Ajeet Chaurasiya

Civil Engineering | Geotechnical Engineering

ajeet6307424951@gmail.com | +91 6307424951

LinkedIn | ORCID: 0009-0000-9615-6509

Research Interests

Theoretical and experimental geomechanics, with a broad interest in understanding soil behaviour through laboratory investigations, analytical approaches, and numerical methods. Open to interdisciplinary research across geotechnical engineering and related fields, with a strong willingness to learn new techniques, tools, and methodologies.

Education

National Institute of Technology Andhra Pradesh **2022–2025**
B.Tech in Civil Engineering CGPA: **8.94/10**

Indian Institute of Technology Madras **2025–2026**
Exchange Programme CGPA: **9.15/10**

Subash Inter College, Ayodhya, Uttar Pradesh **2020–2022**
Intermediate (Physics, Chemistry and Mathematics) 83%

Research Experience, Publications and Manuscripts

1. Stabilisation of Expansive Soil Subgrade using Lime and Cement: Effect of 2-Phase Stabilisation and Compaction Delay
Ajeet Chaurasiya and Pawan Kumar Chamling

- Status: Accepted for publication – International Conference on Sustainable Practices and Materials in Civil Engineering (SPMCE 2026).
- Investigated two-phase lime–cement stabilisation of expansive soil for pavement subgrades, focusing on strength, stiffness, and failure behaviour under different mellowing periods.
- Achieved a maximum unconfined compressive strength of 496 kPa and elastic modulus of 61 MPa using 5% lime, 6% cement, and a 7-day mellowing period.

2. Wetting-Induced Collapse and Strength Behaviour of Compacted Red Soil
Ajeet Chaurasiya and T Thyagaraj

- Status: Accepted for presentation – Indian Geotechnical Conference (IGC 2026).
- Investigated changes in collapse behaviour, shear strength, and soil-water characteristic curves (SWCC) before and after wetting-induced collapse, supported by SEM analysis.
- Observed approximately 17% collapse strain under a 200 kPa surcharge and a 29% reduction in peak shear stress following collapse.

3. Effect of Curing on Strength and Soil-Water Characteristic Behavior of Lime-Stabilized Expansive Soil
Research manuscript

- Status: Manuscript under preparation; draft submitted to research supervisor.
- Investigated the effects of lime content and curing period on strength, stiffness, and soil-water characteristic behaviour using UCS and total suction tests, supported by Fredlund–Xing SWCC modelling and SEM–EDS analysis.
- Achieved a maximum UCS of 981 kPa at 3% lime after 14 days of curing.

4. Effect of Soil Structure on the Hydro-Mechanical Behaviour of Termite-Mound Soil

Research manuscript

- Status: Manuscript under preparation; draft submitted to research supervisor.
- Investigated the influence of natural biogenic structure by comparing undisturbed and disturbed termite-mound soil through shear strength, SWCC, collapse, and consolidation tests under distilled and saline water conditions.
- The research integrates MIP, SEM, TGA, and XRD analyses to investigate relationships between microstructure and hydro-mechanical behaviour.

5. Coupled Collapse and Shear Strength Behaviour of Compacted Red Soil: Effects of Density, Water Content, and Stress
Ongoing research

- Investigates the relationship between wetting-induced collapse deformation and changes in shear strength under varying dry densities (1.52, 1.62 and 1.72 g/cm^3), initial water contents (7% and 10%), and applied stresses (200–800 kPa).
- Integrates collapse and shear-strength experiments under consistent soil preparation conditions to evaluate the influence of initial soil state and stress on volume change and mechanical response.

Honours and Awards

Third Rank, Civil Engineering Department
National Institute of Technology Andhra Pradesh
Awarded for overall B.Tech academic performance.

Conference Achievements

- **SPMCE 2026:** Research paper accepted for publication.
- **IGC 2026:** Research paper accepted for presentation.

Selected Relevant Coursework – IIT Madras

Advanced Soil Mechanics; Advanced Foundation Engineering; Characterisation of Construction Materials; Statistical Design and Analysis of Experiments; Applied Mathematics for Geomechanics; Soil Exploration and Field Tests; Concrete Pavement Technology; Solid Waste Management.

Technical and Experimental Skills

Geotechnical Testing: Unconfined Compressive Strength (UCS), direct shear, oedometer consolidation, wetting-induced collapse, soil suction and total suction measurements, soil-water characteristic curves (SWCC), and permeability.

Material Characterisation Techniques: SEM, MIP, TGA, XRD, FTIR, TEM, XCT, and EDS.

Data Analysis and Software: Microsoft Excel; basic MATLAB; basic JMP for statistical analysis.

Advanced Characterisation Coursework: Exposure to advanced material characterisation methods through coursework in Characterisation of Construction Materials.