

SCHOOL OF INFRASTRUCTURE

DEPARTMENT OF CIVIL ENGINEERING

Ref. :1111 / Dean(Sol) / 0425

Date: 03.04.2025

Technical Talk on
Prestressed Concrete Structures : A Practical Approach

Date: 27.03.2025

Time: 09.30 a.m. to 10.45 a.m.

I. PREAMBLE:

As part of the M.Tech (Structural Engineering) & B. Tech (Civil Engineering) curriculum of the Department of Civil Engineering, B. S. Abdur Rahman Crescent Institute of Science and Technology, a technical talk (hybrid mode) was arranged for the course Prestressed Concrete Structures [CEEY205 for II sem, M.Tech - Structural Engineering and CEDX07 for VI sem, B.Tech - Civil Engineering on 27th March 2025 from 09.30 a.m. to 10.45 a.m. through Google Meet online platform: <https://meet.google.com/buc-qqte-csr>

II. ABOUT THE SPEAKER

Dr. V. Sathish Kumar is an Assistant Professor in the Department of Civil Engineering, National Institute of Technology Puducherry, Karaikal (An Institution of National Importance, Ministry of Education). He completed his B.E. in Civil Engineering and M.E. in Construction Engineering & Management from Anna University. He holds a Ph.D. from the National Institute of Technology Calicut. In 2023, Dr. Sathish was awarded as one of the prestigious awardees of the Ramanujan Fellowship by the ANRF. He also served as a Postdoctoral Research Scientist at the University of Split, Croatia, from 2021 to 2023. During his tenure, he contributed significantly to the scientific project, Development of drainage systems on horizontal surfaces from permeable concrete, which was financed by EU funds. His research has garnered 448 citations on Google Scholar, and he holds an h index of 13. Additionally, he has three patents granted. His research focuses on innovative and sustainable solutions in the field of concrete technology. His primary areas of interest include sustainable concrete, geopolymers concrete, permeable concrete, fiber-reinforced

concrete, repair and rehabilitation of structures, and durability of concrete structures. Dr. Sathish is an active member of several professional societies, including the American Society of Civil Engineers (ASCE), the Institution of Engineers, the Institute of Concrete Technology (UK), the Indian Concrete Institute (ICI), and the Institution of Civil Engineers (India).



The brochure features the Crescent Institute of Science & Technology logo at the top. The title "TECHNICAL TALK" is prominently displayed in bold black letters. Below it, the topic "Prestressed Concrete Structures - A Practical Approach" is written in red, followed by a subtitle in parentheses: "(As a part of the courses CEEY205 & CEDX07)". The date and time "27 March, 2025 @ 09.30 a.m." are listed in purple, accompanied by a calendar icon. The location "Seminar Hall, Dept. of Civil Engg." is in pink. A circular portrait of Dr. V. Sathish Kumar is on the left. To the right of the portrait is a blue "JOIN NOW" button and a Google Meet link: <https://meet.google.com/buc-qqte-csr>. Below the link, the speaker's name "Dr. V. Sathish Kumar" is in blue, followed by his title and affiliation in black: "Assistant Professor in Civil Engineering, National Institute of Technology Puducherry, Karaikal (An Institution of National Importance, Ministry of Education)". The background of the brochure has a blue and white geometric design.

Technical Talk Brochure

III. ABOUT THE SESSION:

Mr. A. Manivannan, Assistant Professor, Department of Civil Engineering, extended a warm welcome to the guests & participants and introduced the guest speaker. The technical talk aimed to provide students a comprehensive understanding of prestressed concrete, its fundamental principles, practical applications, and challenges.

Dr. Sathish started the session by explaining the fundamental principles of prestressing, emphasizing the need for prestressed concrete in modern construction.

He discussed the concept of prestressing and how it enhances the load-carrying capacity of concrete structures, along with the differences between prestressed and reinforced concrete structures. He elaborated on the two types of prestressing techniques: pre-tensioning and post-tensioning. To enhance understanding, he demonstrated videos showcasing the processes of making pre-tensioned and post-tensioned concrete elements, providing a visual representation of the techniques involved. The discussion then moved on to the various losses encountered in prestressed concrete, which impact its effectiveness. Key losses covered included elastic shortening of concrete, creep and shrinkage losses, relaxation of prestressing steel, anchorage slip, and friction losses. Dr. Sathish provided analytical methods to estimate these losses and strategies to minimize their effects in real-world applications.

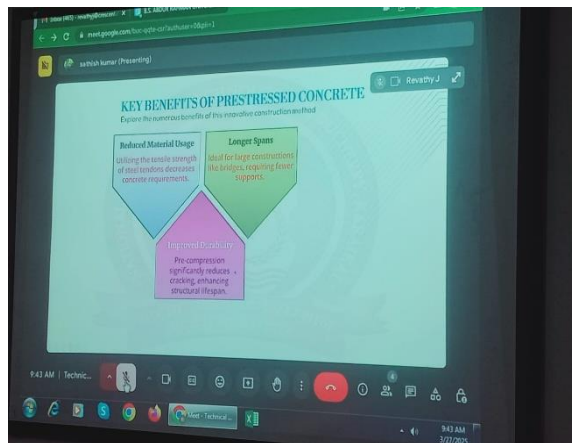
The lecture also included practical insights into prestressed concrete, covering design considerations for prestressed concrete beams and slabs. Real-life case studies of bridges utilizing prestressed concrete were discussed to provide students with practical exposure. He also highlighted the challenges faced in implementing prestressed structures in construction projects and introduced advanced techniques and innovations in prestressing for improved durability and sustainability.

Following the lecture, an interactive Q&A session allowed students to engage in discussions on practical difficulties and emerging trends in prestressed concrete. Dr. Sathish provided insightful responses, sharing his expertise and experiences from the field. The session concluded with a vote of thanks by Mr. A. Manivannan.

Furthermore, Dr. J. Revathy, Professor of Civil Engineering, expressed her appreciation to Dr. Sathish for his valuable time and knowledge-sharing. As the course teacher for CEEY205, she informed the students that this technical talk was specifically arranged to supplement the course on Prestressed Concrete Structures. She emphasized that the session provided students with valuable insights into the challenges in prestressed concrete and supported their understanding of fundamental principles covered in Module I of their courses, CEEY205 and CEDX07.



Introduction of Guest by Mr. A. Manivannan,
 Assistant Professor in Civil Engineering



Screenshot of the Technical Talk by
 Dr. V. Sathish Kumar, Assistant Professor,
 Department of Civil Engineering,
 NIT (Puducherry)



Discussion with Dr. V. Sathish Kumar

IV. DETAILS OF PARTICIPANTS:

The following were the participants of I & II-year M. Tech (Structural Engineering) & III year, B.Tech (Civil Engineering) who attended the technical talk:

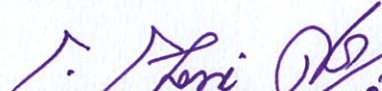
Sl. No.	Name	RRN
1.	Derrick Shalvin M	241202601001
2.	Giri Ravendar M	241202601002
3.	Gokul Prasad N	241202601003

Sl. No.	Name	RRN
4.	Hudson Gnanadurai C	241202601004
5.	Jessica Jenny James	241202601005
6.	Lavanya D	241202601006
7.	C G Lohith	241202601007
8.	Mohamed Zuhairudeen A	241202601008
9.	Muhammad Ibrahim L	231202601003
10.	A. Hrithik Ramkumar	231202601002
11.	M.Charumathi	231202601001
12.	Praveen J	231202601007
13.	Naveen E	231202601004
14.	Shaik Davood	231202601006
15.	Anandha Kumar. R	220011601007
16.	Dheepak kumaar. S	220011601011
17.	Pradeep Damodharan	220011601019
18.	Anbuselvan. R	220011601008
19.	Dev. L	220011602001
20.	Halith Isha. C	220011601013

V. OUTCOME:

- ❖ Students gained insights into fundamental principles, design methodologies, and real-world applications of prestressed concrete.
- ❖ Students will develop the skills to apply prestressing techniques in construction projects, with a focus on durability and sustainability.
- ❖ Students will enhance their problem-solving abilities by engaging in discussions on practical challenges and emerging trends in prestressed concrete.


Dr. J. Revathy
 Professor


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

DEAN
 School of Infrastructure
 B.S. Abdur Rahman
Crescent
 Institute of Science & Technology
 Vandalur, Chennai-600 048.