Kavita Tandon (Assistant Professor, HBTU, Kanpur) Secretary ASCE India Section (2025-27) Ph.D. in Geotechnical Engineering (IIT Delhi) M.Tech Earthquake Engineering (IIT Roorkee, Soil Dynamics) Email_id: kavita.tandon2008@gmail.com, ktandon@hbtu.ac.in Contact No: +919015536450, +916389950719



<u>Area(s) of Interest (Research)</u>: Geotechnical Earthquake Engineering, Soil Dynamics, Machine Foundations, Environmental Geotechnics, Sustainable Geotechnics, Offshore Geotechnical Engineering, Tunnelling, and Rock Engineering, Shallow foundations, Seismic Slope Stability Analysis, Performance analysis of Deep Foundations, Wave Propagation in Multilayered Soil Media, One Dimensional Ground Response Analysis.

<u>Area(s) of Interest (Teaching)</u>: Geotechnical Engineering, Advanced Foundation Engineering, Geotechnical Earthquake Engineering, Surveying, Building Material and Construction, Concrete Technology, Reinforced Concrete Design, Transportation Engineering, Engineering Hydrology, Bridge Engineering.

<u>Ongoing Research Areas:</u> Sustainable Geotechnics, Sustainable Concrete, Slope Stability Analysis, Geoenvironmental Engineering, Land Use using ArcGIS

TEACHING EXPERIENCE:

- Assistant Professor (Regular), Dept. of Civil Engineering, HBTU, Kanpur 208002 (3rd Jan 2022 Till Now)
 Courses allotted –
 U.G. Course –
 Geotechnical Engineering 1(B.Tech 5th Semester)
 Geotechnical Engineering 2 (B.Tech 6th Semester)
 Advanced Foundation Design (B.Tech 8th Semester)
 Engineering Drawing (B.Tech 1st Semester)
 Introduction to Civil Engineering (B.Tech 2nd Semester)
 Grund Improvement Technology (B.Tech Departmental Elective 6th semester)
- Assistant Professor (Contractual Faculty), Dept. of Civil Engineering, Punjab Engineering College, Chandigarh – 160012 (18th Feb 2021 – 30th June 2021)
 Courses Taught – U.G. Course - Advanced Reinforced Concrete Design (B.Tech 8th Semester)

P.G. Course - Bridge Engineering (M.Tech 2nd Semester)

 Assistant Professor, Dept. of Civil Engineering, JSS Academy of Technical Education Noida, U.P. – 201301 (25th Aug 2014 – 17th July 2015)
 Courses Taught – U.G. Course - Open Channel Flow (B.Tech 7th Semester) Advanced Foundation Engineering (B.Tech 5th Semester)

RESEARCH EXPERIENCE:

- Early Doc Fellow, Dept. of Civil Engineering, Indian Institute of Civil Engineering 110016 (1st Nov 2021 – 31st Dec 2021)
- Senior Research Fellow, Dept. of Civil Engineering, Indian Institute of Civil Engineering – 110016 (1st Aug 2021 – 31st Oct 2021)

DISSERTATION /IIT DELHI 2015-Defended on 8th Sept 2021]:

Dynamic Response of Block Foundations subjected to vibrations from two rotating machines: A rigid block foundation experiences only rigid body displacements. Therefore, the influence of superimposed forces and moments produced by multiple forces results in a six-degree-freedom system, challenging to analyze using the simple theoretical concepts of harmonic vibrations. In the present study, experimental investigations are carried out for the dynamic response of machine foundations subjected to vibration from two rotating machines in the field for block foundation. Several parameters vary, and the frequency amplitude response is obtained for a different combination of the applied dynamic forces on a combined block foundation. The experimental results are compared with the available theories in the commercial software DYNA 6. The obtained results and the measured results show a good agreement between them.

DISSERTATION /IIT ROORKEE 2012-14]:

Wave Propagation in Multilayered Soil Media due to An Active Source:

A detailed study on the analysis of surface wave propagation in multilayered soil media due to an active source. Analysis of dispersion curves obtained from soil modeling in PLAXIS 2D and doing inversion to obtain the original soil profiles and identify soft layers on geometric soil profile.

PROJECTS:

1. Simulation of Wave Propagation in Multilayered Soil Media: [IIT Roorkee]

A study on the simulation of wave propagation results with Green's Function Solution analyzed the effects of medium properties on dispersion curves.

2. Soil investigation and design of flexible pavements: [JSSATE Noida]

A detailed study of soil investigation viz. field and laboratory tests involved in the investigation and various design methods for flexible pavements.

PUBLICATIONS:

INTERNATIONAL JOURNAL: 05 (Published)

- Tandon, K., & Minhas, C.M. (2015). Analysis and Behaviour of Surface Wave Dispersion for Soft Layer Trapped Between Stiff Layers. IJETMAS, Volume 3 Special Issue, May 2015 (026 038).
- Minhas, C.M., & Tandon, K. (2015). Integrated Solid Waste Management Systems for Environmental Sustainability at Institutional Level – Case Study. International Journal on Occupational Health & Safety, Fire & Environment – Allied Science, Volume 5 Issue 1 July – Sep 2015 (020 – 026).
- Tandon K, Kumar D, Ayothiraman R, Manna B, Ramana G. Numerical evaluation of tire chips– filled trench barriers for effective vibration isolation. *Journal of Low-Frequency Noise, Vibration and Active Control.* 2022;42(1), PNo. 325-344. doi:10.1177/14613484221118998
- Tandon, K., Ralli, R., Manna, B., Ramana, G. V., & Datta, M. (Nov 2022). Vertical Vibration Tests to Study the Effect of Foundation Geometry and Embedment on the Non-linear Response of Block Foundations. *Arabian Journal of Geosciences* <u>https://doi.org/10.1007/s12517-023-11773-8</u>
- Halder, P., Tandon, K., Ralli, R., Manna, B., (Feb 2024). Experimental Assessment of the Performance of Novel Cushioned Disconnected Piled Raft System under Vertical Load. *Arabian Journal of Geosciences*. Vol 17(103) <u>https://doi.org/10.1007/s12517-024-11901-y</u>
- Tandon, K., Manna, B., & Ramana, G. V. (2025) Influence of soil-foundation design parameters on dynamic response of rigid block foundations subjected to combined translational and rotational vibrations, *Soil Dynamics and Earthquake Engineering*, Vol 197, 109516, ISSN 0267-7261. https://doi.org/10.1016/j.soildyn.2025.109516.

NATIONAL JOURNAL: NIL

INTERNATIONAL CONFERENCES: 05 (Published in Proceedings)

- Tandon K., Ralli R., Manna B., Ramana G.V., Datta M. (2019) Effect of Embedment on Dynamic Response of Block Foundation Under Coupled Vibration. In: Choudhury D., El-Zahaby K., Idriss I. (eds) Dynamic Soil-Structure Interaction for Sustainable Infrastructures. GeoMEast 2018. Sustainable Civil Infrastructures. Springer, Cham
- Tandon K., Ralli R., Manna B., Ramana G.V., Datta M. (2019) Dynamic Response of Embedded Block Foundation Under Vertical Vibration: Volume 2., In book: Proceedings of China-Europe Conference on Geotechnical Engineering.
- Yadav A., Tandon K., Manna B., Ramana G.V., Ganguli A. (2019) Determination of the effect of various material present below pile tip: Non-destructive testing and numerical study. 7th International Conference on Computational Methods in Structural Dynamics and Earthquake Engineering Methods in Structural Dynamics and Earthquake Engineering.
- Choudhary S.S., Biswas S., Halder P., Tandon K., Manna B. (2019) Dynamic characteristics of a 6pile group under vertical excitations – theory versus experiment. In Proceedings 7th International

Conference on Earthquake Geotechnical Engineering.

 Tarun Raj Singh, Tandon K., (2024) Experimental Study on Fire Resistance of Cellular Light Weight Concrete Block of Rice Husk Ash. International Conference on Waste Recycling & Environmental Technology (WRET – 2024) during Feb 8th – 9th, 2024. (Abstracts Published in Proceedings)

INTERNATIONAL CONFERENCES: 06 (06 accepted 03 In Press)

- Tandon, K., Chaudhary, A., Maurya, S., Lepcha, T. T., Life Cycle Assessment of Fibre Reinforced Concrete Pavement. ASCE International Conference on Challenges And Innovations For Sustainable Smart Cities (CISSC-2025) (Full Paper Accepted and Presented in the Conference)
- Tandon K., Manna B., Ramana G.V. Experimental Investigation on Dynamic Response of Combined Block Foundation Resting on the Ground Surface. 8th International Conference on Recent Advances in Geotechnical Earthquake Engineering and Soil Dynamics. (Full Paper Accepted, In Press, Received Best Paper Award)
- Singh T R., Tandon K., Optimizing Concrete Foundations in Marine Soils with Sustainable Iron Scrap Aggregates. **5th Structural Integrity Conference and Exhibition 2024, VNIT Nagpur** (Full Paper Accepted, In Press)
- Ganguly R., Tandon K., Trivedi S., Haider A., Yadav R., Pal K., (2025) Assessment of the municipal solid waste management system of Kanpur City. (Full Paper Accepted) CHEMTECHNOVA 2025
- Vansh Vasu, Ranjeet Kumar, Shashwat Tiwari, Shalabh Agarwal, Kavita Tandon (2025) Quantifying Leachate Pollution Potential of MSW Landfill A" A Case Study of Kanpur City. (Full Paper Accepted) CHEMTECHNOVA 2025
- Tandon K., Yadav A., Pridarshi M., Singh A., Ganguly R., (2025) Assessment of engineering and mechanical properties of soil below open dumping A Case Study of Kanpur City. (Full Paper Accepted) **IIMS 2025**

NATIONAL CONFERENCES: 03(01 Published in Proceedings, 02 In Press)

- Tandon K., Manna B., Ramana G.V., (2022) Evaluation of Nonlinear Response of Block Foundation Under Vertical Vibration: Indian Geotechnical Conference, Kochi. Proceedings of the Indian Geotechnical Conference 2022 Volume 2 – Geotechnics: Learning, Evaluation, Analysis and Practice (GEOLEAP) pp 265-270.
- Tandon K., Singh P., Gera H., Ali A., Yadav R K., Ganguly R., (2024) Waste Characterization of Municipal Solid Waste in Kanpur City. IGC 2024 (Full Paper Accepted, In Press)
- Singh T R., Tandon K., (2024) Efficacy of Rice Husk Ash in Partial Replacement of Cement in Concrete Foundations under Marine Soils. IGC 2024 (Full Paper Accepted, In Press)

STUDENT GUIDANCE:

Ph.D: 03 Ongoing

- Tarun Raj Singh: Effect of Soil Salinity on the efficacy of sustainable concrete for Offshore Pile Foundations (Since Feb 2022)
- Mohit Singh: Utilization of Industrial Waste in Soil Stabilization of Weak Compressible Soils (Since Aug 2023)
- Ashish Puri: Municipal Solid Waste Characterization and Assessment of Engineering and Mechanical Properties of Soil Below Open Dumping(Since Aug 2024)

Undergraduate (B. Tech): 06 completed 02 ongoing

- Design and Construction of Pavements in Hilly Areas. (July 2015)
- Analysis and Design of Machine Foundation Using STAAD Pro. (June 2021)
- Efficacy of Sustainable Concrete made of Bagasse Ash (July 2022)
- Lifecycle Analysis and Durability of Fibre Reinforced Concrete Pavement (June 2023)
- Characterization of Municipal Solid Waste in Kanpur City (June 2024)
- Assessment of Engineering and Mechanical Properties of Soil Below Open Dumping (June 2024)
- Strength and Durability Properties of Concrete with Partial Replacement of Cement with Rice Husk Ash under Saline Soil Conditions (May 2025)
- Strength and Durability Properties of Concrete with Partial Replacement of Cement with C&D Waste under Saline Soil Conditions (May 2025)

Postgraduate (M.Tech): 01 completed

• Pushpendra Pradeep Sagar: Quantifying Land Cover Change For Noida City Using GIS & Time Series Analysis (June 2023)

CONFERENCES/SEMINARS/WORKSHOPS (ORGANIZED):

- Member of the Organizing Committee of the Geotechnology 2030: Future Vision Conference, Indian Institute of Technology Delhi, New Delhi, 2015.
- Member of Organizing Committee, NHPC Sponsored CEP Short Term Course on Slope Stability and Stabilization Techniques for HE Projects, Indian Institute of Technology Delhi, New Delhi, Nov 21- 23, 2016.
- Member of the Organizing Committee of the International Symposium on Geotechnics of Transportation Infrastructure (ISGTI 2018), Indian Institute of Technology Delhi, New Delhi, Apr 7 – 8, 2018.

- Member of the Organizing Committee, One Week Online Short Term Course (STC) on Emerging Trends in Environmental Engineering for Sustainable Development (ETSED 2025), Jan 20-24, 2025.
- Co-convenor, Five Days Workshop on Interdisciplinary Approaches in Geotechnical and Geoenvironmental Engineering, Harcourt Butler Technical University Kanpur, Feb 17-21, 2025.

<u>CONFERENCES/SEMINARS/WORKSHOPS (PARTICIPATED/ATTENDED):</u> Jan 22-June 22

- Advances in Teaching and Research in the Field of Disaster Resilience and Green Technology for Sustainable Development Goals, 6th June to 10th June 2022 organized by National Institute of Disaster Management, Ministry of Home Affairs, Govt. of India.
- Faculty Development Program on Recent Advances in Structural Engineering organized by Hindustan Institute of Technology & Science, Chennai, 20th to 24th June 2022.
- Faculty Development Program on Geo-Environmental and Geo-Transportation Engineering organized by NIT Raipur from 27th June to 1st July 2022.

July 22-June 23

- Two Weeks GIAN Course on Integrated Approach on Geological and Geotechnical Aspects of Earthquake Engineering – Review and Revisit, organized by VNIT Nagpur from 4th July to 15th July 2022.
- Two Week Short Course on Heavy-Haul Railways: Towards Safe, Efficient and Sustainable Design, organized by IIT Kharagpur and University of Technology Sydney from 2nd Aug to 12th Aug 2022.
- One Month Online Certificate Course on Basics of Remote Sensing in Climate Change Modelling organized by Amity Institute of Environmental Sciences from 18th Aug to 19th Sep 2022.
- Five-Day Workshop on Sustainable Geoenvironmental Practices: Hazard Mitigation and Environment Protection organized by IIT Indore and VAJRA SERB India from 27-31 March 2023.
- Two-day Online Training Programme on Design of Steel Structures with the Latest Indian Codes organized by the Institute for Steel Development & Growth (INSDAG) on 6th and 20th May 2023.
- One Week Online Short-Term Course on Prospects of Infrastructure Development in Construction organized by NIT Jalandhar from 22-26 May 2023
- GIAN Course on Stochastic Soil Structure Interaction organized by IIT Bhubaneshwar from June 26-30, 2023

July 23-June 24

- Short Term Program Thermal Comfort organized by NIT Patna from 18th Aug to 22nd August 2023
- Advances in Rock Engineering organized by MIT Aurangabad from 21st August to 25th August 2023
- Geotechnics and Soil-Structure Interaction organized by NIT Hamirpur from 1st to 5th Sept 2023
- S3WM, organized by NIT Patna from 4th Sept to 8th Sept, 2023.
- Three Day Faculty Development Programme on "Citation & Reference management for Scholarly Writing" organized by IQAC, NSB Bangalore in collaboration with Mendeley, Netherlands from 26th to 28th February 2024.
- Five days online short-term course on "Mountain Disaster Management: Mitigating Landslide and Earthquake Risks" organized by NIT Hamirpur from 5th to 9th April.
- Webinar Series on Advances in Geotechnical Engineering organized by Department of Civil Engineering, JUIT, Solan, H.P., India and IGS Shimla Chapter from 30th April 2024 to 4th May 2024.
- One Week FDP on Advanced Pedagogical Learning and University Administration organized by HRD Cell, HBTU Kanpur, from May 27th to June 1st 2024.

June 24 - June 25

- Six Weeks SFRF Program at IIT Delhi One Week Online from 4th June 2024 to 13th July 2024 under the CEPIIT Delhi Program.
- One Week Workshop on Disaster Risk Assessment organized by Centre for Structural Engineering & Disaster Management, Jaypee University of Information Technology, Waknaghat from July 22-26, 2024.
- Field Oriented Challenges in Civil Engineering FOCCE-2024, NIT Jamshedpur, 5th Aug 2024 9th Aug 2024.
- Online Facult Development Program on Futuristic Trends in Clean Energy and Manufacturing Technologies, HBTU Kanpur, 30th Dec 2024 to 04th Jan 2025.
- Five Days Short Term Course on Emerging Trends in Geotechnical Engineering, NIT Rourkela 3rd March – 7th March 2025.
- NFLP Training Program at IIT Roorkee under the Ministry of Education, 22nd March to 26th March 2025
- STC Online mode on Advancing Real-Time IoT Applications with Machine Learning and Deep Learning" from 10th to 14th April 2025.

INVITED LECTURES:

- Lecture for Rural Engineering Department, Kanpur, UP, on the topic Design and Construction of Flexible and Rigid Pavements organized by Rural Engineering Department, Kanpur, from 30th May to 1st June 2022.
- Lecture on Earthquake Resistant Design of Foundation under Earthquake Resistant Affordable Housing organized by Department of Technical Education, U.P. Govt. from 19th Dec – 23rd Dec 2022.
- Guest Speaker at International Conference on Science, Technology, Pharmacy & Management: Bridging Knowledge Gaps for Global Solutions (STPM: BKGGS-2024) on "Agricultural Waste – Future of Sustainable Engineering" from 17th – 18th May 2024.

SKILLS AND ACHIEVEMENTS:

Software Packages	: Microsoft Office, PLAXIS 2D, PLAXIS 3D, DYNA 6, GEO-
	STUDIO, SimaPro, ArcGIS
Additional Courses Taken	: Geotechnical Earthquake Engineering, Earthquake Resistant
	Design of Foundations, Ground Improvement Techniques,
	Machine Foundation, Earthquake Resistant Design of
	Masonry Structures. Theory of Vibration, Engineering
	Behaviour of Soils, Site Investigation and Foundation Design
Languages Known	:English(SRW), German (SR), Hindi(SRW), Sanskrit(SRW),
	Marathi(SR),

AWARDS:

- Research Scholar Travel Award (MHRD) (2018)
- **ISSMGE Foundation Award** (2019)
- Early Doc Fellowship (2021)
- **BEST PAPER AWARD at 8th ICRAGEE** (2024)

MEMBERSHIP OF PROFESSIONAL SOCIETIES:

- Indian Geotechnical Society (IGS) Life Member (LM 4245)
- Indian Geotechnical Society Delhi Chapter (IGS Delhi) Life Member (LM 4245)
- International Society for Soil Mechanics and Geotechnical Engineering (ISSMGE) (LM 4245 IN)
- Indian Society of Earthquake Technology (ISET) Life Member (LM 1933)
- International Commission on Large Dams, INDIA Young Annual Member (INCOLD)
- American Society of Civil Engineers (ASCE)- Associate Member (10666969)