



### OVERVIEW OF THE ISSUE

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## International Events

### 2-days International Webinar on Architecture, Civil & Earthquake Engineering

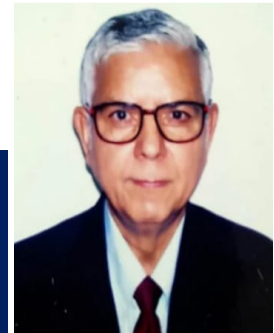
ASCE Indian Section Southern Region organized the 2-days International Webinar on Architecture, Civil & Earthquake Engineering in association with Department of Civil Engineering, Mahendra Engineering College, Namakkal, Tamil Nadu on 24 and 25<sup>th</sup> September 2021.

The virtual webinar focused on the innovations and technologies in the field of earthquake resistant structures and the mitigation effects on the buildings. The conservation and sustainability of architectural buildings were elucidated, and also the discussion on high vision towers for airports and its design features, the experts throw some lights on conservation of energy from oceans. The national and international professionals shared their versatile knowledge and life experiences with all the participants.

The 2-days International Webinar was welcomed by Dr. V. Shanmugam, Dean and Dr. C. T. Sivakumar, Professor, Department of Civil Engineering and the introductory note was addressed by Dr. R. V. Mahendra Gowda, Principal of Mahendra Engineering College. Dr. R. Samson Ravindran, Executive Director; Mahendra Educational Institutions, felicitated the gathering. The 2-days International virtual webinar was inaugurated by Er. Narsimha Chary Polaju, President, ASCE IS SR. The convenor, Dr. K. Vidhya, Professor and Head, Civil Engineering Department, Mahendra Engineering College presented the profile of Guest of Honor Dr. Sushil Kumar Dhawan PhD, Former Chief Engineer, CPWD. The Program Coordinator proposed the profile presentation of resource persons, concluding remarks of the virtual webinar and vote of thanks given by Dr. K. Vidhya, Head, Department of Civil Engineering, MEC, Namakkal.

**Dr. Sushil Kumar Dhawan PhD**  
Former Chief Engineer, CPWD

Called upon the researchers & young professionals to explore the knowledge in the special domain of seismic resistant structures



**Session 1: Prof. Kemal Onder Cetin** on “Quick quake Briefing: M7.0 Samos Island (Offshore Greece & Turkey Earthquake October 30 2020 I Side Effects and damage to the Built Environment”

#### **Key Takeaways:**

1. The case study of Turkey earthquake and its side effects were provided including the geological and geotechnical setting of the structures
2. The investigation of structural failure due to earthquakes explained the inadequacies and deficiencies in the design, revealing that the seismic resistance of the structure was not considered
3. The corrosion of the steel reinforcement was also identified at the bottom of the building and failure accompanied
4. The technical topics covered as the regular structural building and continuous frame systems required proper earthquakes load transfer was not established in the buildings

**Session 2: Dr. Jigna Desai** on “Sustainability and Conservation”

#### **Key Takeaways:**

1. Interesting facts about the architecture aspects on the building and retrofitting the outdated buildings for the current uses are elaborated.

## International Events

### 2-days International Webinar on Architecture, Civil & Earthquake Engineering

2. The different testing methods on the old building to analysis the life span and health monitoring of the buildings is highlighted.
3. A discussion on the cost benefits analysis on the buildings and recovery and regeneration of the buildings for the utilization of the existing resources.
4. Some of the catching facts are the Muller's color scale analysis shows the origin of the material used in the constructions; say sand and natural aggregates for the monuments.
5. Motivating the researcher in the field of structural stability with the help of structure health monitoring devices and pollution impact remedial measures on classical structures

**Session 3: Prof Dr.Neslihan Ocakoglu Gokasan** on “The 30 October 2020 M7 Samos quake offshore the Greece-Turkey: Seismic Stratigraphic and Structural features of Alacati-Doganbey-Kusadasi self area”

#### **Key Takeaways:**

1. A case study on Greece-Turkey earthquake, and its impact over the structures and its elements is discussed
2. The tectonic plate of the study region was explained here; and it was observes as the trans-tensional where the active extension and slip deformation occurred
3. The study was extensively used for the research workers in the area of stratigraphy and in seismology
4. The liquefaction mitigation effects also discussed in this forum, the seismic-structural interpretation was highlighted

**Session 4: Prof. Dr. Niall O' Sullivan** on “Wind Engineering & Computational Fluid Dynamics (CFD) for Architectural Design”

#### **Key Takeaways:**

1. The CFD for the architectural design features for the thermal comfort in the buildings is described.

2. Emphasis the thermal performance analysis in the buildings for the comfort dwelling.
3. The idea and engineering studies provided the visual effects on air quality index in the building environment and its uses are explored.

**Session 5: Mr. Unni Bhaskar** on “Modern Trends in Design & Construction of High Vision Air Traffic Control Towers and Cabin”

#### **Key Takeaways:**

1. The session was fully enriched about the High vision towers for the providing the aircraft control on safe landing and takeoff in the aerodrome
2. The new techno-craft in million free heavy glass panels for the high vision towers in an attractive way is described
3. Design and construction of high vision towers and its installation techniques of are explained in comprehend way

**Session 6: Prof Vallam Sundar** on “A Survey on the Potential of Tidal & Wave Energy along the India”

#### **Key Takeaways:**

1. The wave energy concepts, mechanism and utilization of the energy in an effective manner is elucidated.
2. Clear up the identifying the potential wave energy zone to install the turbine motor to generate the electricity.
3. Terminators used for the power generations, it encouraged the researchers to focus on the optimum water column and its applications are focused.

# International Events

## 2-days International Webinar on Architecture, Civil & Earthquake Engineering

Reconnaissance on 03.11.2020-05.11.2020

Quick Quake Briefing: M7.0 Samos Island (Offshore Greece and Turkey) Earthquake October 30, 2020

Sustainability and Conservation

Jigna Desai, PhD, Conservation Expert, [jigna.desai@cept.ac.in](mailto:jigna.desai@cept.ac.in)  
Nigar Shaikh, Conservation Engineer, [nigar.shaikh@cept.ac.in](mailto:nigar.shaikh@cept.ac.in)

The 30 October 2020 M7.0 Samos Quake offshore the Greece-Turkey: Seismic Stratigraphic and Structural Features of Alcazai-Doñanbey-Kusadası Shelf Area

Project Glory – Artwork Wind Load CFD Simulations

CFD Wind Loads Testing Method

- Single Tower (280m)
- Porous 9 storey
- Podium
- Open Cark Levels
- Openings on all ground levels
- Isolated art work models
- 50yr Gust Wind Speeds<sup>+</sup> extracted from Foyer CFD testing

Energy from the waves

Primary energy conversion

Energy in working fluid (air, water or hydraulic oil)

Turbine/motor

Mechanical energy in rotating shaft

Electrical generator

Electrical energy

Loss

Loss

Loss

Efforts are towards the reduction in the losses, thereby increase the efficiency of the device

Prof. V. Sundar, Dept of Ocean Engineering, IIT Madras, India

PROJECT MANAGEMENT

- Project will be handled by a team of qualified and experienced personnel, headed by Project Director, supported by Project Manager, Site Managers, assisted by Project Engineers, and site foremen.
- For ease of handling the project, the whole project is divided into 5 packages viz.
  - Steel fabrication and trial assembly
  - Structural Steel Works & Fire Proofing
  - Pre-Loading of steel works prior to fixing glazing
  - Installation of head / sill system and glazing panels
  - All finishing items including external cladding works

Glimpses from the technical sessions of 2-days International Webinar on Architecture, Civil & Earthquake Engineering organized in association Mahendra Engineering College, Namakkal

# International Events

## Infrastructures & Buildings Safety Lecture Series

ASCE India Section Southern Region jointly in association with the Technical partner (Media partner) Department of Civil Engineering, B V Raju Institute of Technology, Narsapur and Indian Geotechnical Society - Hyderabad Chapter organized a Lecture Series on Infrastructure & Building Safety on 16<sup>th</sup> October 2021.

The lecture series was aimed at continuing Professional Development that will enhance significantly to the continuing competence of professional engineers in the society. The national and international experts shared their knowledge and life experiences. **Dr. Elias B Sayah**, ASCE Region 10 Director was the special guest, and **Dr. S. K. Dhawan**, Former Chief Engineer, CPWD was the guest of honor for the event.

Dr. G. Sridevi, Head of Department of Civil Engineering, BVRIT delivered a welcome note to all ASCE office bearers, eminent speakers and the participants. Er. Narsimha Chary Polaju – President, ASCE IS SR briefed about the events and achievements of ASCE IS SR. Dr. Elias B Sayah and Dr. S. K. Dhawan shared their views on Infrastructure and Building Safety.

Dr. N. Krishnamurthy transferred his knowledge and experience on "Ergonomics in building construction and maintenance".

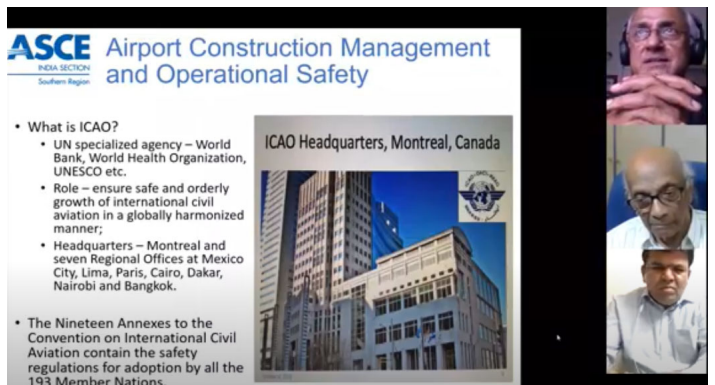
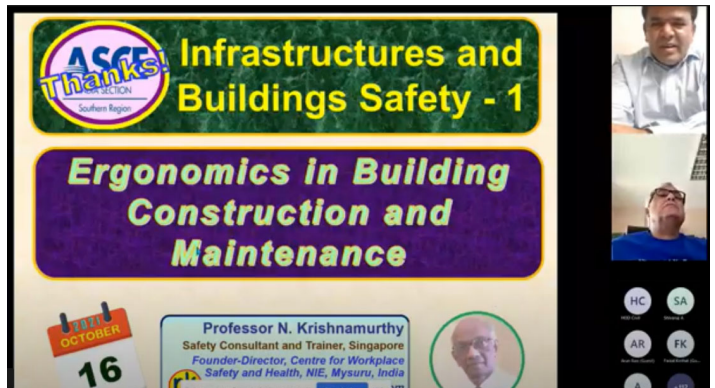
**Key Takeaways:**

1. Most Common Ergonomic Risk factors
2. Ergonomic Injuries
3. Construction and Maintenance Ergonomics in India
4. Ergonomics in Specific Construction

Mr. Arun K R Rao transferred the knowledge and experience on "Airport Engineering, Operational Safety, and responsibility".

**Key Takeaways:**

1. Runway Safety
2. About Safety Management System
3. Case study – Male International Airport
4. Runway extension and safety measures
5. Safety precautions required at Construction in Operational Airports



Glimpses from the lecture series

## Other Events

### Faculty Development Programme on Bridge Engineering

A Faculty Development Programme (FDP) on Bridge Engineering organized by the Department of Civil Engineering, KPR Institute of Engineering and Technology (KPRIET), Arasur, Coimbatore, Tamil Nadu during 27<sup>th</sup> September to 1st October, 2021.

The FDP focused to guide the participants to estimate the safe bearing capacity of soils under caisson foundations, pile foundations and open foundations, economic and quantity trends in alternative bridge and flyover structure schemes. The FDP was arranged in association with All India Council for Technical Education (AICTE). Dr. Anusha G, Professor & Head, Department of Civil Engineering, KPRIET inaugurated the FDP and welcomed the gathering. Dr. Akila M, Principal presided over the function. Dr. A. M. Natarajan, Chief Executive felicitated during the inaugural function. Mr. Manikandan P, Assistant Professor of Civil Engineering & the Event Coordinator proposed the vote of thanks.

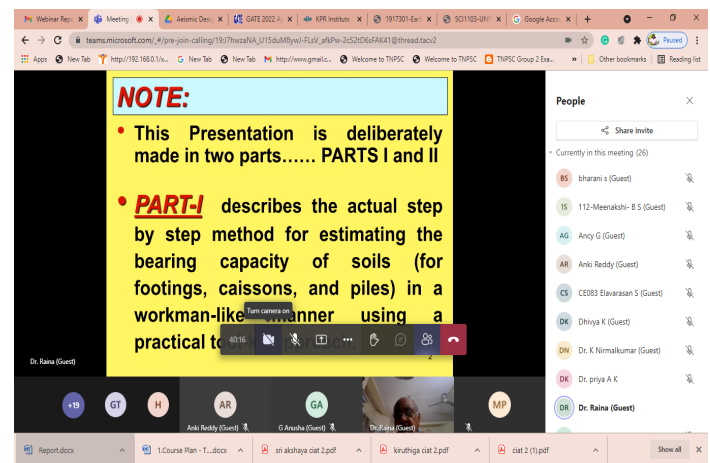
The highlight of the FDP was the keynote lectures by international speaker. The Keynote speaker was **Dr. V. K. Raina**, Ph. D. (London), DIC (London), MICE (London), C. Eng. (London), P.Eng. (Ontario, Canada), Consultant, the U.N, the World Bank and The African Development Bank and also Distinguished Professor of KPRIET.

#### Session 1: A Practitioner's guide to estimate the safe bearing capacity of soil under caisson foundation, pile foundation and open foundation – Part I

##### Key Takeaways:

1. The actual step by step method for estimating the bearing capacity of soil was illustrated.
2. Explained clearly about the accurate method for estimating the Safe bearing capacity of the soil like Terzaghi's, Meyerhoff's and Tolerable settlement.

3. Elucidated about each method with the values, formulae and graphical representation.
4. Elaborated the choice of different types of foundation in various types of soil.
5. Pointed out the pile bearing capacity and in-situ tests like SPT and SCPT with respect to the ultimate load and also mentioned the improvement of bearing capacity of the soil



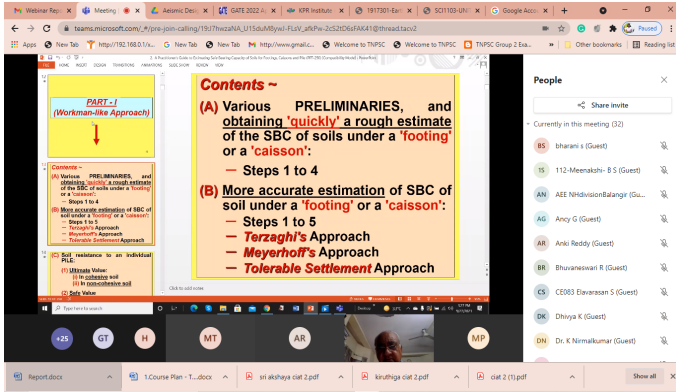
#### Session 2: A Practitioner's guide to estimate the safe bearing capacity of soil under caisson foundation, pile foundation and open foundation – Part II

##### Key Takeaways:

1. Described elaborately the artificial stabilization for permeable strata in spite of deep excavation in soft soil
2. Clarified on the various types, size and length of plate cost of each part and clearly explained to the participants that it was very useful for them.
3. Delineated about the handling of materials during construction work to the participants and highlighted how important it was
4. The session was concluded with the brief explanation on the materials used for stabilization of soil

# Other Events

## Faculty Development Programme on Bridge Engineering



### Session 4: Economic and quantity – trends in “alternative” flyover – structure scheme

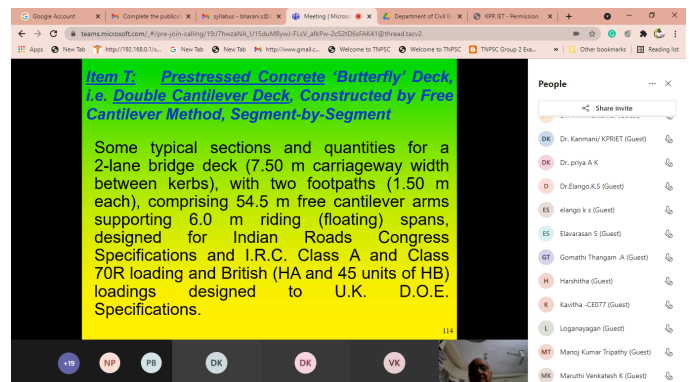
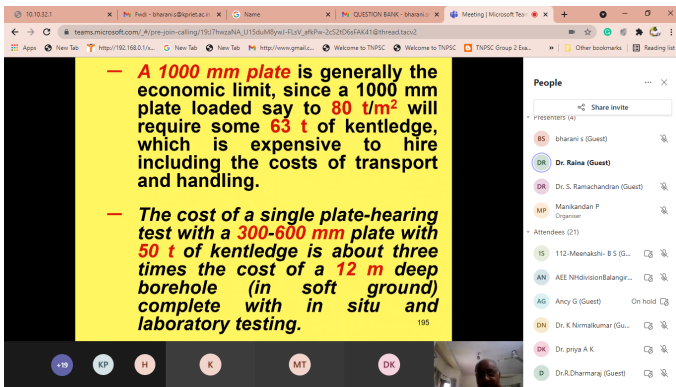
#### Key Takeaways:

1. Elaborated on the additional factors used in construction of bridges
2. A vivid illustration was made on design method of AASHTO
3. Case studies with regard to the Cast-in –situ RC deck slab was elaborated
4. The participants gained clear knowledge in economic and quantity being taken in alternate bridge structures and also explained the same with case studies
5. The expansive conditions of soil & resistance by uplift pressure was highlighted in detail
6. Clarified with relevant case studies and the cost for each elements
7. A clear illustration was made on Cast-in-situ post –Tensioned slab decks, Girder Bridge
8. A detailed case study was made on precast pre tensioned and post tensioned slab decks
9. A detailed case study was put forth on pre stressed butterfly deck bridges and their components
10. Explained in detailed about the approximate thickness calculation for various types of the bridges

### Session 3: Economic and quantity – trends in “alternative” bridge – structure scheme

#### Key Takeaways:

1. Case study was elaborated with regard to the structural behavior
2. Highlighted the various methods of understanding the structural behavior with advanced tools
3. Pointed out quite clearly about the single and double box section
4. Picturized clearly with the graph for various span conditions to the thickness of concrete and explained that it is a good opening for the budding engineers
5. With practical examples a clear explanation was made on the alternative materials used in bridges and also highlighted on the economic and quantity with practical examples.
6. A detailed explanation was given on traffic, construction time and maintenance of bridge elements



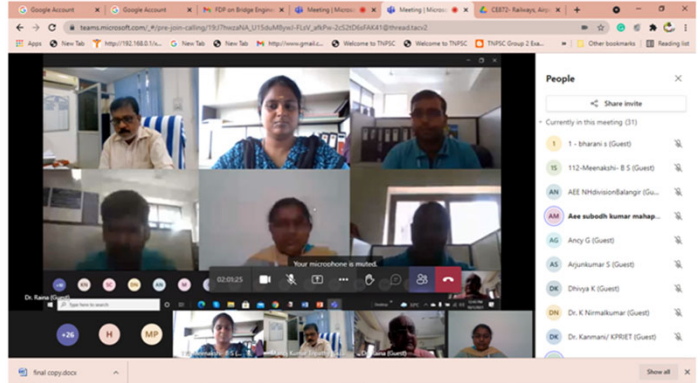
## Other Events

### Faculty Development Programme on Bridge Engineering

#### Session 5: Economic and quantity – trends in “alternative” flyover – structure scheme and Can design be taught??

##### Key Takeaways:

1. An elaborate discussion was made on the appropriate failures on bridges with case study examples.
2. Case studies were explained through real time video clippings which was shown in the presentation
3. With diagrammatic representation it was instilled in the minds on various components in pre tensioned bridge
4. It was explained in detail on Flexural failure and shear failure
5. Clarified elaborated with examples the differentiation between the R.C box Girder Bridge, Pre stressed box girder and composite welded steel girder
6. An interactive study was made on the excavation to barrier railing detailed cost comparison per cubic meter of R.C box Girder Bridge, and Pre stressed box girder as also the composite welded steel girder
7. A fruitful interaction was made with the participants and answer their inquisitive queries were answered clearly with examples wherever required



### New Student Chapters initiation

1. Younus College of Engineering and Technology, Kollam, Kerala
2. Rajagiri School of Engineering and Technology, Kerala
3. St. Joseph College of Engineering and Technology, Palai, Kerala
4. Muthoot Institute of Technology and Science, Puthencruz, Kerala.
5. Cochin University of Science and Technology, Kerala
6. UKF College of Engineering and Technology, Pathanapuram, Kerala

### Forthcoming Events

1. International Webinar Series on Structural & Geo-confluence to be jointly organized by ASCE IS SR, Mahendra Engineering College, Namakkal and Malnad College of Engineering, Hassan on 5<sup>th</sup> November, 19<sup>th</sup> November, and 3<sup>rd</sup> December, 2021.



## Student Chapters News

### Inaugural meeting of ASCE Student Chapter and Technical Session on Automating Construction through 3D printing at Marian Engineering College

The inaugural meeting of the ASCE Student Chapter of Marian Engineering College (MEC) was conducted through Google Meet online platform on 28<sup>th</sup> September 2021. 77 members were present for the program. Ms. Sreelekshmi compered the meeting.

The meeting started with the welcome address by Dr. Vinod. P, HOD, Civil Engineering Department. Dr. Vinod welcomed **Er. Narsimha Chary Poloju**, and **Mr. Palanisamy**, the special invitees from other student chapters, management of MEC, student office bearers of ASCE student chapter and student members of the ASCE student chapter.

Dr. Narayanan S., ASCE Student Chapter Faculty Advisor delivered the Presidential address at length about the submission of the proposed activities early in February 2020 and the intent to start the student chapter, foundation year activities and the submission of the activities report and request to form the chapter and the final approval of the student in August 2021. The tremendous support given by practitioner advisors Dr. Sureshkumar Kumaresan and Mr. Kesavan Gangadharan were acknowledged. The support and advises given by Prof. Rajayogan Palanichamy, President, ASCE India Section was gratefully acknowledged. The support given by Er. Narsimha Chary Poloju, President, ASCE IS SR was also acknowledged. Overall, the support given by the Principal and management of MEC was also acknowledged.

The inauguration was done by Er. Narsimha Chary Poloju with an inaugural address. Er. Poloju congratulated Marian Engineering College on securing the student chapter and stressed that this was only a starting point, He stressed on the importance of continuing the activities at local, national and international levels. Er. Poloju outlined the various facilities ASCE offered like 9 institutes for specialization, the global reach of ASCE, and large number of activities being organized for the young engineers like international conferences, committees etc. He

asked students to discover and follow their passion and also thanked the Practitioner advisors for their support. He also talked on the status of 3D printing world wide and thanked organizers for selecting the topic.

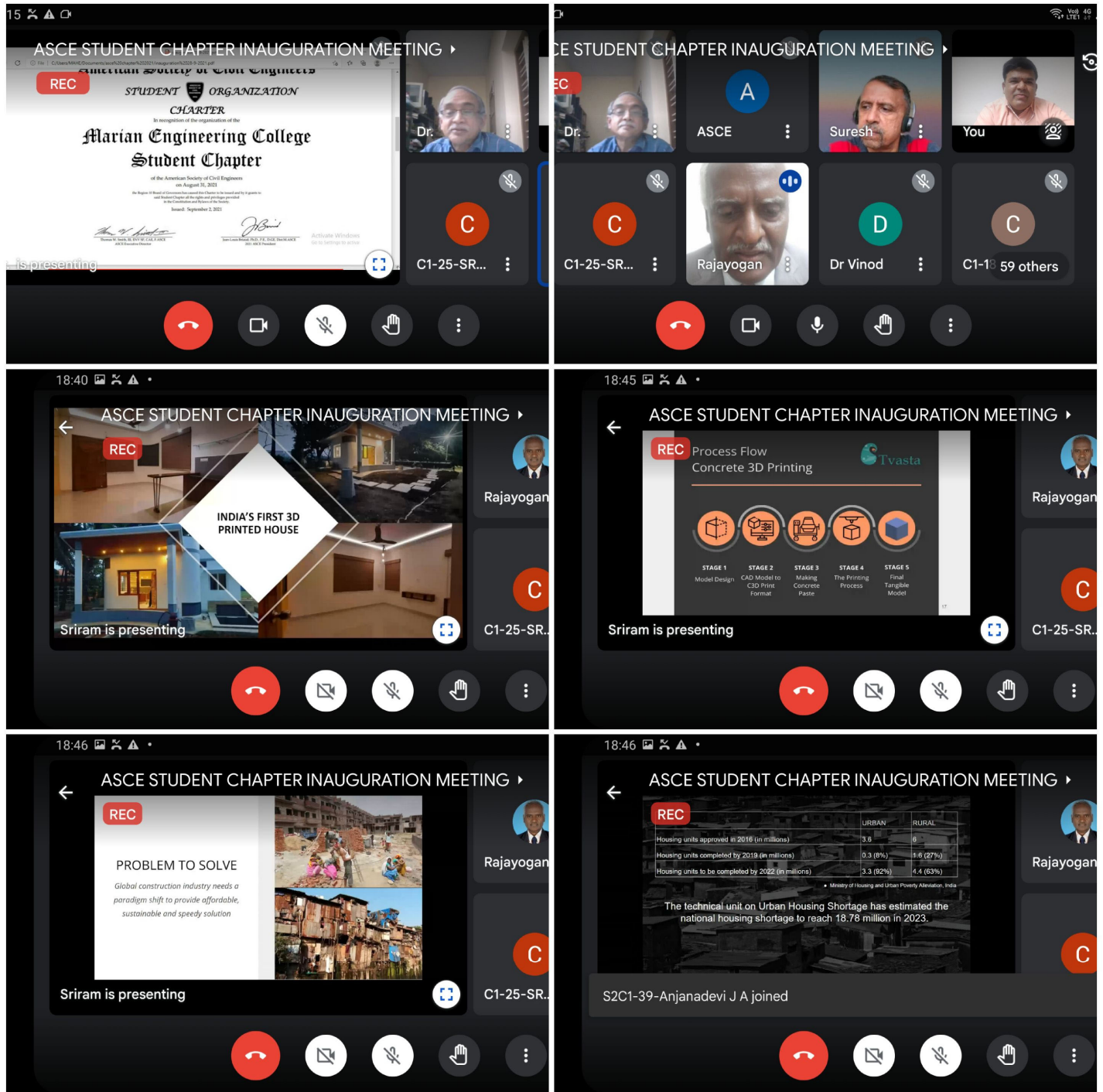
Dr. Ragayogan Palnichamy had offered the felicitation to MEC on securing the ASCE student chapter. Ms. Mydhily S Kumar expressed the vote of thanks for the guests.

A technical talk was delivered by Mr. Sriram Ranganathan (Product manager and sales, Tvasta Manufacturing Solutions Pvt. Ltd) on the topic Automating Construction through 3D printing. Mr Sriram talked about the starting of Twastha as a start up of IIT Madras and said that many types of 3D printers were being imported for various purposes. However, Twastha was the first to develop an indigenous 3D printer for construction. The overall idea was to automate the construction process. The technology is based on layer by layer printing, also called as additive manufacturing. The process required many technologies. He stressed that 3D printing depends on the material used for manufacturing and thus for construction it required a new approach. Concrete being liquid when fresh required an extrusion approach.

Mr Sriram talked about the difficulties faced and how it was solved by designing a suitable concrete mix. The software was developed. He also talked on the need for automation in construction considering the huge demand for housing in India. He also proudly talked on the recognitions received by Twastha and their plans for expansion of activities. He had also a scheme for educational and research institutions for undertaking research in 3D printing. Twastha offers 3 types of printers (basic, intermediate and advanced 3D printers) for undertaking research in 3D printing. At the end of the meeting several questions were raised by the participants. Er. Poloju also asked several questions and promised support to the venture.

# Student Chapters News

## Inaugural meeting of ASCE Student Chapter and Technical Session on Automating Construction through 3D printing at Marian Engineering College



Glimpses from the Inaugural Meeting and Technical Event

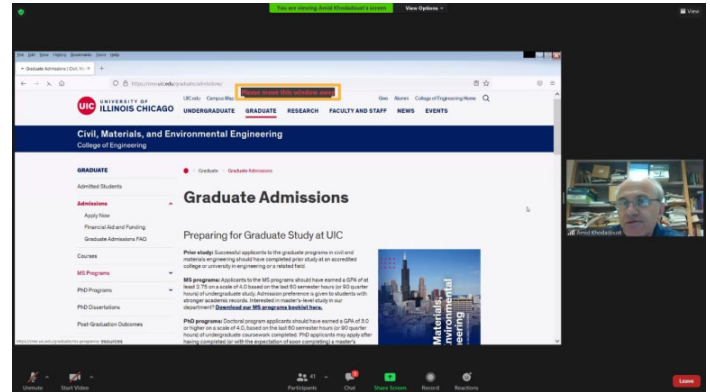
# Student Chapters News

## Interactive Session on MS/PhD Study in Civil Engineering at the University of Illinois, Chicago, USA

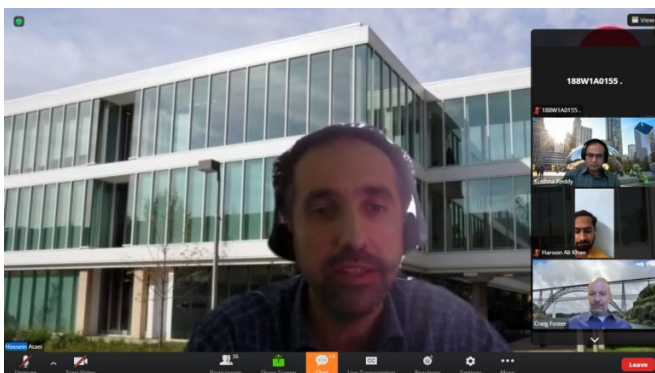
The interactive session was organized by the ASCE Student Chapter of Velagapudi Ramakrishna Siddhartha Engineering College, Vijayawada, Andhra Pradesh on 9<sup>th</sup> September, 2021.

Prof. Krishna R. Reddy, Prof. Craig Foster, Prof. Hossein Ataie, and Prof. Amid Khodadoust of the Department of Civil Engineering, Materials and Environmental Engineering, University of Illinois, Chicago, USA were the resource speakers for the interactive session.

Dr. Krishna R. Reddy along with his colleagues Prof. Craig Foster, Prof. Hossein Ataie, Prof. Amid Khodadoust from the University of Illinois, Chicago, USA addressed the students through Zoom online platform. All the professors briefly explained the application requirements of the university. Later, the resource speakers clarified students' queries. Students showed up in good numbers and got their doubts clarified. The webinar was presided by the Head of the Department, Dr. Ch. Srinivas, Principal, Dr. A. V. Ratna Prasad, and Er. Narsimha Chary Polaju, President of ASCE IS SR.



Glimpses from the interactive sessions in progress during the event



## Membership News

**New Membership:** Suneel Matchala, Ph.D., P.E., M.ASCE

ASCE IS SR witnessed 1494 student members upgrading to Professional Memberships. Measures will be taken to encourage them to participate in Section activities, to enable them to network with Professional Civil Engineers and get engaged.

## Innovative /Excellent Projects by ASCE Members in India

### Journal Publications from ASCE IS SR Members:

1. Devi R, V., Nair, V. V., Sathyamoorthy, P., & Doble, M. (2022). Mixture of CaCO<sub>3</sub> Polymorphs Serves as Best Adsorbent of Heavy Metals in Quadruple System. *Journal of Hazardous, Toxic, and Radioactive Waste (ASCE)*, 26(1), 04021043.
2. Selvakumar, S., Kulanthaivel, P., & Soundara, B. (2021). Influence of nano-silica and sodium silicate on the strength characteristics of clay soil. *Nanotechnology for Environmental Engineering*, 6(3), 1-10.
3. Selvakumar, S., Kulanthaivel, P., & Soundara, B. (2021). Experimental Investigation of Geosynthetic Encased Conventional Aggregate and Fly Ash Brick Bats Columns on Soft Clay. *International Journal of Pavement Research and Technology*, 1-19.

### Conference Proceedings from ASCE IS SR Members:

Ms. Anupama Krishna D, presented a research paper titled “Utilization Potential of Silica on Fired Clay Bricks” at the **4<sup>th</sup> Infrastructure Asset Management Conference (INFRAASSETS4.0)**, organized by WMIT Group, Malaysia, 28 - 29 Sept. 2021.

Proceeding – 4th Infrastructure Asset Management Conference (INFRAASSETS 4.0).  
28 -29 Sept 2021, Online Conference.

E-ISBN 978-967-2072-41-6

#### UTILIZATION POTENTIAL OF SILICA ON FIRED CLAY BRICK

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#### ABSTRACT

Burnt clay brick is the most widely used building unit in masonry construction around the globe. Clay bricks are more popular in building constructions than the cement/concrete bricks because of its eco-friendliness and low cost. These bricks are made from locally available clay. The main aim of this study is to develop a new fire-resistant building unit. In this study, Silica powder is utilized to partially replace clay in the preparation of bricks. Silica fume as produced is an extremely fine material and is comprised primarily of high purity (typically >95%) amorphous silicon dioxide (SiO<sub>2</sub>). The physical and mechanical properties of the bricks were tested and its compliance with Indian Specifications (IS 1077: 1992) and the British Standard Specifications (B.S.S 3921:1985) checked. A comparison is made between the properties of the bricks with the properties of the commercially available brick made purely from clay. The bricks with Silica powder partially replacing clay are obviously superior to the commercially available bricks in Kerala. The brick with 5% replacement of clay with Silica has an increase in compression strength of about 40% and the water absorption that satisfy the IS and B.S.S at room temperature. The bricks with 5% Silica powder were subjected to firing temperature regime from 100oC to 1000oC in an electric furnace. For the given clay and method of manufacture, higher compressive strength is associated with increasing firing temperature.

Keywords: Clay bricks, Silica powder, Compressibility, Electric furnace, firing temperature

## ASCE India Section Southern Region - A Brief History

Experience the Serenity along the new Highways



ASCE, the oldest national professional engineering society in the US founded in 1852, represents more than 150,000 members of the civil engineering profession in 177 countries worldwide. The global HQ of ASCE is in Reston, Virginia, USA. Through the expertise of its active membership, ASCE is a leading provider of technical and professional conferences and continuing education, the world's largest publisher of civil engineering content, and an authoritative source for codes and standards that protect the public. The Society advances civil engineering technical specialties through nine dynamic Institutes and leads with its many professional- and public-focused programs.

ASCE comprises 9 Regions in North America and 1 Region that includes 23,245+ members that reside outside of the USA, Mexico, and Canada. Region 10 is composed of 17 International Sections, 6 Branches, 13 Groups, and 86 Student Chapters. International Sections, Branches, and Groups of ASCE are formed to promote the technical and professional development of members, engagement for ASCE members through meetings, guest speakers, networking, and technical content. ASCE encourages the spirit of cooperation among engineers, and with other engineering societies and educational institutions in matters of common interest. The director of Region 10 is Dr. Elias Boutros Sayah for term 2019-2022.

ASCE India was established in 1988 as an International Group and promoted to a Section within one year, due to an exceptional growth of the membership and extraordinary technical activities performed during that period. Dr. Anil Kumarappa became the 1<sup>st</sup> President of the ASCE India Section. In 2012, the four Regions were formed under the umbrella of the India Section: IS-Eastern Region, IS-Northern Region; IS-Southern Region; and IS-Western Region. India Section Southern Region has more than 5,700+ members, inclusive of Student Members with free student membership.