DR.SUMAN ROY

ASSISTANT PROFESSSOR
DEPARTMENT OF CIVIL ENGINEERING
NIT ROURKELA

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MN 223, Department of Civil Engineering, NIT Rourkela, India

RESEARCH AREAS

- Unsaturated soil testing and characterization through various lab equipments
- Thermo-hydro-mechanical behavior of barrier systems
- Gas and air flow through unsaturated deformable porous media
- Plant-soil-atmosphere interaction in bio-mediated slopes
- Constitutive modelling of unsaturated soils

SKILLS& EXPERTISE

- Various suction and volumetric water content measuring instruments and sensors.
- Double walled, Advanced static triaxial & tensile strength testing appartaus.
- Gas and hydraulic permeability measurement using flexible wall apparatus.
- Model Testing incorporating PIV.

ABOUT ME

Engineering Academician with an interest in contributing to a better understanding of the application of unsaturated soil mechanics for assessing the longevity and sustainability related issues in geo-environmental structures.

EXPERIENCE

ASSISTANT PROFESSOR

Department of Civil Engineering
NIT Rourkela, India | MAY 2023 - PRESENT

ASSISTANT PROFESSOR

Department of Civil Engineering
GITAM University, Bengaluru, India | DEC 2022 - MAY 2023

PROJECT EMPLOYEE

IIT Kanpur, India | JUNE 2019 - JULY 2022

EDUCATIONAL QUALIFICATIONS

DOCTOR OF PHILOSOPHY

Civil Engineering (Geotechnical Specialization)
IIT Kanpur, India | JULY 2013 - JUNE 2019

Thesis: A study on the effect of net confinement on hydro-mechanical behavior of compacted soils.
Supervisor: Prof. Rajesh Sathiyamoorthy
Coursework GPA: 9.00/10.00

MASTER OF TECHNOLOGY

Civil Engineering (Geotechnical Specialization)
IIT Kharagpur, India | JUNE 2011 - JUNE 2013

Thesis: B_w model for bio-treated sand samples.
Supervisor: Prof. Debasis Roy
Cumulative GPA: 9.37/10.00

BACHELOR OF ENGINEERING

Civil Engineering
BESU Shibpur (Presently known as IIEST Shibpur), India | JUNE 2007 - MAY 2011
Cumulative GPA: 8.19/10.00

CONSULTATION

- TEAM MEMBER in the consultation related to ash dyke stability analysis, buttressing, and raising at National Thermal Power Corporation, Rihand, Uttar Pradesh, India (2019 - 2022).
- Served as a TEAM MEMBER and CO-ADVISOR in the consultation related to settlement of a Pile-Raft foundation at Amrapali Yojna, Lucknow, Uttar Pradesh, India (2019 - 2021).
- Served as a TEAM MEMBER and CO-ADVISOR in the consultation related to the ground Improvement of the foundation soil at Ghatampur Thermal Power Project, Uttar Pradesh, India (2020).
- TEAM MEMBER in the consultation related to the ash dyke stability analysis and raising at Esser Power M.P. Limited, Singrauli, Madhya Pradesh, India (2019).

AWARDS & LECTURES

- Invited by Institution of Engineers to present a lecture on World Habitat day at HBTI, Kanpur on October 16, 2016.
- Received Best paper award at an International conference conducted by ISSMGE at Powai (Sep 2016).
- Topper of the Geotechnical Engineering specialization (2011-2013) at IIT Kharagpur, India.

PUBLICATIONS

(**92 Citations** with an **h-index of 5** and an **i-10 index of 3**)

Selected Journals

- **Roy, S.** and Rajesh, S. (2023). "Tensile Strength framework for Unsaturated Coarse and Fine-grained Soils." ***International Journal of Geomechanics***, ASCE, 23(7): 04023095. Link: 10.1061/IJGNAI.GMENG-7801. (Impact Factor - 3.819: Q1, Indexed in SCIE and Scopus).
- Chowdhury, S., **Roy, S.** and Singh, S.P. (2023). "Performance assessment of three alkali- treated fly ashes as a pavement base-course material." ***Construction and Building Materials***, Elsevier, 365: 130110. Link: 10.1016/j.conbuildmat.2022.130110. (Impact Factor - 7.693: Q1, Indexed in SCI and Scopus).
- Khan, V., **Roy, S.** and Rajesh, S. (2022). "Numerical investigation on hydraulic and gas flow behavior of MSW landfill cover system comprising of geosynthetic clay liner under arid climatic conditions." ***Geotextiles and Geomembranes***, Elsevier, 50(6), pp. 1159-1171. Link: 10.1016/j.geotexmem.2022.08.001. (Impact Factor - 5.292: Q1, Indexed in SCIE and Scopus).
- **Roy, S.** and Rajesh, S. (2021). "Test apparatus for rapid determination of soil water retention curve under isotropic loading condition." ***Geotechnical Testing Journal***, ASTM, 44(2), pp. 255-273. Link: doi.org/10.1520/GTJ20190416. (Impact Factor - 1.469: Q2, Indexed in SCIE and Scopus).
- Rajesh, S., **Roy, S.** and Khan, V. (2021). "Modelling WRC and volume change behaviour of Geosynthetic Clay Liners considering net stress and temperature." ***Geosynthetic International***, ICE, 28(2), pp. 174-185. Link: doi/10.1680/jgein.20.00032. (Impact Factor - 3.663: Q1, Indexed in SCIE and Scopus).

Selected Conferences

International

- Jadar, C., Rajesh, S., and **Roy, S.** (2023). "The effect of stress-dependent SWRC on the load carrying capacity of the slope subjected to the drying-wetting path" In: Proceedings of 8th International conference on unsaturated soils, UNSAT 2023, Milos, Greece, 2-5 May 2023.

National

- Jadar, C., Rajesh, S. and **Roy, S.** (2021). "Load Capacity of a Footing on an Unsaturated Soil Slope Considering Stress-dependent SWCC." Eight Indian Young Geotechnical Engineering Conference, 8YIGEC 2021, Oct 21-23, 2021, Chennai.