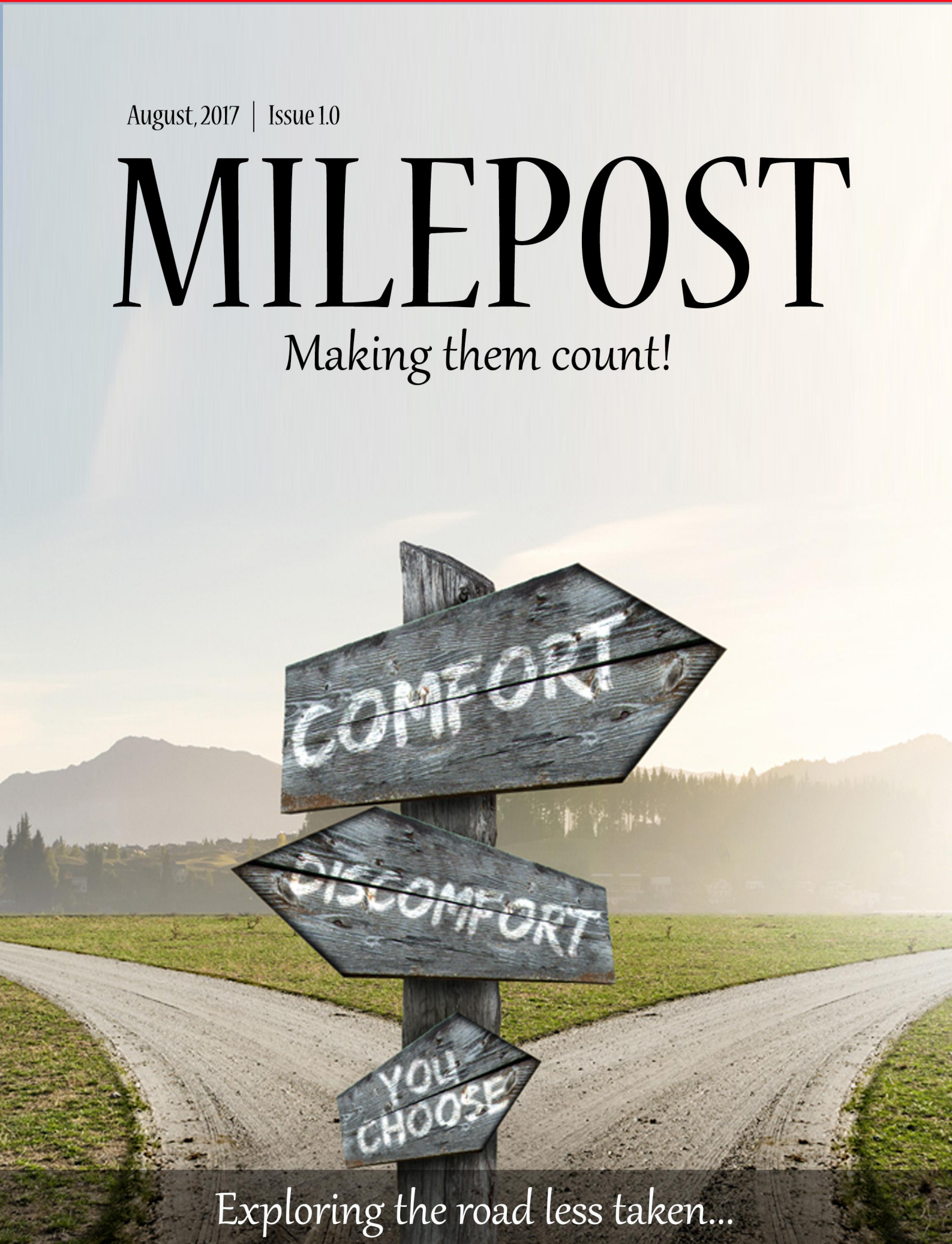
Civil and Environmental Engineering | IITP

August, 2017 | Issue 1.0

MILEPOST

Making them count!



Exploring the road less taken...

Published by the Association of Civil Engineers (ACE), Department of Civil and Environmental Engineering at IIT Patna, Milepost is an annual magazine that seeks to highlight the happenings of Civil Engineering community throughout the year.

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From the Desk

Head's Message

It gives me immense pleasure to present the maiden edition of 'Milespost', the annual magazine of the Department of Civil and Environmental Engineering, Indian Institute of Technology Patna brought out by the Association of Civil Engineers (ACE). It is truly an exciting experience when a thought that has been enduring in mind becomes real. Like our day-to-day life, effective communication plays a vital role in the progress of any Department. The progress of the Department is mainly depends on the immense efforts and contributions of the students, staff and faculty members who are planning things to the smallest and working overtime round the clock. This magazine will be a medium to provide proper acknowledgement of all these efforts and contributions for 'Making them count'. This magazine will further serve to reinforce and allow increased awareness, improved interaction and integration among all of us for the progress of the Department. It is expected that wide support for this noble journey will be provided through the reader's valuable suggestions and feedback.

I would like to express my heartfelt appreciation to the Team ACE, who graciously and generously provided words of wisdom to share with our readers by working day in and day out. It is my great good fortune to enjoy such incredible support from the Editorial Team. My suggestion to the Team ACE will be to bring out the subsequent edition of the magazine to be theme based focusing a particular aspect of Civil Engineering with more technical content.

This is only a small step towards a long journey. We have to cross numerous 'Mileposts' in this long journey to achieve greater heights in teaching and research for nation building. I truly believe that this maiden edition of the annual magazine should inspire all of us for a new beginning enlighten with hope, confidence and faith in each other in the road ahead. Signing off with an old proverb: "If you want to go quickly, go alone. If you want to go far, go together." We have to go far – quickly.

Happy Reading!

Subrata Hait
(Dr. Subrata Hait, HoD, CEE)

Faculty-In-Charge, ACE's Message

The year 2017 has a special importance in the calendar of DCEE, IIT Patna. It is the year when our first batch has passed out and has become official flag bearers to the world out there. The department is growing continuously in terms of teaching and research and academic quality increasing day by day. It gives me immense pleasure and pride to announce the release of the departmental magazine, MILEPOST. Publication of such magazines are extremely valuable on academic campuses in enhancing, developing and honing the writing and editorial skills amongst the literary-minded students, in addition to playing the role of a mirror to the past and the possible future that holds great importance for the students. Nothing exemplifies it better than the nostalgic feeling one gets when leafing through the dusty old pages of his/her college magazine. It can make a reader travel down the lanes of memory, giving rise to a surge of emotions of many hues and colours. DCEE's Mile Post is going to give the same pleasure to all the brilliant minds who traverse through the portals of this temple of learning.

With the ever changing priorities of the generations of the student communities that pass by the institute, such efforts can be sustained only through the commitment and dedication of the faculty members. Association of Civil Engineers (ACE) has always been an active medium to bridge the gap between faculties and students. The enthusiasm of the committee has bought good harmony among faculties and students, which will eventually take the department to a new level. The interest and dedication the members showed, has to be commended because of whose efforts ACE remains one of the most active clubs in IIT Patna. Right from its inception ACE has organized many technical and cultural events every year which kept encouraging the whole Civil fraternity at IIT Patna. Such a holistic environment has to be provided to every student so that they can recognize their interest and ACE gives its complete effort to make students aware of the kind of research and technology innovations happening in the current field.

We (ACE) are extremely determined to help Department of Civil and Environmental Engineering at IIT PATNA cross new land marks and reach greater heights.

Vaibhav
(Dr. Vaibhav Singhal, FIC-ACE)

From the Sculptors

Team's Note

Dear Reader,

You have in your hands the maiden edition of the annual departmental magazine of Civil and Environmental Engineering Department, Indian Institute of Technology Patna. The Milepost, as the name suggests, attempts to not only capture, mark and highlight our momentous journey but also to provide an interactive forum for the civil engineers budding in the shade and light of this esteemed institution.

A long voyage often begins with simple navigation and then follows a journey of thousand miles. Similar has been the procedure of bringing out this magazine. Its publication included a lot of planning compounded with team work and we were lucky to have a team of motivated students who played a strong role in envisioning the layout of Milepost. We aim to reflect the breadth and vitality of our student group - Association of Civil Engineers (ACE).

This edition presents the reader with the bird's eye view of bricks and steel which strengthen the foundation of our department. Further, we dive into the sophisticated architecture and instruments of the well equipped laboratories. Any institute attains an eminence by the achievements of its student and staff community, in the first place. Therefore, we have given our best shot at acknowledging the numerous engineering, scientific, managerial, cultural and social endeavors delivered by the combined efforts of the students and the faculty members.

We extend our heartfelt gratitude to the faculty members who diligently came forward for our support and bestowed their trust in us. We are also indebted to the students who actively shared their valuable experiences with us.

Given our firm belief in the ideology of no failures but feedback, we welcome all your suggestions and feedback which can be mailed to the email ID of the undersigned.

We wish you a happy reading session!

Sincere Regards,

Nipoon Gupta (Chief Student Editor)
G. Sahi Darshini (Assistant Student Editor)
...and others.

Department Profile

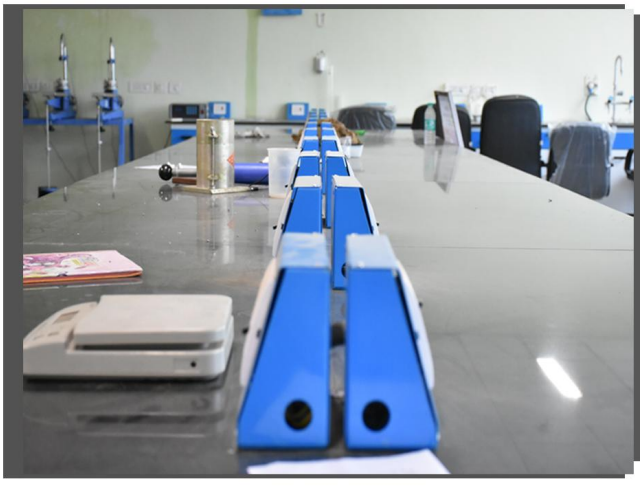
> " Innovating sustainable solutions and technology catering to the general infrastructural needs of the country and the eastern region in specific. "

Welcome to the Department of Civil and Environmental Engineering (DCEE) at Indian Institute of Technology Patna (IIT Patna) that constitutes of five independent disciplines; Structural Engineering, Geotechnical Engineering, Transportation Engineering, Water Resources Engineering, and Environmental Engineering. DCEE is one of the new departments established in 2013 that offers a four-year course (Bachelors degree) and two-year course (Master's degree) in Civil and Infrastructure Engineering. The department also provides doctoral programmes on emerging research areas (viz., Structural Engineering, Geotechnical Engineering, Railway Engineering, Water Resources Engineering, and Environmental Engineering). The DCEE is an innovative and vibrant place of learning, where students pursue their educational and research interests in order to lead the next generation in transforming the disciplines of civil and environmental engineering. Department is actively involved in basic as well as advanced research and provides high quality technical advisory support through various R&D projects and consultancy to various organizations.

Goal of the DCEE is to reach the level of excellence in latest technical front as well as advanced research; to provide a high quality teaching and learning environment in the field of Civil and Environmental Engineering to make students capable of innovative thinking. Instead of compartmentalizing, DCEE at IIT Patna is adopting an integrate approach to forge all these areas into a multi-disciplinary and application oriented course. This interdisciplinary nature will lead to development of creative and analytical ability of the students to handle the novel challenges of the society; further improving the lifestyle of the society by creating various innovative works and transferring technological knowledge from classroom to the real life.

Structural Engineering and Concrete Techonology Lab

Serves a wide spectrum of activities relating to teaching, research and development. The primary activities include experimental study and testing of the construction materials to understand the behavior and performance on diverse conditions. It is equipped with state-of-art load/displacement controlled equipment for load application and precise instrumentation. The lab is provided with the advanced analysis and designing tools for the experimental study on model/prototype of structural elements and assemblies under various static and dynamic conditions. Seismic accelerometer and data logger are available for large and full scale investigation of load-deformation of structure including their post-peak strength and deformability up to the failure.



Geotechnical Engineering Lab

Works towards developing the cost-effective and sustainable Geotechnical solutions to meet the country's infrastructural needs. The lab is equipped with the advanced tools used for cost effective ground improvement and foundation techniques. Equipment are available for determining Soil properties like shear strength, Atterberg limits, permeability, compaction & consolidation etc. The lab can be used for studying different type of soil including expansive soil and liquefiable, scour and erosion, construction quality control, foundations and anchors, stability of slopes, geomechanics, foundation design, slope and retaining wall design, foundations on expansive soils, site investigations and ground improvement techniques.

Soil Dynamics Lab

Soil dynamic lab works towards developing safe and sustainable design solutions for the earthquake resistant Geotechnical structures in and around the region. This lab is supported by Geotechnical lab and can be effectively utilized for studying dynamic properties of the soil, soil-structure interaction properties of structures, carrying out soil microzonation, soil liquefaction and amplification studies. The lab is fully equipped with software tools like GeoStudio to aid in its research objectives.

Environmental Engineering Lab

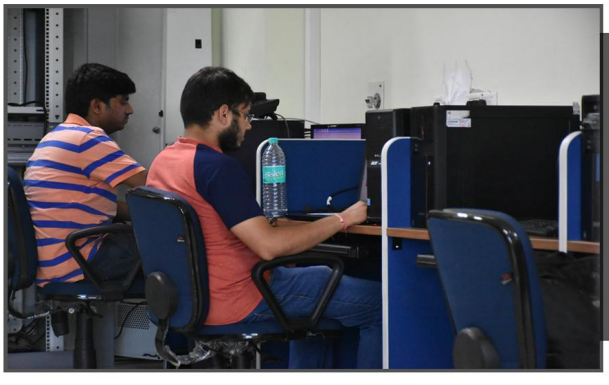
The Environmental Engineering Laboratory tests and assesses water, hazardous materials, and biological samples. Its purpose is to be an innovative research-driven organization that provides the highest value and highest quality environmental testing, monitoring, assessment, and information services to benefit both citizens and the natural environment. To this end, the Lab operates in a flexible, innovative, manner that is responsive to the needs and expectations of individuals and of government programs. The lab is equipped with various state-of-the-art equipments such as: Atomic Absorption Spectrometer, Microwave Digestion System, BOD Incubator, Ion Chromatography, Inductively Coupled Plasma Mass Spectrometry (ICP-MS) etc.

Water Resources Engineering Lab

Water resources engineering lab worksto develop cutting edge technology and provide optimal solutions to real world problems encompassing water resources management, with thrust area on simulation-optimization based solutions through robust computational platforms for optimal management of groundwater resources. Groundwater Modelling System (GMS) Aquaveo v(10) is installed in the laboratory for numerical modelling of groundwater systems.

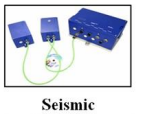
Railway Engineering Lab

Railway engineeringlab worksto develop the design standards for high-speed rail tracks in India. It is equipped with large scale pullout apparatus and direct shear apparatus. This lab can be used effectively for studying the Stability the existing rail tracks to allow the movement of high-speed trains and devise strategies to recycle the used ballast so that further quarrying of rock may be reduced.



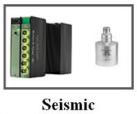
Computer-Aided-Design Lab

The CAD laboratory of DCEE, is the hub of all the necessary and required computational facilities. Equipped with plenty of high-end computer systems, along with a freely used printer system, the CAD lab is one of the newly furnished lab of DCEE. The systems have various licensed fundamental civil engineering softwares such as STAAD, Abaqus, AutoCAD, Matlab R2016a, SAP2000v16, GeoStudio, LISCAD, Plaxis 2d & 3D etc.



Seismic Accelerometer and Data Logger (for large scale system)

Universal Testing Machine



Seismic Accelerometer and Data Logger (for small scale system)

Ultrasonic Concrete Testing Machine

Rebound Hammer

Static Cone Penetration Testing Equipment

Direct Shear Test Apparatus Digital

Electronic California Bearing Ratio Test

Odeometer

Shake-table

Fully Automatic Cyclic Triaxial Test Equipment

MASW Test Apparatus

Pile Integrity Test Apparatus

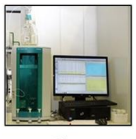
Odeometer

Block VibratoinTesting Machine

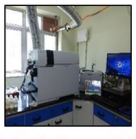
Atomic Absorption Spectrometer

Microwave Digestion System

TOC Analyzer



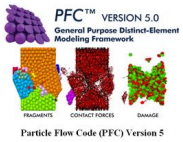
Ion Chromatography



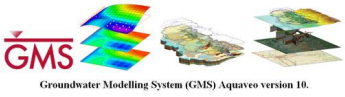
Inductively coupled plasma mass spectrometry

Large scale Direct shear apparatus

Large scale Pullout apparatus



Particle Flow Code (PFC) Version 5



Groundwater Modelling System (GMS) Aquaveo version 10.

DCEE, A place to be!

Young Emminent Faculty Members

New and Optimum Infrastructure

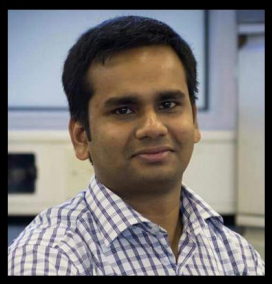
Fair Student Teacher Ratio

Well Structured & Updated Syllabus

Infinite Ventures to be explored...

Department of Civil and Environmental Engineering Welcomes two new Faculty Members!

Dr. Ramakrishna Bag, Assistant Professor



A new guiding stone has been added to the Department of Civil and Environmental Engineering as an Assistant Professor on June 02,2017. Dr. Ramakrishna Bag's research interests include Geotechnical Engineering i.e radioactive waste disposal, ground source energy and unsaturated soil mechanics. He has done his BE in Civil Engineering from IIEST Shibpur in the year 2005. Thereafter completed ME from IISc Bangalore in the year 2007. After that he worked at L&T ECC Chennai as senior Geotechnical Engineer before pursuing his PhD at Cardiff University, UK. Upon completion of his PhD in 2012 he worked as post doctoral researcher at Cardiff University for more than 2.5 years. During his post-doctoral tenure, he worked in a Welsh-European funded project on Sustainable Earth Energy (SEREN). Since July 2014 to May 2017 he worked as assistant professor in the department of Civil Engineering at NIT Rourkela. He has guided 9 MTech GeotechnicalEngineering and 5 BTech Civil Engineering students projects. He is also actively involved in Safety Engineering. He has guided 7 MTech projects on safety Engineering and also conducted one short term course on Industrial safety and Hazards Management at NIT Rourkela. He is a Life member – Ground Engineering Group, ICE Wales Chapter and also Associate member of Institution of Engineers (India) Limited.

Dr. Ritwik Ghoshal, Assistant Professor

Adding on to the jewels of guidance Dr Ritwik Ghoshal has joined the Department of Civil and Environmental Engineering as Assistant Professor on July 11,2017. His research interests include shock waves, computational mechanics, fluid-structure interaction, composites and non-linear dynamics. Prior to joining the Department, Dr. Ritwik Ghoshal was a post-doctoral Research Fellow in the Department of Mechanical Engineering, National University of Singapore (NUS). There he worked in Keppel-NUS Corporate Laboratory to develop new methodology for designing economic station-keeping system for Arctic Floaters in harsh environment. Dr. Ghoshal earned his doctorate degree in Civil Engineering with specialization in Structures from Indian Institute of Technology Kharagpur. During his doctoral study he worked on developing mitigation strategies of explosion induced shock loading on structures using marine grade sandwich panel. Dr. Ghoshal also received his master's degree in Ocean Engineering and Naval Architecture from IIT Kharagpur. His master's project involves studying the effect of compression on wave diffraction by very large floating elastic plates. Dr. Ghoshal obtained his Bachelor of Engineering degree in Civil Engineering from IIEST Shibpur. His research works have been presented in various international conferences and published in leading peer-reviewed journals and conference proceedings.

Awards & Achievements

MARQUIS Who'sWho®

Dr. Subrata Hait has been accloded by Marquis Who's Who, USA as "Albert Nelson Marquis Lifetime Achievement Award" in 2017.

Mr. Angshuman Das, Ph.D scholar won First Prize in SHILP-2016 for paper, title "One-Dimensional Seismic Energy Transmission along Heterogeneous Layered Soil" at IIT BHU, Uttar Pradesh.

SHILP 2016 where construction meets creativity

International Conference on Emerging Trends in Water Resources and Environmental Engineering
March 30 - April 1, 2017 in MVGR College of Engineering, Vizianagaram
Sponsored by SERB-Dept. Of Science Technology, Govt. of India

Mr. Rohan Chowdhry, M.Tech student has proudly received best paper award in ETWREE-2017 for paper, title "Vermicomposting of primary clarified tannery sludge employing Eisenia fetid"

RECYCLE 2016 International Conference on Waste Management

Ms. Anshupriya, Ph.D scholar has proudly received best paper award in Recycle-2016 for paper, title "Extraction of Cu and Zn from high grade printed circuit board scraps by conventional and hybrid bioleaching" at International Conference on Waste Management, 2016.

Research Highlights

Papers Published in Journals (2016 & 2017):

Das, A. and Chakrabortty, P., 2016. One-Dimensional Seismic Energy Transmission along Heterogeneous layered soil. International Journal of Students' Research in Technology & Management, 4(3), pp.49-55.

Puri, V., Chakrabortty, P., Anand, S. and Majumdar, S., 2017. Bamboo reinforced prefabricated wall panels for low cost housing. Journal of Building Engineering, 9, pp.52-59.

Swati, A. and Hait, S., 2017. Fate and bioavailability of heavy metals during vermicomposting of various organic wastes– A review. Process Safety and Environmental Protection.

Gundupalli, S.P., **Hait, S.** and Thakur, A., 2017. A review on automated sorting of source-separated municipal solid waste for recycling. Waste Management, 60, pp.56-74.

Priya, A. and Hait, S., 2017. Comparative assessment of metallurgical recovery of metals from electronic waste with special emphasis on bioleaching. Environmental Science and Pollution Research, pp.1-20.

Kumar, V., Rudra, R., Nandy, A., **Hait, S.** and Kundu, P.P., 2017. Analysis of partially sulfonated low density polyethylene (LDPE) membranes as separators in microbial fuel cells. RSC Advances, 7(35), pp.21890-21900.

Priya, A. and Hait, S., 2017. Feasibility of Bioleaching of Selected Metals from Electronic Waste by Acidiphilium acidophilum. Waste and Biomass Valorization, pp.1-7.

Paulraj, S.G., **Hait, S.** and Thakur, A., 2016, August. Automated municipal solid waste sorting for recycling using a mobile manipulator. In ASME 2016 International Design Engineering Technical Conferences and Computers and Information in Engineering Conference (pp. V05AT07A045-V05AT07A045). American Society of Mechanical Engineers.

Syed K. K. Hussaini., Indraratna, B., Vinod, J.S. (2016). "A laboratory investigation to assess the functioning of railway ballast with and without geogrids", Transportation Geotechnics, 6, 45-54. (doi:10.1016/j.trgeo.2016.02.001).

Samanta, A. and Huang, Y.N., 2017. Ground-motion scaling for seismic performance assessment of high-rise moment-resisting frame building. Soil Dynamics and Earthquake Engineering, 94, pp.125-135.

Datta, B., Petit, C., Palliser, M., Esfahani, H.K. and **Prakash, O.**, 2017. Linking a Simulated Annealing Based Optimization Model with PHT3D Simulation Model for Chemically Reactive Transport Processes to Optimally Characterize Unknown Contaminant Sources in a Former Mine Site in Australia. Journal of Water Resource and Protection, 9(05), p.432.

Roy, K., 2017. Structural Damage Identification Using Mode Shape Slope and Curvature. Journal of Engineering Mechanics, 143(9), p.04017110.

Chakraborty, S., **Roy, K.** and Ray-Chaudhuri, S., 2016. Design of re-centering spring for flat sliding base isolation system: Theory and a numerical study. Engineering Structures, 126, pp.66-77.

Gur, S., Mishra, S.K. and **Roy, K.**, 2016. Stochastic seismic response of building with super-elastic damper. Mechanical Systems and Signal Processing, 72, pp.642-659.

Rai, D.C., **Singhal, V.,** Raj S, B. and Sagar, S.L., 2016. Reconnaissance of the effects of the M7. 8 Gorkha (Nepal) earthquake of April 25, 2015. Geomatics, Natural Hazards and Risk, 7(1), pp.1-17.

Rai, D.C., **Singhal, V.**, Pradhan, T. and Tripathi, A., 2016. Seismic vulnerability of monastery temples of stone masonry in Sikkim Himalaya. Current Science (00113891), 110(10).

Singhal, V. and Rai, D.C., 2016. In-plane and out-of-plane behavior of confined masonry walls for various toothing and openings details and prediction of their strength and stiffness. Earthquake Engineering & Structural Dynamics, 45(15), pp.2551-2569.

Sagar, S.L., **Singhal, V.**, Rai, D.C. and Gudur, P., 2017. Diagonal Shear and Out-of-Plane Flexural Strength of Fabric-Reinforced Cementitious Matrix–Strengthened Masonry Walletes. Journal of Composites for Construction, 21(4), p.04017016.

Sitharam, T.G. and **Hegde, A.,** 2017. Stability analysis of rock-fill tailing dam: an Indian case study. International Journal of Geotechnical Engineering, 11(4), pp.332-342.

Hegde, A. and Sitharam, T.G., 2017. Experiment and 3D-numerical studies on soft clay bed reinforced with different types of cellular confinement systems. Transportation Geotechnics, 10, pp.73-84.

Amarnath, H. and Sitharam, T.G., 3-dimensional numerical simulations of rock bolt pullout tests of Himalayan region.

Hegde, A. and Sitharam, T.G., 2016. Behaviour of geocell reinforced soft clay bed subjected to incremental cyclic loading. Geomechanics and Engineering, 10(4), pp.405-422.

Hegde, A., Kadabinakatti, S. and Sitharam, T.G., 2016. Use of Geocells to Protect Buried Pipelines and Underground Utilities in Soft Clayey Soils. In Geo-Chicago 2016 (pp. 914-924).

Raychoudhury, T., Boindala P. S., Kalidindi, S., (2017). Performance evaluation of metal impregnated activated carbon composite for removal of fluoride under different solution chemistry. Water Science and Technology: Water Supply, ws2017040; DOI: 10.2166/ws.2017.040

Raychoudhury, T. and Surasani, V. K. (2017). Implication of surface modified NZVI particle retention in the porous media: assessment with the help of 1-D transport model. Journal of Earth System Science,(Accepted)

Kalidindi, S., Vecha, M., Kar, A., **Raychoudhury, T** (2017). Aluminum-cerium double-metal impregnated activated carbon: a novel composite for fluoride removal from aqueous solution. Water Science and Technology: Water Supply, 2017, 17 (1): pp 115-124 (ws2016114; DOI: 10.2166/ws.2016.114)

Suresh, P., & Ramachandran, S. (2016). Development of Smart Cities in India – Dream to Reality. Scholedge International Journal of Business Policy & Governance ISSN 2394-3351, 3(6), 73-81.

Current Projects:

"Arsenic immobilization by in-situ synthesis of iron-based adsorbent under reducing environment within porous media"
Principal Investigator: Dr. Trishikhi Raychoudhury
Sponsoring Agency: DST-WTI (Water Technology Initiative)
Budget : Rs. 39.36 lakhs
Status : Jan, 2017 -(Sanctioned)

"Evaluate the fate and transport and implication of engineered nanoparticle retention in porous media"
Principal Investigator: Dr. Trishikhi Raychoudhury
Sponsoring Agency: DST-SERB (Start-up Research Grant)
Budget : Rs. 30.44 lakhs
Status : March, 2016-2019 (Ongoing)

"Development of Ganga Grams under Namami Gange Programme with Support of Technical Institutions"
Principal Investigator: Dr. Subrata Hait
Sponsoring Agency: Ministry of Human Resource Development; & National Mission for Clean Ganga (NMCG), Ministry of Water
Budget : Rs. 5.00 Lakhs

"Varied profiling of bio-macromolecules for energy and byproduct assessment employing electrochemical tools"
Principal Investigator: Dr. Subrata Hait
Sponsoring Agency: SERB, DST, GoI
Budget : Rs. 14.40 Lakhs

"Seismic Response, Damage and Vulnerability of Structures in Patna for Future Earthquakes"
Principal Investigator: Dr. Avik Samanta
Sponsoring Agency: SERB
Budget : Rs. 21.39 Lakhs

Events and Culture

Freshers Welcome and Open House 2016

" The journey of thousand miles begins with a single step "

It all started with NEEV which took place on 27th August, 2016. NEEV was the official freshers welcome as well an open house of the Department of Civil Engineering. As the name says the event was to embrace the new comers with a gamut of insightful interaction sessions, engaging quizzes, cultural landscape of music, humorous exhibition of talents and some thought provoking words. It all went through as the freshers introduced themselves. One told about their strengths the other about their weakness, one was shy to speak in front of the community the other as eloquent as possible, one didn't know why he is becoming an engineer while the other had a clear picture of his future, one was poetic and the other dramatic. Everyone was special with handful of enthusiasm to face their 4 years of B.Tech. life. The exciting evening went on to become a cocktail of exhilirating events to bring people out of the academic intertia that the four walls of classroom and cabins might have put them in. It was the day when instead of normal lectures tongue twisters rolled and our professors proved they were no less in any extra curriculars. As the faculty welcomed new students they also made them aware of the whereabouts of the department. The open house started and the freshers opened up to get themselves cleared of their all time wondering questions. The head of the department, Dr. Subrata Hait has taken enough patience to guide the budding engineers.

AUTODESK AUTOCAD WORKSHOP

A workshop on AutoCad was conducted during the beginning of semester which was to give a good start to all the freshers out there with inquisitive brains wanting to try something new. This year ACE plans to conduct more suvh sessions on Civil Engineering Softwares like SketchUp, Risa 2D etc.

Interaction Sessions

Regular interaction and brainstorming are organised by the students of Department of Civil and Environmental Engineering. In these sessions various doubts of students are solved through a healthy discussion on topics ranging from the Internships to career doubts. This is found to help the students immensely and has made them to make some wise choices in their initial academic years.

Teacher's Day Celebrations

"I am indebted to my father for living, but to my teacher for living well." — Alexander the Great

Indian Institute of Technology Patna is committed to quality research and excellence in teaching. Some alumini of the institute today stand at different positions command great respect and some are job givers while the other are exploring this ever questionable science. The glory of the institute are students but their framework is all laid by the professors who give their best to carve a jewel out of a stone. In a simple event at the departmental lawn we celebrated their day with all due respect. We expressed our gratitue and appreciated the hard work they put in to make us able individuals. On the eve of 5th September 2017, Teacher's Day was celebrated at the lawn of DCEE. The event was a cocktail of variety of mini-games ranging from Civil-Charades to Musical Chairs organised especially for the participation of faculty members. Cake cutting ceremony was followed by refreshments. Handmade cards were then offered to the faculty members. The event was jointly organised by B.Tech., M.Tech. and PhD students and received a great response for its continuation in the future as well.

INVITED TALKS AND LECTURES

Dr. S.L. Dhingra

Adjunct Professor, Ex. Institute Chair Professor & Emeritus Fellow, Transportation Systems Engineering, Civil Engineering Department, Indian Institute of Technology Bombay

"Planning for Beautiful and Smart Cities for Sustainable Infrastructure"

Dr. S.K. Chakrabarti

Professor of Civil Engg., Indian Institute of Technology Kanpur

"A Parametric Study on the Behavior of Steel Plate-Anchor Assembly Embedded in Concrete under Torsion"

"Industry Interface in Undergraduate Civil Engineering Education: Indian Context"

Dr. Kundan Kumar

Associate Professor, University of Bergen, Norway

"Solution strategies for coupled flow and geomechanics problems in porous media"

Dr. Om Prakash

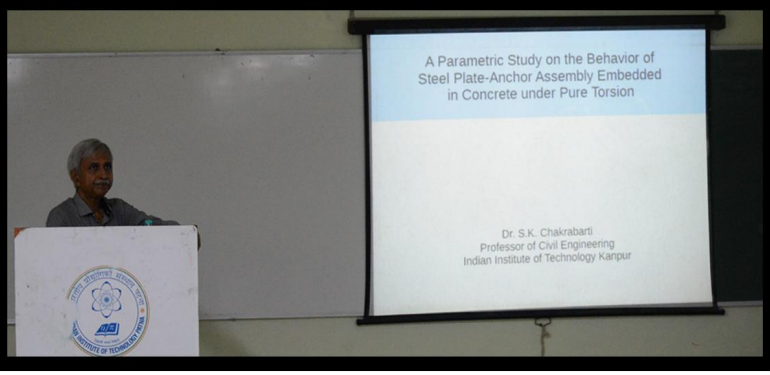
Asst. Professor, Indian Institute of Technology Patna

"Characterization of Pollution Source in Groundwater Aquifers"

Mr. Samudranil Chatterjee

Founder Mentor, Educidate

"An Empowering Road Map to Masters and PhD Programs in USA and Canada in Fall 2018 and beyond- Prospects, Opportunities and Motivations for Academic and Career fulfillment"



SPAGARIDGE

"Build the Strongest Bridge"

Poblem Statement: Design and construct a model of a single span truss bridge with the help of spaghetti noodles satisfying the constraints.

Design is the essence of engineering and Drawing is the language of Engineers. Have you ever sat gazing at the marvels of Civil Engineering spread across the pages of history and wondered, "How do they do it?" If you have an inexplicable passion for Sructural Engineering, then this one is for you. The first bridges built by humans were probably just wooden planks or boulders placed on a flowing stream. But today, engineers have built bridges to cross vast stretches of rivers. Before actually constructing a bridge, we need to model it and test its performance in the lab. So, get innovative and build your bridge model with this unconventional construction material. An event held as a part of technical fests of the college, fetches huge participation amongst the student of several colleges.. “Virtual Inceptors”, a team comprising of second year B.Tech students of DCEE, IIT Patna holds the record of their bridge bearing a weight of 50kg+.

SITE VISIT

ACE organised a site visit aimed at enlightening the students about the various aspects of on-site construction in order to provide them an opportunity to increase their knowledge base outside of regular academic coursework. We express our gratitude to Dr. Amarnath Hegde and Dr. Vaibhav Singhal who had given us their kind consent to enlighten us during the visit. Students explored various concepts of soil exploration during the visit held at construction site of the upcoming Boys Hostel.

CIVIL CRICKET LEAGUE (CCL) 2017

ACE organized Civil Cricket League (CCL), a sports event, the event witnessed huge participation of students from all the years of B.Tech., M.Tech and Ph. D and even the faculty members of the department. When it comes to sports, the department of Civil Engineering is full of enthusiastic students and even more so energized faculty members! A total of three teams played in CCL, each including both faculty members and students. Two of them were led by the respected faculty members Dr. Amarnath Hegde and Dr. Om Prakash. The other team captain was Mr. Devendra Meena. As expected the matches were full of fun and enjoyment. Both the faculty members and students played with lots of vigour and excitement. Dr. Avik Samanta , Dr. Amarnath Hegde, Dr. Om Prakash and Dr. Vaibhav Singhal delivered remarkable performances. But as we all know, the performance of players obviously was not the priority here, what matters is that how this event played a pivotal role in building up a healthy and interactive relation between the faculty members and the students.

Intern Diaries

Gesu India, Research Intern
Professor : Dr. Christophe Jouffrais
Place : Singapore Univeristy of Technology and Design
Duration : 2 months
Stipend : 1050 sgd/month
"Developing a game for enhancing navigational skills and space skills amongst visually impaired (partially or fully blind) children in Singapore."

Pranav Suresh, Research Intern
Professor : Prof. Koshy Varghese
Place : IIT Madras
Duration : 3 months
"Construction 3D Printing"

Abhinav Kumar, Research Intern
Professor : Dr.Srideep S.
Place : IIT Guwahati
Duration : 8 weeks
"Finding hydraulic conductivity for a plot of land having different type of grasses and trees"

Rahul Jain, Research Intern
Professor : Dr. Dharamveer Singh
Place : IIT Bombay
Duration : 10 weeks
"Effect of Carbon Nano Tubes on intermediate and low temperature properties of Asphalt Binder"

Vishal Verma, Research Intern
Professor : Dr. Abhishek Kumar
Place : IIT Guwahati
Duration : 2 months
"Behaviour of soil under earthquakes to check its deformation properties"

Nipoon Gupta, IASc-NASI-INSA SRF
Professor : Dr. Sonalisa Ray
Place : IIT Roorkee
Duration : 62 days
Stipend : 10,000 per month
"Use of Surrogate Model to Implement Higher-Order Numerical Integration of Different Fatigue Crack Growth Models"

Abhishek Mishra, Research Intern
Professor : Dr.Hamid Valipour
Place : UNSW Sydney
Duration : 2 months
Stipend : 3600 AUD
"Progressive Collapse Analysis of Reinforced and Post- Tensioned Concrete Structures"

Suresh Raja, Research Intern
Professor : Prof. Dr.-Ing. habil. Tom Schanz
Place : Ruhr-Universität Bochum, Germany
Duration : 2 months
"Clay behaviour considering physico-chemical effects"

Abhishek Sourabh , Industrial Intern
Jamalpur Workshop, Indian Railways
Duration : 2 months
"Functioning of the Water Supply works at Jamalpur, Bihar and basic training at a construction site "

Sumit Kumar Nandan, SRIP Research Intern
Dr. Amit Prashant
Place : IIT Gandhinagar
Duration : 2 months
Stipend : Rs. 8000
"Design solution of a failing slope made of black cotton soil"

Shivpreet Sharma, Research Intern
Professor : Dr. Anil Mishra
Place : IIT Guwahati
Duration : 2 months
"Development of Matlab code for determination of bearing capacity of foundations"

Mohit Singh, SRIP Research Intern
Dr. Amit Prashant
Place : IIT Gandhinagar
Duration : 2 months
Stipend : Rs. 8000
"Proposing Seismic Designer Chart for Displacement in Cantilever Retaining Wall"

G. Sahi Darsini, Research Intern
Professor : Dr. A.K. Rastogi
Place : IIT Bombay
Duration : 2 months
"Finite Element Modelling of Aquifer and drawdown Optimisation using Differential Evolution"

FAQ's*

1. How did you apply for various internships?

Directly e-mailing professors.
IIT Guwahati - Online Portal
SRFP: http://web-japps.ias.ac.in
IIT Gandhinagar: SRIP Portal
UNSW Internship for International Students
MITACS, SNBose etc.

2. What are the general prerequisites for someone applying for an internship?

Research Internship: Anyone who has an interest in that field can apply and having CPI above 8.5 can increase your chances of internship; Industrial Internship: Some ground zero projects
It is better to have some basic knowledge or some experience in the field in which you are applying. Learn some basic software such as MATLAB, basics of C programming or any other programming language. Doing literature work and previous experience in the same field will give you more advantage among others. Working with the professor of your institution on small projects will gain you knowledge and experience in the same field. This will make you more suitable for being offered an internship than others.

3. Any other thing you would like to share from your experience?

Don't expect that the work given will be interesting but it will surely be helpful in future.
Apart from project work it gives a chance to learn other advanced equipment and machines that are present in labs. Also Interacting with other Ph.D's that are working in the lab and knowing about their work helps to gain knowledge about other fields.

4. Whom should we take recommendation letters from?

It is more convenient to take recommendation letters from the department faculty members. It is even better to take it from a professor who is related to that field. At the end it should always be according to need of supervisor or corresponding institute or industry.
The chances are good if your recommendation isn't just a copy paste version of a standard recommendation. A recommendation highlighting your works, your impact and the progress you have made during the time spent would help. It should be about "YOU". If someone can write you that kind of recommendation, that would be preferable.

5. What is the ideal time to apply for internships?

One needs to be updated on dates of summer internship programs such as Indian academy of science, IIT's, IISC etc. In general, September-February is the most suitable time.

6. What kind of internship makes sone's resume stronger ?

Sponsored projects and research papers are a strong benchmark on resume. One should decide between doing a job or pursuing higher studies. For job oriented people, they should do industrial internship in big construction company such as L&T, IRCON, TATA etc. Also one can do internship in railways which might help in grabbing internship in good construction company. For research oriented people, one should find his interest in particular field and should work under only one prof in various projects in that field during his under graduation. This will lead him to gaining knowledge up to M.Tech. and sometimes even more work in the same field will provide easy road to post graduation in the particular field. One is always free to change his interests if the new professor is working on more advanced field in the same field in which you are interested and also in good institution. If someone doesn't know his interest than he should explore in various fields by doing research internship in different fields under reputed prof and in good institution and should find his interest.
Depends on what are your goals; Research Internships are good if you aim to pursue higher education, Industrial Internships fetch you good contacts in the industry, You can even go for marketing/design internships if you are not interested in core civil engineering.

7. Merits and Demerits while comparing between research interns and industrial interns.

Don't go for industrial interns unless you have completed some major coursework, site visits can be done meanwhile. Whereas research internships always makes you learn something new.
Research internship are generally concentrated on a single topic while industrial trainings usually (like at construction sites) are very broad. Research internships would surely come in handy if the person wants to continue working in the same field or go for higher studies with the same subject. Industrial trainings are given to the new employees in any company before they can start working; hence undergoing industrial training internship is not necessary as a student.

8. In case of no specific interest, is it okay to e-mail many professors of various fields at a time or just particular ones from one field?

Just mail all the professors for more probability. But if you are interested in any specific field go with that only. Before mailing to any professors it is necessary that you must read about the previous work done by those professors and mention it in your e-mail.

*(Following answers are a compilation of various experiemces of DCEE B.Tech. Student Interns)

FAREWELL 2017: "We will miss you!"

"Good byes are tough". Farewell was a bitter-sweet occassion. It was indeed a sad day to bid good bye to our seniors who were ending their remarkable journey at college. They were the first batch passing out to become the flag bearers of Civil Engineering department Indian Institute of Technology Patna. Students not wanting to ponder upon the departure of their seniors but wishing to celebrate every single second left with the departure organised a farewell party to give a grand exit with great hopes and lots of luck.

THE TEAM (ACE 2016-2017)

Dr. Vaibhav Singhal (FIC-ACE)
Pranav Suresh (Overall Coordinator)
Abhishek Anand (PG Coordinator)
Nipoon Gupta (Sub-Coordinator)
Rahul Jain (Sub-Coordinator)
Mohit Singh (Event Manager)
Sushil Meena (Event Manager)
Vishal Verma (Event Manager)
Satyam Mishra (Website Coordinator)
Venkatesh Palagala (PG Sub Coordinator)
Kumar Nishant (PG Sub Coordinator)

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Satyaki Barman (Sub-Coordinator)
Vishwajeet Nishad (Event Manager)
Abhinav Sharma (Event Manager)
Suraj Singh (Event Manager)
Abhinav Gyan (Website Coordinator)
Rohit Kumar (Website Coordinator)

MILEPOST

Making them count!

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Special Thanks

Dr. Subrata Hait

Dr. Vaibhav Singhal

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