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Report of Guest Lecture cum webinar on "Flat Plate Dilatometer (DMT): Overview, Evolution, and Applications in Geotechnical Engineering"

conducted by

Department of CE and IQAC Cell

of

Dr. Sudhir Chandra Sur Institute of Technology and Sports Complex

(An Autonomous Institute)

In association with Jadavpur University

Title: Flat Plate Dilatometer (DMT): Overview, Evolution, and Applications in Geotechnical Engineering

Speaker: Dr. Kaushik Bandyopadhyay

Designation: Professor, Department of Construction Engineering, Jadavpur University, Salt Lake City, Kolkata, India

Date & Time: 25.09.2026, 7.30 PM onwards

Platform: Virtual through Zoom Platform

Number of Participants: 18 students from M.Tech Structural Engineering

Objective: The session was conducted for the M.Tech students of Civil Engineering to provide specialized exposure to the Flat Plate Dilatometer (DMT), an advanced in-situ geotechnical investigation technique. The specific objectives were to:

- Understand the working principle, components and field application of DMT.
- Learn about the evolution and development of the DMT as a modern site investigation technique.
- Understand the interpretation and engineering significance of Material Index (ID), Horizontal Stress Index (KD) and Dilatometer Modulus (ED).
- Examine how DMT can be used to assess soil stiffness, horizontal stress conditions and stress history.
- Relate DMT-based field investigation to foundation engineering, soil characterization and geotechnical design.

Brief Overview: The Department of Civil Engineering facilitated the participation of its M.Tech students in the webinar titled "Flat Plate Dilatometer (DMT): Overview, Evolution, and Applications in Geotechnical Engineering." The webinar was externally organized by Prof. Krishna Reddy, University of Illinois Chicago, and conducted through Zoom. The Department facilitated the academic participation of its M.Tech students in the session.

The technical session was delivered by Dr. Kaushik Bandyopadhyay, Professor, Department of Construction Engineering, Jadavpur University. The speaker explained the basic configuration and working mechanism of the DMT, including the use of a flat steel blade and expandable membrane to obtain pressure measurements directly from the in-situ soil.

The discussion focused on the evolution of DMT and the interpretation of its principal parameters, particularly ID, KD and ED, and their relevance to soil classification, stiffness assessment, horizontal stress and stress-history evaluation. The speaker also highlighted the applications of DMT in site characterization and foundation-related geotechnical assessment.

The session provided M.Tech students with an opportunity to connect theoretical concepts of soil mechanics and foundation engineering with an advanced field investigation method used in professional geotechnical practice.

Outcome: The session enabled the participating students to:

- Develop a clear understanding of the principle and field procedure of DMT.
- Understand the engineering significance of ID, KD and ED parameters.
- Appreciate the use of DMT for evaluating soil stiffness, in-situ horizontal stress and stress history.
- Understand the role of advanced in-situ testing in geotechnical site characterization and foundation engineering.
- Relate classroom concepts of soil mechanics and geotechnical engineering to practical field investigation.
- Gain exposure to an advanced geotechnical testing technique relevant to M.Tech research, dissertation work and professional practice.

Few glimpses of the session-

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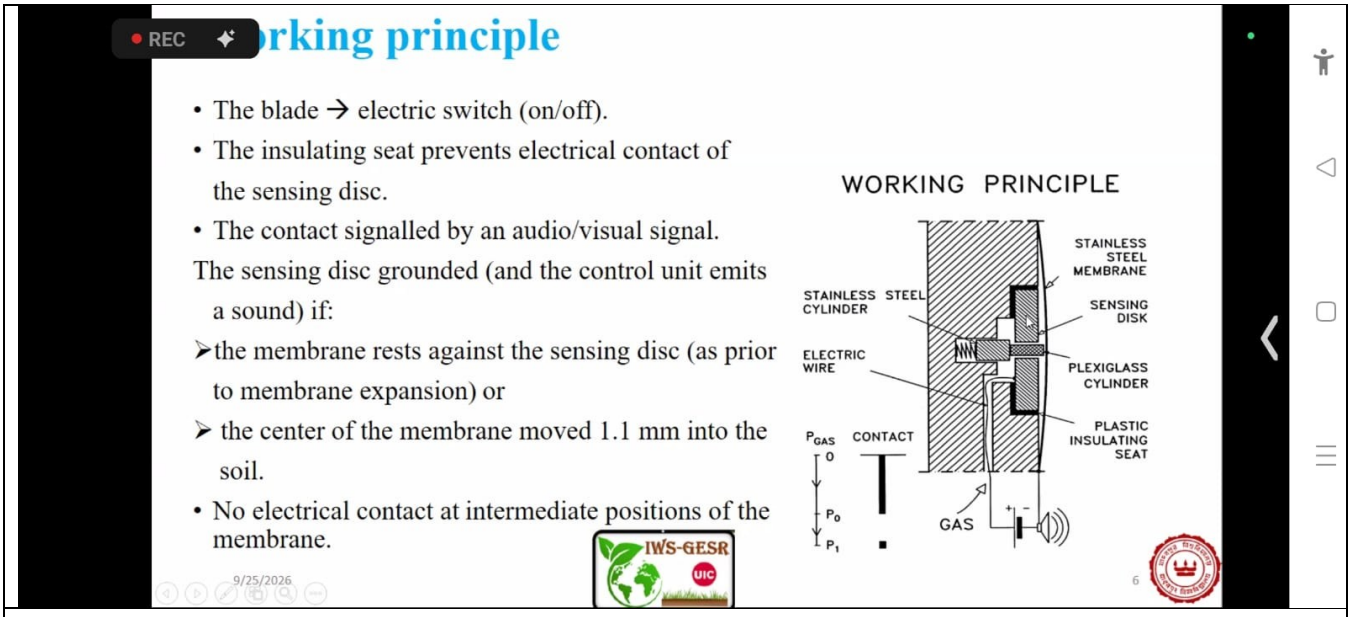

Guest Lecture cum webinar on "Flat Plate Dilatometer (DMT): Overview, Evolution, and Applications in Geotechnical Engineering" on 25.09.2026