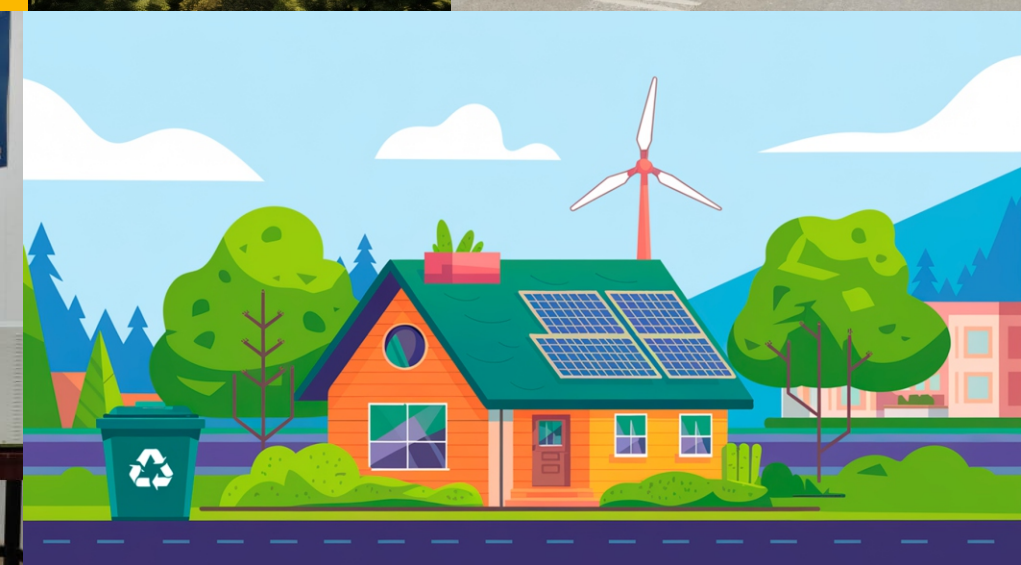


Sustainability Report 2022-23

(Goal - 7)





Affordable and Clean Energy

Ensure access to affordable, reliable, sustainable and modern energy for all.

Introduction to SDG - 7

Galgotias University demonstrates an unwavering commitment to Sustainable Development Goal 7 (SDG 7), dedicated to advancing renewable energy and ensuring access to clean, affordable, and sustainable energy for all. This dedication is deeply ingrained in every aspect of campus life, from operations to academics. The university's wireless solar bus is a testament to this commitment, providing eco-friendly, emission-free transportation while actively reducing the institution's carbon footprint.

The campus serves as a living laboratory for sustainability, powered by a robust 200 kW solar plant that ensures uninterrupted energy efficiency, alongside a biogas facility and cutting-edge energy-saving systems. These initiatives reflect the university's resolve to integrate sustainable practices into its core.

Galgotias University goes beyond implementation, actively engaging in cutting-edge research and forming global alliances to advance renewable energy solutions.

Through hands-on education, community outreach, and innovative technologies, the university works tirelessly to raise awareness and empower future generations to adopt sustainable energy systems. Every initiative, from energy-efficient infrastructure to renewable energy research, underscores Galgotias University's deep commitment to creating a sustainable and equitable energy future. This holistic approach cements the university's position as a leader in driving the renewable energy revolution and fostering a greener planet for all.

G-SCALE

Galgotias Student Centered
Active Learning Ecosystem.

No More Benches, Only Benchmarks.



Roof Solar Panels
Campus Rooftop



Study Sustainability at Galgotias University



Study @GalgotiasUniversity
Campus Classroom

Programs Offered -

Doctor of Philosophy (Ph.D.) in Environmental Sciences
M.Sc. in Sustainability

⊕ Harnessing Solar Energy through Rooftop PV Panels

Empowering Minds, Eradicating Poverty

Galgotias University has taken significant steps to promote renewable energy with the installation of rooftop solar PV panels, showcasing its commitment to sustainability. The initiative began with a 3KW solar power plant, installed across various buildings, generating 116,400 units of solar energy annually and saving 1,50,150 as of April 30, 2018. Building on this success, a second solar plant of 40KW capacity was commissioned on January 12, 2020, with an investment of 17,64,000. These installations not only reduce dependency on conventional energy sources but also reflect the university's proactive approach to environmental stewardship and cost savings. The adoption of solar energy demonstrates an ongoing commitment to leveraging green technology for a sustainable future while setting a benchmark for educational institutions in energy efficiency and resource optimization.



Electric Solar Vehicle
Championship (ESVC 3000)

Participants
(ESVC 3000)



⊕ Electric Solar Vehicle Championship (ESVC 3000)

A Leap Toward E-Mobility and Green Energy

Galgotias University hosted the Electric Solar Vehicle Championship (ESVC 3000) in partnership with the Imperial Society of Innovative Engineers (ISIEINDIA). This exciting event brought together young engineering minds to embrace renewable energy and e-mobility. The highlight of the championship was the challenge for participants to design, construct, and manufacture electric solar vehicles capable of navigating public transport roads. With over 750 participants, 10,000 visitors, and 100 distinguished guests, the event buzzed with energy and innovation.

The rally, spanning from Galgotias University to Agra and back, passed through Jewar, Aligarh, and Mathura, spreading awareness about the potential of electric mobility and renewable energy. The initiative inspired communities and challenged common misconceptions about EVs and green energy solutions.

Beyond the competition, the event aimed to build skilled engineers and entrepreneurs for a sustainable future, bridging the gap between industry demands and academic training. It also emphasized the importance of solar energy applications and the need to develop an ecosystem supporting renewable energy innovations.

ESVC 3000 was more than just a competition—it was a movement to spark interest in e-mobility, foster sustainable thinking, and empower students to become the architects of New India's green revolution. By championing renewable energy and eco-friendly practices, Galgotias University set a remarkable example of education in action.



*Sustainable energy is the heartbeat of a brighter future;
it's about powering progress, ensuring equality, and lighting
the way for communities to thrive in harmony with the planet.*

⊕ Faculty Development Programme on Electric Vehicle Technology

The Department of Mechanical Engineering, in collaboration with ISIE India, organized a Faculty Development Programme (FDP) to promote electric vehicle (EV) technology and clean energy initiatives. The programme featured eminent speakers, including Prof. Dibakar Rakshit from IIT Delhi, who highlighted challenges in battery technology, focusing on trends, manufacturing, materials, and sustainability.

Mr. Abhishek Kumar from the University of California discussed EV motor bearings, cooling mediums, and the impact of lubricants on performance, supported by simulation studies. Shree Kumar G., Senior EV Trainer at ISIE, shared valuable insights into EV development, supported by real-world case studies. Dr. B.S. Ramesha of Altair Technologies presented tools to optimize EV infrastructure manufacturing.

Prof. Sandip Kumar Saha from IIT Mumbai emphasized battery thermal management systems, offering solutions to overcome heating issues. Finally, Mr. Atul Gaur, Vice President at PIKPART, elaborated on the transition from conventional to electric vehicles. This FDP empowered educators with cutting-edge EV knowledge.



Motipur Madaiya Village
session on energy efficiency

Key Takeaways from the FDP

- Challenges in Battery Technologies for Electric Vehicles
- Advancements in EV Motor Bearings and Cooling Systems
- Case Studies Highlighting EV Technology Evolution
- Strategies to Optimize EV Manufacturing Infrastructure
- Innovative Solutions for Battery Thermal Management

⊕ Energy Efficiency Awareness

During a community outreach event in Motipur Madaiya Village, a session on energy efficiency was held to promote sustainable energy practices. The focus was on reducing energy consumption, adopting energy-efficient technologies, and understanding the environmental and economic benefits of these actions. The initiative empowered the local youth with practical knowledge on energy conservation, leading to an increased awareness of energy-efficient appliances and practices. This awareness is expected to lead to a reduction in energy waste within the community, contributing to both environmental sustainability and cost savings in the long term.

⊕ Clean Energy Awareness through Solar Power

A local clean energy awareness campaign successfully engaged the community in understanding the advantages of solar power. The event highlighted solar energy's role in reducing carbon emissions, improving energy access, and minimizing environmental impact. The community gained insights into the long-term financial savings and energy security benefits of solar energy. This initiative encouraged local adoption of solar solutions, raising awareness about clean energy's critical role in combating climate change and promoting a sustainable future. The outreach effort is expected to drive increased interest in solar energy and inspire future installations in the region.

⊕ Solar Energy Advocacy and Community Empowerment

A village outreach program focused on solar energy helped local residents understand the transformative potential of solar power. The session explained the long-term cost savings, environmental benefits, and energy security that solar energy provides. By addressing misconceptions and emphasizing the efficiency of solar technology, the event successfully fostered community support for renewable energy solutions. The program has laid the groundwork for increased solar energy adoption in the village, with the expectation of reducing dependence on non-renewable energy sources and contributing to a cleaner, more sustainable environment for future generations.



Clean Energy Awareness Campaign
Community Outreach Event



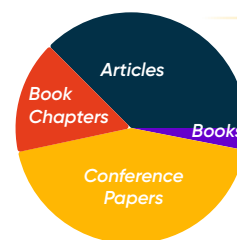
The "Power Electronics Converters for Electric Vehicles" seminar, held on 22nd November 2023, focused on sustainable energy solutions through efficient EV battery charging and discharging. Dr. Ankit Kumar Singh, Asst. Prof. at NSUT, Delhi, shared valuable insights to empower students with knowledge for their projects, advancing sustainable transport. This event, with 109 attendees, promoted education on clean energy technologies, aligning with SDG 7 for affordable and clean energy.

⊕ Student Startups working with SDG-7

Aeroworks Drone Technologies - leading the way in aerial innovation, specializing in hydrogen-powered drones that revolutionize both efficiency and sustainability.

Ecruz India - committed to improving your home environment with our advanced BLDC (Brushless DC) fans and a wide range of high-quality home appliances.

Ed-Orion - Virtual teaching assistants, chatbots, and AI-powered learning tools can provide real-time support, answering questions and offering explanations for various topics.



Research Focused with SDG - 7

- Role of CO₂ triggered switchable polarity solvents and supercritical solvents during biofuel extraction.
- Effect of thermal radiation on **Bodewadt flow** in the presence of porous medium.
- Power-Flow Modelling of HVDC Transmission Systems.

- Nanocatalysts for Environmental Benign Biofuel Production.
- Secure Smart Devices Control with Low Power Consumption.
- Predicting Smart Grid System Stability Using Machine Learning Techniques for Renewable Energy Sources.
- Indian Green Hydrogen Framework: An Assessment.
- Underwater Vehicle Control and Communication Systems Based on Machine Learning Techniques.
- A Comparative Analysis and Design Criteria of MAC, SMAC, and TMAC Protocols in Wireless Sensor Network.
- Enhancing Energy Efficiency in Cluster Based WSN using Grey Wolf Optimization.



Sustainable Campus
Infrastructure