

Al-Nahrain University

Annual report for sustainability

SUPERVISED BY:

Prof.Dr.Omer.F.Abdul-Rasheed

DESIGNED AND SUBMITTED BY:

Asst.Prof.Dr.Zaid Akram Thabit

Asst.Lec.Aoday.H.Ali

Asst.Lec. Enas.F.Yahya



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.



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Setting and Infrastructure (SI)



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1.3 Number of campus site





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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**).



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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).



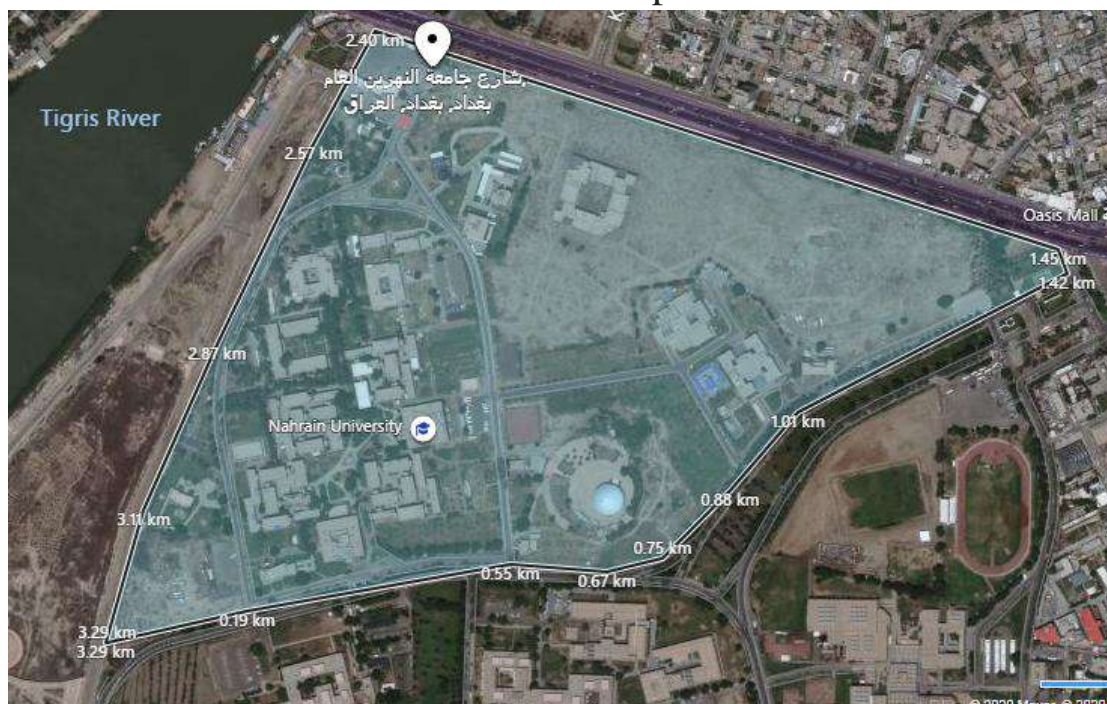
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1.5 Total campus area (m²)

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 |

Southern campus



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

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



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Northern campus



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

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



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1.7 Total campus buildings area (m²)

| Buildings area |
|------------------------|
| 1719078. 9 m sq |





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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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1.8 The ratio of open space to total area

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

$((765218.03 \text{ m sq} - 573026.3 \text{ m sq} / 765218.03 \text{ m sq}) * 100\%)$

$= (192191.73 \text{ m sq} / 765218.03 \text{ m sq}) * 100\%$

=25.1159%



Where (765218.03 m sq) represent the total area of the Al-Nahrain university (southern and northern campus), (573026.3 m sq) represent the building area of the university. Finally, **(25.1159%)** represent the ratio of open space to total area of the Al –Nahrain University.



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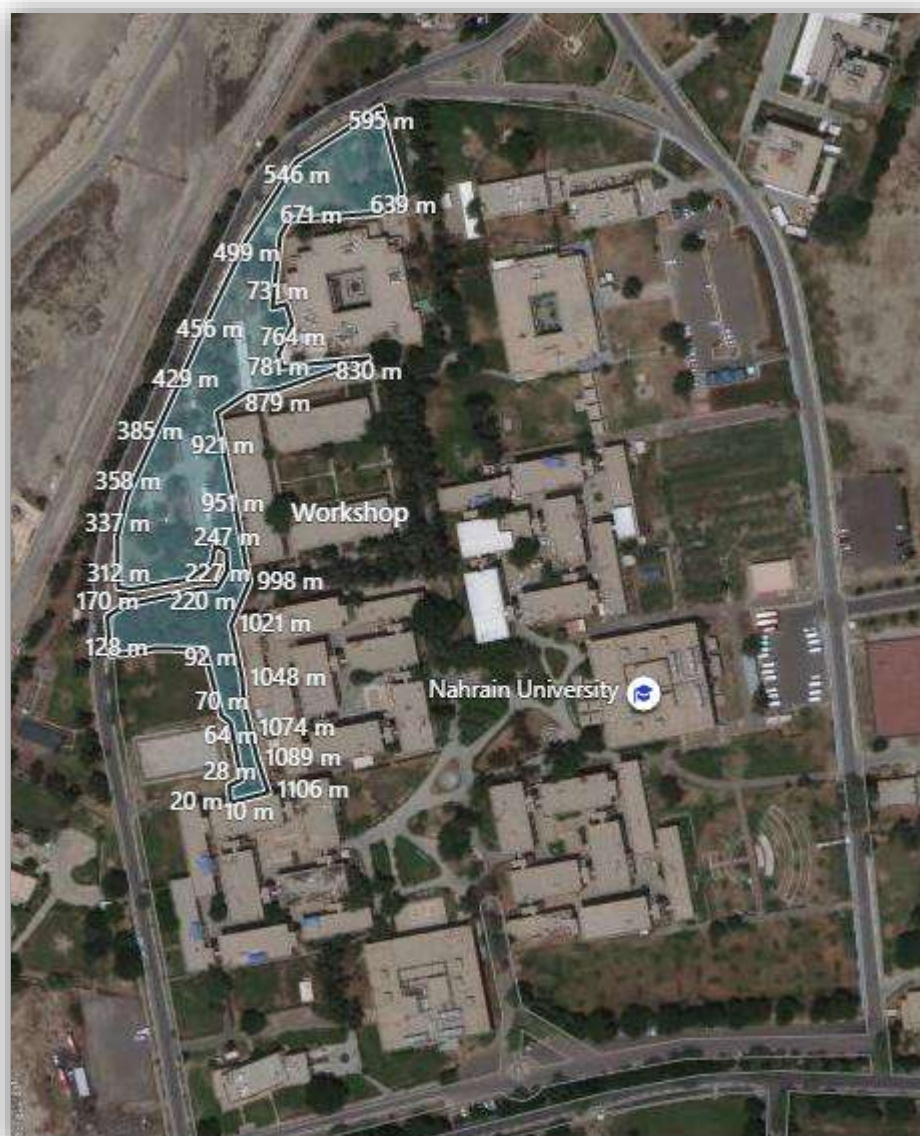
1.9 Total area on campus covered in forest vegetation

| Forests | |
|------------------|----------------------|
| Distance | Area |
| 6.7155 km | 53010.77 m sq |





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Where (**53010.77 m sq**) represent total area on campus covered in forest vegetation and (6.7155 km) represent Total distance/circumference of the Al-Nahrain university (Southern and Northern campus).



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1.10 Total area on campus covered in planted vegetation

| Planting | |
|------------------|-----------------------|
| Distance | Area |
| 7.4682 km | 139180.96 m sq |





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Where (139180.96 m sq) represent total area on campus covered in forest vegetation and (7.4682 km) represent Total distance/circumference of the Al-Nahrain university (Southern and Northern campus).

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1.11 Total area on campus for water absorption be sided forest and planted vegetation

$$(1.11/ (1.9+1.10))*100$$

$$= (257.094.74 \text{ m sq}/ (192191.73 \text{ m sq}))*100$$

$$=0.13376\%$$



| | |
|-------|-----------------|
| Total | 257.094.74 m sq |
|-------|-----------------|

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.



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1.18 University's budget for sustainability effort (in US Dollars)

| | |
|-------|-------------|
| total | 395750054\$ |
|-------|-------------|

This number of University's include (infrastructure, facilities, personnel cost, and others related to the sustainability efforts per annum over the last 3 years in US Dollars).



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[1-20] Percentage of Operation and Maintenance activities during Covid-19 pandemic

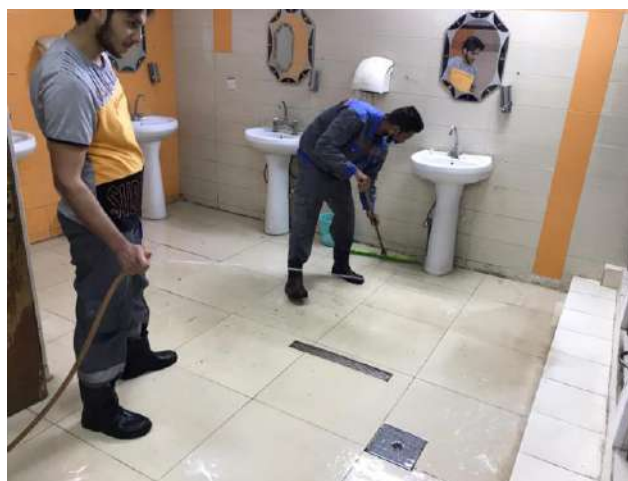
Al-Nahrain University has carried out maintenance work for buildings, classrooms, electrical equipment, university gardens and health facilities within the university campus.

| | | |
|---|--|--------------------------|
| 1 | Total campus buildings area | 17.190.789m ² |
| 2 | Total operated building | 13.752.631m ² |
| | Percentage building that operated and maintained | 80% |



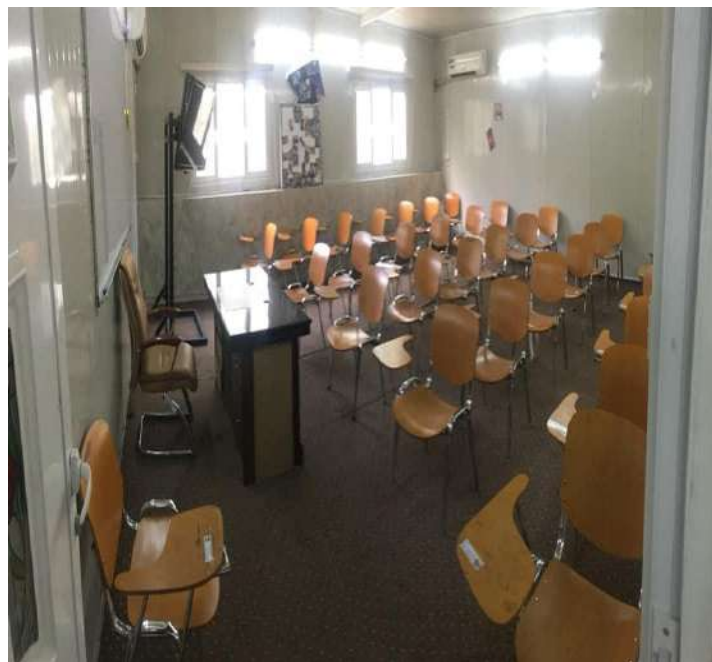


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[1-21] Campus facilities for disable maternity care

Al-Nahrain University is in the process of constructing facilities for the disable and providing maternity care for staff and students.



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[1-22] Security and safety facilities



CCTV



Fire truck

Al-Nahrain University uses security and safety policies on campus, which are:

1. CCTV (monitoring cameras)
2. Fire truck (Fire truck)
3. fire hydrant at AL-Nahrain University

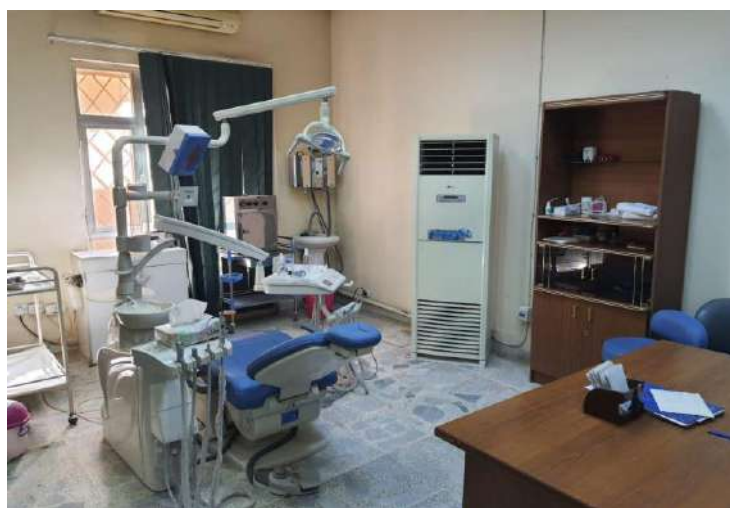


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[1.23] Health infrastructure facilities for students and academic and administrative staff wellbeing



Health care center



A dental examination and treatment unit



A sample examination unit



An ultrasound examination unit



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Al-Nahrain University has two health centers on campus to provide the following services without fees to employees and students on campus

These services include a sample examination unit, a dental examination and treatment unit, an ultrasound examination unit and consultation clinic for infertility patients.

Al-Nahrain University owns a pharmacy inside the health center and provides first aid and treatments for special cases that are provided to students and staff.



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[1.24] Conservation

Green houses at AL-Nahrain university





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The university's apiaries

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Al-Nahrain University has green houses for the seeding and conservation of plants grown for the residents of the campus, and the university also produces honey for the residents of the campus through the university's apiaries



Greenhouse for growing plants out of season

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



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a beautiful natural luster and create suitable ventilation for plants and benefit
It is for research and aesthetic purposes.



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Energy and Climate Change (EC)



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2.1 Energy efficient appliances usage





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Al-Nahrain University seeks to save energy by use Energy efficient appliances usage at all buildings inside the campus (Southern and Northern).



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| No. | Details | Total Number | Total number energy Efficient appliances | Percentage |
|--------------------|---------------------------------------|--------------|---|------------|
| 1 | Standard air conditioner | 580 | 193 | 0.33% |
| 2 | Standard air conditioner(inverter) | | | |
| 3 | Standard lamps | 7156 | 1654 | 0.23% |
| 4 | Standard lamps(LED) | | | |
| 5 | Desktop computers | 660 | 209 | 0.32% |
| 6 | Desk top computers(Laptop) | | | |
| Average Percentage | | | | 0.293% |

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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=1719078. 9 m sq

total smart building area=507706.152 m2

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

(507706.152 m2/1719078. 9 m2)*100

= 0.295

=29.5%



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

Biodiesel=656 kilowatt-h



Biodiesel





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Solar Power

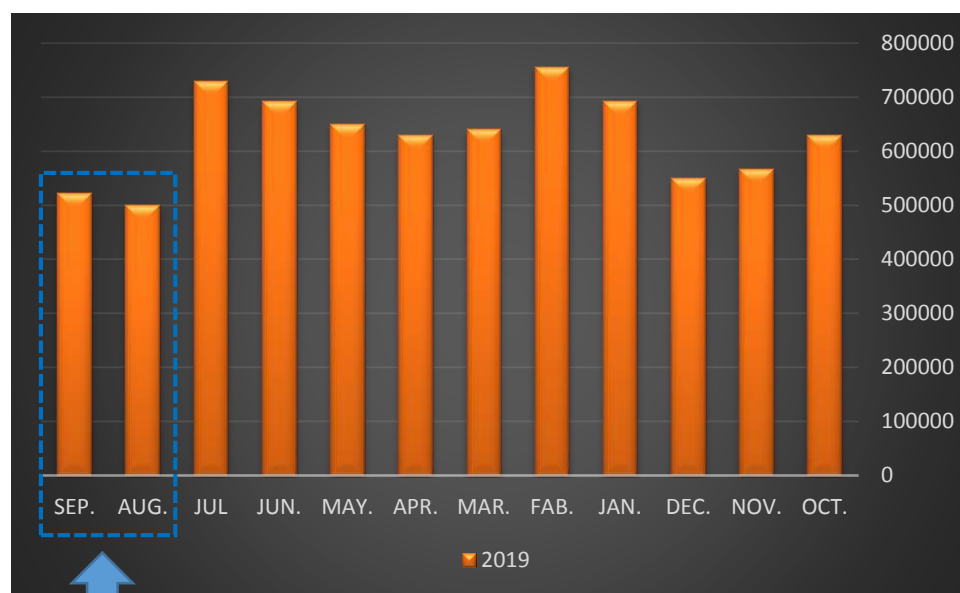
The refrigeration, heating and power unit at Al-Nahrain University that uses biodiesel as fuel the heat can be used to heat water that used daily in campus.



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2.6 Electricity usage per year (in kilowatt-hour)

| | |
|----------------------------|-----------------------|
| Electricity usage per year | 7560000 kilowatt-hour |
|----------------------------|-----------------------|



Where in these two months there is a holiday for the under graduate students only



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

$$(7560000 \text{ kw} - 5667840 \text{ kw}) / 7560000 \text{ kw}$$

$$= 1892160 \text{ kw} / 7560000 \text{ kw}$$

$$= 0.25$$



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



There are future plans to create green buildings that are consistent with sustainable development standards, and this will be implemented within the strategic plan of Al-Nahrain University for the next five years.



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[2-10] Greenhouse gas emission reduction program

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

1- Planting trees and plants on campus

A program to plant a million trees to increase the green spaces on campus

2- Using energy-saving devices such as electronic car garage using electronic cards

3- Use of solar irrigation

4- Using solar energy to produce energy

Planting trees and plants on campus

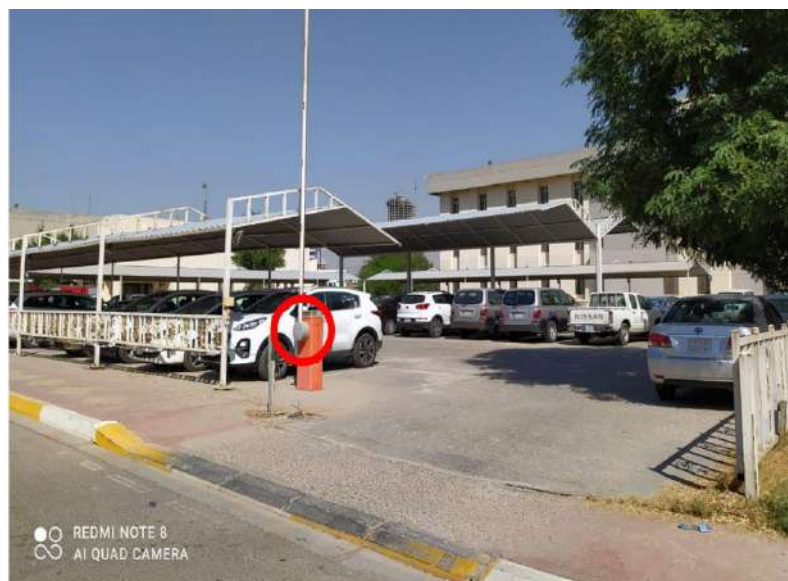




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Electronic car garage



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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- Reducing the workforce, as irrigation is done via the Internet
- 3- Use it indsidess and outsides without soil

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



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developer connected to power charging strips where drip irrigation is programmed each time It is determined by the type of plant.



solar energy



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

CO₂ (electricity)

$$\begin{aligned} &= \frac{\text{electricity usage per year (kWh)}}{1000} \times 0,84 \\ &= (7560000 \text{ kW}/1000) \times 0.84 \\ &= 6350.4 \text{ metric tons} \end{aligned}$$

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)

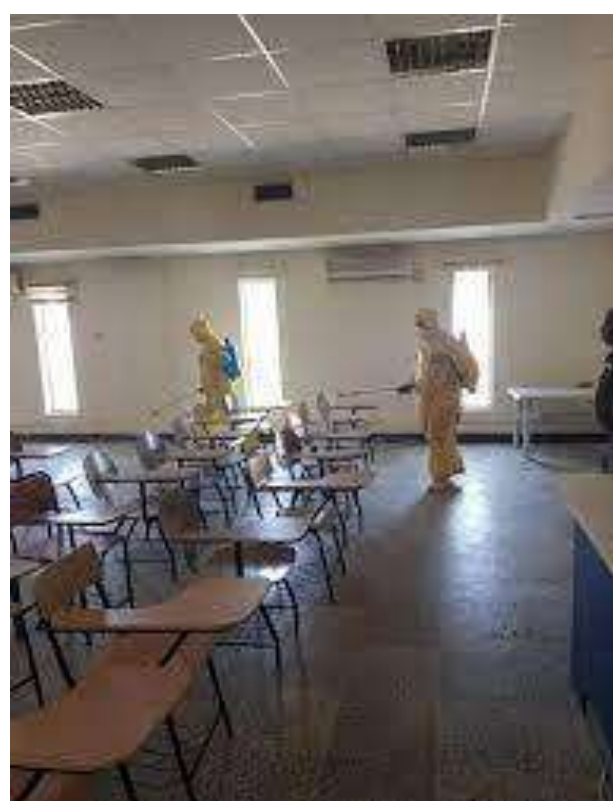
$$\begin{aligned} &= 6350.4 + 1.92 + 48 + 0.96 \\ &= 6401.28 \text{ metric tons} \end{aligned}$$

Carbon footprint in 2020 = 6401.28 metric tons

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[2-13] Number of innovative program during covid-19 pandemic

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>

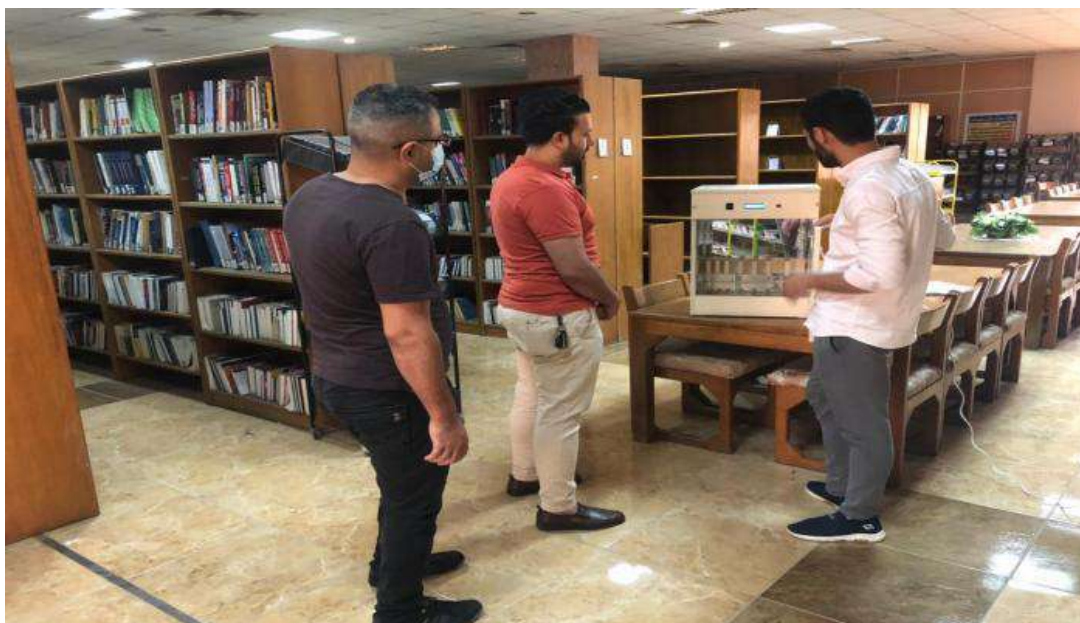
evidence link : <https://youtu.be/W63rDyKplZg>

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



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2- Book sterilizer device





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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.



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5- air sanitizer filter



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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[2-14] Impactful university program on climate change



Windmill at AL-Nahrain university

Al-Nahrain University is building windmills as a power station and is in the process of constructing other windmills and distributing them throughout the campus to generate electricity for buildings using wind energy.



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Waste (WS)

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3.1 (WS.1) Recycling program for university waste



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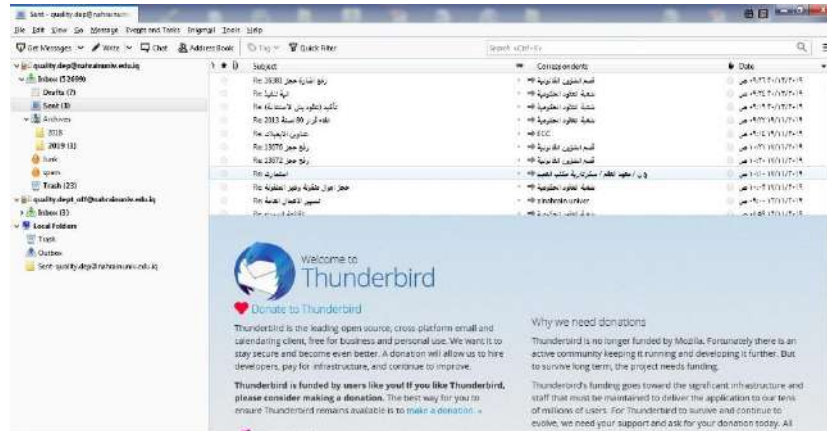


Al-Nahrain University, on its campus, seeks to encourage students, employees and academics not to throw waste except in the places designated for it by starting to establish an integrated waste recycling program, and publishing educational advertisements on how to recycle and provide waste containers. . Such as paper, plastic, electronic and chemical materials on campus.

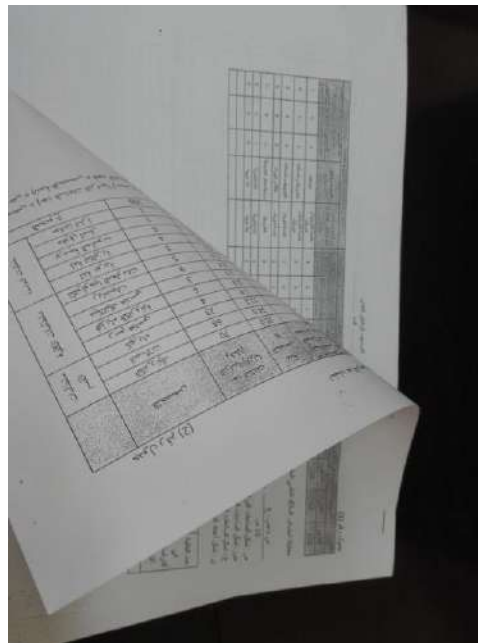


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3.2 (WS.2) Program to reduce the use of paper and plastic on campus



Correspondence via internet



Print on two sides of the paper



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Use a glass cup

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.



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3.3 (WS.3) Organic waste treatment



Al-Nahrain University manages organic waste by using organic waste containers to be collected and transported to private quarries belonging to the capital.



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Water (WR)



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4.1 (WR.1) Water conservation program and implementation



Tank to store rainwater



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.



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4.3 (WR.3) Water efficient appliance usage



Among the systems used to exploit rainwater at no cost is by providing drift that helps water flow into trees and herbs on the campus of Al-Nahrain University.



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[4.5] Percentage of additional handwashing and sanitation facilities during Covid-19 pandemic



Entrance to the Presidency of Al-Nahrain University

Al-Nahrain University has installed hand washing facilities in the university premises. The figure shows handwashing facilities located near all building entrances.



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| Facilities | Number of Facilities |
|------------------------|----------------------|
| Disinfectant chamber | 10 |
| Handwashing Facilities | 13 |

$$[4.5] = \frac{\text{Total Number of Facilities}}{\text{Total Number of Building}}$$

$$=23/30$$

$$76\%$$



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Transportation (TR)



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

$$\text{Formula: } (5.1+5.2+5.3)/ (1.12+1.14) = (61+250+10)/ (3893+2525) \\ = 321/ 6418 = 0.0500$$





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5.5 (TR.2) Shuttle service



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.



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

$$\begin{aligned}\text{Formula: } & ((5.12/1.5) \times 100\%) \\ & = ((16572.29 \text{ sq m}/765218.03 \text{ m sq}) * 100\%) \\ & = 0.0216 * 100 \\ & = 2.165\end{aligned}$$



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



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



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[5.14] Transportation program designed to limit or decrease the parking area on campus for the last 3 years (from 2017 to 2019)

Electronic car garage



Al-Nahrain University uses an electronic parking garage using electronic cards to reduce the parking area.



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5.15 (TR.7) Number of transportation initiatives to decrease private vehicles on campus (e.g. car sharing, charging high parking fees, metro / tram / bus services and etc)





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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



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5.16 (TR.8) Pedestrian path on campus





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Al-Nahrain University provides paths separating vehicles and pedestrians and the presence of night lighting for campus residents.



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Education (ED)



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

Number of courses (2020) = 9

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 |



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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 | |



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Department: Electronic and Communication Engineering

Republic of Iraq
The Ministry of Higher Education
& Scientific Research

University: ALNARAIN
College: ENGINEERING
Department: ELECTRONIC & COMMUNICATIONS
Name: [Blank]
Semester: Fourth
Subject: Power Electronics II
Theoretical: 28
Practical: 02
Total: 30

| Week | Date | Topics Covered | Lab Department Assignments | Notes |
|------|------|--|---|-------|
| 1. | | Types of controlled switches and operation principles. | Single phase rectifier circuits. | |
| 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 Converter | Building the Chopper - series of controlled switches. | |
| 5. | | DC-DC converter and applications | Design and application of single phase rectifier. | |
| 6. | | Inverters principles | Operation of Bridge DC-DC converter. | |
| 7. | | Inverters principles and applications | Operation of Buck DC-DC Converter. | |
| 8. | | Motor speed control | Full-bridge inverter. | |
| 9. | | Gate Drive circuit | Inverter operation and control. | |
| 10. | | Example for Gate drive circuit | Motor speed operation and control. | |
| 11. | | Renewable sources general | Design motor operation and direction control. | |
| 12. | | Solar renewable energy | Design and application of renewable current part I. | |
| 13. | | Photovoltaic renewable energy | Design and application of renewable current part II. | |
| 14. | | Renewable energy operation and circuits | Final Exam Dates | |
| 15. | | Final term examination | | |

Alnahrain University
College of Engineering
Department of Electronic and
Communications Engineering

Study Plan for the B.Sc.
Academic year 2018-2019

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 | | | 18 | 9 | 3 | 19 |

The total number of hours for the first semester is

420

hour

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 basin plants, Variation in generation level ; Ocean Thermal Electricity Conversion (OTEC) ; Electricity generation from Waves : Shoreline and Floating wave systems.
- GEOTHERMAL ENERGY: Geothermal sites in India ; High temperature and Low temperature sites ; Conversion technologies- Steam and Binary systems ; Geothermal power plants.



University : Al –Nahrain University
Country : Iraq

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

Electronic and Communication Engineering

Mechanical Engineering

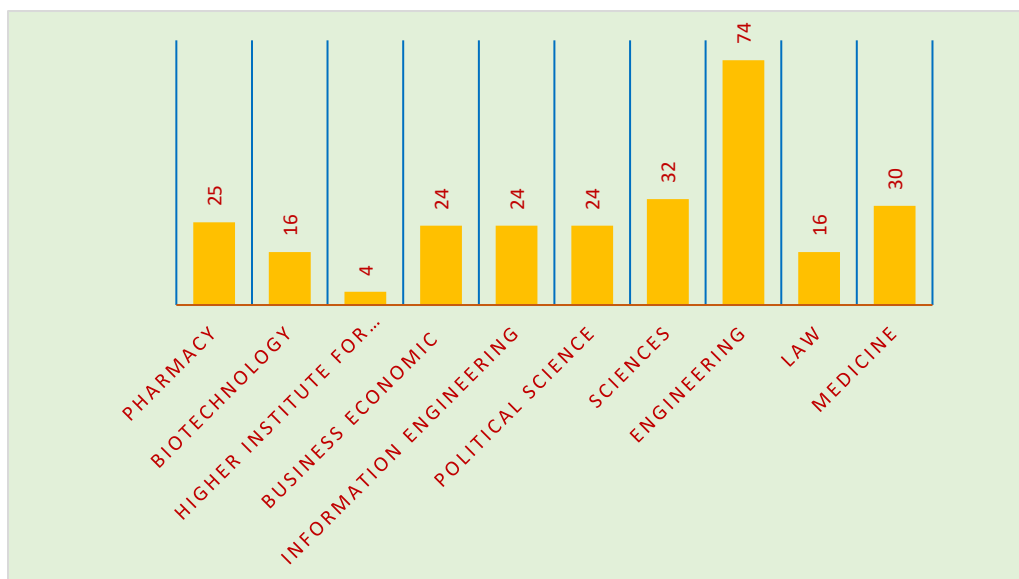


University : Al –Nahrain University
Country : Iraq

[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

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

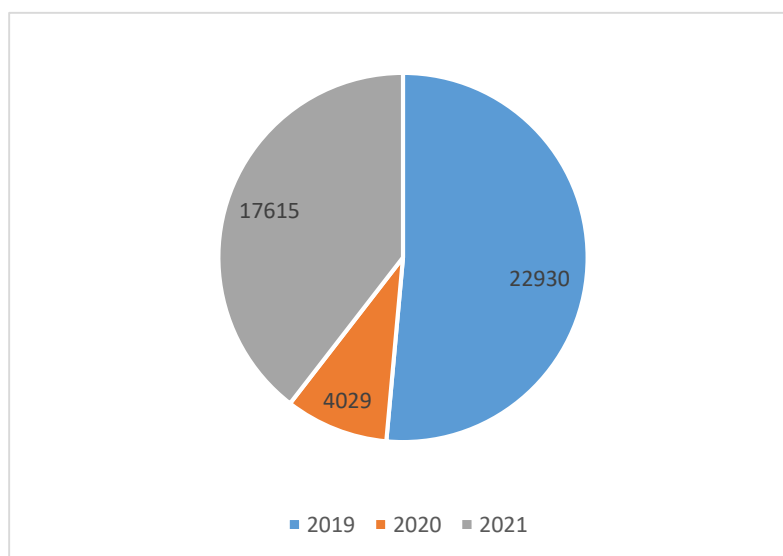
Total research fund dedicated to sustainability research in 2019 =
22930 US Dollars

Total research fund dedicated to sustainability research in 2020 =
4029 US Dollars

Total research fund dedicated to sustainability research in 2021 =
17615 US Dollars

Total = 44574

The averaged annum last 3 years of research fund dedicated to sustainability research = 54117 US Dollars





University : Al –Nahrain University
Country : Iraq

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

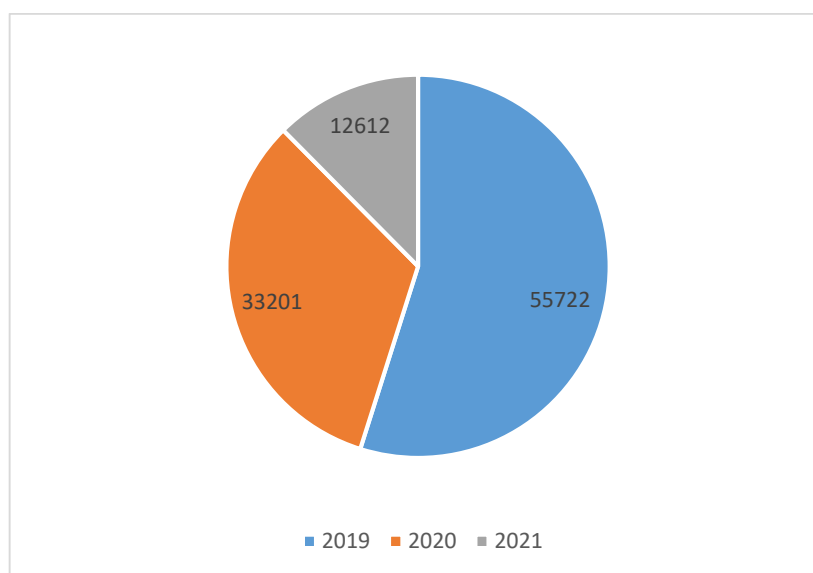
Total research fund in 2019 = 55722 US Dollars

Total research fund in 2020 = 33201 US Dollars

Total research fund in 2021 = 12612 US Dollars

Total = 101535

The averaged annum last 3 years of research fund = 33845 US Dollars





University : Al –Nahrain University
Country : Iraq

[6.7] Number of scholarly publications on sustainability

Google Scholar search results for "al nahrain university"& green & sustainability. The search returned about 218 results in 0.02 seconds.

Articles

Any time
Since 2021
Since 2020
Since 2017
Custom range...
2019 — 2021
Search

Sort by relevance
Sort by date

Any type
☐ include patents
☐ include citations
Review articles
☒ Create alert

[PDF] Measuring the impact of some **green** economy indicators on carbon emissions in Indonesia (1990-2020)
SA Mustafa, IM Rashad - ENTREPRENEURSHIP JOURNAL FOR FINANCE ..., 2021 - iasj.net
... the most important entrances to the **green** economy, where **sustainability** in agriculture is achieved through three main pillars: the first is to ... of carbon emissions, which achieves the hypothesis that the **green** economy positively affects the dimensions of **sustainable** development. ...
☆ ⓘ All 2 versions ⓘ [PDF] iasj.net

The importance of evaluating the environmental design and performance of student projects as a product of architecture departments: A case study
KA Wahhab, NJ Rizko - ... of Engineering and Natural Sciences (PEN), 2019 - pen.ius.edu.ba
...) are met in the academic programs of the Architecture Department of **Al-Nahrain University**. It also attempted to examine to what extent these ... "Education for **Sustainability**" in 1995 emphasizing the need to demonstrate the impact of **sustainability** on the higher education sector, ...
☆ ⓘ Related articles All 2 versions ⓘ [PDF] ius.edu.ba

[PDF] Possibility of utilizing the lemon peels in removing of red reactive (RR) dye from simulated aqueous solution
Z Abdul Razak, S Rushdi, MY Gadhban... - Journal of Green ..., 2020 - researchgate.net
Lemon peels (LP) were utilized as a biosorbent in separating the reactive red (RR) dye from simulated aqueous solution; several experiments were executed in this work to obtain a qualitative data to investigate the equilibrium and the kinetic in this paper. The effect of ...
☆ ⓘ Cited by 5 Related articles ⓘ [PDF] researchgate.net

Eco-friendly **green** corrosion inhibitors in overview
M Al-mashhadani, WA Ahmed, M Abdallh... - Research Journal in ..., 2020 - royalliteglobal.com
Green inhibitors are substances obtained from natural sources and used to stop aggressive
[PDF] royalliteglobal.com

Number of events **scholarly publications on sustainability** in the academic year 2019-2021.

A total average per annum over the last 3 years of **218 publications**.

evidence link :

https://scholar.google.com/scholar?as_vis=0&q=%22al+-nahrain+university%22+%26+green+%26+sustainability&hl=en&as_sdt=0,5&as_ylo=2019&as_yhi=2021

University : Al –Nahrain University
Country : Iraq

[6.8] Number of Events Related to Sustainability

Total number=27 events



Number of events related to environment and sustainability hosted or organized by the University in the academic year 2019-2021.

Total number of sustainability/environment related events in:

2019: 9

2020: 5

2021: 13

A total average per annum over the last 3 years of **9 events** .



University : Al –Nahrain University
Country : Iraq

| No | Activity type | Activity name |
|-------------|---------------|---|
| 2019 | | |
| 1 | Symposium | The health impact of arsenic on society resulting from environmental pollution |
| 2 | Symposium | Environmental pollution caused by wars, causes, problems and solutions |
| 3 | Symposium | Noise pollution |
| 4 | Symposium | Economic analysis of solar panel projects |
| 5 | Workshop | Clean energy sources and their impact on the environmental reality in Iraq |
| 6 | Symposium | Clean and renewable energy |
| 7 | Symposium | Renewable energy in Iraq future and usage prospects |
| 8 | Symposium | Occupational safety requirements in handling nanomaterial in a laboratory environment |
| 9 | Symposium | Air pollution in Baghdad and the provinces and possible ways to control it |
| 2020 | | |
| 1 | conference | Sustainable development of the Marshlands |
| 2 | Symposium | Biomass as an alternative source of energy |
| 3 | Symposium | Prospects for Sustainable Energy in Iraq - A Outlook |
| 4 | Workshop | Renewable energy is an effective model in developing the agricultural sector and supporting the Iraqi economy |
| 5 | Workshop | Installation, operation and maintenance of solar energy systems |
| 6 | Symposium | Irrigation and fertilization technology |
| 2021 | | |
| 1 | Conference | The role of waste treatment in supporting sustainable energy projects and increasing national income |
| 2 | Symposium | Renewable energy between reality and ambition |
| 3 | Symposium | Using Nvivo for data analysis in qualitative research- community sustainability |
| 4 | Symposium | Iraq's location from solar energy investment |
| 5 | Symposium | Influencing the efficiency of the hydrogen generator |
| 6 | Symposium | Scientific developments and modern technology in the manufacture of solar panels |
| 7 | Symposium | Use of hydrogen gas as a substitute in the combustion chamber |



University : Al –Nahrain University
Country : Iraq

| | | |
|----|-----------|---|
| 8 | Workshop | Nano – materials for renewable energy production and storage |
| 9 | Symposium | biofuel production |
| 10 | Symposium | Biomass as an alternative energy source |
| 11 | Symposium | Solar energy applications with nanomaterials |
| 12 | Symposium | Renewable energy and its applicability in Iraq |
| 13 | Symposium | The importance of sustainable development studies in academic studies |



University : Al –Nahrain University
Country : Iraq

[6.9] Number of student organizations related to sustainability

Number of student organizations related to sustainability= 2

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

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.





University : Al –Nahrain University
Country : Iraq

[6.13] Number of cultural activities on campus

برعاية السيد رئيس جامعة النهرين
الأستاذ الدكتور علي عبد العزيز الشاوي المحترم
وبإشراف السيدة عميد كلية اقتصاديات الأعمال
الأستاذ الدكتورة نغم حسين نعمة المحترمة

تنظم كلية اقتصاديات الأعمال في جامعة النهرين الندوة العلمية
الموسومة :
(تحقيق التنمية المستدامة من خلال تكنولوجيا الطاقات المتجددة)

يقدمها الدكتور المهندس مصطفى أحمد الجبار رئيس أكاديمية
الصناعة الدولية للتأهيل والتطوير/السود وذلك في مساء يوم
السبت الموافق 2021/10/16 .

السبت الموافق 2021-10-16
في تمام الساعة 8:30 مساءً حسب
توقيت بغداد

لجنة المنظمة: أ.د. جعفر السعداوي

على برنامج
bizeco2009
الرمز:
وسستم مع شهادات
والتسجيل

FreeConferenceCall

Participants: raghmahmadi@gmail.com, bizeco2009, bizeco2009@gmail.com, Bizeco - bizeco2009@gmail.com

التنمية (المستدامة)
العضامين والتطبيقات

توراد عبد الرحمن الهيثي
استاذ الاقتصاد الدولي في المعهد الدولي
31 يوليو 2021

Nawaz M.Salih's screen

مركز بحوث النهرين لطلبة الجامعة المستدامة
جامعة النهرين

المؤتمر الدولي الافتراضي الثاني بعنوان
(دور معالجة التغيرات في دعم مشاريع الطاقة
المستدامة وزيادة الدخل الوطني)

برعاية السيد رئيس جامعة النهرين
الأستاذ الدكتور علي عبد العزيز الشاوي المحترم
وبإشراف
مدير مركز بحوث النهرين لطلبة الجامعة المستدامة
الأستاذ الدكتور كريم خلف محمد المحترم

يقدم قسم طاقة الكتلة الحيوية للمؤتمر الدولي
الافتراضي الثاني بعنوان:
(دور معالجة التغيرات في دعم مشاريع الطاقة
المستدامة وزيادة الدخل الوطني)

في تمام الساعة التاسعة في يوم الاثنين والثلاثاء
المستدام:
٢٠٢١ / ٧ / ١٣ - ١٤

محاو الموتر:
(١) إدارة التغيرات (المزلية، الصناعية، التجارية)
(٢) استخدام الطاقات البديلة في معالجة التغيرات
(٣) الاستثمار والتطوير

Conference website:
<http://conf.nahrainuniv.edu.iq>
Join Zoom Meeting:
<https://us05swab.zoom.us/j/5660603599?pwd=c2dNWjVxak5UdzNEa0R0RkZ0dRZ0pZ>
Meeting ID: 566 060 3599
Passcode: 3JKuF0

Contact:
07702556422
07739201672
info@nahrainuniv.edu.iq

مركز بحوث النهرين لطلبة الجامعة المستدامة
جامعة النهرين

المؤتمر الدولي الافتراضي الثاني بعنوان
(دور معالجة التغيرات في دعم مشاريع الطاقة
المستدامة وزيادة الدخل الوطني)

برعاية السيد رئيس جامعة النهرين
الأستاذ الدكتور علي عبد العزيز الشاوي المحترم
وبإشراف السيدة عميد كلية اقتصاديات الأعمال
الأستاذ الدكتورة نغم حسين نعمة المحترمة

تنظم كلية اقتصاديات الأعمال
ندوة علمية بعنوان:
(التقرير الطوعي الثاني لاهداف التنمية المستدامة في العراق 2021)

تقدمها الأستاذ الدكتور وفاء جعفر المجدد في كلية الإدارة
والاقتصاد/الجامعة المستنصرية وذلك في يوم الأحد الموافق 2021/7/18 .

على برنامج
bizeco2009
الرمز:
في تمام الساعة 8 مساءً حسب توقيت بغداد.



University : Al –Nahrain University
Country : Iraq

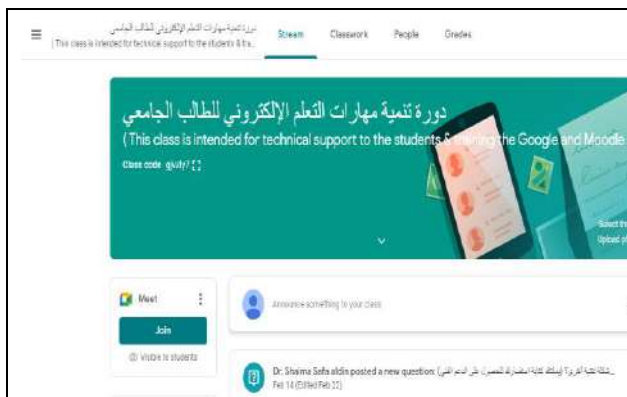
برعاية السيد رئيس جامعة النهرين
الاستاذ الدكتور علي عبد العزيز الشاوي المحترم
وبإشراف السيدة عميد كلية اقتصاديات الاعمال
الاستاذ الدكتورة نغم حسين نعمة المحترمة
تنظم كلية اقتصاديات الاعمال الندوة العلمية الدولية الموسومة :
(تطبيقات الاقتصاد الاخضر وأمكالية الاستفادة منها في العراق)
يقدمها الاستاذ الدكتور نواز عبد الرحمن الهيثي/أستاذ الاقتصاد السياسي في المعهد
الدبلوماسي/ دولة قطر وذلك في مساء يوم السبت الموافق 2021/2/27 .
على برنامج FCC
الرمز: bizco2009
في تمام الساعة الثامنة مساءً حسب توقيت بغداد.
وسيتم منح شهادات بالحضور

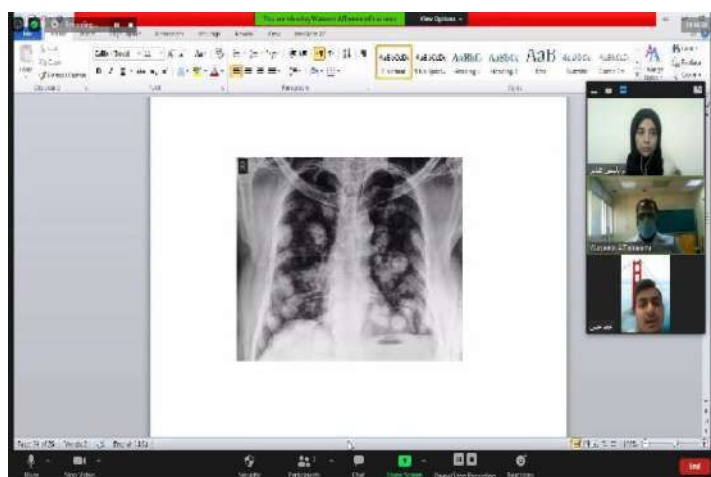
Total number of **cultural activities on campus** organized by the University : more than 3 **events**



University : Al –Nahrain University
Country : Iraq

[6.14] Number of university program(s) to cope with Covid-19 pandemic

| | |
|---|--|
|  |  |
| <p>Helpdesk group for E-Learning (Al-Nahrain University, Iraq)</p> | <p>Symposium on Errors and traps in laparoscopic cholecystectomy</p> |





University : Al –Nahrain University
Country : Iraq

Google Classroom

6th Stage Final Exams
كلية الطب
جامعة النهرين

1st Stage Final Exams
كلية الطب
جامعة النهرين

SPSS (Ph.D.)
كلية الطب
جامعة النهرين

Research De

(Higher Diploma) Postgraduate
Chemistry & Biochemistry Dep.
جامعة النهرين

Postgraduate (Ph.D.)
Physiology Dep.
جامعة النهرين

Postgraduate (Ph.D.)
Pathology & Forensic Medicine Dep.

Postgraduate
Microbiology Dep.

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Curriculum

Nahrain University

My Content

Logic Design
Lecture 8 - VHDL and Verilog HDL

Logic Design
Lecture 7 - Sequential Logic Circuits

Logic Design
Lecture 6 - Flip-Flops, Registers and Memory

Logic Design
Lecture 5 - Multiplexer and Demultiplexer

1:00:01 1:01:05 1:08:47 33:04

Lecture 8 - VHDL and Verilog HDL


Lecture 7 - Sequential Logic Circuits

Lecture 6 - Flip-Flops, Registers and Memory

Lecture 5 - Multiplexer and Demultiplexer



University : Al –Nahrain University
Country : Iraq



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

Course categories:
College of Information Engineering / 2019-2020 / Department of Networks Engineering

Search courses

1 2 +

First Year

Second Year


Third Year

Fourth Year

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



University : Al –Nahrain University
Country : Iraq


[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 Dentistry



College of Education



College of Fine Arts


[e-learning](#)

[Home](#)

[Operations Rooms](#)

[Exams Table](#)

[2nd sem-tables](#)

[Emergency emails](#)



University : Al –Nahrain University
Country : Iraq

| Link | until the hour | from the hour | Today | class type | Subject Name | Instructor's name | stage | Section | the colle |
|---|----------------|---------------|-----------|-------------|--------------|-------------------|------------------|--|--------------------|
| | 12:00 | 9:00 | Wednesday | theoretical | aaa | text2 | The first stage | | physics department |
| | 12:00 | 9:00 | Tuesday | my work | aaa | text2 | | Computer engineering department | C |
| | 12:00 | 9:00 | Monday | theoretical | aaa | text2 | level five | | |
| | 12:00 | 9:00 | Sunday | my work | aaa | text2 | The fourth stage | Department of Plant Biotechnology | Coll |
| | 12:00 | 9:00 | Saturday | theoretical | aaa | text2 | The second phase | Department of Economics of Investment and Resources Management | |
| | 12:00 | 9:00 | Monday | my work | aaa | text2 | The second phase | Systems Engineering Department | F |
| | 12:00 | 9:00 | Thursday | theoretical | aaa | text2 | The first stage | Department of International Politics | Facul |
| | 12:00 | 9:00 | Wednesday | my work | aaa | text2 | | Computer Science Department | |
| Supporting Tools (E-learning website, operations rooms, emergency e-mails) https://e-learning.nahrainuniv.edu.iq/ | | | | | | | | | |

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.

Virtual Workshop, symposium, & conference

Many workshops, symposium & conferences have been held virtually during the period of COVID-19, and below are some of them:

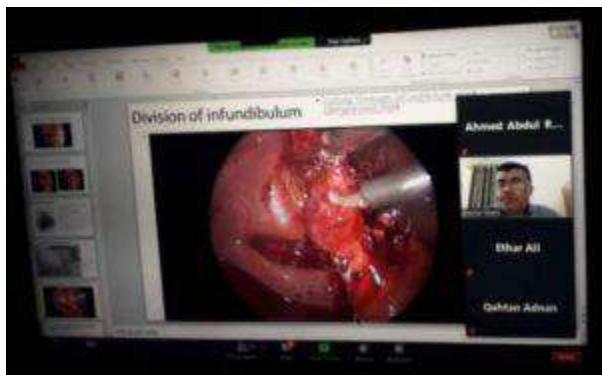
1. An electronic practical symposium entitled Errors and traps in laparoscopic cholecystectomy:



University : Al –Nahrain University
Country : Iraq

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. 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.



2. Annual electronic conference under the slogan of education and electronic platforms in Iraq under the Corona pandemic:

The Continuing Education Center at Al-Nahrain University held an annual electronic conference under the title Education and Electronic Platforms in Iraq in light of the Corona pandemic, on the 19th and 20th of next July.

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 in light of the Corona pandemic.

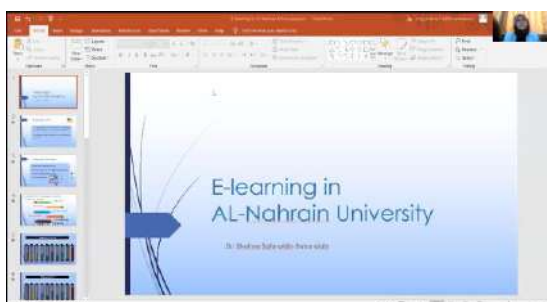
The Director of the Center stressed the importance of higher education in Iraq through academic and continuing education centers to lay the correct foundations for the concepts of modern society and look forward with great optimism for the coming period.

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



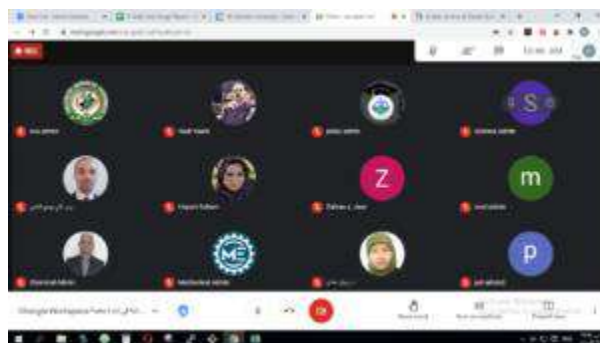
University : Al –Nahrain University
Country : Iraq

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.



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, on Wednesday (30/12/2020) 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.

Regarding the Covid-19 Pandemic, the University's president has mandated that the teaching and learning at Al-Nahrain University be held virtually until the end of the 2019/2020 school year. This website contains guidelines for the operation and various related information.

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



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 الدكتور
منال طه العبيدي المحترمة
و بالتعاون مع مكتب داماس العلمي - الوكيل الحصري
لشركة أنثاس

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.Nagor'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

Online Teaching


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

Other evidences (videos, images):

- 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 التعليم الإلكتروني
جامعة النهرين - كلية هندسة المعلومات

2

Final Year Project 2019/2020


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

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_ProjectShortTitle









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

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



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نظام التعليم الإلكتروني
جامعة النهرين - كلية هندسة المعلومات

| Select | User picture | First name / Surname | Email address | Status | Grade | Edit | Last modified (submission) | File submissions |
|--------------------------|---|--|----------------------------|-----------------------|-----------------------|----------------------|----------------------------------|---|
| <input type="checkbox"/> |  | زكريا بيلال علي Zakria bilal ali | zakriabilal90@gmail.com | Submitted for grading | Grade | Edit | Monday, 17 August 2020, 12:54 PM |  FYP_2019-2020 |
| <input type="checkbox"/> |  | نوح خالد راشد nuha Raood khaled | nuharaaad97@gmail.com | Submitted for grading | Grade | Edit | Sunday, 16 August 2020, 6:41 PM |  FYP_2019-2020 |
| <input type="checkbox"/> |  | باتول محسن سعد الله Batool mohsin saadullah | batool.mohsin19@gmail.com | Submitted for grading | Grade | Edit | Sunday, 16 August 2020, 11:03 PM |  FYP_2019-2020 |
| <input type="checkbox"/> |  | زينب جاسم عبد Zainab Jassem | zainabjassem9931@gmail.com | Submitted for grading | Grade | Edit | Sunday, 16 August 2020, 5:17 PM |  FYP_2019-2020 |



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- Some teaching videos for teachers and students were published on YouTube channel:
https://www.youtube.com/channel/UCCVuhVOFkgt4athkA_B8VUQ/playlists

- Some online Quizzes:

The screenshot displays a Google Forms quiz titled "quiz 1 med. phys." with a background image of green clover leaves. The form includes a header with the university's email address and a "Switch account" link. It features two questions, each worth 1 point, with multiple-choice options. The first question asks for the energy transfer by heat where the work done is 0.0027 joule, with options: 2.53 erg, 25.3erg, 270000erg, and 0.00027erg. The second question asks what Gamma ray has, with options: wavelength larger than IR, energy less than visible, and frequency larger than X-ray. The interface includes "Next" and "Back" buttons, progress bars, and page indicators (Page 1 of 5 and Page 2 of 5). A footer note states: "Never submit passwords through Google Forms."

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



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Country : Iraq



- **Al-Nahrain University / Center for Continuing Education, in cooperation with the International Pulse Foundation for Training and Development, held an online workshop to read CBC blood analysis for free**

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Country : Iraq



تقدم مؤسسة النبض للتدريب والتطوير
بالتعاون مع جامعة النهرين مركز التعليم المستمر

ورشة قراءة تحليل الدم CBC

Complete Blood Count

محاور الورشة

- Basic
- Reading
- Interpretation
- Clinical Correlation

الورشة تقدم على برنامج ZOOM
Meeting ID : 84363824853

تقديم المحاضر الدكتور عبدالله مازن

يوم الاثنين

بتاريخ 2020/6/15

ساعة 9 مساءً

مدة الورشة من 3 إلى 4 ساعات

الورشة مجانية

شهادة معتمدة حسب الطلب



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- **Al-Nahrain University publishes a comprehensive guide on the Corona virus that causes COVID-19**

Under the patronage of the President of Al-Nahrain University, Prof. Dr. Muhammad Mahdi Sahib... and under the supervision of the Forensic DNA Research and Development Center, the College of Biotechnology published a comprehensive guide on the Corona virus that causes COVID-19, which included both methods of disease detection, prevention, response and control. It was prepared by A.M.D. Message from Hussein Al-Lami and Prof. Maha Hamid Abdullah Al-Bahrani

The link of the prepared guide:

<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>

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



University : Al –Nahrain University
Country : Iraq

[6-15] Number of sustainability community services project organised and/or involving students

| Project type | Project name | number of projects | participants | Project area |
|----------------------|------------------------------------|--------------------|--------------|------------------------|
| conference | Student Research on Sustainability | 2 | 40 | SI, ED |
| Courses and subjects | Total Quality Management | 3 | 56 | SI, EC, WS, WR, TR, ED |

Books, cars and agricultural equipment were donated by Al-Nahrain University during the year 2019 / 2020 to universities within the same country.



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[6-16] Number of sustainability – related startups

Number of sustainability – related startups = 4



1- 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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The university's apiaries

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



Greenhouse for growing plants out of season



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3- 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.

4- The Million Trees Project





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4- 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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The future visions and goals of Al-Nahrain University according to the category of the green metric ranking

Setting and Infrastructure (SI):

Al-Nahrain University is looking to increase the green spaces on the campus by planting forest trees, small plants and roses

We have a strategic plan in the future that help us to improve the climate sustainability at university and the surrounding area, and involve our students in these activities to achieve our goal of green sustainability.

We have a plan to establish two artificial pools inside the university campus to take advantage of the rainwater collected during the season and use it in the irrigation process in the dry seasons.

There is a future plan at Al-Nahrain University to increase of water resources and benefit from them in the development of environment sustainability and climate change through the Al-Nahrain Research Center for Renewable Energy and the Biotechnology Research Center stuff and research, which are within the formations of Al-Nahrain University.



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Energy and Climate Change (EC):

We have a plan for five-year to get fully supply of university buildings with solar energy, in addition to constructing four buildings that include smart building specifications.

The Sustainability Unit in the College of Business Economics at Al-Nahrain University is responsible for developing a plan for spreading shade and climbing plants inside and outside the buildings to achieve the principle of green buildings.

Waste (WS):

We are in the process of conducting a feasibility study to recycle the university's organic and inorganic waste and offer it for investment to the private sector.

Water (WR):

We have a plan to establish several rainwater drainage channels in the entrance of the university with expected times of two years achievement

Education (ED):

Al-Nahrain University is working to develop study materials for university students related to the environment, climate change, and health food Sustainability that support the culture of sustainable development for students of Al-Nahrain University.