SCHOOL OF INFRASTRUCTURE

DEPARTMENT OF CIVIL ENGINEERING

Ref.:1306 / Dean(SoI) /1025 **Date: 29.10.2025**

Guest Lecture Report

Date & Time	Speaker	Title	Venue
24.10.2025 10.00 a.m. to 11.30 a.m.	Mr. Thirumalai Rajan A.,Senior Project officer, BTCM Division, Dept. of Civil Engg. IIT Madras	Lean tools and their Application in Construction	Seminar Hall, Dept. of Civil Engineering, BSACIST

I. PREAMBLE:

As part of the B.Tech (Civil Engineering) curriculum, a guest lecture on “Lean tools and their application in construction” was arranged in the course Lean Construction [CEDX 19] for VII semester B.Tech Civil Engineering students on 24th October 2025, from 10:00 a.m. to 11:30 a.m., in the Seminar Hall, Department of Civil Engineering. The programme was supported by the Institution’s Innovation Council, B. S. Abdur Rahman Crescent Institute of Science and Technology.

Technical Talk Brochure

II. ABOUT THE SPEAKER

Mr. Thirumalai Rajan A. is a lean construction consultant and trainer with over a decade of professional experience in implementing Lean principles within the construction industry. He has collaborated extensively with contracting organizations and project owners to drive process improvement, eliminate waste, and enhance project performance through lean methodologies. With a strong commitment to promoting lean thinking in construction, Mr. Thirumalai Rajan has designed and conducted numerous training programs and workshops in association with the Institute for Lean Construction Excellence (ILCE). His expertise lies in integrating Lean practices with real-world construction processes to achieve efficiency, quality, and value enhancement. In addition to his consultancy and training work, he contributes to academia as a researcher and co-tutor of lean construction at IIT Madras, bridging the gap between industry practice and academic knowledge.

III. ABOUT THE SESSION

The guest lecture on "Lean Tools and their Application in Construction" was organized to provide students with valuable insights into Lean Construction concepts, principles, and their practical implementation in the construction industry.

The session commenced with a cordial welcome address and introduction of the guest speaker by Dr. M. S. Haji Sheik Mohammed, Professor and Dean, School of Infrastructure, who emphasized the growing importance of Lean Construction in today's dynamic construction environment. He highlighted how Lean principles help in improving project efficiency, minimizing waste, and enhancing value delivery across all phases of a project.

The lecture was delivered by Mr. Thirumalai Rajan A., Lean Construction Consultant and Trainer, who began by introducing himself, outlining his professional experience. He initiated the session with an overview of the common causes of delays in construction projects and discussed the significance of effective planning at various levels- master planning, macro planning, and micro planning. The discussion further covered the key differences between planning and execution, and how inconsistencies between the two often lead to inefficiencies on construction sites.

The speaker elaborated on the tools used for planning in conventional construction practices and critically examined the limitations of traditional project management approaches. This provided the foundation for introducing Lean Construction, its core principles, and its relevance in addressing these challenges. He explained the key concepts of Lean, such as value identification, waste elimination, and the seven types of waste commonly found in construction processes. He discussed several Lean tools and techniques, including Work Sampling, its methodology, steps, and the concept of sampling bias. He also introduced Tour-Based Work Sampling as a method for improving observation accuracy and productivity assessment on construction sites.

A detailed explanation of Value Stream Mapping (VSM) followed, where the process of mapping and analyzing the flow of materials and information in a project was illustrated, along with the benefits of implementing VSM to identify bottlenecks and streamline operations. The lecture also covered 5S methodology, emphasizing workplace organization and standardization as a foundation for continuous improvement.

To demonstrate the real-world impact of Lean practices, the speaker presented a case study of a hospital construction project where Lean implementation led to measurable improvements in efficiency and resource utilization. The discussion extended to advanced Lean management tools such as the Last Planner System (LPS), Earned Value Management (EVM), Weekly Work Planning (WWP), Percent Plan Complete (PPC) analysis, Daily Huddle Meetings, Big Room Collaboration, and Root Cause Analysis (RCA). Each concept was explained with examples that illustrated how structured communication, transparency, and collaborative planning drive better project outcomes.

The lecture concluded with an engaging interactive session, where students raised questions on practical challenges in implementing Lean Construction, strategies for waste reduction, and integration of Lean with digital project management tools. Mr. Thirumalai Rajan responded with detailed insights and shared his experiences from industry projects, encouraging students to adopt Lean thinking in their future careers.

The session ended with a vote of thanks proposed by Dr. M. Hazeen Fathima, Assistant professor who expressed her sincere appreciation to the speaker for his informative and inspiring presentation. She acknowledged that the session had effectively bridged the gap between academic learning and professional practice, enhancing the students' understanding of Lean methodologies and their significance in modern construction management.

Photos during lecture session

IV. DETAILS OF PARTICIPANTS:

The guest lecture was attended by the students of V and VII Semester B.Tech Civil Engineering and I Semester M.Tech Construction Engineering and Project Management. The following are details of student participation:

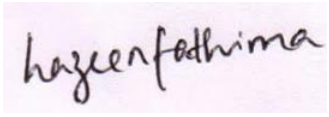
Sl. No.	Name	RRN
1.	220011601001	AADAM GANI J
2.	220011601003	AFSAL AHAMED
3.	220011601008	ANBUSELVAN R
4.	220011601009	AREEB ROHAN K
5.	220011601015	MOHAMED JAFRON S
6.	220011601018	MOHAMMED RAIHAAN R
7.	220011602001	DEV L

8.	220011602002	ISHAK AHAMED A
9.	220011602003	MD ABUBAKAR S
10.	220011602005	MOHAMED ABU RIYAS S
11.	220011602006	MOHAMED ANAS S
12.	220011602009	MOHAMED FAIZAL
13.	220011602010	MOHAMED KALIFA K
14.	220011602011	MOHAMED SAMEER KM
15.	220011602012	MOHAMED UVAIS M
16.	220011602013	SHAFI AHMED S
17.	220011602014	DANIEL SANTHOSH J
18.	220011602015	RAASHID MOULANA S
19.	220011603001	SHAHEED AFRIDI
20.	230011601001	ABDUL AADHIL M
21.	230011601003	AKRAM JAWEETH A
22.	230011601004	ARAVINTHAN THEIVARAJ
23.	230011601005	ARSHATH IBRAHIM S
24.	230011601012	MOHAMED YASIN S
25.	230011601014	MOHAMMED FAAIZ K
26.	230011601017	MOHAMMED SIDDIQ S
27.	230011601020	SAAD SAYEED SHAIRKHAN
28.	230011601021	SURYA MOORTHY M
29.	230011601022	SYED AHAMED K M
30.	230011601024	THOKCHOM WANGLEN MOILANGCHA
31.	230011601025	THYCUS MARIO VALANTINE D
32.	230011601026	YUKESH G
33.	230011602002	ESAKKI RAJESH R
34.	230011602003	FASLAN AHAMED A
35.	230011602005	MOHAMED JASIM H
36.	230011602008	RITHVIK.K
37.	230011602009	MUHAMADHU SULTHAN S
38.	230011602010	DILEEP KUMAR S
39.	252202601001	AASAD M S

40.	252202601003	BHUPATHIRAJAN A P
41.	252202601004	DEEPARATCHAGAN R
42.	252202601005	LEELA.M
43.	252202601007	SANMATI K
44.	252202601008	PRAVEEN KHANNA
45.	252202601019	NIMAL H P

IV. OUTCOMES:

- The students gained a comprehensive understanding of the fundamentals and principles of Lean Construction and its significance in improving efficiency and reducing waste in construction projects.
- The students learned about key Lean tools and techniques, including Work Sampling, Value Stream Mapping, 5S, Last Planner System, Earned Value Management, and Root Cause Analysis, and their practical applications in construction management.
- The lecture enhanced students' understanding of traditional planning limitations and how Lean methodologies provide structured, collaborative, and value-driven alternatives.
- The participants developed awareness of Lean project monitoring practices, such as PPC tracking, daily huddle meetings, and Big Room collaboration that promote teamwork and continuous improvement.
- The real-world case study presented enabled students to connect theoretical concepts with practical outcomes, demonstrating how Lean implementation can lead to measurable improvements in project performance.
- Overall, the session equipped students with insights into the importance of Lean thinking in modern construction management, preparing them to apply these principles in their future professional endeavors.



Dr. M. Hazeen Fathima
Assistant Professor

Dr. M.S. Haji Sheik Mohammed
Dean (School of Infrastructure)