Guest Lectu

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Education Society's Group of Institutions - Integrated Campus
(UGC AUTONOMOUS INSTITUTION)

Guest Lecture Report

Future AI Trends for Cement Sustainability 2030

Organized by: Department of Civil Engineering

Institution: Nalla Narasimha Reddy Education Society's Group of Institutions

Date: 25th February 2026

Time: 11:00 AM

Venue: T-23 ROOM

1. Introduction

The Department of Civil Engineering organized a Guest Lecture on 'Future AI Trends for Cement Sustainability 2030' to provide students with insights into the transformative role of Artificial Intelligence (AI) in achieving sustainability in the cement industry.

The session was delivered by Er. Krishnanunni Nair, Regional Technical Services Manager – Telangana, Adani Cement. The lecture highlighted how AI technologies are reshaping cement manufacturing processes and supporting global sustainability goals.

2. Objectives of the Guest Lecture

- To understand sustainability challenges in cement production.
- To explore AI applications in reducing carbon emissions.
- To create awareness about emerging digital technologies in construction.
- To bridge the gap between academic learning and industry practices.

3. Highlights of the Lecture

3.1 Role of AI in Cement Manufacturing

- Process optimization of kilns and grinding units.
- Energy consumption monitoring and reduction.
- Real-time quality control systems.
- Predictive maintenance of plant equipment.

AI tools help minimize fuel usage, improve operational efficiency, and reduce clinker factor, thereby lowering CO_2 emissions.

3.2 Sustainability Goals for 2030

- Net-zero carbon targets in the cement industry.
- Adoption of alternative fuels and raw materials.
- Use of Supplementary Cementitious Materials (SCMs).
- Digitalization and automation in smart cement plants.

3.3 Digital Transformation in Cement Industry

- Machine Learning models for production forecasting.
- IoT-enabled smart sensors.
- Digital Twins for plant simulation.
- AI-powered supply chain optimization.

4. Student Interaction Session

An interactive Q&A session was conducted where students discussed career opportunities in AI-integrated construction industries, practical implementation of AI in Indian cement plants, and the future scope of sustainable concrete technologies.

5. Outcome of the Program

- Enhanced understanding of AI applications in civil engineering.
- Provided industry-oriented exposure to sustainable cement technologies.
- Motivated students toward research and innovation in green materials.
- Strengthened academic-industry collaboration.

6. Conclusion

The Guest Lecture on 'Future AI Trends for Cement Sustainability 2030' was highly informative and impactful. It provided a comprehensive overview of how Artificial Intelligence is driving sustainability in the cement sector and inspired students toward a technology-driven future.

Faculty Coordinator:

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