

Al-Nahrain University

Annual report for sustainability

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University : Al –Nahrain University
Country : Iraq

INTRODUCTION:

Al-Nahrain University is an educational public university established in 1987 and located in Baghdad, Iraq. The university offers undergraduate and postgraduate education as well as research opportunities. Its current name "Nahrain" meaning The Two Rivers (as in the two rivers of Iraq: Tigris and Euphrates).

The vision ,message, goals, values are undergone exact revision and execution ,committees were started formulating to predetermine the priorities ,check and revision of the performance and outcomes of the aiming teaching, computerize the administrative work preparing to enter the University in the World Ranking.

Primary works cent rerate on encouraging the teaching body by using and adopting the multimedia means of teaching of the modern age ,and develop the infrastructure to achieve the goals of University according to the number of its students for pioneering careers to achieve the balance between the basic and practical researches, encouraging the practical side towards the invention, manufacture and marketing the researches , develop them by the means , procedures and tools .Besides ,it encourages the business incubators inside and outside the University and investing the scientific research to ensure an economic environment for the University to depend on its auto-spending in the future.

Al-Nahrain University remains a spring of the science and knowledge characterized by its serious work and openness to the new thoughts; and it is regarded as a light of society and a factory of creation, a laboratory of science and culture and it remains a title of renaissance and one of the outstanding Iraqi Universities.



University : Al –Nahrain University
Country : Iraq

Setting and Infrastructure (SI)



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[1] Setting and Infrastructure (SI)

[1.3] Number of Campus Sites





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Al-Nahrain University has two sites, the first site is the Al-Jadriya campus in the Al-Jadriya area, with an area of (**669878.24 m sq**), with a distance of (**15.5689 km**), which is located in the heart of the capital, and the second site is the site of the Al-Kadhimiya campus, located in Al-Kadhimiya area, with an area of (**95339.79 m sq**) and a distance of (**8.493 km**).

Additional evidence link : <https://www.youtube.com/watch?v=mEirNtxmcxA>

Additional evidence link : <https://nahrainuniv.edu.iq/ar/node/7954>



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[1] Setting and Infrastructure (SI)

[1.4] Campus setting





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Al-Nahrain University is one of the Iraqi universities that was established in Baghdad in 1987. The campus of Al-Nahrain University is one of the largest, most beautiful and attractive sites, as it is surrounded by wide green spaces in addition to the special location in the Iraqi capital (Baghdad).

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[1] Setting and Infrastructure (SI)

[1.5] Total campus area (m2)



Total Area of Southern campus = **669878.24 m sq**

Total distance/circumference of Southern campus = **15.5689 km**

Total Area of Northern campus = **95339.79 m sq**

Total distance/circumference of Northern campus = **8.493 km**



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Total area of all campus in Al –Nahrain University

campus	Distance	Area
Southern campus	15.5689 km	669878.24 m sq
Northern campus	8.493 km	95339.79 m sq
Total	24.062 km	765218.03 m sq



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[1] Setting and Infrastructure (SI)

[1.6] Total campus ground floor area of buildings (m2)

Campus	Distance	Buildings
Southern campus	6.36594 km	560245.68 m sq
Northern campus	3.51228 km	26773.06 m sq
Total	9.87822 km	587018.74 m sq



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[1] Setting and Infrastructure (SI)

[1.7] Total campus buildings area (m2)

Buildings area
1747063.78 msq





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Al-Nahrain University was established in 1987 and it includes two campus, one of them in Jadriya, which includes the College of Engineering, Science, Political Science, Information Engineering, Business Economics, Biology, Biotechnology Research Center, Forensic DNA Center for Research and Training, Al-Nahrain Research Center for Nano Renewable Energy, Electronic computer Center, and the other in Al-Kadhimiya includes Faculties of Medicine, Pharmacy and the Higher Institute for Infertility Diagnosis and Assisted Reproductive Technologies.



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[1] Setting and Infrastructure (SI)

[1.8] (SI.1) The ratio of open space to total area

Formula: $((1.5-1.6/1.5)*100\%)$

$$\begin{aligned} & ((765218.03 \text{ m sq} - 587018.74 \text{ m sq} / 765218.03 \text{ m sq}) * 100\%) \\ & = (178199.29 \text{ m sq} / 765218.03 \text{ m sq}) * 100\% \\ & = \mathbf{23 \%} \end{aligned}$$



Where (765218.03 m sq) represent the total area of the Al-Nahrain university (southern and northern campus), (1747062 m sq) represent the building area of the university. Finally, (23%) represent the ratio of open space to total area of the Al –Nahrain University.

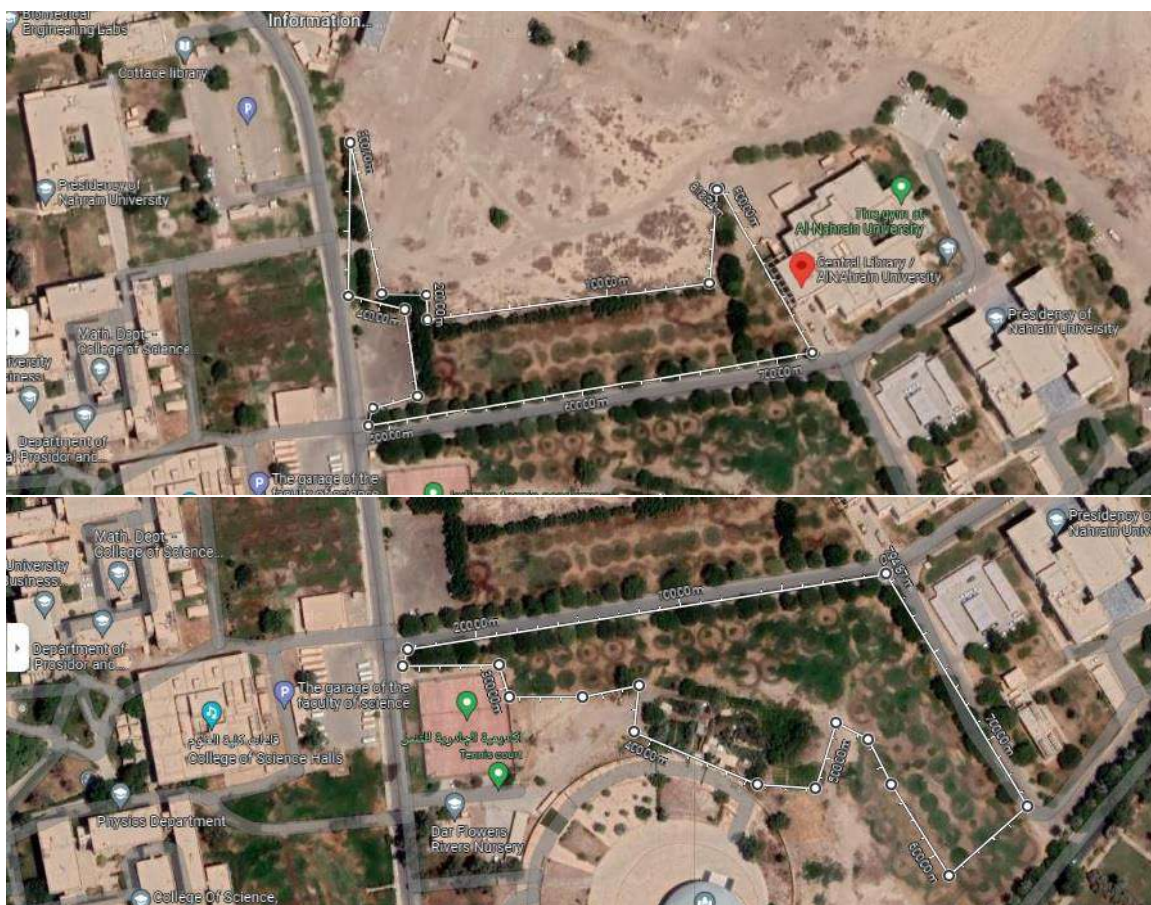


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[1] Setting and Infrastructure (SI)

[1.9] (SI.2) Total area on campus covered in forest vegetation

Forests	
Distance	Area
4494.46 M	76454.30 m sq





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Where (**76454.30 m sq**) represent the total area on campus covered in forest vegetation and (**4494.46m**) represents the Total distance/circumference of the Al-Nahrain university (Southern and Northern campus).

Additional evidence link: <https://nahrainuniv.edu.iq/ar/node/8087>



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[1] Setting and Infrastructure (SI)

[1.10] (SI.3) Total area on campus covered in planted vegetation

Planting	
Distance	Area
10.32805 km	156,122.29 m sq



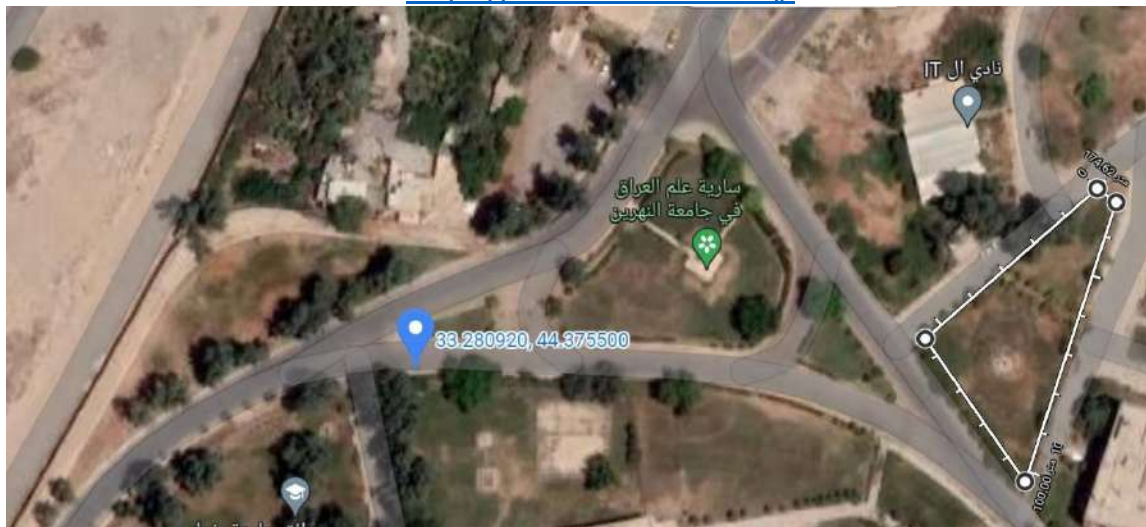


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Where (156,122.29m sq) represents the total area on campus covered in forest vegetation and (10.32805km) represents the Total distance/circumference of Al-Nahrain University (Southern and Northern campus).



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[1] Setting and Infrastructure (SI)

[1.11] (SI.4) Total area on campus for water absorption be sided forest and planted vegetation





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The water of the Tigris River is an important element that Al-Nahrain University uses to water and irrigate plants on campus





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The southern campus of Al-Nahrain University is adjacent to the Tigris River on the southern side of the campus by a distance of (2.33 Km).while the area of the water that sided southern campus its equal to (257.094.74 m sq) in approximation.

Total **water absorption** area: 167,339.30 m²

Total Area: 765218 m²

Percentage area: 21%



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[1] Setting and Infrastructure (SI)

[1.12] Total number of regular students (part time and full time)

Total	9013
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[1] Setting and Infrastructure (SI)

[1.13] Total number of online students (part time and full time)

Total	2703
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[1] Setting and Infrastructure (SI)

[1.14] Total number of academic and administrative staff

Total	3488
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[1] Setting and Infrastructure (SI)

[1.15] (SI.5) The total open space area divided by total campus population

$$\begin{aligned} \text{Formula: } & ((1.5-1.6)/ (1.12+1.14)) \\ & ((765218.03 \text{ m sq} - 587018.74 \text{ m sq})/ 12501) \\ & = 14.2\% \end{aligned}$$



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[1] Setting and Infrastructure (SI)

[1.16] Total university's budget (in US Dollars)

total	3976636\$
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[1] Setting and Infrastructure (SI)

[1.17] University's budget for sustainability effort (in US Dollars)

Total	596495.4\$
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[1] Setting and Infrastructure (SI)

[1.18] (SI.6) Percentage of University's budget for sustainability effort

$$\begin{aligned}\text{Formula: } & ((1.17/1.16)*100\%) \\ & = (596495.4/3976636)*100\% \\ & = 15 \%\end{aligned}$$



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[1] Setting and Infrastructure (SI)

[1.19] (SI.7) Percentage of Operation and Maintenance activities

Al-Nahrain University has an annual and periodic strategy to re-maintain buildings inside the university campus, including classrooms, electrical equipment, university gardens, public and health facilities, and it is under the supervision of the Dean of the College.

1	Total campus buildings area	1747063.78 m ²
2	Total operated building	13752631 m ²
	Percentage building that operated and maintenance	80 %





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The university buildings are periodically and comprehensively maintained for study halls, rehabilitating bathrooms, maintaining cooling devices, and rehabilitating gardens.



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[1] Setting and Infrastructure (SI)

[1.20] (SI.8) Campus facilities for disable maternity care

Al-Nahrain University offers students with disabilities the following:

- 1- A specialized staff to follow up the needs and requirements of students with disabilities in all its faculties.
- 2- Educational and psychological staff for people with disabilities inside the university campus

Al-Nahrain University has prepared a plan to meet the requirements of students with disabilities, and a central unit has been established for them to deal with the following:

- 1- Providing curricula for the blind based on touch
- 2- Providing headphones to listen to lectures for deaf students
- 3- Providing a hall for people with disabilities with a screen to display the curricula in audio and video.
- 4- Providing a recreational club for people with disabilities.
- 5- Providing wheelchairs to facilitate their movement between buildings
- 6- Parking for people with disabilities.





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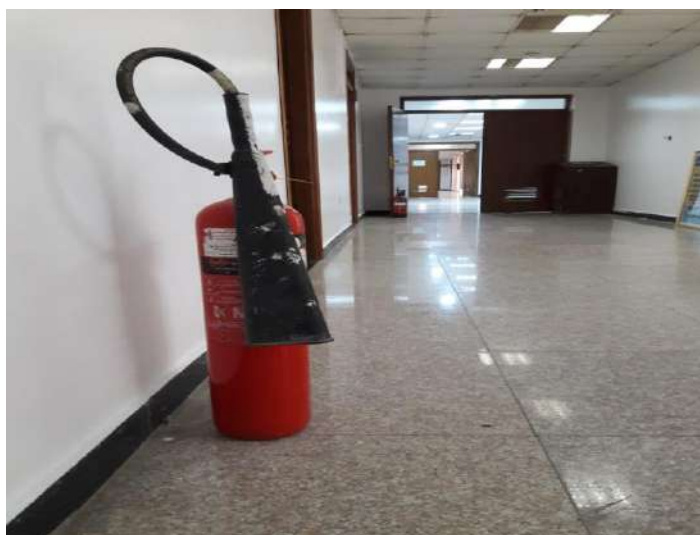
[1] Setting and Infrastructure (SI)

[1.21] (SI.9) Security and safety facilities



CCTV outside building

Fire extinguishers





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gramophone

Fire truck





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Cameras inside the buildings

Alarms System





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Al-Nahrain University uses security and safety policies on campus.

1. The university has a gramophone to report emergency cases inside the university buildings.
2. CCTV monitoring cameras inside and outside buildings.
3. fire system (Alarms System, Fire truck, fire hydrant, Fire extinguishers).

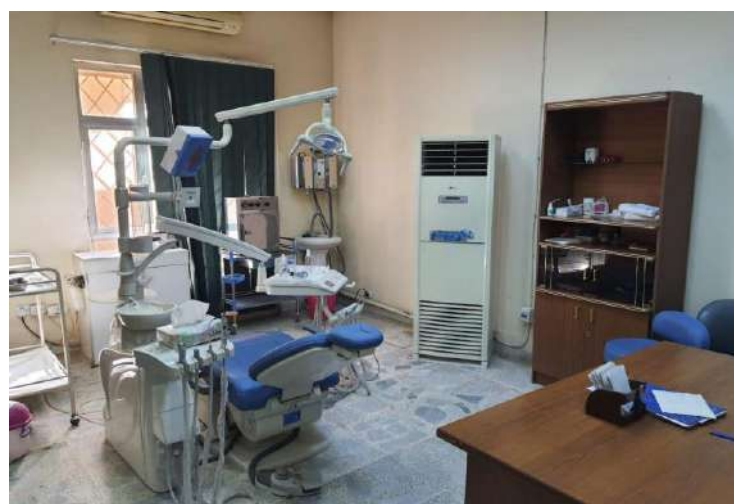
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[1] Setting and Infrastructure (SI)

[1.22] (SI.10) Health infrastructure facilities for students and academic and administrative staff wellbeing



Health care center



A dental examination and treatment unit



A sample examination unit



An ultrasound examination unit



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The High Institute for Infertility Diag-nosis and Assisted Reproductive Tech-nologies





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The High Institute for Infertility Diag-nosis and Assisted Reproductive Technologies is among the formations of our university. The Institute owns consulting clinics to provide health and reproductive counseling to patients from within the university (campus residents, including students and staff) or from abroad.

Al-Nahrain University has two health centers on campus to provide the following services without fees to staff and students on campus. These services include a specimen examination unit, dental examination and treatment unit, an ultrasound examination unit and an infertility consulting clinic. Al-Nahrain University has a pharmacy within the health center and provides first aid and treatments for special cases that are provided to students and staff. It also has a specialized laboratory and a center for conducting operations, and the university has launched an electronic clinic for students and employees with the activation of the global InSimu patient application to simulate real patients.

As in the following links:

Additional evidence link: <https://colmed-alnahrain.edu.iq/index.php?do=view&type=topic&id=13305909>

Additional evidence link :<https://colmed-alnahrain.edu.iq/index.php?do=view&type=page&id=341&lang=en>

Additional evidence link: <https://colmed-alnahrain.edu.iq/index.php?do=view&type=page&id=318&lang=en>



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Additional evidence link : <https://colmed-alnahrain.edu.iq/index.php?do=view&type=page&id=320&lang=en>

Additional evidence link : <https://www.colmed-alnahrain.edu.iq/index.php?do=view&type=topic&id=13305601>



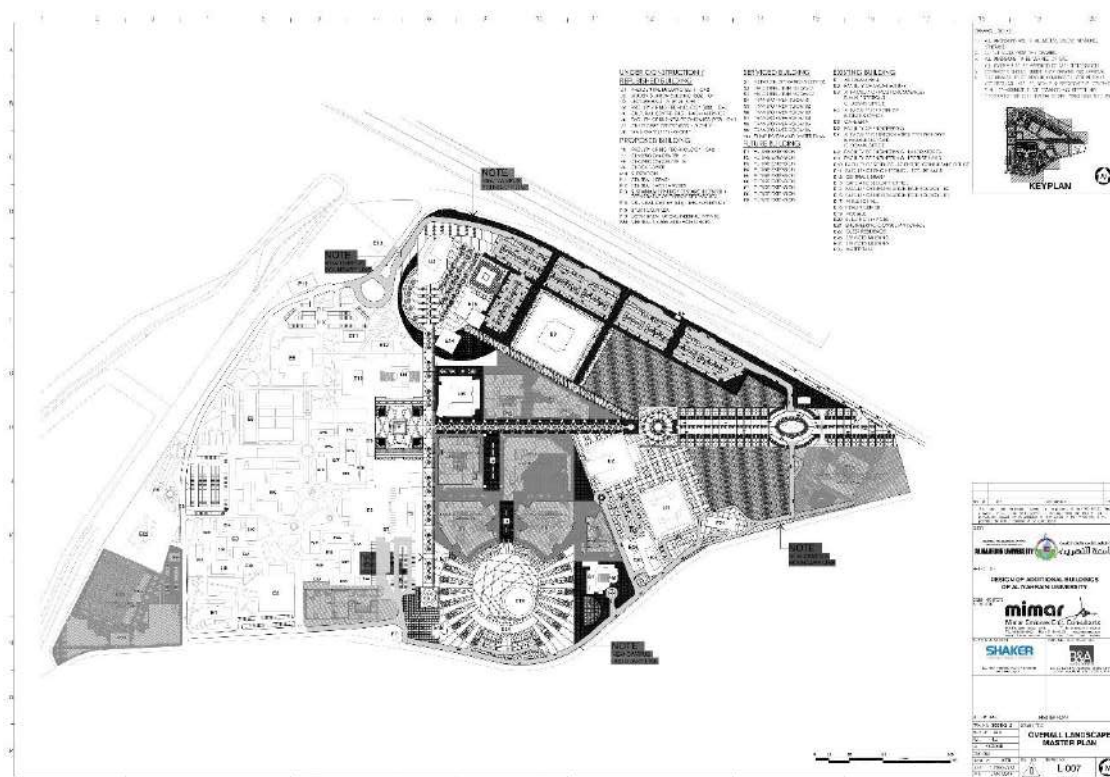
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[1] Setting and Infrastructure (SI)

[1.24] Planning, implementation, monitoring and/or evaluation of all programs related to Setting and Infrastructure through the utilization of Information and Communication Technology (ICT)

Planning: At this stage, a comprehensive digital master plan has been created. This includes identifying needs, setting goals, and developing strategies for integrating ICT across the campus infrastructure. Nahrain University seeks to use project management software to coordinate planning activities, document discussions, and manage timelines.

Evidence:



Responsible Team: Business and Projects Department



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Implementation:

Al-Nahrain University uses smart boards inside its campus and in its classrooms to keep pace with the development in the teaching and learning process for students and to benefit from them in holding electronic workshops to facilitate the retrieval of lessons and stored information in full for the professor and the student, which will raise the efficiency of students and motivate them to continue the educational process.

Evidence:

<https://eng.nahrainuniv.edu.iq/single-blog.php?id=1530>

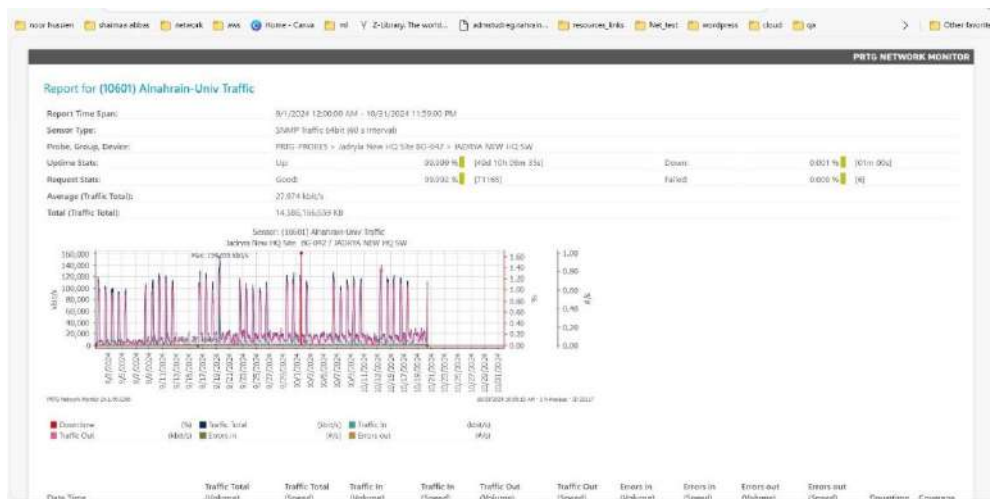
Responsible Team: Faculty Management

Monitoring :

Continuous monitoring of the campus network infrastructure and the use of technology in classrooms to ensure better performance in the teaching and learning process through the presentation of lectures

- information and communication technology: Al-Nahrain University monitors networks using PRTG Network Monitor daily to check network performance.

Evidence:

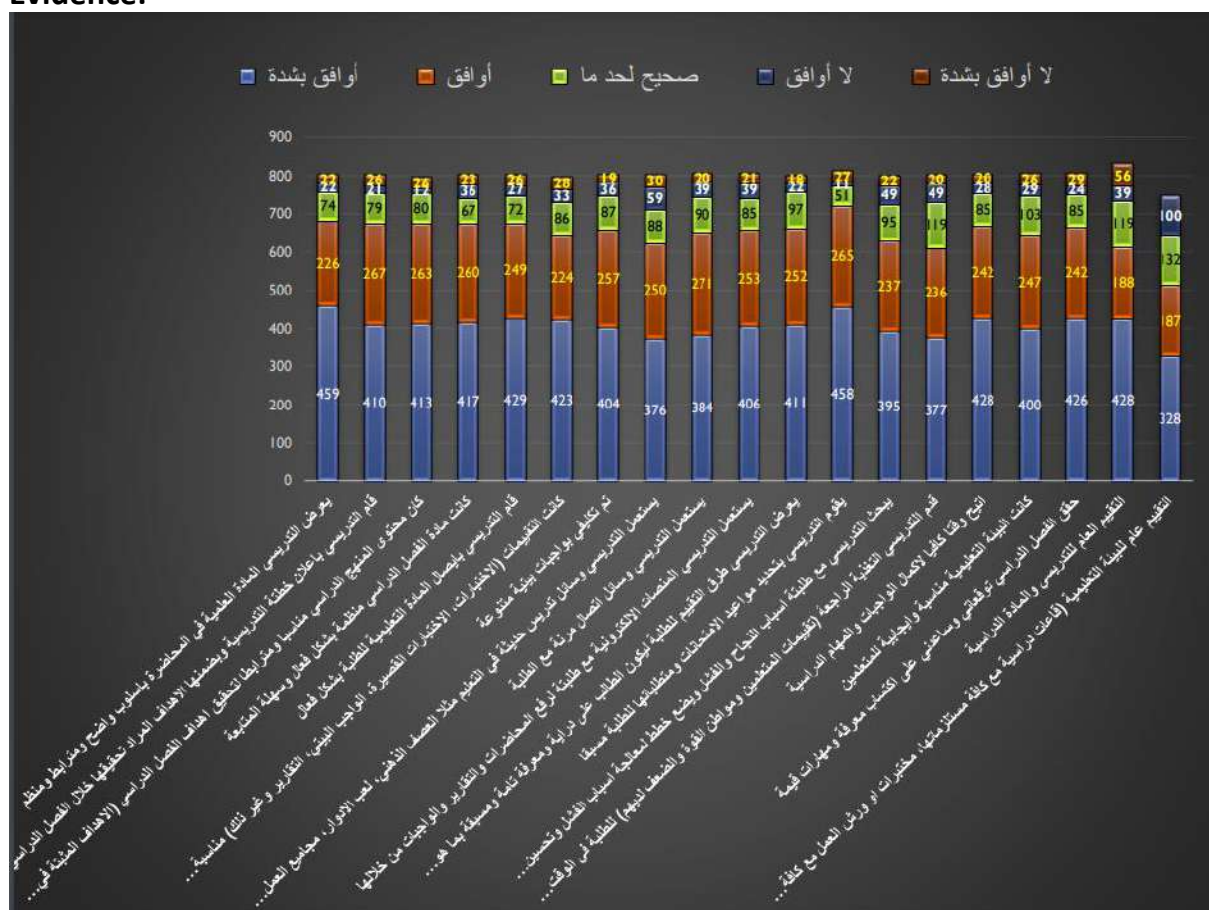




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Evaluation: Al-Nahrain University conducts surveys using information and communication technology, which is represented by Google forms, and collects the results of these surveys about the use of modern technology in the educational process and analyzes these results using Excel.

Evidence:





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Energy and Climate Change (EC)



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[2] Energy & Climate Change (EC)

[2.1] (EC.1) Energy efficient appliances usage

Al-Nahrain University seeks to save energy through the use of many energy-saving devices in all buildings within the campus (south and north).





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No.	Details	Total Number	Total number energy Efficient appliances	Percentage
1	Standard air conditioner	580	418	72%
2	Standard air conditioner(inverter)			
3	Standard lamps	7156	5654	79%
4	Standard lamps(LED)			
5	Desktop computers	660	400	60%
6	Desk top computers(Laptop)			
7	Stand Fan	200	150	75%
8	Refrigerator	150	100	66%
9	Solar system	5000	1000	20%
Average Percentage				62%

Al-Nahrain University generates electrical energy through generators with a capacity of 5000 kilowatts/h, as well as generating electrical energy through solar panels with a capacity of 1000 kilowatts/h.



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[2] Energy & Climate Change (EC)

[2.2] Total campus smart building area (m2)

Total campus smart building area
507706.152 m sq



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[2] Energy & Climate Change (EC)

[2.3] (EC.2) Smart Building implementation (percentage of the total floor area of smart building to the total all floors building area (smart and non-smart buildings area)).



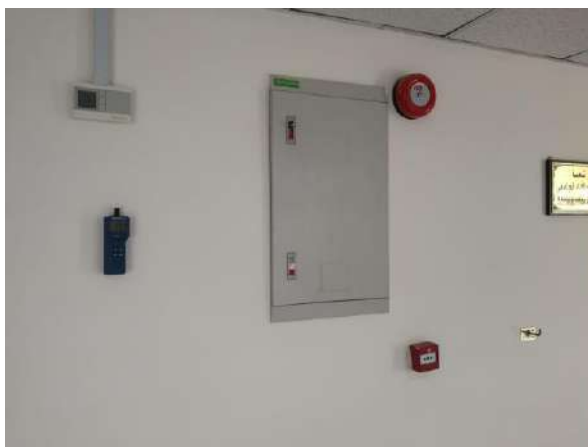


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No.	Name	Place	automation		Safety				energy		water		Indoor environment				lighting				Building Area (m ²)
			B1	B2	S1	S2	S3	S4	E1	E2	A1	A2	I1	I2	I3	I4	L1	L2	L3	L4	
1	University of AL-Nahrain; sothren campus buildings	Jadriah,Iraq	x		x	x	x		x			x	x	x			x		x	x	491627.916 m2
2	University of AL-Nahrain; northern campus buildings	Kadhmiya,Iraq	x		x	x	x		x			x	x	x			x		x	x	16078.236 m2
Total																					507706.152 m2

total building area=1747062 m sq

total smart building area=507706.152 m2

(total smart building area/total building area)×100%

(507706.152 m2/1747062 m2)*100

= %29



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[2] Energy & Climate Change (EC)

[2.4] (EC.3) Number of renewable energy sources in campus

Four sources:

- 1- wind power
- 2- solar power
- 3- bio diesel
- 4- Clean Biomass





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[2] Energy & Climate Change (EC)

[2.5] Renewable energy sources in campus and provide capacity produced in kilowatt-hour

Biodiesel=5000 kilowatt-h



Biodiesel



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Solar Power

Al-Nahrain University supplies its classrooms and scientific laboratories with electrical energy using a solar panel system at a rate of (1000 kilowatt-h) and it is of two types: hybrid and offgrid.



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windmill = 1000 kilowatt-h



Clean Biomass = 100 kilowatt-h



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The refrigeration, heating and power unit at Al-Nahrain University that uses biodiesel as fuel the heat can be used to heat water that used daily in campus.

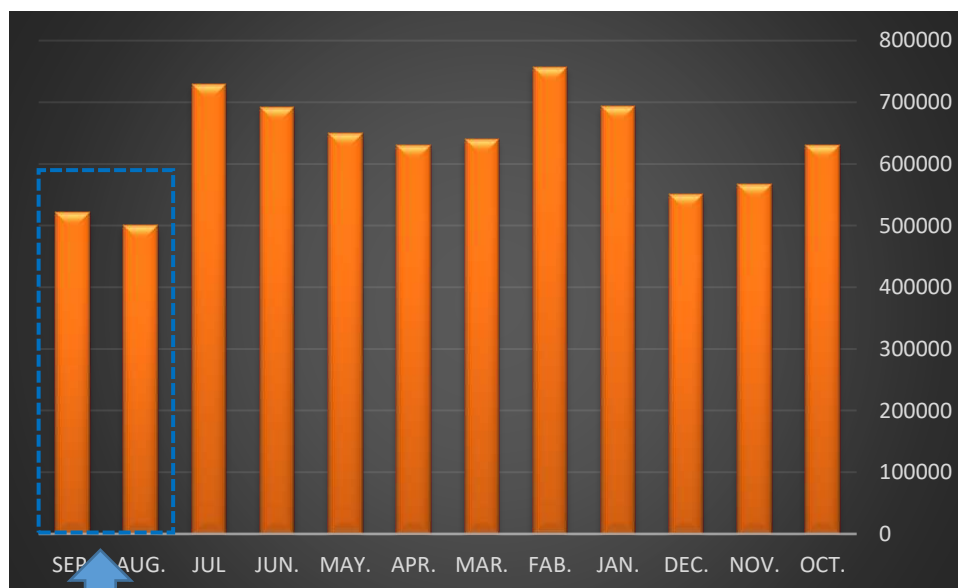


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[2] Energy & Climate Change (EC)

[2.6] Electricity usage per year (in kilowatt-hour)

Electricity usage per year	7559973 kilowatt-hour
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Where in these two months there is a holiday for the under graduate students only



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[2] Energy & Climate Change (EC)

[2.7] (EC.4) The total electricity usage divided by total campus population (kWh per person).

Formula: $(2.6) / 1.12 + 1.14$

$7559973 \text{ kWh} / 12501$

$604,749 = (\text{kwh per person})$



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[2] Energy & Climate Change (EC)

[2.8] (EC.5) The ratio of renewable energy production divided by total energy usage per year



Biodiesel Combined Cooling Heating and Power Integration Unit



Windmill system



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solar system

No	Renewable Energy	Production (in kWh)
1	Biodiesel	5000
2	Clean Biomass	100
3	Solar panel	1000
4	Windmill	1000
	Total	7100

7100/ 7559973 (Electricity usage) =0.09%



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[2] Energy & Climate Change (EC)

[2.9] (EC.6) Elements of green building implementation as reflected in all construction and renovation policies

Modern methods were adopted to reduce the environmental impact in the design of the new buildings of our university, where several matters were relied upon:

- 1- Taking advantage of natural light
- 2- Using sustainable Local materials in the construction process and choosing materials free of volatile organic compounds
- 3- Green spaces were included in the design of the new buildings to enhance the environmental balance and reduce the heat generated by the buildings.
- 4- Use energy-saving devices
- 5- Strategically orient buildings to take advantage of wind and light, which enhances natural ventilation and reduces the use of heating and cooling system





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The buildings of Al-Nahrain University were designed according to systems that support natural lighting for the campus residents, and the pictures below illustrate this.





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Al-Nahrain University uses the central cooling and heating system inside the campus buildings.





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This video shows the green spaces in the university and the amount of vegetation in it.

Evidence: <https://www.facebook.com/share/r/Ly17y7a2bCXBgp8R/?mibextid=UaIRPS>

Our university is striving with great efforts to raise the energy efficiency of its buildings and to pay more attention to nature and energy resources through the use of energy-saving devices, the policy of using renewable energy and the energy conservation program, green buildings, adaptation to climate change, and the policy of reducing greenhouse gas emissions through the implementation of the energy management policy.

Evidence: <https://sustainability.nahrainuniv.edu.iq/ar/node/132>

Evidence: <https://sustainability.nahrainuniv.edu.iq/ar/node/136>

Evidence: <https://sustainability.nahrainuniv.edu.iq/ar/node/138>



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[2] Energy & Climate Change (EC)

[2.10] (EC.7) Greenhouse gas emission reduction program

Al-Nahrain University uses various means to reduce greenhouse gas emissions such as

- 1- Planting trees and plants on the campus, such as a program to plant one million trees to increase the green spaces on the campus.
- 2- Using energy-saving devices, such as electronic car garages, using electronic cards.
- 3- Using solar energy to produce energy in |(solar irrigation, solar-powered cooling, Water purification using solar energy Planting trees and plants, chargers for mobile phones).
- 4- Using a windmill to generate electric power.

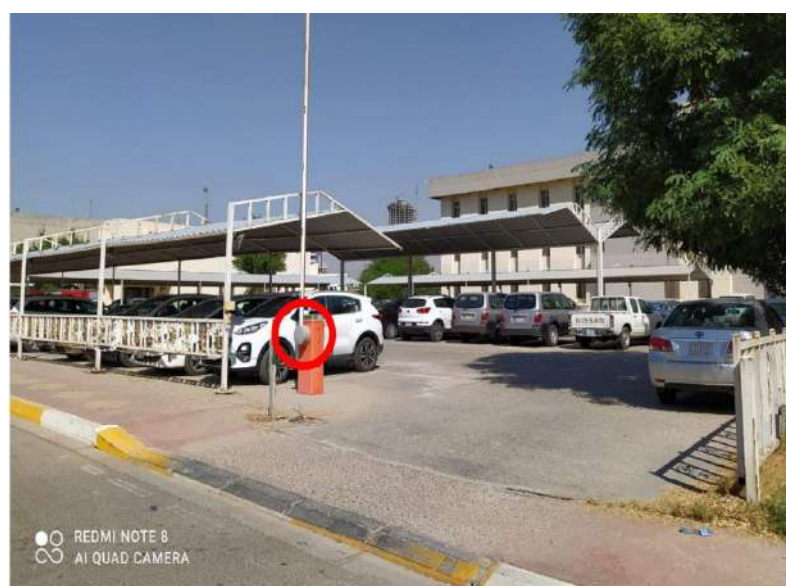




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Electronic car garage



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Solar watering device



This device has been prepared for the following reasons

- 1- Using technology (renewable energies) and benefiting from solar energy
- 2- Special parking to reduce the number of vehicles on campus.
- 3- Ride share is designed to encourage riders to adopt healthy and sustainable transportation options.
- 4- Reducing the workforce, as irrigation is done via the Internet.

The parts of the device are plastic tubes, holes are made as desired, and a little soil and fibers are placed in them. Capillary hoses are connected to each anvil built in one side of the device Connected to a water bottle that determines its size according to the device and a developer connected to power charging strips



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where drip irrigation is programmed each time It is determined by the type of plant.





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[2] Energy & Climate Change (EC)

[2.11] Please provide the total carbon footprint (CO₂ emission in the last 12 months, in metric tons)

CO₂ (electricity)

$$\begin{aligned} &= \frac{\text{electricity usage per year (kWh)}}{1000} \times 0,84 \\ &= (7559973 \text{ kW}/1000) \times 0.84 \\ &= 6,350.43 \text{ metric tons} \end{aligned}$$

CO₂ (bus)

$$\begin{aligned} &= \frac{\text{number of shuttle bus in your university} \times \text{total trips for shuttle bus service each day} \times \text{approximate travel distance of vehicle each day inside campus only (KM)} \times 240}{100} \times 0,01 \\ &= ((20 \times 2 \times 2 \text{ km} \times 240) / 100) \times 0.01 \\ &= (19200 / 100) \times 0.01 \\ &= 1,92 \text{ metric tons} \end{aligned}$$

CO₂ (cars)

$$\begin{aligned} &= \frac{\text{number of cars entering your university} \times 2 \times \text{approximate travel distance of vehicle each day inside campus only (KM)} \times 240}{100} \times 0,02 \\ &= ((250 \times 2 \times 2 \text{ km} \times 240) / 100) \times 0.02 \\ &= (240000 / 100) \times 0.02 \\ &= 48 \text{ metric tons} \end{aligned}$$

CO₂ (motorcycle)

$$\begin{aligned} &= \frac{\text{number of motorcycle entering your university} \times 2 \times \text{approximate travel distance of vehicle each day inside campus only (KM)} \times 240}{100} \times 0,01 \\ &= ((10 \times 2 \times 2 \text{ km} \times 240) / 100) \times 0.01 \\ &= (9600 / 100) \times 0.01 \\ &= 0,96 \text{ metric tons} \end{aligned}$$

CO₂ (total)

$$\begin{aligned} &= 6,350.43 + 1,92 + 48 + 0,96 \\ &= 6,398.43 \text{ metric tons} \end{aligned}$$

Carbon footprint in 2023 = 6,398.43 metric tons



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[2] Energy & Climate Change (EC)

[2.12] (EC.8) The total carbon footprint divided by total campus population (metric tons per person).

$$\begin{aligned}\text{Formula: } & (2.11)/(1.12+1.14) \\ & = 6,398.43/12501 \\ & = 0.5\end{aligned}$$

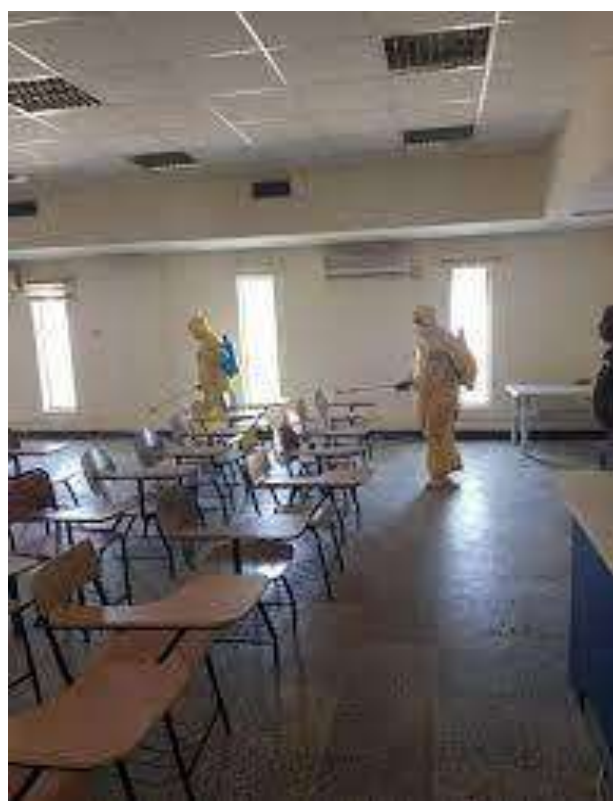


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[2] Energy & Climate Change (EC)

[2.13] (EC.9) Number of innovative program in Energy and Climate Change

1- sterilization operations





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Al-Nahrain University is carrying out continuous campaigns to sterilize university buildings and classrooms by specialized cadres to limit the spread of Covid 19

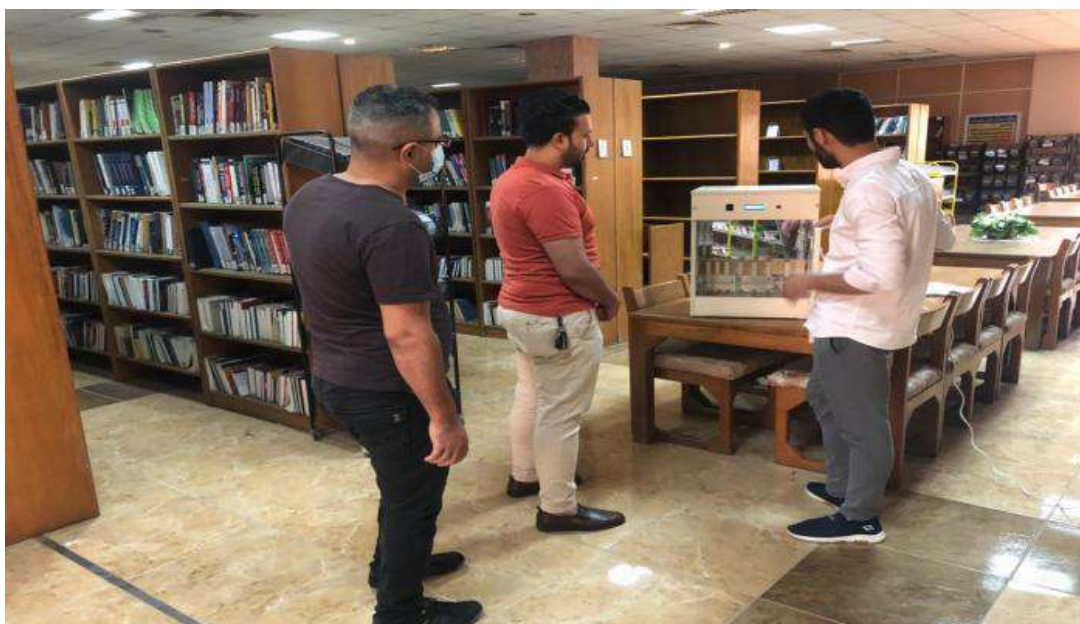
evidence link : <https://youtu.be/rf9VK5d6788>

evidence link : <https://youtu.be/W63rDyKpIZg>

evidence link : <https://youtu.be/XJ1AuispxTU>



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2- Book sterilizer device

Al-Nahrain University has a book sterilizer that works on the principle of ultraviolet sterilization

The device sterilizes books and thesis to prevent corona virus and protect teaching and study staff.

3- Hand sanitizer device



Al-Nahrain University has deployed hand sanitizers in all campus buildings at the entrances to the main gates of each building for use by campus residents to limit the spread of COVID-19.



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4- Electric sterilizer device

Al-Nahrain University uses an electric sterilizer to ensure the sterilization of the atmosphere and surfaces to ensure the safety of the campus residents.

5- air sanitizer filter





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Al-Nahrain University uses filters to sanitize the air from viruses, bacteria and gases emitted from outside or inside the building to preserve the building environment from pollutants.



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[[2] Energy & Climate Change (EC)

[2.14] (EC.10) Impactful university program on climate change

No	Programs	Scope (international / regional / national / local / etc)	Total Participants	Photo	URL	Short Description
1	Course on Sustainability 2024 (28/April /2024 – 5/May/ 2024)	On campus	2 Teachers 28 Students		https://qa.nahrainuniv.edu.iq/node/265	The Department of Quality Assurance and University Performance / Accreditation Division, in coordination with the College of Engineering, held a course entitled (ISO Energy and Environment Course), which was held from (4/28/2024) to (5/5/2024) in Tigris Hall.
2	build windmills as a power station	Surrounding communities	...		...	Al-Nahrain University is building windmills as a power station, and it can produce electricity of around 1000 watts/hour, and we also process of constructing other windmills and distributing them throughout the campus to generate electricity for buildings using wind energy..



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3	Solar energy system	Campus environment	...		https://nahrainuniv.edu.iq/ar/node/25612	AL-Nahrain University has installed additional solar panels to generate solar energy for student housing on campus.
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[2] Energy & Climate Change (EC)

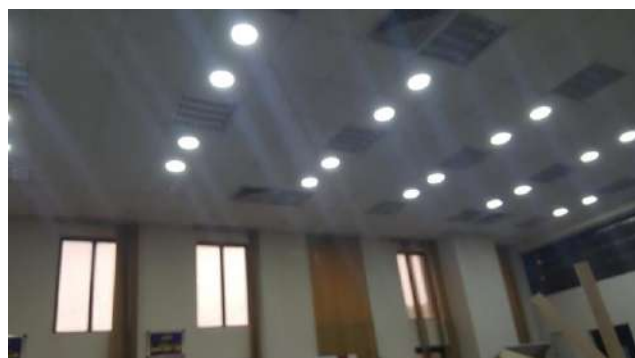
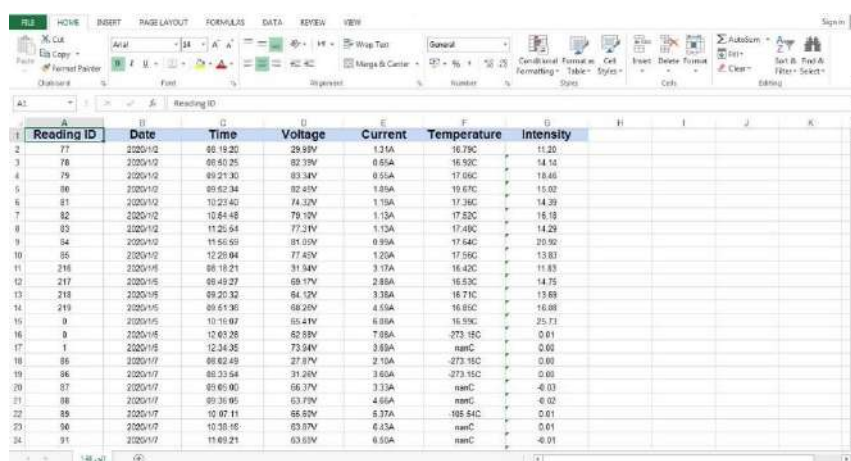
[2.15] Planning, implementation, monitoring and/or evaluation of all programs related to Energy and Climate Change through the utilization of Information and Communication Technology (ICT)

Stage	Activities/Programs	ICT Utilization	Evidence	Timeline	Responsible Team/Department
Planning	plans for installing solar panels	Performance monitoring program, Excel program	site assessment reports	2020	Renewable Energy Research Center
Implementation	Install solar panels,.	Project management tools, installation scheduling software	Installation logs, energy generation data	2020	Renewable Energy Research Center
Monitoring	Track renewable energy production	Renewable energy monitoring systems	Energy production reports, performance analytics	Periodically	Renewable Energy Research Center



Energy Installation

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Reading ID	Date	Time	Voltage	Current	Temperature	Intensity
77	2020/1/2	09:19:20	29.99V	1.31A	16.79C	11.20
78	2020/1/2	09:50:25	82.39V	0.65A	16.50C	14.14
79	2020/1/2	09:21:30	83.34V	0.55A	17.05C	18.46
80	2020/1/2	09:52:34	82.85V	1.85A	19.47C	15.02
81	2020/1/2	10:23:40	74.32V	1.15A	17.34C	14.29
82	2020/1/2	10:54:48	79.12V	1.13A	17.52C	16.18
83	2020/1/2	11:25:54	77.31V	1.13A	17.49C	14.29
84	2020/1/2	11:56:59	81.05V	0.99A	17.64C	20.52
85	2020/1/2	12:28:04	77.45V	1.20A	17.55C	13.03
216	2020/1/5	08:18:21	31.54V	3.15A	16.40C	11.83
217	2020/1/5	08:49:27	69.17V	2.86A	16.53C	14.75
218	2020/1/5	09:20:32	84.12V	3.38A	16.71C	13.68
219	2020/1/5	09:51:36	68.26V	4.55A	16.85C	16.88
9	2020/1/5	10:18:07	55.41V	6.89A	16.59C	25.73
8	2020/1/5	12:05:28	82.89V	7.85A	-273.15C	0.01
1	2020/1/5	12:34:36	73.84V	3.89A	nanC	0.00
85	2020/1/7	08:52:49	27.87V	2.10A	-273.15C	0.00
86	2020/1/7	08:33:54	31.26V	3.60A	-273.15C	0.00
87	2020/1/7	09:05:00	66.37V	3.33A	nanC	-0.03
88	2020/1/7	09:38:05	63.87V	4.65A	nanC	0.02
89	2020/1/7	10:00:11	66.82V	4.37A	198.54C	0.01
90	2020/1/7	10:35:16	63.07V	6.13A	nanC	0.01
91	2020/1/7	11:03:21	63.63V	6.55A	nanC	-0.01

Installation and operation and monitoring of solar energy in university buildings

- **Planning:** Al-Nahrain University seeks, in the coming years, to increase the installation of solar panels throughout the campus to produce more energy. Since installing solar panels, Nahrain University has used a program to monitor and manage their performance. The program exports this data to Excel for deeper data analysis, creating customized reports, and comparing performance over different periods.
- **Implementation:** The solar panels were installed by the competent committee in 2020.
- **Monitoring:** Al-Nahrain University monitors the efficiency of the solar system through Excel program reports and performs continuous maintenance on these panels.



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Waste (WS)



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[3] Waste (WS)

[3.1] (WS.1) 3R (Reduce, Reuse and Recycle) Program for University Waste





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Sorting plastic on campus



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Al-Nahrain University follows a policy of sorting waste such as paper, plastic, electronic and chemical materials scattered on campus and recycling them in cooperation with a local institution affiliated with the capital Baghdad (Amanat Baghdad) and using them in the future to produce metals. Baghdad paper and used in the future to produce metal and paper.



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Web Address : <https://nahrainuniv.edu.iq/>

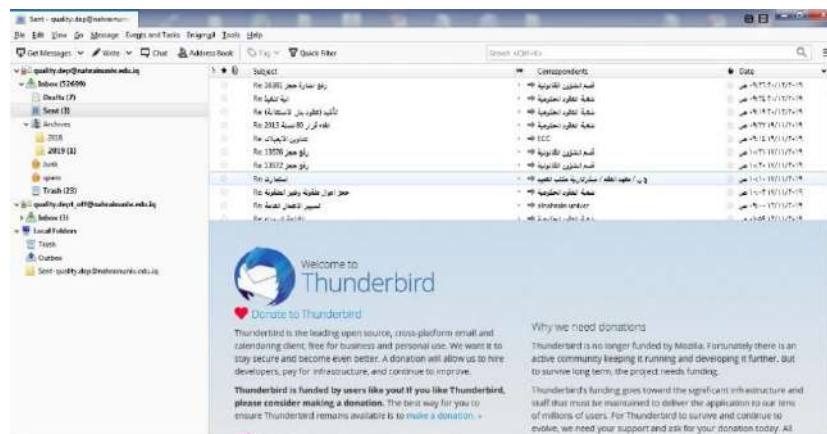
Evidence: <https://sustainability.nahrainuniv.edu.iq/ar/node/137>



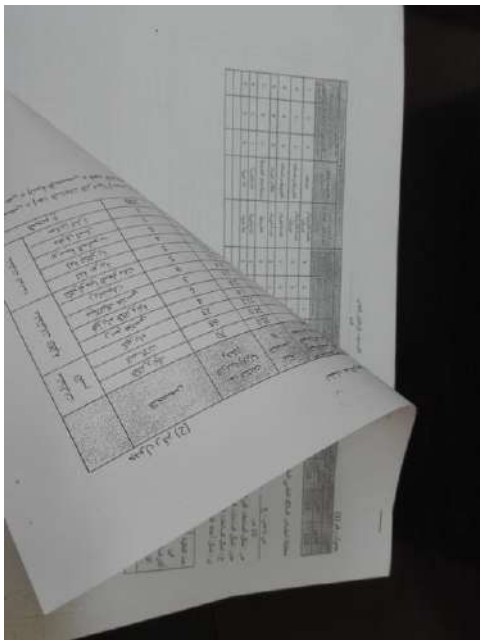
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[3] Waste (WS)

[3.2] Program to reduce the use of paper and plastic on campus



Correspondence via internet



Print on two sides of the paper



Use a glass cup



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Al-Nahrain University supports systems that reduce paper use by:

- 1- Print on two sides of the paper.
- 2- Using of e-mail for correspondence over the Internet or via social media site.
- 3- Reuse of plastic bags and use a glass cup instead of a plastic cup to reduce waste.
- 4- Smart board.



smart board

Al-Nahrain University uses the electronic board (smart board) to give lectures to students, compared to traditional boards in most of the university's faculties.



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Web Address : <https://nahrainuniv.edu.iq/>

Additional evidence link :

<https://sustainability.nahrainuniv.edu.iq/ar/node/137>

Additional evidence link :

<https://sc.nahrainuniv.edu.iq/viewnews.php?art=1481&prn=15#news>

Additional evidence link :

<https://sc.nahrainuniv.edu.iq/viewnews.php?art=1383#news>



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[3] Waste (WS)

[3.3] Total volume organic waste produced (ton)

Type of organic waste	Total Produced (ton)
- food waste	90
- leaf	30



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[3] Waste (WS)

[3.4] Total volume organic waste treated (tons)

Type of waste	amuount (ton)			
	total	reduced	reused	recycled
organic	120	24	30	
- food waste	90	18	22.5	
- leaf	30	6	7.5	



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[3] Waste (WS)

[3.5] (WS.3) Organic waste treatment

The university implements a set of programs in treating organic waste, which has a significant impact on the environment and student awareness.

1- The university provides organic waste sorting boxes in addition to other waste boxes, which makes it easier for students and employees to sort waste properly.





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2- Implementing the compost program on campus, where food scraps are collected from student clubs or tree leaves and converted into fertilizer used in gardens. Recycling organic waste at Al-Nahrain University. The recycling process for organic waste consists of three stages:

The first stage: collecting plant and weed waste

The second stage: burial and fermentation of plant remains, tree leaves, and weeds

The third stage: obtaining organic fertilizer (peat moss).





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Al-Nahrain University formed a periodic committee to follow up on the implementation of the decomposing organic waste disposal program. The decomposition of plants and animals in all their solid and liquid states for use as fertilizer for trees and herbs on campus.

3-Organizing workshops and lectures to introduce students to the importance of organic waste and ways to manage it, which enhances environmental awareness on campus.

Evidence : <https://eng.nahrainuniv.edu.iq/single-blog.php?id=1269>

4-Encouraging students to participate in research projects related to organic waste management and ways to improve it.

5- The University of Nahrain has a cooperation program with the Baghdad Municipality to manage organic waste, and waste is disposed of within the University of Nahrain by transporting it outside the city to designated places in cooperation with the Capital Municipality.





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[3] Waste (WS)

[3.6] Total volume inorganic waste produced (tons)

Type of inorganic waste	Total Produced (ton)
- paper	144
- soft plastic	48
- hard plastic	36
- etc	12



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[3] Waste (WS)

[3.7] Total volume inorganic waste treated (tons)

Type of waste	amuount (ton)				
	total	reduced	reused	down-cycled	up-cycled
inorganic non-toxic	240	12	96		
- paper	144	7	50		
- soft plastic	48	3	40		
- hard plastic	36	2	6		
- etc	12				



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[3] Waste (WS)

[3.8] (WS.4) Inorganic waste treatment



Al-Nahrain University formed a periodic committee to follow up on the disposal of inorganic waste in all its cases and types.

The method of managing inorganic waste inside Al-Nahrain University is done through a biological incinerator. This incinerator specializes in destroying biological models, microorganisms, blood bottles, and others resulting from laboratory tests and laboratory analyzes, as they can be used in the future in energy production.

Evidence: <https://sustainability.nahrainuniv.edu.iq/ar/node/137>



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[3] Waste (WS)

[3.9] Total volume toxic waste produced (tons)

Type of toxic waste	Total Produced (ton)
- electronics	0.5
- lab. Chemicals	1
- etc	



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[3] Waste (WS)

[3.10] Total volume toxic waste treated (tons)

Type of waste	amuount (ton)				
	total	reduced	reused	down-cycled	up-cycled
toxic	1.5	0.1			
- electronics	0.5	0.01			
- lab. Chemicals	1	0.04			
- etc					

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[3] Waste (WS)

[3.11] (WS.5) Toxic waste treatment



Al-Nahrain University has formed a periodic committee to follow up on the management of toxic biological waste, which must be dealt sufficient care to ensure that it does not affect public health because it poses a health risk as a result of pollution.

The management method is carried out inside Al-Nahrain University through a thermal incinerator and takes place in two stages:

1- The first stage is the burning of toxic medical waste.



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2- The second stage is to burn the gases emitted from those wastes resulting from the first stage to bring out the damaged materials in a safe and environmentally friendly manner.

3-The Chemical, Biological and Radiological Safety and Security Department of the Iraqi Ministry of Education and Al-Nahrain University have been contracted to destroy and treat damaged and expired chemical and biological materials.



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[3] Waste (WS)

[3.12] (WS.6) Sewage disposal



Sewage is dealt with at Al-Nahrain University by draining this water through large underground pipes and connecting them with the public sewage pipes that were prepared by the Capital Municipality.



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[3] Waste (WS)

[3.13] Planning, implementation, monitoring and/or evaluation of all programs related to Waste Management through the utilization of Information and Communication Technology (ICT)

Stage	Activities/Programs	ICT Utilization	Evidence	Timeline	Responsible Team/Department
Planning	Develop 3R strategy, set targets for waste reduction	noun	Strategic plan documents	2020	Sustainable Development Unit, Quality Assurance Department
Implementation	Install recycling bins, initiate waste segregation	noun	waste segregation reports	2020	Services Division
Monitoring	Track waste collection and recycling rates	noun	Recycling rate reports, efficiency analytics	Continuously	Sustainable Development Unit, Quality Assurance Department
Evaluation	Assess effectiveness of 3R program	noun	Program evaluation reports, stakeholder feedback	Annually	Sustainable Development Unit, Quality Assurance Department



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- **Planning:** A comprehensive 3R strategy was developed and targets were set to reduce waste. A series of educational workshops were held to understand the mechanism of waste sorting on a regular basis.
- **Implementation:** Installing recycling bins throughout the campus and starting waste separation programs.
- **Monitoring:** Monitoring waste collection and recycling operations by specialized committees.
- **Evaluation:** The university evaluates the effectiveness of the 3R program.



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Water (WR)



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[4] Water (WR)

[4.1] (WR.1) Water conservation program and implementation

Al-Nahrain University has several water conservation programs:

- 1- Al-Nahrain University exploits rain water and uses it to irrigate and wash cars by providing a large tank to store rainwater and distribute it through water channels on the campus for use at any time during the year.



Tank to store rainwater



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Water channels on the campus

- 2- The university buildings also have a separate sewage system for clean water (rain water). Thus rainwater is collected from the rooftops of the university buildings and then drained into local ponds and canals surrounding the buildings to irrigate the plants on the campus.





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- 3- Another system is the use of drift, which helps water flow to trees and grasses through channels to exploit rainwater at no cost on the Al-Nahrain University campus.





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[4] Water (WR)

[4.2] (WR.2) Water recycling program implementation

Al-Nahrain University has a water recycling system by filtering the water from impurities and storing it in a tank for use in irrigation and car washing.



filters for water treatment



Tank of treated water



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Al-Nahrain University has a policy for water use, treatment, and the use of energy-saving faucets, in addition to conducting workshops to raise awareness among campus residents.

Evidence: <https://sustainability.nahrainuniv.edu.iq/ar/node/139>



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[4] Water (WR)

[4.3] (WR.3) Water efficient appliance usage

Al-Nahrain University uses water-saving measures in sanitation devices such as automatic control devices, low-flow toilets, and faucets with low floats to reduce the consumption of used water in addition to the use of treated water and rainwater to reduce the consumption of clean water.





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[4] Water (WR)

[4.4] (WR.4) Consumption of treated water

The university uses a reverse osmosis water purification system that works on direct and alternating current and works on solar energy and national electricity.

Filters are also used to treat and purify water for reuse, thus the university consumes more than 75% of the treated water and is consumed by students and staff.



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Al-Nahrain University has a policy for water use, treatment, and the use of energy-saving faucets, in addition to conducting workshops to raise awareness among campus residents.

Evidence: <https://sustainability.nahrainuniv.edu.iq/ar/node/139>



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[4] Water (WR)

[4.5] (WR.5) Water pollution control in campus area



Al-Nahrain University follows the policy of periodically checking the percentage of water pollution by conducting laboratory operations to separate polluting materials within the laboratories of the university through medical staff so that samples are collected and analyzed periodically to ensure the safety of water from pollutants.

Additional evidence link: <https://sustainability.nahrainuniv.edu.iq/ar/node/139>

Additional evidence link: https://brc.nahrainuniv.edu.iq/?page_id=5032&lang=en

Additional evidence link: https://brc.nahrainuniv.edu.iq/?page_id=5203&lang=en



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[4] Water (WR)

[4.6] Planning, implementation, monitoring and/or evaluation of all programs related to Water Management through the utilization of Information and Communication Technology (ICT)

Stage	Activities/Programs	ICT Utilization	Evidence	Timeline	Responsible Team/Department
Planning	Develop water conservation strategy, set targets	Water usage analysis	Strategic plan documents	2020	Sustainable Development Unit, Quality Assurance Department
Implementation	Install water-saving fixtures, promote awareness	noun	awareness campaign reports	2020	Department of Construction and Projects, Sustainability Unit
Monitoring	water usage and savings	noun	automatic control devices, low-flow toilets, and faucets with low floats	Ongoing	University Services Division

- Planning: Develop a comprehensive water conservation strategy and set measurable targets for water savings.

- Implementation: Install water-saving fixtures (e.g., low-flow taps and toilets) across the campus and promote water conservation awareness through holding educational workshops for the campus community on the importance of water and ways to rationalize its consumption.

- Monitoring: Use water-saving devices and use rainwater and treated water for irrigation to save water usage.



University : Al –Nahrain University
Country : Iraq
Web Address : <https://nahrainuniv.edu.iq/>

Evidence: <https://sustainability.nahrainuniv.edu.iq/ar/node/139>





University : Al –Nahrain University
Country : Iraq

Transportation (TR)



University : Al –Nahrain University
Country : Iraq
Web Address : <https://nahrainuniv.edu.iq/>

[5] Transportation (TR)

[5.1] Number of cars actively used and managed by University

61 cars

[5.2] Number of cars entering the university daily

250 cars

[5.3] Number of motorcycles entering the university daily

10 motorcycles



University : Al –Nahrain University
Country : Iraq
Web Address : <https://nahrainuniv.edu.iq/>

[5] Transportation (TR)

[5.4] (TR.1) The total number of vehicles (cars and motorcycles) divided by total campus population

$$\begin{aligned}\text{Formula: } (5.1+5.2+5.3)/ (1.12+ 1.14) &= (61+250+10)/ 12,501 \\ &= 321/12,501 \\ &= 0.025\end{aligned}$$





University : Al –Nahrain University
Country : Iraq
Web Address : <https://nahrainuniv.edu.iq/>

[5] Transportation (TR)

[5.5] (TR.2) Shuttle service





University : Al –Nahrain University
Country : Iraq
Web Address : <https://nahrainuniv.edu.iq/>

- 1- Al-Nahrain University provides special buses to transport its students on campus, in addition to providing an external means of transportation for employees to their homes.
- 2- The university provides small government cars to perform their field work on campus.





University : Al –Nahrain University
Country : Iraq
Web Address : <https://nahrainuniv.edu.iq/>

[5] Transportation (TR)

[5.6] Number of shuttles operated in your university
20

[5.7] Average number of passengers of each shuttle
20

[5.8] Total trips of shuttle services each day
2



University : Al –Nahrain University
Country : Iraq
Web Address : <https://nahrainuniv.edu.iq/>

[5] Transportation (TR)

[5.9] (TR.3) Zero Emission Vehicles (ZEV) policy on campus

Al-Nahrain University is looking to buy hybrid cars in agreement with car manufacturers such as Toyota, which in turn helps reduce toxic emissions on campus.

Recently, the campus residents, employees, and faculty members have been directed to purchase Japanese and Korean hybrid cars to reduce the emission of combustion gases from gasoline and to preserve the campus environment.



Evidence: <https://sustainability.nahrainuniv.edu.iq/ar/node/140>



University : Al –Nahrain University
Country : Iraq
Web Address : <https://nahrainuniv.edu.iq/>

[5] Transportation (TR)

[5.10] Average number of Zero Emission Vehicles (e.g. bicycles, cano, snowboard, electric car, etc.) on campus per day

Average number of Zero Emission Vehicles = 25



University : Al –Nahrain University
Country : Iraq
Web Address : <https://nahrainuniv.edu.iq/>

[5] Transportation (TR)

[5.11] (TR.4) The total number of Zero Emission Vehicles (ZEV) divided by total campus population.

Formula: $(5.10)/(1.12+1.14)=$

$$25/12501=0.002$$



University : Al –Nahrain University
Country : Iraq
Web Address : <https://nahrainuniv.edu.iq/>

[5] Transportation (TR)

[5.12] Total ground parking area

Total ground parking area = 16572.29 sq m



University : Al –Nahrain University
Country : Iraq
Web Address : <https://nahrainuniv.edu.iq/>

[5] Transportation (TR)

[5.13] (TR.5) Ratio of parking area to total campus area

$$\begin{aligned} &\text{Formula: } ((5.12/1.5) \times 100\%) \\ &= ((16572.29 \text{ sq m} / 765218.03 \text{ m sq}) * 100\%) \\ &= 0.0216 \end{aligned}$$



Southern campus in Al-nahrain University
Total area=11544 sq m



University : Al –Nahrain University
Country : Iraq
Web Address : <https://nahrainuniv.edu.iq/>



Northern campus in Al-nahrain University
Total area=5028.29 sq m



University : Al –Nahrain University
Country : Iraq
Web Address : <https://nahrainuniv.edu.iq/>





University : Al –Nahrain University
Country : Iraq
Web Address : <https://nahrainuniv.edu.iq/>

Evidence link: <https://n9.cl/my6x4>



University : Al –Nahrain University
Country : Iraq
Web Address : <https://nahrainuniv.edu.iq/>

[5] Transportation (TR)

[5.14] (TR.6) Transportation program designed to limit or decrease the parking area on campus

Electronic car garage



- 1- Al-Nahrain University uses an electronic parking garage using electronic cards to reduce the parking area.
- 2- Designating specific student parking areas.
- 3- Encourage campus residents to walk.

Al-Nahrain University also created a new electronic park to

limit the parking space on campus, as shown in the picture below.



University : Al –Nahrain University
Country : Iraq
Web Address : <https://nahrainuniv.edu.iq/>





University : Al –Nahrain University
Country : Iraq
Web Address : <https://nahrainuniv.edu.iq/>

[5] Transportation (TR)

[5.15] (TR.7) Number of initiatives to decrease private vehicles on campus





University : Al –Nahrain University
Country : Iraq
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Al-Nahrain University is working to reduce the number of vehicles on campus by implementing initiatives, including:

1. Shuttle/bus campus inside campus
3. Walking
4. Car sharing



University : Al –Nahrain University
Country : Iraq
Web Address : <https://nahrainuniv.edu.iq/>

[5] Transportation (TR)

[5.16] (TR.8) Pedestrian path on campus





University : Al –Nahrain University
Country : Iraq
Web Address : <https://nahrainuniv.edu.iq/>



Al-Nahrain University provides pedestrian paths with paths for people with disabilities and night lighting for campus residents.



University : Al –Nahrain University
Country : Iraq
Web Address : <https://nahrainuniv.edu.iq/>





University : Al –Nahrain University
Country : Iraq
Web Address : <https://nahrainuniv.edu.iq/>

[5] Transportation (TR)

[5.17] Approximate daily travel distance of a vehicle inside campus only (in Kilometers)

Daily travel distance of a vehicle inside campus = 2 Kilometers



University : Al –Nahrain University
Country : Iraq
Web Address : <https://nahrainuniv.edu.iq/>

[5] Transportation (TR)

[5.18] Planning, implementation, monitoring and/or evaluation of all programs related to Transportation through the utilization of Information and Communication Technology (ICT)

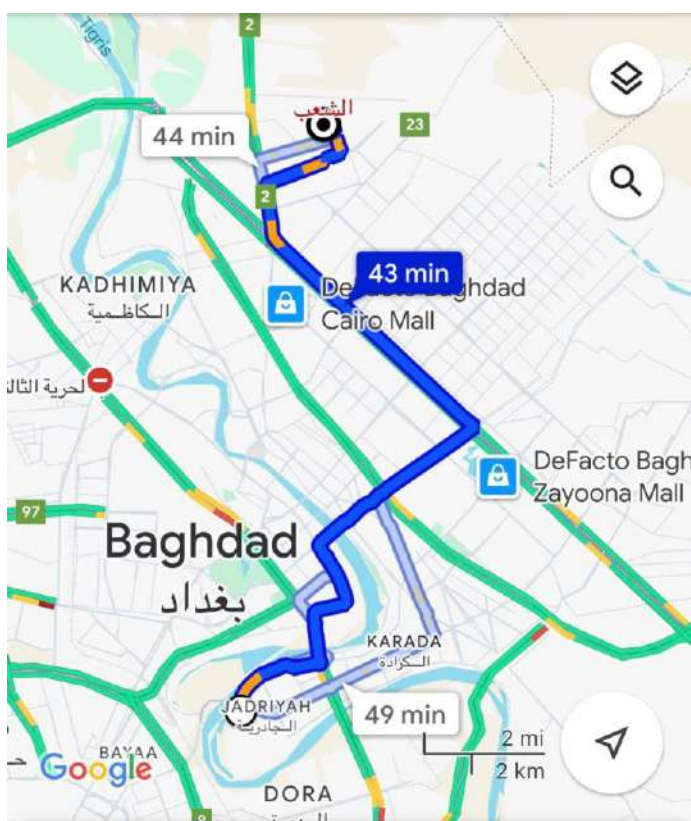
Stage	Activities/Programs	ICT Utilization	Evidence	Timeline	Responsible Team/Department
Planning	Assess transportation needs, plan shuttle routes	Transport planning	Needs assessment reports, route plans	Jan 2023-Jan 2024	Transportation Office
Implementation	Implement process transportation	Tracking via mobile app	Service reports, app usage data	Jan 2023-Jan 2024	Transportation Office
Monitoring	Track shuttle usage, optimize routes	Real-time tracking software by app	Usage analytics, optimization reports	Jan 2023-Jan 2024	Transportation Office
Evaluation	Evaluate shuttle service efficiency	Transport analysis, user feedback surveys	Efficiency reports, survey results	Jan 2023-Jan 2024	Transportation Office

- **Planning:** Assess the transportation needs of the campus community and plan efficient transportation routes to meet these needs. The transportation plan was defined by analysing off-campus traffic data to transport employees and planning daily to determine the best routes.
- **Implementation:** Transport services are deployed according to planned routes and Google Maps is used to get real-time bus transport information to provide real-time updates.
- **Monitoring:** Track shuttle bus usage and optimize routes based on usage data. Use Google Maps real-time tracking map to monitor shuttle bus locations.
- **Evaluation:** Evaluating the efficiency and effectiveness of shuttle services. Shuttle services are analysed through periodic meetings, presenting problems and proposing solutions based on user surveys through questionnaires.



University : Al –Nahrain University
Country : Iraq
Web Address : <https://nahrainuniv.edu.iq/>

The path of the Al Shaab area line, starting from the university in the Al Jadriya area, reaching the Al Shaab area.





University : Al –Nahrain University
Country : Iraq

Education (ED)



University : Al –Nahrain University
Country : Iraq
Web Address : <https://nahrainuniv.edu.iq/>

[6] Education & Research (ED)

[6.1] Number of courses/subjects related to sustainability offered

Number of courses (2023) = 58

Department: Chemical Engineering

courses
Renewable and nonrenewable energy
Solar energy
Wind energy
Geothermal energy
Ocean energy
Hydropower energy
Energy from Biomass
Production of hydrogen and storage
Fuel cell

Department of Biotechnology

courses
Plant physiology
Bio fuel
Phytoremediation



University : Al –Nahrain University
Country : Iraq
Web Address : <https://nahrainuniv.edu.iq/>

Republic of Iraq
The Ministry of Higher Education
& Scientific Research

University: Al Nahrain

College: Engineering college

Department: Architecture

Stage: Master

Instructor name: Shaimaa Hameed Hussein

Academic status: Assistant Professor

Qualification: Doctorate

Place of work: Architectural Engineering Dep



Urban Sustainability

Course Weekly Outline

Week	Topics Covered	Note
1	Sustainable Urban Design Strategies.	
2	Tactical Urbanism	books review
3	Green & Sustainable Cities	books review
4	Smart City Design Principles	books review
5	Resilient Design Principles & compact cities	books review
6	Sustainable Urban Dynamics	books review
7	Sustainable urban form& good city form	books review
8	Public good in the city	books review
9	LEED for Neighborhood Development	books review
10	Urban sprawl & high density	books review
11	Sustainable Urban Landscape - Theory and Method	books review
12	Biomimicry and urban design	books review
13	Exam	
14	Social responsibility	books review
15	Vibrant city	
16	Final exam	



University : Al –Nahrain University
Country : Iraq
Web Address : <https://nahrainuniv.edu.iq/>

Department: Electronic and Communication Engineering

Alnahrain University		Study Plan for the B.Sc.				
College of Engineering		Academic year 2018-2019				
Department of Electronic and Communications Engineering		The Third Year				
The First Semester						
No.	Code	Subject	Hours per Week			Units
			Theory	Applied	Tutorial	
1	ECER310	Engineering Statistics and Probability	3	-	1	3
2	ECER311	Energy Conversion I	3	-	-	3
3	ECER312	Communication Systems I	3	3	1	4
4	ECER313	Electronics III	3	3	1	4
5	ECER314	Wave Propagation	2	-	-	2
6	ECER315	Microprocessor	2	3	-	3
7						
8						
Total			16	9	3	19
			28			
The total number of hours for the first semester is			420	hour.		

Republic of Iraq
The Ministry of Higher Education
& Scientific Research



University: NAHRAIN
College: ENGINEERING
Department: ELECTRONICS & COMM.
Stage: Third
Semester: Second
Subject: Energy conversion II
Theoretical : 2II
Applied : 3II -
Tutorial: -

Week	Date	Topics Covered	Lab. Experiment Assignments	Notes
1.		Types of controlled switches and operation principles,	Single phase transformer principles	
2.		Gate turn off Thyristors , Power MOSFET	DC machine principles and speed control	
3.		Diode rectifier , single phase rectifier	Induction machine operation methods	
4.		DC-DC Converters	Studying the Characteristics of controlled switches	
5.		DC- DC converter and applications	Design and application of single phase rectifier	
6.		Inverters principles	Operation of Boost DC – DC converters	
7.		Inverters principles and applications	Operation Of Buck DC-DC Converters	
8.		Mid term examination	Mid Term exam	
9.		Gate Derive circuits ,	Inverter operation and Control	
10.		Example for Gate derive circuit	Servo motor operation and control	
11.		Renewable sources general	Stepper motor operation and direction Control	
12.		Solar renewable energy	Design and application of renewable system(part I)	
13.		Photovoltaic renewable energy	Design and application of renewable system(part II)	
14.		Renewable energy operation and circuits	Final Term Exam	
15.		Final term examination		



University : Al –Nahrain University
Country : Iraq
Web Address : <https://nahrainuniv.edu.iq/>

Department: Mechanical Engineering

Mechanical engineering Department

Courses In sustainability

First: B.Sc.

Fourth Year Elective courses

1- Introduction to Renewable Energy

Introduction to renewable Energy, Photovoltaics, Wind power, Micro hydropower, Biomass energy, Waste power, Solar thermal power, Geothermal power, Ocean energy (tidal, tide-flow and wave), Ocean energy, Comparison of characteristics and cost of renewables, method of using the sun, wind, biomass, geothermal resources, and water to generate more sustainable energy., Energy from the sun is transferred and stored; used for heating, cooling, and lighting; collected and concentrated; and converted into electricity

2- Solar energy

Sun radiation measurements, Properties of photovoltaic devices, open circuit voltage and short circuit current, maximum power point (MPP), The efficiency of solar cells, parallel and series solar cells, shadow, temperature and dust effect, battery charging and control, off grid connection. on grid connection.

Second: M.Sc. Elective courses

1- Design of wind turbines

Historical applications of wind energy , Electrical Power from the Wind and the batteries ,Wind energy system (rotor blades, the tower, Mechanical Drive, Electrical System, etc) , Physical Principles of Wind Energy Conversion 9, 10 Basic concepts of wind energy Converters (turbines) , Aerodynamics of turbines , Using computer software for wind energy analysis, Electrical Power from wind energy, Electrical aspects of wind turbines, Wind turbine design, Wind turbine control. Wind turbine installation, siting, system design, integration and operation

2- Renewable Energy Sources

- **INTRODUCTION:** Energy demand growth and supply ; Historical Perspectives ; Fossil fuels: Consumption and Reserve ; Environmental Impacts of Burning of Fossil fuels ; Sustainable Development and Role of 2- Renewable Energy
- **SOLAR ENERGY BASICS:** Solar geometry; Primary and Secondary Solar energy and Utilization of Solar Energy. Characteristic advantages and disadvantages. Low temperature applications: solar water heating, space heating, drying.
- **SOLAR THERMAL ELECTRICITY GENERATION:** Solar concentrators and tracking ; Dish and Parabolic trough concentrating generating systems, Central tower solar thermal power plants ; Solar Ponds.
- **SOLAR PHOTOVOLTAIC SYSTEMS:** Basic principle of power generation in a PV cell ; Band gap and efficiency of PV cells ; Manufacturing methods of mono- and polycrystalline cells ; Amorphous silicon thin film cells, Single and multi junction cells ; Application of PV ; Brief outline of solar, PV stand-alone system design ; Storage and Balance of system.
- **WIND Energy Systems:** Types of turbines, Coefficient of Power, Betz limit, Wind electric generators, Power curve; wind characteristics and site selection; Windfarms for bulk power supply to grid; Potential of wind electricity generation in India and its current growth rate.
- **BIOMASS ENERGY:** Biomass: Sources and Characteristics; Wet biogas plants ; Biomass gasifiers: Classification and Operating characteristics; Updraft and Downdraft gasifiers; Gasifier based electricity generating systems; Maintenance of gasifiers.
- **OCEAN ENERGY:** Tidal power plants : single basin and two basis plants, Variation in generation level ; Ocean Thermal Electricity Conversion (OTEC) ; Electricity generation from Waves : Shoreline and Floating wave systems.
- **GEO THERMAL ENERGY:** Geothermal sites in India ; High temperature and Low temperature sites ; Conversion technologies- Steam and Binary systems ; Geothermal power plants.

The number of sustainability-related courses that Al-Nahrain University studies for students during the academic year, which includes the following departments:

Chemical Engineering

Biotechnology

Architecture Engineering



University : Al –Nahrain University
Country : Iraq
Web Address : <https://nahrainuniv.edu.iq/>

Electronic and Communication Engineering

Mechanical Engineering

The links below represent the subjects and units of the Faculty of Business Economics at Al-Nahrain University related to sustainable development

Evidence: <https://eco.nahrainuniv.edu.iq/en/wp-content/uploads/2021/09/%D9%86%D8%B8%D8%A7%D9%85-%D8%A7%D9%84%D9%83%D9%88%D8%B1%D8%B3%D8%A7%D8%AA-%D9%84%D9%85%D9%86%D8%A7%D9%87%D8%AC-%D9%82%D8%B3%D9%85-%D8%A7%D9%82%D8%AA%D8%B5%D8%A7%D8%AF%D9%8A%D8%A7%D8%AA-%D8%A7%D8%AF%D8%A7%D8%B1%D8%A9-%D8%A7%D9%84%D8%A7%D8%B3%D8%AA%D8%AB%D9%85%D8%A7%D8%B1-%D9%88%D8%A7%D9%84%D9%85%D9%88%D8%A7%D8%B1%D8%AF-1.pdf>

Evidence: <https://eco.nahrainuniv.edu.iq/wp-content/uploads/2021/09/%D9%86%D8%B8%D8%A7%D9%85-%D8%A7%D9%84%D9%83%D9%88%D8%B1%D8%B3%D8%A7%D8%AA-%D9%84%D9%85%D9%86%D8%A7%D9%87%D8%AC-%D9%82%D8%B3%D9%85-%D8%A7%D9%82%D8%AA%D8%B5%D8%A7%D8%AF%D9%8A%D8%A7%D8%AA-%D8%A7%D8%AF%D8%A7%D8%B1%D8%A9-%D8%A7%D9%84%D9%85%D8%B5%D8%A7%D8%B1%D9%81.pdf>

Evidence: <https://eco.nahrainuniv.edu.iq/wp-content/uploads/2021/09/%D9%86%D8%B8%D8%A7%D9%85-%D9%83%D9%88%D8%B1%D8%B3%D8%A7%D8%AA-%D9%84%D9%82%D8%B3%D9%85-%D8%A7%D9%84%D8%B1%D9%82%D8%A7%D8%A8%D8%A9.pdf>



University : Al –Nahrain University
Country : Iraq
Web Address : <https://nahrainuniv.edu.iq/>

[6] Education & Research (ED)

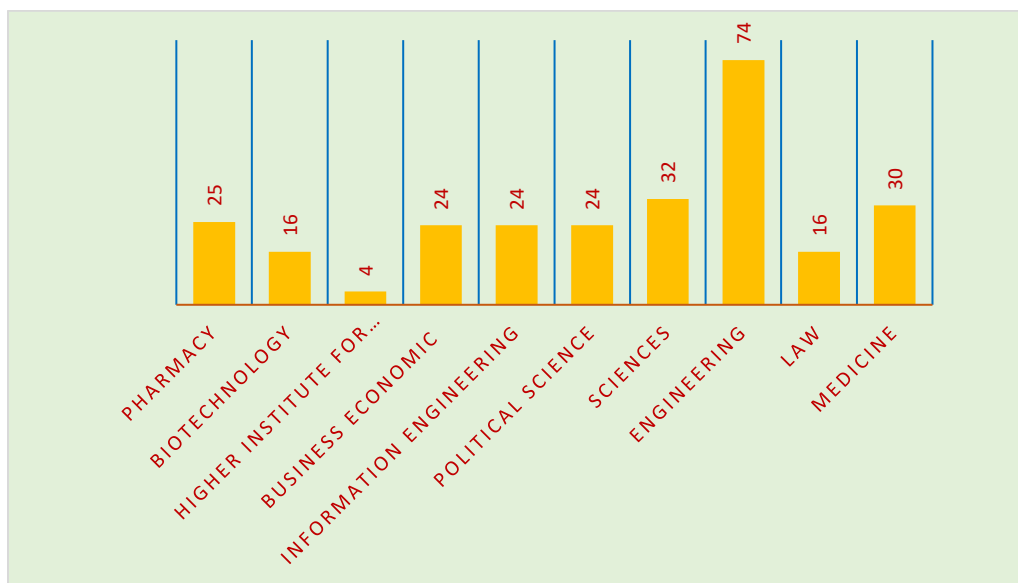
[6.2] Total number of courses/subjects offered

Total number=269

Number of colleges	Number of Dep.	Courses
medicine	1	30
Law	2	16
engineering	9	74
Sciences	4	32
political science	3	24
Information engineering	3	24
business Economic	3	24
Higher Institute for Infertility Diagnosis and ARTs	1	4
Biotechnology	2	16
Pharmacy	1	25
Total	29	269



University : Al –Nahrain University
Country : Iraq
Web Address : <https://nahrainuniv.edu.iq/>



Al-Nahrain University guideline, which contains courses and units of all faculties of the university

The link below is the latest version of the guide:

<https://qa.nahrainuniv.edu.iq/sites/default/files/Al%20Nahrain%20Guideline.pdf>



University : Al –Nahrain University
Country : Iraq
Web Address : <https://nahrainuniv.edu.iq/>

[6] Education & Research (ED)

[6.3] (ED.1) The ratio of sustainability courses to total courses/subjects

The ratio= 21,56 %



University : Al –Nahrain University
Country : Iraq
Web Address : <https://nahrainuniv.edu.iq/>

[6] Education & Research (ED)

[6.4] Total research funds dedicated to sustainability research (in US Dollars) (average per annum over the last 3 years).

Total research fund dedicated to sustainability research in 2021 =
7667 US Dollars

Total research fund dedicated to sustainability research in 2022 =
29084 US Dollars

Total research fund dedicated to sustainability research in 2023 =
29824 US Dollars

Total = 66575

The average annum last 3 years of research fund dedicated to
sustainability research = 22191.66 US Dollars



University : Al –Nahrain University
Country : Iraq
Web Address : <https://nahrainuniv.edu.iq/>

[6] Education & Research (ED)

[6.5] Total research funds (in US Dollars) (average per annum over the last 3 years).

Total research fund in 2021 = 89757 US Dollars

Total research fund in 2022 = 38778 US Dollars

Total research fund in 2023 = 39766 US Dollars

Total = 168301

The average annum last 3 years of research fund = 56100 US Dollars



University : Al –Nahrain University
Country : Iraq
Web Address : <https://nahrainuniv.edu.iq/>

[6] Education & Research (ED)

[6.6] (ED.2) The ratio of sustainability research funding to total research funding

$$\begin{aligned} (6.4/6.5) \times 100\% &= 22191.66 / 56100 * 100\% \\ &= 39\% \end{aligned}$$



University : Al –Nahrain University
Country : Iraq
Web Address : <https://nahrainuniv.edu.iq/>

[6] Education & Research (ED)

[6.7] (ED.3) Number of scholarly publications on sustainability published

Google Scholar search results for "al-nahrain university" & green & sustainability. The search returned approximately 732 results in 0.06 seconds.

Articles About 732 results (0.06 sec) My profile My library

Environmental education (EE) in architectural departments Al-Nahrain University as case study [PDF] ius.edu.ba
NJ Rzaqoo, KA Wahhab - Periodicals of Engineering and Natural Sciences, 2022 - pen.ius.edu.ba
... Environmental education curriculum in the Department of Architecture – AlNahrain University... education is referred to by terms such as "green", "ecological", "inter-sensitive" and "energy-...
☆ Save Cite Cited by 1 Related articles All 2 versions

The Future Sustainable Energy
AM Abed, AA Fathi, A Kadhim - 2023 - torrossa.com
... trends relevant to sustainable and renewable energy ... UI green metric. These achievements have implied more national and international collaborations to reach the edge of sustainable ...
☆ Save Cite Related articles All 2 versions

Effect of Green-biosynthesis Aluminum Nanoparticles (Al NPs) on Salmonella enterica Isolated from Baghdad City [PDF] iasj.net
ZA AlShaheeb, AG Oraibi, ZA Thabit - Baghdad Science Journal, 2023 - iasj.net
... The majority of plants have features such as renewable suppliers and sustainability compared with ...; The project was approved by the local ethical committee in Al-Nahrain University. ...
☆ Save Cite Cited by 2 Related articles All 7 versions

The Threshold of Urban Sustainability within the Traditional Cities: Traditional Alnajaf city as a case study [PDF] iop.org
SL Farhan, HAH Alshamari - IOP Conference Series: Materials Science and Engineering, 2021 - iopscience.iop.org
... sustainability threshold that can be used in the city development. The objectives of this study to suggest a methodology for the sustainable ... It tries to make the sustainable intervention to ...

Number of events scholarly publications on sustainability in the academic year 2021 - 2023.

A total average per annum over the last 3 years of 732 publications.



University : Al –Nahrain University
Country : Iraq
Web Address : <https://nahrainuniv.edu.iq/>

evidence link : https://scholar.google.com/scholar?q=%22al+-nahrain+university%22+%26+green+%26+sustainability&hl=en&as_sdt=0%2C5&as_vis=1&as_ylo=2021&as_yhi=2023



University : Al –Nahrain University
Country : Iraq
Web Address : <https://nahrainuniv.edu.iq/>

[6] Education & Research (ED)

[6.8] (ED.4) Number of events related to sustainability. (average annually for the past 3 years)

Total number= 357 events





University : Al –Nahrain University
Country : Iraq
Web Address : <https://nahrainuniv.edu.iq/>

Number of events related to environment and sustainability hosted or organized by the University in the academic year 2021-2023

Total number of sustainability/environment related events in:

2021 : 67

2022 : 74

2023 : 216

A total average per annum over the last 3 years of **119 events** .



University : Al –Nahrain University
Country : Iraq
Web Address : <https://nahrainuniv.edu.iq/>

[6] Education & Research (ED)

[6.9] (ED.5) Number of activities organized by student organizations related to sustainability per year

Number of student organizations related to sustainability = 7

1- The campaign to plant a million trees

Al-Nahrain University launches continuous campaigns that include agricultural activities with the participation of university students who have an active role in these campaigns. These campaigns include planting a group of seedlings and roses.





University : Al –Nahrain University
Country : Iraq
Web Address : <https://nahrainuniv.edu.iq/>

2- Organized agricultural awareness campaigns

Al-Nahrain University joins organized awareness campaigns. These campaigns include planting seedlings and flowers on the university campus. These campaigns aim to spread environmental and service awareness among students.



3- Dakhka Organization is a support group that calls for equality and support for students with low incomes Organized annually to support students, meet their needs and contribute to building a green campus in cooperation with the President of Al-Nahrain University.



University : Al –Nahrain University
Country : Iraq
Web Address : <https://nahrainuniv.edu.iq/>



Evidence link: https://web.facebook.com/grouplaugh/?_rdc=1&_rdr

4- The Nahrain Blowers Organization is an annual organization led by Al-Nahrain University students to welcome a new academic year by launching a large number of blowers, where a large part of this festival goes as humanitarian aid.





University : Al –Nahrain University
Country : Iraq
Web Address : <https://nahrainuniv.edu.iq/>

Evidence link: <https://nahrainuniv.edu.iq/ar/node/25623>

- 5- A student organization consisting of representatives from all faculties of Al-Nahrain University participates in internal and external activities related to agriculture, industry, art and annual sports competitions with government ministries and universities.
- 6- (Open Day), which is an entertainment day every year, interspersed with extracurricular events and activities for all university students for morning and evening studies. The events presented by the university students varied between entertainment competitions, drawing and painting displays, in addition to popular food competitions, planting and landscaping the college gardens and yards, and cleaning and maintaining the college corridors.

Evidence link:
<https://eco.nahrainuniv.edu.iq/posts/f3b8b2ef-e77b-4c42-a266-5871153025fc/>



University : Al –Nahrain University
Country : Iraq
Web Address : <https://nahrainuniv.edu.iq/>

7- The second annual festival of the College of Business Economics on environmental sustainability, where the College of Business Economics, in cooperation with the Nakhal Watan Women's Team for Culture and Sustainable Development, organized a bicycle competition in the gardens of Al-Nahrain University with the participation of university students. Prizes were presented to the first three winners in the competition, and all participants were honored in appreciation and recognition of their efforts in the competition.

Evidence link: <https://eco.nahrainuniv.edu.iq/posts/1d5e50d0-9bdf-41a2-9585-84747f25b269/>



University : Al –Nahrain University
Country : Iraq
Web Address : <https://nahrainuniv.edu.iq/>

[6] Education & Research (ED)

[6.14] (ED.8) Number of cultural activities on campus





University : Al –Nahrain University
Country : Iraq
Web Address : <https://nahrainuniv.edu.iq/>





University : Al –Nahrain University
Country : Iraq
Web Address : <https://nahrainuniv.edu.iq/>

Total number of **cultural activities on campus** organized by the University : more than 3 **events**

The Faculty of Business Economics at Al-Nahrain University has held a number of workshops, seminars, programs and volunteer activities on campus to achieve the following:

A- Poverty eradication

- 1- Providing financial aid to people with limited income
- 2- Campaigns to visit the nursing home
- 3- Blood donation campaigns

B- Zero Hunger

- 1- Providing a food basket for people with limited income for employees and students
- 2- Organizing a food exhibition to support the national product

C- Ensuring a healthy life

- 1- Visiting hospitals to provide logistical support to health personnel
- 2- Blood donation campaigns and the provision of sterilization supplies
- 3- Encouraging the establishment of sports activities inside the university campus in addition to the use of a specific policy to prevent smoking

D- Quality of education

- 1- Organizing electronic seminars and workshops targeting general societal groups and providing them with appropriate technical and professional skills

E- Clean energy



University : Al –Nahrain University
Country : Iraq
Web Address : <https://nahrainuniv.edu.iq/>

- 1- Replacing the light bulbs with others that work with economic lighting technology
- 2- Organizing seminars and lectures on the activation of renewable energy

Evidance: https://web.facebook.com/media.eng87/photos/?ref=page_internal&_rdc=1&_rdr

Evidance:

Evidance: <https://nahrainuniv.edu.iq/ar/node/3697>

Evidance: https://eco.nahrainuniv.edu.iq/posts/?cat_id=%7B%22label%22%3A%22%D9%88%D8%B1%D8%B4+%D9%88+%D9%86%D8%AF%D9%88%D8%A7%D8%AA%22%2C%22value%22%3A%22771ba529-214e-4ac9-a5fd-5b2b2b868fb7%22%7D&sec_id=%7B%22label%22%3A%22%D9%83%D9%84%D9%8A%D8%A9+%D8%A7%D9%82%D8%AA%D8%B5%D8%A7%D8%AF%D9%8A%D8%A7%D8%AA+%D8%A7%D9%84%D8%A7%D8%B9%D9%85%D8%A7%D9%84%22%2C%22value%22%3A%227b286b30-c678-4323-b584-27c3e3f49233%22%7D



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[6] Education & Research (ED)

[6.15] (ED.9) Number of university program(s) with international collaborations

Number of university program = 7

1- Al-Nahrain University has developed an evaluation system for the staff and faculty members through an electronic form based on the following indicators:

- 1- Teaching efficiency and number of courses
- 2- Scientific activity, which represents published research
- 3- Participation in international conferences, seminars, and workshops
- 4- Participation in the service of state institutions
- 5- Job commitment, job skills, and participation in volunteer work

نظام بطريقة تخالف التعليمات





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2- Helpdesk group for E-Learning

Switching to E-Learning. This mission has as objective to maintain the relationship with the students locked down home and reassure them as well as their families about the fate of the courses and the diplomas. Nevertheless, professors were not ready to switch to total distance learning and some were completely not familiar with eLearning platforms and or software.

For this, the Pedagogic Innovation Cell of Al-Nahrain University of worked very hard to identify the needs very quickly and to organise distance lectures to professors for eLearning discovering and mastering. An e-learning unit were created for supporting teachers and students as well, through online workshops (Zoom, Google Meet), emergency e-mails, e-learning website, operation rooms, social media such as telegram groups, and through the classes (Google Classroom & Moodle). A google classroom for students was created for online discussion and immediate supporting with some teaching manuals as well as the recorded training materials. The used applications and tools were imposed to teachers to reduce technological constraints or teachers/students apprehension.



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دورة تنمية مهارات التعلم الإلكتروني للطلاب الجامعي
(This class is intended for technical support to the students & training the Google and Moodle ...)
Class code gizly7

Meet
Join
Visible to students

Announce something to your class

Dr. Shaima Safa aldin posted a new question: مشكلة تقنية أخرى؟ (يمكنك كتابة استفسارك للحصول على الدعم الفني)
Feb 14 (Edited Feb 22)

Helpdesk group for E-Learning (Al-Nahrain University, Iraq)

evidences link:

- <http://e-learning.nahrainuniv.edu.iq/ar>
- <https://mdl.coie-nahrain.edu.iq/course/index.php>



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The screenshot displays a Google Classroom interface. At the top, the Google Classroom logo is visible. Below it, there are several course cards arranged in a grid. The cards include:

- 6th Stage Final Exams (كلية الطب - جامعة النهرين)
- 1st Stage Final Exams (كلية الطب - جامعة النهرين)
- SPSS (Ph.D.) (كلية الطب - جامعة النهرين)
- Research Design (M....) (كلية الطب - جامعة النهرين)
- (Higher Diploma) Postgraduate (Chemistry & Biochemistry Dep.) (كلية الطب - جامعة النهرين)
- Postgraduate (Ph.D.) (Physiology Dep.) (كلية الطب - جامعة النهرين)
- Postgraduate (Ph.D.) (Pathology & Forensic Medicine Dep.) (كلية الطب - جامعة النهرين)
- Postgraduate (Ph.D.) (Microbiology Dep.) (كلية الطب - جامعة النهرين)


Below the course cards, there is an edpuzzle content player. The player shows a search bar and a list of content items. The content items are:

- Lecture 8 - VHDL and Verilog HDL (1:00:01)
- Lecture 7 - Sequential Logic Circuits (1:01:05)
- Lecture 6 - Flip-Flops, Registers and Memory (1:08:47)
- Lecture 5 - Multiplexer and Demultiplexer (33:04)

The player also includes a sidebar with navigation options: Content, Home, Curriculum, Nahrain University, and My Content. A 'Basic account' section is visible on the right, with a 'Check' button.



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Al-Nahrain University
College of Information Engineering
E-Learning System
نظام التعليم الإلكتروني
جامعة النهرين - كلية هندسة المعلومات

Department of Networks Engineering

[Dashboard](#) [Courses](#) [College of Information Engineering](#) [2019-2020](#) [Department of Networks Engineering](#) [Manage](#)

Course categories:

College of Information Engineering / 2019-2020 / Department of Networks Engineering

Search courses [Go](#)

[1](#) [2](#) [+](#)

- ▶ First Year
- ▶ Second Year
- ▶ Third Year
- ▶ Fourth Year

(Online Teaching Methods – Zoom, Google Meet, EdPuzzle, Google Classroom & Moodle)



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e-learning

Home

Operations Rooms

Exams Table

2nd sem-tables

Emergency emails

1st Semester

2nd Semester

Law

Medicine

Engineering

Science

Political Science

College of Information Engineering

College of Business Economics

College of Education

College of Arts

College of Agriculture

College of Veterinary Medicine

e-learning

Home

Operations Rooms

Exams Table

2nd sem-tables

Emergency emails

schedules

the college

Faculty of medicine

Section

- Any -

stage

- Any -

class type

- Any -

Today

- Any -

Instructor's name



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Link	until the hour	from the hour	Today	class type	Subject Name	Instructor's name	stage	Section	the college
	12:00	9:00	Wednesday	theoretical	aaa	text2	The first stage	physics department	College of Science
	12:00	9:00	Tuesday	my work	aaa	text2		Computer engineering department	College of Engineering
	12:00	9:00	Monday	theoretical	aaa	text2	level five		faculty of Pharmacy
	12:00	9:00	Sunday	my work	aaa	text2	The fourth stage	Department of Plant Biotechnology	College of Biotechnology
	12:00	9:00	Saturday	theoretical	aaa	text2	The second phase	Department of Economics of Investment and Resources Management	College of Business Economics
	12:00	9:00	Monday	my work	aaa	text2	The second phase	Systems Engineering Department	Faculty of Information Engineering
	12:00	9:00	Thursday	theoretical	aaa	text2	The first stage	Department of International Politics	Faculty of Political Science
	12:00	9:00	Wednesday	my work	aaa	text2		Computer Science Department	College of Science

Supporting Tools (E-learning website, operations rooms, emergency e-mails)
<https://e-learning.nahrainuniv.edu.iq/>

3- Virtual Workshop, symposium, & conference

Many workshops, symposium & conferences have been held virtually, and below are some of them:

1. An electronic practical symposium entitled Errors and traps in laparoscopic cholecystectomy:

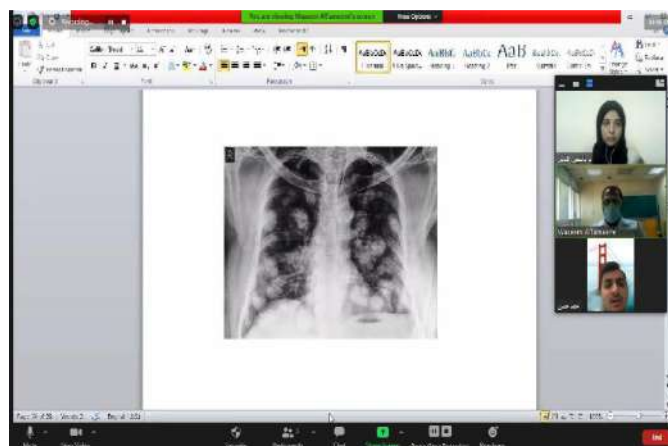
The Surgery Branch of the College of Medicine at Al-Nahrain University held an electronic scientific symposium on the errors and traps in laparoscopic cholecystectomy, through the zoom application, with the participation of several faculty members in the college and several doctors from the Imam Al-Kazimin (P) Medical City.

The symposium, which was given by Dr. Bashar Abbas Abdel Hassan, aimed to identify the traps and mistakes that the surgeon makes during the procedure for removing the gallbladder bag.



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The workshop included several axes, including a review of mistakes and traps that the surgeon may fall into during laparoscopic excision of the gallbladder bag, its side effects as it is one of the most common operations, and the new surgical methods and means through which mistakes can be avoided.





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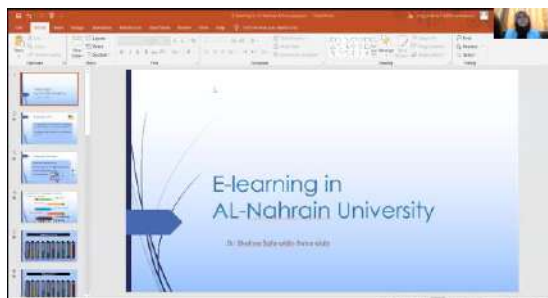
2- Annual electronic conference under the slogan of education and electronic platforms in Iraq.

The Continuing Education Center at Al-Nahrain University held an annual electronic conference under the title Education and Electronic Platforms in Iraq.

The Director of the Center said that the conference aims to unify efforts and knowledge integration between relevant institutions in Iraq, neighboring countries and the world, and to exchange and update information to enhance scientific contributions to the development of continuing education tools and related axes, especially the e-learning axis.

The Director of the Center stressed the importance of higher education in Iraq through academic and continuing education centers to lay the correct foundations for the concepts of modern society and look forward with great optimism for the coming period.

The conference included several axes, the axis of continuing education (visions and horizons), the axis of education and electronic platforms (academic future), the axis of languages and skills development, the axis of modern teaching methods and teaching aids, the administrative and legal axis in higher education, and the axis of psychological and social sciences.

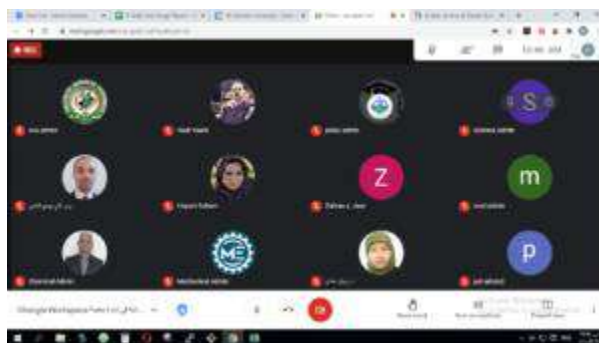




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3- Training workshop entitled (The latest procedural methods in managing the Google Workspace platform):

The Continuing Education Center / Al-Nahrain University held a training workshop entitled (The latest procedural methods in managing the Google Workspace platform) for platform managers in all colleges, and on the Google Meet video platform, in preparation for the new school year.



4- First applied research conference ARIE 2021 at COIE:

Under the patronage of His Excellency the Minister of Higher Education and Scientific Research, Prof. Dr. Nabil Kazem Abdel-Saheb, and under the supervision of the President of Al-Nahrain University, Prof. Dr. Ali Abdel Aziz Al-Shawi, under the slogan (Scientific Research – Continuing Despite Challenges).

The Faculty of Information Engineering was inaugurated this morning, Tuesday 29-6-2021, in cooperation with the Islamic University of Lebanon.

5- Al-Nahrain University, in cooperation with Damas Scientific Office, organizes a lecture entitled “Role of Ultrasound in prediction of endometrial receptivity”:



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تحت رعاية السيد رئيس جامعة النهرين الأستاذ الدكتور
محمد صاحب مهدي المحترم
وبإشراف السيدة عميدة المعهد العالي لتشخيص العقم و
التقنيات المساعدة على الأنجاب الأستاذ المساعد الدكتورة
منال طه العبيدي المحترمة
و بالتعاون مع مكتب داماس العلمي - الوكيل الحصري
لشركة أنتاس

يدعوكم المعهد العالي لتشخيص العقم و التقنيات
المساعدة على الأنجاب لحضور محاضرة بعنوان
**Role Of Ultrasound in prediction of endometrial
receptivity**

وذلك في يوم **الجمعة المصادف 2020-4-24 في تمام
الساعة العاشرة - الحادية عشر صباحا بتوقيت العراق**

Dr.Sonal Panchal

- Consultant sonography specialist at Dr.Nagori's Institute for Infertility and IVF, Ahmedabad.
- Professor, Dubrovnik International University, Croatia.
- Master of Ultrasound in Obstetrics and Gynecology, Ian Donald Inter-university School of Medical Ultrasound, completed in January 2019.
- Faculty Ian Donald Master's Courses in Ultrasound in OBGyn. And Master's courses in Human Reproduction.



Webinar Registration/viewer link -
www.streamgo.in/webcme-drsonalpanchal

6- Final projects that are submitted using the e-learning platform



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Al-Nahrain University
College of Information Engineering
E-Learning System - نظام التعلم الإلكتروني
جامعة النهرين - كلية هندسة المعلومات

Final Year Project 2019/2020

Dashboard My courses Final Year Project 2019/2020 Final Report Submission-After Debate Final Report Submission

Final Report Submission

This is the final report submission portal. Read carefully:

1. You should modify your report according to the Examining Committee notes and instructions.
2. Sign your report from your supervisor (certificate)
3. Sign your report from the Examining committee (certificate)
4. Upload the report (with signed certificates) in the same naming style HERE before the deadline (22/8/2020 at 23:59).
5. Make 2 copies of your project (with CD) to be submitted to the College library and University library NOT after 25/8/2020.

FINAL REPORT SUBMISSION-BEFORE DEBATE

Upload your Final Report HERE

Dear All,

Submit your project report in the form of one **PDF** file. The name of the file should be like this:
FYP_2019-2020_studentname_Projectshort title

The file should be signed by your supervisor, so make sure you send your report to him/her before deadline to get their (electronic) signature.

You have 3 attempts ONLY to update your file before the deadline (16/8/2020 at 23:59).

Select	User picture	First name / Surname	Email address	Status	Grade	Edit	Last modified (submission)	File submissions
<input type="checkbox"/>		زكريا يحيى علي	zakriaali90@gmail.com	Submitted for grading	Grade	Edit	Monday, 17 August 2020, 12:54 PM	FYP_2019-2020
<input type="checkbox"/>		نورا محمد علي	nuramohamed97@gmail.com	Submitted for grading	Grade	Edit	Sunday, 16 August 2020, 6:41 PM	FYP_2019-2020
<input type="checkbox"/>		باسم محمد	basam.moham9@gmail.com	Submitted for grading	Grade	Edit	Sunday, 16 August 2020, 11:03 PM	FYP_2019-2020
<input type="checkbox"/>		زينة جاسم	zainabjassem9831@gmail.com	Submitted for grading	Grade	Edit	Sunday, 16 August 2020, 5:17 PM	FYP_2019-2020

Active

4- Some teaching videos for teachers and students were published on YouTube channel:



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https://www.youtube.com/channel/UCCVuhVOOfKgt4athkA_B8VUQ/p/laylists

5- Some online Quizzes:

The screenshot displays a Google Form titled "quiz 1 med. phys." with a background image of green clovers. The form includes a header with the university's email address and a "Switch account" link. It features two questions with multiple-choice options and a progress bar at the bottom.

Question 1: Choose the correct answer:
The energy transfer by heat where the work done is 0.0027 joule. 1 point

- ☐ 2.53 erg
- ☐ 25.3erg
- ☐ 270000erg
- ☐ 0.00027erg

Question 2: Gamma ray has 1 point

- ☐ wavelength larger than IR
- ☐ energy less than visible
- ☐ frequency larger than X-ray

Navigation buttons: Next, Back, Next. Progress bar: Page 1 of 5, Page 2 of 5.

6- Virtual workshop of setup a classroom & creating online quiz in a Google G-Suite platform.

The teachers' guide was prepared by the Higher Institute for Infertility Diagnostics at Al-Nahrain University "Google Classroom"



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7- Tealemoo web site

<https://tealemoo.com/wp-content/uploads/2020/04/%D8%AF%D9%84%D9%8A%D9%84-%D8%B4%D8%A7%D9%85%D9%84-%D8%B9%D9%86-%D9%81%D8%A7%D9%8A%D8%B1%D9%88%D8%B3-%D9%83%D9%88%D8%B1%D9%88%D9%86%D8%A7.pdf>



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[6] Education & Research (ED)

[6.16] (ED.10) Number of scholarly publications on sustainability published

Project type	Project name	number of projects	participants	Project area
conference	Student Research on Sustainability	2	45	SI, ED
Courses and subjects	Total Quality Management	3	64	SI, EC, WS, WR, TR, ED
Workshop	Waste treatment	2	50	WS

Al-Nahrain University donated books, cars, agricultural equipment, plants, and forest during the year 2022/2023 to universities within the same country.



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[6] Education & Research (ED)

[6.17] (ED.11) Number of sustainability-related startups

Number of sustainability – related startups = 7

1- Scientific Advisory Office at the College of Science, Al-Nahrain University



Evidence link: https://sc.nahrainuniv.edu.iq/viewpage.php?page_id=8

2- The legal advisory office at the College of Science, Al-Nahrain University



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Evidence link: https://web.facebook.com/alnahrain.law.advisory/?_rdc=1&_rdr

3- Engineering Consulting Office at the College of Science, Al-Nahrain University



Evidence : https://mobile.facebook.com/profile.php?id=100063959866056&_rdc=1&_rdr

4- Al-Nahrain University owns many greenhouses and produces large quantities of ornamental trees, various outside trees, and many types of roses, and distributes them to universities and most departments of the Iraqi state.



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5- Al-Nahrain University owns apiaries to produce honey and produce large quantities of it, and the university sells honey on campus.



The university's apiaries



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6- Cultivation of different types of medicinal and ornamental plants within the greenhouse atmosphere in the winter season, as he urged field work, which is a scientific achievement in keeping pace with global development in the cultivation of a group of medicinal herbs in an environment other than their natural environment, as well as the cultivation of ornamental plants in greenhouses designated for the growth of plants in a way It is functional and aesthetic. It is mentioned that the completion of the work in building the greenhouse and providing the appropriate environment for the growth of young plants under the influence of a flashing electric lamp and appropriate humidity and ventilation in accordance with this design, which aims to provide plants with the light and heat necessary for growth, and give the house a beautiful natural luster and create suitable ventilation for plants and benefit It is for research and aesthetic purposes.





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7- The Million Trees Project is carried out annually by Al-Nahrain University during the summer and winter seasons, with the participation of students and all campus residents





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[6] Education & Research (ED)

[6.18] Total number of graduates with green jobs (for the last 3 years) (new)

Academic Year	Faculty/Department	Total Graduates	Graduates with Green Jobs	Description of Green Jobs	Data Source
2020/2021	Civil Engineering	37	18	Project Management	Alumni Survey
2020/2021	Mechanical Engineering	33	16	Renewable Energy Engineer	Alumni Survey
2020/2021	Chemical Engineering	30	9	Product development and analysis	Alumni Survey
2020/2021	Engineering Architectural	23	2	Sustainable architectural designer	Alumni Survey
2020/2021	Biotechnology	82	7	Environmental technologies	Alumni Survey
2020/2021	Business Economics	106	20	sustainable economy	Alumni Survey
2021/2022	Civil Engineering	20	8	Project Management	Alumni Survey
2021/2022	Mechanical Engineering	37	17	Renewable Energy Engineer	Alumni Survey
2021/2022	Chemical Engineering	24	1	Product development and analysis	Alumni Survey
2021/2022	Engineering Architectural	20	2	Sustainable architectural designer	Alumni Survey
2021/2022	Biotechnology	88	14	Environmental technologies	Alumni Survey



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2021/2022	Business Economics	156	23	sustainable economy	Alumni Survey
2022/2023	Civil Engineering	129	0	Project Management	Alumni Survey
2022/2023	Mechanical Engineering	49	1	Renewable Energy Engineer	Alumni Survey
2022/2023	Chemical Engineering	36	3	Product development and analysis	Alumni Survey
2022/2023	Engineering Architectural	29	1	Sustainable architectural designer	Alumni Survey
2022/2023	Biotechnology	97	5	Environmental technologies	Alumni Survey
2022/2023	Business Economics	132	3	sustainable economy	Alumni Survey
Total			150		

Our university has introduced new academic programs centered around green jobs, aimed at equipping students with the knowledge and skills essential for contributing to fields like sustainability, renewable energy, natural resource management, and energy efficiency. This initiative enhances their ability to engage in the green economy and support environmental protection. Additionally, the university conducts an annual follow-up survey with graduates, and the results from those who secured green jobs are presented in the table above.



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[6] Education & Research (ED)

[6.19] Availability of units or offices that coordinate or are related to sustainability

Al-Nahrain University seeks to build a supportive environment for education and achieve sustainable development goals by

1- Establish a Sustainable Development Unit at the university that works to monitor progress and achieve sustainable development policies and provide analysis of results in all aspects of the university concerned with sustainability, which are represented in research publications, workshops, conferences, training, and research cooperation.

2-The Tree Planting Unit, affiliated with the university presidency, has been established with the mission of supporting green spaces and developing agricultural plans aimed at expanding the greenery within the university.

Evidence : <https://api.eco-nahrainuniv.a2hosted.com/api/storage/files/posts/9432ec88-13ce-4264-87cc-e113fea5980c.pdf>

Evidence : <https://nahrainuniv.edu.iq/ar/node/8761>

Evidence: https://web.facebook.com/people/%D8%A7%D9%84%D8%A7%D8%B3%D8%AA%D8%AF%D8%A7%D9%85%D8%A9-%D8%A7%D9%84%D8%AE%D8%B6%D8%B1%D8%A7%D8%A1-%D9%84%D8%AC%D8%A7%D9%85%D8%B9%D8%A9-%D8%A7%D9%84%D9%86%D9%87%D8%B1%D9%8A%D9%86/61559844375504/?_rdc=1&_rdr



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[6] Education & Research (ED)

[6.20] Planning, implementation, monitoring and/or evaluation of university governance through the utilization of Information and Communication Technology (ICT)

- Planning :The university follows an annual plan to produce all research, especially those concerned with sustainable development, to monitor the publication outputs and the implementation period
- Implementation: Identifying the specializations that serve the goals of sustainable development and that focus on local and global projects
- Monitoring: Following up on the progress of published research and its outputs
- Evaluation: Research Evaluation Committee and Scientific Promotion Committees in the university formations and for all specializations published within sustainable development research and measuring the extent of the research impact