Report on

Alumni Guest Lecture held on 19.09.2025

Sustainable Practices in Preparation of Concrete

Submitted by: Mrs. Kandukuri Anitha, Assistant Professor, Dept. of Civil Engineering, MITS.

Organized By: ASCE MITS Student Chapter in collaboration with Alumni Cell

Participants: Civil Students and Staff (No. of Participants: 80)

The inauguration of the alumni guest lecture was started at 3:00 P.M in Seminar hall-C the dignitaries were **Dr. Dipankar Roy,** Dean-School of Engineering & ASCE Faculty Advisor **Dr. Vijayakumar**, HoD-Civil and, **Dr. Kiran Kumar R**, MITS Alumni coordinator, **Mr. Karthik Varma**, Alumni of Civil engineering department MITS and **Mrs. Kandukuri Anitha**, Department Alumni Coordinator.

The interaction was started with opening remarks by, **Dr. Vijayakumar** who thanked management for creating an opportunity to invite the Alumni members of the institute and enabling them to interact with the students and enlightening them with the current developments. **Mrs. Kandukuri Anitha** has introduced about the speaker and invited him to share his valuable experiences to the students. The number of students participated in the lecture were around 80. After inaugural session, the main session was started at 3:00 P.M, **Mr. Karthik Varma** explained about **Sustainable practices in preparation of concrete.** The session was interactive, and He clarified the doubts raised by students. **Mr. Karthik Varma** mostly concentrated on explaining the entire " **Sustainable practices in preparation of concrete** " could provide valuable insights for both students and professionals interested in concrete materials.

Introduction:

Concrete is one of the most widely used construction materials in the world due to its strength, durability, and versatility. However, its production—especially the manufacturing of cement—has a significant environmental impact, contributing to high energy consumption and carbon dioxide emissions. In recent years, the construction industry has been focusing on sustainable practices to reduce these adverse effects and promote environmental responsibility.

Sustainable practices in concrete preparation involve the use of alternative materials such as supplementary cementitious materials (e.g., fly ash, slag, and limestone powder), recycled aggregates, and industrial by-products. Additionally, innovations like low-carbon cements, optimized mix designs, and improved curing methods help in minimizing waste and conserving natural resources. By adopting these eco-friendly approaches, it is possible to produce high-performance concrete that not only meets structural requirements but also supports long-term environmental sustainability.

Importance of the Sustainable practices in preparation of concrete

The importance of adopting sustainable practices in the preparation of concrete lies in their potential to significantly reduce the environmental, economic, and social impacts associated with conventional concrete production. Concrete is the most widely used construction material in the world, and its key ingredient—cement—is responsible for nearly 8% of global carbon dioxide emissions. The extraction of raw materials such as limestone, sand, and aggregates also leads to depletion of natural resources, land degradation, and energy-intensive processing. Therefore, sustainable practices aim to minimize these negative effects by promoting the efficient use of available resources and reducing carbon emissions throughout the concrete life cycle.

By incorporating supplementary cementitious materials such as fly ash, slag, silica fume, and limestone powder, a portion of cement can be replaced without compromising the strength and durability of concrete. This substitution not only reduces CO_2 emissions but also helps in the effective utilization of industrial by-products that would otherwise contribute to environmental pollution. The use of recycled aggregates and water from construction waste further enhances sustainability by reducing landfill disposal and conserving natural resources. Moreover, advanced technologies like self-compacting concrete and nano-modified materials contribute to improved performance, reduced energy consumption, and extended service life of structures.

In addition to environmental benefits, sustainable concrete offers significant economic and social advantages. The reduced dependency on virgin materials lowers production costs, while enhanced durability minimizes long-term maintenance and repair expenses. Socially, these practices support a healthier environment, promote green construction, and align with global sustainable development goals. Thus, integrating sustainability into concrete preparation is not merely a technological improvement but a crucial step toward achieving a balanced relationship between construction growth and environmental preservation.

Outcome of the event:

The event proved to be highly impactful and beneficial for the student community. The following outcomes were observed:

- Gained deep insights into the challenges and sustainable solutions related to global climate change and groundwater resource management.
- Understood the importance of integrating scientific research, innovative technologies, and strong policy frameworks for sustainable water management.
- Enhanced awareness of the need for adopting eco-friendly and sustainable practices in construction and environmental conservation.
- Provided a valuable platform for interaction among researchers, academicians, professionals, and students to exchange knowledge and experiences.
- Encouraged participants to apply sustainable approaches and innovative techniques in their respective fields.
- Strengthened understanding of the link between climate change, groundwater sustainability, and long-term environmental protection.
- Motivated participants to contribute towards achieving national and global sustainable development goals (SDGs).

The seminar provided valuable insights into the current challenges and sustainable solutions related to groundwater management and climate change. Participants gained a comprehensive understanding of how advanced technologies, scientific research, and policy frameworks can be integrated to ensure efficient water resource management. The discussions emphasized the importance of adopting sustainable construction and environmental practices to mitigate the adverse impacts of climate change.

The event also created a platform for researchers, academicians, and professionals to exchange knowledge and share innovative ideas for promoting environmental sustainability. It inspired participants to apply sustainable approaches in their respective fields, especially in construction and water management sectors. Overall, the seminar enhanced awareness, encouraged interdisciplinary collaboration, and strengthened the commitment toward achieving sustainable development goals.

Vote of Thanks:

Ms.Radiya proposed a vote of thanks to Resource person, HOD, III Year B.Tech Students for attending the interaction programme and he extended his thanks to the Principal, and the Management for their support to conduct the Programme. We thank Alumni cell and ASCE MITS Student Chapter, for their continuous support to make this event a success.

Feedback Analysis 19-09-2025

Alumni Guest Lecture on Sustainable practices in preparation of concrete.