. Visit of the Delegation of the Saline Water Conversion Corporation to IAU

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

13. IAU courses offered related to Water



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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

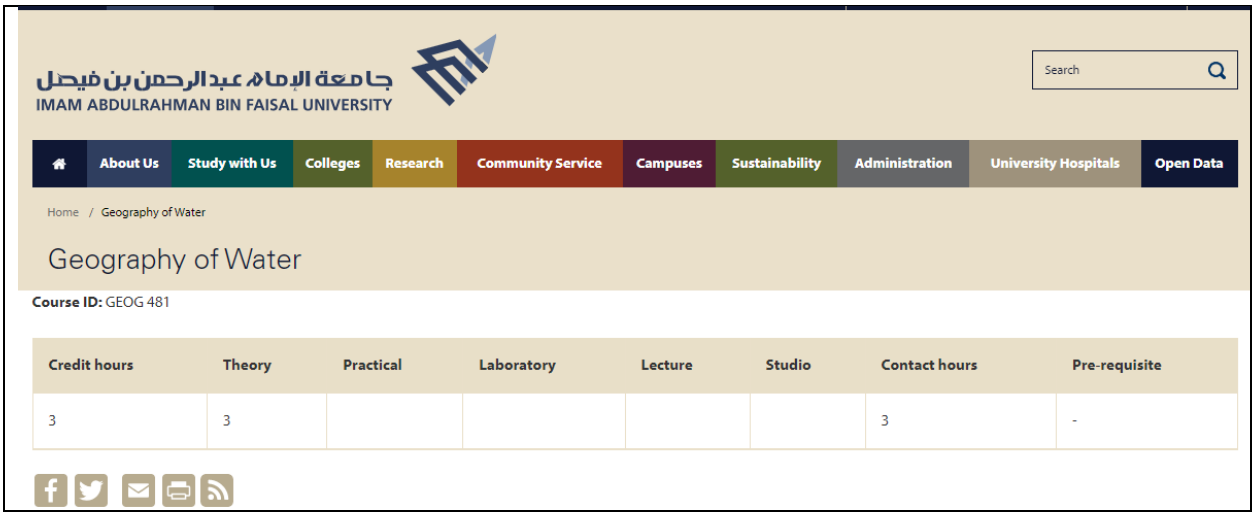
Ground Water Engineering and Contamination

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:

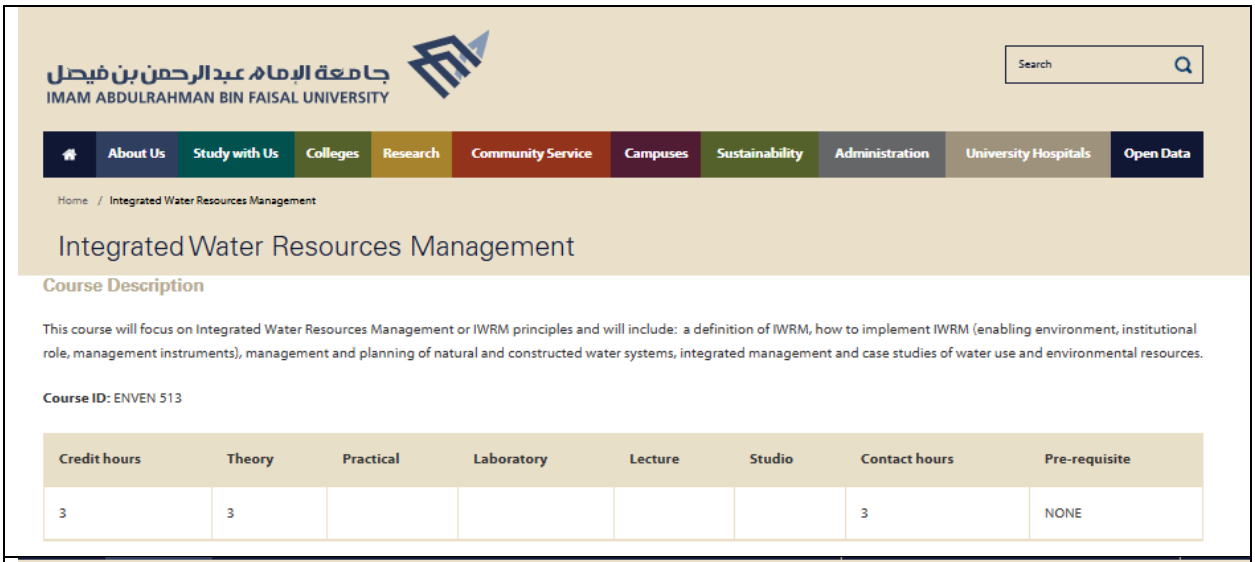
- First topic: an introduction to geography of water resources- amount of water and the hydrologic cycle.
- Second topic: precipitation (types, analysis, distribution).
- Third topic: full management of water under the sustainable development.
- Fourth topic: water in the Arab world in general and the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

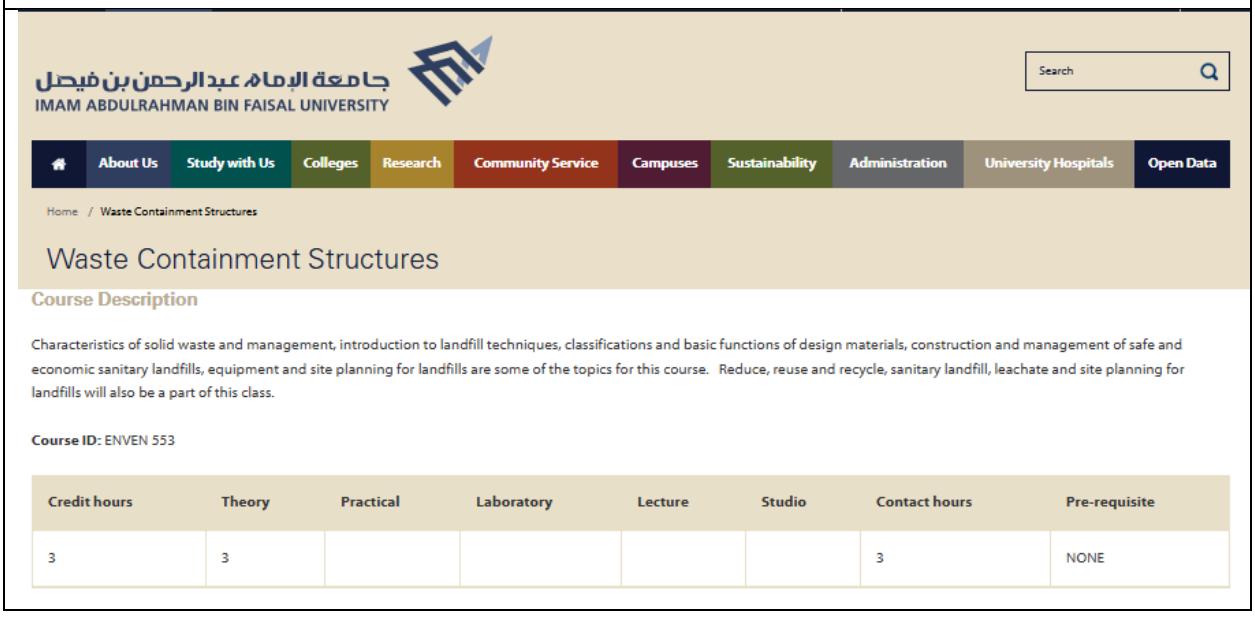
Integrated Water Resources Management

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

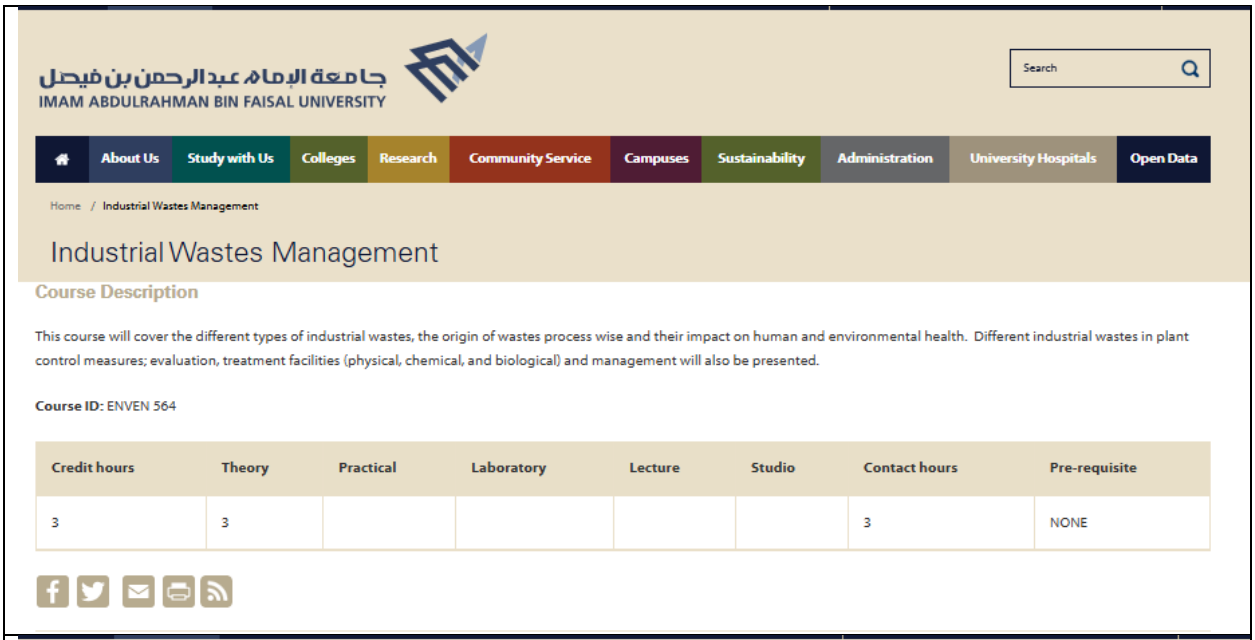
Waste Containment Structures

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

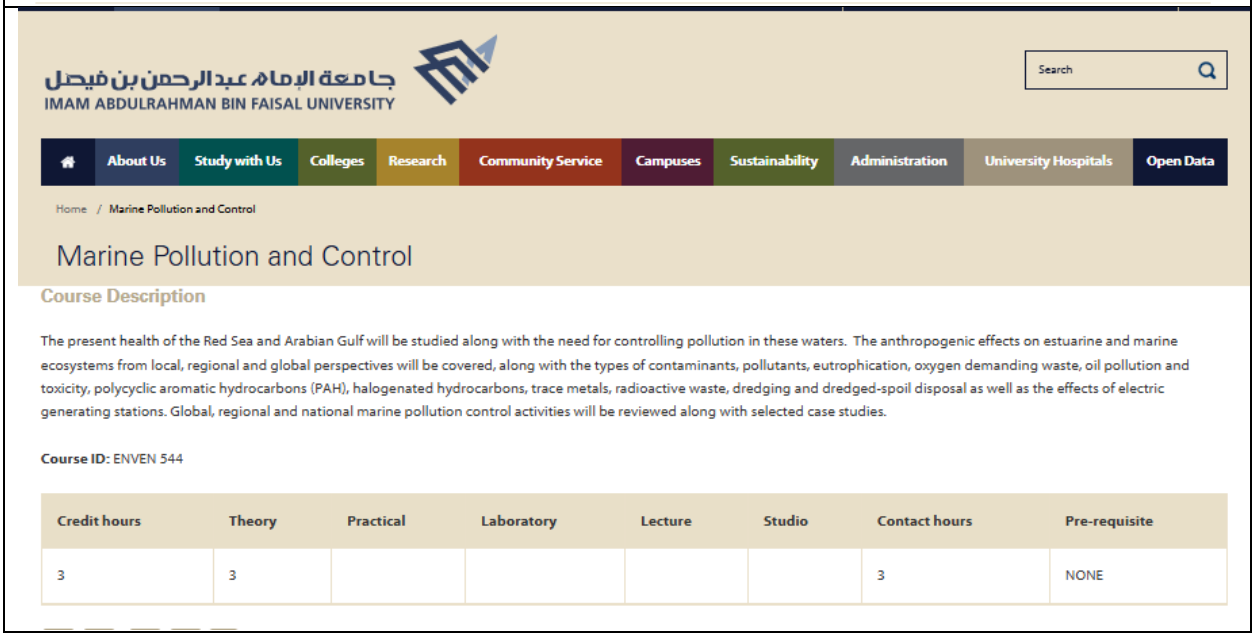
Industrial Wastes Management

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

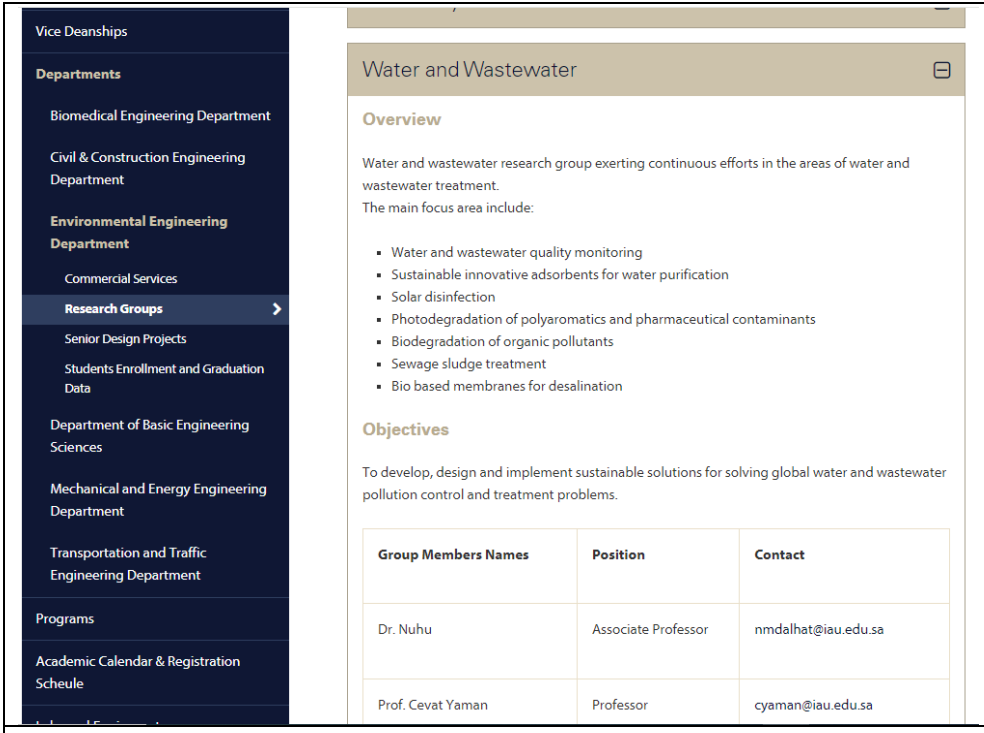
Course Description

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

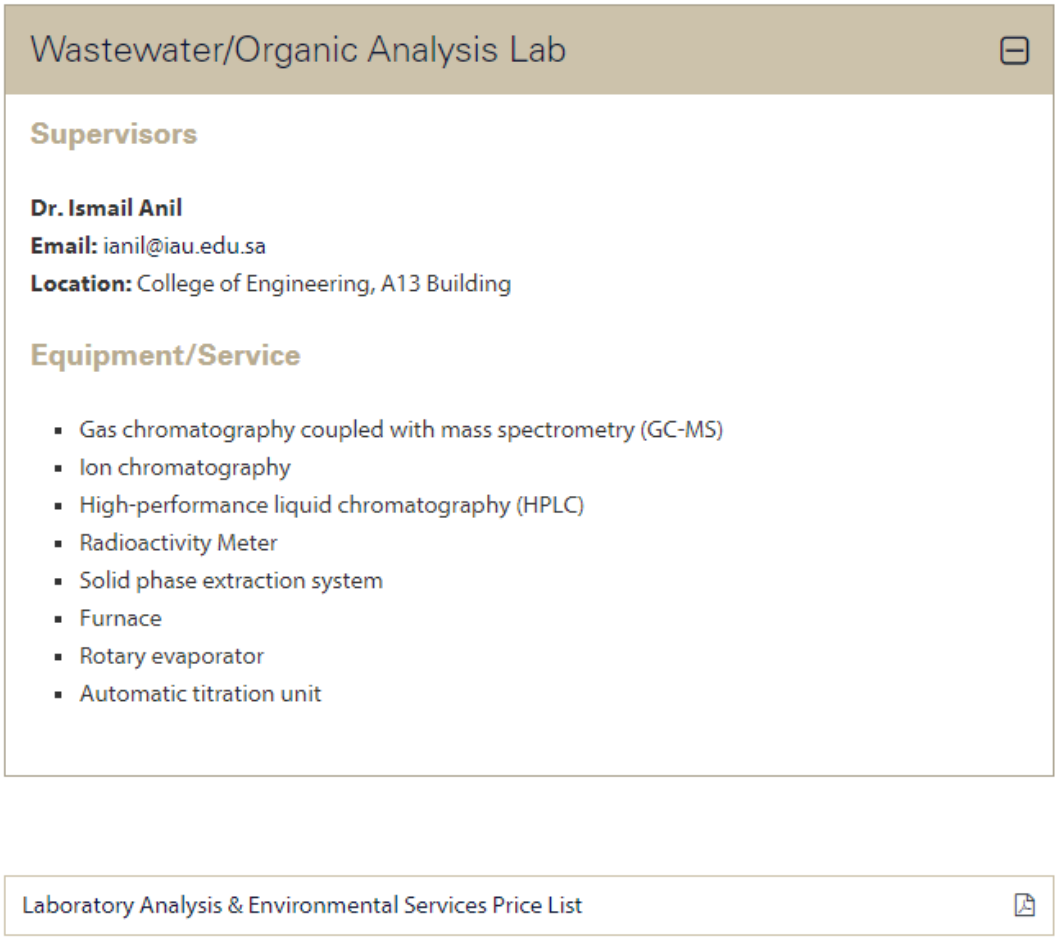
Credit hours	Theory	Practical	Laboratory	Lecture	Studio	Contact hours	Pre-requisite
3	3					3	NONE

14. Research Groups of IAU for Water and Wastewater



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

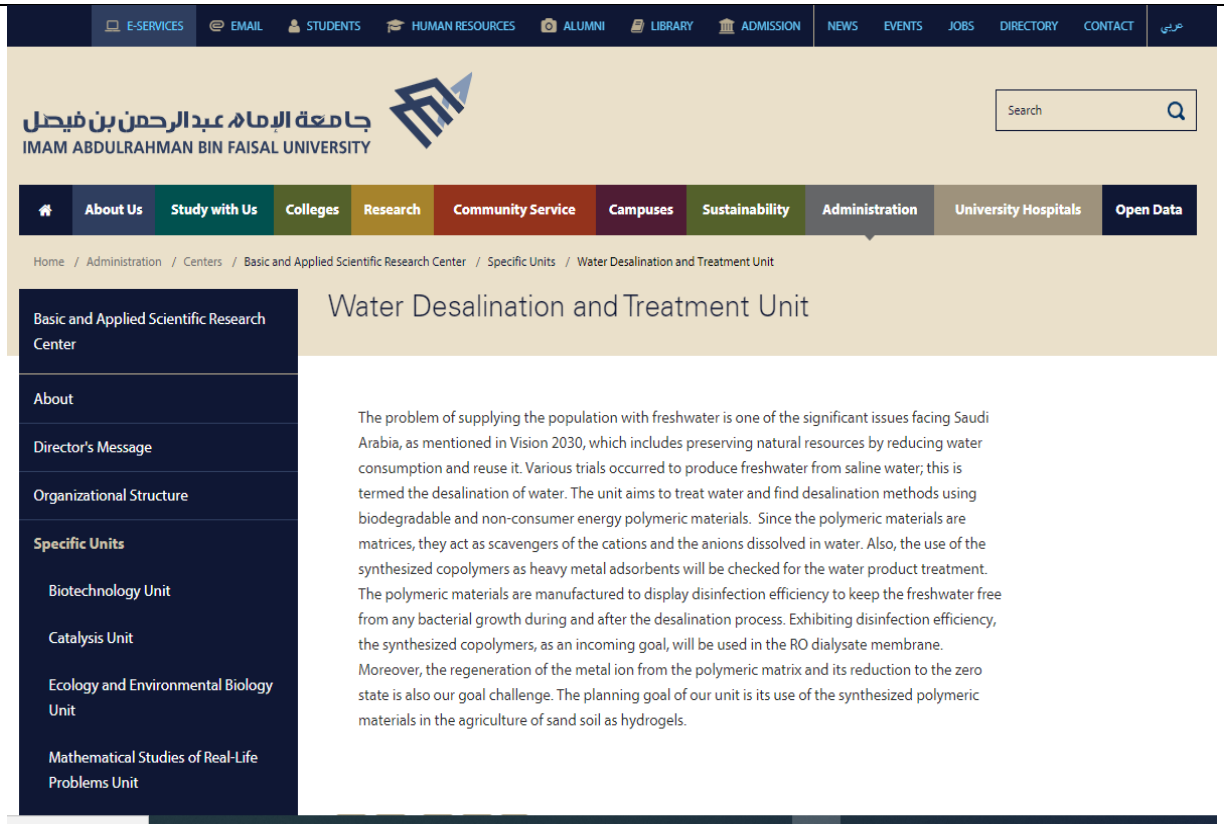
15. Wastewater / Organic Analysis Lab at IAU



Wastewater / Organic Analysis Lab at IAU

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

16. 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.

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