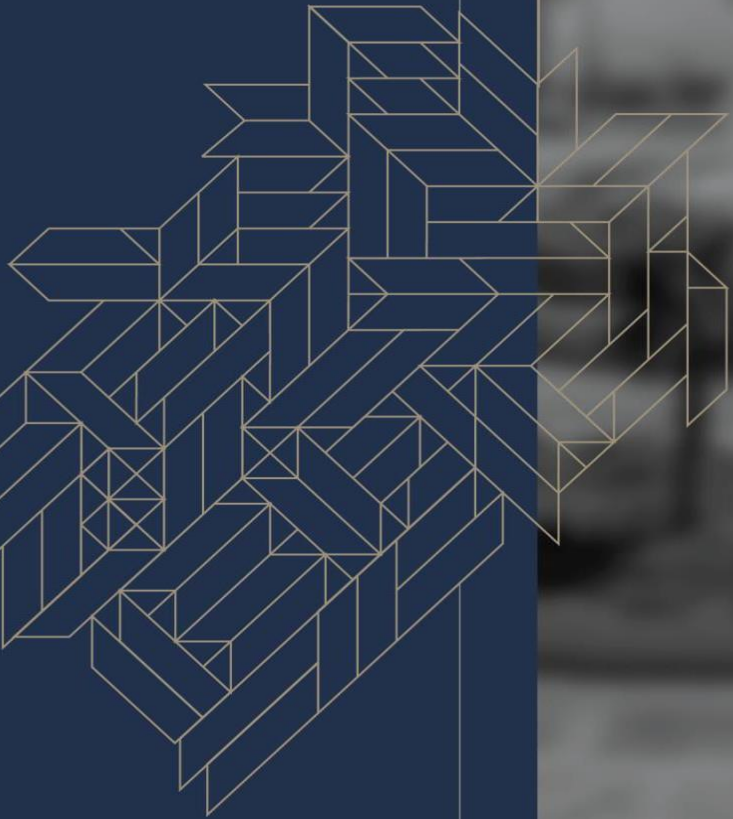




جامعة الإمام عبد الرحمن بن فيصل
IMAM ABDULRAHMAN BIN FAISAL UNIVERSITY



SDG 6.5.1
Educational
Opportunities
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. Research on Polluted water

Part of the visit of the delegation of the General Corporation for Saline Water Conversion

@swcc_ksa

to #بن_فيصل_جامعة_الإمام_عبدالرحمن_بن_فيصل included a tour of:

- Research Center at the College of Science
@IAU_cs
- College of Computer Science and Information Technology
@IAU_CCST
- College of Engineering
@CE_IAU_SA



https://twitter.com/IAU_KSA/status/1604581022351368192

3. Water Conversion

Educational opportunity regarding water conversion

The given Twitter video link shows a part of the visit of the delegation of the **General Corporation for Saline Water Conversion @swcc_ksa** to IAU included a tour of Research Center at the College of Science, IAU, College of Computer Science and Information Technology, IAU, and College of Engineering, IAU.



https://twitter.com/IAU_KSA/status/1604581022351368192

4. Water pollution control in IAU Campus area



Water meter to regularly check water quality



Water Desalination plant at IAU



Water Pollution control system at IAU



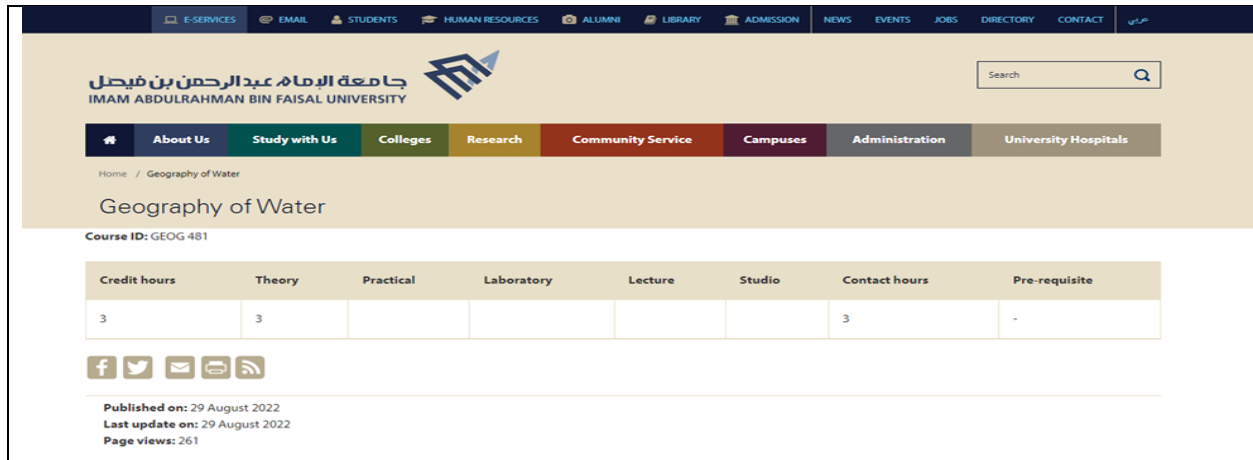
Recycled water processed in the tanks to protect ground water contamination



Water Pipes periodically inspected and repaired for any leaks or worn outs

5. Educational Opportunities on Water Management offered by IAU to the Student Community

Geography of Water



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Geography of Water

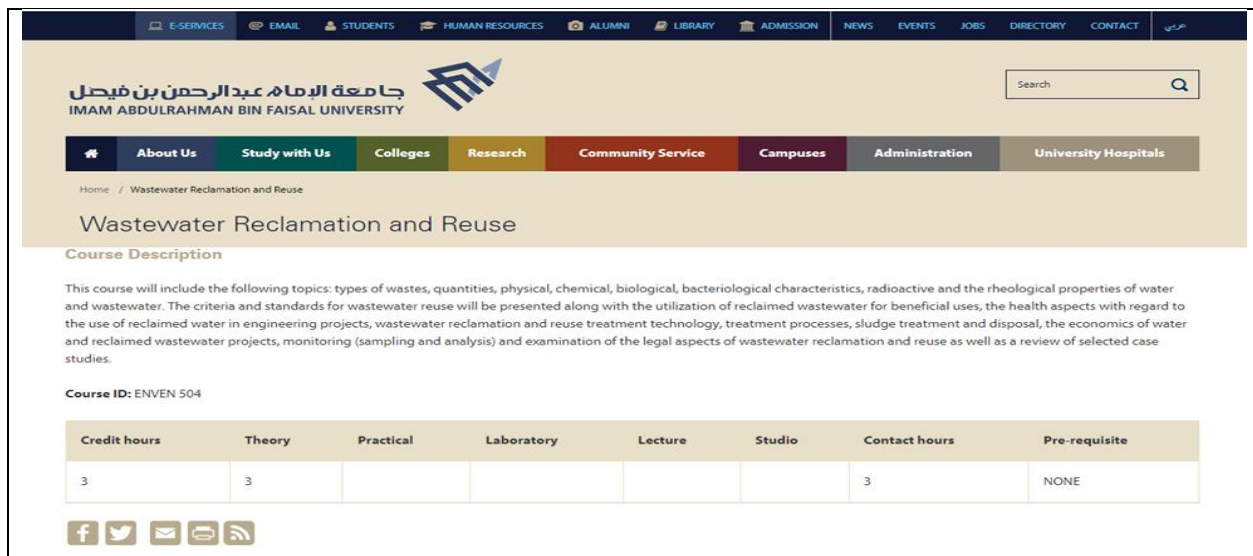
Course ID: GEOG 481

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

Published on: 29 August 2022
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 Page views: 261

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

Wastewater Reclamation and Reuse



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Wastewater Reclamation and Reuse

Course Description

This course will include the following topics: types of wastes, quantities, physical, chemical, biological, bacteriological characteristics, radioactive and the rheological properties of water and wastewater. The criteria and standards for wastewater reuse will be presented along with the utilization of reclaimed wastewater for beneficial uses, the health aspects with regard to the use of reclaimed water in engineering projects, wastewater reclamation and reuse treatment technology, treatment processes, sludge treatment and disposal, the economics of water and reclaimed wastewater projects, monitoring (sampling and analysis) and examination of the legal aspects of wastewater reclamation and reuse as well as a review of selected case studies.

Course ID: ENVEN 504

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

<https://www.iau.edu.sa/en/courses/wastewater-reclamation-and-reuse>



Marine Pollution and Control

The screenshot shows the course page for "Marine Pollution and Control" on the university's website. The page includes a navigation menu, a search bar, and a course description. The course ID is ENVN 544. A table provides details on credit hours and prerequisites.

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: ENVN 544

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

Below the table are social media icons for Facebook, Twitter, Email, Print, and RSS.

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

Water Quality and Sanitation

The screenshot shows the course page for "Water Quality & Sanitation" on the university's website. The page includes a navigation menu, a search bar, and a course description with a bulleted list of topics.

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.

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



Ground water engineering and Contamination

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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

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

