



# SCE e-Newsletter School of Civil Engineering (SCE)

# VIT

IS AMONG THE TOP 9 INSTITUTIONS IN INDIA  
IS THE ONLY PRIVATE INSTITUTION OF INDIA PUBLISHED BY THE SHANGHAI RANKING

## Vision

To be internationally recognized in Civil Engineering through groundbreaking contributions and exceptional leadership for sustainable development of the society.

## Mission

To pioneer the emerging technology in Civil Engineering.

To address the complex societal scale challenges in areas of resilient infrastructure, smart and sustainable cities, water and energy security, climate change, mobility of goods and people, and environmental protection.

To inspire and nurture innovative leaders and entrepreneurs.

**Issue No. 07 January – March 2021**



**Govt. of India Recognizes VIT as an  
Institution of Eminence (IoE)**

### Dean's Message

It is my immense pleasure to welcome you all to view the seventh issue of SCE e-Newsletter by School of Civil Engineering (SCE), Vellore Institute of Technology



Vellore, TamilNadu, India. This issue brings out the accomplishment of VITians include the students and faculty of SCE that has transpired between January – March 2021.

This issue highlights the active participation and contribution in various outreach activities by faculty members and achievements of undergraduate and postgraduate students. We, from the accomplishment of students, could able to see the students' dedication and their calibre in participating various challenging activities. Moreover, this SCE e-newsletter also focusses on research grants, consultancy projects, guest lectures organized by faculty members, publications in high quality International and National Journals and faculty outreach.

I hope you all enjoy reading the updates and achievements of students and faculty members of SCE and extend your co-operation and support for the future.

*Dr. S. Shantha Kumar  
Professor & Dean, School of Engineering  
Vellore Institute of Technology, Vellore*

**VIT- A place to learn; A chance to grow**

Sharan Pragateiswaran (19BCL0074), B.Tech Civil Engineering - II Year student bagged Second Prize in 'Industrial Design Problem Competition' organized by Aakaar 2021 the Annual Civil Engineering Fest of Indian Institute of Technology (IIT) Bombay on 21 March 2021.



Sharan Pragateiswaran (19BCL0074), B.Tech Civil Engineering - II Year student bagged Second Prize in 'Town Trace Competition' organized by Pragyan, NIT Trichy's Annual International Techno-Managerial Organisation, National Institute of Technology Tiruchirapalli (NITT) 27 March 2021.



The undergraduate student Kunal Kakria (17BCL0049) has received an Outstanding Technical Presentation Award in the International Conference on Futuristic Technologies 2021 (FT-21) organized by Department of Civil Engineering, IIT Delhi, 22-24 January 2021 for presentation of paper entitled 'Strength and Microstructural properties of concrete with Micronized Biomass Silica and Waste PCB Powder' under the guidance of Dr. T. Shanmuga Priya, Associate Professor, SCE, VIT, Vellore.

### Consultancy and Funded Projects

Prof. Dr. S. K. Sekar, Director of Estates & SCE and Dr. A. Punitha Kumar, Assistant Professor, SCE, VIT received a consultancy work entitled 'Development of low cost bricks using foundry waste sand' from Samco Metals and Alloys Pvt. Ltd., Kaniyambadi, worth of INR 4 Lakhs.

Dr. S. Vasantha Kumar, Associate Professor, SCE, VIT, Vellore has received following in-house consultancy works.

- 'Preparation of Topographic Map, Contour Map and Digital Elevation Model (DEM) for the Land at Kalavai Village in Ranipet District through Total Station Survey', on 9 February 2021.
- 'Identification of Location of the Proposed Rotary Intersection near the New Underpass (RUB-2) and Pearl Research Block, VIT Vellore and Preparation of Traffic Flow Movement Diagrams', on 11 March 2021.



Dr. M. Uma Shankar, Associate Professor, SCE, Dr. Velvizhi, Associate Professor, CO2 & GTC, and Dr. R. Sujatha, Associate Professor, SENSE, VIT received a funded project entitled 'IoT-LoRA enabled detection and prediction of pollutants in groundwater in an open dumping yard and modelling the fate and transport of the pollutants' from Department of Science and Technology under SERB-Core research grant worth of INR 34.79 Lakhs.

Prof. Dr. S. Shantha Kumar, Dean, SCE, VIT, Vellore received consultancy project on 'Assessing the adequacy of sewage treatment plants for treating the wastewater generated from residential cum commercial complex' for worth of INR 2.36 Lakhs.

### Book

Selected papers of International Conference on Recent Trends in Construction Materials and Structures (ICON2019) has been published as part of book chapters in Lecture Notes in Civil Engineering - 'Advances in Construction Materials and Structures', Electronic ISBN: 978-981-15-9162-4, Springer, Singapore.

#### Organizing Secretaries

Dr. A. Sofi, Associate Professor, School of Civil Engg., VIT, Vellore.

Dr. T. Meena, Associate Professor, School of Civil Engg., VIT, Vellore.

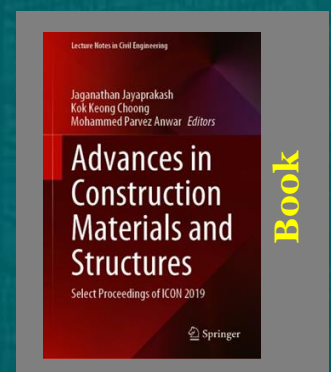
Prof. Dr. J. Jayaprakash, School of Civil Engg., VIT, Vellore.

#### Edited by:

Prof. Dr. J. Jayaprakash, School of Civil Engg., VIT, Vellore.

Prof. Dr. Choong Kok Keong, Deputy Dean (Research, Innovation and Industry - Community Engagement), School of Civil Engg., Universiti Sains Malaysia, Malaysia.

Dr. Mohammed Parvez Anwar, Associate Professor & Director of Teaching and Learning, Department of Civil Engg., University of Nottingham Malaysia, Malaysia.





The School of Civil Engineering (SCE), Vellore Institute of Technology, Vellore & Department of Civil and Environmental Engineering (CEE), North Dakota State University (NDSU), USA jointly organized Webinar Series from 3 to 31 March 2021 to exhibit the research potential and the various research activities carried out by faculty members from both SCE, VIT and CEE, NDSU (Co-ordinator: Dr. M. Uma Shankar, Associate Professor, SCE, VIT, Vellore). The details of webinars from VIT and NDSU are given below:

Webinar 01: 'Investigations on rainfall induced landslides in Western Ghats, India' by Prof. Dr. S. S. Chandrasekaran, SCE, VIT, Vellore on 3 March 2021.

Webinar 02: 'Engineering nanocomposites atom by atom' by Prof. Dr. Kalpana Katti, Department of Civil and Environmental Engineering, North Dakota State University (NDSU), USA on 3 March 2021.

Webinar 03: 'Heritage talk: Scientific studies on structures, artefacts and objects' by Dr. Thirumalini, Associate Professor, SCE, VIT, Vellore on 10 March 2021.

Webinar 04: 'Molecular and microstructural basis of engineering properties of swelling clays' by Prof. Dr. Dinesh R. Katti, Department of Civil and Environmental Engineering, North Dakota State University (NDSU), USA on 10 March 2021.

Webinar 05: 'Research Avenues on Controlling the Volume Change Attributes of Expansive Soils' by Dr. M. Muthukumar, Head and Associate Professor, SCE, VIT, Vellore on 17 March 2021.

Webinar 06: 'Environmental Nanotechnology: Achieving the Unachievable' by Dr. Achintya Bezbaruah, Associate Professor, Department of Civil and Environmental Engineering, North Dakota State University (NDSU), USA on 17 March 2021.

Webinar 07: 'Traffic State Estimation under Heterogeneous Traffic Conditions' by Dr. S. Vasanthakumar, Associate Professor, SCE, VIT, Vellore on 24 March 2021.

Webinar 08: 'Recovering waste resources and addressing emerging contaminants for sustainability' by Dr. Syeed Md Iskander, Assistant Professor, Department of Civil and Environmental Engineering, North Dakota State University (NDSU), USA on 24 March 2021.

Webinar 09: 'Sludge dewaterability, degradability of organics and leaching of heavy metals from industrial/domestic sludge' by Dr. M. P. Saravanakumar, Head and Associate Professor, SCE, VIT, Vellore on 31 March 2021.

Webinar 10: 'Prolonging the life of aging US infrastructure: preliminary results and future directions' by Dr. Ravi Kiran Yellavajjala, Assistant Professor, Department of Civil and Environmental Engineering, North Dakota State University (NDSU), USA on 31 March 2021.

## Workshop

Dr. M. Uma Shankar, Associate Professor and Dr. S. Mahenthiran, Assistant Professor, SCE, VIT, Vellore organized three days online hands-on training programme on 'MIKE SHE' during 10 – 12 March 2021 at VIT, Vellore. The resource person for this training programme was Mr. Manish Kumar, Water Resource Engineering DHI (India). Several research scholars and faculty members from Water Resources Engineering were participated in this training programme.

Dr. L. Vignesh Rajkumar, Assistant Professor, SCE, VIT Vellore organized a one-day Virtual Hands-on Training Programme on Hydrological Modelling of Watersheds: Insights to Climate Change during 27 January 2021 at VIT, Vellore. The resource persons were Dr. E. Arun Babu, Assistant Professor, Anna University, Chennai and Dr. L. Vignesh Rajkumar, Assistant Professor, SCE, VIT, Vellore.

Delivered lecture on 'Modern Construction Materials' by Dr. Colonel P. Nallathambi, Managing Director, Sakthi Civil & Structural Consultancy Pvt. Ltd., Chennai on 21 January 2021 (Organized by Dr. A. Punitha Kumar, Assistant Professor, SCE, VIT, Vellore).

Delivered lecture on 'Internship opportunities for Engineering Students in NRSC (ISRO)' by Dr. Rajashree Vinod Bothale, Group Director, Training Education and Outreach National Remote Sensing Centre (NRSC) - ISRO Hyderabad on 26 February 2021 (Organized by Dr. M. Uma Shankar, Associate Professor, SCE, VIT, Vellore).

Delivered lecture on 'Design of Industrial Steel Structures - An Overview' by Mr. G. K. P. Mouriya, Principal Engineer (Civil & Structural), Saipem India Projects Pvt. Ltd., Chennai on 27 February 2021 (Organized by Mr. M. Hareesh, Assistant Professor and Dr. S. Thirumalini, Associate Professor, SCE, VIT, Vellore).

Delivered lecture on 'EIA of Infraprojects with a case study' by Mr. K. Diwakara Rao, Sr. Manager - Project Engineering, Siemens Gamesa Renewable Energy Pvt. Ltd., Chennai, on 4 March 2021 (Organized by Prof. Dr. P. Jagadeesh and Prof. Dr. Pavan kumar Kummamuru, SCE, VIT, Vellore).

Delivered Lecture on 'Issues in Handling and Erections in Steel Structures' by Mr. Rajan General Manager/Engineering, Interarch Buildings, Chennai on 17 March 2021 (Organised by Prof. Dr. A. S. Santhi, SCE, VIT, Vellore).

Delivered lecture on 'Environmental Aspects, Impacts & Sustainability - Scope & Their Significance' by Mr. Balamuralikrishnan Ramalingam, Independent Consultant - Leather Specialist, EHS Lead Auditor in accordance with ISO 14001:2015 & ISO 45001:2018 certified by NBQP and QMS Lead Auditor in accordance with ISO 9001:2015 certified by IRCA on 20 March 2021 (Organized by Dr. Bhaskar Das, Associate Professor, SCE, VIT, Vellore).

Delivered lecture on 'Geo-dynamics and Seismology' by Dr. V. Srinivasan, Assistant Professor, Department of Civil Engineering, Visvesvaraya National Institute of Technology, Nagpur on 20 March 2021 (Organized by Dr. M. Muthu Kumar, Head and Associate Professor, and Mr. M. Hareesh, Assistant Professor, SCE, VIT, Vellore).

Delivered lecture on 'Scientific approaches for Artificial Recharge and Water Conservation practices in India' by Dr. K. Raja Rajan, Scientist - B, Central Ground Water Board, South Eastern Coastal Region, Besant Nagar, Chennai on 22 March 2021 (Organized by Dr. Dr. S. Parimalarenganayaki, Associate Professor, SCE, VIT, Vellore).

Delivered lecture on 'Concrete on Nuclear Structures' by Mr. E. Ramkumar, Sr. Engineering Manager, L & T Construction Ltd., Chennai, on 24 March 2021 (Organized by Dr. A. Sofi, Associate Professor, SCE, VIT, Vellore).

Delivered lecture on 'Assessment of reservoir sedimentation using satellite imageries' by Dr. V. Jeyakanthan, Scientist-E, National Institute of Hydrology – Kakinada on 24 March 2021 (Organized by Dr. M. Uma Shankar, Associate Professor, SCE, VIT, Vellore).

Delivered lecture on 'Geospatial technology for Hydrological study' by Dr. P. Manjushree, Head Special User Flood and landslide monitoring division National Remote Sensing Centre (NRSC)- ISRO Hyderabad on 31 March 2021 (Organized by Dr. M. Uma Shankar, Associate Professor, SCE, VIT, Vellore).

Delivered lecture on 'Tender – Quantity Estimation' by Mr. B. Dinesh Kumar, Engineering Manager, L & T Construction Ltd., Chennai, on 31 March 2021 (Organized by Dr. A. Sofi, and Dr. T. Shanmugapriya, Associate Professor, SCE, VIT, Vellore).

### Memorandum of Understanding (MoU)

We, School of Civil Engineering (SCE), Vellore Institute of Technology, have signed Memorandum of Understanding (MoU) with National Highways Authority of India (NHAI). Following the MoU, our M.Tech - Construction Technology and Management student Ms. Shimpi Dimple Umakant (19MCT0001) has successfully completed two months paid internship in Six laning of Krishnagiri-Walajapet section (NH-48) on 3 February 2021.

- Mathew A. T., Saravanakumar M. P. (2021). Removal of Bisphenol A and Methylene Blue by  $\alpha$ -MnO<sub>2</sub> Nanorods: impact of ultrasonication, mechanism, isotherm, and kinetic models, *ASCE, Journal of Hazardous, Toxic, and Radioactive Waste*, ([https://doi.org/10.1061/\(ASCE\)HZ.2153-5515.0000600](https://doi.org/10.1061/(ASCE)HZ.2153-5515.0000600)).
- Prasanna Venkatesan, R., Bhapkar, S. (2021). A study on factors affecting the manual material handling capacity of Indian male construction workers, *Journal of The Institution of Engineers (India): Series A*, (<https://doi.org/10.1007/s40030-021-00519-y>).
- Jessieleena A. A., M Priyanka, M. P. Sarvanakumar (2021). Comparative study of Fenton, Fe<sup>2+</sup>/NaOCl and Fe<sup>2+</sup>/(NH<sub>4</sub>)<sub>2</sub>S<sub>2</sub>O<sub>8</sub> on tannery sludge dewaterability, degradability of organics and leachability of chromium, *Journal of Hazardous Materials*, 402 (15), 123495.
- Ajeesh S. S., Arul Jayachandran, S. (2021). Spline finite strip analysis of thin-walled flexural members subjected to general loading with intermediate restraints, *Thin-walled structures*, 158, 107171.
- Sangita Ghatge Goel, Shashank Somwanshi, Sanket Mankar, Srimuruganandam B., Rajesh Gupta (2021). Characteristics of indoor air pollutants and estimation of their exposure dose, *Air Quality, Atmosphere & Health*, (<https://doi.org/10.1007/s11869-021-00996-x>).
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- Mohamed M. Mohamed, S. Parimalarenganayaki, Qasim Khan, Ahmed Murad (2021). Review on the use of environmental isotopes for groundwater recharge and evaporation studies in the GCC countries, *Groundwater for Sustainable Development*, 12, 100546.
- Shishodiya Ghanshyam Singh, Vasantha Kumar, S. (2021). Dealing with multicollinearity problem in analysis of side friction characteristics under urban heterogeneous traffic conditions, *Arabian Journal of Science and Engineering*, (<https://doi.org/10.1007/s13369-020-05213-y>).
- Sankar, R., Varsha, A., Sivasubramanian, V. and Ranjitha, J. (2021). Electrocoagulation technique for cephalothin sodium removal with effective sludge management, *Chem. Engg. Technology*. (<https://doi.org/10.1002/ceat.202000464>).
- Rahman, K., Menon, U., Sivasubramanian, V., Ranjitha, J. (2021). Removal of cadmium by heavy metal-resistant bacteria isolated from Hussain Sagar Lake—Hyderabad, *Biomass Conversion and Biorefinery*, 1-11.
- Kakria, K. and Priya, S. (2021). Use of Non-Metallic powder reclaimed from waste printed circuit boards in rigid concrete pavement. *IOP Conference Series: Materials Science and Engineering*, 1075, 1, 012032.
- Satapathy, A., Dhale, Y., Patnaik, S., Meena, T. (2021). Case study on cracks and its paraphernalia. *Materials Today: Proceedings* (<https://doi.org/10.1016/j.matpr.2020.12.1078>).
- Teja, K. V., & Meena, T. (2021). Compressive Strength of TBC at elevated temperatures with different cooling regimes. *Lecture Notes in Civil Engineering - Advances in Construction Materials and Structures* (Springer), 111, 227-239.
- S. Thirumalini, Shanmugapriya, Atchaya (2021). Experimental and numerical investigation of short GFRP-reinforced steel tubular short columns. *Materials Today: Proceedings*, (<https://doi.org/10.1016/j.matpr.2020.11.103>).

- Umamaheswari J., Shanthakumar S (2021). Paddy-soaked rice mill wastewater treatment by phycoremediation and feasibility study on use of algal biomass as biofertilizer, *Journal of Chemical Technology and Biotechnology*, 96, 394-403.
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- Thakur A. K., Ojha C. S. P., Singh V. P., Rai C. B., Kashyap V. (2021). Evaluating kinetic and probabilistic approaches for describing pathogen variation during riverbank filtration, *ASCE, Journal of Hazardous, Toxic, and Radioactive Waste*, 25 (1), 04020065 ([https://doi.org/10.1061/\(ASCE\)HZ.2153-5515.0000562](https://doi.org/10.1061/(ASCE)HZ.2153-5515.0000562)).
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- Alexander, S., Manohar, S. J., John, S. S., Teja, K. V., Meena, T. (2021). Mechanical and micro-structural properties of perlite powder incorporated SCC. *Materials Today: Proceedings* (<https://doi.org/10.1016/j.matpr.2020.12.776>).
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- Aw Jia Hao, Mohammed Parvez Anwar, Wael Elleithy, Jaganathan Jayaprakash, Yeong Tuck Wai, Yap Kian Lim (2021). A review of seismic vulnerability and rehabilitation of reinforced concrete structures. *Lecture Notes in Civil Engineering - Advances in Construction Materials and Structures (Springer)*, 111, 47-59.

## Patent

The patent entitled 'Aloe Vera on Lime Mortars' by Dr. R. Ravi, PhD Graduate from SCE, Dr. S. Thirumalini, Associate Professor, and Prof. Dr. S. K. Sekar, Director of Estates & SCE, VIT has been granted by Indian Patent Office. The Patent Number is 361574.



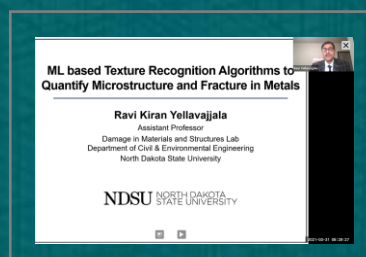
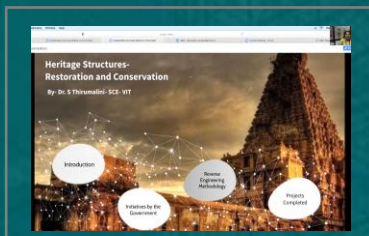
Dr. B. Srimuruganandam, Associate Professor, SCE, VIT, Vellore delivered a technical lecture entitled 'Air Quality Management through Receptor Modelling', in a AICTE sponsored two-week online FDP on Advanced Computing in Civil Engineering (ACCE) Series-2: 'Advanced Numerical Modelling in Geotechnical, Hydraulic and Environmental Quality Applications' organized by Department of Civil Engineering, VNR Vignana Jyothi Institute of Engineering and Technology, Hyderabad, during 25 February 2021.

Dr. S. Vasantha Kumar, Associate Professor, SCE, VIT, Vellore delivered a guest lecture on An Introduction to Terrestrial LIDAR in a National Level Inter College Symposium on "Geohorizon" organized by Society of Geoinformatics Engineering, Institute of Remote Sensing, Anna university, Chennai, during 20 March 2021.

Photo Gallery - Webinar Series  
Vellore Institute of Technology  
& North Dakota State University



Sl. No.	Research area	Discipline
1.	Traffic flow prediction at midblocks and intersections	Traffic and Pavement Engineering
2.	Delay and queue length estimation at intersections	
3.	Impact of side friction on speed of vehicles	
4.	Study of pedestrian level of service (PLOS)	
5.	Accident analysis	Application of Geomatics in urban planning
6.	Pavement distress evaluation using LIDAR	
7.	Analysis of urban sprawl, land surface temperature and urban heat island	
8.	Urban green space extraction	



## Editorial Team

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