



2-Day International Workshop on Advances in Technologies for Low Carbon & Lean Construction In-Person Sessions at ICSR Auditorium, IIT Madras December 10-11, 2021 (Friday-Saturday)

Why this workshop? The workshop is aimed to strengthen the industry-academia-government nexus targeted to address the challenges of the circular economy in the construction sector. Post COVID outbreak, we started organizing and attending various programs in online mode. However, one cannot ignore the benefits of offline or physical meetings - such as focussed attention and personal interactions. Now, we are resuming physical programs with this 2-day workshop covering both concrete materials and construction technology aspects. At IIT Madras, we started a new Research Initiative on Technologies for Low-carbon Lean Construction (TLC2), which focusses on developing and implementing technologies (1) To utilize waste materials from construction, demolition, power, steel, and agricultural industries and thereby enhance the durability and sustainability of concrete structures, (2) To minimize waste of materials, money, and time during the construction processes using lean principles and digital/robotic/3D printing tools, and (3) To develop policies to enable the BEST and NEXT practices in the Indian construction industry. These research initiatives are geared towards the eventual goal of minimising the carbon footprint of the concrete construction industry and enhancing circular economy of construction sector. Please visit our website for more details on TLC2 (<https://civil.iitm.ac.in/pcoe/tlc/>).

Speakers



Dr Surendra P Shah
Northwestern University, USA
& IIT Madras
SCMs



Dr Pranroy Suraneni
University of Miami, USA
SCMs



Dr Andreas Leemann
EMPA, Switzerland
C&D Waste Utilization



Dr Warda Ashraf
University of Texas at
Arlington, USA
SCMs



Dr Liberato Ferrara
Politecnico di Milano, Italy
3D Printing



Dr Shashank Bishnoi
IIT Delhi
SCMs



Dr K.V.L. Subramaniam
IIT Hyderabad
3D Printing



Dr C S Poon
Hong Kong Polytechnic
University
C&D waste utilization



Dr -Ing. Viktor Mechtcherine
TU Dresden, Germany
3D printing



Dr Dru Crawley
Bentley Systems, USA
Digital Twins



Dr John E Taylor
Georgia Tech University, USA
Digital Twins



Mr Adithya Jain
Tvasta Construction, India
3D printing



Dr Kalyan Vaidyanathan
Bentley Systems, India
Lean Construction

Registration:

For details of registration, please click [here](#).





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Final Schedule

Day 1 - December 10, 2021 (Friday)

Theme: C&D Waste Utilization (Chair: Prof. Surender Singh)	
9:30 – 9:45 am	Overview of TLC2 at IIT Madras: Prof. Manu Santhanam (IIT Madras)
9:45 – 9:55 am	TLC2 Focus Area 1: Prof. Ravindra Gettu (IIT Madras)
9:55 – 10:05 am	TLC2 Focus Area 2: Prof. Benny Raphael (IIT Madras)
10:05 – 10:15 am	TLC2 Focus Area 3: Prof. Ashwin Mahalingam (IIT Madras)
10:15 – 10:30 am	Q & A
10:30 – 11:00 am	Recycling of Cement Paste Powder for Value Added Products by Wet Carbonation (Prof. CS Poon, Hong Kong Polytechnic University)
11:00 – 11:30 am	Tea/Coffee Break
11:30 – 12:10 pm	C&D Waste Utilization (Dr. Andreas Leemann, EMPA)
12:10 – 12:45 pm	Low Carbon Construction (Prof. Surendra P Shah, Northwestern University)
12:45 – 2:00 pm	Lunch Break
Theme: Supplementary Cementitious Materials (Chair: Prof. Piyush Chaunsali)	
2:00 – 2:45 pm	SCMs Reactivity: From Model Systems to Concrete Durability (Prof. Prannoy Suraneni, University of Miami)
2:45 – 3:15 pm	Controlling Interaction between CO ₂ and Cementitious Materials using Biomimetic Molecules (Prof. Warda Ashraf, Univ. of Texas at Arlington)
3:15 – 3:45 pm	Tea/Coffee Break
3:45 – 4:30 pm	Hydration and microstructural development of Limestone Calcined Clay Cement (Prof. Shashank Bishnoi, IIT Delhi)
4:30 – 5:30 pm	Discussion: Moderated by Prof. Piyush Chaunsali and Prof. Surender Singh (IIT Madras)

Day 2 - December 11, 2021 (Saturday)

Theme: 3D Printing of Concrete (Chair: Prof. Manu Santhanam)	
9:30 – 10:00 am	Integrating Reinforcement in Digital Fabrication with Concrete (Prof. Viktor Mechtcherine, TU Dresden)
10:00 – 10:30 am	Early Age Tensile and Shear Fracture Behaviour of 3D Printable Mixes: An Experimental Methodology (Prof. Liberato Ferrara, Politecnico di Milano)
10:30 – 11:00 am	Tea Break
11:00 – 11:45 pm	3D Concrete Printing with Alkali-Activated Binder (Prof. Kolluru Subramaniam, IIT Hyderabad)
11:45 – 12:15 pm	3D Printing of Concrete (Mr. Adithya Jain, Tvasta Construction)
12:15 – 12:45 pm	Discussion: Moderated by Prof Manu Santhanam and Prof. Benny Raphael (IIT Madras)
12:45 – 2:00 pm	Lunch Break
Theme: Lean Construction (Chair: Prof. Ashwin Mahalingam)	
2:00 – 2:30 pm	Going Digital: Modeling Infrastructure Resilience for Sustainable Urban Development (Prof. Dru Crawley, Bentley Systems)
2:30 – 3:10 pm	Smart City Digital Twins: Towards More Sustainable, Resilient and Livable Cities (Prof. John E. Taylor, Georgia Tech)
3:10 – 3:30 pm	Discussion: Moderated by Prof. Nikhil Bugalia (IIT Madras)
3:30 – 4:00 pm	Tea Break
4:00 – 4:30 pm	Lecture by Dr. Kalyan Vaidyanathan (Bentley Systems, India)
4:30 – 5:00 pm	Lecture by Mr. Abhijeet Gawde (Godrej Construction, India)
5:00 – 5:30 pm	Discussion: Moderated by Prof. Koshy Varghese (IIT Madras)