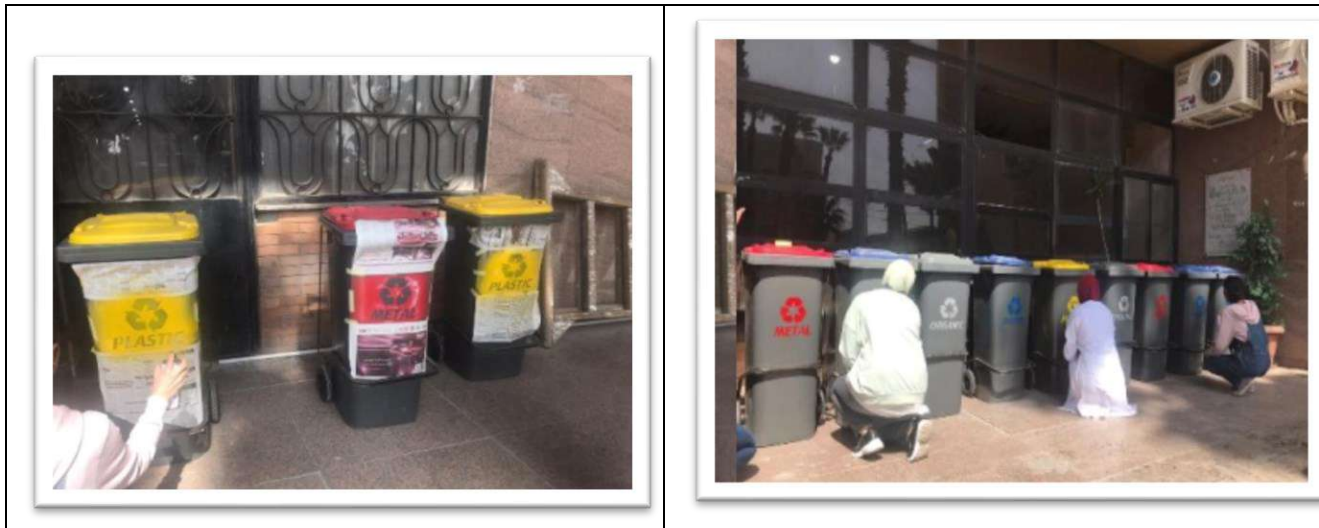


Template for Evidence(s) UI GreenMetric Questionnaire

University : Alexandria University
 Country : Egypt
 Web Address : <https://alexu.edu.eg/index.php/en/>

[3] Waste (WS)

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



Recycling Program for University Waste (Alexandria University, Egypt)



Program for separation of Paper (blue), Plastic (yellow), aluminum cans and glass (green) and organic waste (red) in Campus (Alexandria University, Egypt)



Separating waste into special containers for plastic, paper, glass and metal waste. Donation provided by the Rotary Club of Newaira (for condolences and to the College of Medicine and the Hospital).



Program for separation of Plastic (blue), Paper (green), Aluminum Cans (red) and General (black) in the Faculty of Pharmacy (Alexandria University, Egypt)



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



Leaves and organic waste were treated for the vermi-compost to produce organic fertilizers to use in the Campus gardens (Alexandria University).



The Faculty of Agriculture recycles 100% of its organic waste (Alexandria University).



Waste reception hall in Nahdet Misr company for waste collection in Alexandria



Manual sorting hall in Nahdet Misr company for waste collection in Alexandria



Organic matter separation unit in Nahdet Misr company for wastes collection in Alexandria



Mixed plastic collected by Nahdet Misr company for wastes collection in Alexandria



Cans waste collected by Nahdet Misr company for wastes collection in Alexandria



Paper and carton baler in Nahdet Misr company for wastes collection in Alexandria



Cans press in Nahdet Misr company for wastes collection in Alexandria



Recycling Program for both materials and equipment with metals and derivatives (Alexandria University, Egypt)



The biohazards and medical hazards, and toxic chemical compounds are handled by Alexandria Governorate Hazardous Waste Management (NASERIA), Alexandria University, Egypt



The water sewage of the Aquaculture of the Faculty of Agriculture (Alexandria University, Egypt) 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.



Wastewater treatment unit at Faculty of Engineering



The sewage water will be treated and reused in the irrigation of green areas in the project (Alexandria University)



Second treatment of Alexandria University Sewage by Alexandria Sanitation Company



Reclaiming 800 thousand acres in the new delta using treated water from sewage



The Community Service and Environmental Development Council of Alexandria University reviewed the report submitted by Prof. Dr. Sherine Khattab, Vice Dean of Postgraduate Studies and Research, and the University's Coordinator for the Best Environmentally Friendly University Competition and GreenMetric, addressing various environmental issues at the university. She developed a program for waste separation and recycling and identified the specific needs of each faculty for garbage bins designated for waste sorting (February 2024).



The EFFCT team from Alexandria University has won second place in the prestigious Hult Prize International Competition, held in Paris, France. Competing against over 10,000 teams from 110 countries, the team impressed the judges with their innovative startup, which focuses on recycling waste from the textile industry. Their achievement highlights Alexandria University's dedication to fostering student innovation and entrepreneurship on the global stage (November 2023).



The screenshot shows the journal page for "Road Materials and Pavement Design", Volume 24, Issue 5. The article title is "Investigation of using municipal solid waste incineration fly ash as alternative aggregates replacement in hot mix asphalt". The authors listed are Rouba A. Joumbat, Zaher Al Baslount Al Masri, Joseph Absi, and Adelf ElKordi. The article is published online on 09 May 2022. A red box highlights the affiliation of Adelf ElKordi: "Engineering, Department of Civil Engineering, Alexandria University, Alexandria, Egypt".

Researchers at Alexandria University are investigating the use of municipal solid waste incineration fly ash as an alternative aggregate replacement in hot mix asphalt as part of efforts to recycle waste materials and develop more sustainable construction practices



الجمعية العربية لعلوم المواد
بالاشتراك مع قسم علوم المواد بمعهد الدراسات العليا والبحوث - جامعة الإسكندرية
المؤتمر الثالث والخمسون لعلوم المواد
"علوم المواد وريادة الأعمال: خارطة طريق من أجل تنمية مستدامة"
(14 - 16 أكتوبر 2023)
الإسكندرية - مصر

The Arab Society of Materials Science (ASMS)
in collaboration with the Materials Science Department
Institute of Graduate Studies and Research (IGSR), Alexandria University
The 23rd Conference on Materials Science
"Materials Science and Entrepreneurship: A Roadmap for Sustainable Development"
(14-16 October 2023)
Alexandria - Egypt

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117 طريق الحرية - معهد الدراسات العليا والبحوث



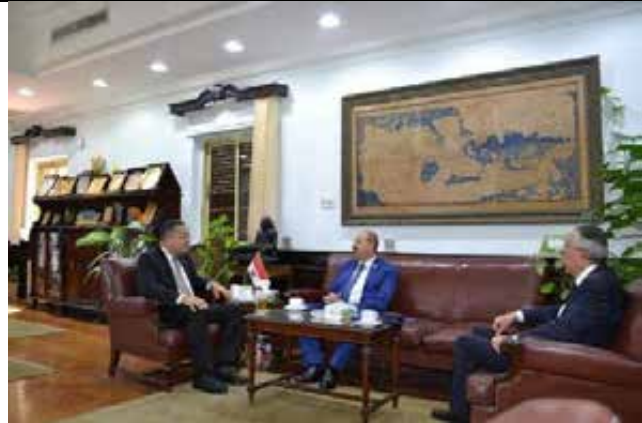
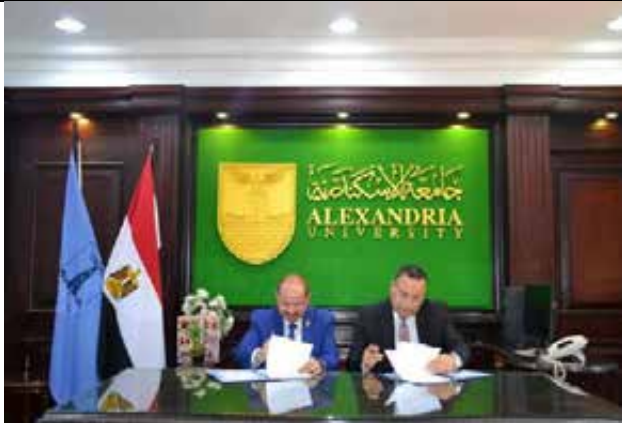
CHITOLAB
CHITOSAN EGYPT: REDEFINING WASTE2RESOURCE INNOVATION
- EHALID WAEI | CHIEF TECHNICAL OFFICER CHITOSAN EGYPT

THE 23RD ARAB INTERNATIONAL CONFERENCE ON MATERIALS SCIENCE MATERIALS SCIENCE AND ENTREPRENEURSHIP: A ROADMAP FOR SUSTAINABLE DEVELOPMENT | ASMS | 14-16 OCTOBER 2023

A workshop titled "Chitosan Egypt: Redefining Waste2resource Innovation" was delivered as part of The 23rd Conference on Materials Science Materials Science and Entrepreneurship: A road for sustainable development", held by the Instiute of Graduate Studies and Resarch, Alexandria University (14-16 October 2023).



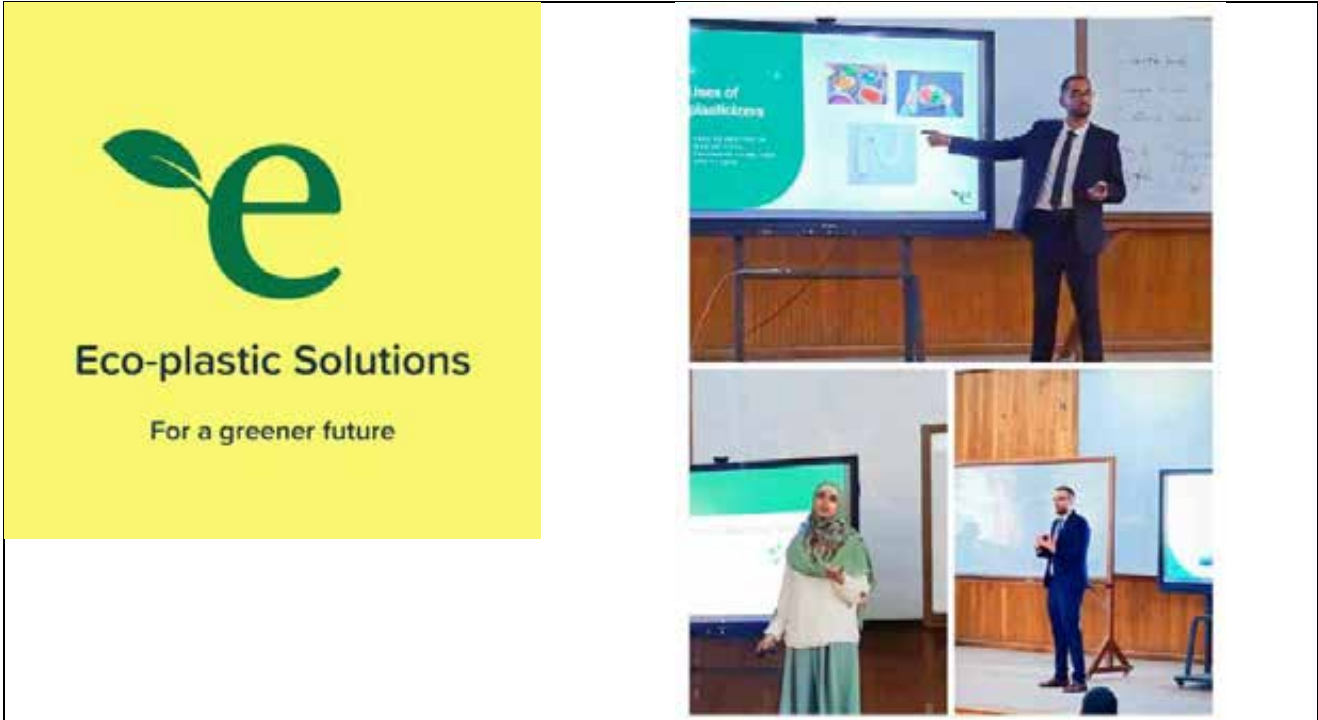
Raising awareness among Alexandria University students about wastewater treatment was achieved through summer training activities conducted at Alexandria Sewerage for students from various faculties, including Science, Engineering (Civil, Mechanical, and Mechatronics), Commerce, Arts (Surveying, Mapping, and GIS), and Fine Arts (Architecture), September 2024.



A cooperation protocol was signed between Alexandria University and Alexandria Sewerage Company to employ outstanding graduates from the faculties of Engineering, Commerce, Law, Science, and Arts.



The Industrial Microbiology and Applied Chemistry (IMAC) Program organized a scientific visit to El-Shafei Leather Tannery in the Al-Max area of Alexandria on March 26 and April 30, 2024. As part of the "Bioremediation of Pollutants" course, students toured the facility and learned about the various stages of natural leather production, and managing waste from the leather industry. (Faculty Science of Alexandria University).



Cooking Oil Waste as an Industrial Solution. Students from the Faculty of Science at Alexandria University have innovated a way to recycle used cooking oil to create an eco-friendly plasticizer, and how can we reuse cooking oil in plastic production. The students have founded a startup company “Eco-plastic Solutions” for greener future.



A team from the Faculty of Engineering at Alexandria University has developed a robot designed to clean seas of waste and oil. Their innovative project earned them second place in the National Initiative for Smart Green Projects. The robot aims to contribute to environmental conservation by efficiently removing pollutants from water, offering a sustainable solution to marine pollution.





Students from the Faculty of Fine Arts at Alexandria University are transforming environmental waste into distinctive artistic murals. As part of a community service initiative, they created a sports mural on the university stadium wall, involving 16 students from the mural photography department. The project aims to recycle discarded materials for aesthetic public works, promoting sustainability. Mosaics were used in the mural's completion, while second-year decoration students also created models from waste wood and scrap to enhance the beauty of Alexandria, revitalizing the coastal city through their artistic efforts.



The Center of Excellence for Water at Alexandria University is organizing a training program for scholarship students in collaboration with EPROM Company. This initiative aims to equip students with practical skills in water management including training courses about Water Treatment for Industrial Applications, and Wastewater Plant Operations and Troubleshooting, ensuring they are well-prepared for the business sector and aligned with labor market requirements (March, 2024).



Students from the Faculty of Sport Education at Abu Qir took part in a week-long initiative to clean the eastern harbour of Alexandria, starting on July 8, 2024. The initiative aims to promote sustainable tourism, improve waste disposal practices, and raise awareness about the dangers of plastic waste to marine life, while encouraging recycling efforts and maintaining clean beaches. The project included the Alexandria university, El-Raml Rotary Club, and the Egyptian Diving and Rescue Federation.



Alexandria University hosted the 21st International Scientific Conference of the Faculty of Business on July 13, 2024, titled "Global Challenges and Achieving Business Sustainability." Business sustainability was achieved through the creation of business incubators and the establishment of waste recycling plants to support sustainable practices.





On May 27, 2024, Alexandria University Inaugurates Fab Lab for Reusing Recycled Plastic, for Reusing Recycled Plastic (PECA) as part of Egypt's Sustainable Development Strategy (Vision 2030). The event was attended by dignitaries, including the Consul General of France in Alexandria and representatives from various educational and environmental organizations. The PECA project aims to address plastic waste in the Mediterranean Sea by establishing a digital manufacturing laboratory that will facilitate the collection, sorting, and recycling of plastic waste to create prototypes and new products, thereby reducing plastic pollution in Alexandria.



Students from various schools in Alexandria, alongside those from the French Institute, participated in a large-scale cleanup campaign at Anfouchi beach titled "Our Sea is Clean Without Trash 🌿♻️." Following the cleanup, participants explored the process of transforming plastic waste into usable materials through 3D printing at the Fab Lab at Alexandria University. This initiative is part of the "Circular Economy: From

the Beach to the Lab" project, led by the French Consulate and the French Institute, with financial backing from the European Union and collaboration with the Alexandria Governorate. The project aims to foster partnerships for sustainability and actively engage the local community in environmental efforts.



The Center for Educational Innovations and Distance Learning hosted the fifth edition of the conference "Alexandria University for Educational Innovations and Technology-Enhanced Learning," focusing on developing learner autonomy and flipped classrooms. The Faculty of Science earning second place for their project titled "Potential Microbial Degradation of PET from Alexandria Solid Waste Landfill." The research was conducted by a team of students (6 students) under the supervision of Professor Dr. Hanan Ghozlan.



The Faculty of Pharmacy won third place in the Alexandria Governorate for the 2024 National Initiative for Green Smart Projects with its 'Green Cycle' project, competing in the non-profit community initiatives category. This marks the project's second consecutive year of recognition, having previously secured first place last year.

Description:

The university is aware of its responsibility for the environmental impacts resulting from its activities and its desire to provide a better environment for future generations. Special goals have been set to organize

procedures to preserve the environment, mitigate the effects resulting from its activities, and make the university environment environmentally friendly.

The policy followed by the university to improve the university environment includes studying the strengths and weaknesses of the university environment and taking real and realistic measures by (university administration, faculty, staff, and students) that lead to the sustainability of the university's environmental resources, keeping pace with modern developments, and increasing environmental awareness among the university community.

Waste treatment and recycling activities are key factors in creating a sustainable environment. The activities of university employees and students on campus can produce a lot of waste, and therefore waste treatment programs should be among the university's concerns.

Alexandria University developed the "Waste Separation and Recycling" initiative, which aims to protect the environment, maintain the cleanliness of Faculties, and develop environmental awareness within the framework of the concepts of green economy and sustainable development to achieve Egypt's 2030 vision.

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-Misr 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.
8. The Community Service and Environmental Development Council of Alexandria University reviewed the report submitted by Prof. Dr. Sherine Khattab, Vice Dean of Postgraduate Studies and Research, and the University's Coordinator for the Best Environmentally Friendly University Competition and GreenMetric, addressing various environmental issues at the university. She developed a program for waste separation and recycling and identified the specific needs of each faculty for garbage bins designated for waste sorting (February 2024).
9. The EFFCT team from Alexandria University won second place in the prestigious Hult Prize International Competition held in Paris, France. competing against over 10,000 teams from 110 countries. The team developed a startup focused on recycling textile industry waste. They previously won first place in the "Egypt Summit for Social Investment Projects" and received support and training from the Innovators and Talents Fund. Minister of Higher Education Dr. Ayman Ashour praised the team's achievement, highlighting the importance of student participation in international competitions. The president of Alexandria University, Dr. Abdelaziz Konsowa, emphasized the university's commitment to fostering innovation and creativity among students (November 2023).
<https://www.facebook.com/MOHESREGYPT/posts/pfbid02fFPJTJ7jCP6DpGtM6HnA5v5QXwVgj4S97BK5sRWGE47USahrLciBRsR5NfjbM75nl>
10. A workshop titled "Chitosan Egypt: Redefining Waste2resource Innovation" was delivered as part of The 23rd Conference on Materials Science Materials Science and Entrepreneurship: A road for

sustainable development”, held by the Institute of Graduate Studies and Research, Alexandria University (14-16 October 2023).

11. Researchers at Alexandria University are focused on turning waste into a useful material in road construction, contributing to more environmentally friendly infrastructure. They investigating the use of municipal solid waste incineration fly ash as an alternative aggregate replacement in hot mix asphalt as part of efforts to recycle waste materials and develop more sustainable construction practices.
12. Raising awareness among Alexandria University students from various faculties—including Science, Engineering (Civil, Mechanical, and Mechatronics), Commerce, Arts (Surveying, mapping, and GIS), and Fine Arts (Architecture)—about wastewater treatment was achieved through summer training and periodic visits to the laboratories of the Alexandria Sewerage Company. This effort supports the achievement of the Sustainable Development Goals by enhancing partnerships for sustainable development and fostering collaborations that mobilize and share knowledge, expertise, and technology. The training aimed to provide students with essential scientific skills and practical experience to prepare them for the job market (September 2024).
 - **Faculty of Science:** Theoretical training introduced the role of the Sewerage Company, while practical training involved visits to treatment plants, central laboratories, and lectures on occupational safety and industrial sewage.
 - **Faculty of Arts (Surveying, mapping, and GIS):** Training included surveying applications, urban planning, and the practical use of leveling instruments, total stations, and GPS devices, concluding with lessons on ArcGIS and sewage system design.
 - **Engineering Colleges:** Civil Engineering students trained in network renewal and design, while Mechanical and Mechatronics students learned about pump components, welding, and electrical generators, with visits to various workshops.
 - **Fine Arts (Architecture):** Students received training on project design drawings and estimating costs.

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13. A cooperation protocol was signed between Alexandria University and Alexandria Sewerage Company to employ outstanding graduates from the faculties of Engineering, Commerce, Law, Science, and Arts over the past five years, based on the actual needs and annual workforce plan of the sewerage company. Additionally, the protocol aims to prepare a new generation of skilled professionals in modern technologies. It includes agreements for employees to access master's and doctoral programs at reduced fees and to conduct workshops and training courses with professors from Alexandria University to enhance partnerships for sector performance and achieve sustainable development goals.
14. The Industrial Microbiology and Applied Chemistry Program (IMAC) at Faculty Science of Alexandria University organized a scientific visit to El-Shafei Leather Tannery in the Al-Max area of Alexandria on March 26 and April 30, 2024. This visit was part of the program's applied teaching and learning methods and was included in the practical component of the 'Bioremediation of Pollutants' course (Code: Micb 472). During the visit, the students toured all departments of the company and received a comprehensive scientific explanation of the stages of natural leather production, as well as how to protect the leather from mold during manufacturing and how to manage leather industry waste.
15. Students from the Faculty of Science at Alexandria University have innovated a way to recycle used cooking oil to create an eco-friendly plasticizer, and how can we reuse cooking oil in plastic production.
<https://www.youtube.com/watch?v=LIB1QJ04fqs>
16. A team from the Faculty of Engineering at Alexandria University has developed a robot designed to clean seas of waste and oil. Their innovative project earned them second place in the National Initiative for Smart Green Projects. The robot aims to contribute to environmental conservation by efficiently removing pollutants from water, offering a sustainable solution to marine pollution.
17. Students from the Faculty of Fine Arts at Alexandria University are using environmental waste to create distinctive artistic murals. As part of Alexandria University's community service initiative, the Faculty of Fine Arts contributed to the creation of a sports mural on the wall of the university's stadium. Dr. Nevin

Gharib, acting dean of the faculty, stated that the project involved 16 students from the mural photography department as part of their graduation project. The project was supervised by Dr. Mona Rajab and Dr. Donia Medhat, faculty members of the department. The goal of the project is to recycle materials discarded in nature and repurpose them for aesthetic public works, aligning with the principle of sustainability. Mosaics were used to complete the entire mural. Additionally, second-year students from the decoration department implemented other projects that transform environmental waste, such as wood and scrap, into creative models. These models are intended to beautify fields in Alexandria, helping to restore the coastal city's charm through the work of its young artists (April, 2024).

18. The Center of Excellence for Water is organizing a training program for scholarship students. This training is conducted in collaboration between the Water Excellence Center at Alexandria University and EPROM Company to provide a course for a group of students from the Water Excellence Center. This initiative reflects Alexandria University's commitment to equipping its students with practical skills related to water management, ensuring they possess the competencies needed by the business sector while aligning their studies with labor market requirements. The Center of Excellence for Water at Alexandria University has organized a training program for students in the Water Excellence Center Scholarship and the Civil and Environmental Engineering Program. Alexandria University, EPROM Company, and the students are participating in the following two training programs:

- **Water Treatment for Industrial Applications**
- **Wastewater Plant Operations and Troubleshooting.**

19. On July 8, 2024, the students from the Faculty of Sport Education, Abu Qir, participate in Initiative to Clean the Eastern Harbour of Alexandria. In line with Alexandria University's commitment to community service and under the auspices of Professor Dr. Abdelaziz Konsowa, President of Alexandria University, and Dr. Yasmine Fouad, Minister of Environment, students from the Faculty of Sport Education in Abu Qir participated in a week-long initiative to clean the eastern harbour of Alexandria. The initiative includes the participation of the El-Raml Rotary Club and the Egyptian Diving and Rescue Federation. The initiative aims to promote sustainable tourism and improve beach enjoyment while supporting local communities in enhancing their waste disposal practices. It also encourages citizens to reduce their use of single-use plastic products and increase recycling efforts. Additionally, the project seeks to educate the public on the importance of maintaining clean and healthy beaches, raising awareness about the threats that plastic and chemical waste pose to marine life, as well as focusing on collecting, classifying, and recycling waste to improve the quality of the coastal environment.
20. Alexandria University hosted the 21st International Scientific Conference of the Faculty of Business on July 13, 2024, titled "Global Challenges and Achieving Business Sustainability." Business sustainability includes three pillars: economic prosperity, social justice, and environmental protection. Alexandria University is establishing business incubators and opening waste recycling plants to support sustainability.
21. On May 27, 2024, Professor Dr. Abdelaziz Konsowa, President of Alexandria University, inaugurated the Fab Lab for Reusing Recycled Plastic (PECA) as part of Egypt's Sustainable Development Strategy (Vision 2030). The event was attended by several dignitaries, including the Consul General of France in Alexandria and representatives from various educational and environmental organizations. The PECA project aims to utilize plastic waste that ends up in the Mediterranean Sea by establishing a digital manufacturing laboratory. This facility will allow for the collection, sorting, and recycling of plastic waste to create prototypes and new products, contributing to the reduction of plastic pollution in Alexandria. The lab spans 100 square meters and prioritizes the safety of waste collectors and workers. The total budget for the project amounts to 496,800 euros, with support from the French Ministry of European and Foreign Affairs, the Provence-Alpes-Côte d'Azur region, the Corsican community in France, the Alexandria Governorate, and Alexandria University in Egypt.
22. On June 18, 2024, Students from various schools in Alexandria, along with students from the French Institute in Alexandria, collaborated with Alexandria University to participate in a large-scale cleanup campaign titled "**Our Sea is Clean Without Trash** ♻️🗑️." for Anfouchi beach. After cleaning the beach, the students discovered the process of transforming plastic waste through 3D printing at the Fab Lab at Alexandria University. This initiative is part of the "Circular Economy: From the Beach to the Lab"

project, led by the French Consulate and the French Institute in Alexandria, with financial support from the European Union and in cooperation with the Alexandria Governorate and Alexandria University. The project aims to achieve partnerships for sustainability goals and to engage the local community in these efforts.

<https://www.facebook.com/ifealexandrie/videos/445679398217899>

23. The Center for Educational Innovations and Distance Learning organized the fifth edition of the conference titled "Alexandria University for Educational Innovations and Technology-Enhanced Learning," under the theme: Developing Learner Autonomy: Undergraduate Research and Flipped Classrooms as Two Proposed Means. The scientific committee of the conference evaluated the student research presented, which totaled 31 studies (15 in the field of humanities and 16 in natural sciences and life sciences). The judging committee announced that the Faculty of Science won second place for their research titled "Potential Microbial Degradation of PET from Alexandria Solid Waste Landfill." The research was conducted by students Mustafa Abdel Gawad Muhammad Suleiman Abdullah, Ali Muhammad Ibrahim Abdel Moneim, Muhammad Lotfy Ibrahim Muhammad Ibrahim, Maryam Ali Hafez Ibrahim Youssef, Wissam Sabry Abdel Fattah Hasballah, and Yasmine Abdel Aziz Al-Sayed Hasballah, under the supervision of Professor Dr. Hanan Ghozlan.
24. The Faculty of Pharmacy won the third place in the Alexandria Governorate for the National Initiative for Green Smart Projects in its third edition (2024) with its 'Green Cycle' project, competing in the category of non-profit community initiatives and participations. Notably, this project has now won for the second consecutive year, having previously achieved first place in the Alexandria Governorate last year.

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

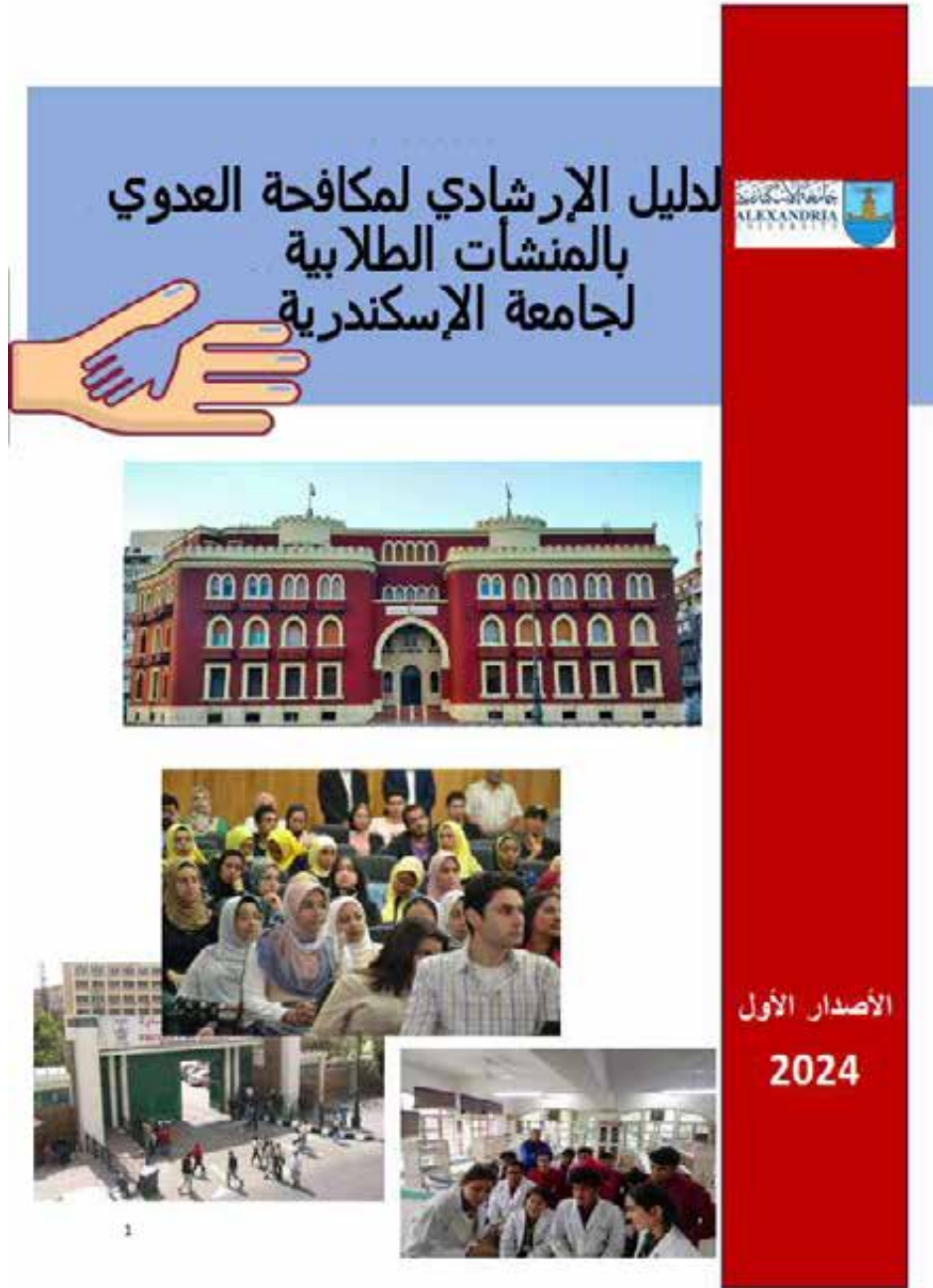
- Organic waste and food residues.
- Plastic waste and plastic bags.
- Mineral waste and carbonated water cans.
- Paper waste

An initiative of the Infection Control Unit at the Faculty of Medicine, Alexandria University

1. Waste sharp tools, which include syringes, needles, scalpels, and similar tools that have the ability to penetrate the skin or body tissues, are disposed of by throwing them in the designated yellow safety box.
2. When there was a shortage in the amount of safety boxes, communication was made between members of the infection control teams to use empty soap jars from our homes.
3. By referring to the National Guide to Infection Control and the Guide to the Supreme Council of Universities, we found that the jerry cans that we will compile meet the specifications in these two guides.
4. We have contacted hospital workers who wish to donate these jerry cans to cover the shortage.

This allows as much waste as possible to be recycled and exploited instead of disposing of it in landfills, which will ultimately lead to its burning and the resulting environmental pollution and increased greenhouse gas emissions. Our university promotes maintaining the campus environment in a clean condition using high-quality, non-toxic detergents and cleaning materials.

Guideline for Infection Control in Student Facilities at Alexandria University



As part of its commitment to sustainable development for improving environmental affairs and serving the community, Alexandria University has taken a pioneering role, being the first among Egyptian universities to adopt the idea of creating a comprehensive guide for correct procedures and practices that meet infection control recommendations within its facilities that serve students. This extends not only to the clinics in the colleges and institutes of the university but also to student residences, lecture halls, classrooms, laboratories, sports fields, and various other facilities frequented by students at Alexandria University.

The vision behind the university's initiative to develop this guide is to establish a framework for practices, behaviors, and requirements for all students and staff at Alexandria University, based on the principles and guidelines of infection control. This guide will serve as a reference for safeguarding the health and safety of students and staff, ensuring sustainability, and positively impacting the community in Alexandria. It will also serve as a model in this regard, with the guide being made easily accessible to the target audience both in printed format and electronically for ease of use and review when needed by all students and staff.

The goal of making this guide available to those interacting with Alexandria University, regardless of their roles, is to promote proper health practices among students and staff to ensure infection control and reduce its risks. This will improve working conditions, reduce the spread of contagious diseases, and raise health awareness within the university's facilities. It also encourages the adoption of proper procedures for environmental cleanliness and personal hygiene within the university's campuses, faculties, and institutes.

This initiative was accomplished through a team formed to represent all academics specializing in infection control at Alexandria University, including faculty members from the Faculty of Medicine, the Medical Research Institute, the High Institute of Public Health, and the Faculty of Nursing. This guide highlights the university's supportive role in all pioneering and innovative ideas that have a positive impact in various fields: socially, by enhancing individual daily practices; health-wise, by promoting sustainable health culture; and economically, by reducing infection rates among students and staff, thus relieving the economic burden on the university and the state in terms of medical treatment costs.

The guide presents, in a simplified yet scientifically accurate manner, the essential recommendations that must be followed and the correct procedures to minimize the risk of exposure to infections in various university facilities. It also includes instructions on dealing with incidents such as spills (vomit, bleeding, etc.) and primary guidelines for unexpected situations like bites or injuries. The team behind the guide hopes that its dissemination will lead to maximum benefit, earn the approval of its readers, and contribute effectively to the development of our beloved country. We also hope that we have fulfilled the mission entrusted to us by the university leadership, achieving their satisfaction and meeting their expectations in supporting this pioneering initiative.

Alexandria University also has a large number of research projects in the field of waste recycling, treatment and reuse of sewage and industrial wastewater.

- Evaluation of the performance of an innovative microbial fuel cell and its applications in Water and industrial WasteWater desalination, (2019-2020).
- Enhancing Resource Recovery and Improving Wastewater Reuse Through Synergistic Cooperation between Bioelectrochemical Systems and Forward Osmosis, (2019-2024).
- River and Wastewater Treatment Using Microbial Flocculants, (2020-2022).
- A novel combined approach for Poultry slaughterhouse wastewater treatment: prototype design and development, (2021-2024).
- Agricultural sustainability and water reuse in Egypt: innovative wastewater treatment and soil health, (2021-2024).
- Towards a green Economy Farm: Innovative Solar Collector for Biochar Production from Agricultural & Food Industry Wastes, Power Generation, and Crops Drying, (2021-2023).
- Wastewater Treatment by Integrated Green Coagulation and Membrane Technology for Reuse, (2021-2024).
- Construction of a Self-Charging Unit for Collecting Wasted Mechanical Energy from Basic Human Motion, (2023-2025).
- Production, modification and new prospects of biochar derived from biomass waste, (2023-2026).
- Microbial technology as a bioremediation tool for heavy metals removal from industrial wastewater through proteomic and nanotechnological approaches, (2023-2025).

Alexandria University Program for Treatment of Organic Waste

- Organic waste management includes a set of activities aimed at reducing its negative impact on the environment while extracting its potential value for converting organic waste into nutrient-rich soil. The process involves piling organic waste and allowing it to decompose under controlled conditions. The

preparation process takes place within 45 to 60 days through stirring, purification, fumigation and filtration to obtain 58 tons (25%) of organic fertilizer.

- Separation of Paper in blue containers, Plastic in yellow containers, aluminum cans and glass in green containers and organic waste in red containers in Campus (Alexandria University, Egypt).
- The separated organic waste is mainly food waste, manure, green waste arises from landscaping consists of leaves green plants garden trimmings and others, biodegradable plastic and non hazardous wood waste.
- The Faculty of Agriculture recycles 100% of its organic waste.
 - Utilizing treated agricultural waste to feed farm animals.
 - Utilizing agricultural waste treated with vermi-compost in the production of organic fertilizers.
 - Utilizing agricultural waste treated with a special insect (the black soldier) to produce organic fertilizers and protein sources.
 - Producing large quantities of active biochar from agricultural waste to remove any water impurities or pesticide residues.
- The organic waste in Alexandria University is handled according to the contract with Nahdet Misr company. All organic waste is collected in organic waste containers. Then the company collects these waste bags and deliver it to a waste treatment facility for processing.
- 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).
- Approximately in year 2024, **235 tons of waste per year** were collected at the level of university buildings with Nahdet Misr company and separated into organic waste and inorganic waste. **Organic waste constitutes about 55% of the total waste** collected from the campus where 100% were recycled to produce organic compost.
- Types of fertilizers produced after treating organic waste at Nahdet Misr Company:
 - 14 mm fine organic fertilizer for vegetables.
 - 25 mm organic fertilizer is used as tree fertilizer.
 - 40 mm organic fertilizer is used as fertilizer for new planted areas.
 - All previous types are suitable for desert lands.

The University Strategy for Treatment of Inorganic Waste

1. In general, the inorganic 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, examples: papers, plastics, aluminium and glasses.
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. Approximately **187 tons of waste per year** were collected at the level of university buildings with Nahdet Misr company and separated into organic waste and inorganic waste. **Inorganic waste constitutes about 45% of the total waste** collected from the campus where 70% were recycled while the rest 30% were transported to Alexandria Governorate Hazardous Waste Management (NASERIA) for their disposal.
4. 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.
5. 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.
6. By Nahdet Misr company, 10% of the sorted items in the form of paper, plastic, aluminium and glass are recycled, 60% of the collected inorganic waste are recycled in the form of alternative fuel (RDF), which is used in cement factories instead of diesel while the rest 30% are transported to Alexandria Governorate Hazardous Waste Management (NASERIA) to be buried in landfills.

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 Strategy for Disposal of Toxic Waste

1. The biohazards, medical hazards, and toxic chemical compounds are handled by a **special contract** with **Alexandria Governorate Hazardous Waste Management (NASERIA)**, 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 and its derivatives, catheters, and used gloves.

2. 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.
3. Approximately **2.20 tons of toxic waste in year 2024**, which consist of 100% toxic waste such as biohazards, medical hazards, and toxic chemical compounds of the university buildings are transported to Alexandria Governorate Hazardous Waste Management (NASERIA) to be buried in landfills.

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 plays 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 treatment 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.

Alexandria University program for Sewage Disposal

- 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.
- The sewage water will be treated and reused in the irrigation of green areas in Alexandria National University.
- Faculty of Pharmacy is seeking to implement a grey water (wastewater) recycling system that depends on reusing wastewater from sewage basins only (without using wastewater from laboratory basins) by repumping it into the flushing bins in the toilets after work. Filtration and primary treatment. The grey water recycling initiative has a significant impact on rationalizing water use.

An amount of water of 950,694.74 m³ is consumed by all colleges and institutes affiliated with the Alexandria University, of which the amount of sewage is 870,925,266 m³, which is lifted through a group of lifting stations to be treated through treatment stations affiliated with the Alexandria Sanitation Company.

1. Secondary biological treatment, where solid waste is separated from liquid waste.
2. **Treated water:** As for the water resulting from first treatment, it is reused within the New Delta Project (the value of the reused water for Alexandria University represents 870,925.266 m³).
3. The Tertiary treatment for use in land reclamation with a design capacity of 7.3 million m³, include 1.7 million cubic meters of treated wastewater form the secondary treatment.

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.

Green Cycle Project in Faculty of Pharmacy – Alexandria University

The Faculty is advancing the “Green Circle” project, which is a non-profit project that seeks to keep the environment clean and green in a sustainable way by separating waste for recycling and establishing charitable markets to benefit from used clothes. Also, the faculty is seriously seeking to implement a grey water (wastewater) recycling system that depends on reusing wastewater from sewage basins only (without using wastewater from laboratory basins) by re-pumping it into the flushing bins in the toilets after work. Filtration and primary treatment.

Additional evidence link:

Maintenance Unit for lab apparatus and electronics:

https://alexu.edu.eg/index.php/?option=com_content&view=article&id=5912&catid=21&lang=ar-AA

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

Link for Green Cycle Project: <https://fb.watch/mzqhBHazV4/?mibextid=j8LeHn>

Additional evidence link: <https://www.alexu.edu.eg/index.php/en/community-development-and-environmental-affairs/6435-alexandria-university-initiative-to-separate-and-recycle-waste>

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-Misr 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.
8. The Community Service and Environmental Development Council of Alexandria University reviewed the report submitted by Prof. Dr. Sherine Khattab, Vice Dean of Postgraduate Studies and Research, and the University's Coordinator for the Best Environmentally Friendly University Competition and GreenMetric, addressing various environmental issues at the university. She developed a program for waste separation and recycling and identified the specific needs of each faculty for garbage bins designated for waste sorting (February 2024).
9. The EFFCT team from Alexandria University won second place in the prestigious Hult Prize International Competition held in Paris, France, competing against over 10,000 teams from 110 countries. The team developed a startup focused on recycling textile industry waste. They previously won first place in the "Egypt Summit for Social Investment Projects" and received support and training from the Innovators and Talents Fund. Minister of Higher Education Dr. Ayman Ashour praised the team's achievement, highlighting the importance of student participation in international competitions. The president of Alexandria University, Dr. Abdelaziz Konsowa, emphasized the university's commitment to fostering innovation and creativity among students (November 2023).
10. A workshop titled "Chitosan Egypt: Redefining Waste2resource Innovation" was delivered as part of The 23rd Conference on Materials Science Materials Science and Entrepreneurship: A road for sustainable development", held by the Institute of Graduate Studies and Research, Alexandria University (14-16 October 2023).
11. Researchers at Alexandria University are focused on turning waste into a useful material in road construction, contributing to more environmentally friendly infrastructure. They investigating the use of municipal solid waste incineration fly ash as an alternative aggregate replacement in hot mix asphalt as part of efforts to recycle waste materials and develop more sustainable construction practices.
12. Raising awareness among Alexandria University students from various faculties—including Science, Engineering (Civil, Mechanical, and Mechatronics), Commerce, Arts (Surveying, mapping, and GIS), and Fine Arts (Architecture)—about wastewater treatment was achieved through summer training and periodic visits to the laboratories of the Alexandria Sewerage Company. This effort supports the achievement of the Sustainable Development Goals by enhancing partnerships for sustainable development and fostering collaborations that mobilize and

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share knowledge, expertise, and technology. The training aimed to provide students with essential scientific skills and practical experience to prepare them for the job market (September 2024).

- **Faculty of Science:** Theoretical training introduced the role of the Sewerage Company, while practical training involved visits to treatment plants, central laboratories, and lectures on occupational safety and industrial sewage.
- **Faculty of Arts (Surveying, mapping, and GIS):** Training included surveying applications, urban planning, and the practical use of leveling instruments, total stations, and GPS devices, concluding with lessons on ArcGIS and sewage system design.
- **Engineering Colleges:** Civil Engineering students trained in network renewal and design, while Mechanical and Mechatronics students learned about pump components, welding, and electrical generators, with visits to various workshops.
- **Fine Arts (Architecture):** Students received training on project design drawings and estimating costs.

13. A cooperation protocol was signed between Alexandria University and Alexandria Sewerage Company to employ outstanding graduates from the faculties of Engineering, Commerce, Law, Science, and Arts over the past five years, based on the actual needs and annual workforce plan of the sewerage company. Additionally, the protocol aims to prepare a new generation of skilled professionals in modern technologies. It includes agreements for employees to access master's and doctoral programs at reduced fees and to conduct workshops and training courses with professors from Alexandria University to enhance partnerships for sector performance and achieve sustainable development goals.
14. The Industrial Microbiology and Applied Chemistry Program (IMAC) at Faculty Science of Alexandria University organized a scientific visit to El-Shafei Leather Tannery in the Al-Max area of Alexandria on March 26 and April 30, 2024. This visit was part of the program's applied teaching and learning methods and was included in the practical component of the 'Bioremediation of Pollutants' course (Code: Micb 472). During the visit, the students toured all departments of the company and received a comprehensive scientific explanation of the stages of natural leather production, as well as how to protect the leather from mold during manufacturing and how to manage leather industry waste.
15. Students from the Faculty of Science at Alexandria University have innovated a way to recycle used cooking oil to create an eco-friendly plasticizer, and how can we reuse cooking oil in plastic production.
16. A team from the Faculty of Engineering at Alexandria University has developed a robot designed to clean seas of waste and oil. Their innovative project earned them second place in the National Initiative for Smart Green Projects. The robot aims to contribute to environmental conservation by efficiently removing pollutants from water, offering a sustainable solution to marine pollution.
17. Students from the Faculty of Fine Arts at Alexandria University are using environmental waste to create distinctive artistic murals. As part of Alexandria University's community service initiative, the Faculty of Fine Arts contributed to the creation of a sports mural on the wall of the university's stadium. Dr. Nevin Gharib, acting dean of the faculty, stated that the project involved 16 students from the mural photography department as part of their graduation project. The project was supervised by Dr. Mona Rajab and Dr. Donia Medhat, faculty members of the department. The goal of the project is to recycle materials discarded in nature and repurpose them for aesthetic public works, aligning with the principle of sustainability. Mosaics were used to complete the entire mural. Additionally, second-year students from the decoration department implemented other projects that transform environmental waste, such as wood and scrap, into creative models.

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These models are intended to beautify fields in Alexandria, helping to restore the coastal city's charm through the work of its young artists (April, 2024).

18. The Center of Excellence for Water is organizing a training program for scholarship students. This training is conducted in collaboration between the Water Excellence Center at Alexandria University and EPROM Company to provide a course for a group of students from the Water Excellence Center. This initiative reflects Alexandria University's commitment to equipping its students with practical skills related to water management, ensuring they possess the competencies needed by the business sector while aligning their studies with labor market requirements. The Center of Excellence for Water at Alexandria University has organized a training program for students in the Water Excellence Center Scholarship and the Civil and Environmental Engineering Program. Alexandria University, EPROM Company, and the students are participating in the following two training programs:

- **Water Treatment for Industrial Applications**
- **Wastewater Plant Operations and Troubleshooting.**

19. On July 8, 2024, the students from the Faculty of Sport Education, Abu Qir, participate in Initiative to Clean the Eastern Harbour of Alexandria. In line with Alexandria University's commitment to community service and under the auspices of Professor Dr. Abdelaziz Konsowa, President of Alexandria University, and Dr. Yasmine Fouad, Minister of Environment, students from the Faculty of Sport Education in Abu Qir participated in a week-long initiative to clean the eastern harbour of Alexandria. The initiative includes the participation of the El-Raml Rotary Club and the Egyptian Diving and Rescue Federation. The initiative aims to promote sustainable tourism and improve beach enjoyment while supporting local communities in enhancing their waste disposal practices. It also encourages citizens to reduce their use of single-use plastic products and increase recycling efforts. Additionally, the project seeks to educate the public on the importance of maintaining clean and healthy beaches, raising awareness about the threats that plastic and chemical waste pose to marine life, as well as focusing on collecting, classifying, and recycling waste to improve the quality of the coastal environment.
20. Alexandria University hosted the 21st International Scientific Conference of the Faculty of Business on July 13, 2024, titled "Global Challenges and Achieving Business Sustainability." Business sustainability includes three pillars: economic prosperity, social justice, and environmental protection. Alexandria University is establishing business incubators and opening waste recycling plants to support sustainability.
21. On May 27, 2024, Professor Dr. Abdelaziz Konsowa, President of Alexandria University, inaugurated the Fab Lab for Reusing Recycled Plastic (PECA) as part of Egypt's Sustainable Development Strategy (Vision 2030). The event was attended by several dignitaries, including the Consul General of France in Alexandria and representatives from various educational and environmental organizations. The PECA project aims to utilize plastic waste that ends up in the Mediterranean Sea by establishing a digital manufacturing laboratory. This facility will allow for the collection, sorting, and recycling of plastic waste to create prototypes and new products, contributing to the reduction of plastic pollution in Alexandria. The lab spans 100 square meters and prioritizes the safety of waste collectors and workers. The total budget for the project amounts to 496,800 euros, with support from the French Ministry of European and Foreign Affairs, the Provence-Alpes-Côte d'Azur region, the Corsican community in France, the Alexandria Governorate, and Alexandria University in Egypt.
22. On June 18, 2024, Students from various schools in Alexandria, along with students from the French Institute in Alexandria, collaborated with Alexandria University to participate in a large-scale cleanup campaign titled "Our Sea is Clean Without Trash ♻️🌊." for Anfouchi beach. After cleaning the beach, the students discovered the process of transforming plastic waste through

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3D printing at the Fab Lab at Alexandria University. This initiative is part of the "Circular Economy: From the Beach to the Lab" project, led by the French Consulate and the French Institute in Alexandria, with financial support from the European Union and in cooperation with the Alexandria Governorate and Alexandria University. The project aims to achieve partnerships for sustainability goals and to engage the local community in these efforts.

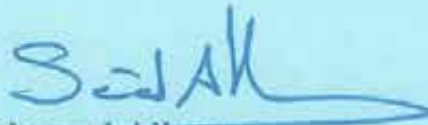
23. The Center for Educational Innovations and Distance Learning organized the fifth edition of the conference titled "Alexandria University for Educational Innovations and Technology-Enhanced Learning," under the theme: Developing Learner Autonomy: Undergraduate Research and Flipped Classrooms as two Proposed Means. The scientific committee of the conference evaluated the student research presented, which totaled 31 studies (15 in the field of humanities and 16 in natural sciences and life sciences). The judging committee announced that the Faculty of Science won second place for their research titled "Potential Microbial Degradation of PET from Alexandria Solid Waste Landfill."
24. The Faculty of Pharmacy won the third place in the Alexandria Governorate for the National Initiative for Green Smart Projects in its third edition (2024) with its 'Green Cycle' project, competing in the category of non-profit community initiatives and participations. Notably, this project has now won for the second consecutive year, having previously achieved first place in the Alexandria Governorate last year.
25. An initiative of the Infection Control Unit at the Faculty of Medicine, Alexandria University: Waste sharp tools, which include syringes, needles, scalpels, and similar tools that have the ability to penetrate the skin or body tissues, are disposed of by throwing them in the designated yellow safety box. When there was a shortage in the amount of safety boxes, communication was made between members of the infection control teams to use empty soap jars from our homes. By referring to the National Guide to Infection Control and the Guide to the Supreme Council of Universities, we found that the jerry cans that we will compile meet the specifications in these two guides. We have contacted hospital workers who wish to donate these jerry cans to cover the shortage.

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.

Sincerely,



Prof. Said Mohamed Allam

Vice PRESIDENT

**Community Service & Environment Development
Alexandria University**