IEM
श्रद्धावान लभते ज्ञानम्
INSTITUTE OF ENGINEERING & MANAGEMENT
Good Education, Good Jobs

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Sustainability Development Report

SDG 9
INDUSTRY, INNOVATION, AND INFRASTRUCTURE

Executive Summary

The Institute of Engineering and Management (IEM) Kolkata strongly supports SDG 9 by fostering innovation, resilient infrastructure, and sustainable industrialization. It houses 24 Centers of Excellence and 14 Innovation and Entrepreneurship Development Centers, securing over Rs. 438.88 lakh in research grants and publishing 144 patents. The institute has incubated 219 start-ups and produced 1645 Scopus-indexed papers, with 124 Ph.D. scholars actively engaged in research. IEM's campus features 3.4 GBPS internet, 84 ICT-enabled classrooms, 52 labs, and access to over 20,000 digital journals. Virtual labs use advanced software like Matlab and LTSpice, complemented by green initiatives such as 40 kWh rooftop solar panels and EV charging stations. Partnerships with Coursera, Microsoft, and LinkedIn Learning enhance skill development, while strong industry MoUs foster joint projects and internships. Student innovations include award-winning apps like "The God's EYE." Community engagement thrives through collaborations with Lions and Rotary clubs, organizing health camps and educational programs. Despite challenges in funding and infrastructure upgrades, IEM aims to expand interdisciplinary research, entrepreneurship incubation, sustainable campus projects, and digital learning. These focused efforts position IEM as a leader driving innovation-driven, sustainable industrial growth aligned with global SDG 9 targets.

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Preamble

The Institute of Engineering Management (IEM) Kolkata is committed to fostering resilient infrastructure, promoting inclusive and sustainable industrialization, and encouraging innovation as integral components of sustainable development. Recognizing the critical role of advanced technology and robust infrastructures, IEM actively develops research, partnerships, and academic initiatives addressing current economic, environmental, and societal challenges.

Vision and Mission

- **Vision:** To develop cutting-edge infrastructure that supports advanced teaching, research, innovation, and sustainable industrial growth in alignment with global sustainability principles.
- **Mission:** To catalyse innovation-driven entrepreneurship, synergize industry-academia linkages, and nurture technology development for sustainable solutions.

Key achievements

- Established 24 research centers and 14 innovation hubs with strong government funding support.
- Helped incubate around 219 start-ups by faculty and students, fostering entrepreneurship.
- Provided advanced digital infrastructure including high-speed internet, smart classrooms, and modern labs.
- Led sustainability projects like CO_2 capture, solar-powered devices, and microbial fuel cells for waste treatment.
- Implemented green campus features such as solar panels, biogas electricity, EV charging, and waste composting.

Research and Innovation Ecosystem

- IEM has 24 Centers of Excellence and 14 Innovation and Entrepreneurship Development Centers (IEDCs) funded by government agencies like DST, AICTE and practicing interdisciplinary research.
- The Research and Development Cell manages projects with over Rs. 54.38 crore in grants and encourages patents, having published 144 patents recently.
- Faculty and students have incubated approximately 219 startups, strengthening innovation culture on campus.
- The Office of Sustainability focuses on sustainable technologies and energy research, securing grants for projects on CO_2 capture, micro-wind turbines, solar-powered robotic fish, solar-powered desalination and microbial fuel cells for waste treatment.

- Regular workshops, webinars, sustainability seminars, hackathons, ideathons, and patent awareness programs are conducted.

Infrastructure and Facilities

- The campus offers high-speed 3.4 GBPS internet, 84 modern classrooms with ICT facilities, 15 seminar halls, and 52 advanced laboratories.
- The central library provides access to 20,000+ e-journals including IEEE, Springer, ACM, and SAGE, along with 400 computers.
- Specialized software for virtual/physical labs include Matlab, LTSpice, CST Studio, Weka, and PSpice.
- Energy efficiency is promoted through 40 kWh rooftop solar panels, motion sensor lighting, energy audits, and plans for a 3kVA biogas electricity system.
- Facilities include hostels, sports complexes, EV charging stations, bicycle sharing, green campus initiatives, and infrastructure for waste segregation and composting.

Entrepreneurial and Start-up Support

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Community Engagement and Collaborations

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Data and Metrics

Category and Metric/Indicator	Value/Number
Centers of Excellence (Research & Innovation)	24
Innovation & Entrepreneurship Development Centers (Research & Innovation)	14
Research Grants Secured (Rs.) (Research & Innovation)	54.38 Crore
Patents Published (Research & Innovation)	144
Start-ups Incubated (Research & Innovation)	219
Scopus-Indexed Publications (Research & Innovation)	1645
Active Ph.D. Scholars (Research & Innovation)	124
Internet Bandwidth (Infrastructure)	3.4 GBPS
Classrooms with ICT (Infrastructure)	84
Laboratories (Infrastructure)	52
E-Journals Access (Infrastructure)	20,000+
Rooftop Solar Panel Capacity (Infrastructure)	40 kWh
EV Charging Stations (Infrastructure)	Installed (2 number)
MoUs with Global Platforms (Entrepreneurship & Start-ups)	Multiple
Innovation Events/Hackathons (Entrepreneurship & Start-ups)	Several per year
Financial Support for Start-ups & Research (Entrepreneurship & Start-ups)	Rs. 3.8 crore (estimated total)
Partnerships (Lions Club, Rotary Club, NGOs) (Community Engagement)	Active
Outreach Programs Conducted (Community Engagement)	Numerous
National Hackathon Win (Team “DarkSwag”) (Awards & Recognition)	Winner at Nasscom 10k Startup Hackathon

Challenges

- Despite significant research achievements, securing continuous and larger-scale funding remains challenging in a highly competitive grant environment.
- Translating research innovations into commercially viable start-ups requires strengthening industry linkages and business incubation expertise.
- Infrastructure upgrades are needed to keep pace with rapidly evolving technology and software requirements, especially for emerging fields such as artificial intelligence and green energy.
- There is a need to increase interdisciplinary collaboration across different departments to solve complex real-world problems.
- Effective waste management and sustainable resource utilization on campus require further development to fully realize sustainability goals.
- Community engagement efforts, while impactful, face challenges in scaling outreach sustainably and ensuring broader participation.
- Limited awareness and reach of MoUs and industry partnerships among the wider student body sometimes restrict access to collaborative opportunities for all.

Future Plans

- To further increase research funding and diversify sources, including international agencies and private sector co-sponsorships.
- Upgrade laboratory infrastructure with advanced simulation and experimental tools focusing on AI, IoT, clean energy, and smart technologies.
- Strengthen entrepreneurship support with dedicated incubation centers, innovation challenges, and startup accelerators.
- Launch cross-departmental interdisciplinary research programs tackling climate change, sustainable agriculture, and urban infrastructure.
- Implement campus-wide waste reduction, recycling, and green energy projects as part of the Office of Sustainability's strategic roadmap.
- Expand digital learning offerings by developing joint certificates and specialized courses with MOOC platforms and industry partners.
- Scale community initiatives through volunteer networks, capacity building workshops, and awareness campaigns with local stakeholders.
- Establish transparent communication channels and engagement strategies to make MoUs and partnership benefits accessible to all students and faculty.

Acknowledgement

Gratitude is expressed to the Office of Sustainability and all contributing faculty, researchers, and students whose efforts have been fundamental in compiling this SDG 9 report. Support and collaboration from industry partners, government agencies, and academic institutions

have been invaluable. Appreciation is extended to the administrative and technical staff for maintaining state-of-the-art infrastructure supporting innovation and entrepreneurship. This work has been made possible through the collective dedication towards fostering sustainable industrialization, innovation, and resilient infrastructure.

Photo Gallery

Wealthy wise, a start up by Students of IEM, was established with a mission to reduce plastic consumption

Sconto. India's biggest student lifestyle community, was established by IEM alumini.

ZeroDollar Security, a cybersecurity startup by alumini of IEM

Mentro, India's first upskilling platform were founded by IEM alumini

Entrepreneur | Founder, Director at Darkish Red Ventures Pvt. Ltd®, Techtora Consultancy Pvt. Ltd. And Upraised®

Executive Director | I Educate Myself Daily Foundation & deSolXperts Research & Development Private Limited | Social Entrepreneur

Founder @ Veryze Technologies Pvt. Ltd. | IEM alumnus (Dept. of ECE, Batch 2019

Team "DarkSwag" from IEM developed "The God's EYE," a citizen journalism app that enables users to report and prioritize local issues for government action while combating hoaxes through community validation


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