ASCE INDIA SECTION
Southern Region

ASCE India Section Southern Region Quarterly News

An engineering society for the advancement of the science & profession of Civil engineering & enhancement of human welfare through the activities of society members

May – July 2021 Web Edition

EDITOR: Er. Narsimha Chary Poloju, Sr, C.Eng, P.E., S.E., M.ASCE

OVERVIEW OF THE ISSUE

Installation Ceremony of Office Bearers - ASCE IS SR 2021-23

The Installation Ceremony of ASCE Office Bearers, India Section Southern Region was held online on 3rd April 2021 from 3.00 PM to 4.00 PM (IST).

Dr. Bharathi Ganesh, past Treasurer, ASCE IS SR 2019-21 welcomed the gatherings of nearly 20 participants online. Dr. Bharathi highlighted the activities of the previous team, thanked the President, Secretary, and Governor Region 10, ASCE Worldwide Team for their support & welcomed the New Team IS SR and President India Section to the Installation Ceremony.

Mr. Narsimha Chary Poloju, Sr, C.Eng, P.E., S.E., M.ASCE, President Elect – IS SR introduced himself and also introduced his team of ASCE IS SR Office Bearers to the gathering. Prof. P. Rajayogan, past President – ASCE IS SR and Present President – India Section, welcomed the New Office Bearers and advised them to make the term 2021-23 most active and effective in terms of inclusion / starting of New Student Chapters, organizing Technical activities, providing a platform for many technical events, etc., Dr. Bharathi Ganesh conveyed the best wishes to the New team on behalf of Dr. G. L. Sivakumar Babu, Past Governor, Region 10.

ASCE Report Card was presented by the President - Elect 2021-23 with action points and it was well received. Mr. President requested his team to be active and suggested an action plan is to be prepared to execute the events.

Dr. Bharathi Ganesh, Secretary, ASCE IS SR 2021-23 proposed the vote of thanks and thanked President-Elect India Section – Mr. Poloju, Dr. Vijaya, Treasurer, ASCE IS SR, and all the participants of the Installation Ceremony and urged for their support in all respects. Dr. Bharathi also invited the team and participants to Nitte Meenakshi Institute of Technology after the second wave of the Pandemic. The meeting was concluded with a note to have at least one meeting offline after the second wave. The meeting concluded with a Spirit of Performance.

Outgoing Team – 2019-21
India Section Southern Region
President: Prof. P. Rajayogan, M.ASCE
Secretary: Dr. S. Basil Gnanappa, Ph.D., M.ASCE
Treasurer: Dr. Bharathi Ganesh, Ph.D.,

Present Team – 2021-23
India Section Southern Region

President: Er. Narsimha Chary Poloju, Sr, C.Eng, P.E., S.E., M.ASCE

Secretary
Dr. Bharathi Ganesh
A.M.ASCE

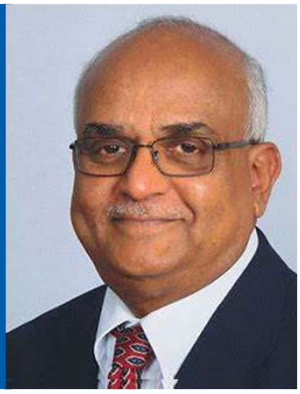
Treasurer
Dr. K. Vidhya
A.M.ASCE

International Events

1st International Conference on Advancements in Structural Engineering

For the first time in 2021, ASCE India Section Southern Region under the working of the President-elect - Er. Narasimha Chary Poloju, Secretary – Dr. Bharathi Ganesh, and Treasurer – Dr. K. Vidhya organized the 1st International Conference on Advancements in Structural Engineering in association with Malnad College of Engineering, Hassan during 8th – 10th July 2021. This report aims to convey the key themes arising from the conference.

"All the participants in academic area, doing research & working on new things, as counterparts in Structural Engineering should look for nature-based solutions & look for what we need to do to sustain this planet that we call – Home"



Dr. K. N. Gunalan

The event was the first conference held by ASCE IS SR, bringing together representatives from research, academia & industry from different parts of the Globe. The aim of the conference was to increase the understanding of the advancements in the vast field of Structural Engineering & energize delegates in promoting viral change & empower organizations & structural engineering professional communities to update & adopt the newest practices. The audience enjoyed the packed agenda of speakers and presentations.

The International Conference was inaugurated by Dr. Kancheepuram N. Gunalan, in the presence of Er . Narsimha Chary Poloju, President, ASCE IS SR, Sri. Ashok Haranahalli, Chairman, Malnad Technical Education Society®, Hassan, and Dr. C.V. Venkatesh, Principal, MCE Hassan. Dr. A.J. Krishnaiah, Professor & Head of Civil Engineering Department welcomed all the participants to the conference, and Dr. Vijay V. Nair, Assistant Professor and the Program Coordinator proposed the vote of thanks.

Glimpses of the Inaugural Session: Welcome address by Dr. C. V. Venkatesh and Er. Narsimha Chary Poloju, felicitation and the inauguration by the Chief Guest – Dr. K. N. Gunalan

International Events

1st International Conference on Advancements in Structural Engineering

Day 1 – 8th July 2021

Session 1: Dr. Ranjith Dissanayake – Forensic Engineering

Key Takeaways:

1. Provided case studies of failure of highway bridge, building collapse in Shanghai, a retrofitting case study, and monitoring of the cement grinding plant structure during and after construction
2. The investigations on the failures of structures pointing to the fact that most of them were the result of design faults, construction faults including improper practices, materials, and workmanship, improper alterations or modifications, accidents, negligence & carelessness or in their combinations.
3. The improvements made as a result of forensic investigations made the failed structures usable again. The application of proper engineering practices is the way to avoid collapse of structures stressing that the attention of engineers is essential in all three phases: design, construction, and service for safe and efficient performance of a structure.
4. The performance should be monitored throughout the structure's service life (structural health monitoring), regular maintenance should be done and structural weaknesses should be improved as soon as they are identified. Although it is not yet an essential requirement, forensic engineering investigations should be carried out for both partial and complete failures of structures.

Session 2: Prof. V. Sundar – Mitigation Measures against Coastal Hazards

Key Takeaways:

1. Elucidated the common natural causes for coastal hazards, various coastal stabilization structures with examples of soft engineering options including beach nourishment, coastal vegetation, dune stabilization, geosynthetics – case study of Uppada in Andhra Pradesh, geotubes, etc., and hard engineering structures – groins, reefs, sea walls, etc.,
2. The studies, observations and extreme wave prediction which were decisive for planning for mitigation measures against natural coastal hazards, ship routing, design of coastal and offshore structures.
3. Possibilities on utilization of Construction and Demolition (C&D) waste (A challenge to any practicing civil engineer) as core layer for breakwater as sea walls was highlighted to be an effective technique as solution for both the challenges. However, Prof. Sundar also warned about mere dumping of C&D Waste without any scientific reasons might not help and also has the potential to aggravate the situation.

Day 2 – 9th July 2021

Session 3: Prof. Giuseppe Carlo Marano – Machine Learning in Structural Engineering: Present Possibilities & Future Opportunities

Key Takeaways:

1. The great concerns arising due to existing structures designed without modern seismic design provisions were pointed out. Such structures exhibit often significant structural and non-structural damage and even collapse when subjected to medium-to-strong ground shakings, resulting in fatal loss in terms of human lives and properties.
2. The effectiveness of the interventions through improved strategic reinforcement of these structures to achieve effective reduction in seismic risk, along with specific optimization strategies.
3. Encouraged the researchers in the field of structural engineering to focus their interests to computational modeling, experimental testing, and optimization of seismic retrofitting/reinforcement systems, with special interest to reinforced concrete and masonry structures.

International Events

1st International Conference on Advancements in Structural Engineering

Session 4: Prof. Ramancharla Pradeep Kumar – Disaster Risk Governance with Emphasis on Sendai Framework

Key Takeaways:

1. A discussion on Disaster Risk Reduction with focus on mitigation and preparedness. The process for reducing disaster risk through systematic analysis and management of the causal factors of disasters and improving the pace and quality of rescue, relief and rehabilitation measures were communicated to the participants using the disaster management cycle and Sendai framework and its priorities.
2. Stressed on the need of development of technologies – virtual and robotic simulations for Indian conditions by demonstrating evacuation modeling worked out in developed countries as a part of disaster preparation.
3. A correlation between RVS score and damage - the possibility of concluding that the building damage state being determined only by the local brittle damages in members due to low correlation of rapid evaluation methods with observed damage. It was opined to be insufficient analyses as the estimations might also diverge from the actual scene after an earthquake-like incident.

Session 5: Dr. Nicholas Truong - Advanced Wind Tunnel Testing Techniques for Long-span Roof Structures

Key Takeaways:

1. The determination of wind loading on long span roof structures at Windtech Consultants through specialized wind tunnel testing and analyses techniques.
2. Long-span structures, which may include bridges, sports facilities, transport infrastructure, logistics and maintenance facilities, leisure and entertainment facilities which are often characterized by low natural frequencies and low mass apart from their long span, makes them potentially prone to significant dynamic excitation due to wind.
3. Highlighted the different methodologies available to investigate the dynamic wind actions on these structures, along with few case studies from Australia, and which method is most suited to which type of structure was explicitly established.

Day 3 – 10th July 2021

Session 6: Mr. Vivek Bhushan Sood – An Overview of Fatigue analysis and design requirements for Steel Structures in Railway Bridges

Key Takeaways:

1. Demonstrated fatigue failures and methods to overcome it with case studies of Indian Railways
2. Advocated on strategies to avoid failures and ensure good fatigue design through his case studies. The study was also concluded with proofs shared in terms of photographs clicked from of real cases that the cracks (or failures) appears where the stress concentrations are high.
3. Observations, and engineering studies providing visual fatigue phenomenon analyses reveals that such high stress concentrations are located near holes, imperfections in the member, and damage locations.

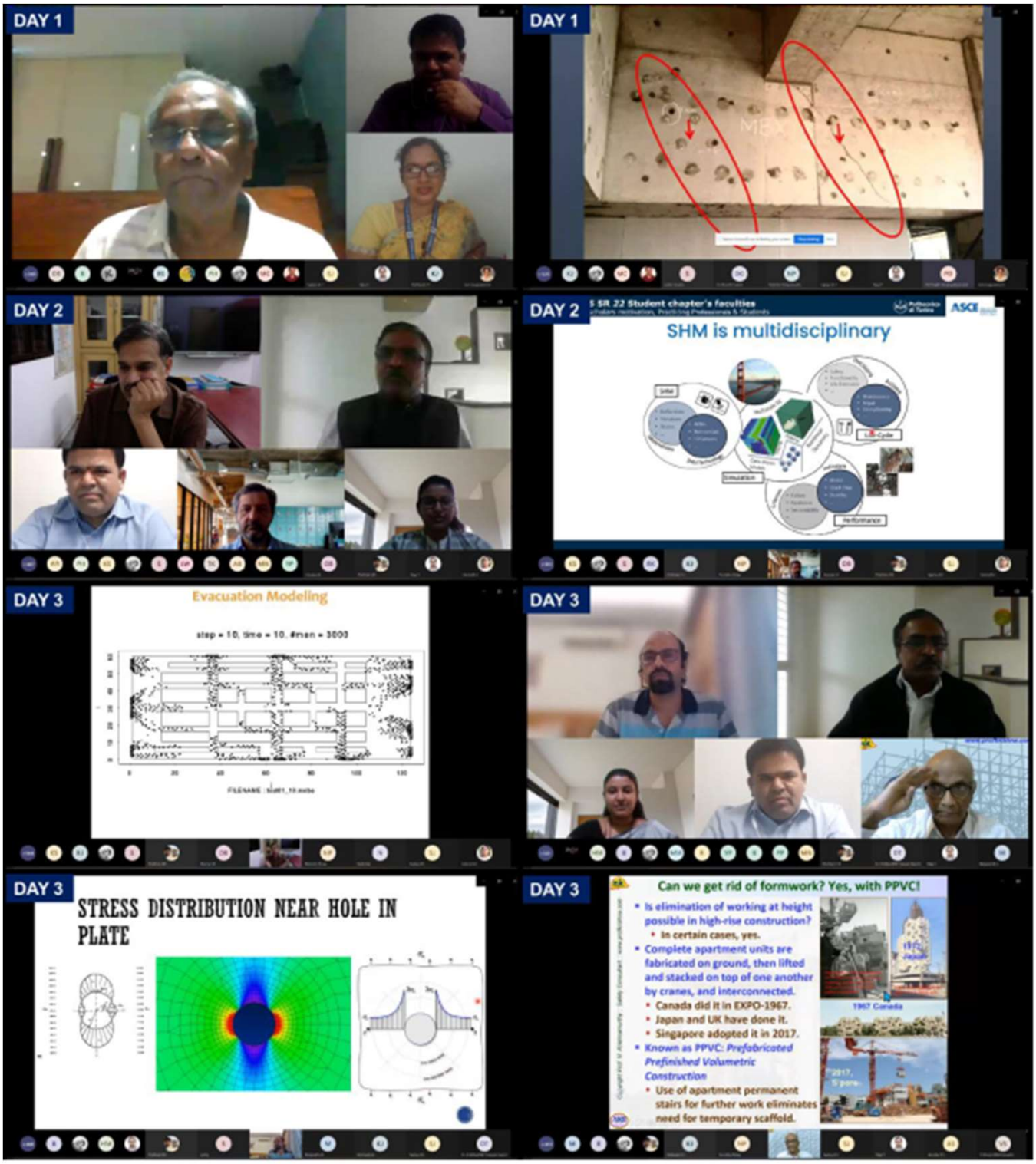
Session 7: Prof. N. Krishnamurthy – Working Safely at Height

Key Takeaways:

1. The full-body safety harness is generally acclaimed as a life-saver for those workers working at height.
2. The use of personal protective equipment requires a number of co-requisites for it to be effective, and to avoid collateral damage.
3. Explored when and how to use a safety harness, pointing of the dangers of its misuse or overuse.

International Events

1st International Conference on Advancements in Structural Engineering



Glimpses from technical sessions of the 1st International Conference on Advancements in Structural Engineering held during 08 – 10 July 2021

International Events

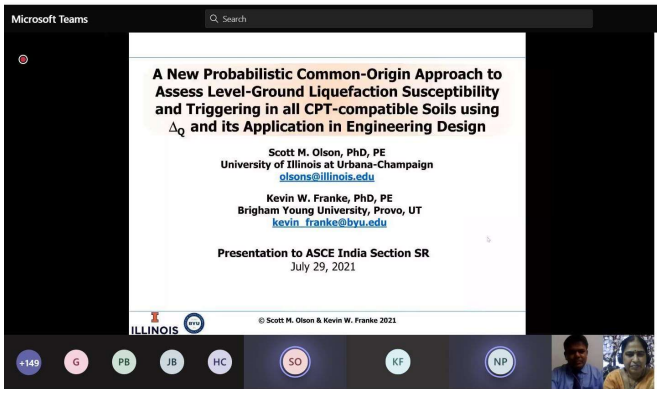
2nd International Conference on Recent Advancements in Geo-structural Confluence

ASCE IS SR organized the 2nd International Conference on Recent Advancements in Geo-structural Confluence in association with Department of Civil Engineering, B V Raju Institute of Technology (BVRIT), Narsapur (Media Partner) and Indian Geotechnical Society (IGS), Hyderabad Chapter.

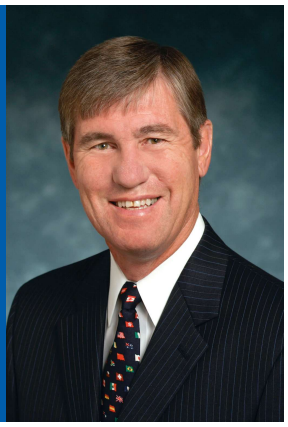
The virtual Conference aimed at continuing professional development that would enhance significantly to the continuing competence of professional engineers in the Society. The national and international experts shared their knowledge and life experiences with all the participants. Er. Narsimha Chary Poloju – President, ASCE IS SR introduced the Chief Guest - Prof. Jean-Louis Briaud, President, ASCE and the distinguished Director and Professor of Texas A & M University. Prof. Briaud addressed all attendees and briefed about the intend, accomplishments, and achievements of ASCE over the years. Prof. N. K. Samadhiya, President, IGS, briefed about the activities of IGS and its role in promoting professional activities in the field of Geotechnical Engineering.

Day 1 – 29th July 2021

Dr. Kevin W. Franke & Dr. Scott M. Olson – A New Probabilistic Common-origin Approach to Assess Level-ground Liquefaction Susceptibility and Triggering in all CPT-compatible Soils using ΔQ and its Application in Engineering Design



"Utilize new approaches, materials & technologies to ensure our infrastructure that can withstand or quickly recover from natural or man-made. Ensure communities to develop and institute their own resilience pathway for all their infrastructure portfolios"



Prof. Jean-Louis Briaud, President, ASCE

Key Takeaways:

1. Unique estimates of liquefaction resistance for soils based on compressibility such that factors that affect penetration resistance (e.g., mineralogy, grain shape, density, over consolidation)
2. The need of performance-based earthquake engineering which provides a consistent framework for collectively and objectively considering all likelihoods
3. Considerations for accurate characterization of risk
4. The new deterministic and probabilistic procedures were illustrated using examples of liquefaction and no liquefaction in clean sands, silty sands to sandy silts, and low-plasticity fine-grained soils

Day 2 – 30th July 2021

Prof. Prem Krishna – An Overview of Analysis & Design of Steel Bridges with Emphasis on Longer Spans

Key Takeaways:

1. Efficiency of cable forms
2. Dynamic Wind effects on the design
3. The necessity torsional stiffness, flexural stiffness, and selection of stiffeners

International Events

2nd International Conference on Recent Advancements in Geo-structural Confluence

Dr. Nicholas Truong – Advanced Wind Tunnel Testing Techniques for very long span Bridge Structures

Key Takeaways:

1. The most important aspects of the wind-
2. bridge interaction are considering the aerodynamic phenomena affecting the different parts of the bridge were explained clearly.
3. Case studies from Australia were explained for clear understanding

Day 3 – 30th July 2021

Dr. Ravi Sundaram – Forensic Geotechnics: Concepts & Case Studies

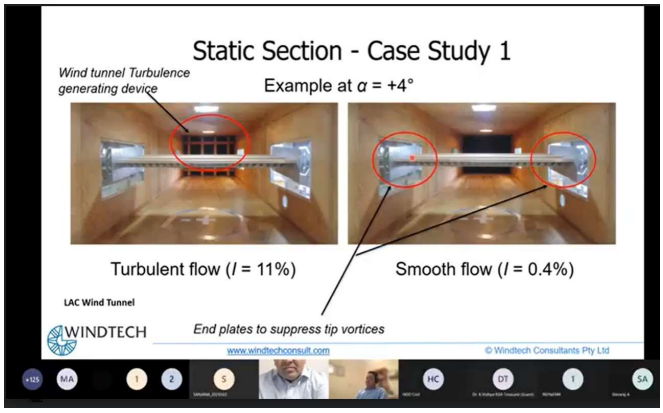
Key Takeaways:

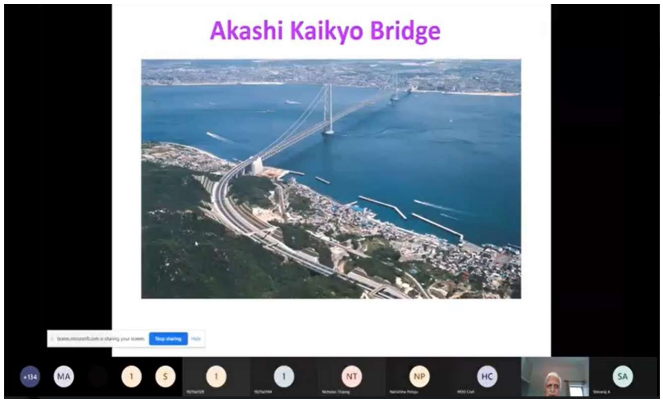
1. Presented case histories where forensic geotechnical engineering was effectively utilized to identify, investigate, and remediate the problem as well causative factors
2. Causes of distress were explained
3. Preventive actions before failure and signs of distress were explained
4. The 4 W's what went wrong and Why approach to mitigate failure were explained.
5. Case studies were explained in identifying the distress

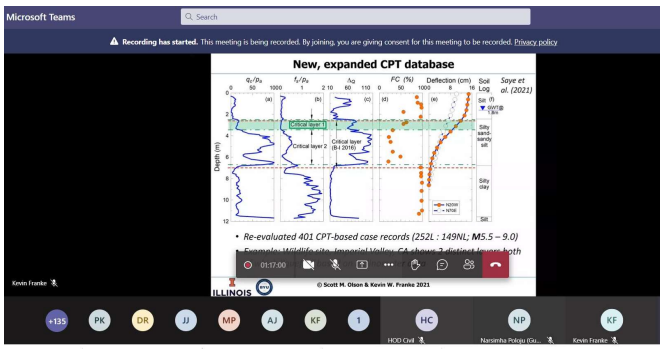
Prof. Maria Rossella Massimino – FEM analysis of dynamic behavior of fully coupled tunnel-soil above ground structures

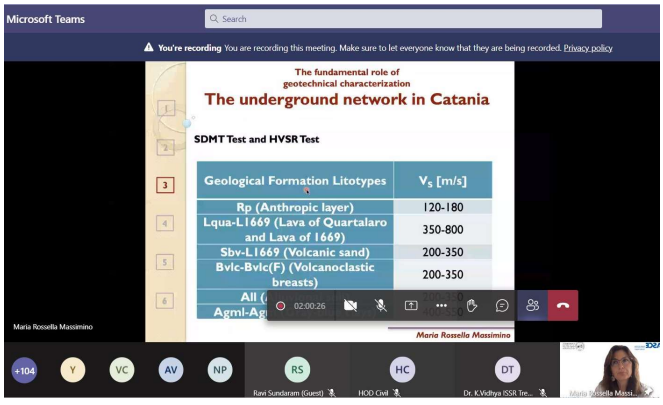
Key Takeaways:

1. Dynamic behavior of fully coupled tunnel-soil above ground structures, A very important aspect in case of seismic zones was explained
2. Transferred the knowledge, experience in explaining the soil structure interaction
3. Few case studies were explained for better understanding of the concepts
4. Importance of soil behavior and need of geotechnical characterization were explained









Glimpses from technical sessions

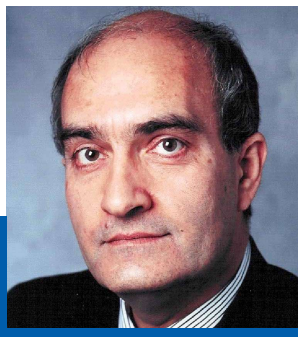
Student Chapters News

International Conference on Structural Engineering and Construction Management SECON'21

The second edition of International Conference on Structural Engineering and Construction Management – SECON'21 organized by the Department of Civil Engineering, Federal Institute of Science and Technology, Angamaly, Kerala was held on 12 -15 May 2021. The main theme of the conference was "Computational Techniques in Civil Engineering & Infrastructure Management". The four days conference was arranged in association with ASCE, Institution of Engineers - IEI Kochi Chapter, ISTE, ICI Kochi Chapter and Paradigm IT Pvt. Ltd., Kochi, the industry partner.

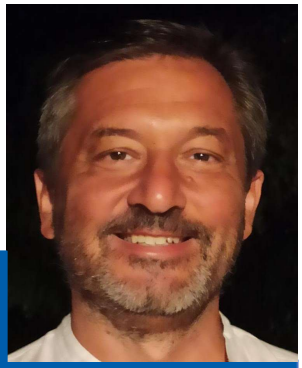
The conference was inaugurated by Dr. Anitha P, Chairman, Governing Body, Federal Institute of Science and Technology. Dr. George Issac, Principal presided over the function. Dr. Unni Kartha G, Head, Department of Civil Engineering welcomed the gathering. Er. Poloju Narsimha Chary, President ASCE IS SR, Dr. K Vijakumar, Chairman ISTE Kerala Section, Er. Shaji Jacob, Chief academic coordinator IEI Kochi Chapter, Mr M A Joseph, chairman ICI Kochi chapter and Dr. C Sheela, Vice Principal, FISAT felicitated during the inaugural function. Ms. Rajalakshi T R, convenor introduced the themes of the conference and Ms. Reshma Prasad, convenor, proposed the vote of thanks.

The highlight of the conference was the keynote lectures by International speakers. The Keynote speakers were (i) Dr. Mohammad Najafi, Director - Centre for Underground Infrastructure Research and Education, The University of Texas at Arlington, Texas, USA, (ii) Prof. Giuseppe Carlo Marano, Deputy Director , Department of Structural, Geotechnical & Building Engineering, Politecnico di Torino – Italy, (iii) Prof. Ir.Ing Serge Vandemeulebroecke, Visiting Professor, University of Antwerp, Belgium, (iv) Dr. Arjun Jayaprakash, Senior Earthquake Engineer, Karen Clark & Company, Boston, Massachusetts, (v) Prof. Ranjith Dissanayake, Senior Professor, University of Peradeniya, Sri Lanka, and (vi) Prof. Usama Ebead, Professor of Structural Engineering , Qatar University.



Dr. Mohammad Najafi

"Trenchless technologies offer the most sustainable method of upgrading the existing pipeline infrastructure. This technology has many potential benefits including overall economy & minimizes the disturbances above the ground compared to open cut installation methods in urban environments"



Prof. G. C. Marano

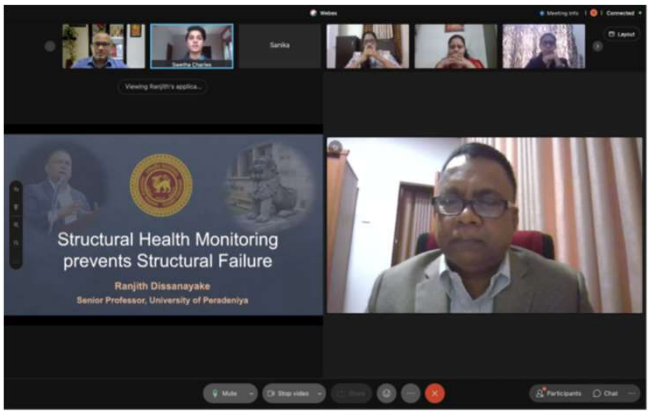
"Artificial Intelligence(AI) and Machine Learning (ML) techniques have created a paradigm shift in the domain of structural health monitoring (SHM). Applying these techniques can revolutionize the way SHM is used for making decisions pertaining to maintenance, safety, renovation, and analysis of the remaining lifetime of civil infrastructures like bridges, tunnels and large structures"

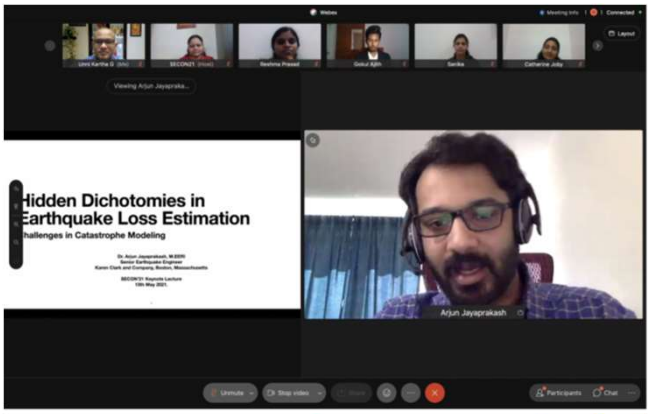
Student Chapters News

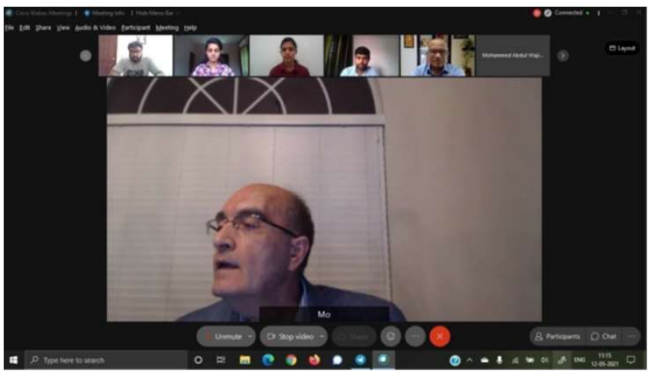
International Conference on Structural Engineering and Construction Management SECON'21

The overwhelming response to SECON21 flagged way to nearly 400 submissions, from premier institutes in the country like IITs, NITs, and other Universities. The papers were peer reviewed by a reviewer team which was composed of 100+ Academicians with PhD as well as Industry. 100 papers from 43 institutions which include 8 papers from IITs, 20 from NITs and 4 papers with foreign collaborations were selected by Springer for publication in the Scopus indexed "Lecture Notes in Civil Engineering". The papers selected for publication were presented in 27 sessions over the 4 days. The best paper awards were announced during the valedictory session held on 15th May.

We acknowledge the support received from ASCE in publicizing the information regarding SECON through its channels. This has greatly helped us to reach out to the whole county and beyond. This kind gesture has indeed contributed to the success of SECON 21.







Best Paper Awards of SECON'21

1. Paper ID:59: Numerical study on perforation characteristics of carbon-fiber reinforced composite laminates subjected to impact loading, Gyanesh Patnaik, Anshul Kaushik, Abhishek Rajput and Guru Prakash , Indian Institute of Technology, Indore https://link.springer.com/chapter/10.1007/978-3-030-80312-4_21
1. Paper ID 221: Risk Uncertainty Quantification for Various Occupancy Classes using Stochastic Ground Motion, Leanda J Payyappilly and Surendra Nadh Somala, Indian Institute of Technology, Hyderabad https://link.springer.com/chapter/10.1007/978-3-030-80312-4_21
2. Paper ID 53: Numerical Investigation and Parametric Analysis of Hybrid Shear Wall with Energy Dissipating Reinforcements, Sneha Benoy and Dr. Asha Joseph, Federal Institute of Science and Technology, Angamaly https://link.springer.com/chapter/10.1007/978-3-030-80312-4_21

Student Chapters News

Faculty Development Program on "Demolition & Rehabilitation of Structures - Dehab"

A Faculty Development Program (FDP) was organized by Marian Engineering College, Kazhakootam, Kerala sponsored by APJ Abdul Kalam Technological University. The FDP was inaugurated by Er. Narsimha Chary Poloju, President, ASCE IS SR, in the august presence of Very Rev. Msgr. Wilfred E. Manager, Dr. Ruby Abraham, Principal & other dignitaries. Er Poloju highlighted the activities of the ASCE & the student chapters in India.

Er. N. C. Poloju

"The topic of the FDP is very relevant in the context of many structures attaining their end-of-life or have deteriorated. Further, there are natural & man-made disasters which require buildings to be demolished as they are unsafe."

Session 1: Mr. Satheesh Gopi - Coastal Regulation Zone (CRZ) Rules

Key Takeaways:

1. The concepts of High Tide line, Low tide line, Importance of Regulation of Coastal Zones, Time line of CRZ regulations, CRZ 1991, CRZ 2011 were considered.
2. Confusions in the interpretation of CRZ rules were clarified

Session 2: Mr. S. Anwar Hussain - Repair, Rehabilitation and Retrofitting

Key Takeaways:

1. Situation when each are required, types of deterioration in structures, & requirements of Good RCC
2. Protection of reinforcements, carbonation, Attack due to carbonation & chlorides, common concrete repair chemicals, & companies producing these chemicals

Session 3: Mr. Mohan Ramanathan – Demolition Techniques

Key Takeaways:

1. Dismantling, demolition & deconstruction, circumstances under which demolition is required was explained
2. The principles of dismantling, primary & secondary methods, different primary methods, classification of Methods of Demolition – conventional, modern & special demolition methods, case histories of demolition of building were discussed
3. During talk on C&D waste, the aspects discussed were – definition of demolition waste, demolition process, waste recycling process, utilization, publications of C&D waste recycling, challenges in C&D utilization, code used for demolition from Hong Kong, the absence of such a code in India, status of construction waste recycling plants in India, the new recycling plants that are coming up were discussed

Session 4: Mr. Sudhakar P. Che – Equipment for Recycling

Key Takeaways:

1. Status of recycling in different countries & India, circular economy of reduce, recycle waste & reuse of resources were discussed
2. C&D waste composition, C&D waste handling, intelligent dust suppression system
3. Aspects of reduced noise level in Rubble Master Compact recyclers, Mobile crusher details, bucket crushers, processes of crushing, setting up of a perfect construction site & steps in waste processing

Session 5: Dr. Anil Joseph – Demolition Methods

Key Takeaways:

1. Methods adopted for demolition, duration, production of noise, pollution beyond permissible limits, & disturbance to the activity or living in the neighborhood, economic viability
2. Types of demolition, the structural aspects, the principle, general condition

Student Chapters News

3. Implosion technology of explosion used for Maradu demolition at Kochi due to violation of building rules, structural challenges in each of the Maradu towers, Steps for demolition & steps prior to demolition was explained

Session 6: Er. Safeer S – Demolition Methods

Key Takeaways:

1. Methods adopted for demolition, duration, production of noise, pollution beyond permissible limits, and disturbance to the activity or living in the neighborhood, economic viability were discussed
2. Types of demolition, the structural aspects, the principle, general condition were presented.
3. Implosion technology of explosion used for Maradu demolition at Kochi due to violation of building rules, structural challenges in each of the Maradu towers, Steps for demolition and steps prior to demolition was explained

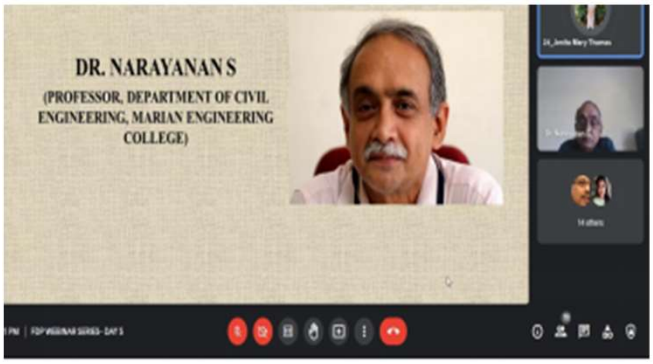
Session 7: Dr. Narayanan S – Rehabilitation of Building

Key Takeaways:

1. Results of laboratory studies on the rehabilitation using CFRP on cylinder specimens, increase in compressive strength of wrapped specimens, the increase in strength of concrete columns due to ferrocement jacketing were explained
2. Types of jacketing, restoration, retrofitting, rehabilitation codes, building permit for demolition, aspects of air borne pollution due to demolition or construction activities, risk assessment of dust from demolition and construction were discussed.

In appreciation of the President

Er. Narsimha Chary Poloju gave the inaugural address which highlighted the ASCE activities in Region 10, which comprises the India Section also. He highlighted the fact that the SR has been very active and the popularity of student chapters have been growing rapidly. The benefits of the membership to students and practitioners were highlighted.



Glimpses from the FDP

Webinar Conferences & Seminars were of immense use to students to get industry exposure and for field engineers to get updated on latest technologies. There was a need to educate engineers on meticulously following buildings design rules, development, CRZ rules, rehabilitation of structures and recycling of demolition wastes. Er. Poloju wished that the 76 participants from various engineering colleges would immensely benefit from the FDP & pass on the valuable knowledge to the budding engineers.

- Dr. Narayanan S
FDP Coordinator,
TU-sponsored FDP on DEHAB

Student Chapters News

Faculty Development Program on "Bridge Engineering"

The Faculty Development Programme (FDP) on Bridge Engineering organized by the Department of Civil Engineering, KPR Institute of Engineering and Technology (KPRIET), Coimbatore, Tamil Nadu was held on 21-25 June 2021. The FDP focused on discussion of various distress, cracks in bridges, Rehabilitation and Retrofitting in bridges and prestress, its working equipment and accessories. The five-days 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. The highlight of the FDP was the keynote lectures by International speaker.- Dr. V. K. Raina, Ph.D., DIC, MICE, C.Eng. (London), P.Eng. (Ontario, Canada), Consultant, the U.N, the World Bank and The African Development Bank and also a Distinguished Professor of KPRIET.

Day 1: 21 July 2021

Why do bridges in our part of the world distress and crack much earlier than those constructed in many of the 1st world countries?

Key Takeaways:

1. Types of cracks, method of identifying the cracks
2. Various methods of repairing techniques.
3. Experiment about the various types of cracks with case studies.
4. Retrofitting methods for various cases

Day 2: 22 July 2021

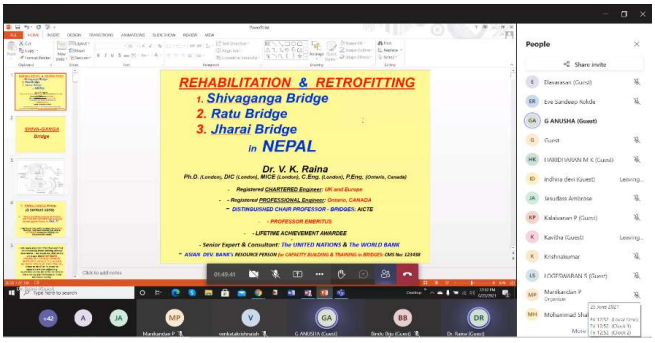
Rehabilitation and Retrofitting of major bridges in Nepal

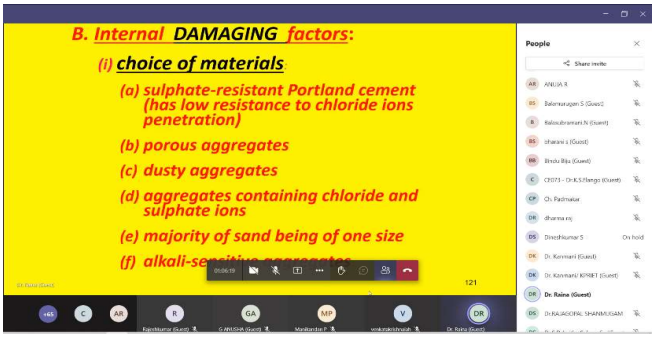
Key Takeaways:

1. Showed various rating systems according to the structural conditions
2. Clearly stated the external damage factor and internal damage factor
3. Elaborated the choice of construction materials that can be used in bridges
4. Affirmation about the various types of materials used like Berger luxtex-based polymers, etc.,
5. Concluded with the best and most economical way to achieve durability of concrete in the marine environment.

Dr. V. K. Raina

"Highly dense high-performance concrete-mix using Portland blast furnace slag cement, controlled grading, low W/C ratio, superplasticizer, thorough compaction & comprehensive curing is the best & most economical way to achieve concrete durability in the midst of hot & aggressive environment in marine ambience."





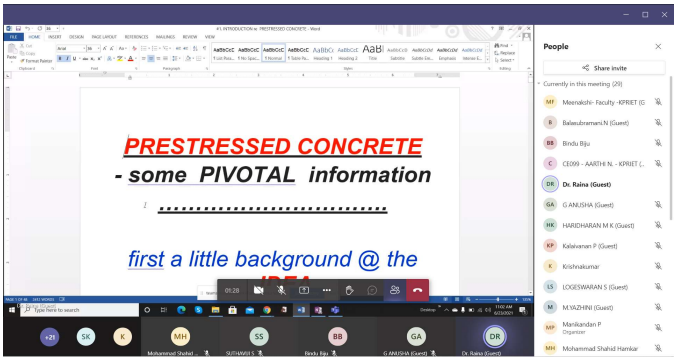
Student Chapters News

Days 3 & 4: 23-24 June 2021

Prestress, prestressing and its working

Key Takeaways:

1. Described the high tensile steel strand and tendons
2. Pointed out the various types, diameters and various shapes of prestressing steels with pictures and tables
3. Mentioned the various types of wedges, Anchorage and bearing plates
4. Showed some case study regarding the joints
5. Explained the points to be noted before going for prestressing, like cables or ducts free of any clogs, spaces for movement of jacks
6. With reference to the IS 6006 (1983) a clear explanation was given on Ultimate tensile load for High tensile steel was clearly explained
7. Through formulae Losses of prestressed concrete was clearly mentioned



Day 5: 25 June 2021

Rehabilitation and Retrofitting of three bridges

Key Takeaways:

1. Elaborate case study was discussed on bridge repairing methods
2. A clear illustration was made on flexural and shear failure
3. With case studies the remedial measures taken for appropriate failures were discussed

New Student Chapters initiation

ASCE STUDENT CHAPTER

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. "Infrastructures and Buildings Safety Lecture Series" to be organized by ASCE IS SR in association with B V Raju Institute of Technology, Narsapur on October 16, 2021

2. "International Webinar Series on Geophysics, Geoenvironmental, Geotechnical, Dampers & Base Isolations" to be organized by ASCE IS SR, Malnad College of Engineering (Media Partner) and Co-host (Other Collaborate Student Chapters) on November 5th, November 19th, December 3rd and December 17th, 2021

Membership News

Retention Member: Dr. Sriniwas Prabhakar Anchuri (Practicing Advisor) from 2017 onwards to VR Siddhartha Engineering College, Vijayawada, Andhra Pradesh

New Membership: Er. Manikonda Laxmi Narasimha Rao
Practicing Professional
Hyderabad, Telangana

ASCE IS SR witnessed 1494 student members upgrading to Affiliate and Associate 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

Student Project on "Application of Biochar for Recovery of Nutrients and its Environmentally-safe Reuse"

Ms. Divya D. R., final year B.E. Civil Engineering student of Malnad College of Engineering, Hassan, Karnataka, India under the guidance of Dr. Vijay V. Nair virtually presented a Poster out of her B.E. Final Year Research Project at the **International Conference on Sustainable Biowaste Management 2021** organized by Hong Kong Baptist University, Hong Kong SAR, PR China during 12 – 15 April 2021

NUTRIENT RECOVERY USING BIOCHAR DERIVED FROM AGRICULTURAL WASTE AND ITS ENVIRONMENTALLY-SAFE REUSE

V.V. Nair*, D.R. Divya, R. Deekshith

Department of Civil Engineering, Malnad College of Engineering, Hassan, India 573 202
** Corresponding author. Tel: +91 96113 33234, E-mail: vv@mcehassan.ac.in*

With the introduction of strategies to improvise global agricultural sector, various challenges faced has to be addressed which includes low productivity (averaging to 60 per cent of the World average), supply chain management and product lifecycle management, and mounting threat to sustainability arising from depleting quality of natural resources, biotic and abiotic stresses, and inefficient use of agricultural wastes. The present research work attempts to narrow down the wide gap existing between the research laboratories and agricultural fields. The release of excess nutrients (nitrogen and phosphorous) through domestic wastewaters and agricultural effluents pollutes the water environment. Thus, not only poses threat to aquatic ecosystem, but also affects human health and other productive activities. The main objective of the present research work was to evolve an appropriate technique not only for the treatment of the wastewater stream but also to ensure recovery of nutrients using biochar and their environmentally-safe reuse.

Biochar as a product has many uses, including water filters and soil improvement properties. Nutrient recovery from agricultural effluents and domestic wastewater using biochar derived from agricultural waste and its reuse in agricultural fields for soil replenishment have the potential to contribute to the better nutrient stewardship and provide some degree of diversification of nutrient supply to help nutrient security in agricultural land. The present research evaluated the performance of utilization of biochar produced from agricultural wastes in the separation of nutrients from synthetic wastewater and actual wastewater (domestic sewage/ agricultural effluent). The characteristics of the biochar derived from agricultural waste before and after the experiments were determined in terms of chemical composition, surface imaging, presence of desirable functional groups, crystallinity due to presence of mineral structures, and the type of micropores. Batch studies using finite volume of mono-nutrient synthetic wastewater and actual realistic wastewater were conducted to study the adsorption behaviour, kinetics and thermodynamics. Further, continuous flow studies were also conducted using mono-nutrient synthetic wastewater and actual realistic wastewater using adsorption columns. The interferences from rest of the pollutants in the wastewater in the adsorptive separation of nutrients were revealed using sophisticated analytical techniques, a supporting mechanism for the adsorptive process was also detected in the case of realistic wastewater. Furthermore, the suitability of the pollutant-laden biochar as environmentally-safe soil replenisher was also evaluated by conducting dynamic leaching tests. A most appropriate reuse or stabilization of the spent adsorbent was also evolved based on the results of dynamic leaching tests.

The results of the research work were highly promising for field application. In addition, the study assessed more accurately the scope for the recovery of nutrients from various wastewater streams for the possible utilization in agricultural fields as soil nutrient replenisher.

Keywords: *Nutrients, Recovery, Wastewater, Biochar, Environmentally-safe reuse.*

ASCE India Section Southern Region - A Brief History

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 1st 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.