CHHOTUBHAI GOPALBHAI PATEL INSTITUTE OF TECHNOLOGY
DEPARTMENT OF CIVIL ENGINEERING

A report of Guest Lecture on

“Geotechnical Engineering: Soil Properties and Laboratory Testing”

5 August 2026

Organized by

Department of Civil Engineering, CGPIT, UTU

GOPALBHAI PATEL INSTITUTE OF TECHNOLOGY
UKA TARSADIA UNIVERSITY, MALIBA CAMPUS, BARDOLI

A report of Expert Talk and Hands-on-Training session

"Geotechnical Engineering: Soil Properties and Laboratory Testing"

Speaker: Dr. Yogendrakumar K. Tandel, Assistant Professor, GEC Valsad.

Organized by: Dr. Vaibhav R. Pawar, Mr. Gunvant R. Solanki and Dr. Manoj J. Gundalia

Total Nos. of Students:

Diwaliba- Diploam 5th sem. (3-Boys)

CGPIT- Diploma 3rd sem. (6-Boys+1-Girls),

CGPIT- Diploma 5th sem. (7-Boys)

CGPIT-B.Tech. 5th sem. (7-Boys+2-Girls)

CGPIT- B. Tech. 7th sem. (5-Boys)

Total 31 Students (28-Boys, 3-Girls)

Faculty Members:- Faculty members (Diwaliba Poly Tech. – 1; CGPIT- Diploma- 1; CGPIT B. Tech- 1).

The Department of Civil Engineering, C.G. Patel Institute of Technology (CGPIT), Uka Tarsadia University, organized an expert lecture and hands-on training session on "**Geotechnical Engineering: Properties of Soil and Soil Testing Laboratory**" on 5 August 2026. The programme was conducted in D-004 and the Geotechnical Engineering Laboratory at CGPIT.

The inauguration session commenced with the formal felicitation of the invited experts and esteemed dignitaries, setting a welcoming and collaborative tone for the program.

Following the welcome ceremony, Dr. Manoj Gundalia, the Head of the Department addressed the participants. He emphasized the critical necessity of such interactive sessions in bridging the gap between academic curricula and current industry demands, ensuring that students graduate fully industry ready. During his address, he elaborated on the aligned policies of the department, CGPIT, and Uka Tarsadia University, highlighting a shared institutional commitment to the holistic development of every student beyond traditional classroom learning. Dr. Manoj Gundalia further underscored the specific importance of integrating this expert lecture with practical, hands-on training to build core engineering competencies. To establish the academic context for the event, he seamlessly transitioned into a technical discussion, exploring the fundamental principles of soil mechanics and geotechnical engineering. This comprehensive overview provided students with a strong conceptual foundation, perfectly setting the stage for the technical modules and practical activities to follow.

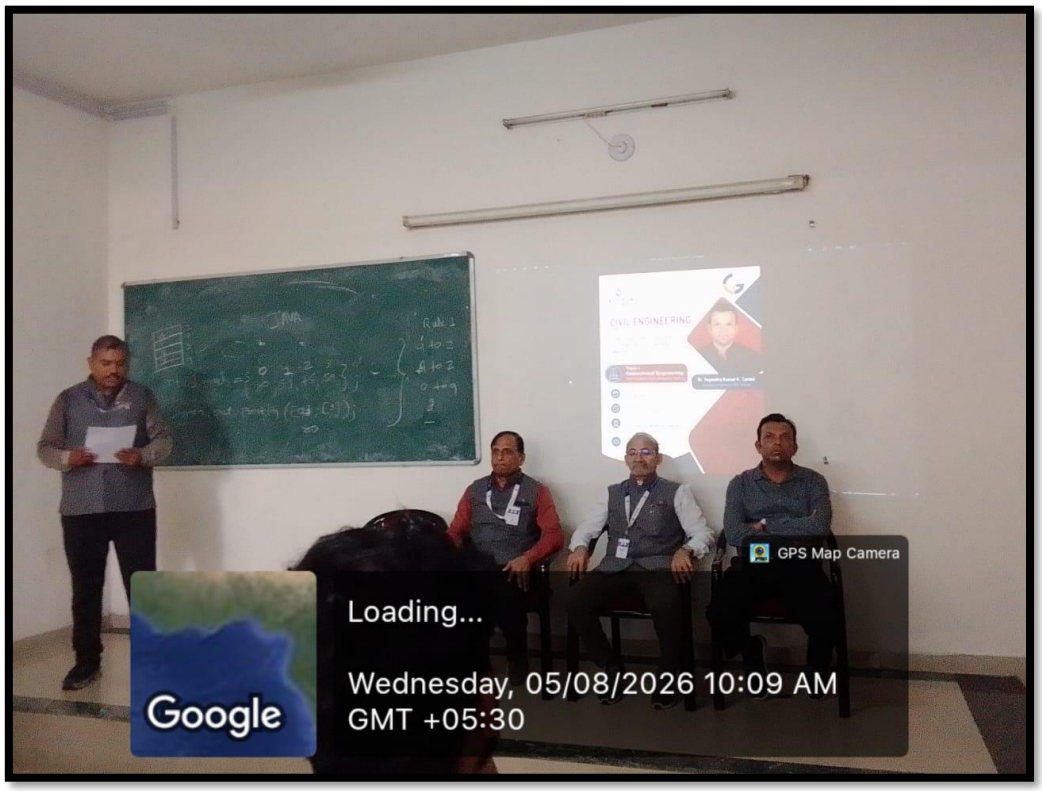
The session focused on developing students' understanding of soil properties, soil classification, density, and laboratory testing procedures. The expert explained important concepts related to soil mechanics and geotechnical engineering through presentations and practical examples. Students were introduced to the significance of soil investigation in civil engineering projects. The programme included an interactive technical lecture followed by practical exposure in the laboratory. A total of 31 students and 3 faculty members participated in the programme. The combination of theoretical explanation and hands-on training helped students connect classroom knowledge with practical engineering applications.

The main objective of the programme was to enhance students' theoretical and practical knowledge of Geotechnical Engineering and Soil Testing. The session aimed to help students understand the basic engineering properties and classification of soils. It also focused on familiarizing students with commonly used soil-testing procedures and laboratory equipment. Particular emphasis was given to understanding bulk density and the Sand Replacement Method. The programme aimed to demonstrate how soil testing supports foundation and construction-related decisions. Another important objective was to bridge the gap between theoretical concepts taught in classrooms and actual laboratory practices. The hands-on session provided students with an opportunity to observe testing procedures directly. The programme also encouraged interaction between students and the expert through questions, discussion, and practical demonstrations.

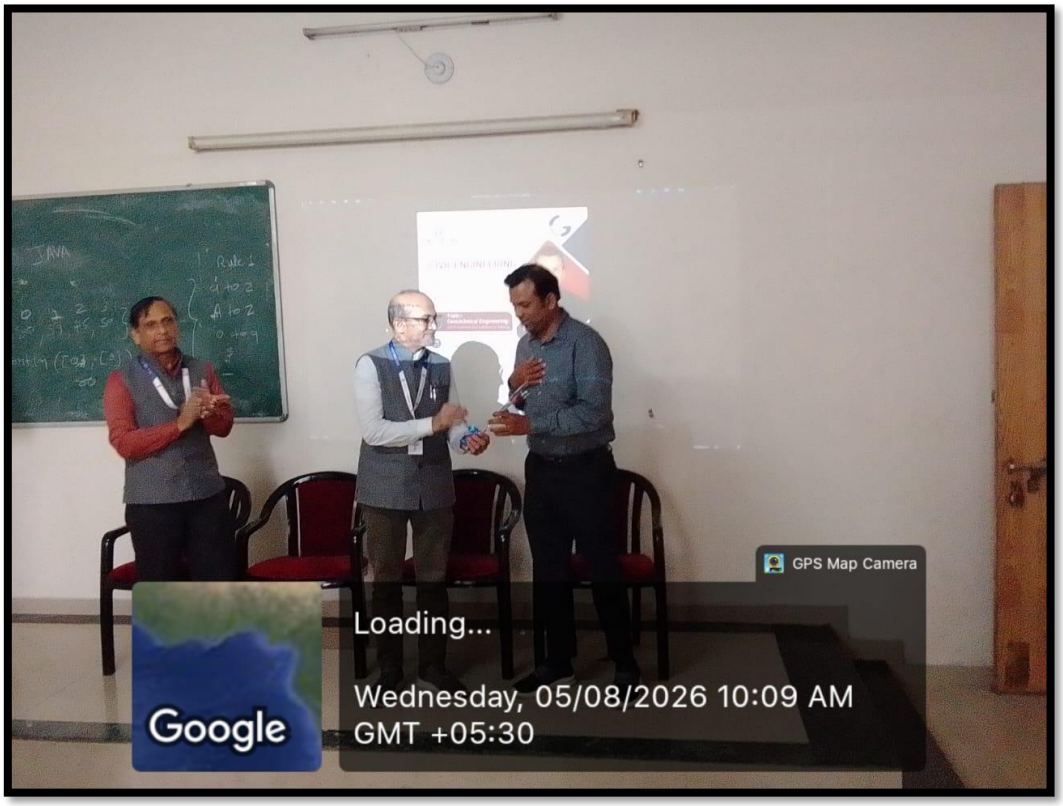
Geotechnical Engineering plays a fundamental role in Civil Engineering because the performance and stability of structures are closely related to the properties of the soil on which they are constructed. Proper soil investigation and testing are therefore essential before designing foundations, roads, embankments, retaining structures, and other infrastructure. Understanding soil classification and engineering properties helps engineers select appropriate construction and foundation methods. Density and compaction-related tests are important for quality control in earthwork and construction activities. The Sand Replacement Method, for example, provides a practical approach for determining field density of soil. Knowledge of these tests helps engineers evaluate whether construction requirements have been satisfactorily achieved. Soil testing also helps reduce the risk of problems such as excessive settlement and instability. Therefore, practical knowledge of geotechnical testing is highly valuable for Civil Engineering students and future practising engineers.

The hands-on training session was an important component of the programme because it allowed students to experience geotechnical laboratory practices directly. Students could observe the equipment, testing procedures, measurements, and sequence of operations involved in soil testing. The practical demonstrations helped students understand concepts that may be difficult to visualize

through classroom teaching alone. The session also enabled participants to relate theoretical principles with actual laboratory observations and engineering applications. Students interacted with the expert and clarified their doubts regarding soil classification, density determination, and testing procedures. Such practical exposure helps develop confidence in handling laboratory equipment and understanding test results. It also provides useful preparation for future academic projects, site investigations, and professional responsibilities. Overall, the hands-on training strengthened experiential learning and contributed to better understanding of Geotechnical Engineering and Soil Testing.



Inauguration and commencement of the Guest Lecture Programme.



Felicitation of the esteemed expert by the dignitaries.

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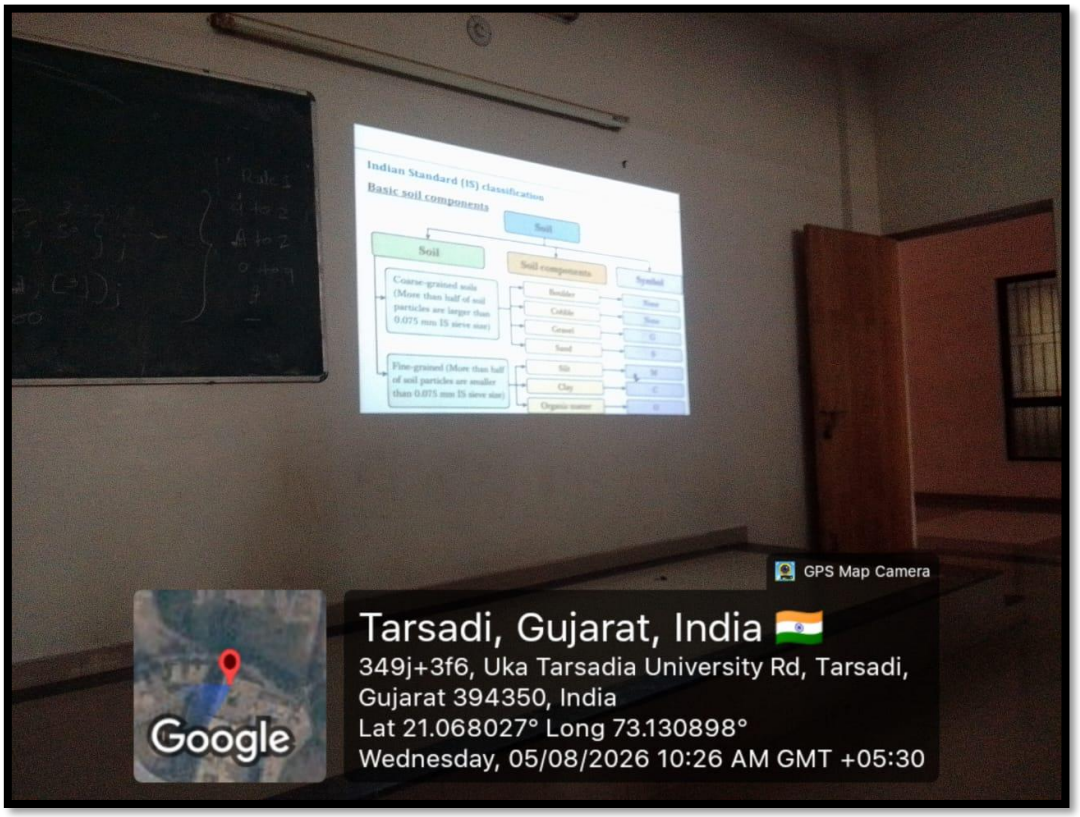
Professor (Dr.) Manoj J. Gundalia explaining importance of this expert lecture and Hands-On training



Technical presentation on soil properties and laboratory testing methods.

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Technical presentation on soil properties and laboratory testing methods.

Group photograph of the expert, dignitaries, faculty members, and participating students.

Practical set-up in testing laboratory

Students gaining practical exposure to soil testing procedures.

Students gaining practical exposure to soil testing procedures.

Appreciation of the expert by Head of Department and Director of CGPIT

The expert lecture and hands-on training programme on "**Geotechnical Engineering: Properties of Soil and Soil Testing Laboratory**" was successfully conducted by the Department of Civil Engineering, CGPIT, Uka Tarsadia University, on 5 August 2026. The programme provided students with valuable knowledge of soil properties, classification, density, and laboratory testing procedures. The expert session helped students understand the practical significance of geotechnical investigations in civil engineering projects. The hands-on training further strengthened their understanding through direct exposure to laboratory practices and testing equipment. The interactive discussions and practical demonstrations encouraged students to clarify their doubts and develop greater confidence in applying theoretical concepts. The participation of 31 students and 3 faculty members made the programme meaningful and interactive. Overall, the programme successfully strengthened theory–practice integration, practical skills, and industry-oriented understanding among the participants. The Department sincerely appreciates the valuable

contribution of the expert and the support of the faculty members and students in making the programme successful.

Date : 7/8/2026

Place : CGPIT , UTU.