Civil Insights

IIT BOMBAY
2022

Message from the Editorial Team

It gives us immense pleasure to introduce the fourth edition of "Civil Insights" dedicated to the department of civil engineering. The department of civil engineering is one of the founding departments of the Institute, holding vital importance and international recognition. In the following pages, we attempt to provide a glimpse into what the department entails, and we hope this magazine becomes a valuable read for everyone who wishes to get a concise overview of the department. It highlights major events and activities that took place during the academic year 2021-2022 along with some insightful remarks from seniors. The team is extremely grateful to all of the faculty, staff, and students who gave their valuable time to the magazine and contributed to its diverse content. We would also like to express our heartfelt gratitude to the HoD, Prof. Deepankar Chaudhury, and the CEA faculty advisors, Prof. Swathy Manohar, Prof. Meera Raghunandan, and Prof. Albert Thomas, for their invaluable suggestions. We hope that the magazine will appeal to a wide range of readers' interests. Please accept our sincere apologies if readers encounter errors or typos despite the team's best efforts to ensure that the contents are error-proof. We hope this magazine fulfils its intended purpose and provides the graduating class with a valued memory to carry with them when the department bids them farewell at the Institute's 60th Convocation. We wish the class of 2022 all the best in their future pursuits.
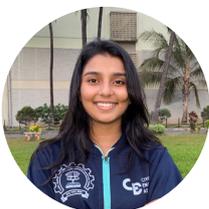
Aditi Gupta
Dept. General Secretary

Himanshu Suvata
Chief Editor

Varun Raipat
Chief Editor

Divyansh Agarwal
Joint Secretary Events

Abhishek Singh
Editor

Ashish Saini
Editor

Daksh Bansal
Editor

Rohit Meena
Editor

Vikas Panwar
Editor

Saloni Kajal
Designer

Harendra Baghel
Designer

Mihir Borse
Designer

CONTENTS

Disclaimer

Please note that the information in this magazine, including all the articles and statistics, does not make any claims. Any information offered is unequivocally the opinion of the creator/author of that material, and the write-ups should not be relied upon to make any personal decision. Professional advice should be obtained before making any such decision. It is respectfully offered to you to explore, in the hope and with the intent that exploring this material will be educational and helpful to you. By no means are the contents of this magazine intended to hurt the cultural sentiments of any person or group. You may not publish, display, distribute, modify or create derivative works based on the magazine contents or any part thereof, whether by yourself or in any other role, unless authorized in writing by the creator/author of the article or any content contained therein. The images in this magazine have been taken with proper consent from the owners or are declared as free-to-use.

Message from the HoD

Prof. Deepankar Choudhury
Head of Civil Engineering Department, IIT Bombay
Geotechnical Engineering

Hearty Welcome to the Department of Civil Engineering of IIT Bombay!! The department of civil engineering has been one of the founding Departments of IIT Bombay since 1958, over the years, has grown tremendously, and is now recognized as one of the best and major Engineering departments in the country and ranked highly in the world for Civil Engineering. With its multifaceted faculty (52 regular Faculty, 1 Emeritus Fellow and additionally 2 Adjunct and 1 Visiting Faculty), it provides high quality teaching and research. We provide very attractive facilities and an environment for those who join the department as Faculty or Student.

Among JEE (Advanced) qualified candidates who opt to join the undergraduate (UG) program (B.Tech. or DD), our department is one of the top destinations in the country for Civil Engineering. Similarly, for GATE qualified candidates, this department is one of the most priority institutes to join for postgraduate (PG) programs. Among the huge number of applications received for the PhD program, only less than 5% get admission to the department. Our department received in 2022-23 about 90 applications from foreign students for PG (M.Tech. and PhD) programs, showing the high demand for our academic programs in India and among other countries. Additionally, as per the recently signed MoU between IIT Bombay and SVNIT Surat, under the Early Induction Program, 5 final year UG Civil Engg. student of SVNIT joined UG Civil Engg. program at IIT Bombay. Also as per the directives of MoE to the institute, a few students from Ladakh were interviewed recently for possible admission in M.Tech. program at Civil Engg. department of IIT Bombay in addition to IIT Delhi and IIT Kanpur.

The recent QS world ranking 2022 shows our department's world ranking between 51-100, with all of India ranking number ONE (1st), in the domain of Civil Engineering. Our expert faculty members are involved in several basic and applied research works, many of which also get translated to solve various challenging issues of the country and society at large. Eight of our department faculty members are also listed in the top 2% scientists/researchers of the world in the domain as per the recent Stanford University database. These are possible because of various contributions made by several of our former students. As the problems society faces are multi-dimensional, so must be our efforts at combating them. With this view in mind, since the inception of the Department, our goal is to do research on challenging engineering problems and provide efficient engineering solutions in the various sub-disciplines of Civil Engineering. The department has a strong focus on the research areas of Transportation Systems Engineering, Geotechnical Engineering, Water Resources Engineering, Structural Engineering, Ocean Engineering, Remote Sensing, and Construction Technology and Management.

The department has M.Tech. and Ph.D. programmes in all these areas of research along with its traditional B.Tech. programme in Civil Engineering. Department has 17 high end teaching and research laboratories in these areas. The Department also hosts Postdoctoral Fellowship programmes in various specializations sponsored by Institute (IPDF), DST, and other agencies.

The department is actively involved in basic and applied research and consultancy and provides high quality technical advisory support through various R & D projects and consultancy to various organizations. Through academic and sponsored research our faculty members and students have published a large number of research publications in peer-reviewed reputed Journals having high impact factors in the domain. In the recent past, the department has attracted a significant amount of sponsored research funding from government and private organizations and delivered excellent output in terms of implementable solutions for the benefit of the country and society at large.

The department is well known because of our multi-talented alumni. Several former UG and PG students of this department are in various topmost prestigious positions globally in different sectors like academia, research organization, industry, government bureaucrats etc. Many of our Civil Engineering alumni have given back to the department by instituting merit awards, Chair Professor positions and various other contributions to their alma mater. Very recently, Mr. Jayant Kanitkar (B.Tech./Civil Engg./1977) has generously donated for instituting "Kanitkar Merit Awards" for toppers of 3rd year and 4th year B.Tech. Civil Engg. with award amount of INR 2,50,000/- each. Another alumnus Mr. Pankaj Jagtap (B.Tech./Civil Engg./1995) has started "Anantrao Jagtap Chair" position for an outstanding faculty member who is working in the domain of Construction Management. Late Prof. R. S. Ayyar's family (elder daughter of Prof. Ayyar, Ms. Ranjini is an alumnus, B.Tech. Civil Engg.) donated two flats in Mumbai to the institute, from which one Chair Professor position in the department will be created and naming of the 1st floor conference room in memory of late Prof. Ayyar will be initiated soon.

The Department disseminates the knowledge gained from its high quality research through training programs and interacts with world renowned personalities through workshops and conferences. The students and faculty members have won prestigious national and international awards and recognitions, and continue to bring laurels to the Department and the Institute. Quite a good number of our faculty members continue to be Editors or Associate Editors or Members of the Editorial Boards of a number of reputed International/ National Journals.

As per the vision and mission, our aim is to deliver the best to our students, to the society and the nation.

Best wishes
Prof. Deepankar Choudhury
Head, Department of Civil Engineering, IIT Bombay

Department Faculty

Prof. Deepankar Choudhury
Geotechnical Engineering
hod@civil.iitb.ac.in

Prof. Jangid R. S.
Structural Engineering
rsjangid@civil.iitb.ac.in

Prof. Pradipta Banerji
Structural Engineering
pbanerji@civil.iitb.ac.in

Prof. Viswanadham B. V. S.
Geotechnical Engineering
viswam@civil.iitb.ac.in

Prof. Alok Goyal
Structural Engineering
agoyal@civil.iitb.ac.in

Prof. Kapil Gupta
Water Resources Engineering
kgupta@civil.iitb.ac.in

Prof. Ravi Sinha
Structural Engineering
rsinha@civil.iitb.ac.in

Prof. T. I. Eldho
Water Resources Engineering
eldho@civil.iitb.ac.in

Prof. D. N. Singh
Geotechnical Engineering
dns@civil.iitb.ac.in

Prof. Naresh K Chandiramani
Structural Engineering
naresh@civil.iitb.ac.in

Prof. Yogesh Desai
Structural Engineering
desai@civil.iitb.ac.in

Prof. Tom V. Mathew
Transportaion System Engineering
vmtom@civil.iitb.ac.in

Prof. K. V. Krishna Rao
Transportaion System Engineering
kvkrao@civil.iitb.ac.in

Prof. V. Jothiprakash
Water Resources Engineering
vprakash@iitb.ac.in

Department Faculty

Prof. Siddhartha Ghosh
Structural Engineering
sghosh@civil.iitb.ac.in

Prof. Vedagiri Perumal
Transportaion System Engineering
vedagiri@civil.iitb.ac.in

Prof. Ashish Juneja
Geotechnical Engineering
ajuneja@iitb.ac.in

Prof. Janga Reddy Manne
Water Resouce Engineering
mjreddy@civil.iitb.ac.in

Prof. Subimal Ghosh
Water Resources Engineering
subimal@civil.iitb.ac.in

Prof. Mandar Inamdar
Structural Engineering
minamdar@civil.iitb.ac.in

Prof. Sauvik Banerjee
Structural Engineering
sauvik@civil.iitb.ac.in

Prof. Balaji Ramakrishnan
Ocean Engineering
rbalaji@iitb.ac.in

Prof. Gopal R. Patil
Transportaion System Engineering
gpatil@civil.iitb.ac.in

Prof. Nagendra Rao Velaga
Transportaion System Engineering
n.r.velaga@iitb.ac.in

Prof. Dasaka Murty.
Geotechnical Engineering
dasaka@civil.iitb.ac.in

Prof. Avijit Maji
Transportaion System Engineering
avimaji@civil.iitb.ac.in

Prof. Bellie Sivakumar
Water Resouce Engineering
b.sivakumar@civil.iitb.ac.in

Prof. Ramsankaran Raaj
Remote Sensing
ramsankaran@civil.iitb.ac.in

Department Faculty

Prof. Manasa Ranjan Behera
Ocean Engineering
manasa.rb@iitb.ac.in

Prof. Santiram Chatterjee
Geotechnical Engineering
schatterjee@iitb.ac.in

Prof. Swagata Basu
Structural Engineering
swagata@civil.iitb.ac.in

Prof. Jayadipta Ghosh
Structural Engineering
jghosh@iitb.ac.in

Prof. Prasenjit Basu
Geotechnical Engineering
pbasu@civil.iitb.ac.in

Prof. Riddhi Singh
Water Resouce Engineering
riddhi@civil.iitb.ac.in

Prof. Dharamveer Singh
Transportaion System Engineering
dvsingh@iitb.ac.in

Prof. Venkata S Kumar Delhi
Construction Technology and
Management
venkatad@civil.iitb.ac.in

Prof. Prakash Nanthagopalan
Construction Technology And
Management
prakashn@iitb.ac.in

Prof. Arpita Mondal
Water Resouce Engineering
marpita@civil.iitb.ac.in

Prof. Basudev Biswal
Water Resource Engineering
basudev@civil.iitb.ac.in

Prof. Indu J.
Remote Sensing
indusj@civil.iitb.ac.in

Prof. Arghadeep Laskar
Structural Engineering
laskar@civil.iitb.ac.in

Prof. Meera Raghunandan
Structural Engineering
meerar@civil.iitb.ac.in

Department Faculty

Prof. Amit Das
Structural Engineering
amitdas@civil.iitb.ac.in

Prof. Pinom Ering
Geotechnical Engineering
pinomering@civil.iitb.ac.in

Prof. Muhammad Salman
Construction Technology And
Management
msalman@civil.iitb.ac.in

Prof. Najeeb Shariff Mohammad
Structural Engineering
shariff@iitb.ac.in

Prof. Manish Kumar
Structural Engineering
mkumar@civil.iitb.ac.in

Prof. Swathy Manohar
Construction Technology And
Management
swathym@civil.iitb.ac.in

Prof. Albert Thomas
Construction Technology and
Management
albert@iitb.ac.in

Prof. Solomon Debbarma
Transportation System Engineering
sdebbarma@civil.iitb.ac.in

Prof.Eswar Rajasekaran
Remote Sensing
eswar.r@civil.iitb.ac.in

Prof. M. C. Deo
Ocean Engineering
mcdeo@civil.iitb.ac.in

Prof. Srineash V K
Ocean Engineering
srineash@iitb.ac.in

Department Awards

The faculty members of department of civil engineering have won prestigious national and international awards and recognition and continue to bring laurels to the Department and the Institute. Some of them are:

Prof. Arpita Mondal has been selected to feature in the second edition of the 'She Is' book series by the Office of PSA, Govt of India and the Red Dot Foundation featuring 75 Women in STEAM in India.

Prof. Subimal Ghosh has being listed among one of those top 75 scientists under age of 50 years in the list who are shaping today's India through their outstanding research contributions.

Prof. Eswar Rajasekaran, has been selected for the Prof. K.K. Nageswara Rao Young Achiever Award-2021, given by the Indian Society of Geomatics.

Prof. Riddhi Singh has been appointed as "Associate Editor" of Journal of Hydrology, Elsevier (https://www.journals.elsevier.com/journal-of-hydrology), for a period of two years starting from Jan 2022.

Akhila Padmajan (MTech) and **Dr. Rameeza Moideen** (PhD), supervised by Prof. Manasa Ranjan Behera, have been selected for the ISH G.M.Nawathe Puraskar 2021- Analytical Category (Best Paper presented in Hydro- 2020 International), from the Indian Society for Hydraulics (ISH), Pune, India.

Selection of PhD thesis of our department's former PhD scholar, **Dr. Tinesh Pathania**, supervised by Prof. T. I. Eldho, for "Prof. U. C. Kothyari - ISH Best PhD Thesis Award", instituted by the Indian Society for Hydraulics (ISH).

IGS-Prof. A.V. Shroff Biennial Award - 2021 to **Prof. Ashish Juneja** and **Dr. Shrikant Tanaji Shinde** for the paper titled "Undrained Yielding of Black Cotton Soil Treated with Calcium Carbide Residue" published in Indian Geotechnical Journal IGS-Mr. H.C. Verma Diamond Jubilee Award - 2021 to Dr. Saptarshi Kundu and Prof. B. V. S. Viswanadham for the entry on "Innovative Instrumentation Design" titled "Design and Development of an Actuator for Simulating Dynamic Compaction Induced Ground Remediation of Geomaterials".

Department Awards

IGS-Prof. Shamsher Prakash Biennial Award - 2021 to **Ms. Pradnya Singbal**, **Prof. Santiram Chatterjee** and **Prof. Deepankar Choudhury** for the paper titled "Assessment of Seismic Liquefaction of Soil Site at Mundra Port, India, Using CPT and DMT Field Tests", published in Indian Geotechnical Journal.

IGS-Kolkata Chapter YGE Award - 2021 to the Young Geotechnical Engineer **Dr. Dipankana Bhattacherjee** for the paper titled "Centrifuge Model Studies on Performance of Hybrid Geosynthetic-Reinforced Slopes with Poorly Draining Soil Subjected to Rainfall" by Dipankana Bhattacherjee and B.V.S. Viswanadham published in Journal of Geotechnical and Geoenvironmental Engineering.

Prof. Siddhartha Ghosh and their team won IEEE CTU Challenge 1st place Award.

Prof. Nagendra Rao Velaga has been selected to receive the IIT Bombay Research Publication Award 2020.

Mr. Kaushlendra Verma, PhD scholar working with Prof. J. Indu, has received Virtual Student Travel Grant to participate in the 2021 American Geophysical Union (AGU) Fall Meeting, 13-17 December 2021, in New Orleans, LA, USA.

Prof. Jayadipta Ghosh of department of civil engineering, IIT Bombay has been invited to join ASCE Journal of Bridge Engineering as an Associate Editor.

Mr. Sanjay, **Ms. Ekta** and **Mr. Sashank** received "Certificate of Appreciation" from the Institute for contributing outstandingly much above their regular duties during the Covid-19 pandemic period for the growth of the Civil Engg. department at IIT Bombay.

Alumni Contributions

Kanitkar Merit Award

Aim of the Award

The department of civil engineering announces the Kanitkar Merit Award at the end of each academic year to motivate and promote healthy academic competition among UG students to carry out academic excellence in Civil Engineering.

About Mr. Jayant Kanitkar

Mr Jayant Kanitkar is the Financial and Tax Advisor at JayKan Company. He initiated the Kanitkar Merit Awards at IIT Bombay in 2021. He completed his B. Tech in Civil Engineering from IIT Bombay in the year 1977. He attained an MS from Vanderbilt University in Structural Engineering and further attained his MBA from the Northwestern University – Kellogg School of Management. He also worked as a Visiting Faculty at the Shailesh J. Mehta School of Management, IIT Bombay during the Autumn Semester of 2008.

About the Award

The two "Kanitkar Merit Awards" are as follows:

(A) "Kanitkar 3rd Year Merit Award" of INR 250000 (Indian Rupees two lakhs fifty thousand only) will be given to the post 2nd year Civil Engineering B.Tech student Topper with CPI above 9.0.

(B) "Kanitkar 4th Year Merit Award" of INR 250000 (Indian Rupees two lakhs fifty thousand only) will be given to the post 3rd year Civil Engineering B.Tech student Topper with CPI above 9.0.

*If the topper does not meet the CPI threshold (above 9.0 out of 10), then the award will not be given in that year.

Recipient of Award in 2021

Institute students Rishabh Sharaff (Roll no. 180040081) and Bhuvan Aggarwal (Roll No. 190040026), have been awarded "Kanitkar Merit Awards – 2021", as toppers with CPI greater than 9.0 at the end of 3rd year and 2nd year of B.Tech. in the Department of Civil Engineering, respectively. Each awardee received award money of INR 250,000.00 and an additional INR 22,000.00 from the office of the Dean (Alumni and Corporate Relations), totaling INR 2.72 lakhs each, for their scholastic academic performance.

Prof. R. Subrahmonia Ayyar

IIT Bombay, together with the late Prof. R. Subrahmonia Ayyar's wife, Mrs. Parvathy Subrahmonia Ayyar, and, their daughters Mrs. Ranjani Saigal and Dr. Jayashree Subrahmonia, honored the legacy of Prof. Ayyar, former Head of the Department of Civil Engineering and former Dean (AP) of IITB, and a cherished member of IIT Bombay's extended family, by launching two special initiatives for Civil Engineering department:

1. Instituting a Chair Professorship in the Department of Civil Engineering.
2. To name the 1st floor Conference Room of Civil Eng. Dept. as Prof. R. S. Ayyar Conference Room

These are established through generous funding received from Prof. Ayyar's family, in his memory. The wife and daughters of late professor R. S. Ayyar, have donated 2 flats for betterment and development of the premier institute.

Civil Engineering department of IIT Bombay is extremely thankful to the family members of late Prof. R. S. Ayyar for their generous contributions for the department.

Anantrao Jagtap Chair for Construction Management

Aim of the Award

Mr. Pankaj Jagtap sponsored a chair professorship in memory of his late father Shri. Anantrao Jagtap, who was also a Civil Engineer and passionate about the field of Construction Management. The Chair Professorship will be called 'Anantrao Jagtap Chair for Construction Management'. The primary objective of the Chair Professorship is to attract young and talented faculty members from all over the world and provide them with a platform and financial support to build a world-class program in Construction Management with the eventual goal of making the Construction Management program at IIT Bombay preeminent in the country and internationally.

The Awardee

Should have strong recognition in providing extensive support for promoting Construction Management. Should have initiated academic programmes, streamlined already-existing programmes, and worked to perform academic activities that would be pertinent and in IIT Bombay's best interest. Should exercise technical and intellectual leadership in the area of construction management and seek to establish the department of civil engineering at IIT Bombay as the world's leading institution in the field.

Recipient of this Award

Prof. Venkata Santosh Kumar Delhi is the first occupant of "Anantrao Jagtap Assistant Chair Professor" position, effective from 5th March 2022 for a period of three years. He is probably the only Assistant Professor who is holding a named Chair position in the institute at present and this will help our younger colleague to carry out further outstanding research and development works in the domain of Construction Management at the department of civil engineering of IIT Bombay.

Research Articles

Numerical Investigation of Breaking Focused Waves and Forces on Coastal Deck Structure with Girders

by Rameeza Moideen and Prof. Manasa Behara

In the present study, breaking focused wave groups were simulated using open-source Computational Fluid Dynamics model REEF3D in order to investigate the breaking wave impact on scaled (1:10) two-dimensional coastal deck structure with girder. The effect of environmental parameters, such as bottom slope and wave steepness on the breaking and geometric properties of high-crested spilling breakers, was investigated. The effect of the wave breaking location on the impact forces acting on the deck structure located at different airgap positions was studied for three wave impact scenarios: (i) when the wave breaking starts, (ii) when a slightly overturning crest is formed, and (iii) when the wave breaks and a fully overturning crest is formed just before hitting the preceding trough. The peak horizontal impact force was found to be higher when the wave breaks ahead of the structure and the overturning wave crest hits the deck positioned above the still water level. Additionally, the peak vertical impact force attains the peak when the deck is placed at the still water level for different stages of breaking. The peak horizontal impact force shows a parabolic trend, whereas the peak vertical impact forces show a decreasing linear trend with an increase in airgap. Finally, force coefficients are derived for calculating the peak impact force on deck with girders subjected to high-crested spilling breakers.

full text: https://doi.org/10.3390/cli10060085
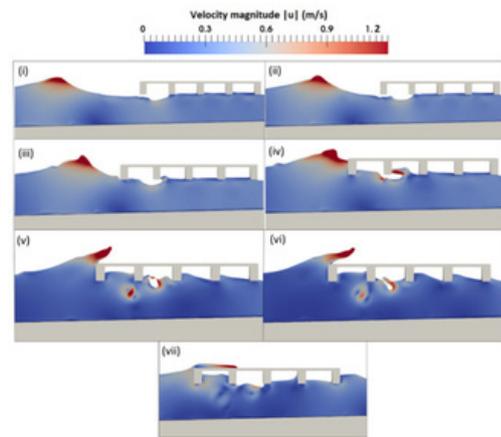
fig.1 *Velocity variation during breaking wave impact scenario WI-1 with the coastal deck structure at normalized airgap*
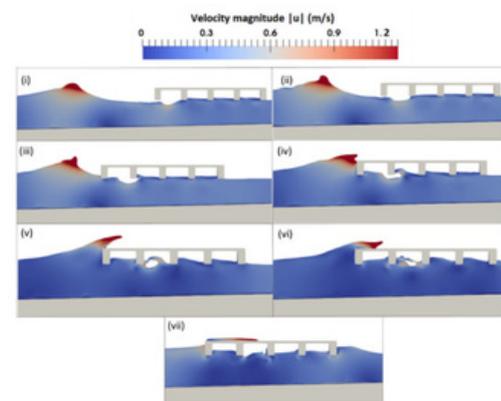

**fig.1** *Velocity variation during breaking wave impact scenario WI-2 with the coastal deck structure at normalized airgap*
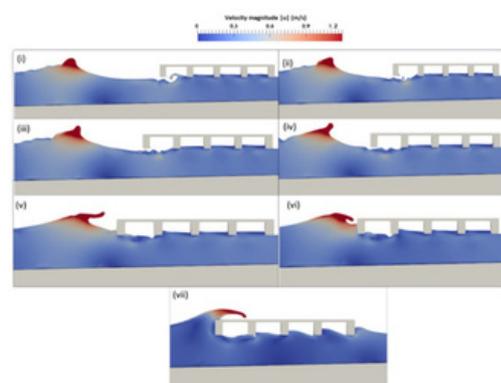
fig.1 *Velocity variation during breaking wave impact scenario WI-3 with the coastal deck structure at normalized airgap*

Skill and Inter-Model Comparison of Regional and Global Climate Models in Simulating Wind Speed over South Asian Domain

by Naresh K. G. Lakku and prof. Manasa R. Behera

Global Climate Models (GCMs) and Regional Climate Models (RCMs) have been widely used in understanding the impact of climate change on wind-driven processes without explicit evaluation of their skill. This study is oriented towards assessing the skill of 28 GCMs and 16 RCMs, and more importantly to assess the ability of RCMs relative to parent GCMs in simulating near-surface wind speed (WS) in diverse climate variable scales (daily, monthly, seasonal and annual) over the ocean and land region of the South Asian (SA) domain (11° S–30° N and 26° E–107° E). Our results reveal that the climate models' competence varies among climate variable scales and regions. However, after rigorous examination of all climate models' skill, it is recommended to use the mean ensemble of MPI-ESM-MR, CSIRO-Mk3.6.0 and GFDL-ESM2G GCMs for understanding future changes in wave climate, coastal sediment transport and offshore wind energy potential, and REMO2009 RCM driven by MPI-M-MPI-ESM-LR for future onshore wind energy potential assessment and air pollution modelling.

All parent GCMs outperform the RCMs (except CCCma-CanESM2(RCA4)) over the ocean. In contrast, most RCMs show significant added value over the land region of the SA domain. Further, it is strongly discouraged to use the RCM WS simulations in modelling wind-driven processes based on their parent GCM's skill over the ocean.

To read more : https://doi.org/10.3390/cli10060085
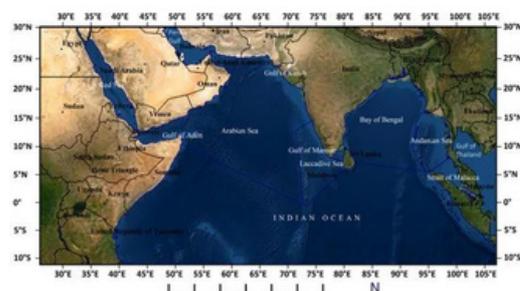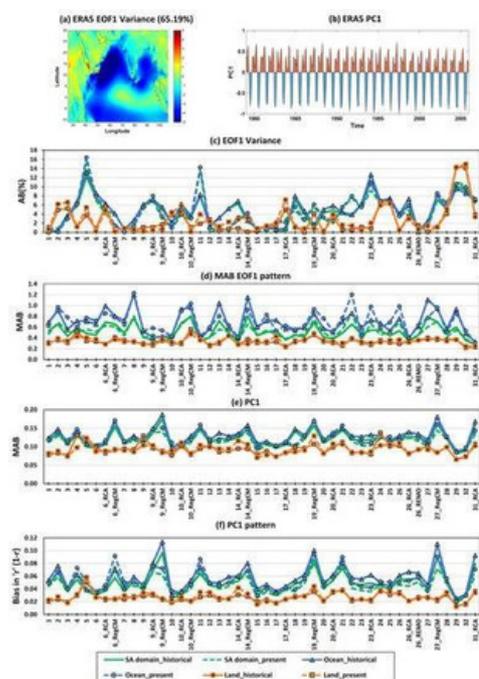
A Comparative Study of Vertical Mixing Schemes in Modeling the Bay of Bengal Dynamics

by Siddhesh Tirodkar, prof. Raghu Murtugudde, prof. Manasa R. Behera, prof. Sridhar Balasubramanian

The choice of vertical mixing scheme in ocean models plays an important role in modeling the surface and subsurface circulation and the vertical structure. This work performs a comparative study between K-profile parametrization (KPP) and k-ε mixing schemes for a regional domain in the Bay of Bengal (BoB) using the Modular Ocean Model version 5 (MOM5). It is observed that sea surface temperature (SST) and the mixed layer depth (MLD) show significant improvement with the k-ε mixing scheme. Energetic analysis shows that changes in the viscous dissipation and turbulent buoyancy flux are the primary reason for improvement with k-ε. The overestimation of viscous dissipation in the KPP scheme is corrected by k-ε, resulting in a deeper mixed layer closer to observations. The tendency of buoyancy flux to retain stability in the water column also results in a better representation of SST in k-ε. Overall, we conclude that the k-ε mixing scheme works better for the BoB region.

To read more : https://doi.org/10.1029/2022EA002327

Impact of highest maximum sustained wind speed and its duration on storm surges and hydrodynamics along Krishna–Godavari coast

by Maneesha Sebastianand prof. Manasa Ranjan Behera

The storm surge and hydrodynamics along the Krishna–Godavari (K–G) basin are examined based on numerical experiments designed from assessing the landfalling cyclones in Bay of Bengal (BoB) over the past 38 years with respect to its highest maximum sustained wind speed and its duration.

The model is validated with the observed water levels at the tide gauge stations at Visakhapatnam during 2013 Helen and 2014 Hudhud. Effect of gradual and rapid intensification of cyclones on the peak water levels and depth average currents are examined and the vulnerable locations are identified. The duration of intensification of a rapidly intensifying cyclone over the continental shelf contributed to about 10–18% increase in the peak water levels, whereas for the gradually intensifying cyclone the effect is trivial.

The inclusion of the wave-setup increased the peak water levels up to 39% compared to those without wave-setup. In the deep water region, only rapidly intensifying cyclones affected the peak MWEs. Intensification over the continental slope region significantly increases the currents along the shelf region and coast. The effect on peak maximum depth averaged current extends up to 400 km from the landfall location. Thus, it is necessary to consider the effect of various combinations of the highest cyclone intensity and duration of intensification for identifying the worst scenarios for impact assessment of coastal processes and sediment transport.

The study is quite useful in improving the storm surge prediction, in preparedness, risk evaluation, and vulnerability assessment of the coastal regions in the present changing climate.

*Full text : https://doi.org/10.1007/s00382-022-06173-9*
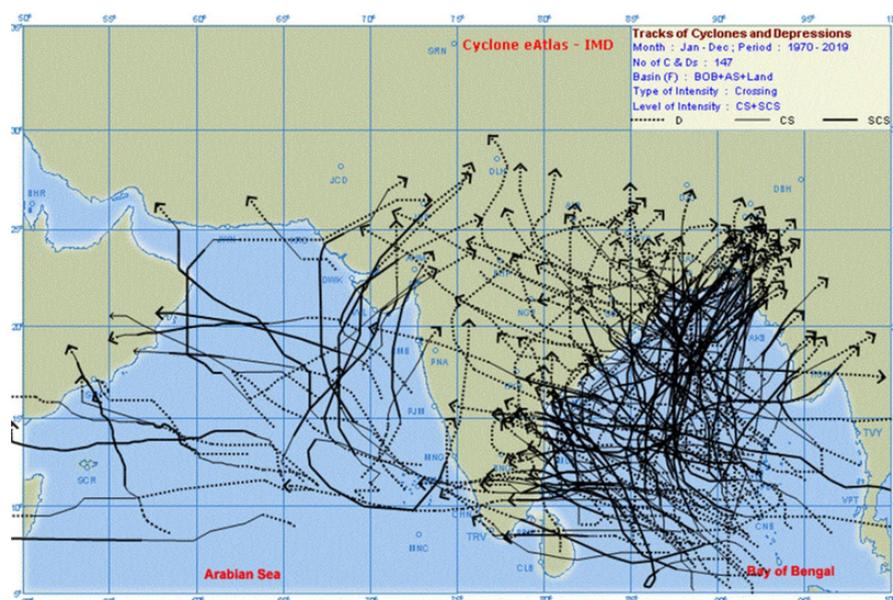
Fig. Cumulative tracks of landfalling TCs in NIO region from 1970 to 2019

Artificial intelligence in highway and railway infrastructure planning

by prof. Avijit Maji

Greenfield highway and railway systems planning, particularly developing infrastructure, is a complex multidisciplinary engineering problem. Traditionally, planners use their experience and engineering judgment to develop the essential features of a highway or railway, such as the corridor, horizontal alignment, and vertical profile, as per the stakeholders' requirements. In this process, the planners suitably connect specific obligatory points and strategically avoid others. Technically, infinite potential solutions exist for a corridor, alignment, and profile connecting the two highway or railway terminals while meeting the obligatory points requirements. However, owing to limited resources and time, the planners develop a few alternatives based on their experience and judgment and evaluate those to identify the best. Hence, the solutions recommended by planners cannot guarantee their optimality. The commercially available computer-aided design (CAD) software applications support the planners in developing the alternatives efficiently and preparing the essential estimates for comparison. However, these software applications do not have the required intelligence to develop and recommend the possible optimum solution. In the last few decades, researchers have extensively studied the highway infrastructure development problem, suitably represented it in a mathematical problem, and effectively used artificial intelligence (AI) for the solution. Some of the notable nature-inspired AI-based solution algorithms are genetic algorithm, ant colony optimization algorithm, and particle swarm algorithm. A recent work by Sushma et al. (2002) demonstrated that a vertical profile developed using an ant colony optimization algorithm can be better than the one designed by an expert. Another work by Sushma and Maji (2000) presented the efficacy of a modified motion planning algorithm in automatically developing horizontal alignment, meeting the obligatory points requirements. The corridor, alignment, and profile development problems become even more complex for the stations in railway infrastructure. Identification of suitable locations for stations is itself a well-researched facility location problem. Roy (2021) developed a multi-stage high-speed rail infrastructure development model that uses AI to automatically develop optimal corridors, stations, horizontal alignment, and vertical profile. It was tested for the Mumbai-Ahmedabad high-speed rail project. The promising results revealed its ability to augment planners' efforts in developing the high-speed rail infrastructure. Integrating these AI-based approaches with CAD software can revolutionize highway and railway infrastructure planning and help obtain optimal solutions in a significantly shorter time.

References:

Sushma, M.B., Roy, S. and Maji, A. (2022). Exploring and exploiting ant colony optimization algorithm for vertical highway alignment development. Computer-Aided Civil and Infrastructure Engineering. DOI: 10.1111/mice.12814

Sushma, M.B. and Maji, A. (2020). A modified motion planning algorithm for horizontal highway alignment development. Computer-Aided Civil and Infrastructure Engineering, 35(8), 818-831. DOI: 10.1111/mice.12534

Roy, S. (2021). Optimization of Multi-Objective Station Locations and Alignment Problem for High Speed Rail. PhD Thesis, IIT Bombay.

A comprehensive methodology for determining buffering capacity of landfill-mined-soil-like-fractions

Venkata Siva Naga Sai Goli, Prithvendra Singh and Prof. Devendra Narain Singh

The utilization of landfill-mined-soil-like-fractions (LFMSF), which is a major fraction resulting from landfill mining (LFM) activity, is being debated owing to a lack of comprehensive understanding of its characteristics. In this context, based on the physicochemical properties of LFMSF, several of the earlier researchers have opposed its utilization as compost, feedstock in waste-to-energy, and fill material in civil engineering applications. However, it has been noticed that LFMSF consists of required amount of organic matter (OM) and inorganic carbon (IC) to make it suitable as a buffering material that would help to modify/treat geomaterials exhibiting extreme pH values. In this context, determination of its buffering capacity (BC), a parameter that quantifies the buffering potential, becomes essential. However, determination of BC by resorting to the existing protocols is not suggestible mainly due to (i) an extremely narrow range of the pH (3–8) employed, (ii) lack of incorporation of the optimal time required for reaction/pH stabilization (tpHS), (iii) concern for decomposition of OM during the addition of H+/OH− while experimentation and (iv) heterogeneity associated with the LFMSF unlike the geomaterials that are commonly tested (viz., agricultural soils and compost). Hence, to overcome these limitations, a comprehensive methodology that can be employed for determining the ultimate buffering capacity (BCu) by establishing appropriate tpHS (i.e., 200 h) and liquid to solid ratio (i.e., 20), which would eliminate the decomposition of OM over a broad range of pH (i.e., 2–12) has been proposed. Based on the testing of several LFMSF samples collected from unscientifically created landfills/dumpsites and engineered landfills in India, easy-to-use relationships between the (i) reaction time (t) and (ii) physicochemical properties of the samples that influence BC and BCu, directly or indirectly, have also been proposed.

Full text : https://www.sciencedirect.com/science/article/pii/S0048969722022811?via%3Dihub
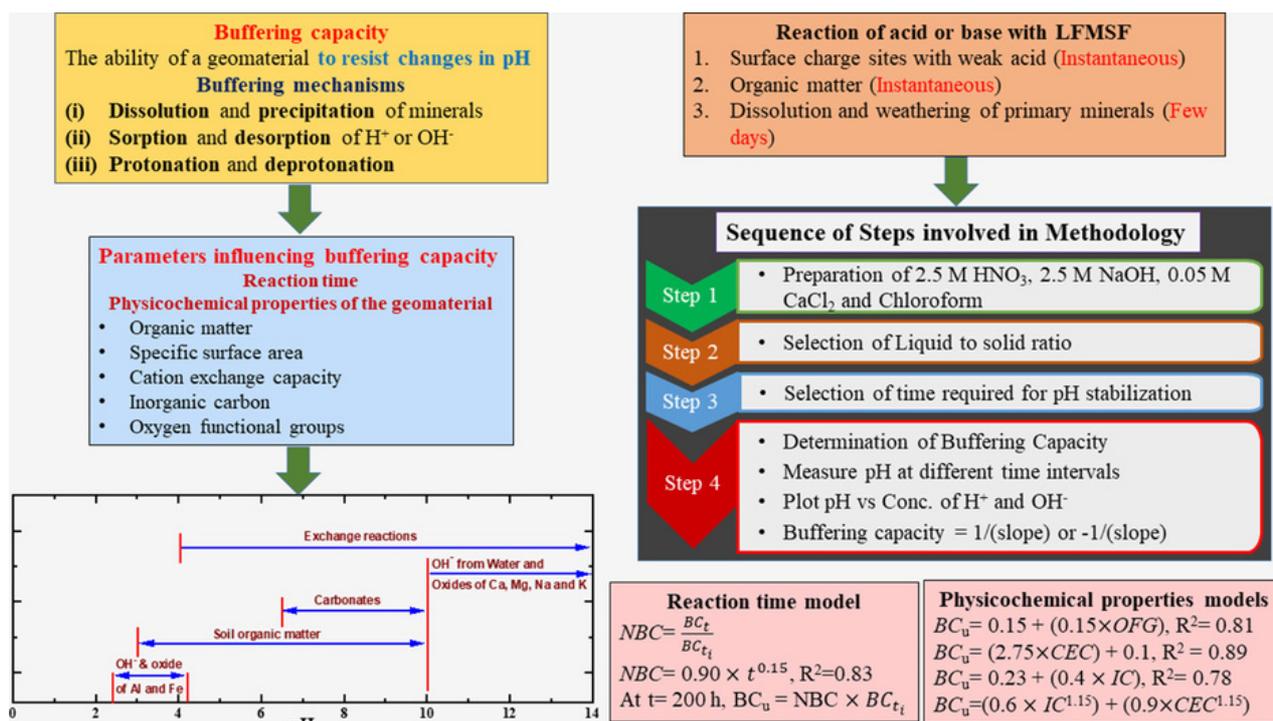

Fig. Graphical Abstract

Investigations on characteristics of landfill-mined-soil-like-fractions and their dependency on organic matter

Venkata Siva Naga Sai Goli, Prithvendra Singh, Prof. Devendra Narain Singh and luv kush tak

Landfill mining, LFM, is considered to be one of the alternatives to overcome adverse effects of unscientifically created landfills/dumpsites, UCLDs, and engineered landfills, ELFs. However, the feasibility of various pathways for the valorization of its yield, designated as the landfill mined residues, LMRs, for sustainable development is still being debated mainly due to not in-place schemes for comprehensive characterization of the landfill-mined-soil-like-fractions, LFMSF, which is a major component of LMRs. Due to this lacuna, proper guidelines, and strategies for utilization of the LFMSF as a manmade resource could also not be developed so far. Another constraint in this context is that the physicochemical characteristics of LFMSF have been attributed to its age, which is difficult to obtain (if not impossible), due to lack of know-how about the method of disposal, turning, and leveling of MSW, and variation in the decomposition pattern between UCLDs and ELFs. With an intention to address these issues, a comprehensive characterization of LFMSF obtained from some of the UCLDs/ELFs in India was conducted by considering their physical, chemical, mineralogical, and thermal characteristics. Based on the experimentally generated data and its statistical analysis, it has been demonstrated that the characteristics of the LFMSF are primarily influenced by its OM. Subsequently, easy to employ relationships between the OM and the characteristics of LFMSF have been developed. It is believed that these relationships will be very much useful for a quick estimation of the LFMSF characteristics that would be very handy for defining its appropriate applications to fulfill sustainable development goals.

Full text: https://www.sciencedirect.com/science/article/pii/S0957582022003688?via%3Dihub
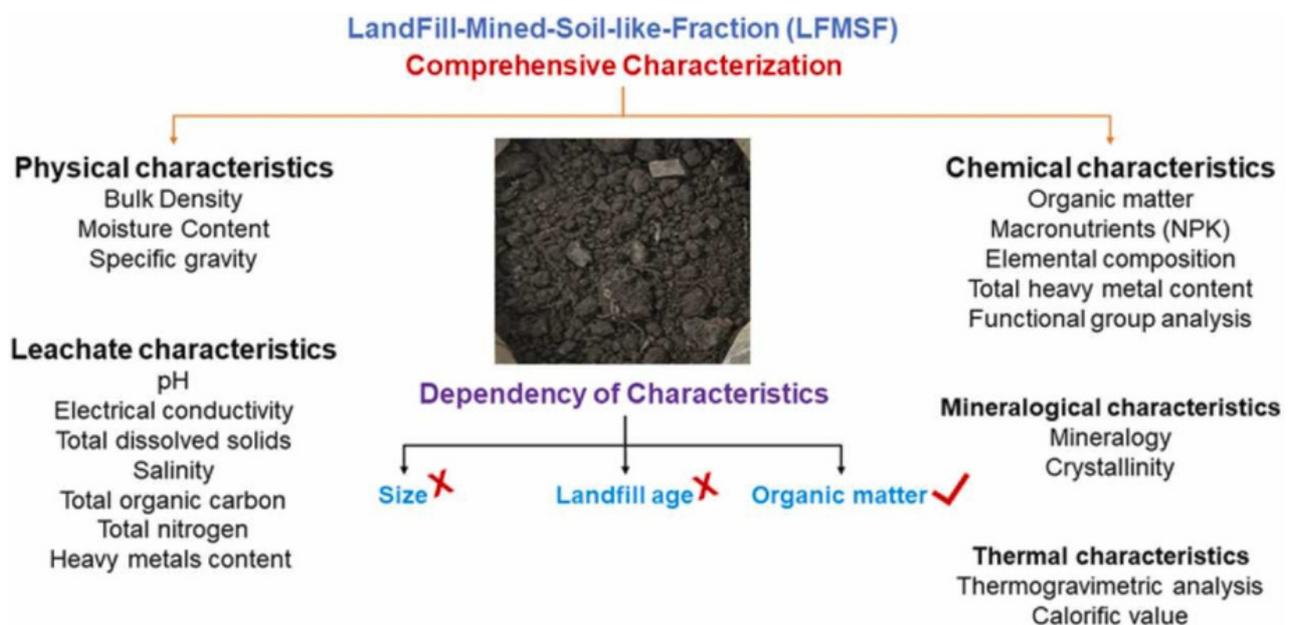
Built heritage and their conservation

by Prof. Swathy Manohar

The key aspects of the whole construction industry, which are the 'building materials', 'construction technology' and 'project management' are being united in the CTaM (Construction Technology and Management) specialization of the Department of Civil Engineering, IIT Bombay. Design, properties and performance of modern, conventional as well as traditional construction materials are being addressed by the group as part of research in 'building materials'. Heritage structures and the materials are important for their cultural value, magnificent structure and longevity, and their current conservation state that needs attention. Despite India's huge wealth of built heritage which has successfully survived the ravages of time, relatively little effort has been made for characterising building materials used in these historic structures. As a result, effective maintenance and repair strategies for such structures cannot be formulated, and the potential to mainstream materials used in these buildings remains untapped. The research aims at creating a technical support system and a capacity building network for mainstreaming the application of sustainable traditional building materials in the country. Characterization of a large range of materials being used in the heritage structures all over the country would provide a pan-India atlas of historic building materials. This helps in development of robust predictive models for performance of the materials at different exposures, as a function of materials' microstructure properties. Lime, natural stones, bricks, traditional plasters etc. have their potential unexplored in terms of reducing energy footprint, and durability performance. Understanding the properties of the materials from macro, meso and microstructural scales also helps in arriving at the right compatible repair choices of heritage monuments. Development of standard protocols of compatibility tests for restoring ancient structures and further service life prediction of our built heritage are certain objectives to look forward to.

Fig. Rani ki vav is an exceptional ancient step well in Patan, Gujarat which is a UNESCO World heritage site

Application of Artificial Intelligence on Wastewater Treatment Facility for Reclaimed Water Reuse in Smart Cities

by Prof. V. Jothiprakash

The concept of a smart city requires data assimilation, inferencing, modelling and forecasting from data such as the physical components of the city (Infrastructures, buildings, public space), natural environment (air quality, green spaces, water resources), urban services (water supply, sewage treatment, education, health), and economic activity of citizens. These data can infer critical outcomes such as liveability, economic-ability and sustainability. The state of dynamic equilibrium between manmade and natural environments is called sustainability. This equilibrium is threatened by climate change, frequent drought and floods, and inadequate sewage treatment polluting freshwater resources. Reducing freshwater usage and reusing the treated wastewater from the wastewater treatment facility (WWTF) for various purposes requires proper operation and control of the treatment facility. Proper operation can be inferred by checking various wastewater quality at the influent and effluent stages concerning their respective standards and operation variables involved in the treatment process (Ramkumar et al., 2022). At the same time, control of the treatment facility can be made possible by predicting various prominent variables involved in treatment and taking necessary action to produce the intended quality of treated wastewater.

In the context of a smart city, integrated water and wastewater management aim to reuse reclaimed water from WWTF based on two concepts: 'fit for purpose' and 'fit for case'. Fit for purpose focuses on reclaimed water quality for intended water reuse. Fit for case culminates needs to consider case-specific conditions during water reuse. Applying modern technology and digital application is the smart city's main motive where AI and the Internet of Things implementation to water supply, water treatment, and WWTFs lead to better operation and cost control (Mohammadi & Taylor, 2018). CPCB (2021) states that in India, out of 900 WWTFs, a compliance study provides data that only 578 WWTFs were found to comply with the respective central and state pollution control board standards. Thus, it is necessary to study the compliance of WWTF by modelling this complex dynamic system to evaluate the performance and plan the reclaimed water for reuse.

Modelling a WWTF is a complex phenomenon because the process exhibits non-linear and non-stationary properties. WWTF involves a step-by-step treatment process involving various units, each intended to remove specific pollutants in varying percentages. So various researchers model WWTFs in a unit-specific context or an entire treatment system. Modelling a treatment system using the first engineering principle (deterministic modelling) requires several variables; these white box models always proved to be less accurate and timeconsuming. Data-driven modelling is becoming popular with advancements in artificial intelligence (AI) and computational processing speed to overcome the shortcomings of the traditional deterministic model. In this regard, several studies have been conducted to predict and forecast the performance of WWTF concerning influent, effluent, efficiency, energy requirement, sludge generation and soft sensor (Hejabi et al., 2021; Malviya & Jaspal, 2021). AI modelling proved one of the best techniques to model a stochastic complex system with minimum variables and excellent accuracy. However, the challenge is the selection of appropriate modelling techniques and the selection of required input parameters. Several studies are conducted in this regard, and accuracy in predicting the target variables varies significantly based on the type and number of inputs, data quality, data length, and many more.

Artificial neural network (ANN) is widespread in modelling WWTF due to its underlying better representation of non-linearity (Guo et al., 2015; Mjalli et al., 2007). Many studies are carried out with different types of ANN with varying combinations of the hidden layer, neurons, activation function, learning rate and many more. However, the results of those ANN models always rely on the quality and dynamics of data, the data length, pre-processing, ensembling approach and input parameter selection. Support Vector Machines have always proved to be better in predicting influent and effluent prediction of WWTF (Guo et al., 2015). Meanwhile, many hybrid modelling techniques are tested with effluent quality prediction (Bagheri et al., 2015; Lotfi et al., 2019).

There are limited studies and some research gaps in AI's application in the water reuse perspective. Water reuse from WWTF requires understanding or modelling the quantity of reclaimed water generated concerning time and corresponding quality for the intended use. Literature provides various modelling techniques and methods, and their performance varies based on data, and the coupled approach against the quality and quantity of reclaimed water is limited. Thus studies concerning water reuse perspective involving AI is a significant scope of research because it involves the application of modern technology to solve water scarcity problems and create smart and liveable cities.

References:

CPCB, 2021. National Inventory of Sewage treatment plants. Government of India publication. Delhi, India.

Bagheri, M., Mirbagheri, S. A., Bagheri, Z., & Kamarkhani, A. M. (2015). Modeling and optimization of activated sludge bulking for a real wastewater treatment plant using hybrid artificial neural networks-genetic algorithm approach. Process Safety and Environmental Protection, 95, 12–25. https://doi.org/10.1016/j.psep.2015.02.008

Guo, H., Jeong, K., Lim, J., Jo, J., Kim, Y. M., Park, J. pyo, Kim, J. H., & Cho, K. H. (2015). Prediction of effluent concentration in a wastewater treatment plant using machine learning models. Journal of Environmental Sciences (China), 32, 90–101. https://doi.org/10.1016/j.jes.2015.01.007

Hejabi, N., Saghebian, S. M., Aalami, M. T., & Nourani, V. (2021). Evaluation of the effluent quality parameters of wastewater treatment plant based on uncertainty analysis and post-processing approaches (case study). Water Science and Technology, 83(7), 1633–1648. https://doi.org/10.2166/wst.2021.067

Lotfi, K., Bonakdari, H., Ebtehaj, I., Mjalli, F. S., Zeynoddin, M., Delatolla, R., & Gharabaghi, B. (2019). Predicting wastewater treatment plant quality parameters using a novel hybrid linear-nonlinear methodology. Journal of Environmental Management, 240(September 2018), 463–474. https://doi.org/10.1016/j.jenvman.2019.03.137

Malviya, A., & Jaspal, D. (2021). Artificial intelligence as an upcoming technology in wastewater treatment: a comprehensive review. Environmental Technology Reviews, 10(1), 177–187. https://doi.org/10.1080/21622515.2021.1913242

CEA
EVENTS

CIVIL
ENGINEERING
ASSOCIATION

CEA Council 2021–22

Prof. Deepankar Choudhury
Head of Department

Prof. Venkata Santosh Kumar Delhi
Faculty In-Charge

Prof. Meera Raghunandan
Faculty In-Charge

Prof. Albert Thomas
Faculty In-Charge

Rishabh Sharaff
Dept. General Secretary

Harshvardhan Tidke
CEA General Secretary

Chaitanya Langde
CEA Secretary

Gaurang Mittal
CEA Secretary

Raghav Rawat
Alumni Secretary

Swasti Pahuja
Web Secretary

Prateek Jha
Design Secretary

Netra Parihar
Design Secretary

Saif Ali
M.Tech Representative

Jitendra Chawda
PG Sports Representative

Pravesh Gautam
PG Cultural Representative

Samarth Bhatia
PhD Representative

Jayant Tanwar
Class Representative
3rd year (S1)

Yash Vinayak Patil
Class Representative
3rd year (S2)

Aditya Kumar
Class Representative
2nd year (S1)

Rishi Kumar
Class Representative
2nd year (S2)

CEA Events

The Civil Engineering Association (popularly known as CEA) at IIT Bombay, was established with a prime objective to proliferate knowledge & address industrial issues by bringing corporates, professors and students on a common platform. CEA, having students as well as faculties as its members, is one of the most active organizations of civil engineers in the country. We aim to promote Civil Engineering by providing the much-needed practical exposure to the community members through its regular activities like technical seminars, research symposium, talks on ongoing research practices throughout the globe and many other related topics from distinguished practitioners of the trade. Collaboration between the school and industry is important for the advancement of engineering, teaching and research. With this aim, to give the students some practical insight into Civil Engineering, CEA organizes several visits throughout the year to ongoing construction sites thus giving them a chance to interact with key personnel of the industry. Apart from the technical aspects, it also undertakes the responsibility of proper nurturing of students by organizing some social events as a part of extracurricular. Here is a brief description of the events organized by CEA throughout the year.

E-Valedictory Function

For the batch of 2021, an E- valedictory ceremony was held in the month of August. This is a universal truth we all have to face, whether we want to or not, everything eventually ends, on this note it was one of the most overwhelming function of the annual year. The names of all graduate students were written in the letters C and E on a T-shirt that CEA also unveiled on the same day. Additionally, a stand-up comedy performance was also organized in collaboration with the Comedy Cons Club.

Sports Weekend

After the rough endsem days, CEA and MEA collaborated to plan a gaming night to lessen the boredom of the holidays. The Valorant tournament was held in sports weekend that was open to all departments. Participants could compete singly or in groups of two, three, four, or five. The winners received their prizes on the final day of the sports weekend.

Logo Design Competition

For the first time in CEA history, the logo design competition was held after midterms. The contest lasted for two weeks, and the task for the competitors was to create a logo for CEA. Design enthusiasts had the chance to master new skills and win attractive prizes worth INR 1500.

Talent showcase

Prior to the department freshers orientation, CEA had given all newcomers the chance to show off and demonstrate their (hidden) talents. It could be anything from magic to sports, from performing arts to tricking out any other jaw-dropping performance.

Cryptic hunt

In the online competition "Cryptic Hunt," participants had to crack the passwords to around 10 PDF files, each of which contained a hint for the password to the one after it. The main goal of the crypt hunt was to make the online semester less monotonous.

Saloni Kajal - singing

Rishabh Shetty - singing

Adarsh - Drama

Department freshers orientation

In order to improve the freshmen's interactions with their batchmates and seniors, CEA organized a freshmen orientation. There were talks about the department as well as enjoyable activities. During the orientation, the winners of the cryptic hunt and the fresher talent showcase were announced.

Backbencher Chat with Professors

"Professors was once a student" on this note CEA brought an opportunity for students to ask interesting and teasing questions to professors of the civil department.

Prof. Deepankar Choudhury (HOD of the department of civil engineering) came in the first episode of "Backbencher Chat with Professors". He's a great professor in the field of Geotechnical Engineering and has very high popularity among the students.

The second episode was organized in offline mode. This time CEA invited students' very favourite prof. Jayadipta Ghosh. He is a wonderful professor in the field of Structural Engineering with a very charming personality.
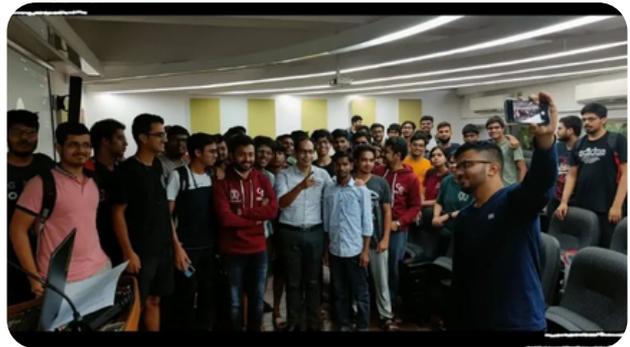
Traditional day

Traditional Day was the first offline CEA event of the pandemic year. On that day all the students, from UG fresher year to PhD students, gather together at Open Air Theatre to have a fun-filled and healthy interaction with each other. Importantly, it is for freshers to get a chance to meet and interact with the seniors. As the name suggests, all the students wear traditional attire on this day. Different students from different cultural backgrounds come dressed in their native outfits, giving a diverse touch to the occasion and the department of civil engineering of IIT Bombay. During this get-together, the students share their experiences, academic as well as non -academic, create memories, participate in some fun activities and take back a handful of memorable experiences.

Depatment Trip

Finally, after 2 long years, the most exciting and long awaited department trip was happening. All the students from entire department of civil engineering joined us in this trip. The first destination was the lively Kashid Beach, where they enjoyed water sports and other beach activities while singing out their hearts during the entire road journey right from the institute. After that came camping part. As the gang reached in the evening, they were greeted with a stunning sunset followed by playing volleyball, jamming, dancing (DJ night), and then had a BBQ on the beach. However, the food was clearly undercooked XD. Following that, students participated in night camping, built a bonfire, jammed, and ended the night by stargazing. The most important part of the night however was the very high level battle of wits that took place in the notorious game of Mafia. Deception, persuasion and lies were upon us! They visited the murud-janjira fort the following morning, which is located on an island close to murud. They discover about the fort's history while exploring the fort there and returned to the institute after lunch.

Valedictory Function

CEA held its offline Valedictory ceremony after the two-year break for the graduating class of 2022 on April 29 with an event-packed day. A class photo session in Jalvihar with Powai Lake as the backdrop kicked off the event. The B.Tech, M.Tech, and PhD student cohorts as well as all of the staff members and Prof. Deepankar Choudhury, Civil HoD, were welcomed. Everyone posed for pictures using props like "sabse bada maggu," "loser," etc. throughout the photo shoot. A combined photo shoot was done with all the batches and faculty members. Everyone then received snacks, and the primary function at PC Saxena Auditorium started after all of this. Speech sessions were held at the beginning of the session, during which professors and council members gave speeches. The program featured department awards that covered the Academics, Sports, and Cultural categories. We move on to informal activities like dancing and singing after junior speeches and informal awards. Last but not least, The Rooftop Dinner along with the cake cutting ceremony was held at the Civil department terrace with the involvement of both students and professors. An informal club night put a formal finish to the day. Following then, photo frames depicting the Love Moment were delivered.

Reunion Convocation Ceremony

In accordance with the institute, the Department of Civil Engineering and Civil Engineering Association, IIT Bombay hosted a Reunion Convocation Ceremony for the graduated students of the 2020 and 2021 batches on August 6, 2022 at PC Saxena Auditorium. Hosting this Reunion Convocation Ceremony for graduated batches 2020 and 2021 during this mini-reunion was the Civil Engg. department's and Institute's way of honoring these bright and ambitious young minds and acknowledging their close bond with their department.

The objective of this reunion was to host an in-person convocation ceremony for these graduates of 2020 and 2021 batches, since they missed having their in-person convocation ceremony due to the pandemic.

The ceremony got underway at 2:30 pm, with Prof. T. I. Eldho presenting the diploma to the class of 2020 and Prof. Deepankar Choudhury presenting the diploma to the class of 2021.

Following the formal ceremony, the alumni were invited to the terrace of the department building, where a photo booth had been set up for them to record unforgettable moments with their friends and preserve their final memories. In addition to giving them a chance to meet their friends and teachers, it was intended to make up for the convocation event they missed due to the pandemic.
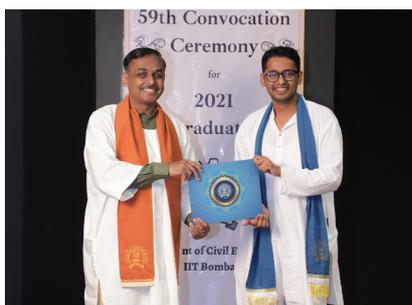
AAKAAR

14th Edition

Asia's largest Civil Engineering Fest

AAKAAR Core Team 2021-22

Shubham Khandare
Overall Coordinator

Vaishnavi Thumuganti
Events Manager

Keerthana Sagarika
Events Manager

Chetan Kumar
Symposium Manager

Navya Avadhanula
Competitions Manager

Shirshika
Competitions Manager

Himanshu Dudi
MnP Manager

Animesh Singh
MnP Manager

Harshvardhan Tidke
FnB and Hospitality Manager

Kapil Singh
Operations Manager

Saurabh Mahra
Marketing Manager

Chitra Yadav
Marketing Manager

Sarika Beniwal
Design Manager

Sahitya
Design Manager

Aastha Kapoor
Web Manager

Suyash Kale
Web Manager

INTRODUCTION TO AAKAAR IIT BOMBAY

Aakaar is the annual festival of the department of civil engineering, IIT Bombay. It is a two-day technical fest that takes place during mid-March and many events are carried on throughout the year across the country.

Aakaar has been working as a great platform for students across the country to showcase and enhance their skills at the highest level. Having students as its members, it is one of the most active organizations of civil engineers in the country which aims to promote Civil Engineering by providing much-needed practical exposure to the community members through its regular activities and events.

AAKAAR EVENTS 2022

Aakaar provides a fine opportunity for young Civil Engineers to try their hands on professional software, attend guest lectures, exhibit their models and projects, and opportunity to visit one of the best-equipped labs in the country.

1.Lecture Series

Aakaar organises Lecture Series of different industry experts to know insights into various fields in Civil Engineering. Many renowned and noted professionals in the civil world grace the occasion and share their valuable expertise. In Aakaar 2022, the topics for lecture series were:

- "Role and Application of Geotechnical Engineering in Cricket Pitches" by Dr. S.B. Singh, Curator, BCCI/JSCA, Ranchi.

- "Sustainable Growth Driving the Decarbonization and Growth Agenda simultaneously" by Mr. Manoj Rustagi, Executive Vice President Sustainability, R&D, JSW Cement.

- "Status of Rivers in India - Challenges and Way Ahead!" by Mr. Shyam Prasad, Founder and Director, Clear Water Dynamics Pvt Ltd.

- "Future of Work and Digital Transformation of Industry" by Mr. Ramesh Pudale, Program Manager, Autodesk.

- "Insights of TATA Project on MTHL Bridge" by Mr. Amal Anant Kulkarni, General Manager -Planning Urban Infrastructure, Tata Projects

Aakaar IIT Bombay 14th edition launched its all-new series on the premise of "Roadmap to Sustainability", organising lectures and quizzes on the incorporation of Sustainable Development Goals and Technologies in the vast field of Civil Engineering.

- Role of Geoinformatics in Identification and Estimation of Risks to Infrastructure from Natural Hazards by Mr. G. Prasad Babu, Founder and CEO, Geo Climate Risk Solutions Pvt. Ltd
- Sustainable Cities by Dr. Dharma Hagare, Senior Lecturer and Associate Dean Internation, Western Sydney University, Australia

Career talk lecture series 2022 :

Aakaar IIT Bombay launched the first-ever edition of "Career Talks" to cater to student questions and confusion with interactive talks with professionals.
This series included webinars on:

- Structural Engineering by Mr. Girish Sridharan, Structural Engineering, Stanford University
- Construction Engineering and Management by Mr. Parth Vijayvergiya, Building Construction Management, Purdue University
- Geotechnical Engineering by Ms. Ayushi Tiwari, Geotechnical Engineering, University of Texas at Austin

Infra Bharat Lecture Series 2021 :

Aakaar organized expert talks about the megastructure projects in India that can be game-changers. The InfraBharat Lecture Series presented lectures on designing, planning, and execution of the following infrastructure projects:
World's longest high-altitude tunnel ATAL TUNNEL, World's largest cricket stadium MOTERA STADIUM, NOIDA INTERNATIONAL AIRPORT Proposed to be Asia's largest airport, Journey to a cleaner India by TATA Projects.

2. Workshops

Aakaar aims to develop practical skills in a wide range of fields through its plethora of highly sought after workshops. With the best technical experts and interaction with students sharing common interest workshops will help you to delve deeper into the subject.

Aakaar Workshops 2022 :

1 Autodesk Civil3D
2 Bentley Context Capture on Reality Modeling for Infrastructure
3 Autodesk Fusion360
4 Bentley Staad Pro
5 Autodesk Revit Architecture
6 PCSWMM

3. Panel Discussions

A panel of specialists from various industries discusses significant civil engineering issues that are pertinent to students and young engineers. A renowned Prof. Sandeep Chaudhary, Head, Center for Rural Development and Technology, IIT Indore moderates the discussion. A panel discussion focusing on "Sustainability in Civil Engineering in India" was held this year.

Panelists for the event :

- Mr. Rishi Garg – Government Sector, Indian Administrative Service (IAS) – Government of India, DM & Collector Harda, Madhya Pradesh
- Dr. Manjunatha L.R. – Vice President – Sustainability initiative – JSW Cement Ltd.
- Prof. B.V. Venkatarama Reddy – Chairman, Centre for Sustainable Technologies, IISc Bangalore
- Dr. V Ramachandra – Jt. President & Head (Tech), UltraTech Cement Ltd., Mumbai

AAKAAR COMPETITIONS 2022

Aakaar holds a variety of contests to judge logical ability and civil engineering proficiency. From intelligent structure designing, optimizing transport networks to insane quizzing contests, Aakaar has maintained the legacy of organizing the best ever competitions in the domain of civil engineering.

Envizn

The purpose of the Envizn is to generate design ideas for iconic high-rise buildings in cities around the globe. Anyone having BIM software knowledge, artistic skills, and architectural aptitude can participate in the competition. The designs are not required to be analyzed structurally. You just need to select an intriguing theme and give shape to your imagination through the Skyscraper.

Industrial design problem

The civil engineering industry deals with many challenges in day-to-day life that most common people are unaware of. AAKAAR has launched the IDP competition in order to close this gap and link future civil engineers with outside industrial affairs. The theme of the problem statement revolves around the sustainability of concrete. The competition provides the experience of the real-world problems of the Civil engineering industry and makes you brainstorm ideas, learn and explore the industry.

CiviQ

CiviQ is a series of online quizzes for civil engineering students. The competition has quizzes consisting of logical and aptitude questions with significant domain of civil engineering. Quizzes are conducted twice a month, and marks of all being cumulatively added to incentivize top scorers with a prize pool of 20K.

LOGiQ

Aakaar launched LOGiQ first edition in 2022, an online puzzle series, covers topics ranging from basic Civil Engineering concepts to advanced engineering ideas in a way that students from any year of study can participate in the competition.

AAKAAR SYMPOSIUM 2022

Aakaar's Symposium is one of the largest of its kind in the country in terms of participation and showcased the best of student research papers, presentations, and case studies. A platform for young researchers to present their work in front of experienced professors, civil engineering leaders & industrialists against the best civil engineering students.

International Civil Engineering Symposium (ICES)

Aakaar, IIT Bombay has continued its journey extravagantly after launching International edition of Civil Engineering Symposium (ICES) from past six years by huge participation. In the sixth edition of ICES, Aakaar once again presented the best research from around the globe. It is a platform for young and budding researchers to present their work in front of nation's most accomplished professors in related subjects, civil engineering executives and industrialists, and the top students in the field.

City Planning

Aakaar provided an opportunity to young students and potential planners to showcase their talent and get recognition for their work. The competition was based upon understanding the city and formulating it's development action plan for the next 3 to 5 years.

Case Study

Aakaar, IIT Bombay launched the "Case Study Competition 2022". Case studies provide an effective platform to educate tomorrow's civil engineers with expertise and accomplish a desired aim of practice engineering. This offers good opportunities and a new source of interest to the students by creating a learning environment where students learn a sense of worth and accomplishment.

Paper Presentation

It is a forum for young and promising students enthusiastic about research to present their work in front of some of the most experienced professors, civil engineering leaders and industrialists.

Poster Presentation

Aakaar launched Poster Presentation in association with ASEC Inc., is a way to communicate your research and your understanding of the topic in a short and concise format. It requires analyzing, evaluating and synthesizing the idea and creatively demonstrating the findings of your research work.

Smart-Pitch

AAKAAR, IIT Bombay in association with Society for Innovation and Entrepreneurship (SINE) launches Smart Pitch competition, a platform providing all the startups with an opportunity to pitch their idea to an esteemed panel of investors and SINE mentors. Smart Pitch is a competition that provides excellent opportunities for Civil Engineering start-ups. To register for the competition, a team must submit a presentation based on their idea. The idea should be related to the given theme. The themes followed were tackling transport, real estate and financial management, construction management and infrastructure, water resource management, soil management and disaster management. The presentations sent by the teams are analyzed to shortlist them. Each team is assigned a mentor 10-15 days before the fest to assist them in developing their business model. The team must present their ideas to the judges. If judges or investors are interested, they can invest in their model. The winning team receives a certificate as well as a cash prize.

AAKAAR College Representative Program

Aakaar College Representative Program is an attempt to bridge the gap between Aakaar and students of different colleges across the country. Aakaar aims to collaborate with student groups, to help them nurture a constructive Civil Engineering ecosystem around themselves, so as to lay the foundation of a common platform on which students can develop their maximum potential. Through the CR Program, we provide students an opportunity to showcase their leadership skills at Aakaar IIT Bombay, which manages to build a strong connection with topmost firms and industries in Civil Engineering.

Eminent Guests

- **Mr. Rishi Garg** - Government Sector, Indian Administrative Service (IAS) - Government of India, DM & Collector Harda, Madhya Pradesh
- **Dr. Manjunatha L.R.** - Vice President - Sustainability initiative - JSW Cement Ltd
- **Prof. B.V. Venkatarama Reddy** - Chairman, Centre for Sustainable Technologies, IISc Bangalore
- **Mr. Deepanker Bhattacharyya,** Head - India & ASEAN Education Experiences, Autodesk
- **Mr. Manoj Rustagi**, Executive Vice President Sustainability, R&D, JSW Cement
- **Mr. Ramesh Pudale**, Program Manager, Autodesk
- **Mr. Amal Anant Kulkarni**, General Manager -Planning Urban Infrastructure,Tata Projects
- **Mr. Prasad Hinge**, Assistant Vice President - Contracts and Estimation, Vascon
- **Ms. Deepanjali Upreti**, Deputy Manager Talent Management, Tata Projects
- **Ms. Gayatri Joshi**, Sales Manager, JSW Cement
- **Mr. Ashish Ansingkar,** General Manager, Ultratech Cement
- **Mr. Shyam Prasad**, Founder and Director, Clear Water Dynamics Pvt Ltd
- **Dr. S.B. Singh**, Curator, BCCI/JSCA, Ranchi
- **Mr. Marc Rietman**, Senior Solutions Specialist, Cities Bentley Systems, Australia
- **Mr. Sanjib Das**, Global Technical support Manager, Bentley Systems
- **Mr. Sudip Narayan Choudhury,** Global Technical support Manager, Bentley Systems

SPONSORS

TITLE SPONSOR	**CO-TITLE SPONSOR**	**EDUCATION PARTNER**	**MEDIA PARTNER**
SYMPOSIUM SPONSOR	**WORKSHOP SPONSOR**	**WORKSHOP SPONSOR**	**CITY PLANNING TITLE SPONSOR**
POSTER PRESENTATION SPONSOR	**ASSOCIATE SPONSOR**	**MERCHANDISE SPONSOR**	**MERCHANDISE SPONSOR**

EERI
EERI IIT Bombay Student Chapter
Reinforcing Resilience!

EERI IITB Office Holders 2021-22

Prof. Meera Raghunandan
Faculty Advisor

Mr. Vipul Ahuja
Industry Person

Satwik Rayjada
President

Radhika Pajgade
Vice President

Kaustav Sengupta
Secretary

Raj Kabrawala
Treasurer

Sudhir Pratap Singh
Event Coordinator

Mohit Tak
Event Coordinator

Kaligandla Chandana Sahitya
Event Coordinator

Aditya Sharma
Webmaster

Mitali Badwe
Media Manager

Ritik Dhalwani
SDC Coordinator

Chetan Kumar
SDC Coordinator

Ashutosh Patel
SDC Coordinator

**Naqeeb Ul Islam**
Newsletter Editor

EERI IIT Bombay Student Chapter

Earthquake Engineering Research Institute (EERI) has been the leading non-profit USA-based membership organization with around 40 active student chapters worldwide. IIT Bombay became part of this legacy in 2021 with the establishment of EERI IIT Bombay student chapter.

Over the year, the EERI IIT Bombay student chapter has organized various activities to promote the study, research, practice, and awareness in earthquake engineering and related fields among students of the institute.

Seismic Design Competition (SDC)

Through this chapter, the students got an international platform to participate in the EERI's flagship ship event- Seismic Design Competition (SDC). This competition is organized by EERI every year for undergraduate students to provide them with an opportunity to work on a hands-on project. Participants construct a cost-effective building model to resist seismic loading that also appropriately addresses environmental, geotechnical and architectural aspects. Every year, SDC attracts many reputed universities and organizations worldwide.

2022 Undergraduate Seismic Design Competition

June 27 - July 1
Salt Lake City, Utah

In the first year of its inception, we had a very great kickstart. Team IIT Bombay bagged the "Charles Richter Award for the Spirit of the Competition" in the SDC 2021 organized virtually. It was the first time an Indian team had bagged an EERI SDC award. This year a group of 22 undergraduate students from the department of civil engineering participated in the SDC 2022 in Salt Lake City, Utah, USA. This was the first time IIT Bombay participated in the offline SDC event. The team designed and constructed a 19-story Balsa wood commercial building model and building was tested at the competition under two devastating earthquakes. The building withstood both earthquakes without even a
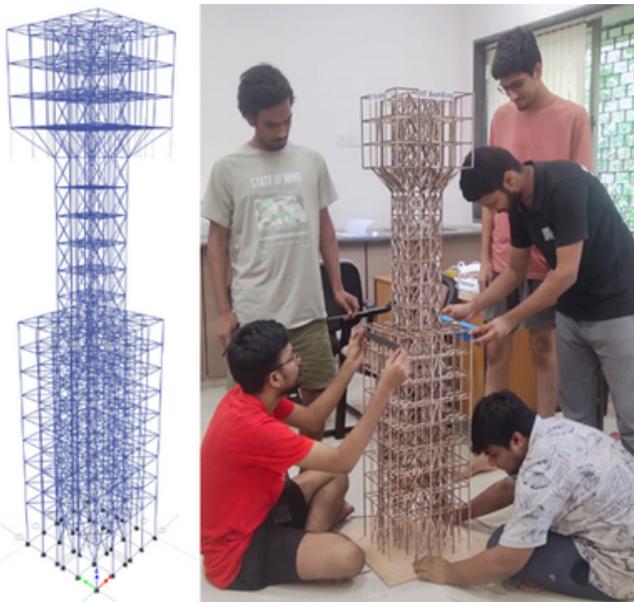
single member failure. Team IIT Bombay stood at 16th rank overall out of 32 participating teams and 10th in cost-effectiveness and 11th in performance prediction.

Quake Zone

The chapter has launched the periodic Newsletter "Quakezone" – the official Newsletter of EERI IIT Bombay Student Chapter. This is "one of its kind" initiative of the chapter in the institute. Quakezone gives inside access to the emerging research, designs, buildings and ideas in the field of earthquake engineering along with relevant information regarding upcoming events and conferences. It is shared with all the students, guests and professors of the department of civil engineering.
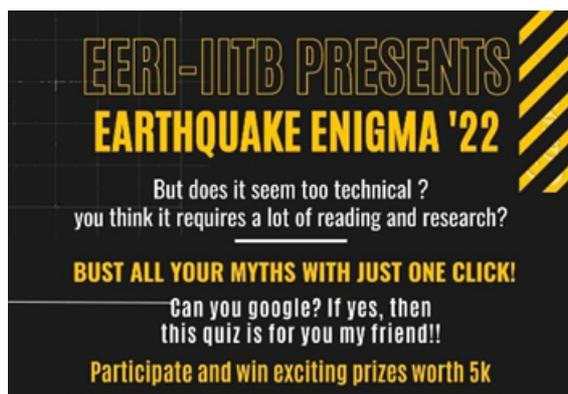
Earthquake Enigma

Earthquake Enigma was organized with the aim of learning with fun! It is an online "Googler" in which students are given questions/problems and they have to find answers with a google search! Questions were designed to challenge thinking and provide the opportunity to explore the earthquake engineering.

Earthquake Enigma' 22 attracted total 170 participants across 24 colleges in India

Way Forward

As a newly established chapter in the institute, we are expanding our activities soon that will be beneficial not only to the students at the institute but also for the larger mass of the society to increase awareness regarding seismic hazards and mitigation. Activities such as lecture series by experts from different domains, software training, outreach activities in the institute and nearby schools will be organized periodically.

Join Us

EERI IIT Bombay is open to all students of the institute. As earthquake engineering is a multidisciplinary field, the chapter members include postgraduate and undergraduate students from various domains. Hence, a chapter provides a unique opportunity to share knowledge and experience from the field and research and learn the different managerial skills and teamwork. Join us today and contribute in "Reinforcing Resilience".

Glimpse of SDC 2022

SEISMIC DESIGN COMPETITION 2022

SAPPHIRE SQUARE

PRESENTED BY
TEAM IIT BOMBAY
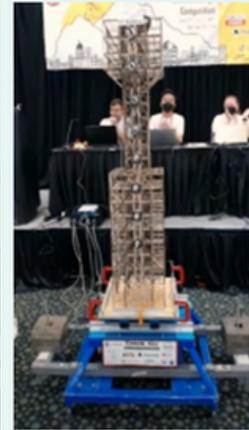
Building Withstood Two Devastating Earthquakes without Any Member Failure!!

Green Building

- The building's Pagoda is centred on the concepts of sustainability, green energy, and reducing the carbon footprint
- A green roof is created to maintain the heat island effect in the building
- Solar panels and green roofs will be built to meet the LEED Silver Certification goal

CUTTING
The members were cut using laser cutter, as it is a quick mechanized process and also allowed us to design complex groove connections. Bracings were trimmed to shape manually.

01

FACES
All the vertical faces of the building were constructed first using grid lines drawn on a sheet that was supported on a tabletop. Then, two opposite faces were made to stand vertically, a fixed distance apart, with the help of a setup. The floor beams were attached between opposite faces followed by joining the rest two faces.

02

CONNECTING
Two opposite outer faces were elevated fixed distance apart and the inner core was kept in the middle using the same setup used in building the inner core.
The floor beams between the inner and outer faces were then joined. The beams had grooves to allow swift construction. The left-out bracings were attached. The three parts of the building were completed individually and were attached in the next step.

03

ASSEMBLING
At last the three distinct parts—part 1 from floors 2 to 10; part 2 from floors 11 to 16; and part 3 from floors 17 to 19—were joined. Inclined columns were used to connect parts 1 and 2 between floors 9 and 10, maintaining continuous load transfer, as the plan dimensions changed. Subsequently, parts 2 and 3 were joined. After completing the assembly, the structure was secured with the base plate (using notches) and the roof plate was attached.

04

To read more – https://www.eeriiitb.com

Internship Experiences

Bhuvan Aggarwal
Analytics Internship

Hello everyone I'm Bhuvan Aggarwal, a fourth-year undergraduate student in the department of civil engineering, IIT Bombay.

I've been working in the tech community since my first year so I did a lot of projects and have been a part of many tech teams. After my third year, I completed an internship with Daikin Industries Ltd. in Japan. I chose an Analytics profile as my target for the internship season. I was learning OCR and image processing. It belongs to Deep Learning's branch. In this, we use a variety of processing methods and algorithms to extract data from the photographs. I was working in SeDriCa (Self Driving Cars) from the first month of my 1st semester only. I was therefore well-versed in the technical field. There only I started working in deep learning and computer vision and other stuff.

I got my internship through Placement cell. I think there are four types of preparation:

- **Basic DSA prep:** You must review DSA's (Data Structures and Algorithms) fundamental theory. In analytics and company tests, DSA is not frequently tested. But it won't hurt to have a rudimentary understanding of DSA.

- **Basic ML prep:** The majority of businesses use ask ML interview questions that may be found online. In addition, you can take various online ML foundational courses.

- **Resume prep:** You should be thorough with what all you've written in your projects and past internships. You should be able to justify all things you've used in the project.

- **HR prep:** Generally, in HR there are some standard questions which are asked. It's good to look for them on the internet beforehand.

The internship performed admirably. It lasted for eight weeks. Mentors were assigned to each of us. Along with other topics, we casually discussed with them places to visit in Japan. The hours of virtual internships are extremely flexible. There were some events with set schedules, such as discussion meetings and updates. As a result of working from home, I had little opportunity to socialize with other people. During our regular meetings, we did converse with one another, but it was quite brief. The problem we were solving was exciting and fresh, which was something I appreciated. We could study many different facets of it, and it wasn't monotonous.

Message to Juniors -

I would suggest that be patient and calm. Don't lose interaction with your friends. The internship season will be quite random and uncertain. You will get an internship eventually but you might have to face rejection at the start. So, don't get disappointed and disheartened.

Chetan Kumar
Analytics Intern

Hello everyone, I'm Chetan Kumar, a fourth-year undergraduate in the department of civil engineering. I was the Symposium manager in AAKAAR. I'm also a Damp mentor in the department of civil engineering.

In my second year, I initially began with the core field. I worked with a professor on a research project. However, as I worked on the project, I gradually realised that it was not for me. For exposure, I gave everything a go. I completed some ML courses and read finance blogs. As the internship season went on, my target profile became clearer to me. I initially had a preference for finance. I feel that applying for Finance and Consulting positions with comparatively lower CPI is a little challenging. It might be quite tough for your resume to get shortlisted then. But, If you are interested in the analytical and software profile, you can switch to it. I reviewed my knowledge and abilities. Typically, I used resources from websites such as InterviewBit, GeeksforGeeks, and Leetcode, practised coding, and then enrolled in some machine learning courses. Additionally, I read blogs on websites such as TowardsDataScience. They are highly informative and take around 5–7 minutes to read. The analytical and software aspect eventually caught my attention instead of finance. I begin by reading blogs and spending time coding. Time management was difficult for me because I was spending some of my time with Aakaar and my mentees. Overall, it was a very instructive experience.

My internship was through the placement cell. The company came to interview for the position of business analyst. The procedure was extremely simple to follow. There were objective and subjective questions on the coding test. The students were then narrowed down based on the results of their tests. Then there was an interview round. During the interview, they primarily questioned me about my resume. Finance, machine learning, and data analytics were among the topics covered in the questions. They particularly like to ask DSA, puzzle, and probability-based questions for Data Science profiles. My interview lasted between 10 to12 minutes. It was concise, direct, and quick.

I had an excellent internship experience. I used applications such as Oracle SQL Developer and Microsoft Power BI. It focused on data extraction, dashboard design, and course automation. We needed to produce results after we had a good understanding of certain aspects. The working environment was great. We were given very practical timelines and techniques.

Message to Juniors -

I will advise for the Software and Analytical fields to work on DSA without any excuses whatsoever. In general, speak with your seniors, ask them questions, and seek their advice. Meet up with friends who share your passions. Continue to be patient. Sometimes things don't go exactly as planned. But it's all right. Do your best, stay calm, and don't let failure discourage you. Everything will come together in the end. The season will be exciting and unpredictable, so focus on what needs to be done and stop worrying about things you can't change.

Ajitesh Mohan
Consult Internship

I'm Ajitesh, a fourth-year undergraduate civil engineering student. Just finished my consulting internship. In my second year, I served as the symphony convener. It gave me good exposure, and I picked up various skills, including teamwork and management. I enhanced my range of abilities as the events head of Mood Indigo in my third year since I had to interact with external stakeholders. I believe that the knowledge you gain from these PoR is what you need to put into practice during internships or careers. You must do the case prep while applying for the consulting internship. I then discovered that this is the work that was created for me after studying and analyzing. Then I did further research on consulting and eventually developed a strong interest in it. Going to the interview, there are two different types of rounds: case preparation and human resources. They will give you cases to solve during case preparation. You must demonstrate your beautiful personality throughout the HR interview. The folks I worked with were one of the things I appreciated best. Working with them was a lot of fun, and they were very helpful. The fact that we had to work long hours as interns was one thing I didn't enjoy.

Message to Juniors –

The candidates should have faith in them. They should be well-prepared while analyzing each case preparation and HR round and possess the necessary field knowledge.

Naman Chanduka
Trading Intern

Hey everyone! My name is Naman Chanduka, a fourth-year undergraduate student in the department of Civil engineering, IIT Bombay. I am from Ahmedabad, Gujarat. I won GC in table tennis in my first year and singles tournament in the department of civil engineering.

My internship was at Optiver, Amsterdam so basically Optiver is a Market-Maker, and provides liquidity in derivative markets. As an intern, I am supposed to understand the workings of the various teams within the company. Also, we constantly work on existing trading strategies, working to automate or better them continuously.

In my first year, I get to know from my elder brother about these derivative trading companies and soon found that I enjoy this field. The company wants students who have a good hold on math (mostly probability, expected value, etc.) and have competitive nature.

I got my internship through the campus intern program itself so after clearing 3 interviews 1 HR and 2 technical I got my internship letter. On the first day, we had a chill meetup in the night to interact with people. The first week we had lectures, next week we had team talks about how actually team works till then it was chill but in 3rd week we had simulation trading. But anyhow this was also the most fun part for most people. Last three weeks we worked on a research project with a team. During it, we visit many countries like Italy, Belgium, and France because Europe's Schengen visa allows you to visit 26 countries and we made the most out of it.

Yash Patil
Intern in R&D Mech

My internship started with an orientation. As a design engineer, it was a wonderful experience for me . I gained knowledge about nuts and bolts and their real-world uses. My favorite aspect of my job was the culture there. I was a member of a 15-person team, and our manager was very kind and helpful in assisting us in learning a lot about this field. During those times of my internship, I discovered how things operated on a large factory scale. This internship, no doubt, provided me with an unforgettable experience of my life.

Message to Juniors –

If you are passionate about something, be willing to take a chance on it. Don't pass up any chances to engage in the stream you enjoy. Plan ahead and work accordingly. Regularly update your LinkedIn profile and resume. Whatever you do, try to give your full shot.

Dinesh Patil
Core Intern

Hello! My name is Dinesh Patil, a fourth-year undergraduate in the department of civil engineering, from Jalgaon, Maharashtra. People call me DP. I had hostel PORs in my second year, later I became Hostel event secretary in my third year.

My view about civil engineering is different from others. I have taken civil engineering, based on my interest. Also, I like fieldwork more as compared to cubicle jobs and I think civil engineering provides many such possibilities.

I did not do any special preparation as such. One of my friends Ashutosh inspired me to take an internship job, so I applied to JSW. Since I fulfilled most of their criteria, I passed the first round easily. In the next round, I was interviewed by HR and it went so well that, I was selected soon after the interview.

JSW is one of the best places to explore as they have a wide variety of work. They offer about 44 projects, out of which I had to select 3 projects and then one of the 3 projects was allotted to me. I got homes related project. I had to find out the details like cost estimation, payout, estimated time, and other such details. I think one of the best parts of a city job is that you can see the work that you do. I mean, like you can visit the construction site and observe the work. The thing which I don't like in the industry is the unorganized flow of money as many arbitrary transactions have to go through in the industry.

Message to juniors -

For getting into the core, you definitely have to maintain a good CPI. While for non-core it is not a must, a good CPI will definitely help you. Since most of the students take non-core jobs due to fewer companies, it is not very difficult to get a good placement on the core side.
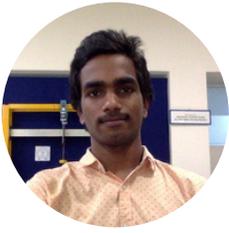
Yashwant
Finance Internship

My name is Yashwant, and I am a fourth-year undergraduate pursuing civil engineering. I have a strong interest in structural engineering. I previously worked with the EERI team as EERI's Executive Member. But a friend of mine advised me to pursue a finance internship due to my strong CPI, and after learning more about the sector, my interest grew in it. A corporation conducted a finance webinar, which let me explore all the opportunities related to finance by giving me a thorough understanding of it. I finally decided to go forward with quantitative finance. I applied through the placement cell. The interview will be quite easy if you prepare well for it. Along with some probability questions, they also ask personality-based questions.

Speaking of the internship experience, the people out there were very friendly and helpful. No matter how many times I asked for clarification, they always patiently explained. They value your work and support your improvement as a learner.

Message to Juniors –

First of all the candidate must be aware of both their strengths and flaws. They should be aware of their passions and their true desires and choose an internship that plays well with their strengths and should concentrate mostly on it.

Joshitha Tottala
University Intern

Hello everyone! I'm Joshitha Tottala, a fourth-year undergraduate student in the department of civil engineering, IIT Bombay. I did my Univ internship at the Polytechnic University of Madrid, in Spain. I took the Center for Transport Research as my field of interest.

I got my internship through apping by sending lots of emails every day. I searched and prepared some data about all the universities that offered Transportation courses and their professors. I got their mail IDs and made an SOP stating all my interests and what I want to work on in the future. By the end of September, I was ready with all this data from my side. In the middle of October, I started sending emails to everyone asking for an internship in their area of interest. Finally, I reached out to a Madrid professor who told me to submit a work plan regarding what I'm going to work about, my interests and everything in detail. I submitted everything. Then, he agreed to give me an internship in the summer.

The internship was very good and not so routine-heavy so, I got a lot of time to explore Europe during the summers. My professor and colleagues were very sweet and super chill.

Message to juniors -

You need to be very patient. If you have a proper work plan and enough interest, you'll be getting the best opportunity to explore a lot of things. Univ-internships abroad are a very good opportunity for you to explore more than just studies. Don't get all the peer pressure on you and feel anxious.

Words by Graduating students

Chirag Jakhar
B.Tech

Best place in insti to hangout:
H18 terrace was one of my most visited place after the pandemic. From sunrise to sunset to late night talks, my friends and I have seen it all. Helped me clear my head always.
Best year experienced:
My last semester would be the one I made most of my memories in and the most adventurous of all. Exploring all the cafes and marking down my whole bucket list. Opting for not sitting in placements at first and then switching my job in my last week at insti. Never thought of finding people who would become such an integral part of my life. The whole semester was a rollercoaster and will always be a vivid memory of mine.
Message to juniors:
Everyone is leading a different path and yours is unique too, just focus on yours and believe that everything will be fine in the end. As someone once said, when the holy spirits are with you, why do you need to worry.

Bhushan Vijay Misal
B.Tech

Best place in insti for hangout:
For me, the VMCC terrace is the best place. It is a location where a different view of the entire institute emerges.
Best year experienced:
The fourth year was the greatest not just for my insti life but also for the rest of my life because there was no stress from acads or placement at the time; instead, it was just me and my friends, whom I will never forget.
Message to juniors:
Maintain a decent cpi right from the start. Socialize, meet new peoples, and create lasting memories.

Aman Mishra
B.Tech

Best place in insti for hangout:
Best place, I think Gullu because of its delicious food and the Hostel itself is a great place for hangout.
Best year experienced:
For me, the best year in my college life was the 4th year as the placement was done and we're just chilling out.
Message to juniors:
To the greatest extent possible, try to let go of tension and live life to the fullest.

Saif Ali
M.Tech

Best place in insti for hangout:
All the insti hangout spots are great, but my favorites are typically the H12 common room and the Boat House.

Best year experienced:
I would guess 2021–2022 because after the pandemic, I was able to return to Insti and complete all of the first two years' activities.

Message to juniors:
Embrace these priceless years. They will pass away in the blink of an eye.

Amandeep Singh
B.Tech

Best place in insti for hangout:
What a place H2 Canteen is, late night conversations with friends, treat by seniors, and its amazing food. So for me H2 Canteen is best.

Best year experienced:
The first year was the best because I got to explore a lot of new things by coming out of JEE books.

Message to juniors:
Engage in a variety of activities to improve your development as a person. Participate in some outdoor activities to maintain your physical health.

Yedida Ashita
B.Tech

Best experience in the institute:
Perhaps having one of those late-night Deep Talks about bumbling through life with a close buddy while hanging out at one of the playgrounds at two in the morning, discussing how a certain park structure is supposed to work.

Best year experienced:
Fourth, unquestionably. My personal mental health was much better, to start. However, I also had a lot more control over the academic course I wanted to take and was much more aware of my own limitations. It was also my favorite year because I got to go back to Insti after the pandemic and I could do everything I missed out on the first two years.

Message to juniors:
College is a great time to make errors because they won't cost you as much in the long term and you'll have a fresh start when you graduate. What occurs in insti remains in insti. So go ahead, make those errors, and fail, and at the very least, you'll have some tales to tell and anecdotes to boast about at the next gathering.

B. Priyanka
B.Tech

Best place in insti:
I visit Hanuman Mandir on Saturdays since it is my favourite place to hang out.

Best year experienced:
My first year is primarily taken up with orientation; in my second year, I learned a lot as a sports convener; and in my third year, I'm a little bit busy with AAKAAR. However, my fourth year was the best because I had a lot of exposure to working with a professor and learning a lot about research in general.

Message to juniors:
Concentrate on academics and establish stronger ties with seniors. Additionally, try talking to the professor.

Aman Singh
M.Tech

Best place in insti for hangout:
The best place in insti to hang out is the boat house. It's a hideout from the hustle life of insti.

Best year experienced:
The best year, second year because that's the year when you get placed, you get to enjoy life, and you get to know the value of friendship and the true meaning of college life.

Message to juniors:
The message is to be doing well academically but doesn't forget to enjoy the insti life because that is what you will cherish for your whole life.

Abdul Wajed farhat
M.Tech

Best place in insti for hangout:
I think SOM terrace is the finest spot to hang out. Just lay down there and watch the moon.

Best year experienced:
The second year obviously; because of meeting with classmates, making new friends and having lots of fun

Message to juniors:
For MTech students; Study hard in the first year and enjoy the second one.

Suman Dhamala
M.Tech

Best place in insti for hangout:
SOM terrace, Because the view that comes from there is heart-wrenching.

Best year experienced:
The second year was the best because there was less coursework.

Message to juniors:
Don't enroll in Kapil Sir's class. The only message, apart from a joke, is to pursue your passions, interests, and dreams. To get what you desire in life, work hard.

Placements Stats
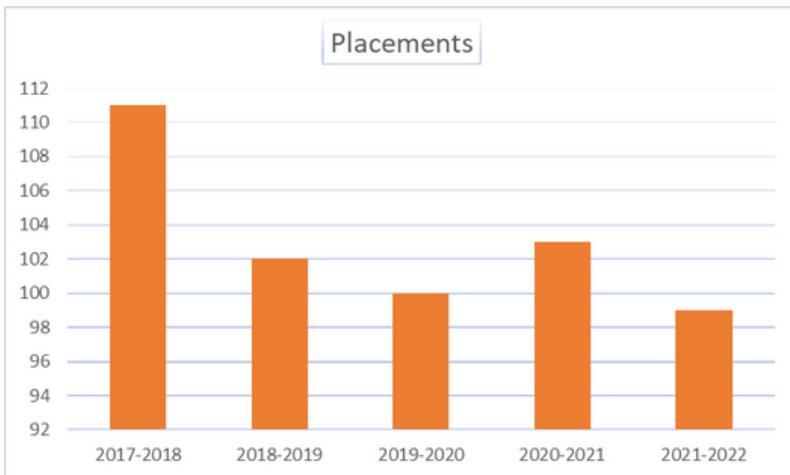
Number of job offers :

2017-2018 : 111
2018-2019 : 102
2019-2020 : 100
2020-2021 : 103
2021-2022 : 99
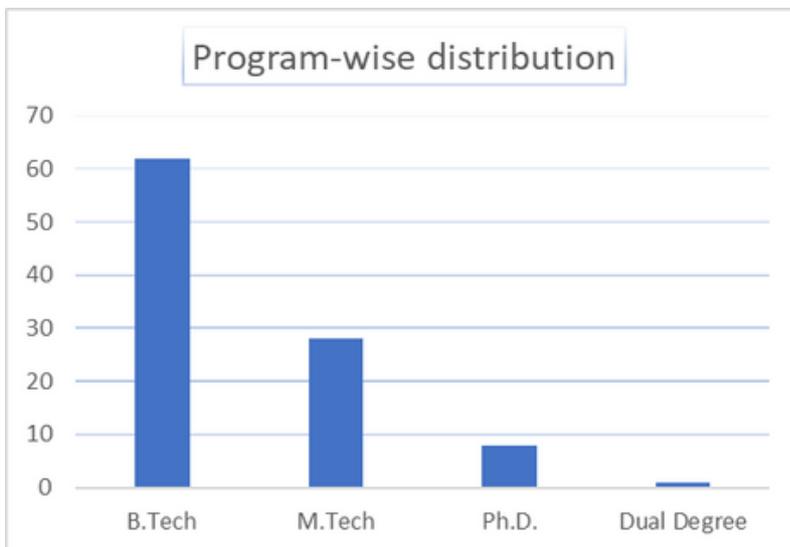
Placement in each program :

B.Tech : 62
M.Tech : 28
Ph.D. : 01
Dual Degree : 08

Firms / corporations involved :

Graduating Students of 2022

B.Tech

- Aaryan Singhal
- Aishwarya Singh
- Akmal Nazer
- Akshat Goyal
- Akshay Kumar
- Amandeep Singh
- Aman Mishra
- Aman Sharma
- Anand Kishor
- Ankit Ratre
- Ankit Sharma
- Ankit Yadav
- Anoop Kurian Jacob
- Ashutosh Yadav
- Atri Chaturvedi
- Ayan Adit
- Banoth Kumar
- Bhawna Kumari
- Bhushan Vijay Misal
- B.Priyanka
- Chaitanya Kedia
- Chirag Jakhar
- Deepak Raj
- Devashish Kumar
- Dhananjay Bhardwaj
- Dikshant
- Dinesh Yadav
- Dipika Balkrishna Rathod
- Faisal Riaz
- Gaddam Ranadheer Reddy
- Gandam Guru Charan
- Garima Agrawal
- Gude Sarath
- Harshil Dilip Agrawal
- Harsh Raj
- Hemant Kumar
- Ishan Avinash Desai
- Devesh Kumar Meena

- Jagdish Dan
- Jahanvi Akanksha
- Jaymal A. Lodha
- Kakkera Phani Sai Srinivas
- Karan Chittora
- Karetha Dhrutij Pradip
- Kethavath Aadarsh
- Kethuri Shruthi
- Kinjarapu Bhanu Teja
- Korikana Sandeep
- Kumari Dilyachana
- Mannem Aravind
- Mayank Chaudhary
- Mohammed K M
- Mohan Lal Bhadu
- Mohit Meena
- Mrigank Jain
- Muhammed Ali V P
- Munavath Naveen
- Naitik Kariwal
- Nakkala Praveen Sai
- Nakka Madhulika
- Naman Ojha
- Nenavath Suryaprakash
- Nikhil Nandu Musale
- Owais Sanwari
- Parth Thakral
- Piyushi Susheel Hinge
- Rachakonda Sravan Kumar
- Rahul Kumar Mina
- Rahul Singh
- Ravi Raj Sattavan
- Rishabh Arya
- Rishabh Sharaff
- Rishi Dixit
- Ritvik Sharma
- Romsha Jaipriya
- Lakshit Chourasiya

- Sadaksh Chauhan
- Sagar Yashwant Kamble
- Sahil Singh
- Samkit Rohan Mehta
- Sanketkumar Sanjay Aswale
- Sanket Subhash Jagtap
- Saransh Punia
- Shabdank Bhanawat
- Shailendra Meena
- Shivani Bagri
- Shreyanshu Dhar Dwivedi
- Shreyans Rajkumar Binaykiya
- Shriraj Ganesh Ambokar
- Shubham Gautam
- Ankush Kumar
- Shubham Talwani
- Smit Shah
- Srijan Karn
- Suhani Brahme
- Sumit Suresh Shere
- Swaraj Goyal
- Swastik Ramdas Dasgaonkar
- Tanisha Agrawal
- Tejal Sudhakar Pawar
- Thallapalli Reshinth
- Tottala Joshitha Sai Lakshmi
- Tushar Jindal
- Utkarsh Narayan
- Vandana Chandu
- Varun Ginde
- Varun Reddy Bande
- Vicky Kumar
- Vikas Bhadoriya
- Vishal Mishra
- Yash Jangir
- Yatendra Gupta
- Yedida Ashita
- Dharavath Bhargavi

M.Tech

- Tushar Agarwal
- Rohit Kumar
- Akshay Kulkarni
- Sahil Garg
- Shubham Singh
- Akash Chaturvedi
- Ramchandra Potalia
- Jamadar Ajim Zakirhusen
- Suman Dhamala
- Pravesh Gautam
- Jitendra Chawda
- Aman Singh
- Muddala Sivakumar
- Ankur Kaushik
- Hariprasad V L
- Magar Dhiraj Sanjay
- Vikas Kumar Gupta
- Rohit Bidiyasar
- Saif Ali
- Jagdish Dangi
- Visharad
- Rohan Ashok Nyayadhish
- Nimish Upadhyay
- Kabrawala Raj Bhadreshkumar
- Mohit Tak
- Abhishek Kumar Chaurasiya
- Dinesh Asaram Shelke
- Sharma Aditya Mukeshbhai
- Sudhir Pratap Singh Jodha
- Ashish Swami
- Wadalkar Archit Shirish
- Shahare Nikhil Krishna
- Sajiri Saurabh Purandare
- Raygina Lepcha
- Kaushik Kumar Sen
- Mina Adel Zaki Ibrahim
- Shetti Avinash
- Abdul Wajed Farhat
- Dasari Venkata Ramana
- Bhim Yadav
- Rakesh Kumar
- Safi Ur Rehman
- Himanshu Sonare
- Prakash Nayak
- Agham Srujan Naresh
- Mulik Mayur Machhindra
- Waghmare Vishal Laxman
- Pranav Jetly
- Bhaskar
- Lokesh Kumar Meena
- Birat Gautam
- Erroudani El Mahdi
- J. Srinivas Rao
- Vivek Chandrakant Nawle
- Sawant Prathamesh Chokhoba
- Deepak Dadhich
- Tushar Mangal

Ph.D.

- (Ms) Sangita Kumari
- Prashant Motwani
- Mohd Shihabuddin Khan
- Suthar Sameer Jasvantkumar
- (Ms) Kshitija Abhijit Nadgouda
- (Ms) Supriya Bajpai
- Chingka Kalai
- (Ms) Shagufta Akbari
- Rajendra Singh Bisht
- Ponambalamoorthi P V
- Aatish Anshuman
- Aniruddha Bhaduri
- Pawar Nishant Mukund
- Sharma Gajanand Santosh Kumar
- V. Dilli Rao
- (Ms) Adyasha Swayamsiddha Amanta
- (Ms) Anita Chandrasekharan
- Bhagwat Kishor Sahebrao
- Saswata Nandi
- (Ms) Pradnya Vishwesh Singbal
- Sunil Kumar Ahirwar
- Lijith K P
- Thiruvengadam P
- Sahastrabuddhe Rishi Dipak
- (Ms) Jisha Joseph

Dual Degree (B.Tech + M.Tech)

- Shantanu Bhushan Samarth
- Kamal Kumar Jangir
- Dasari Nikhil
- Makineni Bhanu Chandu
- Gardas Ram Prasad
- Ashok Khoja

Artworks by Students

Govind Kumar – 3rd year B.Tech

Daksh Bansal – 2nd year B.Tech

– ADITI GUPTA
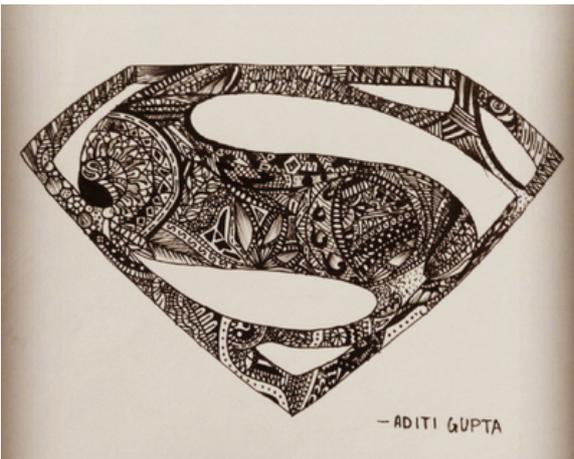
@ addie.artist
Aditi
Gupta
Aditi Gupta– 4th year B.Tech

Vikas Panwar – 2nd year B.Tech

Aditi Gupta– 4th year B.Tech

Gallery

Gallery

CF Class of 2022