



NIRMAAN

A Biannual Newsletter of the Department of Civil Engineering, IEST Shibpur
Vol 2, Issue 1: April – September 2025

It is a pleasure to welcome you all to the third edition (Vol. 2, Issue 1) of NIRMAAN, the biannual newsletter of the Department of Civil Engineering, IEST Shibpur. This publication continues to capture the spirit of our community and the progress we make together.

Beyond academic excellence, our department remains focused on research, seminars, workshops, and participatory activities that involve students and faculty alike. We are especially encouraged by the growing number of invited talks and visits by our faculty members, which help foster valuable collaborations in emerging research domains. With six newly joined faculties, our academic and research base is stronger than ever, and we are positioned to achieve greater professional impact in the times ahead.

In this issue, you will find updates on ongoing research and consultancy projects, upcoming conferences, and opportunities for collaboration. You will also get a brief look at various activities conducted in the last six months including the orientations of our newly admitted students that would be the future torchbearers of our Department's legacy. We are constantly striving to enhance the visibility and outreach of our Institute while remaining rooted in quality and commitment. We welcome your contributions and look forward to continued engagement from all.

With best regards,
Prof. Chaitali Ray
Head,
Department of Civil Engineering



IIEST, SHIBPUR

ACHIEVEMENTS



- **Prof. Aparna (Dey) Ghosh** received the **Women in Tech – Innovative Educator & Research Excellence Award 2025** from Industrial Automation on 13 August 2025.
- **Dr. Saptarshi Kundu and Dr. Anuj Kishor Budhkar** are selected as Resource Persons for State Government Training Programme by the Bureau of Indian Standards (BIS).

EVENTS



World Environmental Day 2025

The Department of Civil Engineering, IEST Shibpur, observed World Environment Day on 5th June 2025 with the theme “*Putting an End to Plastic Pollution*”, aligning with the global initiative led by UNEP. Esteemed speakers included Prof. V. M. S. R. Murthy (Director, IEST Shibpur), Shri Ashit Mukhopadhyay (Chairman, SEIAA, West Bengal), Prof. Shantanu Maiti (Head, SAMGESS), and Prof. Anirban Gupta (Dean,

IRAA), who shared insights on sustainability and environmental responsibility. Research presentations by scholars further highlighted the significance of environmental protection and the Department’s commitment to promoting sustainable practices.

EVENTS

Recently Organized Training Programs

5th Road Safety Training Course Conducted for the Engineers of the PWD, Government of West Bengal

To support the Supreme Court Committee's directives on Road Safety, the **Civil Engineering Department of IEST Shibpur, in collaboration with the PWD (Roads) Directorate, Government of West Bengal**, has been conducting a series of Executive Development Programs aimed at enhancing the safety competencies of PWD engineers. Under the leadership of Prof. Sudip Kumar Roy, five such programs have been successfully organized so far, with the **5th training programme** conducted from 9th to 13th September 2025. The inaugural session of the recent course was graced by experts from academia, government, and research, including Prof. Pratik Dutta (Dean R&C), Dr. Subhamoy Gangopadhyay (Former Director, CSIR-CRRI), and Shri Partha Sarathi Bandyopadhyay (Chief Engineer, Road Safety, PWD West Bengal).

The course curriculum addressed critical topics such as crash data analysis, black spot identification, safe system principles, speed and hazard management, human factors, vulnerable road user protection, and legal frameworks for road safety. It blended theory with practical learning through field-based road safety audits on national highways, enabling engineers to diagnose and mitigate real-world safety issues. Sessions were delivered by both in-house faculty and leading national experts across engineering, medical, enforcement, and policy domains.

This sustained initiative is shaping a cadre of road safety-conscious professionals and fostering a data-driven, multidisciplinary approach to highway design and maintenance across West Bengal.



Recently Organized Training Programs

Joint Certificate Course on “Seismic Design, Testing, and Retrofitting of Steel Structures” (Online)

The Department of Civil Engineering, IEST Shibpur, in collaboration with the Institute for Steel Development and Growth (INSDAG), successfully organized a 7-day online Joint Certificate Course on “*Seismic Design, Testing, and Retrofitting of Steel Structures*” from 23rd to 31st July 2025. The program focused on key areas including earthquake engineering, seismic design methodologies, structural evaluation, vibration testing, retrofitting techniques, and real-world case studies.

The course brought together over 100 participants comprising faculty members, researchers, and industry professionals from leading institutions such as IITs, NITs, Jadavpur University, and BITS Pilani, as well as practicing engineers from India and abroad, including Japan. Lectures were delivered by experts from INSDAG and IEST Shibpur, including **Prof. Aparna Dey Ghosh**, **Dr. Soumya Bhattacharyya**, and **Prof. Subhra Paul**.

The course received an impressive overall rating of **3.67 out of 4**, and a total fee of ₹ 4 lakhs was collected. The success of the program reflects the growing interest and need for specialized training in seismic safety of steel structures.



Certificate Course Training Programme on
Seismic Design, Testing and Retrofitting of Steel Structures
 Jointly organized by
 Indian Institute of Engineering Science & Technology (IEST), Shibpur
 &
 Institute for Steel Development and Growth (INSDAG)

ONLINE Course
 23-July 2025 to 31-July-2025 19:00 PM to 21:00 PM

Earthquake Engineering → Seismic Design → Seismic Evaluation → Vibration Testing → Retrofitting Techniques → Case Studies

WHO SHOULD ATTEND

- Young Junior Structural Engineers and other interested working professionals.
- Teaching personnel in structural engineering.
- Civil/structural practicing engineers who do not have prior exposure to seismic steel design and wish to learn its major components.
- Post Graduate students in Structural Engineering
- Undergraduate civil engineering students who are interested in Structural Engineering.

REGISTRATION FEE

- Students : Rs. 2000 + 18% GST
- Participants from industry/ teaching personnel : Rs. 5000 + 18% GST

E: Certificate shall be issued, jointly by IEST, Shibpur & INSDAG, to those who attend the course to its completion.

Please contact for any clarification

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Upcoming Conferences/ Training programmes

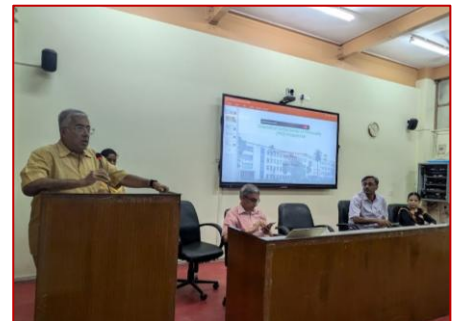
- 2nd International Conference on Sustainable Advanced Technologies for Environmental Management (**SATEM 2025**) **December 15-17, 2025.** <https://icsatem.in/>
- 1st International Conference on Application of Civil Engineering in Agriculture (**ACEA-2025**) **December 4-6, 2025.** <https://acea2025.iests.ac.in/>

Orientation Programs for Newly Admitted students

Orientation programs were conducted by the Department of Civil Engineering to welcome and onboard newly admitted students in the July 2025 admission cycle, separately for Undergraduate, Postgraduate and PhD scholars. The programs included Welcome address by the Head, an introduction to the Department's rich legacy, academic activities, and research culture, along with a brief overview of the respective student ordinances. Faculty advisors also addressed the students with motivational insights and academic guidance to help them begin their journey with clarity and confidence.



- An orientation program for the newly admitted **Undergraduate students** was conducted on 25th August 2025, introducing them to the Department's legacy, academic structure, and providing guidance from faculty advisors. It is heartening that 150 students were admitted in the department in the academic year 2025.



- The **Postgraduate orientation program** was held on 21st August 2025, where incoming M. Tech students were welcomed with departmental overviews, course ordinances, and motivational addresses by the Departmental Post Graduate Committee. A total of ___ M. Tech students (including two foreign students) joined in this cycle under various admission rounds and sponsorship categories.
- The **Ph.D. orientation session** took place on 22nd July 2025, focusing on research expectations, departmental facilities, and interaction with potential supervisors. 14 new research scholars (including Part-time and sponsored candidates) were admitted in the July 2025 cycle.

The Department is steadily growing and extends its best wishes to all the newly admitted students for a successful, enriching, and academically fulfilling journey ahead.

Recently Organized Student Activities

Teachers' day celebration

The Society of Civil Engineers (SOCCE) organized a vibrant Teachers' Day celebration on 4th September 2025 in the Department of Civil Engineering, IEST Shibpur. The event began with a warm welcome and inspiring address by the Head of the Department, Prof. Chaitali Ray, who emphasized the lasting impact of mentorship in shaping not only careers but also values and vision. All faculty members shared their valuable insights, offering guidance and motivation that deeply resonated with the students. The program was followed by a series of cultural and musical performances, which brought joy and a sense of togetherness to the entire departmental fraternity. The celebration served as a heartfelt tribute to the teachers whose dedication continues to inspire generations of learners.



Farewell to the outgoing batch

The Department of Civil Engineering bid a heartfelt farewell to the outgoing B. Tech batch of 2021–2025 in a warm and nostalgic gathering held at the seminar hall on 7th May 2025. The event was marked by an atmosphere of celebration and reflection, filled with musical performances, memorable anecdotes, and expressions of gratitude. Students and faculty members came together to share memories, extend best wishes, and celebrate the journey of the graduating batch.



Consultancy Projects

- Structural consultancy for vertical extension of shopping complex above the 1st floor at Rosaline Hostel, and vertical extension over F&A section at Admin Block for Dean Faculty, IIT (ISM) Dhanbad, CPWD, IIT(ISM), CI: **Dr. Soumya Bhattacharyya**.
- Proof checking of design and drawing for replacement of superstructure of Belghoria ROB at KM-11/5-7 (11.2), Kolkata, OSD Engineers, CI: **Dr. Soumya Bhattacharyya**.
- Structural stability analysis for replacement of old lift at VECC campus, VECC, Department of Atomic Energy, Gol, CI: **Dr. Soumya Bhattacharyya**.
- Vetting of design and drawing of Star Mall at Gangtok, Sikkim, Panchdeep Construction, CI: **Dr. Soumya Bhattacharyya**.
- Vetting of new supporting system to remove infringement of foot over bridge (KGP end) at Balasore Station, Constel Infra, CI: **Dr. Soumya Bhattacharyya**.
- Proof checking and validation of design & cost estimation for G+4 residential building project, Institute of Steel Development and Growth (INSDAG), Ministry of Steel, Gol, CI: **Dr. Soumya Bhattacharyya**.
- Vetting of structural design and drawings of G+7 SDM Office Building, Agartala, Nileema Design Associates, CI: **Dr. Soumya Bhattacharyya**.
- Vetting of structural design and drawing of four bridges (No. 2CCR, X-27, X-23, X-15) under Sealdah Division, Eastern Railway, OSD Engineers, CI: **Dr. Soumya Bhattacharyya**.
- Vetting of detail drawing & design book of external lift for Observatory Tower at Bellious Park, Panchdeep Construction, CI: **Dr. Soumya Bhattacharyya**.
- Vetting of methodology towards replacement of bearings of viaducts and interchanges of Vidyasagar Setu, TPF Engineering, CI: **Dr. Soumya Bhattacharyya**.
- Vetting of structural design of staging and shuttering arrangement and drawings for Rishikesh–Karanprayag New B.G. Railway Line project (3 deck slabs and 1 pier cap), Ekaiva Consulting LLP, CI: **Dr. Soumya Bhattacharyya**.
- Design and scientific study of Incline Box Drivage – Moira Underground Mines, Prestige Infrastructure, CI: **Dr. Saptarshi Kundu**, Co-CI: Prof. (HAG) N. C. Dey.
- Institutional Strengthening and Business Planning (ISBP) Summary Report for Inland Water Transport Section under WBIWTLSD Project., West Bengal Transport Infrastructure Development Corporation Ltd., CI – **Dr. Pritam Saha**.
- Vetting of Launching Scheme of 61 m span bridge over “Rungmook Khola” at 3.813 km on Chandraman Dhura to Beech Gaon via Mini Hydel Project, WBSRDA, Darjeeling., Bhagwati Construction, CI – **Dr. Sujit Kumar Dalui.**, Co-CI- **Prof. Ambarish Ghosh**
- Vetting Consultant for Design & Drawing for 2nd Bridge over River Baitarani at Chandabali on Bhadrak–Chandabali Road, Odisha., Mackintosh Burn Ltd., CI – **Prof. Tapas Kumar Roy**.

Consultancy Projects... Contd

- Technical vetting and approval of design and drawing for Bilaspur Ropeway, Himachal Pradesh, Ganpati Ropeways Pvt. Ltd., CI: **Dr. Saptarshi Kundu.**
- Proof checking of substructure & foundation for BR. No. 217 and BR. No. 230, Howrah Division, Eastern Railway, CI: Prof. Chaitali Ray, Co-CI: **Dr. Saptarshi Kundu.**
- Geotechnical study report on highwall mining at T-2C and T-2A in Sharda OCM (Bakhi Patch), SECL, MINSOL Ltd., CI: **Dr. Saptarshi Kundu.**
- Model shaft for 1MPS 13 capacity (884 kg) elevator, LT Elevator Pvt. Ltd., CI: **Dr. Saptarshi Kundu.**
- Approval of Detail Drawing/Vetting of Drawing for Passenger Ropeway at Brahmayoni Hill and DUNGESHWARI Hill, Gaya, CI – **Prof. Ashis Kumar Bera**
- Geotechnical study for suitability of civil work for Vanabar Ropeway Section-I, Gaya, Bihar, Damodar Ropeways and Infra Ltd., CI: **Dr. Saptarshi Kundu.**
- Vetting of design and efficacy of drainage proposal for proposed stormwater underground drain along RHS of Shodepur–Madhyamgram Road, PWD Barrackpore, **CI: Dr. Asok Adak.**
- Preparation of R&R Colony layout in Paschim Shibpur Mouza and estimation of existing households in Bastabpur village, GoQuest Solution Pvt. Ltd., CIs: **Dr. Asok Adak, Dr. Subrata Kumar Paul, Dr. Sandip Chakraborty, Dr. Sujit Kumar Dalui, Dr. Ujjwal Saha, Dr. Bhaskaran Barman.**
- Preparation of R&R Colony layout of Dulalpur, Piadanga, Muchipara, Jaynagar and estimation of existing households, Tara Coal Mining Pvt. Ltd., CIs: **Dr. Asok Adak, Dr. Subrata Kumar Paul, Dr. Sandip Chakraborty, Dr. Sujit Kumar Dalui, Dr. Ujjwal Saha, Dr. Bhaskaran Barman.**
- Preparation of plan, design, drawing, and estimate of four schools, one ICDS center, and one police outpost at Jamuria, Tara Coal Mining Pvt. Ltd., CIs: **Dr. Sandip Chakraborty, Dr. Asok Adak, Dr. Subrata Kumar Paul, Dr. Sujit Kumar Dalui, Dr. Ujjwal Saha, Dr. Bhaskaran Barman.**
- Preparation of Hazop study report for 65 MLD STP at Garden Reach, Kolkata, Traders and Engineers Pvt. Ltd., CI: **Dr. Asok Adak.**
- Consultancy services for EIA Study towards embankment in front of Hooghly River (A) Ganges Retreat Pvt. Ltd., (B) Ganges Developers LLP, (C) Gunjj Constructions LLP, (D) Riverside Constructions Pvt. Ltd., Ganges Retreat Pvt. Ltd., CI – **Prof. Debabrata Mazumder.**
- Consultancy services for EIA Study towards embankment in front of Hooghly River (A) Bata Projects Pvt. Ltd., (B) Bhagirathi Structures Pvt. Ltd., (C) Starwin Landcon Pvt. Ltd., Bata Projects Pvt. Ltd., CI – **Prof. Debabrata Mazumder.**
- Improvement to two-lane with paved shoulder from Ramnagar to Roseda (Km 3+500 to Km 43+000) of NH-527E, Bihar., Ram Kripal Singh Construction Pvt. Ltd., CI – **Prof. Sudip Kumar Roy, Co-CI- Dr. Sandip Chakraborty, Dr. Sujit Kumar Dalui, Dr. Saptarshi Kundu**

Consultancy Projects... Contd

- Study on bank protection work for the proposed project Northbrook Jute Co. Ltd. at premises No. 40, G.T. Road (East), Baidyabati, Mouza-Gourhati, WB, India., Chitra Estate & Credit (P) Ltd., CI - **Prof. Ambarish Ghosh.**
- Independent assessment of vibration & monitoring of vibration during Dynamic Pile Load Test for the Project Keventer One at 25, Netaji Subhas Road, Kolkata-700001., Bengal Bonded Warehouse Ltd., CI - **Prof. Ambarish Ghosh.**
- Study on bank protection work for a New Jetty construction at Mangal Pandey Water Treatment Plant, North Barrackpore Municipality area, WB, India., Concord Engineering, CI - **Prof. Ambarish Ghosh.**
- Study and design of river bank protection system at Holding No. 5 & 6, G.T. Road, Konnagar, P.O. Konnagar, P.S. Uttarpara, Dist. Hooghly, WB., Orbit Tirupati Towers Pvt. Ltd., CI - **Prof. Ambarish Ghosh.**
- Health Study of the Steel Structures in Coal Handling Plant of DPL and Certification thereof, Durgapur Projects Ltd., CI – **Prof. Sujit Kumar Dalui, Co-CI – Prof. Ambarish Ghosh**
- Conduction of Field Test of Pile Foundation of PG-Infrastructure (Annex Building and Hostel Building) at Malda MCH, CI – **Prof. Ambarish Ghosh**
- Designing of settlement contour of box pushing alignment and calculation of AAA value for RVNL Metro Rail Project near Kolkata Airport., Afcons Infrastructure Ltd., CI - **Prof. Ambarish Ghosh.**
- Independent assessment of vibration & monitoring of vibration during piling operation for the project “Emami AAMOD,” 43 Vinoba Bhawe Road, James Long Sarani, Kolkata., Emami Realty Ltd., CI – **Prof. Ambarish Ghosh.**
- Engagement of Proof Consultant for Vetting of Structural Design and Drawing of CCB at Tamluk, CI – **Prof. Ambarish Ghosh, Co-CI – Prof. Sujit Kumar Dalui**
- Vetting of Structural Design and Drawing for the Proposed Solid Waste Management Processing Plant of 150 TPD, CI – **Prof. Sujit Kumar Dalui, Co-CI – Prof. Ambarish Ghosh**
- Independent Assessment of Vibration at Dagapur Tea Resort Project Site, Siliguri, CI – **Prof. Ambarish Ghosh**
- Vetting of Structural Design and Drawing for 8 Turnkey Projects – Working Women’s Hostel at 7 Different Medical Colleges and Hostel and 100-Bed Sub-Divisional Hospital at Dhupguri, Jalpaiguri District, CI – **Prof. Ambarish Ghosh, Co-CI – Prof. Sujit Kumar Dalui**
- Assistance and Guidance to Howrah Municipal Corporation (HMC) in the Matter Related to Road Work Referred to in the Court Case, CI – **Prof. Sudip Kumar Roy, Co-CI – Prof. Sandip Chakraborty**
- Annual inspection of grossly polluting industries (GPIs) 2025., Central Pollution Control Board, CI – **Prof. Anirban Gupta.**

Journal Publications

This list presents the accepted SCI/Scopus indexed journal publications by the Department of Civil Engineering from April-September 2025.

- Anbazhagan, P., **Mog, K.**, Ali, M. Z., & Laxman, B. S. (2025). Experimental and empirical shear modulus reduction curves for a wide range of strains. *Soil Dynamics and Earthquake Engineering*, 195, 109413. <https://doi.org/10.1016/j.soildyn.2025.109413>
- Atta, J., & **Bera, A. K.** (2025). A comprehensive review of three-dimensional (3D) unreinforced slope stability: Evolution and perspectives. *European Journal of Environmental and Civil Engineering*, 12(29), 2424–2447.
- Atta, J., & **Bera, A. K.** (2025). Slope safety factor (FoS): Decoding definitions through analogical discussion. *Natural Hazards*, 1–39. <https://doi.org/10.1007/s11069-025-07606-4>
- Biswas, R., Konar, T., & **Ghosh, A. D.** (2025). Nonlinear fluid viscous dampers for seismic vibration control of tall transmission towers on flat and sloped ground. *Journal of Constructional Steel Research*, 232, 109634. <https://doi.org/10.1016/j.jcsr.2025.109634>
- Biswas, S., & **Biswas, S.** (2025). Assessing the impact of climate change on snowmelt runoff and monthly streamflow in an Upper Himalayan River Basin using the SWAT model. *Theoretical and Applied Climatology*, 156(5), 281. <https://doi.org/10.1007/s00704-025-05508-w>
- Chakraborty, R., & **Ghosh, A.** (2025). Study on bearing capacity of strip footing resting on double encapsulated reinforced soil media. *Transportation Infrastructure Geotechnology*, 12, 251. <https://doi.org/10.1007/s40515-025-00704-7>
- Chakraborty, S., & **Biswas, S.** (2025). Comprehensive flood risk assessment using AHP and HEC-RAS 2D: Insights from the lower Teesta River Basin, India. *Environment, Development and Sustainability*, 1–33. <https://doi.org/10.1007/s10668-025-06662-x>
- Das, A., & **Dalui, S. K.** (2025). Effect of varying cross-sectional height ratio on a corner-recessed square tall building under moderate wind environment. *Environmental Fluid Mechanics*. (Accepted, In press).
- Das, A., **Adak, A.** (2025). Electrochemical oxidation of perfluorooctanoic acid (PFOA) using graphite substrate lead dioxide (GSLD) as anode: Investigating reaction mechanism, degradation byproducts and influences of process parameters. *Journal of Environmental Chemical Engineering*, 13, 116869. <https://doi.org/10.1016/j.jece.2025.116869>
- Das, A., Koner, S., & **Adak, A.** (2025). Degradation of antibiotics by anodic oxidation (AO) and electro-Fenton (EF) process: A comparative review. *Journal of Environmental Management*, 390, 126262. <https://doi.org/10.1016/j.jenvman.2025.126262>
- Datta, S., Ray, P., & **Ghosh, A.** (2025). Ground movement and retaining wall response due to excavation in granular soil: Experimental and numerical study. *Transportation Infrastructure Geotechnology*, 12(5), 133. <https://doi.org/10.1007/s40515-025-00687-5>

Journal Publications (Continued...)

- Datta, S., Ray, P., Anand, A., & Ghosh, A. (2025). Behaviour of laterally loaded barrette in granular soil media: Experimental and numerical study. *Geotechnical and Geological Engineering*, 43(8), 396. <https://doi.org/10.1007/s10706-025-01882-6>
- Dutta, S., & Ghosh, A. (2025). Pasternak's two-parameter non-linear soil model for prediction of pile response due to tunnelling induced ground movement. *International Journal of Geotechnical Engineering*, 19(1–3), 106–123. <https://doi.org/10.1080/19386362.2025.2512156>
- Dutta, S., & Ghosh, A. (2025). Pile response to tunnelling using a nonlinear Kerr foundation model. *Geotechnical and Geological Engineering*, 43(5), 234. <https://doi.org/10.1007/s10706-025-01863-9>
- Gayen, S., Das, A., Alam, M. M., Ali, A., Mishra, P., & Adak, A. (2025). Experimental investigation of an upgraded treatment for manufacturing industry wastewater. *Indian Chemical Engineer*, 1–11. <https://doi.org/10.1080/00194506.2025.2516557>
- Hossain, S., Budhkar, A. K., Palash, P. S., & Bharti, R. K. (2025). Determinants of walking as a mode of transportation: A case study of Howrah. *International Journal of Civil Engineering (SSRG-IJCE)*, 12(3), 185–190. <https://doi.org/10.14445/23488352/IJCE-V12I3P117>
- Jain, S., Madhu, M. L., Ghosh, A. D., Chakraborty, S., & Das, B. (2025). An adaptive feedback-based TMD system for passive control of rail bridge vibration. In *Structures* (Vol. 79, p. 109471). Elsevier. <https://doi.org/10.1016/j.istruc.2025.109471>
- Kar, D., & Ghosh, A. (2025). Effect of deep excavation on adjacent shield tunnel using nonlinear Pasternak soil model. *Geotechnical and Geological Engineering*, 43(6), 287. <https://doi.org/10.1007/s10706-025-03239-3>
- Kar, D., & Ghosh, A. (2025). Behaviour of shield tunnel due to adjacent deep excavation by non-linear Kerr foundation model. *International Journal of Geotechnical Engineering*, 19(6), 368–381. <https://doi.org/10.1080/19386362.2025.2517638>
- Mahata, K., & Bera, A. K. (2025). Load settlement and load sharing characteristics of a combined pile-raft foundation in granular soil deposits: A numerical simulation approach. *Transportation Infrastructure Geotechnology*, 12(2), 1–24. <https://doi.org/10.1007/s40515-025-00650-4>
- Mahato, S., Mukhopadhyay, T., Das, S., & Chakraborty, A. (2025). Uncertainty-inclusive performance evaluation of hybrid base isolation systems for efficient vibration control: On exploiting sparse experimental data of magnetorheological dampers. In *Structures* (Vol. 80, p. 109906). Elsevier. <https://doi.org/10.1016/j.istruc.2025.109906>
- Mandal, S., Dalui, S. K., & Bhattacharjya, S. (2025). A new set of wind response modification factors for U plan-shaped building under nonstationary stochastic wind. *The Structural Design of Tall and Special Buildings*, 34(11), e70052. <https://doi.org/10.1002/tal.70052>
- Modak, A., Roy, A., & Chakraborty, S. (2025). Reliability analysis of structures by multiple sparse polynomial chaos expansion based adaptive metamodel. *Reliability Engineering & System Safety*, 265, 111508. <https://doi.org/10.1016/j.res.2025.111508>

Journal Publications (Continued...)

- Naskar, A. K., & Saha, P. (2025). Assessment of traffic sign visibility in various conditions. *Journal of the Institution of Engineers (India): Series A*. <https://doi.org/10.1007/s40030-025-00909-6>
- Pandit, A., & Budhkar, A. K. (2025). Impact of fog on dynamic parameters of vehicles in mixed traffic. *Scientific Journal of Silesian University of Technology. Series Transport*, 128, 183–197. <https://doi.org/10.20858/sjsutst.2025.128.11>
- Pandit, A., & Budhkar, A. K. (2025). Lateral distance-keeping behavior of drivers in foggy weather. *Proceedings of the ICE – Municipal Engineer*. (Accepted, In press).
- Roy, D., Pagliara, S., & Palermo, M. (2025). Clear water scour at eco-friendly wood-based structures in vegetated channels. *Journal of Hydrology and Hydromechanics*, 73(2), 175–189. <https://doi.org/10.2478/johh-2025-0015>
- Roy, S., Thakur, S. N., & Ray, C. (2025). Experimental investigation on vibration of laminated composite cross ply moderately thick GFRP shell with numerical validation using higher order zigzag theory. *Mechanics Based Design of Structures and Machines*. <https://doi.org/10.1080/15397734.2025.2517894>
- Sardar, R., & Chakraborty, S. (2025). Vibration control of offshore structures using liquid dampers: A review. *Ocean Engineering*, 329, 121078. <https://doi.org/10.1016/j.oceaneng.2025.121078>
- Sardar, R., & Chakraborty, S. (2025). Wave vibration mitigation of offshore structures using a compliant cell tuned liquid mass damper. *Ocean Engineering*, 327, 120994. <https://doi.org/10.1016/j.oceaneng.2025.120994>
- Sharma, M., & Ghosh, A. (2025). Peak particle velocity and attenuation characteristics of sand due to ground vibration induced by impact loading: An experimental study. *Transportation Infrastructure Geotechnology*, 12(6), 1–41. <https://doi.org/10.1007/s40515-025-00710-0>
- Vinoth, B., & Ghosh, A. (2025). Ground vibrations and peak particle velocity (PPV) analysis: Empirical modelling and experimental insights from pile casing driving. *International Journal of Geotechnical Engineering*, 19(4), 229–246. <https://doi.org/10.1080/19386362.2025.2514379>

Conference Publications

- **Budhkar, A. K.**, Hossain, S., & Thangjam, D. (2025). Impact of highway expansion on driving behavior: A comparative analysis of two-lane and four-lane dynamics. In *Conference of Eastern Asia Society for Transportation Studies (EASTS 2025)*. Universitas Sebelas Maret (UNS), Surakarta, Indonesia.
- **Chakraborty, S.**, & Ghosh, S. (2025). Neural network-based metamodeling approach for seismic reliability analysis of structures [Invited paper]. In *ARTISTE – Artificial Intelligence in Structural Engineering, an International Conference*. Politecnico di Torino, Italy.
- **Chakraborty, S.**, & Roychowdhury, R. P. (2025). Method of calibration for video-photographic traffic data collection: A case study using drone technology. In *Proceedings of the 10th International Conference on Civil, Structural and Transportation Engineering (ICCSTE 2025) and 9th International Conference of Recent Trends in Environmental Science and Engineering (RTESE 2025)* (Paper No. 193). Imperial College London, United Kingdom. <https://doi.org/10.11159/iccste25.193>
- Das, A., Alam, M., & **Adak, A.** (2025). Degradation of ciprofloxacin by electrochemical advanced oxidation process using C/PbO₂ anode. In *Proceedings of the 9th International Conference of Recent Trends in Environmental Science and Engineering (RTESE 2025)* (pp. 121-1–121-9). <https://doi.org/10.11159/rtese25.121>
- Heller, V., **Roy, D.**, & Begam, S. (2025, June 22–27). Scale effects in 3D granular slides on a smooth incline. In A. W.-K. Law & J. W. Er (Eds.), *Proceedings of the 41st IAHR World Congress – Innovative Water Engineering for Sustainable Development* (pp. 1025–1029). IAHR – International Association for Hydro-Environment Engineering and Research. Singapore.
- Hossain, S., **Budhkar, A. K.**, & Das, P. (2025). Study of the dynamic parameters of electric and conventional vehicles in urban areas. In *Conference of Eastern Asia Society for Transportation Studies (EASTS 2025)*. Universitas Sebelas Maret (UNS), Surakarta, Indonesia.
- Modak, A., **Chakraborty, S.**, & Chowdhury, R. (2025). Polynomial chaos kriging and mesh refinement for reliability analysis of brittle fracture: A dual adaptive framework. In *ARTISTE – Artificial Intelligence in Structural Engineering, an International Conference*. Politecnico di Torino, Italy.
- Mukherjee, A., Roy, D., & **Ray, C.** (2025). Damage analysis of steel plates using numerical and machine learning techniques. In *Proceedings of the 3rd International Conference on Construction Materials and Structures (ICCMS 2025): Synergy of Materials and Structures*. IIT Tirupati, India.

Conference Publications

- Nandy, K., **Pandit, D.**, & **Chakraborty, S.** (2025, October 12–16). Numerical modelling of the kinematics of the neutral axis of a beam under elasto-plastic bending. In *Proceedings of the 14th International Symposium on Plasticity and Impact Mechanics (IMPLAST 2025)*. IIT Roorkee, India.
- Prateek, S., **Majumder, D.**, & **Chakraborty, S.** (2025, March 11–13). Seismic fragility analysis of shallow tunnels. In *Proceedings of the 10th Indian Young Geotechnical Engineers Conference*. IIT Indore, India.
- Sam, R., & **Roy, S. K.** (2025). *Factors influencing private vehicle users' transition to sustainable transport modes for enhanced environmental sustainability in Indian context* (Paper No. 200). In Proceedings of the 10th International Conference on Civil, Structural and Transportation Engineering (ICCSTE 2025). Imperial College London Conference Center, London, United Kingdom. <https://doi.org/10.11159/iccste25.200>

Books/ Book Chapters published

Books

Prof. Aparna (Dey) Ghosh

Co-authored a book titled *Tuned Liquid Column Dampers for Structural Control*, published by CRC Press, 1 May 2025.

Book Chapters

- Ayan Pal, **Dipankana Bhattacharjee**, Numerical studies on vetiver root reinforced soil slope subjected to rainfall in the North-Eastern terrain of India, *Slope Stability and Landslides, Lecture Notes in Civil Engineering, Volume 669, ISBN 978-981-96-7766-5, M.S. Dixit et. al (Eds), Springer Nature (pubs.),449-465, 2025*
- Puspendu Ray, **Ambarish Ghosh, Dipankana Bhattacharjee**, A Guideline of Bearing Capacity of Strip Footing Resting on Reinforced Granular Soil Deposit, Analytical, Physical, and Numerical Modeling in Geotechnical Engineering, *Lecture Notes in Civil Engineering, Volume 651, ISBN 978-981-96-7284-4, Pain et. al (Eds), Springer Nature (pubs.),235-245, ,2025*

Invited Talks by faculty members



- **Prof Subrata Chakraborty** delivered the 94th Wenyan Forum Lecture Dept of Structural Engg, College of Civil Engg Tongji University, Shanghai, titled *Adaptive Support Vector Regression Models for Reliability Analyses of Structures* on 27 June 2025 (*left image*).
- An invited talk was delivered by **Prof. Subrata Chakraborty** at the Shanghai Institute of Disaster Prevention and Relief, Tongji University, and Chinese Society for Vibration Engineering titled *A Time Domain Bayesian Model Updating Framework for Structural Health Monitoring Applications* on 10 July 2025. (*right image*)
- **Prof. Subrata Chakraborty** visited Politecnico di Torino, Italy, from 14 to 17 September 2025, where he chaired the technical session SS03 on *Machine Learning Techniques in Uncertainty Quantification in Structural Engineering* and presented an invited talk on *Neural Network-Based Metamodeling Approach of Seismic Reliability Analysis of Structures* at the international conference ARTISTE 2025.
- A keynote address was delivered by **Prof. Chaitali Ray** at the 4th International Conference on Lightweight Material & Engineering Structures (LIMAS 2025), London, titled *Building the future with lightweight materials: challenges and opportunities in bridge deck structures* on 2–3 July 2025.
- An invited talk was delivered by **Prof. Aparna (Dey) Ghosh** at CSIR-SERC, Chennai, titled *The emergence of Tuned Liquid Column Dampers as effective structural vibration control devices* on 6 August 2025.
- An invited talk was delivered by **Prof. Asok Adak** at Dr. Sudhir Chandra Sur Institute of Technology and Sports Complex titled *Microplastic in water matrix: detection and degradation by advanced oxidation process* on 5 September 2025.
- An invited talk was delivered by **Prof. Asok Adak** at Institute of Engineering & Management (IEM), UEM Kolkata titled *NEP 2020 implementation in B.Tech. program* on 13 May 2025.
- An invited talk was delivered by **Dr. Kunjari Mog** (online mode) at Shivajirao S. Jondhle College of Engineering & Technology, Thane, Maharashtra, as part of the AICTE-ISTE approved STTP, titled *Characterization of Granular Particle Shape using a Low-Cost Method* on 28 July 2025.
- An invited talk was delivered by **Dr. Dipaloke Majumder** in a seminar at ITD Cementation India Ltd., Kolkata titled 'Tunnel Support Design — Roof Crack Prevention & Remediation' on 12 August 2025.

Invited Talks in the department



Shri. Harsimran Singh, IRSE, Chief Vigilance Officer, Hindustan Copper Limited delivered an invited talk on handling mega-projects on Metro Railway and other infrastructural work on 3rd September 2025. It was a very informative session for the students and faculties alike.



Dr. Claudio Feliciani, Project Associate Professor at the Graduate School of Engineering, University of Tokyo, Japan, visited the Department of Civil Engineering, IEST Shibpur, on 27th August 2025 and interacted about his research on crowd dynamics and pedestrian movement.

Collaborative Visits by our faculty members

- A collaborative visit was undertaken by **Prof. Subrata Chakraborty** to Tongji University, China, from 12 June to 13 July 2025 as part of the High-end Foreign Experts Programme of China. He collaborated with Prof. Yongbo Peng at the Natural Hazards and Disasters Mitigation Lab, Shanghai Institute of Disaster Prevention and Relief, to explore long-term research and academic partnerships.



Prof. Subrata Chakraborty at the students' workshop, College of Civil Engineering, Tongji University, China (left); and chairing the session in ARTISTE 2025 conference, Italy (right).

New faculties

The Department of Civil Engineering, IEST Shibpur, is delighted to welcome six new faculty members who joined in August 2025, bringing diverse expertise and research strengths to the department.



Dr. Subhra Paul specializes in steel and composite structures, concrete-filled tubular members, lightweight systems, and seismic design. He holds a B.Tech. from Jalpaiguri Government Engineering College, an M.Tech. from NIT Silchar, and a Ph.D. in Steel Structures from IIT Guwahati, and has worked as a Senior Design Engineer at L&T EDRC. His research focuses on experimental testing, finite element modeling, and performance-based evaluation of structural systems. He aims to advance resilient and sustainable structural design.



Dr. Kunjari Mog is a geotechnical engineer specializing in soil dynamics, liquefaction, landslide risk, and earthquake geotechnical engineering. He completed his Ph.D. at IISc Bangalore and held research and academic roles at IIT Bombay and NIT Hamirpur. His work integrates laboratory, field, and numerical studies to evaluate seismic ground response and natural hazards, emphasizing affordable and AI/ML-enabled solutions. He plans to advance site characterization, geohazard mapping, and converting waste into affordable sustainable engineering materials.



Dr. Sk Sohel Islam works in sustainable pavement engineering and high-performance materials for transportation. He holds a Ph.D. in Transportation Engineering from IIT Roorkee and earlier training at IEST Shibpur. His research covers polymer-modified binders, reclaimed materials, and geopolymer concrete, linking rheological characterization, eco-friendly material innovation, and performance-based design for resilient pavements. He aims to create sustainable pavement systems aligned with circular economy principles.



Dr. Gurudas Kar specializes in mechanics of materials and structures with expertise in viscoplasticity, non-equilibrium thermodynamics, and crystal plasticity modeling. He earned a B.E. at BESU Shibpur, M.Tech. at IIT Kharagpur, Ph.D. at IISc Bangalore, and pursued postdoctoral research in Austria and the UK. His work spans collaborations with DRDO, ISRO, and global universities on advanced material modeling, reduced-order methods, and machine learning simulations. He seeks to integrate physics-based and data-driven approaches for structural health monitoring and predictive modeling.



Dr. Pinakshi Biswas specializes in Environmental Engineering with expertise in liquid and high-performance chromatography. With Ph.D. from IIT Roorkee and Research Fellowship at Queen's University Belfast where she focused on analysis of environmental samples for emerging contaminants, her skills bridge Civil and Environmental engineering in contaminant detection, water quality monitoring, and analytical method development. She intends to apply this expertise to address challenges in environmental sustainability and public health.



Dr. Swarup Mahato is an expert in structural dynamics, vibration control, and structural health monitoring (SHM). He earned his Ph.D. at IIT Guwahati and gained international experience in France, Lithuania, and Denmark, focusing on digital twins, signal processing, and damage prognosis. His work combines advanced sensing, data-driven modeling, and probabilistic methods to strengthen infrastructure resilience. He plans to develop intelligent SHM frameworks connecting monitoring insights with decision-making for safe, sustainable structures.

Students' corner

Noteworthy Achievements

- The project “Sustainable Cubes - Endless Possibilities: Tougher - Smarter - Cheaper” by third-year Civil Engineering students **Rajveer Singh** (2023CEB071) and **Ankit Suman** (2023CEB052) supervised by **Dr. Saptarshi Kundu**, was selected under the Intra-College Idea Competition on ‘Technology, Innovation and Entrepreneurship’ organized by TCGTBI, IEST Shibpur in August 2025. Their product GREEN CUBES will receive funding from the BEC84-ANGEL FUND.
- **Sharif Hossain** (2022CEP003), a PhD student supervised by Dr. Anuj Kishor Budhkar, has received the prestigious GAABESU fellowship of ₹ 25000, to present two papers in the international conference ‘EASTS 2025’ organized in Surabaya, Indonesia from Sept 1-4, 2025.

Learning to Shape the Future...

By **Md Abdullah Ali (2024CEB099)**

“Coming from a curious mind about how cities and structures work, I found this branch both challenging and rewarding. From basic materials to fluid mechanics, every subject showed me how science translates into something tangible, and also made me realize that as civil engineers we are indebted to society to build responsibly. I have recently developed an interest in how technology can enhance traditional civil practices. Machine Learning, for example, shows promise in areas like structural analysis, water management, and sustainability assessment, making infrastructure more efficient and resilient. I am proud to be part of a department that values its heritage while embracing modern innovation, motivating me to grow as a thoughtful and forward-looking civil engineer.”



Alumni Corner

Navigating Civil Engineering: Adapting to a Changing World

By Rishav Dutta

In today's fast-paced world, where technology evolves faster than your semester schedules, Civil Engineering students must look beyond textbooks and prepare for emerging trends. It's natural to worry, undergrads stress over jobs, master's students over career direction, and even Ph.D. scholars seek better prospects. But here's the truth: success still comes down to effort, perseverance, and a whole lot of figuring things out. While AI tools like ChatGPT can help with assignments, they can't build bridges (at least not yet). That part is still on you!



Er. Rishav Dutta
*Assistant Manager
 (Civil and Structural),
 INSDAG, Kolkata
 B. Tech (2016-2020)*

Finding Your Direction

The key is a structured approach. The First Three Years: Build Your Foundation. Focus on the core subjects—structural analysis, hydrology, RCC design—because even if you shift later, solid fundamentals lend credibility. It's like cooking: before becoming a master chef, you must learn to chop onions (without crying, hopefully).

Shifting Gears, But With Purpose! Some might get drawn toward other fields or high-paying jobs elsewhere. That's okay. But if you switch, do it after mastering Civil Engineering basics. A strong foundation never goes out of style.

How to Excel as a Student

- 1. Take Part in Competitions** Competitions help apply your knowledge, improve problem-solving, and yes, give you bragging rights. Next time your relatives compare you to "Sharma ji ke bete," remind them you've won something meaningful. It's like Kaun Banega Crorepati—only you win knowledge instead of crores.
- 2. Develop a Growth Mindset** Don't use exams and submissions as an excuse to skip learning beyond class. Growth lies outside your comfort zone.
- 3. Get Practical Experience** Internships, site visits, or industrial training teach you what no classroom ever can. Like in Swades, real change needs real engineers.
- 4. Embrace New Tech** Learn tools like AutoCAD, STAAD Pro, or Revit. Want to stand out? Get familiar with AI, automation, and smart construction techniques. The future is digital—make sure you're not left holding a paper blueprint in a paperless world.
- 5. Network and Learn from Experts** Attend workshops and interact with professionals. Learning directly from those in the field offers insights no textbook provides.

The world is full of opportunities if you're curious enough to chase them. Explore, adapt, and stay open. And when things get overwhelming, remember: be like a bridge—you might bend, but you won't break. As Rancho says, "Aal Izz Well!"

Academic Arena

PhD Awarded

- **Dr. Satadru Bhattacharya** under the supervision of Dr. Sujit Kumar Dalui, thesis title: *“Aerodynamic Effects on ‘V’ Plan Shaped Tall Buildings”*.
- **Dr. Suvro Aon** under the supervision of Dr. Sujata Biswas, thesis title: *“Bivariate Characterization of Meteorological and Hydrological Drought and Studies on Drought Propagation in Frequency Domain.”*
- **Dr. Aditya Shankar Ghosh** under the supervision of Prof. Tapash Kumar Roy, thesis title: *“Replacement of Granular Material by Pond Ash in Subbase Layer of Flexible pavement and Hardstand in Port Area”*.
- **Dr. Arup Sarkar** under the supervision of Prof. Anirban Gupta, thesis title: *“ Particulate Pollution during Construction of Residential buildings and its health consequences for the exposed workers”*.

Students admitted abroad for higher studies

- **Antariksh Roy (2021CEB009)** MS in Environmental Engineering, at Queen's University Belfast, UK
- **Usaid Riyaz (2021CEB135)** Masters in Department of Disaster Mitigation for Structures at Tongji University Shanghai China via Chinese Scholarship Council
- M. Tech student **Biki Roy (2023CEM012)** has joined Ph.D. program at University of Delaware, USA with scholarship.

- A new course structure aligning with National Educational Policy-2020 has been finalized for the undergraduate and post-graduate students of the department.
- A new mentorship program has been launched for all the undergraduate students to support them in academic, non-academic, and career-related matters. The department also has its Grievance Redressal Cell (DGRC) and wellness ambassadors nominated for overall mental health of the students.

Editorial Team

Prof. Chaitali Ray, Professor (HAG) and Head, Department of Civil Engineering

Dr. Anuj Kishor Budhkar, Assistant Professor Department of Civil Engineering

Dr. Saptarshi Kundu, Assistant Professor Department of Civil Engineering

Dr. Dipaloke Majumder, Assistant Professor Department of Civil Engineering