



# Template for Evidence(s) UI GreenMetric Questionnaire

University : Alexandria University  
Country : Egypt  
Web Address : www.alexu.edu.eg

## [6] Education and Research (ED)

### [6.12] Sustainability Report

#### [1] Setting and Infrastructure (SI)

Number of Campus Sites: 28

Faculty of Engineering (Alexandria University)	Faculty of Science (Alexandria University)

The total area on campus covered in planted in the University of Alexandria campus is 2140050.63 m<sup>2</sup>. The total building area in the campus is 1288424.378 m<sup>2</sup>, while the open area is 856020.252 m<sup>2</sup>.

In 1938, the nucleus of the Alexandria University (formerly known as Farouk University) had its beginning in the form of two faculties of Fouad the First University. These were the faculties of Arts and Law. The faculty of Engineering was then established in 1941. In the light of the need for developing more disciplines for higher learning and with a view towards meeting the need of the people of Alexandria, Alexandria University became a separate entity in August 1942 with four additional faculties: Science, Commerce, Medicine and Agriculture. In 1952, it became "Alexandria University". Since then, the University witnessed growth and expansion in several fields: the number of Faculties and high institutes increased to 22.

Alexandria University supervised the establishment of four faculties in the Nile Delta. Those were: Faculty of Medicine (1962) and Faculties of Science (1969) in Tanta (currently Tanta University), Education and Agriculture (1969) in Kafr-Elsheikh (currently Kafr-Elsheikh University).

Seven other Faculties were established in Damanhour, the capital of Behera Governorate: the Faculty of Education (1980), the Faculties of Arts, Agriculture, and Commerce (1983), Science, Veterinary Medicine, and Nursing (2007) (currently Damanhour University).

In 1989, the Faculties and Institute affiliated to Helwan University and located in Alexandria joined the Alexandria University by a Presidential Decree: four Faculties of Physical Education for men, Physical Education for women, fine Arts, and agriculture at Saba-Basha.

A Faculty of Basic Education was also established in 1991, faculty of tourism & Hotels, Faculty of Agriculture, Faculty of Veterinary Medicine and Faculty of Nursing in Marsa-Matrouh Governorate, 300 Km west of Alexandria.



In 1998, two Faculties affiliated to the ministry of Higher Education, joined the Alexandria University: Kindergarten Teachers Training and Specific Education.

Believing in its role towards Arab and African countries, Alexandria University established in 1960 in Beirut, Lebanon, "Beirut Arab University" which is run and supervised by educational and administrative cadres from Alexandria University.

Recently, Alexandria University is working on the establishment of a branch in Juba, south of Sudan, and in N'djamena in Tchad.

The slogan of Alexandria University Contains the Lighthouse of Alexandria which is a huge building on the island of Pharos at the entrance of the eastern port of Alexandria, constructed in the era of Ptolemy II at about 280 BC.

### Campus Setting

Alexandria Campus is located in several campus cites, some of them are located in the city center such as: The medical complex, Faculty of Science in Horia Street, Faculty of Science in Moharram Bek, Faculty of Engineering, Campus of Humanities and Social Sciences, Faculty of fine Arts, Faculty of Specific Education, Faculty of Early Childhood Education, Medical Research Institute (Horia Street - Smouha), Higher Institute of Public Profession, Community service center, printing press, club and garage – Smouha, University Stadium (Student Service Center), Youth Care, University land in Smouha (College of Nursing - Children's Hospital - Faculty members residences), Land of Mouwasat Hospital.

Other Campus cites are located in Suburban area such as: Faculty of Physical Education for Boys, Faculty of Physical Education for Girls, Veterinarians Abis, Saba Basha Babis tenth farm, Bagushe, Burj Al Arab International Medicine, Pigeon farm (affiliated with the Faculty of Agriculture), Earth of the globe, The farm land of the Faculty of Agriculture, Saba Basha, in the area of Khemisa, Siwa Oasis, Break of the Faculty of Science in the old Burj Al Arab, The land of Wadi Natrun, Abis Campus.

**The total area of the campus cites is 4284495.26 m<sup>2</sup>**

**Total campus buildings area: 1287480.878 m<sup>2</sup>**

**Total Area on Campus Covered in Forest Vegetation (meter<sup>2</sup>): 67,447.575 m<sup>2</sup>**

The forest area in Egypt is very rare. The Faculty of Agriculture, Saba Basha, in the area of Khemisa, Siwa Oasis (Alexandria University, Egypt), has an Area on the campus covered in plants and trees.

**Total area: 67,447.575 m<sup>2</sup>**

**Total area on campus covered in planted vegetation (meter<sup>2</sup>) = 2140050.63 m<sup>2</sup>**

**Percentage planted area: 50%**

**Total area on campus for water absorption besides the forest and planted vegetation (meter<sup>2</sup>):**

Total **water absorption** area: 856020.252 m<sup>2</sup>

Total Area: 4284495.26 m<sup>2</sup>

Percentage area: 20%

### University budget for sustainability effort (in US Dollars)

	2020	2021	Average
<b>Budget Total</b>	\$ 187,207,054	\$ 193,728,698	\$ 190,467,876
<b>Sustainability Budget</b>	\$ 58,251,507	\$ 36,209,262	\$ 47,230,384.5
		Percentage	24.8 %

The average percentage of Alexandria University budget for sustainability effort is 24.8%

**Percentage of operation and maintenance activities:**

Total campus buildings area	1,288,424.378 m <sup>2</sup>
Total operated building	470,000 m <sup>2</sup>
Percentage building that operated and maintained	36.5 %
The University total budget 2021	\$ 193,728,698
The University total sustainability budget 2021	\$ 36,209,262
The University budget for Maintenance 2021	\$ 3,907,219.14
The percentage of budget for Maintenance	2.1%

**Campus facilities for disable, special needs and or maternity care**



Taha Hussein Centre for the support of disabled people (Alexandria university, Egypt)

	
<p>Replacing steps with ramps for disabled people (Faculty of Engineering - Alexandria University)</p>	<p>Accessible toilet (Alexandria University)</p>

1. Taha Hussein Centre for the support for disabled people.
2. Alexandria University campus facilities for people with special needs, the disabled and maternity care. Disables Service Center on the Faculty of Commerce: 1) There is a corridor to facilitate their movement

with wheelchair. 2) The elevators are available for any student with special needs. 3) There are wheel chairs in the Faculties for emergency and special cases. 4) The University has prepared a special place in the campus as clinics for the conscription site to physically examine the students with special needs and give them certificates of exemption from conscription, as a contribution from college to reduce burden on them and their families.

3. Replacing steps with ramps for disabled people Alexandria University.
4. Accessible toilet for disabled people.

### Security and safety facilities

1. Fire extinguisher and sand buckets (Alexandria University).
2. Fire Exit (Alexandria University): There is an emergency exits in all faculty buildings with fire exit plan
3. Security Doors for the Exam control rooms (Alexandria University).
4. Fire alarm call point
5. Fire Alarm (smoke detector)
6. Fire extinguisher and description of how to use it properly (Alexandria University)

### Fire extinguishing systems in faculties and institutes of the university

**Hospitals:** The firefighting system is currently being changed from the manual system to the automatic fire network system. For example, in Smouha University and the main university hospital (Automatic sprinkler system "Water" FM 200).

**Universities:** All Universities are still operating with the manual extinguishing system:

- 1- 45 inch water networks and 3 inch water networks.
- 2- Mobile extinguishers system
  - a) CO2 Extinguishers
  - b) Powder extinguishers
- 3- There is an emergency exits in all faculty buildings with fire exit plan

All devices are subject to annual maintenance (attached pdf file). The attached pdf is an example of Minutes of the Occupational Safety and Health Committee meeting, which is held every three months. The Committee make a yearly plan. In the meeting they discuss their activity program and regularly discuss any problems observed during this period.



Fire extinguisher and description of how to use it properly (Alexandria University)	Security Doors for the Exam control room (Alexandria University)
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**Health infrastructure facilities for students, academics and administrative staffs' wellbeing**

1. The Faculty of medicine, Alexandria university is built on 225867 square meter surface area with all its different campuses including Main University Medical Complex, ELshatby, Elhadara, Smouha, Elmoassat and Borg Elarab campus.
2. Students teaching rooms compromise 12443.36 square meter from the faculty total surface area.
3. Alexandria University Medical Complex compromise seven buildings including Academic building, internal medicine building, Surgery building, conference center, Training center, Outpatient clinics, New university hospital building with total surface area 77154.
4. EL-shatby hospital compromise one building for obstetrics and gynecology department with total surface area 33288 square meter.
5. El Hadra Hospital compromise two buildings for orthopedics and neuropsychiatry with total surface area 21975 square meter.
6. Smouha hospital compromise two buildings for Emergency and pediatrics with total surface area 23691 square meter.
7. El-Mosaat hospital compromise eighteen teaching rooms with total surface area 23104 square meter.
8. The University Hospital contains 22 clinic as therapeutic units in all Faculties.



El-Mosaat hospital (Faculty of Medicine, Alexandria University)

**Conservation: plant, animal, and wildlife, genetic resources for food and agriculture secured in either medium or long-term conservation facilities**

- Green House (Faculty of Veterinary Medicine).
- Plantation (Faculty of Veterinary Medicine).
- Cattle Farming (Faculty of Veterinary Medicine).
- Botanic Garden (Faculty of Science in Moharram Bek).
- Botanic Garden, Green House (Faculty of Science in Moharram Bek) and its location in Alexandria City.

- Wildlife Conservation of some important fern.
- Preparation of Herbarium sheet for conservation plant species.

### Botanic Garden (Faculty of Science in Moharram Bek)

The university botanic garden at the Faculty of Science is valuable to the educational and training facilities available to staff and students. In it, students can come to close intimacy with plants, use their senses of touch, smell and taste in familiarizing themselves with life features of plants, and develop their observation abilities in studying plants as they grow, mature and regenerate. Information intake is considerable. Land plots, greenhouses and sheds provide space for field experiments that may be part of botanical garden accumulates experiences and knowledge related to plant life; grasping this wealth of information and documenting it is a most welcome enterprise.

University botanic gardens often accommodate exotic species brought in to represent: (1) diverse ecological conditions in world biogeographical regions, and (2) diverse taxonomic groups of the plant kingdom. Husbanding and nursing these alien plants may need innovative means. This broadens the scope of work. The University botanical garden of Alexandria has its shares of these general attributes.



### THE BOTANIC GARDEN

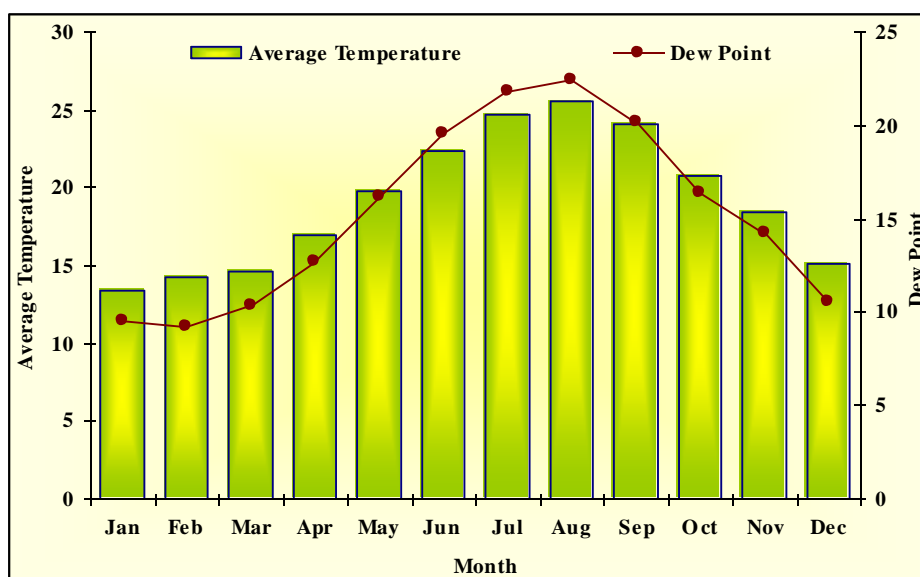
*The Botanical Garden is an institution holding documented collections of living plants for the purposes of scientific research, conservation, display and education.*

In 1942, a botanical garden was established at the Southern area of Muharrem Bek building (**Faculty of Science, King Farouk University**), between the coordinates: N: 31° 11' 19.38" E: 29° 54' 28.14", (Figure 1) and constituted a facility for education as well as for scientific research. Since 1942, the Botanical Garden was greatly developed and was provided with different plant species especially trees and shrubs introduced from different regions by Professor Mohamed Aziz Fekry (the Dean of Faculty of Science and Head of Botany Department 1948- 1958). It was consistently ranked as one of the top gardens by the International Union for Scientific Gardens (International code is **ALEX**), and holds some of the rare and most impressive species that facilitate improved learning, and teaching students; the purpose for which it was designed.

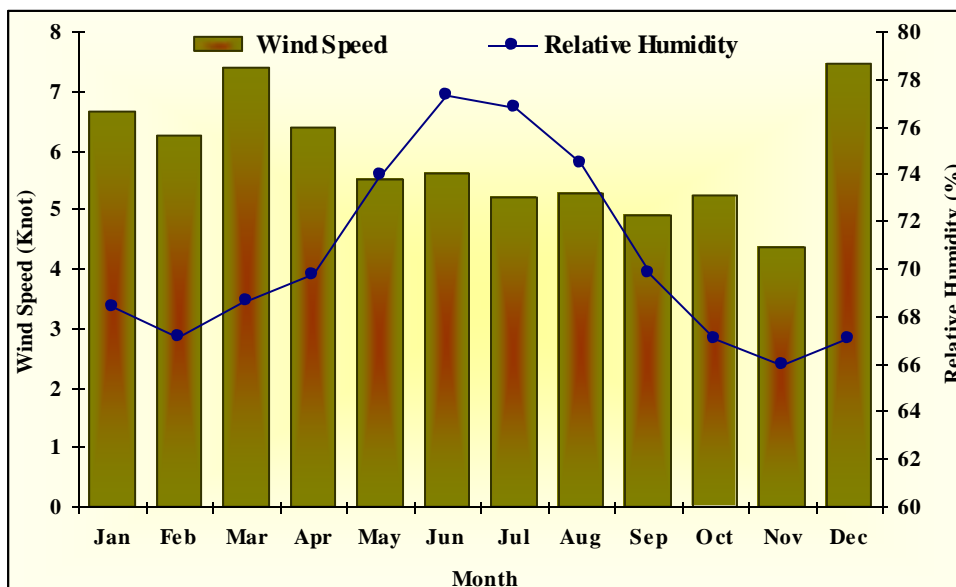
This area (about 1.4 hectares) is of international concern attracting a large number of overseas visitors, who come specially to see its collections. Although these are the main objectives, care has been taken to make the garden inexpensive to maintain, as well as interesting and attractive so as to provide for the local community, staff and students the garden as a reference collection.

According to the Global Strategy for Plant Conservation (GSPC), it is very important to put this garden on the schedule which means, listing and conserving all the garden's collections to become known, at least at the regional levels and next on the international level. With more than 455 species and 24 infraspecific epithets (subspecies, variety, forma), indigenous and introduced, in the Botanical Garden of the Faculty of Science, most of them represent tropical, subtropical, temperate species and the rest belong to the Mediterranean zone. This number is a very significant proportion of the Egyptian flora, as they belong to 121 families (total flowering plant families, which are treated 128 Boulos, 2005) while, the families treated in the checklist 2009 are 129 (Boulos, 2009). On the other hand, this garden is characterized by its high diversity, so the conservation of this plant diversity is both an enormous challenge and significant regional and national responsibility. It is well recognized that the plant diversity represents the greatest source of renewable natural resources of any country. More than 25% of plant species of this botanical garden are of medicinal value, about 14% of them are used as timber and good source of valuable wood. While 86% of the botanic garden species are used in decoration. All of these species are used as teaching materials for the students of biology. Some families appear in this book under two names, e.g. Compositae and Asteraceae. According to the “International Code of Botanical Nomenclature” (ICBN) both names are accepted. In other words, one is not a synonym of the other; these are alternative names and any or both of them could be used to refer to the same family (cited by Boulos, 2009).

Recently (in 2003) according to the Botanical Gardens Conservation International (BGCI), *ex-situ* conservation by vegetative propagation of rare species is carried out in the green houses of the Faculty of Science, Botanic Garden. For the purpose of genetic resources conservation, exchange of plant species with other botanic gardens and bulk collection of seeds representing most of plant species cultivated in the garden is also currently executed.



Temperature, dew point, relative humidity and wind speed on Alexandria city (Averages of the last five years, after El-Gendy, A. Personal Communication).



Published Book:

Heneidy, S. Z. (2010). Plant Atlas: the botanic garden (ALEX). *Monchaat Al-Maaref, Alexandria*. 632 pp.

### The Areas of the University Sites

NO	Campus	The area in square meters	Building area in square meters	Open Area in square meters	Total Area on campus covered in planted
1	University Administration Building	1940	1940	0	0
2	Faculty of Physical Education for Boys	113311.93	33993.579	22662.386	56655.965
3	Faculty of Physical Education for Girls	2891	867.3	578.2	1445.5
4	The Medical Complex	91216	27364.8	18243.2	45608
5	Faculty of Science in Horia Street	22197	6659.1	4439.4	11098.5
6	Faculty of Science in Moharram Bek	5485	1645.5	1097	2742.5
7	Faculty of Engineering	111034	33310.2	22206.8	55517
8	Campus of Humanities and Social Sciences	80707	24212.1	16141.4	40353.5
9	Faculty of fine Arts	2569	770.7	513.8	1284.5
10	Faculty of Specific Education	1194	1194	0	0
11	Faculty of Early Childhood Education	1407	422.1	281.4	703.5
12	Medical Research Institute (Horia Street - Smouha)	2500	2500	0	0



13	Higher Institute of Public Profession	700	700	0	0
14	Community service center, printing press, club and garage - Smouha	3110	933	622	1555
15	University Stadium (Student Service Center)	33831.7	10149.51	6766.34	16915.85
16	Youth Care	1500	450	300	750
17	Veterinarians Abis	141639.91	42491.973	28327.982	70819.955
18	Saba Basha Babis tenth farm	202342.72	60702.816	40468.544	101171.36
19	Bagushe	182108.45	54632.535	36421.69	91054.225
20	Burj Al Arab International Medicine	1420445.92	426133.776	284089.184	710222.96
21	Pigeon farm (affiliated with the Faculty of Agriculture)	1274759.16	382427.748	254951.832	637379.58
22	Earth of the globe	33386.55	10015.965	6677.31	16693.275
23	The farmland of the Faculty of Agriculture, Saba Basha, in the area of Khemisa, Siwa Oasis	404685.45	121405.635	80937.09	202342.725
24	University land in Smouha (College of Nursing - Children's Hospital - Faculty members residences)	105218.22	31565.466	21043.644	52609.11
25	Break of the Faculty of Science in the old Burj Al Arab	21475.98	6442.794	4295.196	10737.99
26	Land of Mouwasat Hospital	20234.27	6070.281	4046.854	10117.135
27	The land of Wadi Natrun	4545	1363.5	909	2272.5
28	Abis Campus	2225769.96	667730.988	445153.992	1112884.98
	<b>Total</b>	4284495.26	1288424.4	856020.252	2140050.63
	<b>Ratio</b>	<b>100%</b>	<b>30%</b>	<b>20%</b>	<b>50%</b>

**Link for Sustainable Development:** <https://alexu.edu.eg/index.php/en/sustainable-development>

**Link for Green University:**

[https://alexu.edu.eg/index.php/?option=com\\_content&view=article&id=5932&catid=21&lang=ar-AA](https://alexu.edu.eg/index.php/?option=com_content&view=article&id=5932&catid=21&lang=ar-AA)



## [2] Energy and Climate Change (EC)

### Energy Efficient Appliances Usage

Alexandria University intends to realize further energy savings by paying close attention to energy management. All the faculties and institutes of the university realize their own energy-saving potential by means of LED lighting and the deployment of sustainable technology.

#### **Alexandria University Project on using LEDs as Energy-Efficient Bulbs (2019-2022):**

Within the framework of the University’s keenness to transform into a green, environmentally friendly university that works to enhance its resources and rationalize energy consumption, the Department of Community Service Development has launched a project for the total transformation of the used LED bulbs instead of the fluorescent ones. The light-emitting diode (LED) bulbs are more efficient, and energy-saving compared to fluorescent bulbs, with a relatively longer life span.

The project has been implemented in phases since 2019 based on the preparation of an inventory of the total numbers needed for all faculties and institutes of the university. The first quarter, the numbers required, which represents the types of 60 cm, 120 cm and 9 watts’ bulbs, has been spent and installed, which are almost 30%. In parallel, appropriate measures were taken to dispose of the lost fluorescent lamps through one of the companies concerned with safe disposal. The second step required the purchase and transformation of 37% of the total needs of the faculties and institutes of the university.

During the current phase we are processing the third step of purchasing and transformation of around 92% of the total needs of the faculties and institutes of the university (attached pdf file).

The Table below summarizes the total number of LED bulbs that are required for complete transformation into using green energy source along with the percentage of the bulbs that were already replaced over the last 3 years.

#### LED 60 cm

LED Lamps	Total Number required	Total number energy Efficient appliances (replaced)	Percentage
2019	39198	10142	25.9%
2020		12504	31.9
2021	...	12900	32.9%
		<b>Total Percentage</b>	<b>90.7%</b>

#### LED 120 cm

LED Lamps	Total Number required	Total number energy Efficient appliances (replaced)	Percentage
2019	30799	9874	32.1%
2020		12500	40.6%
2021	...	6221	20.2%
		<b>Total Percentage</b>	<b>92.9%</b>

#### LED 9 watts

LED Lamps	Total Number required	Total number energy Efficient appliances (replaced)	Percentage
2019	5190	1678	32.3%
2020		1998	38.5%
2021	...	1282	24.7%
		<b>Total Percentage</b>	<b>95.5%</b>

**Alexandria University Program to reduce Electricity consumption from Air Conditioners and electric devices such as Computers, printers, photocopiers, surveillance cameras.**



1. All newly purchased AC are inverter AC to reduce the electricity consumption (attached pdf file).
2. The new electric devices such as Computers, printers, photocopiers, surveillance cameras are energy efficient devices (attached pdf file).
3. All electronic devices must be shut down at night, when not used.
4. Regular Maintenance of all devices.
5. The thermostats of the air conditioner are set at 25°C, and direct sunlight is avoided by using sun protection curtains

### Solar Energy Center at the Faculty of Agriculture (Alexandria University)

Hybrid Renewable Energy Systems to Supply Services in Rural Settlements of Mediterranean Partner Countries.

#### The services provided by the center:

- 1) **Research and development:** Encouraging applied research on renewable energy at AU and through collaborations with other national and international universities. Development of hybrid systems in renewable energy and its uses in water pumping and water desalination and development of remote and desert areas. Development of research in energy from biomass and waste. Development of thermal uses of solar energy.
- 2) **Consultations:** Various consultations in renewable energy systems, especially hybrid systems, drying and solar heating.
- 3) **Education and Training:** Supporting the renewable energy education at AU. Developing and delivering courses, e-learning, workshops, training courses, and conferences on various renewable energy systems.
- 4) Serving the Egyptian community by providing all renewable energy information to the public.

#### Equipment at the center:

- 1) The center has many devices for different applications of renewable energy.
- 2) A hybrid system to generate electricity from the sun with a capacity of about 130 kilowatts.
- 3) E-learning courses on the site.

System Application	Solar System power kWp	Air Turbine power	Energy (kWh)
Wadi El-Natroon 1, Photovoltaic cells	7		7000
Wadi El-Natroon 2, Photovoltaic cells	50		50,000
Wadi El-Natroon 1, Air turbines		5	5000
Wadi El-Natroon 2, Air turbines		50	50,000
Abis Campus			130
University Main building			20
	Total Power (kWh)		112,150



**The Faculty of Science:**

**Research Project:** Development and implementation of decentralized solar-energy-related innovative technologies for public buildings, in the Mediterranean Basin

System Application	Number of modules	Solar System kWp	Power (kWh)
BIPV façade brise-soleil	120	17.28	26350
BIPV garden pergola	90	8.1	23270
BIPV roof pergola	30	4.1	
	Total Power (kWh)		49,620

**University administration building**

The project of "supplying, installing and operating the photovoltaic solar plant with a capacity of 20.1 kW above the administration building of Alexandria University in Shatby was launched by the Arab Renewable Energy Company, on 2/14/2020. The capacity of the station per month is 20.1 kW, while the capacity consumed from the building is 255 kW / month, meaning that the station provides within 8% of the total monthly consumption. Total Solar energy per year = **241.2 kWh**.

**Higher Institute of Public Profession**

The Institute has two initiatives to exploit solar energy at the Institute through two units of photovoltaic cells (50 watts each) that are currently installed and are exploited to provide the electrical energy necessary to operate the Ultra-Filtration unit located in one of the laboratories of the Department of Materials Science for educational purpose. Moreover, five units of photovoltaic cells (260 watts each) were installed to operate the discussion room at the Institute and to provide it with sufficient energy for lighting purposes and to operate its display device. Total Solar energy per year = **360 kWh**.

**Ratio of renewable energy production divided by total energy usage per year**

No	Renewable Energy	Production (in kWh)
1	Solar panel	57,150 + 49,620 + 241.2 + 360
2	Windmill	55,000
	<b>Total</b>	<b>162,371.2</b>

**Alexandria University** have generalized this initiative in some of the faculties of Alexandria University in gradual stages.

**Smart Building Implementation: The Abis Campus (11 University buildings):**



**Elements of Green Building Implementation as Reflected in all new construction and renovation policies:**

- The area of the project is 160 acres (667,730.988 m<sup>2</sup>), a general site for educational buildings, and 120 acres are complementary activities. The percentage of green areas and lake is about 52% in addition to 25% atreets and lanes.
- Water-saving plots are used, which will reduce water consumption by abut 30%. The sewage water will be trated and reused in the irrigation of green areas in the project.
- Rainwater is collected in the main lake and used for irrigation.
- The use of plants with few water rationed plants to reduce irrigation needs in addition to absorbing quantities of rainwater to reduce the severity of rain spells.
- As for energy, all the buildings have solar enery generation cells to provide part of the building’s needs, which are estimated at about 45%, in addition to using energy-saving lamps (LED).
- The punlic site lighting poles are powered by solar enery.

**Total Building Area**

$$\frac{\text{total building area}}{\text{total area}} \times 100\%$$

**Total Building Area:**

$$\frac{667730.988 \text{ m}^2}{2225769.96 \text{ m}^2} \times 100\% = 30\%$$

**Smart building implementation**

$$\frac{\text{total smart building area}}{\text{total building area}} \times 100\%$$

**Smart building implementation**

$$\frac{135,500 \text{ m}^2}{667730.988 \text{ m}^2} \times 100\% = 20\%$$

## Renewable Energy Sources in Campus

The Faculty of Agriculture has 2 renewable energy centers and on center at the main building of the University.

1) The renewable Energy Center in Wadi El-Natroon.

There are two units from the network:

- 7 kw hybrid unit for photovoltaic cells and 5 kw for air turbine.
- 50 kw hybrid unit for photovoltaic cells and 50 kw for air turbines (under maintenance).

They are all used in student training and research for graduate students and faculty members.

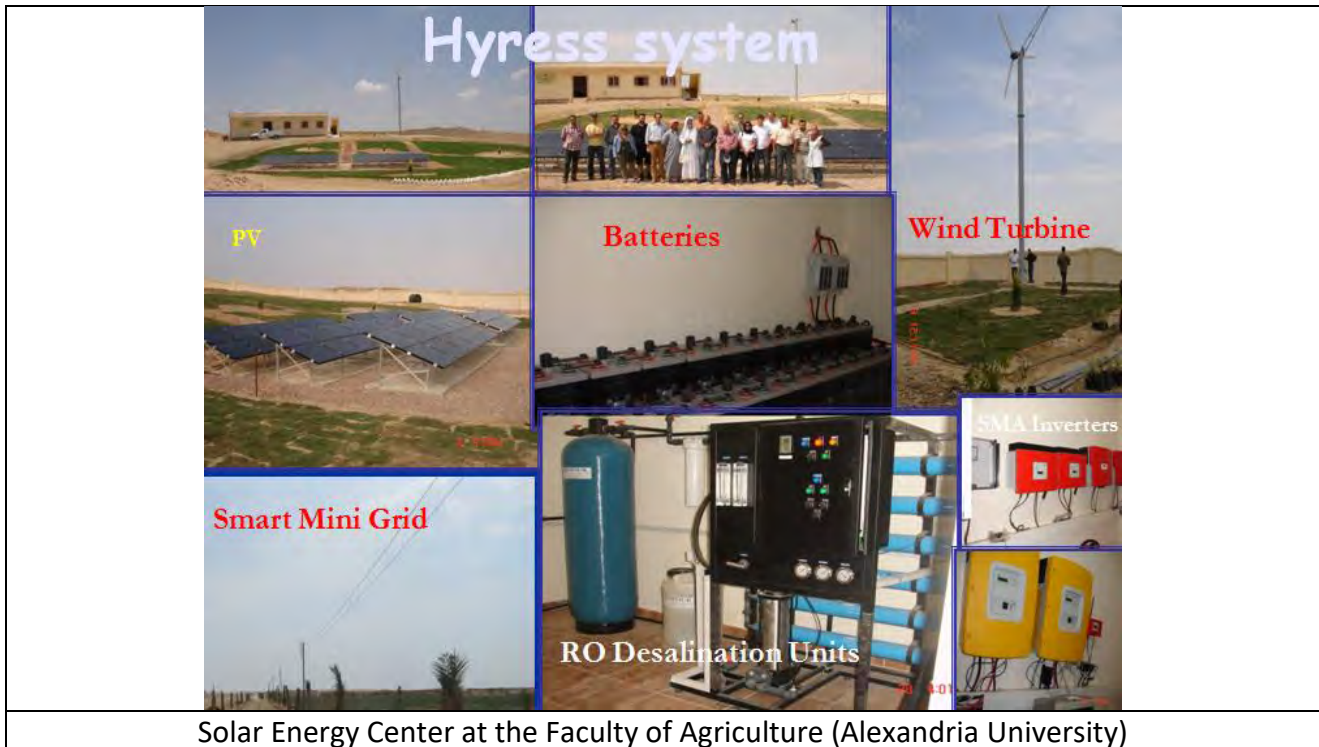
2) The renewable Energy Center at the Agriculture Research and Experiments Station in Abis Campus.

- The capacity of the center is 130 kw/h connected to the electricity grid.

3) The renewable Energy Center at the main building of the University.

- The capacity of the center is 20 kw/h connected to the electricity grid.





**The Faculty of Science:**

**Research Project:** Development and implementation of decentralised solar-energy-related innovative technologies for public buildings, in the Mediterranean Basin

System Application	Number of modules	Solar System kWp	Energy (kWh)
BIPV façade brise-soleil	120	17.28	26350
BIPV garden pergola	90	8.1	23270
BIPV roof pergola	30	4.1	
Total Power (kWh)			49,620



BIPV Façade Brise-Soleil System  
Solar Energy Project at the Faculty of Science (Alexandria University)

**The Faculty of Science:**



**Research Project:** Production of Bio-Diesel from Algae in Selected Mediterranean Countries: Med-Algae Project

**The project objective is to explore:**

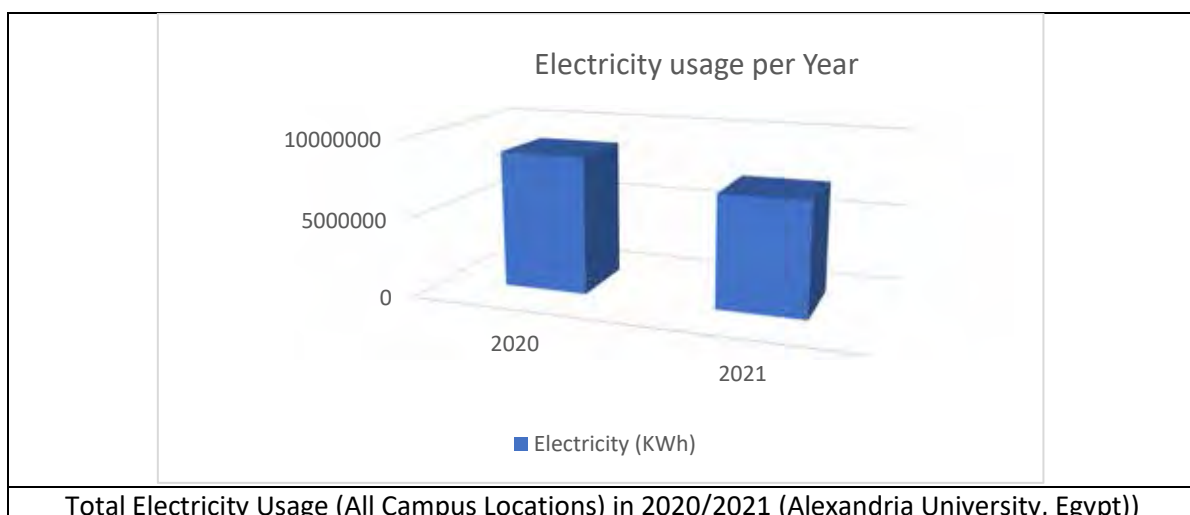
- 1- The development of microalgae-based biodiesel production and other valuable products in six Mediterranean countries (Cyprus, Egypt, Greece, Italy, Lebanon and Malta).
- 2- The current level of technology, the relevant market structure, and the governmental and environmental boundaries will be mapped in the participating countries, in order to identify the most promising strategies in each country.

Studied Strains *Chlorella* sp was chosen to be the common examined strain between the partners. In addition, native algal strains from each participant country were isolated and identified.

Both *Chlorella* sp and locally isolated microalgae have been examined under lab and out-door scale.

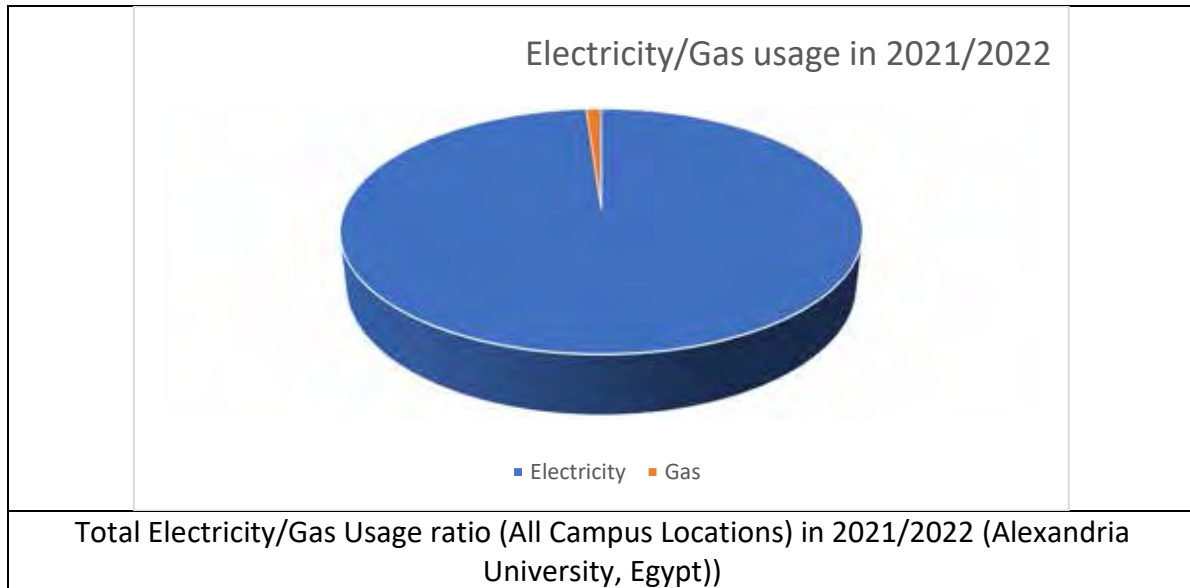
	
<p>Production of Bio-Diesel from Algae in Selected Mediterranean Countries: Med-Algae Project (Faculty of Science, Alexandria University)</p>	<p>Algae Cultivated in Flat Panel Photo-Bioreactor, Med-Algae Project (Faculty of Science, Alexandria University)</p>

**Electricity Usage per Year (in Kilowatt hour)**



Total Electricity Usage (All Campus Locations) in 2020/2021 (Alexandria University, Egypt))





The total electricity usage of Alexandria University Campus in 2021/2022 is 7106641 kWh. The total electricity usage decreased by 18.5% compared to year 2020/2021. The total Gas usage of Alexandria University Campus in 2021 is 7071 m<sup>3</sup> (80345 kWh). On the main campus area of Alexandria University electricity is used for lighting, cooling, heating and laboratory appliances.

### Elements of Green Building Implementation as Reflected in All Construction and Renovation Policies

#### The Abis Campus (11 new University buildings)

Alexandria University set up a construction policy for the renovation and maintenance of the Facilities and building new building. This policy includes the following elements: Smart Buildings, Renewable energy usage, Natural ventilation, full natural daylighting, and LED lighting.

- The area of the new Camus is 160 acres (667,730.988 m<sup>2</sup>), a general site for educational buildings, and 120 acres are complementary activities. The percentage of green areas and lake is about 52% in addition to 25% streets and lanes.
- All new buildings in Abis campus are designed with large windows to get maximum benefit from daylight and natural ventilation. In addition, all University builaings have good natural ventilation and daylight.
- Water-saving plots are used, which will reduce water consumption by abut 30%. The sewage water will be treated and reused in the irrigation of green areas in the project.
- Rainwater is collected in the main lake and used for irrigation.
- The use of plants with few water rationed plants to reduce irrigation needs in addition to absorbing quantities of rainwater to reduce the severity of rain spells.
- As for energy, all the buildings have solar enery generation cells to provide part of the building's needs, which are estimated at about 45%, in addition to using energy-saving lamps (LED).
- The public site lighting poles are powered by solar enery.



**The Faculty of Science:**

**Research Project:** Development and implementation of decentralised solar-energy-related innovative technologies for public buildings, in the Mediterranean Basin

System Application	Number of modules	Solar System kWp	Power (kWh)
BIPV façade brise-soleil	120	17.28	26350
BIPV garden pergola	90	8.1	23270
30	4.1		
Total Power (kWh)		49,620	

**Environmental Benefits**

Life time CO <sub>2</sub> emission savings	556,935 kg
Life time SO <sub>2</sub> emission savings	2,004 kg
Life time NO <sub>x</sub> emission savings	668.322 kg

**University administration building**

The project of "supplying, installing and operating the photovoltaic solar plant with a capacity of 20.1 kW above the administration building of Alexandria University in Shatby was launched by the Arab Renewable Energy Company, on 2/14/2020. The capacity of the station per month is 20.1 kW, while the capacity consumed from the building is 255 kW / month, meaning that the station provides within 8% of the total monthly consumption. Total Solar energy per year = **241.2 KWh**.

**Higher Institute of Public Profession**

The Institute has two initiatives to exploit solar energy at the Institute through two units of photovoltaic cells (50 watts each) that are currently installed and are exploited to provide the electrical energy necessary to operate the Ultra-Filtration unit located in one of the laboratories of the Department of Materials Science for educational purpose. Moreover, five units of photovoltaic cells (260 watts each) were installed to operate the discussion room at the Institute and to provide it with sufficient energy for lighting purposes and to operate its display device. Total Solar energy per year = **360 KWh**.

**Alexandria University** have generalized this initiative in some of the faculties of Alexandria University in gradual stages.

**Ratio of renewable energy production divided by total energy usage per year: = 2.29%**

**Ratio of renewable energy production divided by total energy usage per year**

No	Renewable Energy	Production (in kWh)
1	Solar panel	57,150 + 49,620 + 241.2 + 360 = 107,371.2
2	Windmill	55,000
	<b>Total</b>	<b>162,371.2</b>

**162,371.2 / 7106641 (Electricity usage) = 2.29%**

## Greenhouse gas emission reduction program



1. LED lighting and lamps (Abis Campus, Alexandria University)



2. Renewable energy (Solar Energy Center at the Faculty of Agriculture, Alexandria University)



3. Ride Share using the University Shuttle (Alexandria University)



**Table: Greenhouse gas emission sources at Alexandria University Campus**

	<b>Emission data</b>	<b>Definition</b>
<b>Scope 1</b>	Stationary combustion	Stationary combustion refers to the burning of fuels to produce electricity, steam, and heat in a fixed location, such as boilers, burners, heaters, kilns, and engines.
	Mobile combustion	Burning of fuels by institution-owned transportation devices
	Process emissions	Direct greenhouse gas (GHG) emissions from physical or chemical processes rather than from fuel combustion
	Fugitive emissions	Hydrofluorocarbon releases during the use of refrigeration and air conditioning equipment and methane leakage from natural gas transport
<b>Scope 2</b>	Purchased electricity	Indirect GHG emissions result from the generation of the electricity purchased and used by the institution
<b>Scope 3</b>	Waste	Indirect GHG emissions resulting from the incineration or landfill of your institution's solid waste
	Purchased water	Indirect GHG emissions resulting from the generation of water supply purchased and used by the institution
	Commuting	Indirect GHG emissions resulting from regular commuting from and to institutions by students and employees (i.e., reducing regular commuting by using shared vehicles, carpooling)
	Air travel	Indirect GHG emissions resulting from air travels paid by institutions (i.e., reducing the number of staff air travel opportunities)

**Elements of Green Building Implementation as Reflected in all new construction and renovation policies:**

**Scope 1, Stationary combustion and Mobile combustion:** These GHG sources are reduced by Ride Share using the University Shuttle and Carpool, by the decrease of burning of fuels. In addition, the use of bicycles reduces the GHG source.



**Scope 1, Fugitive emissions:** All new buildings in Abis campus are designed with large windows to get maximum benefit from daylight and natural ventilation. In addition, all University buildings have good natural ventilation and daylight. This will reduce the use air conditioning equipment and accordingly decrease GHG.

**Scope 2, Purchased electricity:** As for energy, all the new buildings in Abis Campus have solar energy generation cells to provide part of the building's needs, which are estimated at about 45%, in addition to using energy-saving lamps (LED). In addition, the public site lighting poles are powered by solar energy.

All the faculties and institutes of the university realize their own energy-saving potential by means of LED lighting and the deployment of sustainable technology. Alexandria University have generalized this initiative in some of the faculties of Alexandria University in gradual stages.

Alexandria University Program to reduce Electricity consumption from Air Conditioners and electric devices such as Computers, printers, lab apparatus.

1. All newly purchased AC are inverter AC to reduce electricity consumption.
2. The new electric devices such as Computers, printers, lab apparatus are energy efficient devices.
3. All electronic devices must be shut down at night, when not used.
4. Regular Maintenance of all devices.
5. The thermostats of the air conditioner are set at 25°C, and direct sunlight is avoided by using sun protection curtains

**Scope 3, Waste:** Alexandria university program to reduce the use of paper and plastic in campus.

- 1) Development of electronic archiving system; the university faculties and the main campus are moving toward the electronic archiving system to reduce paper consumption.
- 2) University decrees to reduce the use of paper in the campus:
  - 2.1: The president decree to use the e-mails for communications inside the campus and between the university main campus and all the other campuses.
  - 2.2: In the situations, the university or any of its faculties need to print the official documents; this has to be on recycled paper (2 faces copy).
  - 2.3: The University formulated a community for administrative reform to minimize the administrative processes and decrease the use of papers except in who are relevant to financial process.
- 3) Digital transformation toward electronic exams to reduce paper consumption.
- 4) Digital transformation toward electronic course to reduce paper consumption and books printing.
- 5) Electronic administration of student courses by about 50% instead of written administration to reduce paper consumption.

**Scope 3, purchased water:** The University has applied a strategy in the faculties to decrease water consumption through installation of special parts on water taps, showers, toilette, and bathroom bidet which can conserve about 50% of water consumption. Water saving devices are used instead of traditional devices. For example, the use of a hand-washing faucet with automatic control via a sensor, and high-efficiency bathroom devices. Supplying water taps with water conservation units. Adopting a mechanism to maintain water pipes to prevent waste resulting from leaks.

In addition, a policy for the reduction of purchased water was implented in Abis Campus 1) Water-saving plots are used, which will reduce water consumption by abut 30%. The sewage water will be trated and reused in the irrigation of green areas in the project. 2) Rainwater is collected in the main lake and used for irrigation. 3) The use of plants with few water rationed plants to reduce irrigation needs in addition to absorbing quantities of rainwater to reduce the severity of rain spells.

**Scope 3, Commuting:** These GHG sources are reduced by Ride Share using the University Shattle and Carpool, by the decrease of burning of fuels. In addition, the use of bicycles reduces the GHG source.

**Scope 3, Air travel:** The University usually support the travel of Faculty members and student once every two years for attending conferences. Lately, since the covid 19 pandemic, and the increase in air travel Tickets, the support of travel was stopped.



## Alexandria University's Carbon Footprint (2021/2022)

During the very few past years, the climate change and the global warming facing the entire universe have gained much more attention due to their direct effects on the human life on earth. As a result, countries, organizations, and people have noticed that it is now the time to face these challenges and as an initial step, we must first determine or calculate the amount of pollution that we cause to our planet, then we shall work on ourselves to minimize this pollution. One of the most famous methods to monitor the climate change is to determine what is known by Carbon Footprint.

The term "Carbon Footprint" is usually used as shorthand for the amount of emitted carbon (in tons) by an organization or country. This footprint is also an important component of the Ecological Footprint, since it is one competing demand for biologically productive space. Carbon emissions from burning fossil fuel usually accumulate in the atmosphere if there is not enough biocapacity dedicated to absorb these emissions. Therefore, when the carbon footprint is reported within the context of the total Ecological Footprint, the tons of carbon dioxide emissions are expressed as the amount of productive land area required to sequester those CO<sub>2</sub> emissions, which tells us how much biocapacity is necessary to neutralize these emissions.

Measuring Carbon Footprint in a certain area just shows us how much biocapacity is needed to take care of our untreated carbon waste and to prevent carbon accumulation in the atmosphere, which as a consequent can enable us to address the climate change challenge in a clearer way. In fact, the climate problem emerges because the planet does not have enough biocapacity to neutralize all these emissions. Humanity's carbon Footprint has increased 11-fold since 1961. Reducing humanity's carbon Footprint is the most essential step we can take to end overshoot and live within the means of our planet.

The climate pact approved in Paris in December 2015 represented an important step in re-imagining a fossil-free future for our planet. Nearly 200 countries around the world, including Egypt, agreed to keep global temperature rise well below 2°C. According to the known data from (Intergovernmental Panel on Climate Change) IPCC's 2014 report that a concentration of greenhouse gases in the atmosphere of 450 ppm CO<sub>2</sub> equivalent gives us a 66% chance to comply with the Paris Agreement's (2°C) goal. In contrast, the National Oceanic and Atmospheric Administration of the United States Department of Commerce (or NOAA) reports that in 2020 we were already at 504 ppm CO<sub>2</sub> equivalent. This confirms that the problem is increasing and there is a critical demand to rapidly solve it. Although Egypt contributes with a small portion in the global emissions of greenhouse gases, but this small portion is growing with time. In addition, Egypt is also expected to suffer from shortage of water, decrease in agricultural crops, rising sea levels due to increase in temperature and change in rainfall patterns.

In the light of the above mentioned information and according to the "Sustainable Development Strategy: Egypt's Vision 2030", Alexandria University, as a very important educational institution, has taken the first steps to work on reducing carbon emissions as one of the most important sources of greenhouse gases and has implemented a plan to monitor and calculate the "Carbon Footprint since the academic year 2018 / 2019" for all its faculties, institutes and its administrative buildings in order to aid in decision-making.

When calculating the Carbon Footprint for all Alexandria University buildings for the Academic year (2021/2022), the approximate amount of emitted CO<sub>2</sub> was **4,715.1992 CO<sub>2</sub>e**.



### The total carbon footprint of the Faculties and Institutes of Alexandria University (Ton CO<sub>2</sub>e)

Faculty/Institute	The total carbon footprint (Ton CO <sub>2</sub> e)		
	2018/2019	2020/2021	2021/2022
University Administration Building	186.2	NA	186.330
Faculty of Arts	66.46	235.887	179.299
Faculty of Commerce	47.29	412.128	29.3102
Faculty of Education	27.048	21.807	9.264
Faculty of Medicine	7445.993	1817.232	433.984
Faculty of Dentistry	69.278	705.702	29.379
Faculty of Engineering	521.076	693.748	675.702
Faculty of Agriculture	4875.12	1326.267	1066.346
Faculty of Pharmacy	394.462	318.059	306.118
Faculty of Science	749.7	317.362	218.947
Faculty of Nursing	169.912	122.79	161.580
Faculty of Veterinary Medicine	106.611	186.221	172.431
Higher Institute of Public Health	20.616	12.646	59.204
Medical Research Institute	203.7	555.478	186.894
Institute of Graduate Studies and Research	21.629	10.92	7.246
Faculty of Physical Education for girls	543.296	277.671	380.872
Faculty of Physical Education for boys	1679.1	214.835	319.100
Faculty of Specific Education	15.866	12.069	3.613
Saba Pasha Faculty of Agriculture	214.748	92.785	109.632
Faculty of Education for Early Childhood	13.403	33.4747	4.745
Faculty of Fine Arts	126.219	22.654	19.541
Faculty of Tourism and Hotels	47.420	9.924	4.525
Faculty of Law	26.313	141.668	151.137
<b>Total</b>	<b>24,148 CO<sub>2</sub>e</b>	<b>7,541.33 CO<sub>2</sub>e</b>	<b>4,715.1992 CO<sub>2</sub>e</b>

This report came out as a result of the concerted efforts of the academic community of Alexandria University during the academic year 2021-2022 in collecting, analyzing and editing this report in accordance with international standards and controls for carbon footprint calculations.

In order to allocate the specific position of Alexandria University regarding the extent of its contribution to carbon emissions among similar institutions, it was necessary to compare these emissions with other universities around the world.

University	Last Carbon Footprint Report	Carbon Footprint Total value (metric tons)
American University in Cairo (AUC)	2019/2020	34,391.3 CO <sub>2</sub> e
Cape Town University (Republic of South Africa)	2018	75,187 CO <sub>2</sub> e
Arizona University (USA)	2017	258,088 CO <sub>2</sub> e
Alexandria University (Egypt)	2021/2022	4,715.1992 CO <sub>2</sub> e



**Conclusion:**

According to the Carbon Footprint for all Alexandria University buildings for the Academic year (2021/2022), which is approximately 4,715.1992 CO<sub>2</sub>e, one can conclude that the sustainability program of Alexandria University was very successful. The total electricity usage of Alexandria University Campus in 2021/2022 is 7106641 kWh. The total electricity usage decreased by 18.5% compared to year 2020/2021. On the other hand, a significant decrease in the consumption of paper packages is observed. The paper packages used in all Alexandria University buildings for the Academic year (2021/2022) is 47911 packages, while in the previous year (2020/2021) the consumed paper packages were 84689 paper packages (approximately 43% decrease).

**Factors for conversion from consumption to Ton CO<sub>2</sub> a:**

The conversion factor for electrical consumption according to the study of the American University in Cairo (2017)		<b>0.5791 to (metric tons CO<sub>2</sub>e)</b>
The conversion factor of gasoline and diesel according to the study of the American University in Cairo (2017)		<b>0.2408 (Gasoline) to (metric tons CO<sub>2</sub>e)</b> <b>0.3696 (Diesel) to (metric tons CO<sub>2</sub>e)</b>
International conversion factor (corresponding to the same value that was obtained from the officials of the Egyptian Drinking and Water Company Authority)		<b>0.5791 to (metric tons CO<sub>2</sub>e)</b>
Use of paper	The amount of consumption of copying and printing papers (A4/70gm) for the college for one academic year from the reality of the college purchases.	Number of packages per year *Package weight = Total weight of packages per year
	Conversion factor according to the study of the American University in Cairo (2017).	<b>2.8 to (metric tons CO<sub>2</sub>e)</b>

**Number of innovative program(s) in energy and climate change & Impactful university program(s) on climate change**

- 1- The Faculty of Agriculture has 2 renewable energy centers and one center at the main building of the University. (Previously presented)
- 2- Solar Energy Center at the Faculty of Agriculture (Alexandria University): (Previously presented)
- 3- The Faculty of Science: (Previously presented)

**Research Project:** Development and implementation of decentralised solar-energy-related innovative technologies for public buildings, in the Mediterranean Basin

- 4- The Faculty of Science: (Previously presented)
- Research Project:** Production of Bio-Diesel from Algae in Selected Mediterranean Countries: Med-Algae Project



**5- Smart Environmental Management of Climate Change in collaboration with Catania University, Italy**

2 year Postgraduate Master program (4 semesters).

AdapTm-Erasmus project: The participating countries and Universities: Italy, Greece, Lithuania, Slovenia, Egypt (Alexandria University, Suez Canal University, South Valley University, Arab Academy for Science and Technology and Maritime Transport).

Program start date: year 2019

5	
	<p>Smart Environmental Management of Climate Change Master Program (Alexandria University, Egypt)</p>
6	
	<p>Sustainable Management of Fisheries and Aquaculture Science Master Program (Alexandria University, Egypt)</p>

7





**M.Sc. in:**  
**Natural Resources Sustainability for Land Development (NRSLD)**  
*Under the framework of SuReMap project*  
*(Sustainable Resource Management Programme to solve Deserted Challenges)*

**SuReMap Project:**  
Aims to establish interdisciplinary programs that train students to address water, energy & food-related challenges in "Egypt's 2030 strategy"

NRSLD is an outcome of the SureMap Erasmus+ project that includes a consortium of 8 Egyptian and European universities. The program is cooperatively designed by the consortium, therefore, it has the advantage of the international and interdisciplinary perspective. European framework of recognition, and benefits from a wide network of participating professors from the following universities: RWTH Aachen, Heliopolis University, Alexandria University, CITY College – Sheffield University, The American University in Cairo, University of Palermo, Aswan University, and Technical University of Madrid.

**Program Vision:**  
NRSLD program aims to prepare students with the knowledge and experience for the management and sustainable development of drylands' natural resources in the local, regional, and international related sectors.



**Program Mission:**  
The Faculty of Science through NRSLD program seeks to qualify the graduates to be competitive at local, regional, and international levels, by creating an appropriate educational environment and fostering ethically, scientifically, and professionally sound approaches that enable graduates to serve the community and the institutions closely related to sustainable development plans.


Natural Resources Sustainability for Land Development Master Program (Alexandria University, Egypt)

Link: <https://emuni.si> › ADAPTM-handout\_2\_Mod

**6- Sustainable Management of Fisheries and Aquaculture Science, in collaboration with University of Aveiro, Portugal.**

2 year Postgraduate Master program (4 semesters).

(Erasmus+ Project, European Union): The participating countries and Universities: Portugal (University of Aveiro), Italy, Croatia, Slovenia, Egypt (Alexandria University, Aswan University, Matrouh University, Arab Academy for Science and Technology and Maritime Transport).

Program start date: year 2021

Link: <http://fishaqu.eu>

**7- Natural Resources Sustainability for Land Development in collaboration with Aachen University, Germany**

2 year Postgraduate Master program (4 semesters).

Erasmus+ Project, European Union: The participating countries and Universities: Germany (RWTH Aachen), Egypt (Alexandria University, Heliopolis University, the American University in Cairo, Aswan University), Cyprus (CITY College – Sheffield University), Italy (University of Palermo), Spain (Technical University of Madrid).



Program start date: year 2022

**Link:**

YouTube: <https://suremap.eu>

facebook: <https://www.facebook.com/suremapproject>

LinkedIn: <https://www.linkedin.com/company/suremap-project>

**8- Climate Change and Sustainable Development Master Program**

2 year National Postgraduate Master program (4 semesters) at the Higher Institute of Public Profession.

- The climate change and sustainable development master degree prepares graduates to target jobs in the various emerging career paths in environmental economics and climate change including:
- Governmental agencies and municipalities which develop plans for climate change mitigation and adaptation.
- Consultancy companies carrying out Environmental Impact Assessment, developing, implementing or monitoring climate change mitigation and adaptation projects.
- Climate change research, teaching and information dissemination.

NGOs and stakeholder organizations involved in climate change impacts assessment and sustainable development.

**[3] Waste (WS)**

**Recycling Program for University Waste**

Alexandria University developed the initiative of "separating and recycling waste", which aims to protect the environment, maintain the cleanliness of colleges and develop environmental awareness within the framework of the concepts of green economy and sustainable development to achieve the vision of Egypt 2030.

**Alexandria University program for waste recycling**

- 1-The University applied a strategy in all its faculties to segregate the waste into special containers for plastic, papers, glass, and metal objects.
- 2- The University set an initiative for waste recycling in all faculties with a set of labeled containers for waste segregation distributes in each faculty.
- 3- The University set initiative for increasing the awareness about Purchase Recycled Products: It is important to buy products made from recycled materials to strengthen the market for recyclables.
- 4-The University developed an initiative with the governorate (Alexandria Youth alliance) to participate with us in waste management initiative.
- 5-The University has a contract with Nahdet-Misir Company (the official company in the governorate for waste disposal) for collection and recycling.
- 6- The University is trying to develop an initiative as a student project with Titan® Company for manufacturing of MDF sectors using university collected waste for maximal benefit from this waste.
- 7- University students at the Faculty of Science initiated a student project for plastic recycling.

Our *recycling program* aims to recycle waste by separating it from the source into:

- Organic waste and food residues.
- Plastic waste and plastic bags .
- Mineral waste and carbonated water cans.
- Paper waste

This allows the recycling and utilization of as much of the waste as possible instead of disposing of it in landfills, which will eventually lead to its burning and the consequent pollution of the environment and the increase in emissions of greenhouse gases. Our university promotes maintaining the campus environment in clean condition using high quality non-toxic detergents and cleaning materials.



Recycling Program for University Waste (Alexandria University, Egypt)



Recycling of plastic waste at the Faculty of Science (Alexandria University, Egypt)



## Alexandria University program to reduce the use of paper and plastic in campus

**Program 1:** Development of electronic archiving system; the university faculties and the main campus are moving toward the electronic archiving system to reduce paper consumption.

**Program 2:** University decrees to reduce the use of paper in the campus:

2.1: The president decree to use the e-mails for communications inside the campus and between the university main campus and all the other campuses.

2.2: In the situations, the university or any of its faculties need to print the official documents; this has to be on recycled paper (2 faces copy).

2.3: The University formulated a community for administrative reform to minimize the administrative processes and decrease the use of papers except in who are relevant to financial process.

**Program 3:** Digital transformation toward electronic exams to reduce paper consumption.

**Program 4:** Digital transformation toward electronic course to reduce paper consumption and books printing.

**Program 5:** Electronic administration of student courses by about 50% instead of written administration to reduce paper consumption.

## Alexandria University program for disposal of organic waste

### 1- The strategy of the Faculty of Agriculture for the recycling of organic waste:

The Faculty of Agriculture recycles 100% of its organic waste through the following procedure:

- Utilization of the treated agricultural byproducts in farm animals feeding.
  - Utilization of the treated agricultural byproducts for the vermi-compost to produce organic fertilizers.
  - Utilization of the treated agricultural byproducts through a special insect (black soldier) to produce organic fertilizers and protein sources.
  - Mass production of active Biochar from agricultural waste to remove any water impurities or pesticides residues.
- 2- The organic waste in Alexandria University is handled according to the contract with Nahdet Misr company. All organic wastes are collected in organic waste containers. Then the company collects these waste bags and deliver it to waste treatment facility for processing.
- 3- In addition, the University students at the Faculty of Science initiated a student project for organic waste recycling. Leaves and organic waste were treated for the vermi-compost to produce organic fertilizers to use in the Campus gardens (Alexandria University).

## The University Strategy for Disposal of Inorganic Waste

The University follows the Egyptian laws associated with disposal of hard materials waste No. (6) for the year 2009 and No. (9) for the year 1982 concerning with environment protection. Alexandria University has a yearly contract with **Alexandria Governorate Hazardous Waste Management (NASERIA)** for the disposal of Inorganic Waste (attached a copy of the Contact).

1- In general the hard material waste in the University is divided into two types including:

### - **Non-medical waste:**

Products which are collected and stored in a far place in the faculties which are then removed to a general dump for recycling.



Heavy metal: Heavy metal waste consists of both materials and equipment with metals and derivatives.

Examples: Batteries, amalgam, broken mercury thermometers.

- **Medical waste:**

Medical waste consists of several different subcategories that should all be dealt with in the same way:

Potential infectious waste includes all waste items that are contaminated with or suspected of being contaminated with body fluids.

Examples include:

Blood and blood products, used catheters and gloves.

2. Inorganic Wastes are collected in separate containers labelled for inorganic waste. The garbage bags are collected daily by Nahdet Misr company for processing.
3. Batteries and other E-wastes are collected separately inside Alexandria University Campus and are delivered for special treatment by Nahdet Misr company. The E-Material are never trashed into a regular trash.

### **Recycling of Solid and Electronic Waste in the Faculties and Institutes of Alexandria University**

According to the decision of Alexandria University to transfer all solid waste to institutes, colleges, hospitals and university cities of the University at the Agricultural Research and Experiments Station in Abis as a central storehouse for the collection of iron priests (Wood - Iron - Alumetal - Computers - Projectors - Photocopiers - Printers - Fire Extinguishers - Doors - windows - wires, lighting poles, electric panels.....etc.), which are considered valuable solid waste worth recycling.

Recycling of solid waste is a good investment project, and with the increase of environmental awareness worldwide, the demand of recycled materials will rise. Alexandria University can save production and energy costs and reduce the negative impacts that the extraction and processing of virgin materials has on the environment.

Recycling old devices saves energy. It also means that fewer raw materials need to be drawn from nature to create new devices. Reusing old devices prevents e-waste by keeping it out of landfills.

**The environmental aspect:** The process of recycling solid and electronic waste mainly contributes to reducing the percentage of pollution of all kinds, by reducing the accumulation of waste, which contribute greatly in pollution of the environment due to the release of polluting gases and toxic elements in the air, water, and land. The process of recycling solid and electronic waste contributes in reducing the impact of human activity on the planet Earth.

**Economic aspect:** The process of recycling solid and electronic waste play an important role in the reduction of economic expenditures, helping countries to meet the challenges related to the high prices of raw materials such as oil and coal. Recycling reduces the reliance on the export of the primary resources of many industries, thus reducing the cost of production. Which result in lower bill of taxes, customs duties, insurance premiums, transportation. On the other hand, the recycling process helps

in reducing the consumption of natural raw materials used in different industries. Accordingly, the Energy consumption for manufacturing and production processes will be reduced.

### The disposal Program

- A specialized committee is selected including a member from the Engineering Department, according to the devices or tools under investigation.
- In case the devices are not useful, the committee recommends that the items will be transferred to the Agricultural Research and Experiments Station in Abis.
- Recycling warehouses are divided into sections according to the type of materials being recycled, for example: Calculators, printers, wood, Aluminum, etc
- Working teams are selected from the university faculties' maintenance units to benefit from these solid and electronic waste.



### Toxic Waste Treatment

The biohazards, medical hazards, and toxic chemical compounds are handled by a **special contract** with **Nahdet Misr for Modern Environmental services** company, which process these wastes according to the Egyptian law number 6 for year 2009 and low number 9 for year 1982. (attached Contract copy)

- **Medical waste:**  
Medical waste consists of several different subcategories that should all be dealt with in the same way:  
Potential infectious waste includes all waste items that are contaminated with or suspected of being contaminated with body fluids.  
Examples include:

Blood, blood products, used catheters and gloves.

## Sewage Disposal

### Elements of Green Building Implementation as Reflected in all new construction and renovation policies in the new buildings in Abis campus:

- The area of the project is 160 acres, a general site for educational buildings, and 120 acres are complementary activities. The percentage of green areas and lake is about 52% in addition to 25% streets and lanes.
- Water-saving plots are used, which will reduce water consumption by about 30%. The sewage water will be treated and reused in the irrigation of green areas in the project.
- Rainwater is collected in the main lake and used for irrigation.
- The use of plants with few water rationed plants to reduce irrigation needs in addition to absorbing quantities of rainwater to reduce the severity of rain spells.



### Sewage Disposal and recycling

- Providing a sewage treatment plant at the university to make it suitable for irrigating green areas and gardens inside the university campus.
- The irrigated water supplied to the fish farm at the Agriculture Experimental Research Station of the Faculty of Agriculture is recycled to irrigate the crops, vegetables, and fruits of the land farm. The recycled water is rich with natural fertilizers and enhances the crops production.
- In addition, the water recycling in Fish Aquaculture of the Faculty of Agriculture, Alexandria University: The water sewage of the Aquaculture of the Faculty of Agriculture, Alexandria University which consist of eight ponds (one acre and quarter/each) in Abis region. Alexandria University used the recycled water for crops culturing in the adjacent agriculture research center in Abis.
- The use of biochar produced from Agricultural waste and waste Forests in residual removal chlorpyrifos pesticide Imidacloprid is from water agricultural drainage. Cooperation project between the Egyptian Academy of Research Science and Technology and the Czech Academy of Sciences.





## [4] Water (WR)

### Water Conservation Program Implementation

#### Alexandria University program to decrease the water consumption in its faculties and buildings:

Campus water use is an important indicator in the sustainability scale. The aim is to urge universities to reduce water use, increase water conservation programs, and protect the environment. Among these criteria:

- The water conservation program,
- The water recycling program
- The use of water-saving equipment
- The treatment of wastewater

- 1- The University has applied a strategy in the faculties to decrease water consumption through installation of special parts on water taps, showers, toilette and bathroom bidet which can conserve about 50% of water consumption.  
Water saving devices are used instead of traditional devices. For example, the use of a hand-washing faucet with automatic control via a sensor, and high-efficiency bathroom devices. Supplying water taps with water conservation units.
2. Adopting a mechanism to maintain water pipes to prevent waste resulting from leaks.
3. Adopting plans and mechanisms for maintaining the taps and internal supply networks of the university to prevent water wastage.
4. Providing a sewage treatment plant at the university to make it suitable for irrigating green areas and gardens inside the university campus.
5. The irrigated water supplied to the fish farm at the Agriculture Experimental Research Station of the Faculty of Agriculture is recycled to irrigate the crops, vegetables, and fruits of the land farm. The recycled water is rich with natural fertilizers and enhances the crops production.
6. In addition, the water recycling in Fish Aquaculture of the Faculty of Agriculture, Alexandria University: The water sewage of the Aquaculture of the Faculty of Agriculture, Alexandria University which consist of eight ponds (one acre and quarter/each) in Abis region. Alexandria University used the recycled water for crops culturing in the adjacent agriculture research center in Abis.
7. The use of biochar produced from Agricultural waste and waste Forests in residual removal chlorpyrifos pesticide Imidacloprid is from water agricultural drainage. Cooperation project between the Egyptian Academy of Research Science and Technology and the Czech Academy of Sciences.
8. IOT Pilot Project in Egypt by Shanghai Water Saving Irrigation Corp. Etd performed an automatic controlled irrigation systems IOT project for modern irrigation technology. The company implanted the IOT platform project to irrigate economic crops and facilitate irrigation systems to overcome the water shortage problems in Egypt. This project will be performed in Alexandria University Farm for agroecological farming in Egypt.

#### Alexandria University program for water recycling:

1. Providing a sewage treatment plant at the university to make it suitable for irrigating green areas and gardens inside the university campus.
2. The irrigated water supplied to the fish farm at the Agriculture Experimental Research Station of the Faculty of Agriculture is recycled to irrigate the crops, vegetables, and fruits of the land farm. The recycled water is rich with natural fertilizers and enhances the crops production.
3. In addition, the water recycling in Fish Aquaculture of the Faculty of Agriculture, Alexandria University: The water sewage of the Aquaculture of the Faculty of Agriculture, Alexandria University

which consist of eight ponds (one acre and quarter/each) in Abis region. Alexandria University used the recycled water for crops culturing in the adjacent agriculture research center in Abis.

4. The use of biochar produced from Agricultural waste and waste Forests in residual removal chlorpyrifos pesticide Imidacloprid is from water agricultural drainage. Cooperation project between the Egyptian Academy of Research Science and Technology and the Czech Academy of Sciences.
5. IOT Pilot Project in Egypt by Shanghai Water Saving Irrigation Corp. Etd performed an automatic controlled irrigation systems IOT project for modern irrigation technology. The company implanted the IOT platform project to irrigate economic crops and facilitate irrigation systems to overcome the water shortage problems in Egypt. This project will be performed in Alexandria University Farm for agroecological farming in Egypt.

**Additional evidence link:**

**Link for Green University:**

[https://alexu.edu.eg/index.php/?option=com\\_content&view=article&id=5932&catid=21&lang=ar-AA](https://alexu.edu.eg/index.php/?option=com_content&view=article&id=5932&catid=21&lang=ar-AA)



100 m3 Desalination Unit, Wadi El-Natroom (Faculty of Agriculture, Alexandria University)



Innovative Renewable Energy (RE) Driven - Multi Stage Flash (MSF) System with Salts Precipitator and Nano Filtration (NF) Feed Water pre Treatment (RE-NF-MSF). (Faculty of Agriculture, Alexandria University)



### Water Excellence Center - Alexandria University

Training for civil and environmental engineering students at the Eastern Wastewater Treatment Plant in Alexandria

## Renewable Energy and Water Desalination Activities at Alexandria University

Renewable Energy Center site is a host of different RE technologies and different RE-Desalination technologies. The site “ East of EL-Gaar Village” at Wadi El-Natroon has both predictable wind energy as well as an abundance of sunlight. Thus, this is a natural application for a hybrid system.

The modular hybrid power supply concept proposes the coupling of all sources of energy, storage media and loads on the AC-side.

### Advantages of the Modular Hybrid RE systems:

- Simplicity in System Design
- Expandable, can be run autonomously or be connected to a larger grid
- Offer higher reliability and supply security
- Lower power cost for the consumers
- Production of AC single phase or three phase
- The AC-side structure provides standardization, quality assurance and serial production
- The coupling on the generation technologies on the AC side offers the possibility of placing the generators far apart from each other (distributed generation).

REC site is planned to be a host of different RE technologies and different RE-Desalination technologies such as:

- Hybrid RE technologies (solar, wind, biomass, Hydrogen and fuel cell)
- Hybrid Desalination technologies (RO, MSF, NF,... Etc)
- Different types of solar cell technologies (thin film, Mono crystalline, Polycrystalline cells)
- Different solar energy technology (PV, CSP, Solar water heating systems, solar dryers)
- Solar Greenhouses.

**Activity:** Innovative Renewable Energy (RE) Driven - Multi Stage Flash (MSF) System with Salts Precipitator and Nano Filtration (NF) Feed Water pre Treatment (RE-NF-MSF)-, contract # RDI - C2/S1/148.

**Additional evidence link:** [www.areac-agr.com](http://www.areac-agr.com)



## Water Efficient Appliances Usage

Some examples of water conservation measures include, low flow of urinal flushing, low flow of toilet flushing and low flow taps.

Appliance	Total Number	Total number water Efficient appliances	Percentage
Urinal	208	100	48%
Toilet	416	180	43%
bathroom faucets (Water taps)	1605	1090	68%
Showers	30	20	67%
		<b>Average Percentage</b>	<b>56.5%</b>

## Alexandria University program to decrease the water consumption in its faculties and buildings:

Campus water use is an important indicator in the sustainability scale. The aim is to urge universities to reduce water use, increase water conservation programs, and protect the environment. Among these criteria:

- The water conservation program,
- The water recycling program
- The use of water-saving equipment
- The treatment of wastewater

- 1- The University has applied a strategy in the faculties to decrease water consumption through installation of special parts on water taps, showers, toilette and bathroom bidet which can conserve about 50% of water consumption.  
Water saving devices are used instead of traditional devices. For example, the use of a hand-washing faucet with automatic control via a sensor, and high-efficiency bathroom devices. Supplying water taps with water conservation units.
2. Adopting a mechanism to maintain water pipes to prevent waste resulting from leaks.
3. Adopting plans and mechanisms for maintaining the taps and internal supply networks of the university to prevent water wastage.
4. Providing a sewage treatment plant at the university to make it suitable for irrigating green areas and gardens inside the university campus.
5. The irrigated water supplied to the fish farm at the Agriculture Experimental Research Station of the Faculty of Agriculture is recycled to irrigate the crops, vegetables, and fruits of the land farm. The recycled water is rich with natural fertilizers and enhances the crops production.
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## Water pollution control in campus area

The campus water pollution control to prevent polluted water from entering the water system is performed. Alexandria University has two accredited laboratories for the regular check water quality (Physical, Chemical parameters) on your campus. In addition, the biological parameters are analyzed by the Microbiology Professor and staff members regularly.

### Water quality analysis and monitoring at Alexandria University.

- Accreditation Certificate of Central Laboratory – Faculty of Science (Alexandria University).
- Scope of accreditation of Central Laboratory – Faculty of Science (Alexandria University)
- 

Link: <https://egac.gov.eg/en/entity-details/?tc=oKRMg7QVNpwrC2AcXP2REMBXozjKAU3KA86qpAI9>

- Scope of Accreditation of Institute of Graduate Studies and Research (Alexandria University)

Link: <https://egac.gov.eg/en/entity-details/?tc=fPqxMfYxY7MHFifwTbSpi9CWwRe8hCq25J2IFNGO>

## Wastewater Treatment

Alexandria University has a system to prevent polluted water to enter the water system through Water quality analysis and monitoring.

The recycled irrigated water supplied to the fish farm at the Agriculture Experimental Research Station of the Faculty of Agriculture, is analyzed before using it to irrigate the crops, vegetables, and fruits of the land farm. In addition, the recycled water is used for crops culturing in the adjacent agriculture research center in Abis.

## Guideline standard

Standard Methods for the Examination of Water and wastewater 22 edition (APHA).



**Water quality analysis and monitoring at Alexandria University  
Accreditation Certificate of Central Laboratory – Faculty of Science (Alexandria University)**



Ministry of  
Trade and Industry  
Egyptian Accreditation Council  
EGAC



وزارة التجارة والصناعة  
المجلس الوطني للاعتماد  
إيجاك

**Schedule of Accreditation**  
for Testing Laboratory According to ISO/IEC 17025  
Issued to

**ICP-OES Laboratory**  
Institute of Graduate Studies and Research Alexandria University  
(163) Heryia Avenue Shoubra  
Alexandria Governorate - Egypt

Schedule No.:02222108 1<sup>st</sup> Accreditation date: July 29, 2022 Issue No. (1): July 29, 2022 Revision No. (-): Valid to: July 28, 2026

Materials / Products Tested	Types of Tests / Properties Measured / Range of Measurements		Standard Specifications / Techniques Used	
	Element	LOQ (ppb)	EPA method 200.7:2001 EPA method 6010 C:2007	Inductivity Coupled Plasma Optical Emission Spectrometer (ICP- OES) Model 5100 ICP-OES VDV S.N. AU16020119
Water	Al	26.6		
	As	72.4		
	Ag	4.00		
	Ba	4.32		
	Cd	7.12		
	Cr	4.40		
	Cu	6.04		
	Pb	24.0		
	Fe	19.0		
	Mn	22.5		
	Ni	28.2		
	Pb	304		
	Zn	42.0		
	Se	91		
	Sn	7.93		
	K	25.9		
	Na	96.6		
	Cd	4.00		
Mn	2.97			
Mg	18.9			

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1 / Oct 2018

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الصحة الاقتصادية خريطة الاعتماد الصناعي في مصر: <http://www.egac.gov.eg>

المجلس الوطني للاعتماد  
19W11TC3  
1 / Oct 2018

**Scope of Accreditation of Institute of Graduate Studies and Research (Alexandria University)**

Ministry of  
Trade and Industry  
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	Element	LOQ (ppb)	EPA method 200.7:2001 EPA Method 3051 A:2007 EPA Method 6010 C:2007	Inductivity Coupled Plasma Optical Emission Spectrometer (ICP- OES) Model 5100 ICP-OES VDV S.N. AU16020119
Soil	Ag	43.2		
	As	52.8		
	Ba	11.1		
	Cd	12.7		
	Cu	8.78		
	Cr	42.8		
	Cu	12.7		
	Mg	48.2		
	Mn	12.6		
	Mo	18.5		
	Ni	46.5		
	Pb	26.1		
	Zn	30.3		
	Se	21.8		
	Sn	2.31		
	Sb	40.0		
	Ti	15.0		
	Na	228		
Fe	202			

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**Scope of Accreditation of Institute of Graduate Studies and Research (Alexandria University)**



## [5] Transportation (TR)

The total number of vehicles (cars and motorcycles) divided by total campus' population

No.	Vehicle	Total Number
1	Car managed by the university	66
2	Total number of Buses	7
3	Cars entering the university	820
4	Motorcycles entering the university	Not available
	Total	893

$899 \text{ (vehicles)} / 217996 \text{ (population)} = 0.0041$

### Description:

Alexandria University provides shuttle service.

The number of shuttles operating in Alexandria University are 7 buses. The average number of passengers per shuttle is 28/50 passengers. The shuttles make nearly 2 trips per day at a fixed time and fixed line paths to provide convenience for the passengers and at the same time to reduce the problems caused by the impact of increased traffic intensity on the local environment such as deteriorating air quality and traffic jams.

The university also allows other community shuttle services to offer their services with reasonable price for the employees, staff members and students.

### Shuttle Services

The University sites are mainly in the city. These sites are very well served by local buses run by the County Councils or and private minibuses, so there is very little demand for shuttle buses.

The number of shuttles operating in Alexandria University are 7. The average number of passengers per shuttle is 28/50 passengers. The shuttles make nearly 2 trips per day at a fixed time and fixed line paths to provide convenience for the passengers and at the same time to reduce the problems caused by the impact of increased traffic intensity on the local environment such as deteriorating air quality and traffic jams.

The university also allows other community shuttle services to offer their services with reasonable price for the employees, staff members and students.

### Zero Emission Vehicles (ZEV) Policy on Campus

#### Alexandria University encourages zero emission vehicle policy through

1. Providing bike parking for students and allowing the bicycles to enter the campus.
2. The University council approved a bicycle initiative for each student, with initial strategy with 2000 bicycles in the first year and 500 bicycles per year, in addition to 100 bicycles to move inside campus. An agreement has been signed with some national banks to offer it for monthly fees for long term so that the student does not bear a large amount monthly.
3. The University provided an information desk in every Faculty to register the students in this initiative and help them during the contracting process.
4. Some awareness seminars about the benefits of using bicycles as transportation method were held, the first seminar was held in November 2019 in the higher institute of public health delivered by the president of the federation of cycling, and the participation of the CSR team.
5. Cycling marathons per month in cooperation with the fund of "You are stronger than drugs" and commissioned to the Faculty of Physical Education. All the faculties held a cycling festival in November each year, the first cycling marathon was held in November 2019.

## Ratio of Parking Area to Total Campus Area

Total main campus area: 4,284,495.26 m<sup>2</sup>  
 Total parking area = 214,005 m<sup>2</sup> (17,120 spaces\*12.5m<sup>2</sup> per space).  
 Ratio = 4,284,495.26 m<sup>2</sup> : 214,005 m<sup>2</sup> = **20 : 1**  
 Parking area: **5%** of total campus area

## Program to decrease the parking area on campus for the last 3 years (2019 - 2021)

- According to the documented information received from the University's "Information, Documentation and Decision Support Center", the University car Parking area occupy 5% from the total area of the Campus, and are allocated for Faculty members and administrators.
- The University provides mass transportation (shuttle buses) for employees and faculty members to drive to and from the University instead of using their private cars. These buses park mostly outside the University Campus.
- The University provides the opportunity to contract with some private transportation companies to facilitate the movement of Faculty members and students, and these buses park temporarily outside the University Campus.
- The students park their cars outside the University Campus and walk inside the Campus.
- The University encourage car sharing (carpooling) among the faculty members and students, to reduce the number of cars entering the University Campus and limit the parking area, and adopt healthy and sustainable transportation options
- The university provides bike parking for students and allow the bicycles to enter the campus.
- Encouraging students, employees and faculty members who leaves around the University Campus to go by walking instead of using a Car.
- Increasing the University green area.
- A competition between the faculties in the University was set titled "Towards an Eco Faculty" was set. This competition encourages all the different faculties to use their resources in a way that fulfils the idea of green faculty and green environment.

## Number of Transportation Initiatives to Decrease Private Vehicles on Campus



Alexandria University Shuttle Service Station





Campus Bikes parking at the Faculty of Engineering  
(Alexandria University, Egypt)



Ride Share (Carpool) (Faculty of Pharmacy,  
Alexandria University, Egypt)



Shuttle Services (Alexandria University)

1. Shuttle/bus park inside and outside the campus
  2. bicycle parking on campus
- The University provides mass transportation (shuttle buses) for employees and faculty members to drive to and from the University instead of using their private cars. These buses park mostly outside the University Campus.
  - The University provides the opportunity to contract with some private transportation companies to facilitate the movement of Faculty members and students, and these buses park temporarily outside the University Campus.
  - The students park their cars outside the University Campus and walk inside the Campus.
  - The University encourage car sharing (carpooling) among the faculty members and students, to reduce the number of cars entering the University Campus and limit the parking area, and adopt healthy and sustainable transportation options
  - The university provides bike parking for students and allow the bicycles to enter the campus.
  - Encouraging students, employees and faculty members who leaves around the University Campus to go by walking instead of using a Car.
  - Increasing the University green area.
  - A competition between the faculties in the University was set titled “ Towards an Eco Faculty” was set. This competition encourages all the different faculties to use their resources in a way that fulfils the idea of green faculty and green environment.



## Pedestrian Path Policy on Campus

1. Separator between road for vehicle and pedestrian path.
2. Street lamp for pedestrian in night.
3. Replacing steps with ramps which have suitable design for pedestrian having physical disabilities.
4. The travel distance of the vehicle inside campus are very limited. The streets inside the campus are also limited. The people enter the campus with their cars only to use the available Parking area.

## [6] Education and Research (ED)

### Number of Courses/Subjects Related to Sustainability Offered

- Master of Waste Water Engineering Practice
- Master of Drinking Water Engineering Practice
- Master of Radiation Physics Practice
- Master of Petrochemicals and Hydrocarbon Processing Practice
- M.Eng. Water Recourse
- M.Eng. in Irrigation Structures
- M.Eng. in Environmental Engineering
- M.Eng. in Thermal Engineering
- M.Eng. in Combustion Engines
- M.Eng. in Electrical Energy Systems and Control
- M.Sc./Ph.D in Electrical Engineering (Electrical Power and Machines)
- Master of Climate Change and Sustainable Development
- International Master of Smart Environmental Management of Climate Change
- International Master of Natural Resources Sustainability for Land Development
- International Master of Sustainable Management of Fisheries and Aquaculture Science
- Environmental silveculture and tree – resources management
- Pest control & environment protection from cides pollution.
- Soil and water sciences
- Pesticides chemistry and technology
- Sustainable management of water resources
- Sustainable management of land resources
- Occupational Hygiene and Air Pollution
- Environmental Health
- Food Hygiene and Control
- Environmental Health
- Occupational Hygiene and Air Pollution
- Food Hygiene and Control
- Environmental Studies - Biological Science
- Climatic Change and Sustainable Development
- Environment and Energy
- Sustainable Cities
- Sustainable Communities
- Soil and Water
- Green Entrepreneurship and Agribusiness
- Sustainable Energy Resources and Management
- Sustainable Management of Marginal Drylands
- Sustainable Farming Systems: Hydro and Aquaponics
- Sustainable Development
- Environmental Hydrology



Projects Management Fundamentals of environmental sciences Sustainable development Climate dynamics Climate change mitigation, vulnerability and adaptation Environmental economics and management Statistical analysis in climate research Economic valuation and climate change Green economy Geographical information systems applications in climate change Remote sensing and environmental change Environmental risk assessment and management Community engagement and sustainable development Climate change, biodiversity and ecosystems functions Climate change and health Urban environment Geopolitics of climate change Scientific research skills
Example of Programs and Courses/Subjects Related to Sustainability (Alexandria University, Egypt)

Above is a list of examples of programs and courses which aims to embed sustainability that are offered by the University.

Total number of courses related to sustainability, running in the academic year 2021 – 2022 equal to 540 courses.

### Total Number of Courses/Subjects Offered

**Description** Total Courses offered at Alexandria University, Egypt in 2021-2022

Courses	2020/2021	2021/2022
Number of courses/subjects offered for undergraduate programs	6906	6906
Number of courses/subjects offered for Postgraduate programs.	6604	6916
Total number of courses	13510	13520

Total number of courses offered in 2021/2022 = 13520 courses (not modules)

### Total Research Funds Dedicated to Sustainability Research (in US Dollars)

Total research fund dedicated to sustainability research in 2019 = 31,012,500 US Dollars

Total research fund dedicated to sustainability research in 2020 = 1,421,363 US Dollars

Total research fund dedicated to sustainability research in 2021 = 1,716,690 US Dollars

The averaged annum last 3 years of research fund dedicated to sustainability research = 11,383,517 US Dollars

Additional evidence link: [www.pmu.alexu.edu.eg](http://www.pmu.alexu.edu.eg)



## Example of some projects:

### 1. **Natural Resources Sustainability for Land Development (Erasmus+ Project, European Union) in collaboration of Alexandria University (Egypt) with Aachen University (Germany)**

#### **Erasmus+ Project, European Union**

The participating countries and Universities: Germany (RWTH Aachen), Egypt (Alexandria University, Heliopolis University, the American University in Cairo, Aswan University), Cyprus (CITY College – Sheffield University), Italy (University of Palermo), Spain (Technical University of Madrid).

**Additional evidence link:** <https://suremap.eu>  
<https://www.facebook.com/suremapproject>  
<https://www.linkedin.com/company/suremap-project>

### 2. **Production of Bio-Diesel from Algae in Selected Mediterranean Countries: Med-Algae Project, Faculty of Science, Alexandria University, Egypt**

It is funded by CBCMED-ENPI (CROSS BORDER COOPERATION IN THE MEDITERRANEAN-European Neighborhood and Partnership Instrument)

### 3. **Smart Environmental Management of Climate Change in collaboration with Catania University, Italy (AdapTm-Erasmus project)**

The participating countries and Universities: Italy, Greece, Lithuania, Slovenia, Egypt (Alexandria University, Suez Canal University, South Valley University, Arab Academy for Science and Technology and Maritime Transport).

**Additional evidence link:** <https://emuni.si> › ADAPTM-handout\_2\_Mod

### 4. **Sustainable Management of Fisheries and Aquaculture Science, in collaboration with University of Aveiro, Portugal (Erasmus+ Project, European Union)**

The participating countries and Universities: Portugal (University of Aveiro), Italy, Croatia, Slovenia, Egypt (Alexandria University, Aswan University, Matrouh University, Arab Academy for Science and Technology and Maritime Transport).

**Additional evidence link:** <http://fishaqu.eu>

5. **Alexandria University Center for Maritime Archaeology & Underwater Cultural Heritage was established as a European Union project under the EU-Tempus III Program.** The project aimed to create a specialized center for postgraduate studies which provides education and training at different levels in aspects of maritime and underwater archaeology, and to develop a postgraduate Diploma and Master programs in Maritime Archaeology and Underwater Cultural Heritage, designed and structured in accordance with EU standards.

**Additional evidence link:** <http://www.cmauch.org/>  
<https://alexu.edu.eg/index.php/en/2015-11-24-10-43-20/training>

### 6. **The Renewable Energy Center at Faculty of Agriculture Alexandria University.**

- The center along with partner from Greece, Germany, Spain Morocco and Tunisia awarded a Six Framework project (FP6 project) from the European commission to developed Hybrid renewable energy system to supply service for Mediterranean partner countries.
- The center representing AU and Las Palm University in Spain awarded a project from the Spanish cooperation Spanish Agency for International Co-Operation (AECE), in the area of water desalination by Renewable Energy.
- Recently with cooperation with the Faculty of Engineering, the center awarded an STDF project. The project title is "Development of hybrid renewable energy - RO desalination system and minigrids for remote and desert areas in Egypt (HAREDES)".



The Center Goals are to:

- Remove the knowledge barriers against the installation of RE systems in Egypt.
- Enhance the utilization of renewable energy.
- Develop educational and e-learning program about renewable energy.
- Educate students, graduates, public and key stakeholders in Egypt and the Arab world on the various sources of renewable energy and its successful applications.
- Build the infrastructure necessary to develop, install and maintain renewable energy applications.
- Present a show case or a model for the successful utilization of renewable energy in Egypt.
- Continue excellence in all of our educational programs.

### Total Research Funds (in US Dollars)

Total research fund in 2019 = 34,581,301 US Dollars

Total research fund in 2020 = 5,076,909 US Dollars

Total research fund in 2021 = 3,043,755 US Dollars

The averaged annum last 3 years of research fund = 14,233,988 US Dollars

Additional evidence link: [www.pmu.alexu.edu.eg](http://www.pmu.alexu.edu.eg)

### Number of scholarly publications on sustainability

Examples of **scholarly publications on sustainability** (Alexandria University, Egypt)

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

A total average per annum over the last 3 years of **1460 publications**.

## Number of Events Related to Sustainability



Earth Day event titled “Climate extremes and sustainable development challenges” (Alexandria University, Egypt)

Number of events related to environment and sustainability hosted or organized by the Alexandria University in academic year 2019-2021 is 324 events (e.g. conferences, workshops, awareness raising, practical training, etc.).

**Additional evidence link:**

[http://www.alexu.edu.eg/index.php/ar/?option=com\\_content&view=article&id=5882&catid=21&lang=ar-AA](http://www.alexu.edu.eg/index.php/ar/?option=com_content&view=article&id=5882&catid=21&lang=ar-AA)

**The literacy: Alexandria Without Illiteracy:**

Societal participation of Alexandria University by contributing to the biggest problems facing the development of Egyptian society at the present time, due to their negative effects on the Alexandrian community.



**Activities and Achievements:**

Start implementing the executive steps of the university’s initiative (A Central District without illiteracy), where the number of illiterates in the neighborhood is 53,263 illiterate, 6.93% of the total illiterate in the governorate, in cooperation with the (Education Directorate / Youth and Sports Directorate / Social Solidarity Directorate). The University Council approved in its session held 23-1-2020 the application of the community service and environmental development decision during the second semester of the academic year 2019-2020 as a requirement for graduation in colleges (Education - Physical Education for Boys - Physical Education for Girls - Specific Education - Early Childhood Education), provided that The literacy student is assigned to (6) illiterate people, two every university year, from the first level to the third level. The third forum of Alexandria University was held to integrate university students into Egypt's national project to eradicate illiteracy with the title: - Teach - Help - Win

**Additional evidence link:**

<https://alexu.edu.eg/index.php/en/community-development-and-environmental-affairs/6442-the-literacy>

**Alexandria University initiative to separate and recycle waste**

Believing in the role of Alexandria University in the development and development of the university community, eliminating negative behaviors and developing the “Separation and Recycling of Waste” initiative, came the initiative. Which aims to protect the environment, maintain the cleanliness of colleges and develop environmental awareness within the framework of the concepts of the concept of the green economy and sustainable development to achieve Egypt's vision 2030.

**Additional evidence link:**

[https://alexu.edu.eg/index.php/?option=com\\_content&view=article&id=5887&catid=21&lang=ar-AA](https://alexu.edu.eg/index.php/?option=com_content&view=article&id=5887&catid=21&lang=ar-AA)

**Conferences and Symposia during year 2021  
(Alexandria University, Egypt)**

No	College/organizer	Event Name	Place	Duration From	Duration To
1	Faculty of Arts	Lecture "Biology and Language: A Philosophical Comparison"	Virtual	1/26/2022	
2		Symposium "Pride of the Library and Information Profession, Human Knowledge Leadership and Electronic Content Management"	Faculty	3/9/2022	
3		Workshop "Professor Dr. Abdel Moneim Abu Bakr's Course"	Faculty	Feb-22	May-22
4		Seminar "Be a Leader"	Faculty	3/14/2022	
5		Cinema Club Activity "The Image of Women between Stereotyping and Localization Selected Models of Cinema and Propaganda"	Faculty	3/7/2022	
6		Symposium on the necessity of acquiring distinct skills for administrative security personnel inside the university campus	Faculty	2/19/2022	
7		International Conference" Education and its Institutions for the Copts"	Faculty	2/17/2022	2/19/2022
8		The event of" Women's Mental and Physical Health "in cooperation with the Higher Institute of Public Health	Faculty	3/13/2022	



9	Faculty of Arts	Lecture" The Nation and Building Rational Awareness"	Faculty	3/20/2022	
10		Symposium" National Security and the Home Front in the Light of the New Republic"	Faculty	3/17/2022	
11		Seminar on" The Role of Documentary Fraud in Proving the Crime of Violence against the Wife"	Faculty	3/30/2022	
12		Lecture" Appointment and Deliberative Functions: A Cognitive Linguistic Approach"	Virtual	4/27/2022	
13		Lecture" The Chinese Language: Its Spoken and Written Language"	Faculty	5/7/2022	
14		Lecture" About the People's Republic of China, its Civilization, and its Festive Culture"	Faculty	5/15/2022	
15		Conference on" Climate Change and its Impact on Egypt and the Arab World"	Faculty	5/15/2022	
16		A lecture at the Marine Archeology Center at the college	Faculty	5/29/2022	5/30/2022
17		Workshop" The First Archaeological Day of the Egyptian Antiquities Division "Prof. Dr . Mohamed Abu Al-Mahasin Asfour	Faculty	5/21/2022	
18	Faculty of Arts	Seminar" Mediterranean Environment: Opportunities and Challenges"	Faculty	6/4/2022	
19		Seminar on" The Importance of the Egyptian Electronic Transformation in Our Contemporary Reality"	Faculty	May-22	
20		A community dialogue about the series (Faten Amal Harbi)	Faculty	7/31/2022	
21		A panel discussion on" The Importance of the Role of Violence Against Women Units in Egyptian Universities"	Faculty	6/20/2022	
22		Lecture" Voiceprint as Criminal Evidence"	Faculty	8/10/2022	
23		Course" Technical and Criminal Aspects in Detecting Electronic Crimes"	Faculty	8/14/2022	8/16/2022
24	Faculty of Education	Charitable clothing exhibition We are the good Foundation	Faculty	3/26/2022	4/2/2022
25		Seminar on" The Importance of Donating Blood Plasma"	Faculty	3/6/2022	
26		Psychological awareness course	Faculty	7/26/2022	
27		The First International Forum" Aspirations and Challenges"	Faculty	7/25/2022	
28	Faculty of education quality	Annual college book fair	Faculty	2/20/2022	3/3/2022
29		The charitable market of the Kayan Association	Faculty	3/7/2022	3/10/2022
30		The" Arabic Language Nights of Poetry, Theater and Singing "event	Bibliotheca Alexandrina	5/17/2022	
31	Faculty of Agriculture	The Sixth Scientific Conference" Family, Society and the Challenges of the Age in the Light of Egypt's Vision 2030"	Bibliotheca Alexandrina	2/23/2022	3/3/2022
32		The eleventh college recruitment forum	Faculty	2/10/2022	
33		Durable Goods Exhibition for the Academy for Technology and Communications	Faculty	2/20/2022	3/6/2022





34		Symposium on" Good Agricultural Practices for Tomato Production in Egypt"	Faculty	3/27/2022	
35		The first scientific forum for insect students in the Arab Republic of Egypt	Faculty	10/10/2022	
36		Summer Science Club for Students	Faculty	8/1/2022	
37		College visit The National Project of the National Fisheries Company Ghalioun		5/18/2022	
38	Faculty of Commerce	Symposium" Decent Life - The 21st Century Project"	Faculty	2/15/2022	
39		Exhibition" Our Country - Our Products in Our Hands"	Faculty	3/15/2022	3/17/2022
40		Happy fifteenth children's day	Faculty	3/25/2022	
41		Workshop" Created Job Opportunities and Personal Excellence Skills"	Faculty	3/26/2022	
42		The Twentieth International Conference "Contemporary Challenges and Their Impact on Competitiveness and Institutional Excellence"	Faculty	9/8/2022	9/9/2022
43		Charitable exhibition for the benefit of students who are unable in the college	Faculty	3/16/2022	3/26/2022
44	College of Physical Education for boys	Forum" Athletics for the Faculties of Physical Education in the Arab Republic of Egypt"	Faculty	2/16/2022	2/17/2022
45		Charity Market Exhibition" Prof. Dr. Gamal Aladdin"	Faculty	3/15/2022	
45		Blood Donation Campaign	Faculty	3/26/2022	3/28/2022
47		Seminar on" Research Projects: Opportunities and Challenges"	Faculty	3/13/2022	
48		Orphan's Day Ceremony ,Association of People of Will	Faculty	4/1/2022	
49		Orphan's Day Ceremony for the Pharaohs Association	Faculty	4/22/2022	
50		Seminar" Empowering Youth in the New Republic"	Faculty	7/6/2022	
51		Compulsory camp for fourth year students	Faculty	7/2/2022	7/7/2022
52		Workshop: Can genetic testing predict the future in sports	Faculty	10/10/2022	
53	College of Physical Education for Girls	Symposium on" Doping Addiction and its Negative Effect on Athletes"	Faculty	4/24/2022	
54		Symposium" Healing and free radicals"	Faculty	4/21/2022	
55		Exhibition to support women with cancer	Faculty	4/28/2022	
56		Training course for the rehabilitation of trainers for newborns, infant swimming	Faculty	Apr-22	
57		Seminar on" Rationalizing the Training Load According to the Classical Theory and the Theory of Kinetic Energy"	Virtual	3/30/2022	
58		Symposium" Risk management in physical education between theory and practice"	Faculty	3/19/2022	
59		Seminar on" Physical Education Class in International Language Schools"	Faculty	3/27/2022	
60		Symposium" Positive Psychology and Sports Activity"	Virtual	3/23/2022	

61		Seminar" Teaching Applications in Recreational Sports Activities in Field Training Institutions"	Faculty	4/26/2022	
62	Faculty of Science	Charity Exhibition" In Solidarity We Rise"	Faculty	3/12/2022	3/17/2022
63		The Ninth Student Conference for Research and Innovations and the Second Conference for Postgraduate Studies	Faculty	5/11/2022	5/12/2022
64		World Earth Day	Faculty	5/22/2022	
65		Introduction to the field of quality	Faculty	5/14/2022	
66		Introduction to the field of occupational safety and health	Faculty	5/28/2022	
67		Climate change and its negative effects on water resources	Faculty	3/28/2022	
68			Celebrating World Water Day	Faculty	3/28/2022
69		Global Celebration of Earth Hour	Faculty	3/28/2022	
70	Faculty of Science	Training course" How to use interactive screens to facilitate the educational process"	Faculty	3/22/2022	
71		The presence of the plasma collection center to raise awareness of the importance of participating in the donation	Faculty	3/13/2022	3/17/2022
72		Training course" Principles of First Aid"	Faculty	3/17/2022	
73		Training course" First aid in laboratories"	Faculty	5/24/2022	
74		Introductory meeting about the corona virus mutant	Faculty	3/1/2022	
75		Training Course" How to Prepare for a Human Resources Interview"	Faculty	5/12/2022	
76		Collaboration of the college with the Egyptian Japanese School Discover Festival	School	6/7/2022	
77	Faculty of Tourism and Hotels	Employment forum for fourth-level students for all departments and the Tourism and Hospitality Management Program	Faculty	6/22/2022	
78	Faculty of Agriculture Saba Basha	Training Course" Honeybee Breeding"	Faculty	Feb-22	
79		Course" Agricultural pests and safe ways to combat them"	Faculty	Feb-22	
80		Bee Products Therapy course	Faculty	Feb-22	
81		Fruit tree pruning course	Faculty	Feb-22	
82		Economic Plant Viruses course	Faculty	2/15/2022	
83		Course" Strawberry cultivation and production"	Faculty	2/5/2022	2/6/2022
84		Breeding broiler chickens in batteries course	Faculty	Feb-22	
85	Faculty of Agriculture Saba Basha	Oyster mushroom production course	Faculty	Feb-22	
86		Surveying of greenhouses course	Faculty	Feb-22	

87		Hazard Analysis and Critical Control Points (HACCP) course	Faculty	Feb-22	
88		Course" Establishment and technology of fish farms for economic fish"	Faculty	2/8/2022	
89		Soilless farming course	Faculty	2/7/2022	
90		Seminar" Awareness for Better Health"	Faculty	2/28/2022	
91		Symposium on" Climate Changes and Their Effects on Plant Food Production and Consumers"	Faculty	3/7/2022	
92		Seminar on" Awareness of the dangers of addiction"	Faculty	3/3/2022	
93		Symposium on" Climate Changes and Water Resources in Egypt"	Faculty	3/14/2022	
94		Symposium" Mother's Day"	Faculty	3/21/2022	
95		Seminar" Establishing Question Banks"	Faculty	3/28/2022	
96	Faculty of Agriculture Saba Basha	Symposium on" Jojoba as a Model for Confronting Desertification, Climate Change and Sustainable Development"	Faculty	4/4/2022	
97		Symposium" Rumors and their danger to society, awareness and trend culture"	Faculty	4/11/2022	
98		Seminar on" Exam Vocabulary and Making a Table of Specifications"	Faculty	4/18/2022	
99		annual job fair	Faculty	5/10/2022	
100		Different types of agricultural land and climatic changes	Faculty	5/23/2022	
101		Symposium" Control of diseases by climate control in greenhouses"	Faculty	5/30/2022	
102		Charitable exhibition of service social solidarity to serve the families in need	Faculty	4/27/2022	
103		Faculty of Agriculture Saba Basha	Course" Safe production of fruits and vegetables"	Faculty	7/17/2022
104	Operation and maintenance of internal combustion engines course		Faculty	7/19/2022	
105	Course" Modern Soilless Farming Systems"		Faculty	7/20/2022	
106	Requirements of the Food Safety Authority in Food Factories		Faculty	7/21/2022	
107	Landscape, Hard and Soft ,AutoCAD and Real are done in web design		Faculty	7/24/2022	7/25/2022
108	Ornamental fish breeding and the most common diseases in fish farms		Faculty	7/26/2022	7/27/2022
109	Principles of chemical ,microbial and physical food analysis techniques		Faculty	7/28/2022	
110	Diagnosis of viral plant diseases		Faculty	7/13/2022	8/1/2022
111	Livestock production under global warming		Faculty	8/2/2022	8/3/2022
112	Microbial quality testing of foods and methods for detecting food poisoning microbes		Faculty	8/4/2022	
113	Beekeeping and beekeeping industry		Faculty	8/6/2022	8/7/2022
114	home pest control		Faculty	8/9/2022	



115	Faculty of Agriculture Saba Basha	Quail is one of the small projects	Faculty	8/10/2022	
116		Growing and caring for mushrooms	Faculty	8/13/2022	
117		Using the Egyptian Knowledge Bank	Virtual	8/11/2022	
118		Time management and decision making		8/14/2022	
119	Faculty of Pharmacy	Training course" Social media and Marketing in Medical Pharmaceutical fields"	Faculty	Feb-22	
120		First Aid	Faculty	2/6/2022	2/9/2022
121		otc	Faculty	2/12/2022	2/17/2022
122		Charitable market for the benefit of students and college staff	Faculty	3/12/2022	3/14/2022
123		Student Employment Forum	Faculty	4/5/2022	4/7/2022
124		Lecture" The Future of Pharmacies in the Light of Comprehensive Health Insurance"	Faculty	6/4/2022	
125		Faculty of Pharmacy	Negotiations Secale & OTC	Faculty	5/19/2022
126	walking marathon			5/20/2022	
127	career planning and Getting the Direction . lecture		Faculty	5/15/2022	
128	Seminar: The Future of Pharmacy		Faculty	7/17/2022	
129	Lecture "Climate change is the greatest threat to human health"		Faculty	August	
130	Higher Institute of Public Health	Effectiveness of the new in maternal and child health	Institute	3/23/2022	
131		Happy live effect	Institute	3/21/2022	
132		Effectiveness of" Women's Mental and Physical Health"	Institute	3/13/2022	
133		ندوةMicrosift Teams New Features	Institute	2/8/2022	
134		ندوةUse of microsoft word templates for eBook production	Institute	2/9/2022	
135		Symposium" Ethics of Scientific Publishing"	Institute	2/10/2022	
136		Video Editor VSDC Training Seminar	Institute	2/13/2022	
137	Higher Institute of Public Health	Use of Microsoft Sway for eBook production	Institute	2/14/2022	
138		First aid seminar	Institute	2/28/2022	
139		The effectiveness of" sports nutrition and mental health as an integrated treatment for obesity"	Institute	3/24/2022	
140		The event" World Environment Day (Our Earth - Our Future)"	Institute	6/6/2022	
141		The 10th International Scientific Conference ALEX Health 2022		11/27/2022	11/29/2022
142	Medical Research Institute	Seventh International Conference of the Department of Chemical Pathology	Virtual	3/27/2022	
143		Seminar on" Basics of Good Nutrition in the Holy Month of Ramadan"	Institute	3/22/2022	



144		Celebrating World Hepatitis Day	Institute	7/24/2022	7/26/2022
145		Charity market	Institute	8/29/2022	8/30/2022
146	Institute of Graduate Studies and Research	Effectiveness of detecting forgery and counterfeiting in documents, documents and paper currencies	Institute	2/19/2022	
147		Training course" Electrochemical migration of proteins and transfer technology on membranes"	Institute	3/12/2022	3/15/2022
148		Lecture" The Novel Coronavirus: The Conflict between Science, Epidemiology and the Unknown"	Institute	2/26/2022	
149		Workshop Proteins Electrophoresis and Blotting Techniques	Institute	3/13/2022	3/15/2022
150		Workshop Acquiring and Handling Climate Data using GIS	Institute	2/7/2022	
151		Institute of Graduate Studies and Research	Lecture" Petroleum additives between scientific research and practical application"	Institute	2/12/2022
152	Lecture" Miavis Concepts and Implications"		Institute	2/14/2022	
153	The effectiveness of" Minds and Hearts Face to Face with the Nobel People"		Institute	5/14/2022	
154	The 22nd Conference "Materials Science and Sustainable Development Towards 2030 Strategies		Institute	10/22/2022	10/23/2022
155	Faculty of Economic Studies and Political Science	The annual charity exhibition of clothes	Faculty	2/27/2022	3/1/2022
156		Seminar on" Diplomatic Work: Its Requirements and Prospects"	Faculty	3/15/2022	
157		Symposium" Silk Road"	Faculty	3/28/2022	
158	Faculty of Medicine	The fourteenth annual conference of the American Cancer Society	Faculty	5/11/2022	5/12/2022
159	Faculty of Dentistry	Visiting the Gamal Abdel Nasser Military School to the College		1/5/2022	
160		The 22nd International Dental Congress	Hilton Hotel	11/16/2022	11/18/2022
161	Faculty of Law	Round Table" Law Faculty Graduates and Labor Market Requirements in the Legal Affairs Sector"	Faculty	3/1/2022	
162		Course" Conformance with the provisions of the Competition Protection Law and the Predominance of Competitive Neutrality"	Faculty	8/29/2022	8/30/2022

**Description:**

**Example of Total number Conferences and Symposia organized by Alexandria University, Egypt during year 2021 are more than 162 events.**

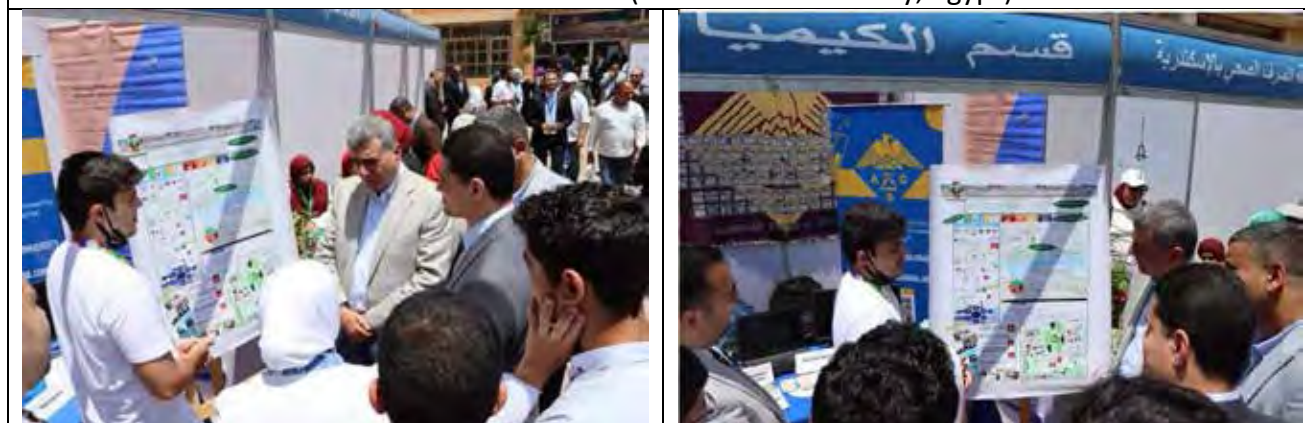
### Number of student organizations related to sustainability

<p><b>CHEMISTS CELEBRATE EARTH WEEK (CCEW)</b></p> <p><b>Date:</b> 22 – 28 April 2019</p> <p><b>Description:</b> We had an info desk on campus. We conducted some experiments that show the importance of applying green chemistry. Also, we talked to students about emerging problems such as climate change, ocean acidification and global warming.</p>  	<p><b>CCEW CELEBRATION WITH DR. MOHAMED ATEIA</b></p> <p><b>Date:</b> 20/3/2021</p> <p><b>Description:</b> We celebrated the CCEW (Chemists Celebrate Earth Week) with Dr. Mohamed Ateia who presented a presentation with the title 'Fighting Against Forever Chemicals'. Dr. Ateia spoke about PFAS, their effect on environment and how to combat their effect.</p>  
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ACS Alexandria University student Chapter celebration of earth week in 2019 and 2021 (Alexandria University, Egypt)

<p><b>CCEW CELEBRATION 2021</b></p> <p>Fighting Against Forever Chemicals</p>   <p><b>Research Associate</b> Department of Chemistry Mansoura University 29 April 2021 2:00 pm</p>  	<p><b>CCEW</b></p> 
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CCEW Celebration 2021 (Alexandria University, Egypt)



ACS Alexandria University student Chapter participation in Earth Day event titled “Climate extremes and sustainable development challenges” (Alexandria University, Egypt)



Paper club (ACS Alexandria University student Chapter)



CHEMISTRY SHOW AND INFO DESK ABOUT ACS ALEXANDRIA UNIVERSITY STUDENT CHAPTER



Training of the Safety and Health Student Team at the Faculty of Science

**Description:**

Number of student organizations related to sustainability:

There are 20 students' organizations related to sustainability organized and participated in many activities. The number of students' events related to sustainability is 50 events in 2019 to 2021.

**ACS Alexandria University student Chapter:**

- ACS Alexandria University student Chapter celebration of earth week in 2019 and 2021 (Alexandria University, Egypt).
- ACS Alexandria University student Chapter participation in Earth Day event titled "Climate extremes and sustainable development challenges" (Alexandria University, Egypt)

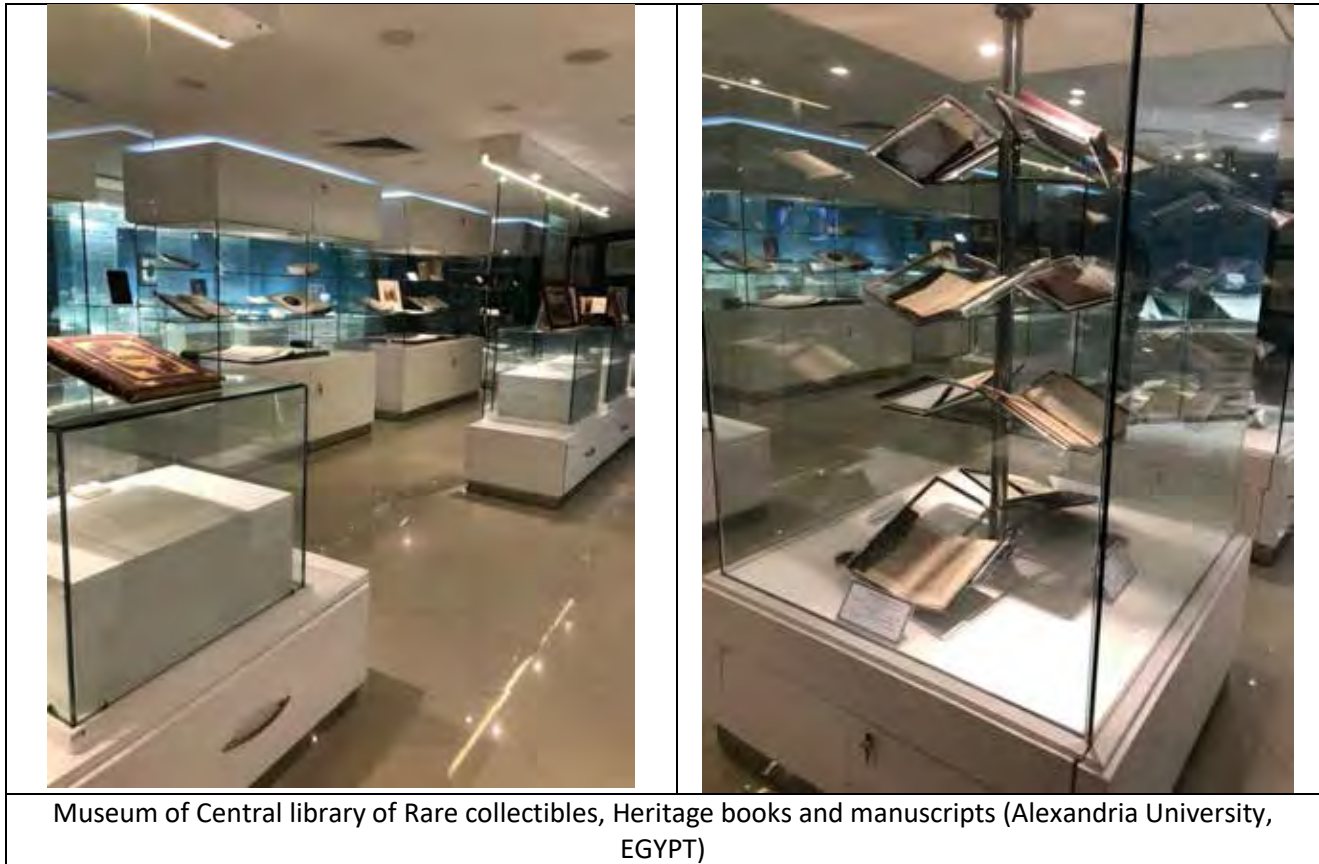
**Evidence Link:** <https://www.facebook.com/ACS-Alexandria-University-107240247822488>

**Training of the Safety and Health Student Team at the Faculty of Science (Alexandria University)**

**Additional evidence link:**

[http://www.alexu.edu.eg//index.php/ar/?option=com\\_content&view=article&id=5882&catid=21&lang=ar-AA](http://www.alexu.edu.eg//index.php/ar/?option=com_content&view=article&id=5882&catid=21&lang=ar-AA)

**Number of cultural activities on campus (e.g.Cultural Festival) including virtual activities**



**Museum of Central library of Rare collectibles, Heritage books and manuscripts (Alexandria University, EGYPT)**

**Hall 1** contains the first University Thesis and Graduation Certificate of the most famous graduates, University building maps, and heritage manuscripts.

**Hall 2** contains the 13<sup>th</sup> century AD manuscript of David's Ticket. The Library contains 1095 Arabic Manuscript. 24 Persian Manuscript and 114 Turkish Manuscript.

**Hall 3** contains 1337 volumes, including books on the Crusades, and many rare books on Egypt in German, French, Italian, and the first foreign publications, the oldest of which date back to the 16th century AD.

**Link:** <https://clib.alexu.edu.eg/index.php/2019-02-12-09-16-07/2019-02-12-09-23-42/2021-01-20-19-49-36>

**Link:** <https://clib.alexu.edu.eg/index.php>

**Link:** <https://alexu.edu.eg/index.php/en/university-libraries>

**Link:** <https://alexu.edu.eg/index.php/en/2015-11-24-10-39-04/libraries1/central-library>

**Geological Museum at the Faculty of Science (Alexandria University, EGYPT)**

The Geological Museum at Alexandria University has several significant specimens, such as rocks, minerals, and fossils, collected through the research activities of the professors and post-graduate students of the Geological Department-Alexandria University. The Museum was rejuvenated after the generous funding of Centamin Gold Company. Since its opening, it has provided the public, e.g., families and elementary schools students, as well as undergraduate students, with opportunities to learn about domestic regional geology, underground resources, marine geology, global environment, and geological hazards, including volcanic eruption, earthquake, and tsunami, as well as the latest knowledge of earth sciences. The Museum holds special seasonal exhibitions and urgent investigation debriefing sessions as necessary. It also advances the effort to use our expertise and technology in earth science in the industry.





The Museum's ultimate goal is to show what our planet is like, learn how closely humans are interconnected, and think about what we should do to be friendly with our Only One Earth.

**The Zoology Department Museum** includes a group of preserved and mummified animals, most of them from the Egyptian environment, such as indigo fish - fish of the Red and Mediterranean seas - reptiles - birds – mammals. In addition to a group of human skeletons and some animals and skulls. The museum includes a distinguished collection of mummified heads of Egyptian and European deer. A distinguished collection of coral reefs of the Red Sea are displayed in addition to manufactured models of life cycles and growth stages of many insects, vertebrates and vertebrates, as well as many slides and microscopic samples.

Display methods vary, such as wooden and glass cupboards equipped with lighting, identification panels, paintings, microscopic slides, and direct projection on some corridor walls.

The museum contributes to providing educational services to undergraduate and postgraduate students through review, examination and practical application of some academic courses. The opportunity for school visits as a service to the Alexandrian community is also provided.

### **Conferences and Symposia during year 2021**

Cultural Activities on Campus (Alexandria University, Egypt): Previously presented under the title “Number of Events Related to Sustainability”

### **Number of university program(s) to improve teaching and learning**

#### **Description:**

Microsoft team, Moodle, Google classroom and social media are used

Switching to blended-Learning for precautionary measures was implemented during the COVID-19 pandemic. Moodle, google classroom, social media were used to continue the relationship with the students while maintaining the precautionary measures until the University has an agreement with Microsoft team as a formal platform with blended learning 40% online and 60% traditional methods. Professors were not ready to switch to blended learning and some were completely not familiar with e-Learning platforms. Many workshops were conducted to enhance the use of blended learning and Microsoft team during the COVID-19 pandemic that organized by Innovation in Pedagogy and Aiding Distance Learning Unit.

**Additional evidence link:** <https://adip.alexu.edu.eg/index.php/en/>

#### **Training Centers at Alexandria University:** Faculty Leadership Development Center

The Alexandria University Faculty and Leadership Development Center (FLDC) is a full service hospitality venue focused on the discipline of collaborative convening. The center offers clients services that merge the theory and practice of collaborative strategies. We invite leaders to come together for meaningful interaction and dialogue, reflect upon and challenge their current ways of thinking and acting, practice convergent decision making, and collectively and individually build new capabilities.

**Additional evidence link:** <https://alexu.edu.eg/index.php/en/2015-11-24-10-43-20/training>  
<https://alexu.edu.eg/index.php/en/fldc>



## Number of sustainability community services project organized and/or involving students

### Medical and community services convoy

Project name	participants	Project duration	Project area	Number of beneficiaries
Medical and community services convoy	33	One Day 28/10/2020	Dar el tahel mahny El saiuf	445
Medical and community services convoy	37	One Day 9/12/2020	King Mariut ( kiswt el shataa )	500
Medical and community services convoy	66	One Day 9/7/2021	Dar El hadia El saiuf	168
Medical and community services convoy	66	One Day 5/8/2021	Baheg Village	417
Medical and community services convoy	57	One Day 6/8/2021	Abo Homos	345
Medical and community services convoy	81	One Day 22/9/2021	Baheg Village 2	650
Medical and community services convoy	61	28/9 – 1/10/2021	matroh	727
Medical and community services convoy	55	One Day 14/10/2021	Alex stadium	217
Medical and community services convoy	57	One Day 5/11/2021	Ganauty Area	467
Medical and community services convoy	104	8 – 12/11/2021	siwa	2613
Medical and community services convoy	62	One Day 19/11/2021	Zawiya Abdel Qader	651
Medical and community services convoy	65	One Day 9/2/2022	El Nahda – Borg El Arab	761
Medical and community services convoy	56	One Day 4/3/2022	Ard El Bangar	753
Medical and community services convoy	69	One Day 12/3/2022	Abes 8	818
Medical and community services convoy	47	14/3 – 18/3/2022	Matroh - siwa	1690
Medical and community services convoy	52	One Day 19/5/2022	King Mariut	73
Medical and community services convoy	58	One Day 20/5/2022	El Delengat Area	683

#### Description:

Example from Alexandria University.

#### Additional evidence link:

[https://alexu.edu.eg/index.php/?option=com\\_content&view=article&id=5857&catid=21&lang=ar-AA](https://alexu.edu.eg/index.php/?option=com_content&view=article&id=5857&catid=21&lang=ar-AA)

## 2. Service projects of Alexandria University

The Department of Sculpture in the Faculty of fine Arts participated with the following projects for community service and environment development:

- Borg El Arab road with sculpture arts of students' graduation projects through the last five years.



- Enhancement of El Mahmoudia canal.
- Enhancement Red Sea governorate with graduation projects.
- Design and implement sculpture model in Ahmed Zwiel square.

There are some production units in the university

### **The general administration of environmental projects**

#### **Research and environment projects**

**Additional evidence link:** <https://alexu.edu.eg/index.php/en/2015-11-24-10-38-07/university-and-society-of-alexandria/service-projects-of-alexandria-university>

### **3. Training Centers at Alexandria University**

Faculty Leadership Development Center (attached pdf file)

The Alexandria University Faculty and Leadership Development Center (FLDC) is a full service hospitality venue focused on the discipline of collaborative convening. The center offers clients services that merge the theory and practice of collaborative strategies. We invite leaders to come together for meaningful interaction and dialogue, reflect upon and challenge their current ways of thinking and acting, practice convergent decision making, and collectively and individually build new capabilities.

**Additional evidence link:** <https://alexu.edu.eg/index.php/en/2015-11-24-10-43-20/training>  
<https://alexu.edu.eg/index.php/en/fldc>

### **4. The literacy: Alexandria Without Illiteracy:**

Societal participation of Alexandria University by contributing to the biggest problems facing the development of Egyptian society at the present time, due to their negative effects on the Alexandrian community.

#### **Activities and Achievements:**

Start implementing the executive steps of the university's initiative (A Central District without illiteracy), where the number of illiterates in the neighborhood is 53,263 illiterate, 6.93% of the total illiterate in the governorate, in cooperation with the (Education Directorate / Youth and Sports Directorate / Social Solidarity Directorate). The University Council approved in its session held 23-1-2020 the application of the community service and environmental development decision during the second semester of the academic year 2019-2020 as a requirement for graduation in colleges (Education - Physical Education for Boys - Physical Education for Girls - Specific Education - Early Childhood Education), provided that The literacy student is assigned to (6) illiterate people, two every university year, from the first level to the third level.

The third forum of Alexandria University was held to integrate university students into Egypt's national project to eradicate illiteracy with the title: - Teach - Help - Win

#### **Additional evidence link:**

<https://alexu.edu.eg/index.php/en/community-development-and-environmental-affairs/6442-the-literacy>

### **5. Transformational Training and Capacity Development**

Striving to enable graduates, university youth, and civil society to acquire additional skills in the basic field or in a related profession or in a new and emerging field of work in order to meet the internationally available job opportunities to extend the alignment with the sustainable development agenda of "Egypt Vision 2030".

#### **Activities / Achievements**



Pharmacists training program for a group of pharmacists in Alexandria governorate pharmacies.  
 Training courses in the field of mental health in the community.

Graduate qualification courses ICDL Digital marketing

**Holding a group of professional courses in cooperation with the Don Bosco Institute in Alexandria, which are:**

Paper recycling course in cooperation with the College of Fine Arts.

Training course on the mannequin in cooperation with the Faculty of Specific Education.

Air conditioning and refrigeration course in cooperation with the College of Engineering.

Electrical installation course in cooperation with the College of Engineering.

**Additional evidence link:** [https://alexu.edu.eg/index.php/?option=com\\_content&view=article&id=5930](https://alexu.edu.eg/index.php/?option=com_content&view=article&id=5930)

**6. Employment fair:** An Employment Forum is held every year in several Faculties on Alexandria University Campus.

**Additional evidence link:** <https://alexu.edu.eg/index.php/en/Employment-fair-en>

### 7. University centers and units

English Language Center for Special Purposes

Community Service Center

Center for Career Development and Entrepreneurship CDCE

Professional training center

**Additional evidence link:** <https://alexu.edu.eg/index.php/centers>

### 8. Community initiatives

- Alexandria without addiction
- Alexandria without terrorism
- Alexandria University initiative to separate and recycle waste
- Slum development and a decent life initiative
- Get ready for green initiative

<https://alexu.edu.eg/index.php/social-initiatives>

Project name	Participants	Project duration	Project area
<b>Baheej village development</b>	Village populations	1 year	Baheej village
<b>Your health between your hands</b>	University Students 3 months	University	colleges
<b>Alexandria without addiction</b>	Alexandria population	University students	3 years Alexandria

**Link for Sustainable Development:** <https://alexu.edu.eg/index.php/en/sustainable-development>

**Link for Green University:**

[https://alexu.edu.eg/index.php/?option=com\\_content&view=article&id=5932&catid=21&lang=ar-AA](https://alexu.edu.eg/index.php/?option=com_content&view=article&id=5932&catid=21&lang=ar-AA)

**Number of sustainability-related startups**

No.	Information
1	
	<p>Museum of Central library of Rare collectibles, Heritage books and manuscripts (Alexandria University, EGYPT)</p>
2	
	<p><b>Artificial Intelligence Minds Incubator (Faculty of Engineering, Alexandria University)</b></p>



**Artificial Intelligence Minds Incubator (Faculty of Engineering, Alexandria University)**



**Alexandria University Technology Incubator for Smart Systems (AUTISS) Incubator (Faculty of Engineering, Alexandria University)**

4



منتجات تحالف الصناعات الغذائية الزراعية  
APPLICATIONS OF INULIN



شركاء جدد

**Agro-Food Industries Alliance Products**

**New partners**

**Agro-Food Industries Alliance Project**

5	<p><b>Startup name:</b> “National Committee Sustainable Development”</p> <p><b>Startup area in UI Greenmetric questionnaire (SI, EC, WS, WR, TR, ED)</b></p> <p><b>Description:</b> Proposed Mission: Striving to maximize the utilization of the outputs of education and scientific research with the sustainable development goals "Egypt Vision 2030", linking them with the United Nations goals for sustainable development together with developing a framework for the educational system governance aiming at achieving the well-being of society.</p> <p>It includes green, sustainable development and innovative incubators.</p>  
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### 1- Museum of Central library of Rare collectibles, Heritage books and manuscripts (Alexandria University, EGYPT)

**Hall 1** contains the first University Thesis and Graduation Certificate of the most famous graduates, University building maps, and heritage manuscripts.

**Hall 2** contains the 13<sup>th</sup> century AD manuscript of David's Ticket. The Library contains 1095 Arabic Manuscript. 24 Persian Manuscript and 114 Turkish Manuscript.

**Hall 3** contains 1337 volumes, including books on the Crusades, and many rare books on Egypt in German, French, Italian, and the first foreign publications, the oldest of which date back to the 16th century AD.

**Link:** <https://clib.alexu.edu.eg/index.php/2019-02-12-09-16-07/2019-02-12-09-23-42/2021-01-20-19-49-36>

**Link:** <https://clib.alexu.edu.eg/index.php>

**Link:** <https://alexu.edu.eg/index.php/en/university-libraries>

**Link:** <https://alexu.edu.eg/index.php/en/2015-11-24-10-39-04/libraries1/central-library>

### 2- Artificial Intelligence Minds Incubator (Faculty of Engineering, Alexandria University)

#### • Incubated Startups

#### 1. Hive

Developing AI security drones and rovers to replace high cost security guards.

#### 2. Blue Vision

Using AI to help recruiters in identifying the right candidates through video recorded online automated interview.

#### 3. Flothers

Using AI for recommending Forex and Stock Market investment.

#### 4. Pianat.ai

Developing AI based decision support system for both government and private sector decision making process based on data coming from different sources.

#### 5. VRNRS (Name has been changed based on their bootcamp tips to be EDSINE)



Using AI for simulating nuclear reactor operations and accidents, this is a teaching simulator aim in for sales in the scientific community and power companies using nuclear reactors. realistic and willing to develop new business.

#### **6. Qubx**

Developing 3D printed/visualized models to be used in surgery operations preparation by doctors and also creating 3D models for babies.

### **3- Alexandria University Technology Incubator for Smart Systems (AUTISS)**

#### **About**

Alexandria University Technology Incubator for Smart Systems (AUTISS) was accredited by the Ministry of Higher Education in 2020 to be established at Smart Critical Infrastructure (SmartCI) Research Center, Alexandria University (AlexU).

AUTISS aims to nurture the culture of innovation at campus among the university community and to create value added services for researchers and entrepreneurs.

AUTISS is mainly interested in using Smart systems and modern technology for the development of different infrastructure systems (e.g., education, transportation, healthcare...etc.).

#### **AUTISS Vision**

AUTISS aims to be a hub that fosters synergy between the academia and the industry to fuel entrepreneurial spirit among students to help them to be self-reliant and contribute to the economic development and nation building.

#### **AUTISS Mission**

- To build an ecosystem to incubate and support innovative ideas in Alexandria and the surrounding areas to enact wealth and employment action through successful startups.
- To create entrepreneurial opportunities for students, graduates, faculty members and researchers.
- To support emerging technologies that are useful to enter the market.
- To nurture technology and knowledge-based ventures through their start-up phase by providing the necessary support.
- To assist in commercialization of innovative ideas from students and researchers.

#### **Areas of Interest**

AUTISS supports entrepreneurship and provides a set of technical and business-related services to startups that deliver technological products or services for the development of the different infrastructure systems.

Current topics of interest, based on the international trends and Egypt's 2030 strategy, includes but are not limited to:

- Digitization of different services
- Smart health services/products
- Fintech applications





- Smart business solutions
- Smart educational services/products
- Biomedical engineering
- New technologies in the field of Energy, Agriculture and Food industry

#### **AUTISS Facilities**

- **Furnished office space**
- **Class rooms**
- **High Performance Computing lab**
- **Access to labs**
- **Meeting rooms**
- **Kitchen area**
- **Parking space**

#### **4- Agro-Food Industries Alliance Project**

The presence of sectoral alliances in the world is one of the most important ways to increase national income and develop small and medium industries.

From this standpoint, the Agro-Food Industries Alliance was formed, which consists of 16 partners (universities, research institutions, industry representatives, small and medium-sized companies, NGOs and local authorities).

Alliance Partners:

**Universities:** Alexandria University, Damanhour University, Kafr El Sheikh University, Suez Canal University, Ain-Shams University, Arab Academy for Science, Technology and Maritime Transport

**Community organizations:** Lake Investors Association, The Egyptian Foundation for Bio-Agriculture, Regional Federation of NGOs

**Research or industrial centers:** Agriculture Research Center, National Research Center, IMC

**Company:** Saqr Company, Isis company, IT&M Company.

#### **Evidence link: Collaboration between Alexandria University and the Industry for establishing Science valleys and technology incubators**

<https://drive.google.com/drive/folders/1Zj2qLROzDvQ66Bv6tKajIFy8TDbTdV8N>

<https://drive.google.com/drive/folders/1Zj2qLROzDvQ66Bv6tKajIFy8TDbTdV8N?usp=sharing>