

SDG07

Affordable and Clean Energy

ENSURE ACCESS TO AFFORDABLE, RELIABLE, SUSTAINABLE AND MODERN ENERGY FOR ALL



AFFORDABLE AND CLEAN ENERGY

- **SDG 7 HIGHLIGHTS (2024–2026)**
- **RESEARCH ON CLEAN ENERGY**
- **GROWTH IN SDG 7 PUBLICATIONS**
- **ENERGY-EFFICIENT RENOVATION AND BUILDING**
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- **INTEGRATION OF LOCAL BIODIVERSITY IN PLANNING AND DEVELOPMENT**
- **ENERGY EFFICIENCY REVIEW AND WASTAGE IDENTIFICATION**
- **UNIVERSITY OF BALAMAND UNVEILS SOLAR ENERGY PROJECT, PAVING THE WAY FOR A GREENER FUTURE**
- **UNIVERSITY MEASURES TOWARDS AFFORDABLE AND CLEAN ENERGY**
- **STUDENT ENGAGEMENT AND AWARENESS ACTIVITIES**
- **ALBA CONTRIBUTION TO SDG7**

SDG 7 Highlights (2024–2026)

- 50 SDG7-related publications
- 26 publications in 2025 alone
- 2,772 solar panels installed
- Solar energy project operational across 13 buildings
- Campus-wide transition to LED lighting
- Solar street lighting deployed
- Generator operating hours reduced from 9,686 to 8,390 hours
- Multiple student clubs and awareness initiatives
- Research recognized through TMREES Best Paper Award

RESEARCH ON CLEAN ENERGY

Over the past two years, University of Balamand researchers have made substantial contributions to advancing SDG 7 (Affordable and Clean Energy) through a diverse portfolio of research addressing renewable energy generation, energy efficiency, sustainable fuels, green buildings, and low-carbon technologies. Their work spans solar, wind, wave, and hybrid renewable energy systems, as well as innovative solutions for energy storage, thermal management, and smart energy integration in buildings and infrastructure [2,3,9,13,14,27,33,34,35,44,45,46,47,49].

A significant body of research focused on the development of sustainable biofuels and waste-to-energy pathways, including biodiesel and bioethanol production from agricultural residues, food waste, sunflower oil, waste cooking oil, eggshell-derived catalysts, and banana peel waste. These studies promote circular economy principles by transforming waste streams into valuable energy resources while reducing environmental impacts [22,23,25,26,30,38,50]. Complementary research explored biomass valorization, enzymatic hydrolysis, fermentation optimization, and sustainable production of fatty acids, further supporting the transition toward renewable and cleaner energy sources [28,29,36,37,42].

Researchers also investigated energy efficiency and decarbonization strategies through studies on thermal energy storage, phase change materials, sustainable construction materials, green roofs, recycled glass incorporation in building materials, and energy-efficient building envelopes suited to Mediterranean climates.

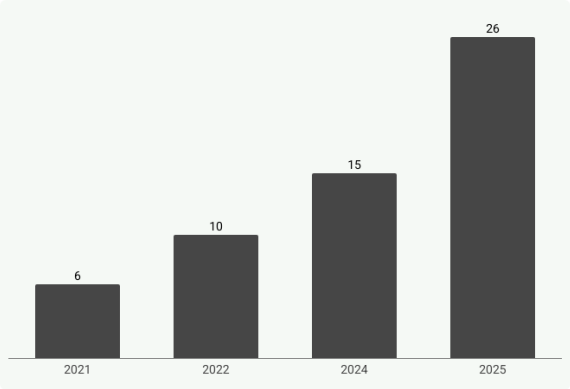
These innovations contribute to lowering energy consumption, improving building performance, and reducing greenhouse gas emissions [10,18,20,21,27,34,35,40,41].

Additional research addressed carbon capture and utilization, including innovative approaches for converting CO_2 emissions into fuel, optimizing industrial processes, improving natural gas treatment systems, and enhancing environmental performance through life-cycle assessment methodologies. Studies also examined renewable energy markets, water-energy interactions, sustainable infrastructure, and energy-aware optimization in communication and transportation systems, contributing to broader policy and technological advances for sustainable development [4,7,8,15,16,19,24,31,32,48].

Collectively, these 50 publications demonstrate the University of Balamand's commitment to accelerating the transition toward affordable, reliable, sustainable, and modern energy systems. Through interdisciplinary research and innovation, the university contributes to improving energy efficiency, expanding renewable energy adoption, reducing carbon emissions, promoting circular economy practices, and supporting sustainable development goals in Lebanon and beyond [1–50].

Growth in SDG 7 Publications

The University of Balamand has demonstrated steady growth in research supporting SDG 7 (Affordable and Clean Energy). SDG 7-related publications increased from 6 in 2021 to 10 in 2022, 15 in 2024, and 26 in 2025. This upward trend reflects the University's expanding research contributions in renewable energy, energy efficiency, sustainable fuels, green building technologies, and low-carbon solutions, reinforcing its commitment to advancing sustainable energy systems and climate action.





SDG07 Publications

1. Affan, H., Arairo, W., Barraj, F., ...Saba, M., El Mendili, Y. (2025). Mechanical Characteristics of Clay-Based Masonry Walls. Eng.
2. Al Asmar, J., Kesserwani, J., Harmouche, J., Imad, R., Lahoud, C. (2026). Towards a sustainable energy future: a comparative analysis of environmental and economic impacts of energy sources. Management of Environmental Quality.
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4. Assaf, A., Al Daia, R.A., Charif, H., Mokni, K. (2025). Extreme return connectedness among renewable energy and rare earth markets: The role of global factors. Research in International Business and Finance.
5. Assaf, J.C., Issa, C., Flouty, T., El Marji, L., Nakad, M. (2025). A Comparative Review on Dry Ice Production Methods: Challenges, Sustainability and Future Directions. Processes.

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7. Boutros, M., El Bachawati, M., Manneh, R. (2026). Cradle-to-grave environmental life cycle assessment of oil-immersed and liquid-filled distribution transformers. Environment, Development and Sustainability.
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9. Chalak, O., Najem, J., Mattar, M., ...Sabat, M., Daaboul, M. (2026). CFD-Based Performance Analysis of Modified Archimedes Wind Turbine Blades. Energies.
10. Charif, N., Saba, M., Youssef, N. (2025). Environmental Evaluation of Geopolymer Bricks Containing Phase Change Materials-A State-of-The-Art Review. E3S Web of Conferences.
11. Cheataini, N., Labaki, M., Jeguirim, M., Homsi, D. (2026). Advances in hydrothermal liquefication and gasification technologies. Sustainable Development of Renewable Energy: Volume 2: Opportunities in Production, Storage, and Integration.
12. Chrakie, A., El Hassan, M., Daba, J. (2025). A Power Management System. WSEAS Transactions on Electronics.
13. Chrakie, A., El Hassan, M., El Ghossein, N. (2026). Evaluation of Fast-Charging Effects on Battery Packs Using a Battery-State-Driven Approach. IEEE Access.
14. Chrakie, A., El Hassan, M.E., El Ghossein, N.E. (2026). Modelling and Control of a 225 KW Grid-Interactive Bidirectional Fast DC Charger for Electric Vehicles. IEEE Access.
15. Danach, K., Aly, W.H.F., Haddad, S. (2025). Mathematical Modeling and Genetic Algorithm-Based Hyperheuristic Optimization for Quality of Service and Load Balancing in Cloud Communication Networks. European Journal of Pure and Applied Mathematics.
16. Danach, K., Haddad, S., Aly, W.H.F., Kallab, C., Sayah, J. (2026). Energy-Aware Hub Location via Reinforcement Learning and Thermodynamic Optimization. IEEE Open Journal of Intelligent Transportation Systems.
17. Das, G., Singha Roy, S., Abou Ibrahim, F., ...Kaafarani, B.R., Trabolsi, A. (2025). Electrocatalytic Water Splitting in Isoindigo-Based Covalent Organic Frameworks. Angewandte Chemie - International Edition.
18. El Bachawati, M., Abiad, A., Abiad, M., Atallah, C. (2025). Physical characteristics of typical Lebanese soil for green roofs. E3S Web of Conferences.
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26. Flouty, T., Farah, Y., Nakad, M., Assaf, J.C. (2026). Valorization of Mixed Food Waste for Bioethanol Production: Process Simulation and Optimization. Processes.
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34. Lahoud, C., Harake, R., Fatfat, M., Bazi, S. (2025). Enhancing Energy Efficiency in Mediterranean Large-Scale Buildings: A Study on Mobilized Thermal-Energy-Storage Systems. Buildings.
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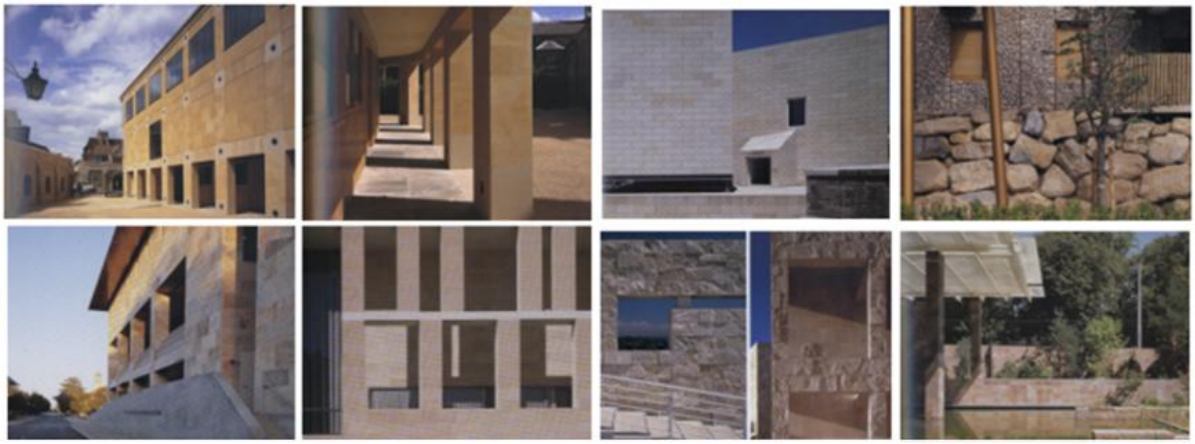
50. Zaatar, P., Dahdah, E., Farah, Y., ...Aouad, S., Estephane, J. (2026). Valorization of Banana Peel Waste as a Catalyst for Biodiesel Production: Reaction Kinetics Study. ChemEngineering.

ENERGY-EFFICIENT RENOVATION AND BUILDING

All renovation and construction activities follow the campus-wide guidelines, which take into account sustainability and the use of recyclable materials, as outlined on the first page of the Sasaki Implementation Plan.

"Assumptions: The illustrations in this document related to building footprints, massing and special features are developed directly from the master plan assumptions. They are intended to be examples of the implementation of the principles articulated in both documents. Some of the guideline recommendations may be subject to confirmation upon elaboration of the final building programs, at the time of implementation. Changes in the scope of buildings may result in different interpretations of the guidelines.



Guidelines for Campus-Wide Applications

- *Material Selection Criteria*

Careful selection of materials ensures a sense of visual continuity and unity throughout the main spaces of the campus. A sustainable model for architecture on the campus will favor the use of local materials and craft. The selection of materials for the buildings should follow the present criteria:

Locality: preferred materials are those that are produced locally or regionally or that are locally available.

Sustainability: selected materials must be appropriate for the intended application in the context of the campus location and the material palette characteristic of Balamand.

Sustainability: building materials are expected to perform relative to conditions of solar radiation, energy transmission and acoustic value, and to contribute to the enhancement of the overall campus environment.

Durability: material choices should reflect the designer's awareness of the low maintenance standard for the campus. Life cycles should be considered in comparing material alternatives.

Recyclable content: the ability to recuperate the material post-use would be favored.

- *Exterior Wall Materials*

The primary cladding material for the walls shall be stone masonry. Local limestone would be preferred as a base material while local yellowish limestone tones need not weather. (An exterior stone skin would reinforce the image of the redevelopment of the campus core and would portray a unified material character for the campus extending from the Monastery up to the hillside.)

Pre-cast concrete or cementitious panels, terracotta, laminated wood panels and/or painted plaster/stucco can be used as cladding materials for wall surfaces other than primary building facades.

Colonnades shall typically be clad in stone masonry.

Sloping roof surfaces shall be clad in terracotta tile (typical of the recent campus buildings).”

ASSISTANCE TO LOW-CARBON INNOVATION AND ENERGY EFFICIENCY SERVICES FOR INDUSTRY

UOB supports Lebanon’s transition to a low-carbon economy by providing services that improve energy efficiency and reduce environmental impact. These efforts combine research, technical expertise, and practical solutions to help businesses adopt cleaner practices. A notable example is the Smart Nursery in Lebanon, which benefits students and the community through technology and eco-friendly practices.

The **Life Cycle Assessment (LCA)** Center plays a central role, offering energy efficiency assessments, workshops, and renewable energy research under contractual agreements. By promoting life cycle thinking, it helps industries cut energy use and create environmentally responsible, competitive products.

The **Environmental & Energy Economics (EEE) Program** under the Institute of the Environment complements this work through applied research and capacity building. It develops feasibility studies and business plans for renewable energy and efficiency projects, using advanced tools for decision-making. A key achievement is the SABIOP bioenergy initiative, which converts forest residues into bio-briquettes, reducing waste and providing sustainable energy.

UPGRADE BUILDINGS TO HIGHER ENERGY EFFICIENCY AND REDUCE CARBON EMISSIONS

As part of the **UOB-CAP33 Climate Action Plan**, the University is actively upgrading its infrastructure to meet two key sustainability goals:

1. **Improving energy efficiency**, and **2**. **Diversifying renewable energy sources.**

To enhance building energy efficiency, UOB has implemented the following measures:

- **Roof Insulation:** All buildings are already equipped with roof insulation to reduce heat loss and improve thermal performance (Sasaki recommendations).
- **LED Lighting:** A campus-wide transition to LED lighting is nearly complete, replacing outdated lighting systems with energy-efficient alternatives.
- **Solar Street Lighting:** Outdoor lighting has been upgraded to solar-powered streetlights, reducing grid dependency and operational costs.
- **Energy-Efficient Appliances:** All air conditioning units are either inverter-based or in the process of being upgraded. The same applies to refrigerators and other electronic appliances across campus.
- **Boiler Replacement:** Old boilers have been replaced with newer models that consume significantly less energy.
- **Energy Monitoring:** Energy usage is being systematically recorded to track performance and identify further opportunities for efficiency improvements.
- **Solar Energy Systems:** Solar panels have been installed across the campus, contributing to both energy efficiency and renewable energy goals.

Moreover, and under the UOB-Cap33, the university is working of establishing a UOB sustainable transportation program to reduce commuting emissions, including UOB Connect, bus shuttle, and taxis carpooling.

Sustainable Transportation and Electric Vehicle Deployment

As part of its commitment to reducing dependence on fossil fuels and promoting clean energy solutions, the University of Balamand has begun integrating electric vehicles (EVs) into its operational fleet. Between May and November 2026, the University's EV fleet travelled a total of 77,425 km, replacing journeys that would otherwise have been undertaken using conventional internal combustion engine (ICE) vehicles.

Based on an average fuel consumption of 10 liters per 100 km, the transition to EVs resulted in the avoidance of approximately 7,742 liters of fuel consumption. At prevailing fuel prices, this generated an estimated USD 9,160 in fuel savings, in addition to approximately USD 550 in reduced maintenance costs associated with oil changes and routine engine servicing. Overall, the University's electric mobility initiative delivered savings of approximately USD 9,710 within six months of operation.

Beyond the financial benefits, the initiative contributes directly to SDG 7 by reducing reliance on fossil fuels, increasing the use of cleaner energy technologies, and supporting the University's broader climate action and sustainability objectives. The deployment of electric vehicles also supports efforts to decrease greenhouse gas emissions and improve the energy efficiency of university operations.

INDICATOR	**RESULT (MAY-NOVEMBER 2026, 6 MONTHS)**
EVS DEPLOYED	6
DISTANCE COVERED	77,425 km
FUEL CONSUMPTION AVOIDED	7,742.5 liters
FUEL COST SAVINGS	USD 9,159
MAINTENANCE SAVINGS	USD 550
TOTAL SAVINGS	**USD 9,710**

INTEGRATION OF LOCAL BIODIVERSITY IN PLANNING AND DEVELOPMENT

The University of Balamand integrates local biodiversity considerations into all planning and development processes to ensure ecological sustainability. Before any construction or major development, environmental impact assessments are conducted to minimize disruption to natural habitats. The university promotes sustainable design principles, preserves green spaces, and collaborates with its Institute of the Environment to safeguard biodiversity.

Key initiatives include habitat restoration projects, native species protection, and research programs on land and marine ecosystems, aligning with SDG15 (Life on Land) and **university's Environmental sustainability policy**. In addition, the university follows the Sasaki Landscape Design Guidelines, particularly the Planting Strategy (Section 3.3), which emphasizes water-conscious planting and the use of native, drought-tolerant species. Green roofs—both extensive and intensive—are implemented with specific planting and material lists to enhance biodiversity and reduce heat island effects. This integrated approach ensures sustainable land use, minimizes irrigation needs, and promotes a healthy ecosystem across campus.



TRANSITION TO RENEWABLE ENERGY

By implementing the solar energy system, the reliance on generators has significantly decreased. Generator operating hours decreased from 9,686 hours in 2023 to 8,931 hours in 2024, representing a reduction of 755 hours, and further declined to 8,390 hours in 2025. This downward trend demonstrates UOB's commitment to reducing fossil fuel dependence and transitioning toward cleaner, more sustainable energy sources. In fact, the solar panels became fully operational only in July 2025.In 2024, generator operating hours decreased by 755 hours compared to 2023, despite solar panels becoming fully operational only in July 2025.

- Year 2023: 9,686 hours
- Year 2024: 8,931 hours
- **Year 2025: 8,390 hours**

Additionally, the waste stream for the period from 2024 up to August 8, 2025 has been tracked and registered with the Ministry of Environment, including detailed records of quantities, dates, and locations.

The University continued to improve its energy performance in 2025 through enhanced efficiency measures and increased reliance on renewable energy. Total energy consumption decreased by 1.4%, from 49,877.67 GJ in 2024 to 49,193.39 GJ in 2025, while Energy Use Density improved from 0.451 to 0.445 GJ/m^2. Total fuel consumption was reduced by 6.0%, including a 7.5% reduction in generator fuel use, demonstrating lower dependence on diesel-based energy generation.

A major achievement was the expansion of on-campus solar energy production. Photovoltaic electricity generation increased by 64.2%, reaching 1.28 million kWh in 2025. Consequently, the share of renewable electricity in the University's electricity mix increased from 18.9% to 28.4%. Despite a rise in overall electricity demand, generator electricity production decreased by 10.3%, reflecting the growing contribution of renewable energy sources and supporting the University's commitment to SDG 7: Affordable and Clean Energy.

INDICATOR	*2024*	*2025*	*CHANGE*
TOTAL FUEL CONSUMPTION (L)	958,583	900,642	**-6.0%**
GENERATOR FUEL CONSUMPTION (L)	728,832	674,397	**-7.5%**
BOILER FUEL CONSUMPTION (L)	229,751	226,245	**-1.5%**
GENERATOR ELECTRICITY PRODUCTION (KWH)	3,034,240	2,722,800	**-10.3%**
PV ELECTRICITY PRODUCTION (KWH)	778,377	1,277,958	**+64.2%**
TOTAL ELECTRICITY CONSUMPTION (KWH)	4,106,653	4,505,801	**+9.7%**
TOTAL ENERGY CONSUMPTION (GJ)	49,877.67	49,193.39	**-1.4%**
ENERGY USE DENSITY (GJ/M^2)	0.451	0.445	**-1.3%**
RENEWABLE ELECTRICITY SHARE (%)	18.9%	28.4%	**+9.5 percentage points**

Additionally, the waste stream for the period from 2024 up to August 8, 2025 has been tracked and registered with the Ministry of Environment, including detailed records of quantities, dates, and locations.

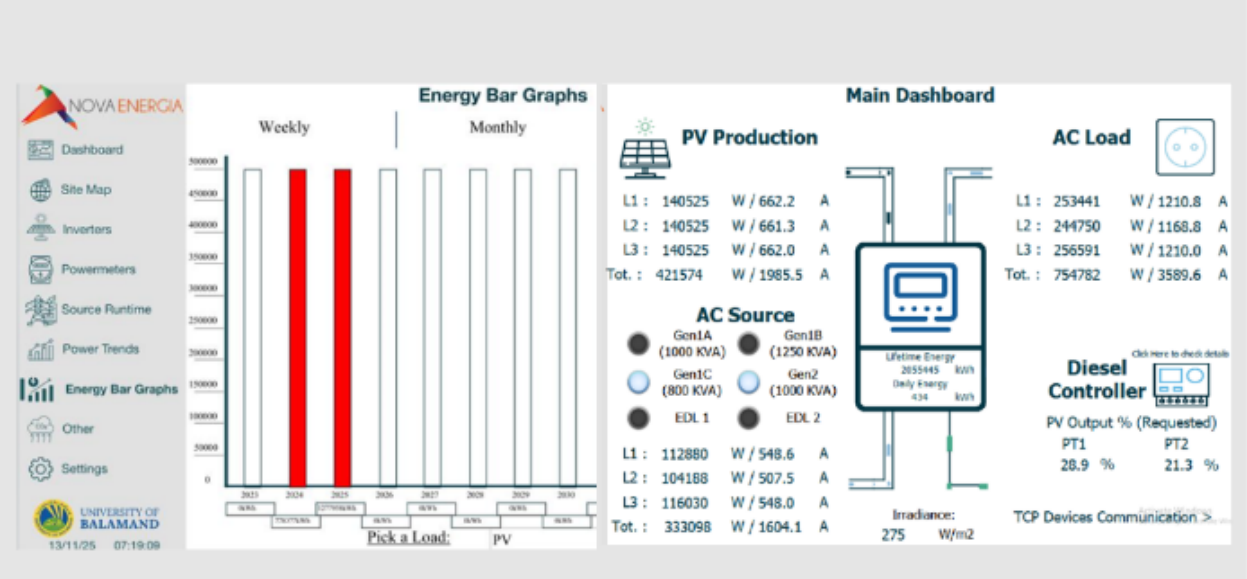
BENEFICIARY	*INVOICE REF #*	*COLLECTION DATE*	*QTY W-UMOBL*	*WCV #*	*MOE REF #*	*DATE*
BALAMAND TRIPOLI	REV232400078	09/01/2024	6.25	WCV-01028	830/B	15/4/2024
BALAMAND ALEY	REV242500080	15/02/2024	1	WCV-01160	830/B	15/4/2024
BALAMAND TRIPOLI	REV242500039	31/10/2024	14.5	WCV-2107	191/B	17/1/2025
BALAMAND TRIPOLI	REV242500040	01/11/2024	7	WCV-2108	191/B	17/1/2025
BALAMAND ALEY	REV242500081	04/12/2024	2	WCV-2268	191/B	17/1/2025
BALAMAND TRIPOLI	REV242500135	09/04/2025	8	WCV-2683	2541/B	3/7/2025
	TOTAL BARRELS COLLECTED		**38.75**			

ENERGY EFFICIENCY REVIEW AND WASTAGE IDENTIFICATION

The University of Balamand conducts regular energy assessments and monitoring as part of its [Climate Action Plan (CAP33)]. These reviews aim to identify areas of high energy consumption and inefficiency across campuses. Systematic energy audits analyze patterns and pinpoint wastage sources such as outdated lighting systems, HVAC inefficiencies, and generator reliance.

To address these, UOB introduced solar energy systems, cutting generator hours and emissions. A solar monitoring platform with a real-time dashboard, live data, and alerts ensures optimal performance and early fault detection.

Audit findings guide upgrades like LED lighting, better insulation, and optimized schedules. Energy performance indicators are tracked.



UNIVERSITY OF BALAMAND UNVEILS SOLAR ENERGY PROJECT, PAVING THE WAY FOR A GREENER FUTURE

The University of Balamand is proud to announce the successful completion and operation of an extensive solar energy project on its Koura campus. In partnership with NovaEnergia SAL, a leader in the energy sector, the university has embarked on a journey towards environmental stewardship and energy independence.

This ambitious project encompasses 2,772 state-of-the-art Longi Himo X6 solar modules, each boasting a capacity of 580 W, connected across 13 Sungrow on-grid inverters of 125 KVA each. Spread over approximately 13 buildings, these installations are a testament to the university's commitment to adopting the highest technical standards in renewable energy.



UNIVERSITY MEASURES TOWARDS AFFORDABLE AND CLEAN ENERGY

The University of Balamand continued to promote affordable and clean energy through experiential learning, research excellence, and industry engagement. Engineering students gained practical exposure to energy-efficient and sustainable HVAC technologies through educational visits to leading engineering facilities, where they explored advanced cooling, heating, and energy management systems that reduce energy consumption and environmental impact. In parallel, UOB researchers received international recognition for their contributions to sustainable building design and energy efficiency, with award-winning research on bio-based phase change materials for improving the thermal and energy performance of buildings in Mediterranean climates.

These initiatives reflect the University's commitment to advancing energy efficiency, renewable energy innovation, sustainable engineering practices, and student engagement in addressing global energy challenges.

Student Engagement and Awareness Activities

The University of Balamand actively promotes awareness of sustainable energy, environmental stewardship, and climate action through student-led initiatives, engineering competitions, sustainability-focused events, and industry engagement activities aligned with SDG 7.

Formula Student 2025: Advancing Sustainable Mobility

The Balamand Racing Team secured a prestigious place in the Formula Student 2025 Competition, providing students with hands-on experience in vehicle design, energy efficiency, and sustainable transportation technologies. For more details visit the Balamand News

ASHRAE-UOB Student Branch Industrial Visit: Exploring Energy-Efficient HVAC Technologies

On March 14, 2025, the ASHRAE-UOB Student Branch organized an educational visit to Khater Engineering and Trading in Beirut, providing Mechanical Engineering students with firsthand exposure to advanced heating, ventilation, and air conditioning (HVAC) technologies and their role in sustainable building operations. Under the supervision of Dr. Chawki Lahoud, Assistant Professor in the Mechanical Engineering Department, students explored real-world applications of energy-efficient systems that support the objectives of SDG 7: Affordable and Clean Energy.





The visit included two technical site tours. At ABC Verdun Fitness Club, students examined an air-cooled chilled water system used for space cooling and an electrical heat pump system for water heating. Engineers explained how these technologies reduce energy consumption while maintaining high performance, making them sustainable alternatives to conventional systems.

The second visit took place at the Ghandour Building, where students received an in-depth overview of a central heating boiler room and a Variable Refrigerant Flow (VRF) cooling system. The VRF system demonstrated how

precise temperature control and optimized refrigerant management can significantly improve energy efficiency, reduce operational costs, and minimize environmental impacts.

By connecting academic learning with practical industry applications, the visit enhanced students' understanding of sustainable engineering solutions and energy-efficient building technologies. Such initiatives equip future engineers with the knowledge and skills needed to support the transition toward cleaner, more efficient energy systems and sustainable infrastructure. For more details visit the Balamand News

Eco Club and Robotics Club Innovation Showcase

The Eco Club and Robotics Club collaborated through the INJAZ program to present innovative projects integrating environmental sustainability and technology, fostering student engagement in green innovation and problem-solving. For more details visit the Balamand News

Sustainability and Waste Management Field Learning: Turning Trash into Purpose

As part of the Sustainable Development for Engineers (SUST229) course, 31 engineering students participated in an experiential learning field visit designed to connect classroom concepts with real-world sustainability challenges. The initiative focused on practical solutions that support responsible resource management, recycling, and circular economy principles, helping students understand how engineering can contribute to sustainable development. Under the supervision of Dr. Mantoura Nakad, students visited Cedar Environmental LLC and Lebanon Waste Management (LWM), two leading organizations in Lebanon's environmental sector. At Cedar Environmental, students observed how discarded plastic materials are transformed into durable products such as benches, tables, shelves, and waste bins, demonstrating innovative approaches to waste valorization and resource efficiency. At LWM, students explored advanced waste-sorting and recycling operations, gaining insight into the management and processing of multiple plastic waste streams.



The visit generated a tangible sustainability impact through the launch of a student-led initiative, "UOB SUST229", a dedicated recycling account established with Lebanon Waste Management. The initiative channels proceed from collected recyclable materials toward financial aid opportunities for engineering students, linking environmental responsibility with social impact.



By exposing students to practical environmental solutions and circular economy practices, the activity strengthened awareness of sustainable resource use, waste reduction, and environmentally responsible engineering. These experiences support the University's broader commitment to sustainability, energy-conscious resource management, and the transition toward more sustainable production and consumption systems.

For more details visit the Balamand news

ESG and Sustainable Business Webinar

As part of its commitment to sustainability and responsible engineering education, the University of Balamand (UOB) hosted a webinar on Environmental, Social, and Governance (ESG) practices in collaboration with the Career Services Center and the Faculty of Engineering through the Engineering Seminar Series. The event exposed students to the growing role of sustainability in industry and highlighted how ESG principles are shaping modern engineering and business practices. The webinar featured senior leaders from Consolidated Contractors Company (CCC), including Mr. Aref Bou Alwan, Vice President of Information Systems & Technology and Chief of Initiatives, Startups & Global Partnerships, and Mr. Bilal Haidar, Head of IT Section (MIS). Drawing on CCC's international experience, the speakers presented practical examples of how organizations integrate sustainability, environmental responsibility, and ethical governance into their operations and long-term strategies. Participants learned how ESG frameworks can support resource efficiency, environmental stewardship, resilience, and sustainable development across industries. The session also emphasized the important role engineers play in designing and implementing solutions that contribute to a low-carbon and more sustainable future.By connecting students with industry experts and real-world sustainability challenges, the webinar strengthened awareness of responsible engineering practices and reinforced the University's commitment to preparing graduates capable of leading sustainable

transformation efforts in their future careers. Such initiatives contribute directly to promoting sustainability literacy and advancing the principles underpinning SDG 7: Affordable and Clean Energy and broader sustainable development goals. For more details visit the Balamand News

Faculty of Engineering at the Arab Forum for Sustainable Development

The Faculty of Engineering played a prominent role at the Arab Forum for Sustainable Development 2025, showcasing the University's contributions to renewable energy, sustainability, and climate-related research and innovation. For more details visit the Balamand News

Climate Research Partnership with the Cyprus Institute

The University launched a strategic partnership with the Cyprus Institute to strengthen climate and sustainability research, supporting evidence-based solutions for energy transition, climate resilience, and environmental sustainability. For more details visit the Balamand News

International Recognition for Renewable Energy Research

The University of Balamand Faculty of Engineering received international recognition at the TMREES26 Conference on Technologies and Materials for Renewable Energy, Environment and Sustainability, where graduate student Mira Fatfat and Dr. Chawki Lahoud were awarded the Best Paper Award for their research contribution. The recognition highlights the University's growing leadership in developing innovative solutions that support renewable energy adoption, sustainable buildings, and energy efficiency.

The award-winning research demonstrates UOB's commitment to advancing scientific knowledge in areas directly related to SDG 7: Affordable and Clean Energy, while fostering student involvement in high-impact sustainability research. Through participation in international conferences and dissemination of research findings, the University contributes to global efforts aimed at accelerating the transition toward clean, reliable, and sustainable energy systems. For more details visit the Balamand News

ALBA contribution to SDG7

Interior Architecture

The section's lighting design work has won international recognition. In October 2025, its students' inclusive, self-sufficient and sustainable lighting project “Murfi” received the Lux Futurum 2025 Global Recognition Award of Excellence in the Concept category, in Shanghai.



Lux Futurum 2025 Award of Excellence presented to ALBA – UOB



Lux Futurum 2025 certificate of recognition (Concept category, entry “Murfi”)

ACTIVITY AND PARTNERS	***ALSO SDGS***	***EVIDENCE***
LUX FUTURUM 2025 (SHANGHAI): AWARD OF EXCELLENCE, CONCEPT CATEGORY, FOR THE LIGHTING PROJECT “MURFI” — LUX FUTURUM 2025 (ORGANIZER)	4, 9, 10, 11, 17	Trophy and certificate
LIGHTING WORKSHOP 2025 (INTER-UNIVERSITY, WITH INDUSTRY)	4	Lighting desig