

Indian Institute of Technology Mandi

Inviting Applications for Research Internship
Under Accelerate Vigyan -VRITIKA Scheme 2022-23

Title: Modeling of liquefaction phenomena in sand employing discrete element method (DEM)

About the Institute: IIT Mandi

Nestled in the Shivalik Range of the Himalayas, away from the hustle and bustle of metropolis, a new abode of learning has germinated. IIT Mandi has been established with the vision to be a leader in science and technology education, knowledge creation and innovation, in an India marching towards a sustainable society. The institute has 9 academic sections including School of Civil and Environmental Engineering.

About VRITIKA Research Internship

'VRITIKA' is the call for initiation and practice in science through 'Training and Skill Internship'. This program aims to provide opportunities to promising Post Graduate students from universities and colleges to get exposure and hands on research skill development experience. These internships will primarily be facilitated by organizations/institutions/ laboratories of national importance such as IITs, IISc, IISERs, NITs, CSIR, ICMR etc. For more details visit the following link:

<https://acceleratevigyan.gov.in/programs/abhyas/vritika>

Who can Apply ?

PG Level students or Research Scholars (Civil/Geotechnical Engineering Background) who are currently pursuing their degree from Institutions within India.

How to Apply ?

- The candidate shall apply by filling out the google form:

<https://forms.gle/zyVWjSmn3r4tZuZS7>

Deadline for application: **6th June 2023**

- Candidate shall be shortlisted based on academic performance.
- Shortlisted/selected candidates shall be intimated via email on or before **7th June 2023**.

Scope of this Internship Program

Liquefaction is a major devastating geohazard often encountered during heavy shaking induced by earthquakes. The proposed internship envisions to elucidating the particle-scale interactions behind observed macro-scale response of saturated sand subjected to undrained condition, which often leads to liquefaction phenomena under rapid loading condition like earthquakes. In this regard, constant volume triaxial test simulations will be carried out employing discrete element method (DEM) in order to replicate the undrained condition. Subsequently, the influence of soil density state and confining pressure on the manifestation of liquefaction process at macro-level will be assessed with focus on the micro or particle level interaction. In reference to the liquefaction phenomena, the developed DEM model will be also useful in the future to explore various other important aspects like influence of lateral stress boundary condition, different stress paths and cyclic mobility.

Internship Details

- Duration: 12th June to 23rd July 2023
- Place of internship: IIT Mandi, Himachal Pradesh
- Required number of interns: 01 (One)
- No stipend will be provided for the internship.
- Boarding and lodging expenditures, and other expenditures incurred as part of internship for consumables, travel, etc. shall be supported as per the scheme approval of SERB AV VRITIKA.
- Certificate will be provided to the interns after the successful completion of the internship tenure.

Contact Details of Event Organizer

Dr. Mousumi Mukherjee,

Assistant Professor,

School of Civil and Environmental Engineering,
Theoretical and Computational Geomechanics Lab,
IIT Mandi

E-mail: mousumi@iitmandi.ac.in