

# SCE e-NEWSLETTER

SCHOOL OF CIVIL ENGINEERING (SCE)

VIT - A Place to Learn; A Chance to Grow



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## Vision Statement of the School of Civil Engineering

To excel in Civil Engineering education and research with a global perspective and commitment to sustainability

## Mission Statement of the School of Civil Engineering

**M1. Academic Excellence:** Impart high-quality Civil Engineering education through innovative teaching methodologies and modern laboratory facilities.

**M2. Research:** Promote research, consultancy, and innovation addressing real-world Civil Engineering challenges with emphasis on sustainable infrastructure and societal needs.

**M3. Global Perspective & Industry Engagement:** Prepare globally competent Civil Engineers through industry interaction and collaboration with national and international institutions.

**M4. Ethics, Sustainability & Lifelong Learning:** Produce socially responsible Civil Engineers with strong ethical values and leadership skills, dedicated to sustainable development and lifelong learning.

## Program Educational Objectives (PEOs)

**PEO1:** Graduates will be successful civil engineering professionals / entrepreneurs.

**PEO2:** Graduates will pursue higher studies and research for professional development.

**PEO3:** Graduates will demonstrate civic responsibility in addressing societal and environmental challenges.

## DEAN'S MESSAGE

Civil Engineering is fundamental to the built environment and to the development of society—from the buildings and infrastructure around us to water resources, transportation, and sustainable cities. At the School of Civil Engineering (SCE), VIT, we build on this strong foundation while preparing our students to meet the changing needs of a rapidly evolving world.

We are committed to ensuring that our students develop a strong understanding of fundamental civil engineering principles while gaining exposure to emerging technologies such as Artificial Intelligence, Building Information Modelling (BIM), drones, LiDAR, Geographic Information Systems (GIS), and Remote Sensing. Through the integration of core knowledge, innovation, and technology, we strive to nurture competent, responsible, and future-ready Civil Engineers.

It is with great pride and enthusiasm that I publish the seventeenth Issue of the SCE E-Newsletter, to you brought by the School of Civil Engineering (SCE), Vellore Institute of Technology (VIT), Vellore, Tamil Nadu, India. This issue showcases the achievements, activities, innovations, and contributions of our students, faculty, and scholars, while providing an insight into the vibrant academic, research, and professional environment at SCE, VIT

- Dr. A. S. Santhi

## ARTIFICIAL INTELLIGENCE FOR ENVIRONMENTAL AND WATER RESOURCE ENGINEERING

Five-day FDP programme on Artificial Intelligence for Environmental and Water Resource Engineering was jointly organized by School of Civil Engineering with TLCE from 4<sup>th</sup> December 2023 – 8<sup>th</sup> December 2023. The Co-ordinator's of the programme are Dr. M. Uma Shankar, Professor SCE and Dr. S. Mahenthiran, HOD & Assistant Professor (Senior) SCE. The Resource Persons of the programme are academicians and Scientist from IIT, NIH, NIT and our Institute VIT. It covered various applications of soft computing in Environmental and Water resource discipline. It helped to understand how AI must be used for a variety of water resources engineering tasks, depending on the objectives and data available. Participants were exposed to the application of Machine Learning in the field hydraulics, Coastal Engineering, Groundwater Engineering, Natural Resource Mapping etc. In addition to it hands on training were also given on the use of python to build up a ML model.



## STUDENT ACHIEVEMENT

1. K. Loganathan (20PHD0581), Research Scholar, SCE guided by Dr. L. Vignesh Rajkumar, Assistant Professor, SCE was awarded Best Paper for his study on Toxic Heavy metal contamination and associated health risk at the conference Hydro – 2023 International held from 21<sup>st</sup> to 23<sup>rd</sup> December 2023, at NIT Warangal, India.

## FACULTY ACHIEVEMENTS

1. Dr. L. Vignesh Rajkumar, Assistant Professor, SCE received International Grants from Climate Department, Ministry of Ecology and Environment, China to attend "Climate Finance Program" at Beijing, China, 29<sup>th</sup> October-11<sup>th</sup> November 2023.



2. Dr. S. Balamurugan, Associate Professor, SCE received an Engineers Award 2023 in the category of Awards for Outstanding Research Paper in Civil/Structural Engineering - Industrial / Societal Relevance. The award was jointly issued by the Ramco Supercrete Cement and The Hindu Tamil Thisai on 07th December 2023 at The Music Academy, Chennai.



## PATENTS

1. Dr. Dillip Kumar Barik, Dr. Niranjana Behera, and Ms. Ria Singhal were granted a patent titled "Water Storage Tank Cleaning Mechanism" on 29<sup>th</sup> October 2023.
2. Dr. Rama Mohan Rao P and Mr. Bhaskar Bashaveni has filed the patent titled "Nine Gang Concrete Cube Mould" on 20<sup>th</sup> December 2023.

## FUNDED PROJECTS

1. Dr. Visuvasam J received support for the project "Fabrication of High-Strength Ductile Precast ECC Wall Panels" for a duration of one year, commencing in October 2023. The sanctioned amount was ₹3.00 lakhs, of which ₹0.63 lakhs was utilized. The project is in progress.
2. Dr. Konala S K Karthik Reddy received support for the project "Optimizing a 3D Printed Beam by Incorporating Fibers for Reinforcement: Parametric Design of 3D Printed Concrete Beams" for a duration of one year, commencing in October 2023. The sanctioned amount was ₹2.50 lakhs, of which ₹2.13 lakhs was utilized. The outcome of the project includes journal publication.

## CONSULTANCY PROJECT

1. Dr. Thirumalini S served as the Principal Investigator (PI) for the project "SCMs Characterization Report," funded by ALCOLAB India LLP, India. The project was undertaken under the Centre for CO<sub>2</sub>, VIT, Vellore, for a duration of 1 month and 10 days, with a sanctioned amount of ₹0.23 lakhs on October 2023.

## FACULTY OUTREACH

1. Dr. Parimala Renganayaki S, Associate Professor, SCE delivered a lecture on “Methods and tools for the identification of MAR sites” at IITM, Chennai, India on 3<sup>rd</sup> October 2023.



2. Dr. L. Vignesh Rajkumar, Assistant Professor, SCE presented an expert lecture titled “Climate Change Vulnerability Assessment of the Semi-Arid Catchment in India: A Hydrological Perspective” to the GEDI scientific team at the Laboratory for Sciences of Climate and Environment, Paris, France on 11th October 2023.



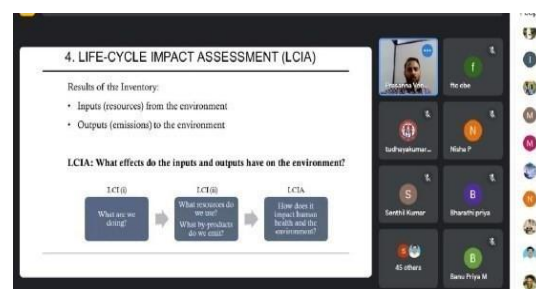
3. Dr. L. Vignesh Rajkumar, Assistant Professor, SCE presented an invited lecture titled “Assessment and Prediction of Climate change Impacts on Hydrological Components of a River basin using CMIP6 Climate models” to the Scholars and Faculty of Geo-hydroscience lab at University of Tours, Tours, France on 18<sup>th</sup> October 2023.



4. Dr. L. Vignesh Rajkumar, Assistant Professor, SCE was involved in collaborative research with the LSCE, Paris, France during which sediment samples were collected from the Seine River, France to study the radioactive contaminants in the riverbeds on 19<sup>th</sup> October 2023.



5. Dr. R. Prasanna Venkatesan, Associate Professor, SCE delivered a lecture on “Sustainable Construction and Life Cycle Assessment of Structures” at Government College of Technology, Coimbatore, India on 21<sup>st</sup> November 2023.



6. Dr. Srimuruganandam B conducted a workshop on “Scientific Presentations and Methodology” on 10<sup>th</sup> October 2023 at Vellore Institute of Technology, Vellore, India.

7. Dr. Meena conducted a Faculty Development Program on “Modern Construction Materials and Technologies” on 15<sup>th</sup> December 2023 at Guru Nanak Institutions Technical Campus, Ibrahimpatnam, Hyderabad.
8. Dr. Srimuruganandam B conducted a seminar on “Air Quality Monitoring and Modelling” on 04<sup>th</sup> November 2023 at Kumaraguru College of Technology, Coimbatore, India.
9. Dr. Vaani N conducted a lecture on “Resilient Urban Economies: Cities as Drivers of Growth and Recovery” on 11<sup>th</sup> October 2023 at BHEL, Ranipet, Vellore, India.

10. Dr. A. Punitha Kumar, Associate Professor, SCE presented in the 11th International Conference on Advances in Steel Structures 2023 (ICASS'2023) at Swinburne University of Technology (Sarawak Campus Malaysia) on 5th to 7th December 2023.



11. Dr. Meena Thiruvadi, Associate Professor, SCE contributed as Resource Person in AICTE Training and Learning (ATAL) Academy Faculty Development Program on One-Week Faculty Development Programme on Modern Construction Materials and Technologies at Guru Nanak Institutions Technical Campus from 11<sup>th</sup> December 2023 to 16<sup>th</sup> December 2023.



12. Dr. P. Sasanka Bhushan, Associate Professor, SCE participated in the 7<sup>th</sup> Conference of the Transportation Research Group of India 2023 held from 17<sup>th</sup> to 20<sup>th</sup> December 2023 in Surat, organized by NIT Surat and TRG of India. At the event, Mr. Biswajit Mohanty, guided by Dr. P. Sasanka Bhushan, SCE presented a paper titled "An Explorative Study of Traffic Conflicts due to Illegal Movements at Intersections" Puneet Agnihotri and Mohd Urooj Malik, B. Tech Civil Engineering students of SCE, served as co-authors of the paper.



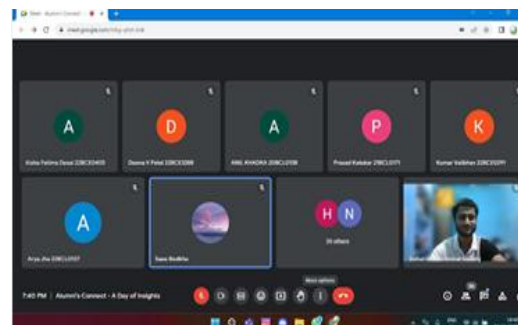
13. Dr. P. Porchelvan, Professor, SCE gave an insightful presentation towards setting the tone for educational excellence and innovation at “Teachers for Vikasit Bharat” organized by Kashi Tamil Sangam under Ministry of Education Government of India on 20th December 2023.



14. Mr. D.R. Manjunath & Dr. P. Jagadeesh, Professor, SCE presented a paper in Hydro – 2023 International held from 21<sup>st</sup> to 23<sup>rd</sup> December 2023, at NIT Warangal, India.

## NATIONAL AND INTERNATIONAL EVENTS ORGANIZED

1. Dr. Hazi Azamathulla, Professor, Department of Civil and Environmental Engineering, St. Augustine Trinidad and Tobago delivered Foreign Expert Lecture on "Application of Soft Computing Techniques in Assessment of Groundwater Resources" organized by Dr. M. Uma Shankar, Professor, School of Civil Engineering and Dr. S. Mahendran, Assistant Professor, School of Civil Engineering on 10th October 2023.
2. Mr. Murali Krishna G, Deputy Business Manager, Geophysical Division, AIMIL Limited, Hyderabad delivered Industrial Expert Lecture on "Geophysical exploration for Civil Engineering Applications" organized by Dr. Parimala Renganayaki S, Associate Professor, School of Civil Engineering and Dr. S. Mahendran, Assistant Professor, School of Civil Engineering on 11th October 2023.
3. Ms. Priyanka Mishra, Earthquake Model Developer, AON Consulting Pvt. Ltd., Bengaluru, Karnataka delivered Expert Guest Lecture on "Application of ML to Quantify Earthquake Hazard" organized by Dr. K. S. K. Karthik Reddy, Assistant Professor, School of Civil Engineering and Dr. J. Visuvasam, Assistant Professor, School of Civil Engineering on 11th October 2023.
4. Ms. Priyanka Mishra delivered a guest lecture on "Application of ML to Quantify Earthquake Hazard" organized by Dr. Visuvasam J, Assistant Professor, SCE and Dr. Konala S K Karthik Reddy, Assistant Professor, SCE on 11<sup>th</sup> October 2023.
5. Murali Krishna delivered a guest lecture on "Geophysical Exploration for Civil Engineering Application" organized by Dr. Parimala Renganayaki S, Associate Professor, SCE and Dr. Mahenthiran S, HOD & Assistant Professor, SCE on 11<sup>th</sup> October 2023.
6. Dr. Temitope O Sogbanmu delivered a guest lecture on "Surface Water Pollution from Agricultural Production - A Case Study from Nigeria" organized by Dr. Parimala Renganayaki S, Associate Professor, SCE and Dr. Porchelvan P, Professor, SCE on 27<sup>th</sup> October 2023.
7. Ms. Amutha Krishnamurthy delivered a guest lecture on "Smart Cities - Overview in Urban Planning" organized by Dr. Sofi A, Professor, SCE on 31<sup>st</sup> October 2023.
8. Dr. Leon Raj delivered a guest lecture titled "Advanced Strength of Materials and Failure Theories" organized by Dr. T. Meena, Associate Professor, SCE and Dr. M. Hareesh, Assistant Professor, SCE on 1<sup>st</sup> November 2023.
9. Dr Malathy J organized "Alumni's Connect - A Day of Insights" on 3<sup>rd</sup> November 2023 where Sae Boddhe, the esteemed speaker, engaged in vibrant discussions, sharing her global academic journey.



10. Dr. N. Senthil Kumar and Dr. Ankit Bhardwaj coordinated a Two-Day Workshop on “Seismic Analysis and Design of RC and Steel Buildings using ETABS” on 04th and 05th November 2023. Dr. A. Punitha Kumar, HOD and Associate Professor, SCE and Dr. T. S. Viswanathan, Associate Professor, SCE delivered lectures on various topics related to Seismic Analysis and discussed on Design aspects of RC and Steel Buildings. Dr. J. Visuvasam and Dr. K S K Karthik Reddy had taken hands-on session on ETABS software. Dr. G. Mohan Ganesh explained about ISET activities.



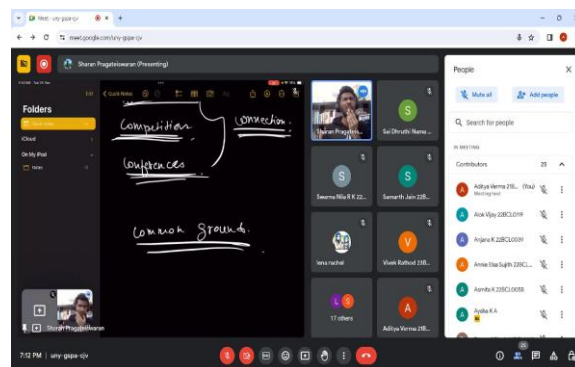
11. Dr. Jean Minella, Professor at the Federal University of Santa Maria, Brazil, delivered an International Expert lecture titled "Catchment Network Monitoring and Modeling for Planning of Soil Conservation Practices and Water Resources Protection" organized by Dr. L. Vignesh Rajkumar, Assistant Professor, SCE and Dr. S. Viswanathan, Associate Professor, SCE on 8<sup>th</sup> November 2023.

12. Dr. T. Shanmuga Priya, Associate Professor, SCE and Dr. S. Bala Murugan, Associate Professor, SCE organized a one-day workshop on “Smart Dynamic concrete” on 21<sup>st</sup> November 2023. Er. Ravi Shhankkar Subramaniam delivered a lecture and discussed about the Role of admixtures, Selection of materials for SDC, and key factors consider for the design of SDC. The second lecture was delivered by Er. K. Rajendhiren and discussed the design of SDC and the test to be carried out in the laboratory and site condition followed by live hands-on session on SDC at the Concrete Technology lab.



13. Dr. Kris Roy, Senior Lecturer, Dept. of Civil Engineering, University of Waikato, New Zealand delivered Foreign Expert Lecture on “Application of Cold-Formed Steel in the Construction Industry” organized by Dr. G. Mohan Ganesh, Professor, School of Civil Engineering and Dr. A. S. Santhi, Professor, School of Civil Engineering on 22nd November 2023.

14. A five-day programme on “Artificial Intelligence for Environmental and Water Resources Engineering” was conducted from 4<sup>th</sup> December 2023. Dr. Mohammad Saud Afzal, Associate Professor, IIT Kharagpur, served as the resource person for the programme. A total of 49 participants attended the programme.



15. Dr. Sofi A. organized an alumni talk “Reflection and Revelations” on 26 December 2023 which hosted our ex-vice chairperson and distinguished alumni of VIT23 batch Mr. Manoharan, who shared his experiences, journey from student to graduate engineer, careers in civil engineering.

16. Dr. Visuvasam J organized an event “SDG: Sustaining Sphere” on 27<sup>th</sup> December 2023 hosted by Dr. Arunava Ray, Assistant Professor, VIT Vellore fostering a deeper understanding of the challenges and opportunities associated with Sustainable Development Goals 11 and 13.



## STAFF ACHIEVEMENTS

1. Ms. M. Jayadurgadevi, Lab Assistant and Ms. J. Swapna, Senior Assistant at School of Civil Engineering, participated and finished as runners in the basketball event conducted during the Founder's day celebration on 8<sup>th</sup> December 2023.



2. Mr. R. Dharmasastha, Lab Assistant at School of Civil Engineering participated and finished as Winner in the basketball event conducted during the Smt. Rajeswari Viswanathan Memorial Basketball Tournament on 22<sup>nd</sup> December 2023.



3. Mr. N. Umesh Kumar, Lab Attender at School of Civil Engineering participated and finished as Runner up in the basketball event conducted during the Smt. Rajeswari Viswanathan Memorial Basketball Tournament on 22<sup>nd</sup> December 2023



## ALUMNI VOICE



Dr. M. Hareesh

Batch: 2003 – 2007; B. Tech - Civil Engineering

Current Position: Assistant Professor Senior, SCE, VIT, Vellore.

The digitization process has brought significant improvisation in productivity, reliability, sustainability, employment and knowledge/technology dissemination across all sectors, like finance, manufacturing, construction, education, health care, logistics etc. Digitization of construction activities is of paramount importance to achieve sustainability goals. Though digitization has already been adopted in many of the major construction projects like metro-rail bridges, high rise buildings and other commercial structures, a big challenge in the implementation of this digitization process is the reality today in residential building construction. Cold-formed steel (CFS) is an innovative building material suitable for single-level to multi-storey buildings and apartments. CFS enables faster, cost-effective and healthier construction using most of the latest technology and digitization. CFS frames can be manufactured to precise specifications, ensuring consistency in standards which are highly uncertain in conventional masonry and concrete buildings. CFS is an environmentally friendly material with a high recycling rate which serves towards achieving sustainability in construction. The latest digital technologies and the strength of the CFS frame provide greater flexibility to the designers and the architects to create innovative and resilient designs. We civil engineers should take the responsibility of educating the public about the advantages of digitization in construction and the importance of choosing sustainable building materials like CFS in residential building construction.

## PUBLICATIONS

1. Priyanka M., Saravanakumar M.P. (2023) Removal of microplastics and refractory humic/fulvic-like components from landfill leachate using Coagulative Colloidal Gas Aphrons: Insights on dissolved organic matter fingerprints, Journal of Cleaner Production. (Impact Factor: 11.1)
2. Abilaji S., Narenkumar J., Das B., S S., Rajakrishnan R., Sathishkumar K., Rajamohan R., Rajasekar A. (2023) Electrochemical oxidation of azo dyes degradation by RuO<sub>2</sub>-IrO<sub>2</sub>-TiO<sub>2</sub> electrode with biodegradation Aeromonas hydrophila AR1 and its degradation pathway: An integrated approach, Chemosphere. (Impact Factor: 8.8)
3. Mohan K., Lakshmanan V.R. (2023) A critical review of the recent trends in source tracing of microplastics in the environment, Environmental Research. (Impact Factor: 8.3)
4. T. Yeswanth Sai, P. Jagadeesh (2023) Mechanical and microstructural properties of ultrafine slag cement mortar reinforced with graphene oxide nanosheets, Carbon Letters, 33, 1649 – 1660. (Impact Factor: 4.5)
5. Priyadarshini Rajesh R., Saravanakumar M.P. (2023) Leachate xenobiotics electrocatalytic degradation and simultaneous carbon quantum dots synthesis for anti-counterfeiting applications, Inorganic Chemistry Communications. (Impact Factor: 3.8)
6. Gaikadi S., Selvaraj V.K. (2023) Allometric model-based estimation of biomass and carbon stock for individual and overlapping trees using terrestrial LiDAR, Modeling Earth Systems and Environment. (Impact Factor: 3)

7. Vignesh R., Rahim A.A. (2023) Multi-response Optimization of Fiber-Reinforced-Shaped Synthetic Aggregate Concrete, Arabian Journal for Science and Engineering. (Impact Factor: 2.9)
8. Regalla S.S., Senthil Kumar N. (2023) Effect of curing regimes on the rheological, mechanical, hydration and microstructure of ultra-high-performance concrete (UHPC) using indigenous resources: progress towards sustainable construction practices, Composite Interfaces. (Impact Factor: 2.6)
9. Tamilarasan A., Om S. (2023) Effect of varying molarity and curing conditions on the mechanical and microstructural characteristics of alkali activated GGBS binder, Materials Research Express. (Impact Factor: 2.3)
10. Yeswanth Sai T., Jagadeesh P. (2023) Surface characteristics, pore size and enhanced chemical resistance using graphene oxide nano sheets in ultrafine slag cement mortars, Fullerenes Nanotubes and Carbon Nanostructures. (Impact Factor: 2.3)
11. Devarangadi M., Masilamani U.S. (2023) Assessment of engineering properties of slag mixtures as a bottom liner in landfills, Environmental Geotechnics. (Impact Factor: 2.2)
12. Regalla S., Senthil Kumar N. (2023) Influence of graphene oxide in the hydration mechanism by reinforcing mechanical strength and microstructural Characterization of ultra-high-performance concrete (UHPC), Journal of Dispersion Science and Technology. (Impact Factor: 2.2)
13. Kummara S.P., Senthil Kumar N. (2023) Flexural capacity of the new precast beam-to-beam connection, Sadhana - Academy Proceedings in Engineering Sciences. (Impact Factor: 1.6)
14. Mahenthiran S., Ganesan M., Hameed A.S. (2023) Environmental Isotopes of Water as Potential Tool to Distinguish the Sources of Groundwater Recharge in a Semi-arid Region: A Case Study Around Veeranam Tank, Tamil Nadu, India, Journal of The Institution of Engineers (India): Series A.
15. Naveen K.S.H., Porchelvan P. (2023) Human Health Risk Assessment of Heavy Metals in Lake Water at Gudiyattam Region, Tamil Nadu, India, Indian Journal of Environmental Protection.

### EDITORIAL TEAM

Dr. L. Vignesh Rajkumar (Assistant Professor Senior)

Asmita K (Student - 22BCL0055)

Gowtham Sivasubramaniam (Student - 21BCL0154)

Vishanth Nagra (Student - 22BCL0140)

Neha P (Student - 21BCL0193)

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