

DEPARTMENT OF CIVIL ENGINEERING

NEWSLETTER

An Insight into the Department of Civil Engineering. Exploring Key Events, Research Highlights and Sustainable Initiative.



JANUARY 2025 ISSUE

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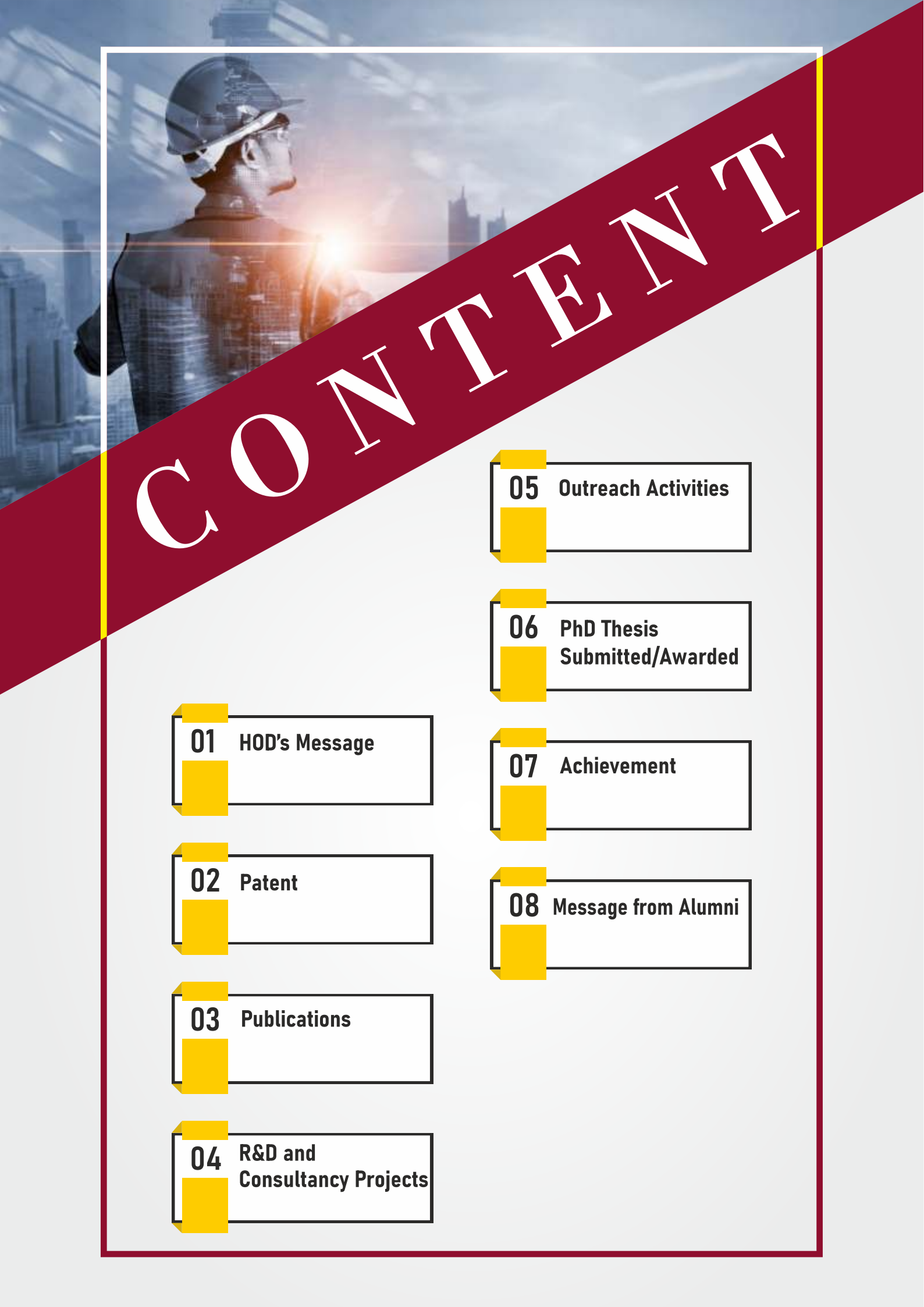
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Published by

Department of Civil Engineering
Indian Institute of Technology (ISM) Dhanbad
Jharkhand - 826004



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MESSAGE *from the* HOD's Desk



Dear All,

With a great pleasure, I hereby introduce the first edition of the monthly Newsletter of the Department of Civil Engineering: "CiviLens".

As we continue to move through another eventful year, we're eager to share the updates and achievements of the department and faculty in January 2025.

Two major events, a workshop and an International Conference were held in this month. The department is going to organise few more events in the near future.

Prof. Srinivas Pasupuleti



DEPARTMENT OF CIVIL ENGINEERING
INDIAN INSTITUTE OF TECHNOLOGY (ISM) DHANBAD



PATENT



Prof. Satadru Das Adhikary
Dipanshu Jain (PhD Student)

Published Indian Patent No. 202531006117 on 31.01.2025 for their invention titled **"A Composition for the development of Paver Block utilizing cement-free concrete with waste aggregates and a process for the preparation thereof"**.

PUBLICATIONS

JOURNALS



Agrawal , J. Sinha , N. Jangre , F. Kumar , Kamalkant , A. Sinha , A. Singh , A. Banerjee , A.S. Venkatesh , Pasupuleti S., 2025, "Developing an efficient and optimized irrigation plan under varying water-supply regimes", Ain Shams Engineering Journal, Volume 16, Issue 2, 103272, <https://doi.org/10.1016/j.asej.2025.103272>.



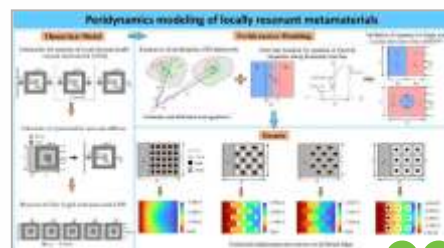
Mohanty M., Sarkar R. and Das S.K. (2025). "Effects of Spatial Heterogeneity on Pseudo-Static Stability of Coal Mine Overburden Dump Slope using Random Limit Equilibrium and Random Finite Element Methods: A Comparative Study." Earthquake Engineering and Engineering Vibration, Springer, 24 (1): 83-99, <https://doi.org/10.1007/s11803-025-2303-y>



Banik N., Sarkar R. and Emad Uddin Md. (2025). "Assessment of Dynamic Characteristics of Bio-Cemented Sand Considering Microbially Induced Calcite Precipitation Treatment." Environmental Science and Pollution Research, Springer, <https://doi.org/10.1007/s11356-024-35768-4>.



Sajal, & Roy, P. (2025). "Peridynamics Modeling of Locally Resonant Metamaterials", Journal of Peridynamics and Nonlocal Modeling, Springer, 7 (3). <https://doi.org/10.1007/s42102-025-00127-5>



PUBLICATIONS



Rathod L. V., Timbadiya P. V., and Barman B. Turbulent flow structure in a symmetric compound channel with flexible emergent vegetation over floodplains. Ecohydrology, 18, 1-19, <https://doi.org/10.1002/eco.2763>



R&D AND CONSULTANCY PROJECTS

Sl. No.	PI/Co-PI or CI/Co-CI	Project Title	Status	Project Value (Lakhs)	Funding Agency
1.	CI: Prof. Tanish Dey/CE: Co-CI: Prof. Rahul Bhartiya/CE: Co-CI: Prof. S. Chaudhary/CE	Proof Checking for Design and Drawings of Networks Pipeline and Interception Diversion Inclusive of IPS for STP and I&D Project	Ongoing (Consultancy Project)	Rs. 4.13	M/s Enviro Infra Engineers Ltd., Ramgarh
2.	CI: Prof. Sarat K. Das, CE	The annual compliance audit for Ash Disposal for Hindalco Muri CGPP 30 MW Power Plant (designed capacity -30 MW, currently using 16-17 MW)	Ongoing (Consultancy Project)	Rs. 1.18	M/s Hindalco Industries Limited, Muri
3.	CI: Prof. Tanish Dey, CE	Mix Design of M10, M15, M20, M25 & M30 Grade of Concrete	Ongoing (Consultancy Project)	Rs. 2.95	M/s RMN Infrastructures Ltd., Ramgarh
4.	CI: Prof. Tanish Dey, CE	Mix Design of M20, M25, M30 and M35 Grade of Concrete for Mahagama Rail Project	Ongoing (Consultancy Project)	Rs. 2.36	M/s Triveni Engicons Pvt. Ltd., Jamshedpur

OUTREACH ACTIVITIES

WORKSHOP

The Department of Civil Engineering, IIT (ISM) Dhanbad, organized a two-day workshop on "Recent Advancements and Best Practices in Civil Engineering with Emphasis on Application of High-Strength Reinforcement Bars in Concrete Construction" sponsored by TATA TISCON as part of the institute's Centenary Celebrations on 3rd and 4th January 2025. Prof. Rahul Bhartiya was the coordinator and Prof. Pranesh Roy was the co-coordinator of the workshop. A total of 41 participants attended the workshop. The participants were practicing civil engineers and architects from various parts of the country. The workshop focused on the design

OUTREACH ACTIVITIES

of earthquake resistant structures covering both theoretical and practical aspects. The objective of the workshop was to enhance the understanding of the practicing civil engineering professionals about the recent advances in civil engineering with emphasis on use of high-strength reinforcement bars, earthquake resistant design methods, and the importance of use of Indian standard codes. Several eminent speakers from industry and academia delivered expert lectures in the workshop. Prof. S.C. Dutta, Professor (HAG), IIT (ISM) Dhanbad, delivered a keynote lecture on "Dos and Don'ts in Earthquake Engineering". Prof. Rajib Sarkar from IIT (ISM) Dhanbad discussed earthquake-resistant design of pile-supported structures with focus on tall building foundations. Prof. Sanket Nayak from IIT (ISM) Dhanbad explained Indian Codes and standard guidelines for estimation of earthquake load on buildings. Prof. Deepak Yadav from IIT Jammu elaborated on modeling using Staad Pro/ETABS of RCC buildings subjected to wind and seismic loads and explained several practical issues. Dr. Priyanka Bhartiya from COWI India Pvt. Ltd., Gurgaon highlighted the importance of soil tests for foundation design. Prof. Pranesh Roy from IIT (ISM) Dhanbad provided a review of the direct stiffness method. Prof. Rahul Bhartiya from IIT (ISM) Dhanbad elucidated a few structural failures of engineering importance and lessons learnt from them. The workshop also included a visit to the concrete and material testing laboratories of the Civil Engineering Department, IIT (ISM) Dhanbad and a demonstration of tensile test of reinforcement bar.



OUTREACH ACTIVITIES

CONFERENCE

Department of Civil Engineering, in partnership with ASCE India Section: Eastern Region, organized an International Conference on Smart Resilient and Sustainable Infrastructure (SRISTI) on 24-25 January, 2025 at IIT (ISM) Dhanbad. This interdisciplinary conference had themes of Construction Practice and Construction Materials, Tall Buildings and Special Structures, Disaster Resilient Infrastructure, Smart and Intelligent Infrastructure and Computational Mechanics, Risk and Reliability. This conference had 200 participants and 100 good quality research papers from India and abroad. This conference had 26 keynote sessions by leading experts from academia and Industry from India and abroad. The eminent keynote speakers from academia comprised Prof. Li Bing from NTU Singapore, Prof. Fernando Ortiz Quintana from ETH Zurich, Prof. Ravindra Gettu, V.S. Raju Chair Professor from IIT Madras, Prof. Durgesh Chandra Rai, Professor (HAG) from IIT Kanpur, Prof. Vasant Matsagar, Dogra Chair Professor from IIT Delhi, Prof. Yogendra Singh, Railway Bridge Chair Professor from IIT Roorkee, Prof. Suresh Bhalla, Professor (HAG) from IIT Delhi, Prof. K.V.L. Subramaniam, Professor (HAG) from IIT Hyderabad, Prof. Arghya Deb from IIT Kharagpur, Prof. Anupam Chakrabarti from IIT Roorkee, Prof. Sekhar Chandra Dutta, Professor (HAG) from IIT (ISM) Dhanbad, Prof. Radhakrishna G. Pillai from IIT Madras, Prof. Sudib K. Mishra from IIT Kanpur, Prof. S. Suriya Prakash from IIT Hyderabad, Prof. Subrata Chakraborty, Professor (HAG), IIST Shibpur and Prof. Jayadip Ghosh from IIT Bombay. Mr. Dilip Kr. Dhar, Managing Director, Con-Tech Business Solutions Pvt. Ltd., Mr. Kaizad Engineer, Technical Director, Ushta Infinity Construction Company Private Limited and Dr. Priyanka Bhartiya, Senior Specialist, COWI India Private Limited were the keynote speakers from industry. This conference paved the way for national and international research collaborations, industry-institute interactions, brainstorming and knowledge disseminations.



INTERNAL FACULTY INVITED TALK

Prof. Srinivas Pasupuleti delivered expert lecture entitled "Ash Use for eco-friendly advancements in construction and industrial applications" at 1st ASH USER MEET organised by PVUN, Ranchi (a subsidiary of NTPC) on 10th January 2025 at Ranchi.

Prof. Srinivas Pasupuleti delivered keynote address entitled "Application of Geospatial techniques in Civil Engineering" in International Conference - SRISTI-2025 on 25th January 2025 at Dhanbad.

OUTREACH ACTIVITIES



Dr. Punyabeet Sarangi delivered an online expert talk on 10th January 2025 at the *Emerson Centre of Excellence for Sustainability Studies, TERI School of Advanced Studies, New Delhion* the topic *'Assessing the impact of motivation, service quality, and infrastructure on the travel behavior of floating population and their satisfaction levels: A case study of Kumbh Mela, Ujjain, India.'* Additionally, I had an interaction session with Prof. Shaleen Singhal and his research group on their upcoming project titled *Mapping the Impact of Floating Population on Infrastructure in Maha Kumbh at Prayagraj 2025* in collaboration with Hokkaido University Japan, IIT Roorkee, and IIT BHU.

Dr. Rajib Sarkar Delivered invited lecture on **"Comparative Behaviour of Vertical and Batter Piles in Liquefiable Soils through Finite Element Method"** at Online Faculty Development Programme Performance-Based Earthquake Design: Combining Finite Element Analysis and AI for Structural Optimization, Electronics & ICT Academy and Department of Civil Engineering, NIT Warangal, 21st January 2025.

Dr. Kironmala Chanda delivered an online invited talk on **"Probability Distribution fitting through MATLAB for Hydrologic Data Analysis"** at **Five Days Hands on Workshop on MATLAB Application in Civil Engineering** (in Hybrid mode), 16-Jan to 20-Jan, 2025 sponsored by MAPCON held at **National Institute of Technology Jamshedpur**, organised by Department of Civil Engineering, NIT Jamshedpur.

PhD THESIS SUBMITTED/ AWARDED

Awardee	Supervisor	Thesis Title	Submitted/ Awarded
Ms. Monika Mohanty	Prof. S. S. Mohapatra	"Sustainable Utilisation of Coal Overburden Material in Low-Volume Road Construction"	Awarded
Mr. Romio Mandal	Prof. Sanket Nayak	"Rheological Characterization of Conventional, Self-compacting, and 3D-printed Concrete"	Awarded

ACHIEVEMENTS

Mr. Ravi Kumar Mishra (Ph.D scholar) received an international travel grant award to present his research at the first UNCCRD Delta Summit at AIT Bangkok, Thailand.

MESSAGE FROM ALUMNI



Ravi Kumar Gupta
 Batch - 2019

Assistant Executive
 Engineer in the BRO
 B.Tech.
 Dep. of Civil Engg.
 IIT (ISM) Dhanbad

To become an Assistant Executive Engineer in the BRO, several key areas require focus. One of these is a good command of core civil engineering subjects for clearing the Engineering Services Examination. In my case, the in-depth knowledge gained during college provided an edge in my preparation and helped me ace this exam. Therefore, start focusing on core civil engineering subjects, which will help you clear this exam.

Develop qualities such as teamwork, discipline, leadership, motivation, problem-solving, and adaptability. As a BRO officer, you'll work in a structured environment, leading large teams of junior engineers and laborers in challenging locations.

High physical fitness is crucial as BRO officers often work in difficult terrain, demanding robust physical capabilities. Be prepared for rigorous physical tests.

Work-life in the BRO is challenging but highly rewarding, with postings in tourist-friendly areas with less pollution, various perks and benefits, invaluable experience in road and bridge construction and maintenance which significantly enhances your technical skills, and a strong sense of national service and direct contribution to infrastructure development in strategically important areas.

Develop strategies for time management and stress management, as balancing personal and professional life in such demanding environments is crucial.

MY JOURNEY AT IIT (ISM) DHANBAD: A TRANSFORMATIVE EXPERIENCE



Dr. Adheesh Kumar Vivek
 Assistant Professor

School of Studies of
 Engg. & Technology

Dept. of Civil Engg.
 (A Central University, C.G.)
 B.E. (VTU, Belgaum)
 M. Tech (NIT, Silchar)
 Ph.D. IIT (ISM), Dhanbad
 Best Ph.D. Thesis Award

After completing my B.E. from VTU, Belgaum in 2014, I pursued M.Tech in Transportation Engineering at NIT Silchar, where I developed a growing interest in research. This led me to IIT (ISM) Dhanbad, where I began my Ph.D. in Transportation Engineering in the Department of Civil Engineering in 2018. My journey at IIT (ISM) was intellectually enriching and transformative. The rigorous academics deepened my research, while extracurricular activities and supporting hands of friends fostered balance, leadership, and teamwork, shaping my Ph.D. experience. A pivotal aspect of my journey was the support I received from my supervisor, Dr. Smruti Sourava Mohapatra. His guidance, particularly during moments of academic challenge, helped me refine my research. Dr. Mohapatra's mentorship extended beyond research, offering valuable personal support when needed. He played an important role in navigating some of the personal challenges I encountered, offering not just academic advice but also emotional encouragement. My doctoral research led the publication of 9 articles in reputed journals. In 2023, I was honored to receive the Best Ph.D. Award in the Department of Civil Engineering at IIT (ISM). That same year, I transitioned into my role as an Assistant Professor in the Department of Civil Engineering at Guru Ghasidas Vishwavidyalaya.

Reflecting on my time at IIT (ISM) Dhanbad, I realize how deeply it has shaped both my professional and personal growth. The guidance, opportunities, and challenges I experienced here prepared me for the next step in my academic journey, and I remain thankful for the invaluable experiences that continue to influence my career.