SOMENATH MONDAL, Ph.D.

Assistant Professor
Department of Civil Engineering
National Institute of Technology Jamshedpur

PERSONAL DETAILS

Address Village: Bodhpur, P.O.: Begut, P.S.: Memari
Dist: Burdwan (West Bengal), Pin: 713407, India
Mobile +91 9004548545
Email smondal.ce@nitjsr.ac.in; mondalsomenath1@gmail.com
Date of Birth January 12, 1990
Web link http://www.nitjsr.ac.in/academics/departments/profile.php?user_id=CE34

EDUCATION

2014 – 2017 **Doctor of Philosophy** (Geotechnical Engineering)
Indian Institute of Technology Bombay, India
Thesis: ***Investigations on Heat Migration in Soil Mass***
Supervisor: **Prof. Devendra Narain Singh**

2011 – 2013 **Master of Engineering** (Geotechnical Engineering)
Bengal Engineering and Science University, Shibpur, India
(*Presently, Indian Institute of Engineering Science and Technology, Shibpur*)
Dissertation: ***Study on Load-Settlement Characteristics of Square Footing on Reinforced Sand***
Overall percentage: 82.55

2007 – 2011 **Bachelor of Technology** (Civil Engineering)
West Bengal University of Technology, Kolkata, India
Overall CGPA: 9.38/10
Projects:
(1) Design of Water Supply System
(2) Design of Waste Water Treatment Plant

2005 – 2007 **Higher Secondary** (West Bengal Board Council of Higher Secondary Education)
Burdwan CMS High School, Burdwan, India
Percentage: 77.4

2005 **Secondary** (West Bengal Board of Secondary Education)
Begut Jahnabi High School, Burdwan, India
Percentage: 91.5

RESEARCH INTERESTS

- Thermal characterization of geomaterials
- Laboratory simulation and modelling of heat migration through soil mass
- Quantification of thermal regime of soil mass
- Quantification of soil minerals and its influence on thermal response of soil
- Heat induced moisture migration

- Thermo-Hydro-Mechanical behaviour of soil
- Geothermal Energy
- Utilization of Industrial waste and Waste plastic in Ground Improvement
- Phytoremediation

COMPUTATIONAL SKILLS

Simulation Software: COMSOL, TEMP/W, SV HEAT, PLAXIS, ABAQUS, ANSYS
Drawing and Plotting Software: AUTOCAD, ORIGIN

PROFESSIONAL EXPERIENCE

05/2018 – present	Assistant Professor, Department of Civil Engineering, National Institute of Technology Jamshedpur, India
01/2014 – 07/2014	Research Assistant at Indian Institute of Technology Bombay, India
07/2013 – 12/2013	Assistant Professor at Hooghly Engineering and Technology College, Hooghly

AWARDS/GRANTS/SCHOLARSHIPS

10/2016-01/2017 and 10/2015-11/2015	The *European Commission Scholarship* via the Marie Curie IRSES project GREAT 'Geotechnical and geological Responses to climate change: Exchanging Approaches and Technologies on a world-wide scale' (FP7-PEOPLE-2013-IRSES-612665) to work as Visiting Research Scholar at Ecole Des Ponts Paristech, France
2014 – 2017	*Ministry of Communication and Information Technology (MCIT), Govt. of India scholarship* for pursuing Ph.D. at Indian Institute of Technology Bombay
2011 – 2013	*Ministry of Human Resource Development (MHRD), Govt. of India scholarship* for pursuing Master's degree at Bengal Engineering and Science University, Shibpur

TEACHING ENGAGEMENTS

Course Name & Code	Level	Semester/Year
Solid Waste Management, CE704	UG 7th Semester	Autumn 2018 & 2019
Environment and Ecology, CE1201	UG 2nd Semester	Spring 2019
Ground Improvement, CE604	UG 6th Semester	Spring 2019
Environmental Engineering II, CE602 & CE1603	UG 6th Semester	Spring 2020 & 2021
Environmental Engineering I, CE1605	UG 5th Semester	Autumn 2020
Environmental Geotechniques, CEGE7235	PG 2nd Semester	Spring 2019
Geoenvironmental Engineering, CE4231	PG 2nd Semester	Spring 2020 & 2021
Ground Water Hydrology, CEG7214 & CE4156	PG 1st Semester	Autumn 2018, 2019 & 2020
Civil Engineering Drawing, CE307	UG 3rd Semester	Autumn 2018 & 2019

Geotechnical Engineering Laboratory – II, CE506 & CE1605	UG 5th & 6th Semester	Autumn 2018 & Spring 2021
Geotechnical Engineering Laboratory – I, CE406 & CE1506	UG 4th & 5th Semester	Spring 2019 & 2020

RESEARCH SUPERVISION

Ph.D.

Sl. No.	Name of the student	Title of Thesis	Year of Joining	Status	Co-supervisor (if any)
1	Bheem Pratap (2018RSCE007)	Development of pavement composite using industrial by-products	2018	Ongoing	Dr. B. Hanumantha Rao (IIT Bhubaneswar)
2	Md. Azhar (2019RSCE006)	Thermo-Hydro-Mechanical behaviour of fine grained soils	2019	Ongoing	Dr. A. K. Singh
3	Mantu Kumar (2016RSCE003)	Ground Improvement Techniques with waste Plastic	2018	Ongoing	Dr. R. P. Singh as Main Supervisor

M. Tech

Sl. No.	Name of the student	Title of Thesis	Year of Joining	Year of Completion	Co-supervisor (if any)
1	Suvojit Patla (2017PGCEGE16)	On improving the performance of silty soil by treating with ferrochrome slag	2018	2019	Prof. A.K. Choudhary
2	Puram Rajasekhar (2018PGCEGE14)	Phytoremediation on heavy metal contaminated soil	2019	2020	-
3	Manika Kumari (2018PGCEGE05)	Bamboo strips as eco-friendly soil reinforcement material	2019	2020	-
4	Swamini Das (2019PGCEGE01)	Settlement characteristics of bottom-ash reinforced with geocell using computational model	2020	Ongoing	Prof. A.K. Choudhary
5	Shachi Yadav (2019PGCEGE03)	Thermo-Mechanical Behavior of Geothermal Energy Pile in Indian Sand	2020	Ongoing	-

B. Tech

Sl. No.	Name of the student	Title of Project	Year of Joining	Year of Completion	Co-supervisor

					(if any)
1	Vikesh Kumar Singh (2015UGCE009) Avinash Kumar (2015UGCE050) Rahul Kumar (2015UGCE053) Sankalp Sanjay (2015UGCE073)	Use of waste plastics as soil stabilizer	2018	2019	-
2	Prashant Kumar (2016UGCE056) Nishant (2016UGCE032)	Phytoremediation	2019	2020	-
	Swapnil Pathak (2016UGCE063) D.Siva Satish Reddy (2016UGCE084)	Leachate treatment			
3	Kajal Kumari (2017UGCE002) Gaurav (2017UGCE033) Pritam Kumar (2017UGCE051) Hemant Kumar (2017UGCE071) Akshay Joseph (2017UGCE095)	Composting of municipal solid waste	2020	Ongoing	-

PATENT

1) "*A METHOD TO DETERMINE THERMAL CONDUCTIVITY OF SOIL FROM THERMAL FLUX MEASUREMENT"*. Indian Patent Application No.: 1930/MUM/2015, Filing Date: May 16, 2015. *Status: Under evaluation*

2) "*SYSTEM FOR ESTIMATING THERMALLY INDUCED VOLUME CHANGE (TIVC) OF SOILS"*. Provisional Indian Patent Application No. 202021015318, Filing date: April 07, 2020. *Status: Under evaluation*

PUBLICATIONS

A. Book

Choudhary, A. K., **Mondal, S.,** Metya, S., & Babu, G. L. S. (2021). Advances in Geo-Science and Geo-Structures (Lecture Notes in Civil Engineering). Springer Nature (In Production)

B. Journal Articles

1) **Mondal, S.,** Singh, D. N., Tang, A. M., & Pereira, J. M. (2020). A finite difference model for undefined end boundary to analyse the heat transfer in dry sands. International Journal of Geotechnical Engineering, 1-7. doi: doi.org/10.1080/19386362.2020.1854972

2) Palaparthy, V. S., **Mondal, S.,** Singh, D. N., Baghini, M. S., & Ananthasuresh, G. K. (2018). Effect of spatial variations and desiccation cracks on the DPHP and MPHP sensors. Sensors & Actuators: A. Physical, Elsevier, 279, 638-648. doi: doi.org/10.1016/j.sna.2018.06.056

3) **Mondal, S.,** Dangayach, S., & Singh, D. N. (2017). Investigations to Establish Heat Transfer Mechanisms in Dry Sands. International Journal of Geomechanics, ASCE, 18(3), 1-5. doi: 10.1061/(ASCE)GM.1943-5622.0001083

4) **Mondal, S.,** Singh, D. N., & Baghini, M. S. (2018). Detection of Thermal Response of Geomaterials: A Critical Appraisal. Emerging Materials Research – ICE, 7(3), 1-14. doi: doi.org/10.1680/jemmr.16.00156

5) **Mondal, S.,** Sharma, V., Singh, D. N., & Baghini, M. S. (2017). Determination of Thermal Regime in Sandy Soils: A Mathematical Framework 'ATHERES'. International Journal of Geomechanics – ASCE, 17(9), 1-12. doi: 10.1061/(ASCE)GM.1943-5622.0000918

6) **Mondal, S.,** Sharma, V., Apte, P., & Singh, D. N. (2017). Electrical analogy for modelling thermal regime and moisture distribution in sandy soils. Geomechanics and Geoengineering, 13(1), 22-32. doi: 10.1080/17486025.2017.1309081

7) **Mondal, S.,** Padmakumar, G. P., Sharma, V., Singh, D. N., & Baghini, M. S. (2016). A methodology to determine thermal conductivity of soils from flux measurement. Geomechanics and Geoengineering, 11(1), 73-85. doi: 10.1080/17486025.2015.1020346

C. Conference Proceedings

1) Rajasekhar, P., & **Mondal, S.** Decontamination of Heavy Metal Contaminated Soils by Phytoremediation, Pot Experimentation. Indian Geotechnical Conference (IGC 2020), Andhra University Visakhapatnam, India. December 17-19, 2020. [Secured **Second Prize** in *Best Paper Prizes* sponsored by Springer Nature in the theme(s) Environmental Geotechnology and Transportation Geotechnics]

2) Singhadeo, S., **Mondal, S.,** & Choudhary, A. K. Efficacy of Red Mud and GGBS in Improving the Engineering Properties of Black Cotton Soil. Indian Geotechnical Conference (IGC 2020), Andhra University Visakhapatnam, India. December 17-19, 2020

3) Kumari, M., & **Mondal, S.** Bamboo Strips as Eco-Friendly Soil Reinforcement Material. National Conference on Geo-Science and Geo-Structures (GSGS 2020), NIT Jamshedpur, India. September 03-04, 2020.

4) Patla, S., **Mondal, S.,** & Choudhary, A. K. On improving the performance of silty soil by treating with ferrochrome slag: an experimental study. Indian Geotechnical Conference (IGC 2019), SVNIT Surat, India. December 19-21, 2019.

5) **Mondal, S.,** Patra, S., & Bera, A. K. Effect of u/B ratio on bearing capacity of square footing on reinforced sand; a FEM based analysis. Indian Geotechnical Conference (IGC2013), Indian Institute of Technology Roorkee, India. December 22–24, 2013.

D. Journal Articles under review

1) Azhar, M., **Mondal, S.,** Singh, D. N., & Singh, A. K. (2021). Establishing zone of influence (ZOI) for cylindrical heat source in dry sand. International Journal of Geomechanics, ASCE.

2) Pratap, B., **Mondal, S.,** & Rao, B. H. (2021). Treatment of Municipal Landfill Leachate: State-of-the-art with a Focus on Disposal Strategy. Journal of Hazardous, Toxic, and Radioactive Waste, ASCE.

SPONSORED RESEARCH PROJECTS

Funding Agency	Title of the Project	Project Cost	Start Date	Duration in months	Current Status	Role
SRG, SERB	Thermo-hydro-mechanical (THM) response of fine-grained soils	INR 31.67 Lakhs	January, 2021	24	Ongoing	PI
DST	Neutralization of Red Mud with Phosphogypsum and Development of Green Construction Materials Using Post-neutralized Waste for Structural Applications	INR 44.65 Lakhs		36	Under review	Co-PI
TEQIP III seed grant, NIT Jamshedpur	Treatment of landfill Leachate by using Low Cost Adsorbent	INR 2.98 Lakhs	April, 2020	-	Ongoing	PI

CONFERENCE AND WORKSHOP

Organised

1) *Organizing Secretary*, National Conference on 'Geo-Science and Geo-Structures (GSGS 2020)', held during September 03-04, 2020, at National Institute of Technology Jamshedpur.

2) *Coordinator*, National Workshop on 'Geo-Systems and Geo-Materials (GSGM 2019)', held during June 03-08, 2019, at National Institute of Technology Jamshedpur.

Attended

1) Brain Storming Session on Environmental Geotechnics, January 24-25 (2017), Science and Engineering Research Board (SERB) and Department of Science and Technology (DST), Goa, India.

2) New Generation Sensors for Unsaturated Soils and Water technology, February 24-25 (2016), Indo-German Workshop, Ruhr-University Bochum, Germany.

PROFESSIONAL ACTIVITIES

⇒ Development of new research laboratory named as "*Geosysnthetics and Geoenvironmental Engineering Laboratory*" at Department of Civil Engineering, NIT Jamshedpur
⇒ *Article Reviewer*, Environmental Geotechnics, ICE Publishing
⇒ *Article Reviewer*, Environmental science and pollution research, Springer

INVITED LECTURE

1) Delivered lecture on "Sensing of thermally Induced Soil Suction" in IGSTC Indo-German Workshop at Ruhr University, Bochum, Germany. February 24-25, 2016.

2) Delivered lecture on "Interaction of thermal energy with soil mass" in TEQIP III sponsored National Workshop on "Geo-System and Geo-Materials" (GSGM 2019) at NIT Jamshedpur. June 07, 2019.

3) Delivered expert lecture on "Contemporary issues in geotechnical engineering" under Twinning activity TEQIP III in WIT Dehradun, January 22, 2021

ADMINISTRATIVE ACTIVITIES

⇒ Member, Institute Publication cell committee, NIT Jamshedpur (Dec. 2020 – till date).
⇒ Warden, Hostel E, NIT Jamshedpur (Nov. 2020 – till date).
⇒ Professor In-charge, Geosysnthetics and Geoenvironmental Engineering Laboratory in NIT Jamshedpur (May 2020 – till date).
⇒ Professor In-charge, Environmental Engineering Laboratory in NIT Jamshedpur (May 2020 – till date).
⇒ Faculty Advisor, UG Batch 2018, Department of Civil Engineering, NIT Jamshedpur (July 2018 – till date).
⇒ Member, Ph.D. student selection committee for Geotechnical Engineering, Department of Civil Engineering, NIT Jamshedpur (June 2018, June 2019 & June 2020)
⇒ Member, Invitation Committee and Documents/Records Preparation and Printing Committee, NBA Experts Visit, NIT Jamshedpur (July 2019 – August 2019)
⇒ Member, NBA Accreditation Committee, Department of Civil Engineering, NIT Jamshedpur (November 2018 – August 2019).
⇒ Member, Stock Verification Committee, Department of Civil Engineering, NIT Jamshedpur (July 2018, June 2020)
⇒ Faculty In-Charge for Team NIT Jamshedpur, Inter NIT Athletics meet, held at NIT Warangel, March 2019

REFERENCES

1) Prof. Devendra Narain Singh, Department of Civil Engineering, IIT Bombay (dns@civil.iitb.ac.in)

2) Prof. Dali Naidu Arnepalli, Department of Civil Engineering, IIT Madras (arnepalli@iitm.ac.in)

3) Dr. Anh Minh Tang, Laboratory NAVIER, Geotechnical Team-CERMES, Ecole Des Ponts Paristech (anhminh.tang@enpc.fr)

4) Dr. Jean-Michel Pereira, Laboratory NAVIER, Geotechnical Team-CERMES, Ecole Des Ponts Paristech (jean-michel.pereira@enpc.fr)