

INDUSTRY, INNOVATION AND INFRASTRUCTURE SDG 9



ANNUAL REPORT 2024-25

9 INDUSTRY, INNOVATION
AND INFRASTRUCTURE



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SUSTAINABLE DEVELOPMENT GOAL 9: INDUSTRY, INNOVATION AND INFRASTRUCTURE

Brainware University advances the United Nations Sustainable Development Goal 9 by building a culture of innovation, creating sustainable campus infrastructure, and linking research directly with industry and community needs.

This annual report summarizes the initiatives and outcomes for **Academic Year 2024–25**, covering:

- Research and technology innovation
- Infrastructure upgrades and sustainability
- Industry partnerships and start-ups
- Student innovation engagement

Brainware's progress rests on one guiding principle — **innovation for public good**.

Institutional Alignment

SDG 9 aligns with Brainware University's strategic priority of *"Research, Innovation, and Sustainable Infrastructure for National Development"* as stated in its **Strategic Plan 2023-24 to 2027-28**.

Policy Enablers (2024–25):

1. Institutional Innovation & Start-up Policy
2. Green Infrastructure Guidelines
3. Research and IP Commercialization Protocol
4. Industry Engagement Framework for UG and PG programmes

Research and Innovation Ecosystem

Brainware strengthened its innovation pipeline through the **Seed Grant Scheme** and **Government-Funded Projects**, creating cross-disciplinary research teams.

Seed Grant Projects 2024–25

Principal Investigator	Department	Project Title	Amount (₹)	Status
Dr. Sudipta Chatterjee	ECE	Interactive Robot for University Campus	2,40,800	Ongoing
Dr. Indrani Paul	Biotech	Bio-pigment from Lignocellulosic Waste	2,50,000	Ongoing
Dr. Angshuman Majumdar	ECE	150.15 KWp Solar Plant Design	47,84,000	Completed
Dr. Debanjan Mukherjee	EE	100.10 KWp PV System	36,45,000	Completed
Dr. Sandhimita Mondal	Biotech	Solid Waste Management Model	3,50,000	Completed
Dr. Debayan Bhowmik	ME	Six-Seater Electric Golf Cart	3,91,245	Completed

Government and External Funding

Major Research Projects 2024–25

Funding Agency	Department	Project
DSTBT (WB)	Biotech	Wetland Pisciculture Surveillance
ICMR	Comp. Sciences	AI Deep Learning for Lung Cancer
SERB-DST	Physics	2D Materials Magnetic Interaction Study
MoEFCC	Pharma Tech	Herbal Hydrogel for Wound Healing
MSME	Multi-dept	Ten Innovation Start-ups Funded

Patents and Technological Breakthroughs

Brainware filed **100 patent and design applications** in FY 2024–25; **42 were granted** (India, UK, South Africa).

Innovation Clusters

Cluster	Examples	Outcome
AI and Automation	AI-based Emergency Response System; Adaptive Cyber Threat Model	Enhanced digital infrastructure
Green Energy	Solar and IoT Energy Systems	Clean power for campus
Agro-Tech	AI Farm Monitoring Device; Urban Gardening Robot	Precision farming support
Bio-Industry	Bioplastics from Cigarette Waste	Circular bioeconomy
Smart Infrastructure	IoT Waste Bin; AI Health Monitor	Urban automation

International and Industry Partnerships

Strategic MoUs 2024–25

Partner	Country	Focus Area
Fraunhofer IIS	Germany	Joint R&D in Computational Sciences
University of South Carolina	USA	Biotech and Training Collaboration
INTA	Argentina	Agro-Tech Research
Sejong University	Korea	Biotech Instrumentation
Kasama College of Health Science	Zambia	Health Tech Innovation
Hanyang University	Korea	Joint Academic Projects

Outcome: International faculty exchange, student training, and co-publication in sustainable technology fields.

Campus Infrastructure for Innovation

Clean Energy Infrastructure

- 150 KWp Solar Plant commissioned (June 2024).
- 100 KWp Grid PV System adds renewable backup.
- Smart switch-off framework tested in hostels and labs.

Digital Infrastructure

- 1 Gbps Internet Backbone; Labs with 60 systems.
- ERP-driven data automation in Admin and Academics.
- University-wide Research Repository launched 2025.

Integration into Academics

Innovation has become part of Brainware's learning ecosystem.

- **1000+ students** earned IIC Innovation credits.
- Capstone Projects in AI, IoT, and Automation linked to real industry challenges.
- Management students completed *Entrepreneurship and Start-up Finance* modules with MSME case studies.
- Biotechnology and Pharma students trained in bio-patent drafting and ethics.

Academic-Industry integration strengthened graduate employability and innovation literacy.

Community and Societal Infrastructure

Under **Unnat Bharat Abhiyan**, technology interventions were deployed in five villages.

- Solar Street Lights (Faldi)
- Mini Nanofiltration Units for Drinking Water
- Kitchen Waste Compost Systems
- Awareness on Rural Sanitation and Health Tech

These models translate SDG 9 principles into grassroots impact – sustainable rural infrastructure and technology diffusion.

Brainware University is not just building technology — it is building the *infrastructure of possibility*. Each patent, solar panel, and start-up carries forward the idea that inclusive innovation is the foundation of sustainable industrial growth.