



Pharos University in Alexandria
Vice President for Graduate Studies & Research
International Ranking committee



THE Impact Ranking SDG6 Report

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Clean Water and Sanitation



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Pharos University in Alexandria is paying a lot of attention to the clean water and sanitation issues. This is in the form of initiatives, courses, projects, and cooperation agreements. The following are some examples of the university's efforts to address clean water and sanitation.

1) Pharos Contributions in the “Live Green” Presidential Initiative with a study on “Harmonic Mechanisms for Treating all Types of Wastewaters to Irrigate a Sustainable Green Belt to Protect the Vicinity of Lake Mariout.”

Prof. Ramadan Abu El-Ala, the Vice President of Community Service and Environment Development Affairs and Prof. Hesham El Shimy, the Director of the Community Service and Environmental Development Centre (CSED) participated in a meeting about the “Live Green” initiative. The meeting was held in Alexandria Governorate Office on Wednesday, 12 February 2020.

The meeting was attended by Mr. Ahmed Gamal, the Deputy Governor of Alexandria and representatives from all concerned authorities in the governorate. This meeting aimed to discuss the mechanisms to apply the “Live Green” initiative launched by the President of Egypt to raise environmental awareness in Alexandria. During the meeting, Mr. Ahmed Gamal stressed the importance of the consultative role of Pharos University which came within the framework of the government keenness to achieve cooperation and integration by taking advantage of the experiences of the scientific bodies in Alexandria and working hand in hand for the benefit of the governorate.

In addition, Prof. Hesham El Shimy showed the attendees a study on “Harmonic Mechanisms for Treating all Types of Wastewater to Irrigate a Sustainable Green Belt to Protect the Vicinity of Lake Mariout.” It is worth mentioning that the study impressed all the attendees, and it was stressed upon the need for adopting that study by the governorate and other authorities at the local and central levels. At the end, the Deputy Governor asked for an electronic copy of the study to put it into practice.



Evidence url:

<https://www.pua.edu.eg/pharos-contributions-in-the-live-green-presidential-initiative/>

4) Improving the Performances of Cellulose Acetate membrane for Water Desalination by doping Nano-graphene Oxide: “Towards a Sustainable Tomorrow” competition

“Towards a Sustainable Tomorrow” annual competition was held at PUA’s Faculty of Engineering, under the auspices and support of Birla Carbon.

The competition was opened at 9:30 am with a speech from Prof. Dr. Muhammad Gaber Abu Ali, Dean of the Faculty of Engineering. After that, the senior students presented their competing projects Four academic departments participated in the competition, namely:

- Petrochemical Engineering Department (two projects)
- Mechanical Engineering Department (four projects)
- Electrical Engineering Department (two projects)
- Construction Engineering and Management Department (two projects)

Together, the competing projects reached 10 projects and were evaluated by a jury comprising of:

- Dr. Mona Gamal El-Din, Dean of the Faculty of Energy, Environmental and Petrochemical Engineering, Egyptian Japanese University
- Dr. Boshra Salem, Dean of Graduate Studies and Research Affairs
- Dr. Mohamed Naim Anwar, Vice Dean of the Faculty of Engineering for Education and Student Affairs
- Dr. Wael El-Maghlany, Head of the Mechanical Engineering Department, Faculty of Engineering, Alexandria University.



Further, the faculty members who supervised the graduation projects along with the competing students were honored and awarded certificates of appreciation. At 2 pm, the results were declared and in the first place came the Petrochemical Engineering Department with a project entitled “Improving the Performances of Cellulose Acetate membrane for Water Desalination by doping Nano-graphene Oxide”. This project was supervised by Dr. Aya Suleiman and Dr. Ashraf Morsi, and was awarded a prize money of EGP 17,000.





Evidence url:

<https://www.pua.edu.eg/towards-a-sustainable-tomorrow-competition/>

3) University management plan for water conservation:

Pharos University is implementing a plan for the re-use of water in its premises:

- (a) Wastewater and as per the records of the University Administration:
Wastewater from washing rooms, kitchens, and laboratories are collected and channeled to a specialized company to manage the recycling process and get rid of toxic material in a safe way. The University has signed a contract with a specialized company for collection and treatment of wastewater in a sustainable way. This company was selected based on its environmental portfolio that ensures that water is reused in an environment friendly way. The company is responsible to treating water for reuse according to the quality of output, mainly in irrigating street trees in the neighborhood.
- (b) Reuse of water: The University manages a process for rainwater collection and fresh water disposed from air-condition units. Both water sources are channeled and stored in a 15m³ water tank for reuse in irrigation of the landscape, and the green playgrounds that reach an area of about 35200 m². This green area has increased since last year where it was 21000 m². With this amount of water, the green areas in Pharos University is expected to increase every year.
- (c) Drinking water: Drinking water quality is maintained at the University premises by installing 3-level filters at the source inlet to purify drinking water before use by university members. The amount of freshwater reuse in the campus has decreased due to the above practices. The current average amount is about 2779 m³ per month.



4) Courses addressing SDG6:

No	Faculty in Pharos University	Course name	Course code	SDG of relevance	Topics in each course
1	Applied Health Sciences Technology	Environmental Health	MGEH-101	SDG 6	Hygiene for Clean water and sanitation
2	Pharmacy	Instrumental Analysis	(PCD 203)	SDG 6	methods of water purification, the detection of impurities
3	Engineering	Water and Wastewater	ES 401	SDG 6	The course introduces an overview of Water Supply Introduction and Definitions, important Fields of Environmental Engineering, Environmental system, Waste cycles
4	Engineering	Water treatment	EP 328	SDG 6	This course introduces the students to Water chemical analysis, water treatment for different uses, Equipment design calculations



5) Publications that address clean water and sanitation:

No	TITLE/YEAR/AUTHORS	DOI
1.	Development of cellulose acetate membrane performance by carboxylate multiwalled carbon nanotubes 2022 Fadl, E. Noumir, H. Morsy, A. Kandil, S. Ebrahim, S. Khalil, M.M.A. Advances in Natural Sciences: Nanoscience and Nanotechnology	10.1088/2043-6262/ac53ff
2.	Optimized Degradation of Eosin Dye Through UV-ZnO NPs Catalyzed Reaction 2022 Farouq, R. Ismaeel, E.K. Monazie, A.M. Journal of Fluorescence	10.1007/s10895-022-02889-3
3.	Improved anti-biofouling resistances using novel nanocelluloses/cellulose acetate extracted from rice straw based membranes for water desalination 2022 Morsy, A. Mahmoud, A.S. Soliman, A. Ibrahim, H. Fadl, E. Scientific Reports	10.1038/s41598-022-08324-8
4.	Investigation of Biosurfactants Production from Petroleum Oil Wastes Using Response Surface Methodology 2022 Tayeb, A.M. Mostafa, N.A. Olfat, M.A. Farouq, R. Monazie, A.M. Petroleum Chemistry	10.1134/S0965544122020256
5.	Adsorption study of bisphenol-A and chlorpyrifos onto nanobentonite intercalated with magnetite and sodium alginate: kinetics and isotherm models 2022 El-Sharkawy, R.M. Allam, E.A. Ali, A.S.M. Mahmoud, M.E. International Journal of Environmental Science and Technology	10.1007/s13762-021-03815-z
6.	Treatment by agricultural by-products of Industrial effluents polluted with heavy metals 2022 Tayeb, A.M. Farouq, R. Mahmoud, M.A. Daher, A.M. Amer, T.E. Magdy, Y.H. Indian Journal of Chemical Technology	-



No	TITLE/YEAR/AUTHORS	DOI
7.	New Sustainable Agenda for Slums Future Expansion, Case-Study: Ezbiit El-Matabea, Alexandria, Egypt 2022 Ragheb, R.A. Barakat, P.N. International Journal of Sustainable Development and Planning	10.18280/ijstdp.170204
8.	Chitosan based adsorbents for the removal of phosphate and nitrate: A critical review	10.1016/j.carbpol.2021.118671
9.	[HTML] Performance evaluation of continuous solar still water desalination system	10.1007/s10973-020-09547-5
10.	Framework of nano metal oxides N-NiO@ N-Fe ₃ O ₄ @ N-ZnO for adsorptive removal of atrazine and bisphenol-A from wastewater: Kinetic and adsorption studies	10.1016/j.enmm.2021.100481
11.	[HTML] Hybrid renewable energy/hybrid desalination potentials for remote areas: selected cases studied in Egypt	10.1039/d1ra00989c
12.	[HTML] Assessment of spatiotemporal patterns of social vulnerability: A tool to resilient urban development Alexandria, Egypt	10.1016/j.asej.2020.07.025
13.	Water treatment from MB using Zn-Ag MWCNT synthesized by double arc discharge	10.3390/ma14237205
14.	Novel sea water desalination unit utilizing solar energy heating system 2020 ElHelw, M. El-Maghlany, W.M. El-Ashmawy, W.M. Alexandria Engineering Journal	10.1016/j.aej.2020.03.019
15.	Enhanced solar desalination units 2020 Tayeb, A.M. Farouq, R. Shehata, A.Z. Othman, R.H. Proceedings of Institution of Civil Engineers: Energy	10.1680/jener.19.00065
16.	Use of hydrazide derivative of poly methylacrylate for the removal of cupric ions from solutions 2020 Mahmoud, A. Nassef, E. Salah, H. El-Taweel, Y. AIMS Materials Science	10.3934/MATERSCI.2020.4.420



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