

CIVIL ENGINEERING NEWSLETTER, 2022

Vol 2, Issue 1

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A Message *from the* HOD

I am happy to share the latest issue of the newsletter for the year 2022. During the last six months, our department has achieved several milestones. Our faculty have significantly contributed to consultancy, industry-sponsored projects, and government-sponsored research projects. Our faculty members have published articles in various international and national journals and also leading conferences.

During this period, our department has established two new state-of-the-art laboratories, namely the Structural Health Monitoring Lab and the Advanced Concrete Technology Lab which will help in conducting the master's and doctoral level research.

I am glad to inform you that all our M.Tech (CASE) students have secured paid industrial internships in leading structural engineering firms. Our Ph.D. program has continuously grown over the last two years and now we have a total of 18 Ph.D. students, and their

research work is instrumental in the increased number of publications from our department.

I would like to congratulate the 2018 batch for completing their B.Tech. degree. I would like to congratulate Mr. Y Rahul on being awarded the gold medal for civil engineering. I am delighted to inform you that most of our graduating B.Tech. students have secured admissions in master's program in leading universities around the globe. It is heartening to note that the current B.Tech. students continue to organize and participate actively in ASCE and IGS Student chapter activities.

Lastly, I really appreciate our newsletter team for bringing out this issue and I look forward to future issues of the newsletter.

Prabhakar Singh

Dr. Prabhakar Singh

Head of Department, Civil Engineering.

NEW FACULTY



Dr. Keerthi Katam

Assistant Professor, Dept. of Civil Engineering

Dr. Keerthi Katam completed her PhD in Civil Engineering from Indian Institute of Technology Hyderabad, India. She worked on "Developing a Cost-effective Biological Decentralized Domestic Wastewater Treatment System Using Bacteria and Microalgae for Residential Communities". During her PhD she also worked in the Graduate school of Life science, Ritsumeikan University, Otsu, Shiga, Japan on projects "Aerobic Biodegradation of Surfactants and Fluorescent Whitening Agents in Detergents of a Few Selected Asian Countries (India, Indonesia, Japan, and Thailand) and Developing trickling photobioreactor for removing Linear alkylbenzene sulphonate and Caffeine from wastewater" under the funding of JICA. Her research interests are Photobioreactors, Biofuel production, Biological wastewater treatment (algae-activated sludge), and Decentralized wastewater treatment. She is also a reviewer of leading journals such as the Journal of Biotechnology, Journal of Water Process Engineering, and Arabian Journal of Chemistry.

Structural Health Monitoring Laboratory

Structural Health Monitoring Lab @ Mahindra University aims to monitor Structural Performance of civil infrastructures using innovative sensing and computing technologies using newly emerging ideas in piezoelectric sensing and big data analytics. Such technologies will enable creation of a new generation of smart civil infrastructures, which employ possibly self-powered ubiquitous sensing to assess full-scale structural performance, and thereby support their own management from its strength development stage till estimating the remaining service life of structures.

The services offered by the laboratory are:

- o Academic: Train undergraduate & masters students In structural health monitoring technologies as a part of their curriculum, Undergraduate and Doctoral project works.
- o Research: Monitoring bamboo structures, concrete strength & durability, Applications of AI & ML
- o Consultancy: In situ-Monitoring concrete curing and strength gain process using piezo sensors via EMI technique, Monitoring of infrastructure using piezo sensors



Digital Multimeter
Keysight 34465A



LCR Meter
Keysight E4980A, Precision LCR Meter,
20 Hz to 2Mhz



Digital Storage Oscilloscope
Keysight DSOX1204A

Fig. 1. Equipment at the New Structural Health Monitoring Lab

On-going research projects:

- o Applications of AI & ML in SHM
- o Health monitoring of damage prognosis in Bamboo structures
- o Monitoring the Deterioration of Structural parameters in severe environmental and mechanical loading condition
- o Monitoring the strength of 3D printed concrete

Advanced Concrete Technology Laboratory

Concrete Technology Laboratory at Mahindra University aims to develop sustainable and economical solutions to meet the needs of the industry. The laboratory is well equipped to train students to conduct various experiments to understand the physical, chemical and mechanical properties of construction materials and durability characteristics.

The services offered by the laboratory are:

- o Academic: Train undergraduate students as a part of their curriculum, Undergraduate and Post-graduate project works.
- o Research: Investigate the properties of sustainable and futuristic materials, development of economical and eco-friendly concreting solutions.
- o Consultancy: Construction material testing and mix design of concrete, Durability studies on concrete, and NDT of concrete.

On-going research projects:

- o High performance precast concrete composites
- o 3D printed concrete for non-structural applications
- o Durability of Alkali-activated and geopolymer concrete
- o Bond properties of Fiber reinforced concrete
- o Ultra-high performance concrete for structural and non-structural applications
- o Development of concrete products with mining waste and natural admixtures



Fig. 2. New Lab Equipment - Dynamic Shear Rotometer, Combined Environmental and Mechanical Loading Chamber

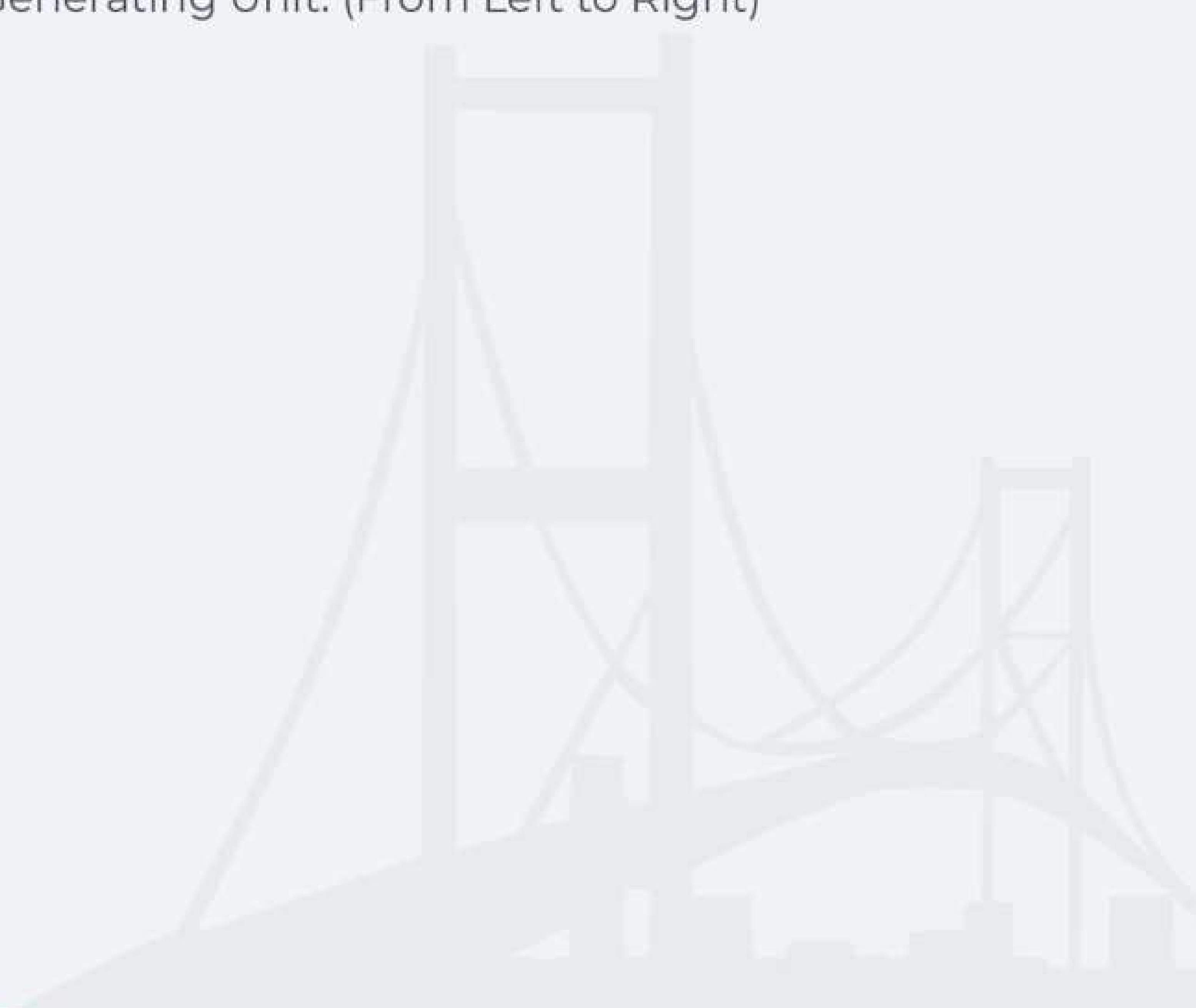
Advanced Concrete Technology Laboratory

Some of the recent undergraduate project works performed in the laboratory:

- o Effect of Nano-silica on the performance of Sustainable concretes
- o Adaptability of 3D Printed Concrete for Non-Structural Applications
- o Determination of Mechanical Properties of Unreinforced Masonry Specimens
- o Fiber reinforced concrete for enhanced energy absorption
- o Geopolymer concrete from waste materials



Fig. 3. New Lab Equipment - Humidity Chamber, Mortar Mixer, Vibration Table, Permeability, Shotcrete Impact, Muffle Furnace, Mist Generating Unit. (From Left to Right)



Research Spotlight



Joining of structures via adhesive anchors is of theoretical and practical engineering importance, including anchors that support concrete ceilings in urban infrastructure. Such anchors typically fail due to stress concentrations at the loaded and/or embedded ends, captured by the well-known 'shear-lag' model. Herein, such anchors are revisited by considering elastic properties variation of the adhesive along the embedment length in discrete steps, to reduce critical stress concentrations, and thereby minimize the propensity of failure. Initially, a closed-form solution is developed for a system with single-step variation in adhesive compliance along the embedment length (henceforth referred to as double-adhesive bondline), which agrees well with Finite Element simulations. The simplest double-adhesive tailoring is found to reduce the maximum shear stress by 43% while maintaining the super-critical bondlength characteristics of such designs. The theoretical framework thus developed is extended to systems comprising an arbitrary number of discrete adhesives along the embedment length considering, fixed and free boundary conditions of the embedded-end, to allow for parametric

Elastic solutions for stresses in compliance-tailored adhesive anchors

AUTHORED BY

Dr. Atullah Khan, Prof. BL Wardle (Massachusetts Institute of Technology, USA), Prof. S Kumar (University of Glasgow, England)

PUBLISHED IN

International Journal of Adhesion and Adhesives, 118:103227.

<https://doi.org/10.1016/j.ijadhadh.2022.103227>

evaluation of the adhesive compliance tailoring for optimal stress reduction (maximum shear stress reduces by 46% for triple-adhesive bondline) while maintaining critical-length characteristics. The adhesive tailoring could be effectively applied to anchors with critical-length characteristics by employing a facile double-adhesive bondline with the compliant adhesive near the loaded-end and stiffer adhesive near the embedded-end. The particular case of the well-known Boston tunnel anchor problem is analyzed as an exemplary demonstration of the approach.

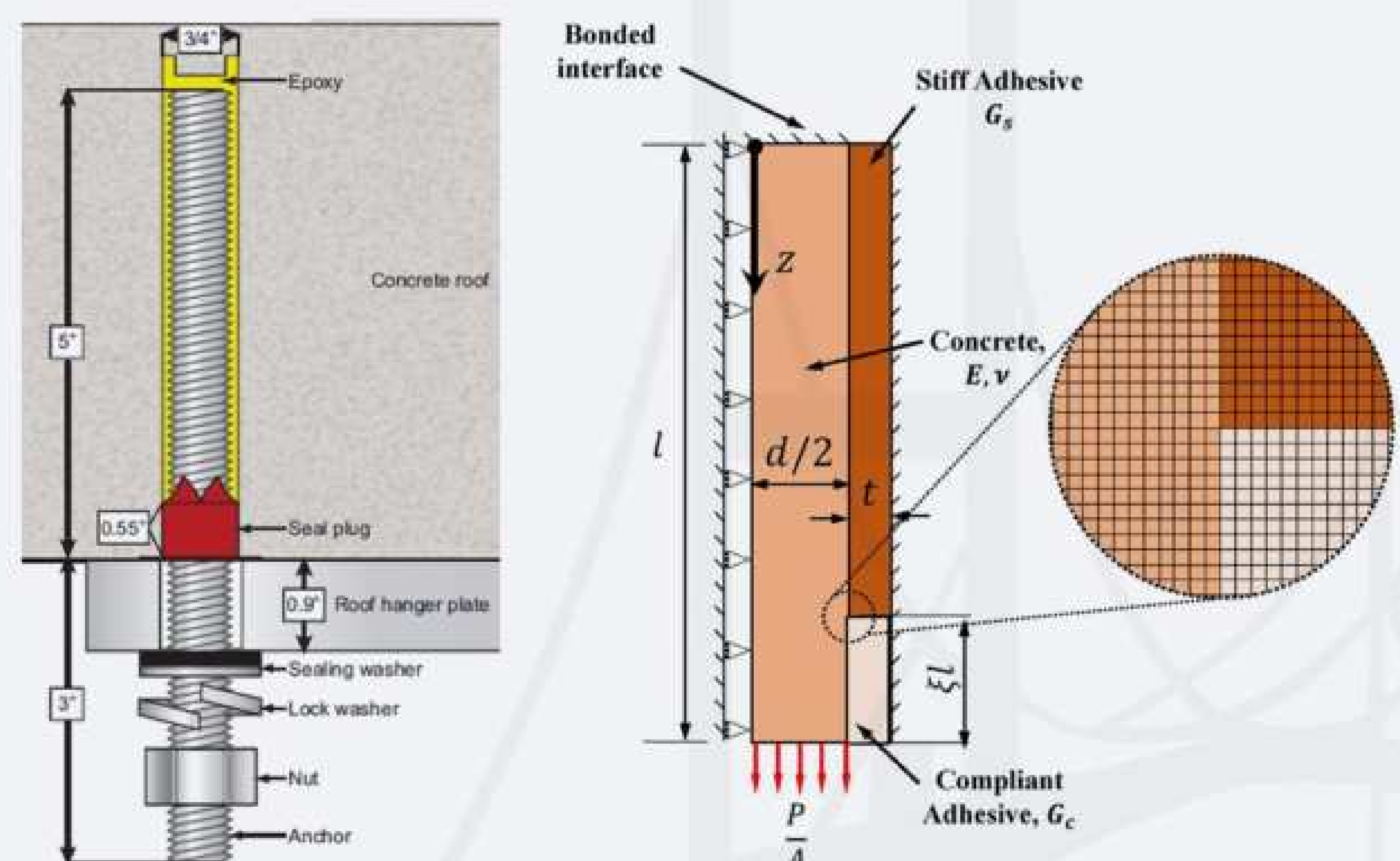


Fig. 4. Typical configuration of an adhesive anchor and Finite Element Model

Research Spotlight



Sustainability of Infrastructure and the Need for a Reassessment

AUTHORED BY

Lakshmi Thotakura, Ganesh Babu Kodeboyina, Deepti Avirneni, Sankar Kumar Reddy Pulalacheruvu

PUBLISHED IN

Engineering Proceedings (2022), Vol.17 (1), 31,

<https://doi.org/10.3390/engproc2022017031>

The increased awareness of the effects of ecological imbalances associated with construction and industry forced several corporate and governmental bodies to look at avenues for sustainability over a broad spectrum in the 21st century. Most of these industrial and other associations, both governmental and private, started to look for the path to sustainability in a wide variety of sectors ranging from energy, urban development, corporate, agriculture, food, and even in fashion, to meet the requirements through the three known pillars of sustainability, namely environmental, societal, and economic. Coming to infrastructure, sustainability is a crucial part where the activities of design, construction, conservation of resources for future generations, could produce light-weight resilient structures having high strength and performance which improves the life span of the structure.

Sustainability of infrastructure and its intricacies plays an incredible role in the assessment methodologies and the governing principles have to satisfy the requirements of three pillars of sustainability without

compromising the strength and performance of the structure. The paper is an effort to present a comprehensive outline for the sustainability of resilient infrastructure, activities related to construction and prefabrication, its importance, and its assessment methodologies available presently.

Policies such as minimization of construction materials, energy conservation, and use of construction and demolition waste, apart from industrial waste byproducts which, in turn, reduces the impact on environment and also minimizes the emission of CO₂ are advocated. It is felt that innovative, environmentally friendly, and appropriate utilization of materials based on effective research and developmental outcomes are needed. Apart from this the suitability, appropriateness, and limitations of each of the assessment methodologies for ensuring an extended lifespan in particular for the infrastructure are discussed. The aim is leaving the smallest footprint, while suggesting the possible avenues to achieve lasting structural facilities in all forms of infrastructure in future.

A quick section highlighting the recent publications by our faculty.

1

Oruganti, R. K., **Katam, K.**, Show, P. L., Gadhamshetty, V., Upadhyayula, V. K. K., & Bhattacharyya, D. (2022). *"A comprehensive review on the use of algal-bacterial systems for wastewater treatment with emphasis on nutrient and micropollutant removal."* Bioengineered, 13(4), 10412-10453.

2

Dhandapani, Y., **Talakokula, V.**, et al. (2022), *"Durability performance of binary and ternary blended cementitious systems with calcined clay: a RILEM TC 282 CCL review"*, Materials and Structures journal, Impact Factor: 3.427

3

Vanoutrive, H., **Talakokula, V.**, et al. (2022), *"Report of RILEM TC 281-CCC: Outcomes of a round robin on the resistance to accelerated carbonation of Portland, Portland-fly ash and blast-furnace blended cements"*, Materials and Structures journal, Impact Factor: 3.427

4

Ganta M., Baskar R., **Kalyana Rama. J. S.**, (2022) *"Rice Husk Ash as a Potential Supplementary Cementitious Material in Concrete-Solution towards Sustainable Construction"*, Innovative Infrastructure Solutions, Springer. 7(1), 1-14.

5

P. R. Budarapu, Kumar S, **M.A. Khan**, B. Rammohan, C. Anitescu *"Engineered interphase mechanics in single lap joints: Analytical and PINN formulations,"* International Journal of Computational Methods. <https://doi.org/10.1142/S0219876221430210> I.F. 1.734

6

Kodali R, Koduru S, Kainthola J, **Vemuri J**, (2022), *"Pathways to Scientometric Biomedical Waste Management in COVID-19 Era"*, Pollution Research Journal, Volume 41, Issue 3, PR-2009

7

Faisal Mehraj Wani, **Mohd Ataulah Khan, Jayaprakash Vemuri**,(2022) *"2D Nonlinear Finite Element Analysis of Reinforced Concrete Beams using Total Strain Crack Model"*, Materials Today: Proceedings, Elsevier, Volume 64, Issue 3, 1305-1313

8

Jayaprakash Vemuri, Tariq Anwar, KVL Subramaniam (2022) *"Seismic Fragility Assessment of Load-Bearing Soft-Brick Unreinforced Masonry Piers"*, Journal of Safety Science and Resilience, Vol.3, Issue 4, 277-287

9

Subbarao, SSV., Deepti, A., Akshay, A., Amit, H. and Charan, SK. (2022). *"Emission modeling of Passenger cars in India: A case of Hyderabad city"*, Lecture Notes in Civil Engineering, Springer Nature, pp. 343-351, ISBN: 978-981-16-9925-2

10 Kandula, H., Koduri, H.R., **Kalapatapu, P., Pasupuleti, V.D.K.**, (2023). **“Deep Convolutional Neural Network for Segmentation and Classification of Structural Multi-branch Cracks.”** In: Rizzo, P., Milazzo, A. (eds) European Workshop on Structural Health Monitoring. EWSHM 2022. Lecture Notes in Civil Engineering, vol 254. Springer, Cham. https://doi.org/10.1007/978-3-031-07258-1_19

11 Naraharisetty, V., Talari, V.S., Neridu, S., **Kalapatapu, P., Pasupuleti, V.D.K.**, (2023). **“Proposed Cloud Architecture for Real-Time Bridge Monitoring Using IOT.”** In: Rizzo, P., Milazzo, A. (eds) European Workshop on Structural Health Monitoring. EWSHM 2022. Lecture Notes in Civil Engineering, vol 254. Springer, Cham. https://doi.org/10.1007/978-3-031-07258-1_21

12 Neridu, S., **Pasupuleti, V.D.K., Kalapatapu, P.**, (2023). **“Rail Structure Interaction Study Using Wireless Sensors – A Case Study.”** In: Rizzo, P., Milazzo, A. (eds) European Workshop on Structural Health Monitoring. EWSHM 2022. Lecture Notes in Civil Engineering, vol 254. Springer, Cham. https://doi.org/10.1007/978-3-031-07258-1_17

13 Beeram, S.K., Kadarla, S., **Kalapatapu, P., Pasupuleti, V.D.K.**, (2023). **“Structural Damage Identification from Video Footage Using Artificial Intelligence.”** In: Rizzo, P., Milazzo, A. (eds) European Workshop on Structural Health Monitoring. EWSHM 2022. Lecture Notes in Civil Engineering, vol 254. Springer, Cham. https://doi.org/10.1007/978-3-031-07258-1_78

14 Vundekode, N.R., **Kalapatapu, P., Pasupuleti, V.D.K.**, (2023). **“Classification and Detection of Various Structural Cracks Using Deep Learning Approach.”** In: Rizzo, P., Milazzo, A. (eds) European Workshop on Structural Health Monitoring. EWSHM 2022. Lecture Notes in Civil Engineering, vol 254. Springer, Cham. https://doi.org/10.1007/978-3-031-07258-1_103

15 Yelisetti, S., Katam, R., **Kalapatapu, P., Pasupuleti, V.D.K.**, (2023). **“Global Health Assessment of Structures Using NDT and Machine Learning.”** In: Rizzo, P., Milazzo, A. (eds) European Workshop on Structural Health Monitoring. EWSHM 2022. Lecture Notes in Civil Engineering, vol 270. Springer, Cham. https://doi.org/10.1007/978-3-031-07322-9_37

16 Katam, R., **Kalapatapu, P., Pasupuleti, V.D.K.**, (2023). **“A Review on Technological Advancements in the Field of Data Driven Structural Health Monitoring.”** In: Rizzo, P., Milazzo, A. (eds) European Workshop on Structural Health Monitoring. EWSHM 2022. Lecture Notes in Civil Engineering, vol 270. Springer, Cham. https://doi.org/10.1007/978-3-031-07322-9_38

Funded!



Title: **Use of Geosynthesis in pavements over soft and expansive sub-grades: A sustainable solution**

Project PI: **Prof. Umashankar**, IIT Hyderabad | Co-PI: **Dr. Hari Prasad**.

Project Info

The design and construction of pavement on weak founding soils/sub-grades is quite challenging and it is around 25% of the total planned road length volume and is hence a major concern to be addressed. This project will be proposing a sustainable and cost-effective solution with the design procedure. The Industry Partner for the project is 'Techfab Industry'.

The proposal has been approved by the Ministry of Textiles and funded for an amount of **Rs. 50.94 Lakhs**.



Title : **Structural Stability of Railway Bridges using Instrumentation**

Project PI : **Prof. Venkata Dilip Kumar** and **Prof. Prafulla Kalapatapu**

Project Info

Indian Railways is having large number of old bridges whose performance is required to be ascertained to meet the demand of present-day traffic with higher speed, axle load and tractive effort. So, a special instrumentation study is being done on selected bridges to know the current condition of bridges at the site. This project uses advanced sensors in calculating the dynamic characteristics of the bridge for the development of twin modeling, which is then used to assess and calculate the required parameters.

Project Date: 3rd May - 30th Oct 2022 (Duration of 6 Months)

Project Cost: Rs. 8,02,400/

Congrats!

Student Achievements

Internships

The MTech CASE students are placed at esteemed organizations for a paid internship experience. We are proud of your hard work and wish you all the luck and success in your future endeavors.

The figure displays student internship placements across five categories:

- CSI Engineering Software Pvt.Ltd. (ETABS) (New Delhi):** Mr. T.Surya Sai Teja and Mr. Dheeraj Patil.
- Ramboll:** Mr. Mandar Deshpande and Ms. G. Amruthavalli.
- Thornton Tomasetti (Mumbai):** Mr. P. Surrendra, Ms. M. Sai Nikitha, Ms. K. Samskruti, and Ms. T. Swetha.
- Design Werkz Engineering Pvt.Ltd (Pune):** Mr. P. Krishnavardhan and Mr. Ashrith.
- Aarvee Associates (Hyderabad):** Mr. K. V. S. V Kaushik and Ms. G. Meghana.

Fig. 5. Student Internship Placements



Fig. 6. National Level Industrial Design Problem Contest Runner-Ups

Students of the M.Tech CASE program, Swetha T & Gurram Amrutha Valli, won the second prize at a National level Industrial Design Problem contest on the topic "Concrete for Metro Design and Durability" organized by Jindal Steel, Tata Projects Limited, and Aakaar (IIT Bombay Event 14 edition) in this year. The cut-through competition witnessed participation from 100+ teams globally, wherein three teams were from Mahindra University. These teams were groomed and mentored by Dr Sri Kalyana Rama Jyosyula (Assistant Professor, MU) and Prof. Visalakshi Talakokula (Professor, Department of CE, MU). Cheers to these bright minds who beat the fierce competition and overcame challenges with sheer grit and determination. Kudos to you, and we wish you all the luck and success in your future endeavors.

Infrastructure Health Monitoring Course Projects

By M.Tech (CASE) Students



Dheeraj Patil

Comparison Between NDT And Structural Health Monitoring



Asrith Pothuri

Determine the exact natural frequency of any structure.



P Surendra

Identification of damage intensities under various loading conditions

13 | Student Achievements



Samskruthi Kappara

Footstep Energy Harvesting
Using Piezo Sensors



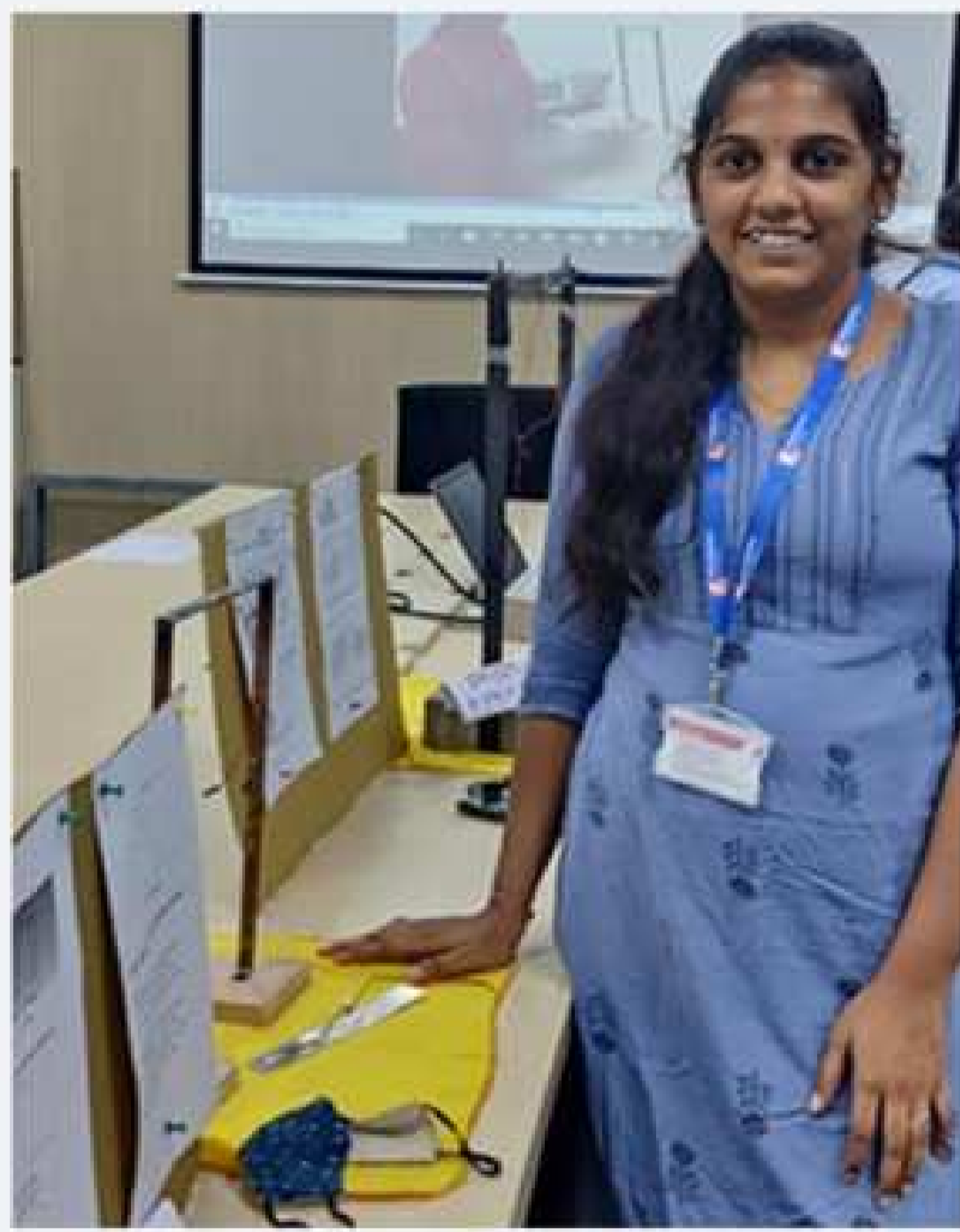
M Sai Nikitha

Damage detection of bridge using SHM



**Krishna Vardhan
Reddy Pidaparathi**

Identifying damage in steel
using different piezo configurations



Golla Meghana

Finding Natural Frequency of a
steel frame using PZT sensors and
comparing with Numerical Model



Koppala Viswa Sai Vithal Kaushik

Damage Detection in Bamboo Structure
Using EMI Technique



Tipparthi Surya Sai Teja

Corrosion diagnosis of rebars and
coated rebars using piezo sensors



Swetha T

Identification of damage
in Steel Frame (Damage:
Loosening of Bolts)



Kishan Adepu

Identifying Damage in Concrete Cube
Specimen Using Piezo Sensor



Naveen Polagani

Identifying incipient to severe damage in
steel beam using EMI technique



Gurram Amrutha Valli

Determination of
Natural Frequency
of a Simply supported
Steel Beam.

Glimpses from the Spring Semester

(JAN - JUNE 2022)

ASHA National Workshop

30TH MAY - 3RD JUNE, 2022

Advancements in Structural Health Assessment (ASHA 2022), a national workshop, was organized from 30th May to 3rd June 2022 by the Center for Sustainable Infrastructure and Systems (CSIS). CSIS is an interdisciplinary research center of Civil Engineering and Computer Science Engineering and is led by Prof. Venkata Dilip Kumar and Prof. Prafulla. Ph.D. students of Civil Engineering and undergraduate students from CSE and AI were also part of the workshop in conducting special sessions and tutorials..

Structure health and condition evaluation has become an essential component of infrastructural life because of continuous degradation caused by nature or human acts. It preserves public safety while simultaneously saves money if properly maintained. Henceforth, poor maintenance of structures like commercial, public, and historical buildings will lead to severe damage or collapse. To overcome this problem there are ways to estimate building health, which includes destructive, non-destructive, and sensor-based analysis. The selection of inspection process and its execution within the specified time is always a challenge and requires highly skilled professionals. With the advancement of Internet of Things (IoT) and Artificial Intelligence (AI) integrated with Structural Engineering makes the prediction of structural behaviour effective and considerably accurate.

The primary goal of the workshop is to discuss the most recent advancements in the field of structural health assessment and monitoring (ASHA). The event also provides a venue for academics and industry to learn about new areas blended with computer science and civil engineering. The main motto of ASHA 2022 is to provide real-time experience on analysis of vision and vibration data with the help of programming to make engineers future ready.



Fig. 7. Group Photo of the Participants of ASHA 2022 at Mahindra University

Workshop in Malaysia

21ST JUNE - 5TH JULY, 2022

Twenty undergraduate students from the civil engineering department attended a 14-day summer workshop in Malaysia. The 14-day “Student Mobility Program “ was coordinated by Prof. Deepak, Manipal International University. The workshop program covered several topics of relevance to civil engineering, e.g. professional ethics, building competencies to become a global graduate, employability skills, etc. There were sessions on construction project management where students learned building codes and construction practices and procedures followed by the organizations of the Malaysian government. As part of the workshop, some competitions were organized, e.g. twin tower making and the construction of a small bridge using a 3D pen, in which all the students actively participated.

The experts also discussed with students about undergraduate research projects. Topics covered involved: choosing the correct topic for final year undergraduate projects, understanding the steps involved in conducting research, and organizing outcomes and results effectively to write project reports. The students were also exposed to the nuances involved in writing a full-length paper to describe the outcomes of a project and effective ways to present their projects to an audience. There were also short interactive sessions to test and improve the communication skills of the students.

As part of the workshop, several field trips were organized. The students visited many fascinating structures in Malaysia like “Melaka” a heritage city recognized by UNESCO, Genting highland, Sunway Lagoon Water Park, Putrajaya, the parliament of Malaysia, and Petronas twin towers. Overall, the “Student Mobility Program” was successful, and students learned from the experiences of leading professors and practitioners through guest lectures and site visits.



Fig. 8. Group Photo at the Workshop in Manipal International University, Malaysia.

Participants (From Left to Right):

(Top Row) Mujtaba Moid, Abhinav Kolla, Saksham Rajput, Saketh Reddy, Vansh Rao, Gowtham Varma, Bhuvan Alladi, Raghu Chander, Amit Kodali, Vishwa Teja, Sameer Gopu, Yashwanth Vungarala Siddarth Reddy, Amay Shukla,
(Bottom Row) Yeshwanth Nerudi, Sloka Gampa, Anvitha Yadama, Kalyani, Synthia Mayukhi, Siri Reddy, Abhishek Kumar.

EWSHM Workshop in Italy

4TH - 7TH JULY, 2022

The European Workshop on Structural Health Monitoring (EWSHM) is an international event that started in 2002. Ever since, it has been organized every two years in a different European city, in an alternating fashion with respect to the International Workshop on SHM (IWSHM) held at Stanford University every odd-numbered year and paired to the Asia-Pacific SHM meetings. The 2022 event (EWSHM 2022) represents the 10th edition.

Prof. Venkata Dilip Kumar and Prof. Prafulla led a team from Civil Engineering, Computer Science Engineering and Artificial Intelligence to present their research work at EWSHM 2022. The International conference was held in Italy from 4th to 7th July 2022 where the team presented 9 papers.

The EWSHM 2022 has been jointly organized by the University of Palermo (Italy) and the University of Pittsburgh (USA) and is hosted by the Department of Engineering at the University of Palermo in the beautiful island of Sicily. The event featured more than 450 in oral in-person presentations and included the latest developments in key technology fields of sensor development, network design, signal processing, modeling, diagnostics, and prognostics with applications to aerospace, civil, and mechanical engi-



Fig. 9. Group Photo for the European Workshop on Structural Health Monitoring (EWSHM) at the University of Palermo, Italy.

Participants (From Left to Right):

Venkataiah Vibudh Gourishetty (2nd Year, CE),
Rakesh Katam (PhD Student, CE), Sairam Neridu (PhD Student, CE), Sreevalli Yeliseti (2nd Year, AI),
Prof. Prafulla Kalapatapu (Faculty in CSE), Prof. Venkata Dilip Kumar (Faculty in CE),
Himavanth Kandula (2nd Year, AI), Govardhan Polepally (PhD Student, CE),
Venkat Surendar Talari (4th Year, CSE) and Visvesh Naraharisetty (4th Year, CSE)

CCSC 2022 Conference in Switzerland

5TH - 7TH JULY, 2022

Our students Pritika Reddy and P. Vishwaajith from 3rd year presented two papers titled, "Predicting the compressive strength of concrete with Limestone Calcined Clay using Machine Learning Techniques" and "Influence and addition of Nano SiO₂ on LC3" in the international conference on Calcined Clays for Sustainable Concrete 2022.

It was held from 5-7th of July at SwissTech Convention Centre, École Polytechnique Fédérale de Lausanne, Switzerland. Moreover, they also got the opportunity to interact with Madam Karen Scrivener, who was the one who initiated research on Limestone Calcined Clay Cement, a sustainable alternative for conventional cement. It was an experience of a lifetime for them to be showcasing their work at such a prestigious conference where they were the youngest students to present two papers at undergraduate level.

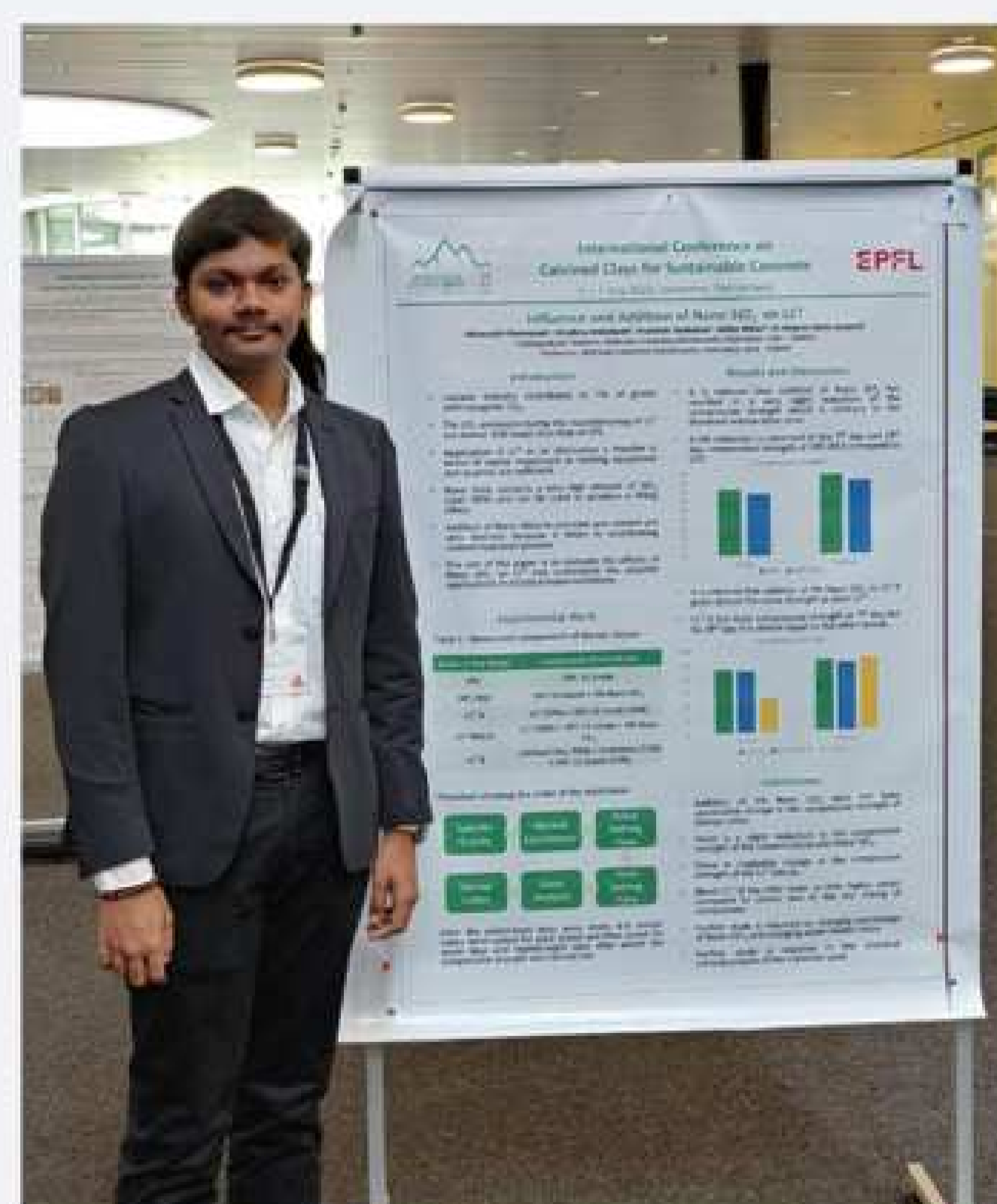
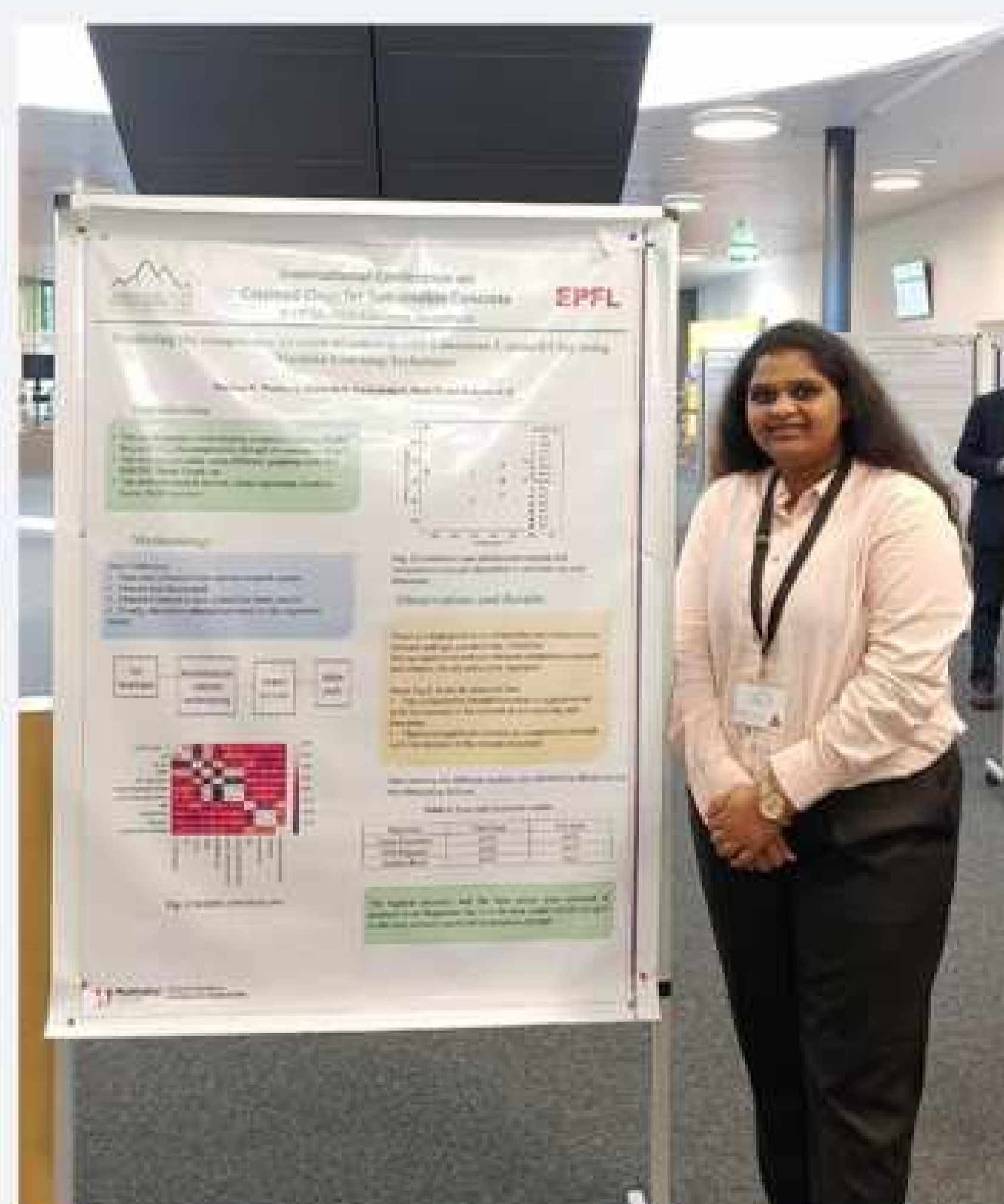


Fig. 10. Research Presentations at the Conference on Calcined Clays for Sustainable Concrete held at EPFL, Lausanne, Switzerland.

World Water Day

22ND MARCH, 2022

World Water day 2022 was conducted by the IGS-Student chapter MU. The soul intention of the event was to create awareness among the students and to make them understand the importance of water. The topic for this year was Groundwater-Making invisible visible. The events included:-

- o Art Competition
- o Documentary Competition
- o Street Play
- o Webinars on Groundwater & Water Treatment
- o Poster Competition
- o Prototype Display
- o Movie Screening



Fig. 11. World Water Day Participants & Team Photo

IGS & ASCE x Outreach Club

6TH APRIL, 2022

IGS student chapter MU and ASCE student chapter MU has collaborated with the Outreach Club of MU. The event was based on a social cause inspired by the Save Soil Campaign. It mainly focused on cleaning the University by forming a team of 3-5 persons within a duration of 2.5 hrs, and the team which collects the most trash is declared the winner.

IGS and ASCE student members helped them in finding some long-term sustainable solutions which can be adopted in our University. We also helped them in selecting the volunteers by conducting interviews.

Third Young Doctorate Webinar BY MU-IGS Student Chapter

13TH APRIL, 2022

Title: Long-Term Performance of Alkali-Activated Fly Ash Stabilized Marginal Aggregate Pavement Bases".

The webinar was delivered by Dr. Mahesh Jallu, joint Ph.D. from IIT Hyderabad and Swinburne University Technology, working as an assistant professor in PDPU.



Fourth Young Doctorate Webinar BY MU-IGS Student Chapter

27TH APRIL, 2022

Title: Seismic Stability of earth embankment subjected to different upstream conditions.

The webinar was delivered by Dr.A. Gautham, Ph.D. from Kyoto University, Japan.



Visit to Patancheru Water Effluent Park FIELD TRIP

22TH APRIL, 2022

IGS student chapter in collaboration with ASCE student chapter organised a field trip for the students of 3rd year to the Patancheru water effluent plant. It was a very informative trip which helped us understand the different processes involved in water treatment like aeration, sedimentation. We were explained with complete process of plant functioning. "Beginning with initial processes like storage to final step which is clarifier, everything was explained in a clear fashion. It was really fascinating to watch massive aeration machines and filtration tanks in action", said a student about the field trip.

Fig. 12. A pic from the visit to the Patancheru Water Effluent Park



Don't Sink

12TH MAY, 2022

This event was conducted as a part of Pre-Aether (Annual cultural and technical fest of MU). The registrations were open to all branches of eSOE including SOM, SOL, Ph.D., M.Tech students. Required materials to build a boat were distributed at the time of registration; and the testing for judgement was done by the IGS and ASCE team on 12th May. Dr. Prabhakar Singh and Dr. Ataullah Khan acted as judges for the event. The boat having the highest strength-bearing efficiency and aesthetics stood as the winner. Hearty congratulations to the following winners:

First : Team *Titanic*

(Sruthi Manthana, Nandini Kodali, Ansh Chordiya, and Rekhitha sree Ankireddypalli).

Second: Team *Mission Float*

(Rashmi Nuligonda, Manas Ambati, Geethanjali Nayani, and Shashi kanth koppala).

Third: Team *Republic of Slackers*

(Soumen Sinha, Mehek Khan, and Saketh Innani).

Lastly, an appreciation prize to solo participant Anjana, whose boat carried 9 kgs of sand.



Fig. 13. Don't Sink Event Day Photos

CONVOCATION 2022

The first annual convocation of Mahindra University was indeed a bliss for everyone as it witnessed the presence of some of the world's leading industrialists and Hon'ble dignitaries as guests for the event. Caps off to you, Graduates! Congratulations on your well deserved success. Here's a quick glimpse from the convocation 2022.



The Class of 2022 (Civil Engineering)



Gold Medal Winners: (Clockwise)

Y Rahul - 2022, Shalin Bessy Mathew (Parents) - 2021,

Sriram Naga Swaroop (Parents) - 2020

celebrating the class of 2022.

After all the hard work, this is the start of your next great adventure. We are so proud!



Y. Rahul Reddy
secured admission to
Purdue University,
USA
*for MS in Construction
Management.*



Vivek B
secured admission to
New York University,
USA
*for MS in Construction
Management.*



M. Sai Mohan
secured admission to
University of Texas,
Arlington, USA
*for MS in Construction
Management.*



Mukesh Avirneni
secured admission to
Columbia University,
USA
*for MS in Civil Engineering
and Engineering Mechanics.*



Srikar Sai Reddy
secured admission to
**Rochester Institute of
Technology, USA**
*for Masters in Business
Administration (MBA).*



**Abhiram Kishore
Reddy**
secured admission to
Columbia University,
USA
*for MS in Construction
Management.*



Sai Prasanna
secured admission to
**Steven's Institute of
Technology, New Jersey,**
USA
*for MS in Construction
Management.*



Chaitanya Vadla
secured job offer from
L&T
*as a Graduate Engineer
Trainee*



**CONGRATULATIONS AND
WISH YOU THE ALL THE BEST
IN ALL OF YOUR FUTURE
ENDEAVOURS!**

IGS Team



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MEMBERSHIP



D. Hari Prasaath
CHAIRPERSON
SOCIAL ACTIVITIES



Rashmi Nuligonda
RECORDING
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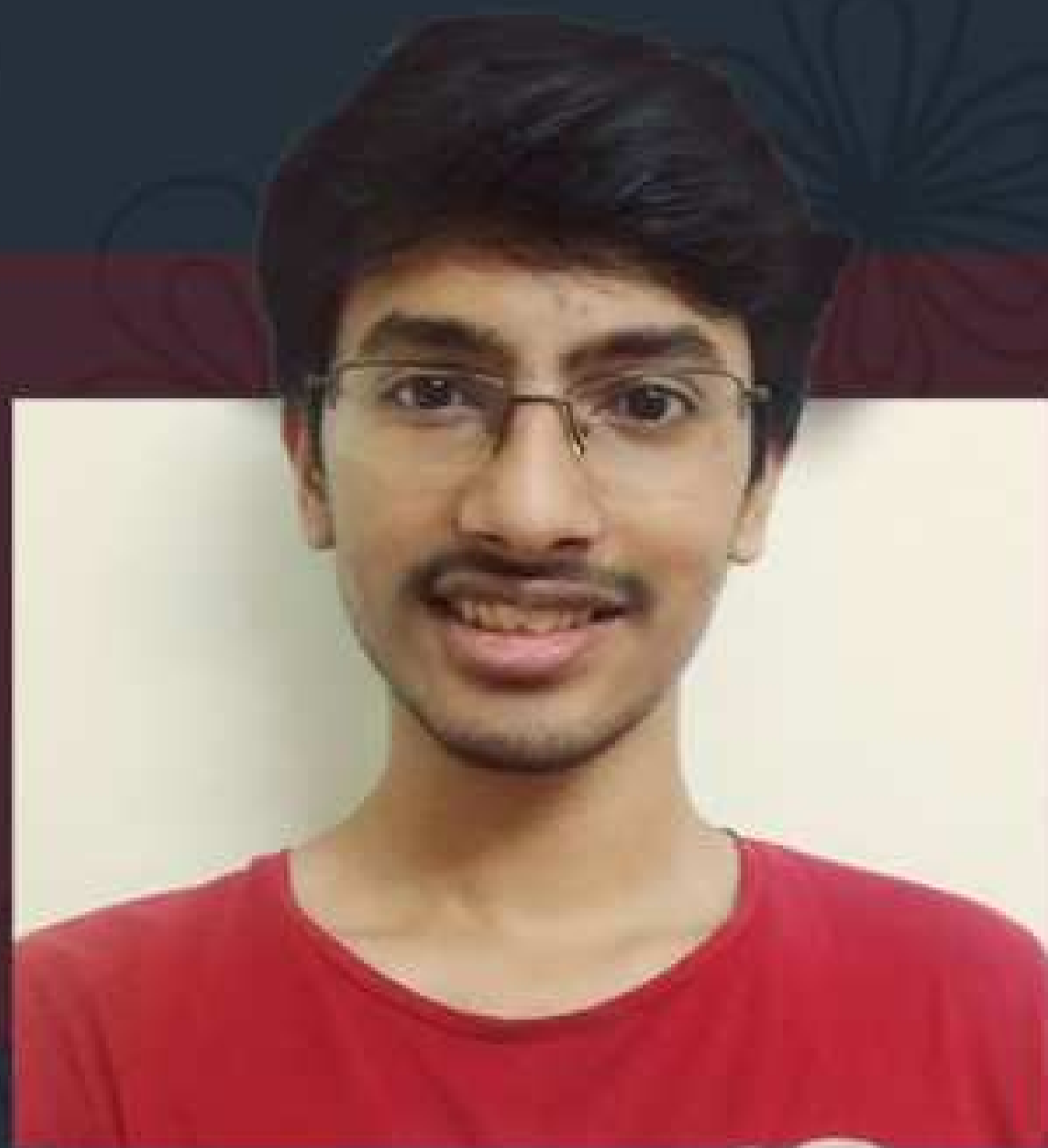
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Chandramouli**
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PUBLICITY

MEET THE TEAM

The faces behind the newsletter.



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Dr. Jayaprakash Vemuri



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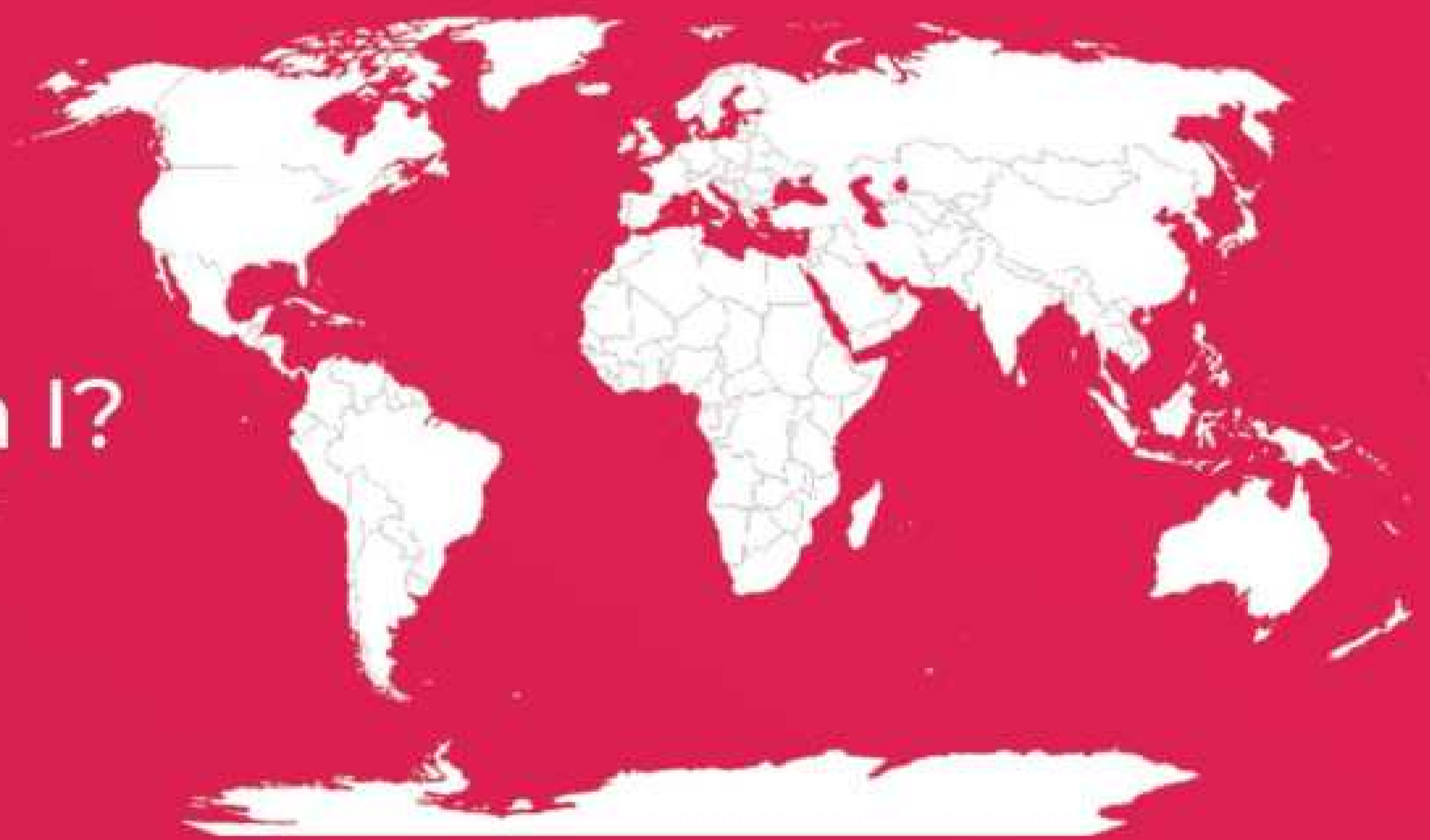
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Rashmi Nuligonda



Editorial Assistant
Konda Hitesh

Here's a Riddle for you: WHO AM I ?

- 1 I'm the smallest country. Who am I?
 - 2 I make you shiver. Who am I?
 - 3 I share the largest border with India. Who am I?
 - 4 I'm the largest democratic country. Who am I?
 - 5 If you remove one letter, I become your body part. Who am I?
 - 6 Rope that can't be pulled. Who am I?
 - 7 I'm a country, hidden in this paragraph. Find me
- "As defendants, we deny all involvement in the unscrupulous dealings which have come to light in the recent government investigation."*
- 8 I'm the most slippery country. Who am I?
 - 9 I'm the most visited country. Who am I?
 - 10 I painted the Mona Lisa... in which country was I born?
Who am I?





Do you know me?

I am a new person the every next day
Don't think that you know me because,
I am a new person the every next day

Sometimes you may love me ,
sometimes you may hate me

Because I am a new person the every next day

Sometimes I am a cheerful kid playing
silly games ,

Sometimes I am a depressed adult played over
mind games

Sometimes I am the smooth breeze that you feel,
Sometimes I am the massive hurricane that
you fear

Sometimes I am the compassionate angel,
Sometimes I am the courageous devil

I am a new person the every next day

Yet having a pure soul deep inside which
is what remains constant for eternal.

By,

Samskruthi Kappara,
MTech (CASE) Student