
## Mujeeb Ul Rehman

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## AREA OF INTEREST:

*Mine Tailings Dam, Liquefaction and Mitigation Measures, Ground Improvement, Discrete Element Methods, Centrifuge Modelling, Physical Modelling, Soil Dynamics, and Geotechnical Earthquake Engineering.*

## OBJECTIVES:

*To obtain a position that will enable me to use my strong organizational skills, award-winning educational background, and ability to work well with people*

## EDUCATION AND DEGREE:

**2022 – Present** ***Ph. D Geotechnical Engineering***
Indian Institute of Technology, Madras

**2020- 2022** ***M. Tech Geotechnical Engineering***
Indian Institute of Engineering Science & Technology, Shibpur
CGPA: 9.87

**2020** ***IIT DELHI, GATE***
Score: 551/1000

**2016 - 2020** **B. *Tech Civil Engineering***
Islamic University of Science & Technology, Awantipora, J&K.
CGPA: 9.12

**2014** ***Govt. Higher Secondary School Dooru***
Higher Secondary Part 2
Percentage: 89 %

**2012** ***Sir Syed Memorial Educational Institute Dooru***
Higher Secondary
CGPA: 9.0

## TRAINING AND CERTIFICATES:

**01-12-2018 to 01-03- 2019** ***ALTTC GHAZIABAD***
Estimation and Costing, Water treatment plant, Waste water treatment plant, Prestressing of concrete girders, and Soil testing.

## SOFTWARE SKILLS:

- **Geo Studio**
- **PLAXIS 2D**
- **MATLAB (Basics)**
- **PLAXIS 3D**

## WORK EXPERIENCE:

- ***Unacademy*** ***23-03-2018 to 05-06-2019***
  **Role:** Gate Educator, Civil Engineering.

- ***Gradestake*** ***23-06-2018 to 24-05-2019***
  **Role:** Subject Expert, Science.

- ***IUST Consultancy*** ***01-01-2018 to 01-03-2020***
  **Role:** Working Assistant performing basic soil tests and preparing datasheets.

- ***3D Printing, DIC IUST*** ***01-04-2018 to 05-05-2018***
  **Role:** Attendee.
  I have attended four days workshop on **3D Printing**, which DIC Islamic University of Science & Technology, Awantipora, organised. I gained basic knowledge of 3D Printing and its importance in Civil Engineering.

## PROJECTS:

### *Masters' Thesis | Supervisor: Prof. Dipankana Bhattacherjee and Prof. Saptarshi Kundu*

- **Numerical Studies on the Stability of Upstream Mine Tailings Dam under Seismically Induced Liquefaction** ***April 2021 to July 2022***
  - Mine tailing dams are prone to instabilities under dynamic loads, especially seismic ones. The numerical analysis was conducted to determine the excess pore pressure ratio, deformation, and post-liquefaction safety factor for the upstream tailings dam.
  - Considering the geometry aspect, the upstream tailing dam was more cost-effective and easier to construct but is more susceptible to failures than two other geometries (Downstream and Centerline Tailings dam).
  - The study aimed to improve the stability of upstream tailing dams using densification techniques at different relative densities so that the deformation and post-liquefaction safety factors are suitable to ensure the seismic stability of these dams.

### *Bachelors' Project | Supervisor: Prof. Muhammad Dilawar Bhat*

- **Effect of Elevated Temperature on Mechanical Properties and Spalling Behaviour of Concrete**
  - High temperature has proven to be detrimental to the materials like concrete. Concrete is vulnerable to severe damage due to its exposure to high temperatures. A study was carried out to investigate the effect of high temperature on the mechanical properties and spalling behaviour of concrete.

- **The Effect of Polypropylene and Steel Fibres on the Properties of Concrete at Normal and Elevated Temperature** ***Sept 2019 to August 2020***
  - Fibres are notably used to boost concrete characteristics and improve its performance where it lacks. The study was carried out on the addition of synthetic fibres (Polypropylene and Steel fibre) and their respective effect on the mechanical properties, cracking, permeability, and spalling behaviour of concrete at elevated and normal temperatures.

## PUBLICATIONS:

- ***Numerical Analysis on the Stability of Upstream Mine Tailings Dam under Seismic Loading***
  Paper submitted to Indian Geotechnical Conference 2022, Kochi.

- ***The Effect of Polypropylene and Steel Fibres on the Properties of Concrete at Normal and Elevated Temperatures-A Review***
  Iranian Journal of Science and Technology, Transactions of Civil Engineering, Springer, 18 October 2021. https://doi.org/10.1007/s40996-021-00751-3

- ***Comparative Study on Stabilized Black Cotton Soil***
  International Journal of Latest Engineering and Management Research, June 2020

- ***Evaluation of Liquefaction Potential of Soils - A Review***
  Journal of Emerging Technologies and Innovative Research, December 2018.
  http://doi.one/10.1729/journal.25199

## SEMINAR:

***During Master's***

- **Physical and Numerical Modelling of Strip Footing on Geogrid Reinforced Transparent Sand**
  - Basic properties of transparent sands and Geogrid as a reinforcement.
  - Parametric case study of the results obtained using Physical and Numerical modelling.

- **Stabilization of Black Cotton Soil**
  - Different improvement techniques used to improve the characteristics of Black Cotton Soil were investigated

## COURSEWORK INFORMATION:

- Advanced Soil Mechanics
- Soil Dynamics
- Dynamics of Soils and Machine Foundations
- Advanced Geotechnical Engineering
- Ground Improvement Techniques
- Advanced Foundation Engineering
- Geotechnical Earthquake Engineering
- Elasticity and Plasticity
- Geotechnical Model Laboratory

## LABORATORY EXPERIENCE:

***Kolkata East-West Metro | Prof. Ambarish Ghosh***

- **Soil Stratification and basic soil testing** **November 2021 – March 2022**

***Lab Project: Geotechnical Model Laboratory | Prof. Dipankana Bhattacherjee***

- **Stability Analysis of Various Geotechnical structures** ***January 2021- May 2021***
  - Performed static stability Analysis of embankment slopes.
  - Performed seepage analysis of dams.
  - Software used: **GeoStudio, PLAXIS 2D, PLAXIS 3D**.

***Lab Project: Geotechnical Testing Laboratory | Prof. Ashis Kumar Bera***

- **Basic Soil Testing** ***January 2021- May 2021***
  - Grain Size Distribution Tests and Atterberg Limits.
  - Permeability, Consolidation tests.
  - Strength tests.
  - Basic tests on Geosynthetics

***Lab Project: Concrete Laboratory | Prof. Muhammad Dilawar Bhat***

- **Tests on various Building Materials** ***July 2018- June 2019***
  - Performed basic tests on cement.
  - Casting of concrete specimens.
  - Casting of Fibre-reinforced concrete using High Alumina Cement, limestone aggregates, and Polypropylene.
  - High-temperature testing of concrete cubes.

***Lab Project: Geotechnical Laboratory | Prof. Nitish Kumar Singh***

- **Tests on various Soil samples** **July 2018- June 2019**
  - Performed several lab tests like Moisture content test, Atterberg limits tests, Specific gravity of soil, Dry density of soil, and Compaction test (Proctor's test).
  - Strength Tests like Direct Shear Test and Triaxial Test.
  - In-situ tests like the Standard penetration test (SPT).

## MEMBERSHIPS:

- Institute of Civil Engineers, Student Membership, Branch India
- American Society of Civil Engineering, Student Membership
- Institute for Engineering Research and Publications, Student Membership

## LANGUAGES:

- English (Intermediate Proficiency)
- Urdu (Expert Proficiency)
- Kashmiri (Expert Proficiency)