RAMCO INSTITUTE OF TECHNOLOGY

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ID 011001637242

08.02.2023

Appreciation Letter

We appreciate **Dr.Giovanni Di Luzio, Professor, Politecnico di Milano, Italy** for his exemplary efforts in the topic delivered **"Hygro-Thermo-Chemical modelling of cementitious material: a multi-scale approach"** on 03.02.2023, IST 3.00 PM [Italy Time 10.30 AM] during the **Extramural Lecture Series (ELS)** organized by Department of Civil & Mechanical Engineering, Ramco Institute of Technology, Tamil Nadu, India.

The feedbacks provided were above the Excellency. We would be glad if you contribute more in future and make us grow. We also wish you to grow more and get success in all your future endeavors.

HoD/Civil **HoD/Mech.** **Vice Principal** **Principal**

North Venganallur, Ayyanarkovil Road, Rajapalayam - 626 117.
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RAMCO INSTITUTE OF TECHNOLOGY

RAJAPALAYAM

Department of Civil & Mechanical Engineering

Extramural Lecture Series (ELS) – INT0010

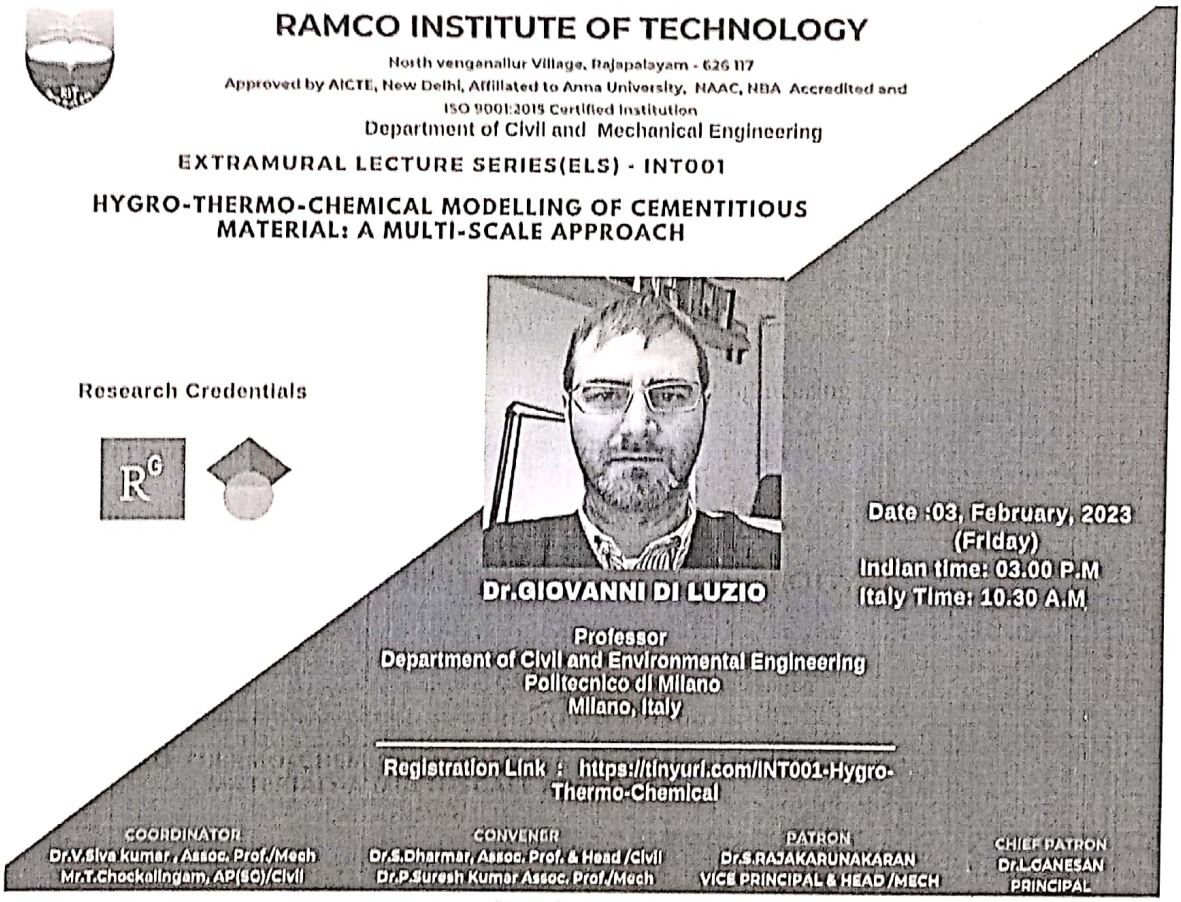
Resource Person : **Dr.Giovanni Di Luzio**
Professor
Department of Civil and Environmental Engineering (DICA)
Politecnico di Milano
Piazza Leonardo da Vinci n. 32
20133 Milano, Italy

Date & Time : 03.02.2023 & 3 PM

Moderator : Mr.T.Chockalingam, AP(SG)/Civil Engineering

No. of Participants : 56

Google meet link : https://meet.google.com/hux-wzps-ykb



Brochure

The webinar was started by **03:00 PM IST** (Italy time 10:30 AM). Mr.T.Chockalingam, Assistant Professor (Senior Grade), Department of Civil Engineering welcomed the gathering and introduced the chief guest.

Brief Introduction - Resource Person

Giovanni Di Luzio received his MS Degree in Civil Engineering in October 1998 from Politecnico di Milano. After one year spent in the Italian military corps of engineers, in 2002 Di Luzio obtained his Ph.D. in Structural Engineering. In 2003 he had a post-doctoral research fellowship in the research group of Prof. Cedolin and he joined the Department of Structural Engineering at Politecnico di Milano in 2006 as Assistant Professor. After obtaining the Italian national qualification as Associate Professor in January 2015, he joined the Department of Civil and Environmental Engineering as Associate Professor in 2016. Di Luzio have been teaching courses of structural design at the School of Architecture and Society and Civil Engineering of Politecnico di Milano since 2004. He obtained the Italian qualification as Full Professor in May 2019.

Di Luzio has been visiting researcher at Rensselaer Polytechnic Institute (Troy, USA) in 2006 and at Northwestern University (Evanston, USA) in 2000 and 2012. He is voting member of ACI technical committees: Committee 446 -- Fracture Mechanics of Concrete and Subcommittee 209-0D -- Numerical Methods and 3D Analyses. Member of ceb-fib TG4.5 - Time-dependent Behavior of Concrete. Di Luzio is a reviewer for journals published by ASCE, ELSEVIER, SPRINGER, KCI, JSCE, ICE and he was awarded as outstanding reviewer by many journals. He was speaker at numerous conferences and workshops in US, Europe and Asia. He is the author of more than 60 papers published in peer-reviewed international journals and international conference proceedings.

Di Luzio is a researcher, with more than twenty-year experience, in the field of computational and applied mechanics, in particular for concrete and reinforced concrete structures. His research topics includes: linear and nonlinear fracture mechanics, nonlinear constitutive modeling of quasi-brittle materials, mechanical behavior of concrete under variable hygro-thermal conditions, concrete creep and rate effect, moisture and heat transfer in porous materials, concrete-steel interface behavior, anchors in reinforced concrete structures, fiber-reinforced cementitious materials, thermally damaged concrete, and alkali-silica reaction in concrete. He has participated in many international and national research projects.

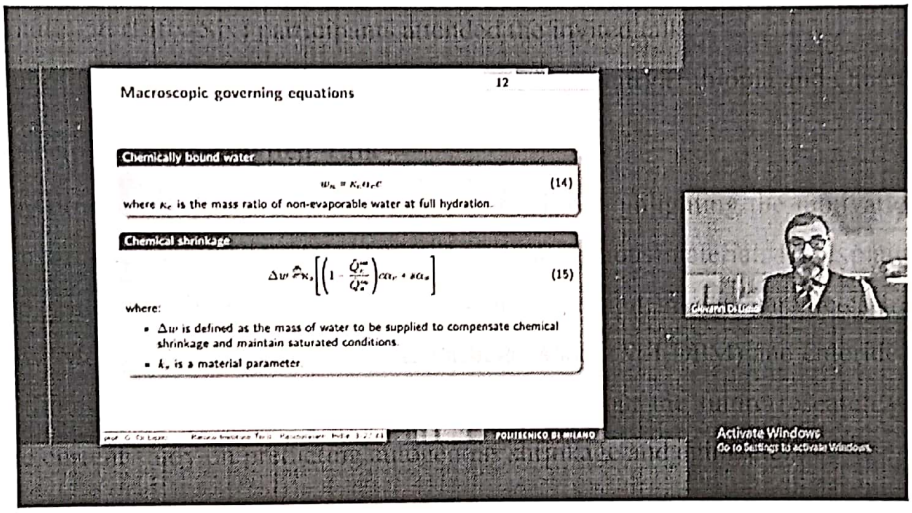
Participant Details

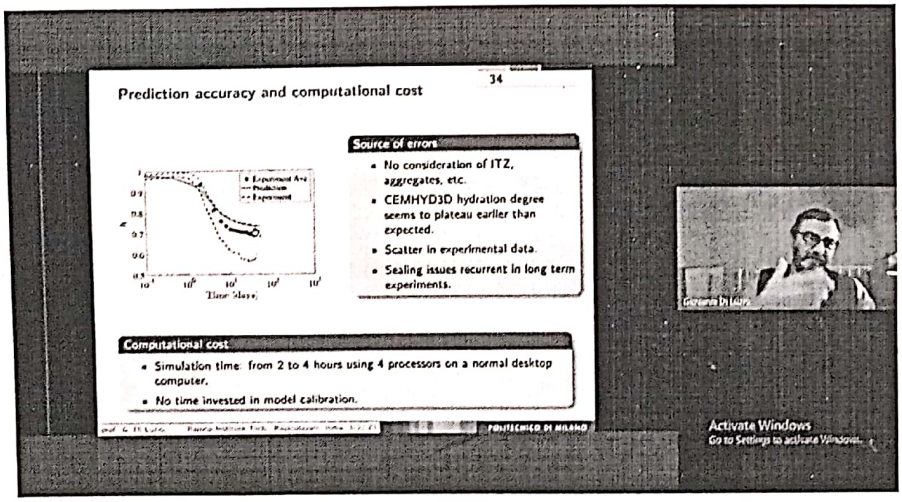
- Totally 56 (Fifty-Six) participants attended the invited talk
- Out of 56 participants, 3 participants outside the country (Ethiopia and Oman)

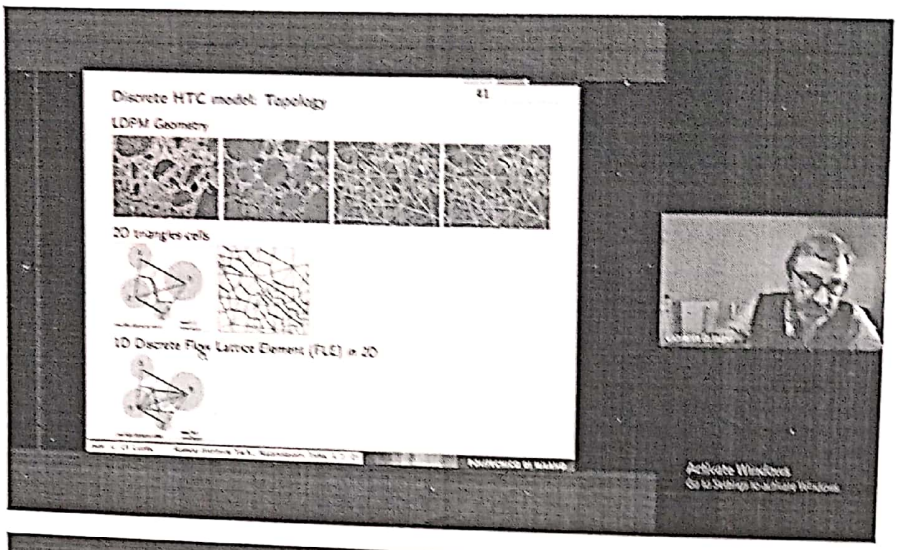
Detail Description of the Invited Talk

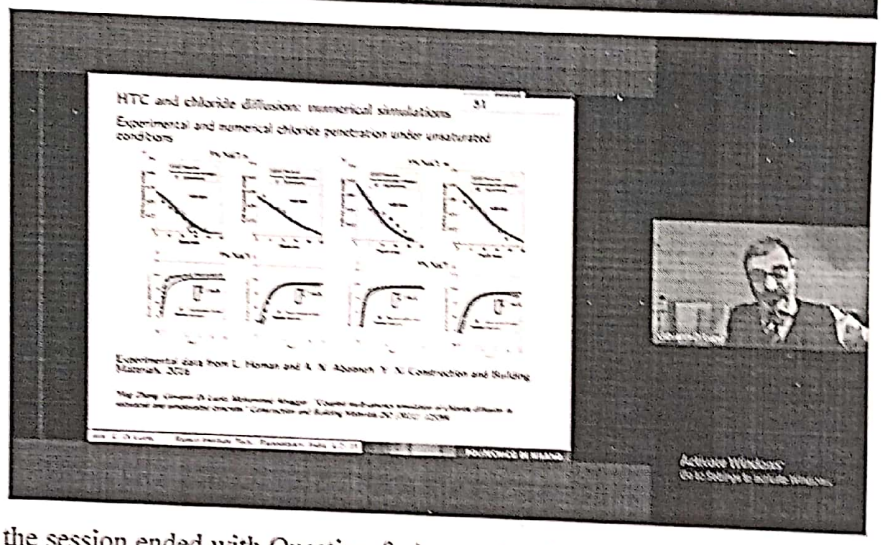
Dr.Giovanni Di Luzio started his presentation by highlighting the motivation for the work on hygro-thermal-chemical modelling of a cementitious material. He explained about the macro scale modelling approach, micro scale hydration model, parameter free model predictions, Multi-Physics Lattice Discrete Particle Model (M-LDPM) and chloride diffusion in cementitious materials in detail. He also explained about the future research work is to extend the current study on predicting autogenous shrinkage and aging etc.,

Screenshots:





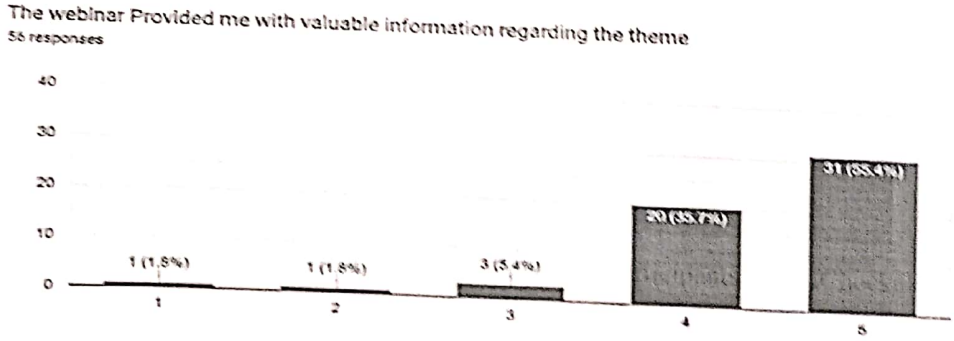




Finally, the session ended with Question & Answer by the participants. Mr.T.Chockalingam, AP(SG)/Civil Engineering proposed the vote of thanks.

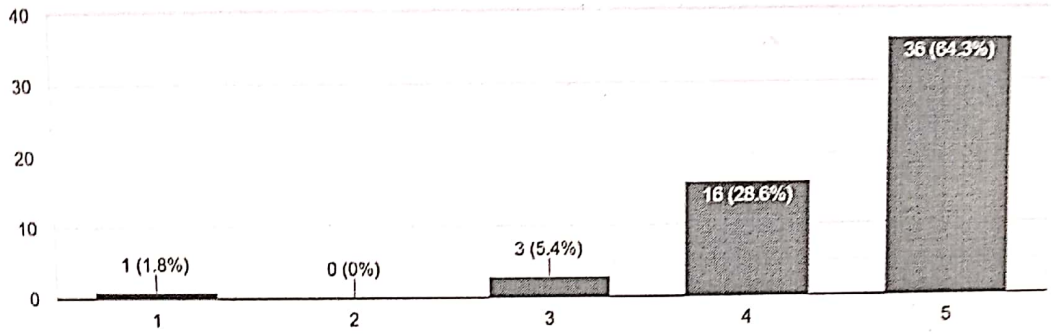
Feedback:

The session was informative for all the participants. Most of the participants congratulated the college for organizing this extramural lecture series and gave positive responses.

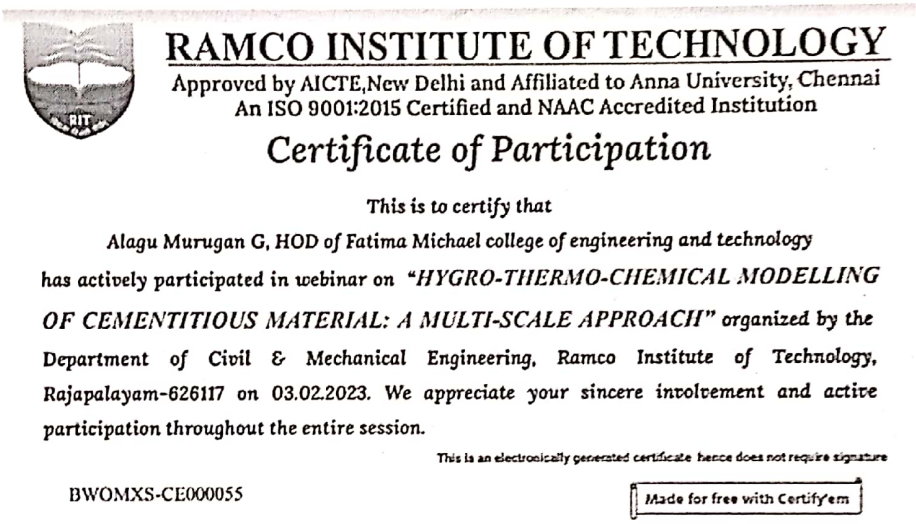


The content delivered by resource person was useful

56 responses



Sample Certificate:



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Certificate of Participation

This is to certify that

Alagu Murugan G, HOD of Fatima Michael college of engineering and technology has actively participated in webinar on "HYGRO-THERMO-CHEMICAL MODELLING OF CEMENTITIOUS MATERIAL: A MULTI-SCALE APPROACH" organized by the Department of Civil & Mechanical Engineering, Ramco Institute of Technology, Rajapalayam-626117 on 03.02.2023. We appreciate your sincere involvement and active participation throughout the entire session.

This is an electronically generated certificate hence does not require signature

BWOMXS-CE000055

Made for free with Certify'em

Acknowledgement:

We would like to express our sincere thanks and gratitude to our Management, Principal, Vice-Principal, Head of the Department of Civil and Mechanical engineering for providing permission to conduct this extramural lecture series.

Faculty Coordinator

HoD

Giovanni Di Luzio's short biography

Giovanni Di Luzio received his MS Degree in Civil Engineering in October 1998 from Politecnico di Milano. After one year spent in the Italian military corps of engineers, in 2002 Di Luzio obtained his Ph.D. in Structural Engineering. In 2003 he had a post-doctoral research fellowship in the research group of Prof. Cedolin and he joined the Department of Structural Engineering at Politecnico di Milano in 2006 as Assistant Professor. After obtaining the Italian national qualification as Associate Professor in January 2015, he joined the Department of Civil and Environmental Engineering as Associate Professor in 2016. Di Luzio have been teaching courses of structural design at the School of Architecture and Society and Civil Engineering of Politecnico di Milano since 2004. He obtained the Italian qualification as Full Professor in May 2019.

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List of selected publications

Z. P. Bažant and G. Di Luzio "**Nonlocal microplane model with strain-softening yield limits**", *International Journal of Solids and Structures*, 41/24-25 (2004), 7209–7240.

G. Di Luzio and Z. P. Bažant "**Spectral analysis of localization in nonlocal and over-nonlocal materials with softening plasticity or damage**", *International Journal of Solids and Structures*, 42/23 (2005), 6071-6100.

G. Di Luzio "**A symmetric over-nonlocal microplane model M4 for fracture in concrete**", *International Journal of Solids and Structures*, 44/13 (2007), 4418-4441.

G. Di Luzio "**Numerical model for time-dependent fracturing of concrete**", *Journal of Engineering Mechanics (ASCE)*, 135/7 (2009), 632-640.

G. Di Luzio and G. Cusatis "**Hygro-thermo-chemical modeling of high performance concrete. I: Theory**", *Cement and Concrete Composites*, 31/5 (2009), 301–308.

G. Di Luzio, G. Muciaccia and L. Biolzi "**Size effect in thermally damaged concrete**", *International Journal of Damage Mechanics*, 19/5 (2010), 631-656.

G. Di Luzio and G. Cusatis "**Solidification-Microprestress-Microplane (SMM) Theory for Concrete at Early Age. Theory, Validation and Application**" *International Journal of Solids and Structures*, 50 (2013), 957–975.

M. Alnaggar, G. Cusatis, and G. Di Luzio, "**Lattice Discrete Particle Modeling (LDPM) of Alkali Silica Reaction (ASR) Deterioration of Concrete Structures**" *Cement and Concrete Composites*, 41 (2013), 45-59.

G. Di Luzio, G. Cusatis. "**Cohesive crack analysis of size effect for samples with blunt notches and generalized size effect curve for quasi-brittle materials**" *Engineering Fracture Mechanics*, 204 (2018), 15-28.

M. Pathirage, D.P. Bentz, G. Di Luzio, E. Masoero, G. Cusatis. "**The ONIX model: a parameter-free multiscale framework for the prediction of self-desiccation in concrete**" *Cement and Concrete Composites*, 103 (2019), 36-48.

G. Di Luzio and L. Cedolin "**Concrete response under dynamic loading**", *Studies and researches*, 25 (2005), 155-176.

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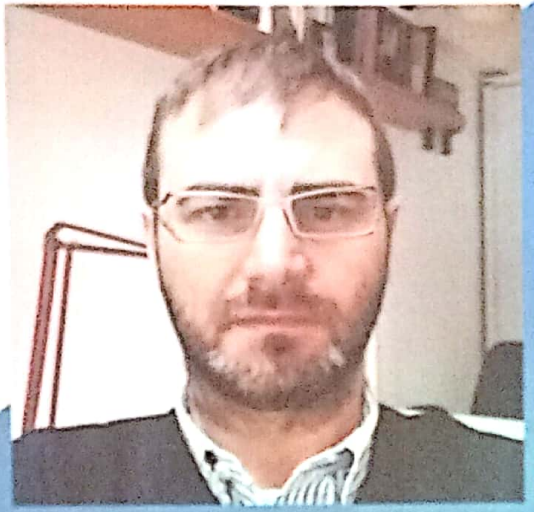
Department of Civil and Mechanical Engineering

EXTRAMURAL LECTURE SERIES(ELS) - INT001

HYGRO-THERMO-CHEMICAL MODELLING OF CEMENTITIOUS MATERIAL: A MULTI-SCALE APPROACH

Research Credentials



Dr.GIOVANNI DI LUZIO

Professor
Department of Civil and Environmental Engineering
Politecnico di Milano
Milano, Italy

Date :03, February, 2023 (Friday)
Indian time: 03.00 P.M
Italy Time: 10.30 A.M

Registration Link : https://tinyurl.com/INT001-Hygro-Thermo-Chemical

COORDINATOR
Dr.V.Siva kumar , Assoc. Prof./Mech

CONVENER
Dr.S.Dharmar, Assoc. Prof. & Head /Civil
Dr.P.Suresh Kumar Assoc. Prof./Mech

PATRON
Dr.S.RAJAKARUNAKARAN
VICE PRINCIPAL & HEAD /MECH

CHIEF PATRON
Dr.L.GANESAN
PRINCIPAL

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30.01.2023

Ref: RIT/Civil&Mech/ELS/2023/01

To

Dr. Giovanni Di Luzio,
Professor,
Department of Civil and Environmental Engineering (DICA),
Politecnico di Milano
Piazza Leonardo da Vinci n. 32
20133 Milano, Italy

Greetings from Rameo Institute of Technology!

Sub.: Requisition to accept an online lecture on Extramural Lecture Series (ELS) – reg.

Rameo Institute of Technology (RIT) was established in the year 2013. The institution is approved by All India Council for Technical Education and affiliated to Anna University, Chennai, ISO 9001:2015 Certified and NAAC Accredited. It offers five bachelor B.E degree programs such as CIVIL, CSE, EEE, ECE & Mechanical Engineering and three B.Tech. Program AI&DS, CSBS & IT. Out of eight Engineering programs, four programs (CSE, EEE, ECE and MECH) are accredited by National Board of Accreditation (NBA). Our college is unique; it is supported and guided by an Industry oriented trust, prominent Governing Council and Advisory Committee members to create practical education relevant to industry needs and life-long learning.

The Department of Civil & Mechanical Engineering, Rameo Institute of Technology aims to attain excellence in academic teaching and learning, research and extension activities. It disseminates knowledge through various activities like special lectures / workshops / seminars /conference, competitions, technical quiz by eminent practitioners of the profession. With an intention to impart knowledge on cutting edge technologies to the students and to upgrade the expertise of the faculty members in Mechanical Engineering field, we are aiming to conduct **"Extramural Lecture Series (ELS) by foreign expert".**

Through this letter, we are thanking for your acceptance through E-mail to deliver an Online Lecture on **"Hygro-Thermo-Chemical modelling of cementitious material: a multi-scale approach"** to the faculty members and students of Civil and Mechanical Engineering, RIT on 03.02.2023 (Friday) at Italy Time: 10.30 AM to 11.30 AM (IST: 3.30 PM to 4.30 PM).

Thanking You

HoD/Civil | HoD/Mech. | Vice Principal | Principal

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