



# IEI NEWS

January 2023

Reports of 37<sup>th</sup> Indian Engineering Congress

1-16

Green Energy & Clean Energy for New India

17

Green Building, Innovation and Sustainability

18

Energy Conservation Day

20

New Technologies and Renewable Energy-Based Electro Mobility

24

IEI Diary

26

Role of IEI for Nation Building

28

A CENTURY OF SERVICE TO THE NATION

Volume 29

Number 10

*IEI wishes its Members a Happy New Year*

**37<sup>th</sup> Indian Engineering Congress, Chennai**

## Role of Engineers for Creating a Sustainable & Self Reliant India

The 37<sup>th</sup> Indian Engineering Congress of The Institution of Engineers (India) was organized by the Tamil Nadu State Centre of the Institution on the theme **Role of Engineers for Creating a Sustainable & Self Reliant India** during December 16-18, 2022, at Hotel Le Royal Meridian, Chennai. Dr K Ponmudi, Hon'ble Minister for Higher Education, Government of Tamil Nadu graced the Inaugural Function as Chief Guest and Dr A Sivathanu Pillai, Founder CEO & MD, BrahMos Aerospace, Former Honorary Distinguished Professor, ISRO, Former Chief Controller (R&D), DRDO, Honorary President PMA – India and Prof (Dr) R Velraj, Vice Chancellor, Anna University, graced the occasion as Guests of Honour. Dr Hemant O Thakare, President, IEI presided over the



function and delivered the Presidential Address. Er C Debnath, President-Elect, IEI, graced the function as the Special Guest. The mega event of the Institution was started with invocation and lighting of the lamp. Mr S Kannan, Chairman, Tamil Nadu State Centre welcomed the Chief Guest, Guests of Honour, Special Guest, Awardees, dignitaries on the dais and off the dais, Past Presidents, Council Members and the delegates. Dr T M

Gunaraja, Past President, IEI and Chairman, Organizing Committee, 37 IEC addressed the august audience and explained the objective of the Congress. The message from the Hon'ble Prime Minister of India was shared by Maj Gen MJS Syali, VSM (Retd), Secretary & Director General, IEI. Chief Guest of the function, Dr K Ponmudi, focused his address on the importance of synergy between industry and academia. The Hon'ble Minister further mentioned the significance of skill development for the engineers to enhance their employability. He further elaborated on different aspects of the development of engineering education in the country, modification of the engineering curriculum and the importance of engineering and technical education for all. He urged industry leaders and academics to work together more closely to improve engineering education. Guest of Honour of the function, Dr A Sivathanu Pillai, in his address highlighted the contribution of IEI in nation building. Dr Pillai, in his address discussed at length the development of science and technology in the country, the policies and regulations of the Government of India that leads to self-reliance and the role of engineering community for societal development.

Dr Hemant O Thakare, President, IEI in his Presidential Address, stated that the philosophy of self-reliance and self-sufficiency underpins the Indian engineering scenario. He said that Indian engineers will play a critical role in achieving a sustainable and self-sufficient India, aided by seamless engineering and technology capabilities and tempered by congruent government policies. Sustainable development emphasizes the responsible use of energy and resources; In the current context, he added that sustainability is a major concern because reckless patterns of production and consumption have resulted in polluted air and water quality, which is harmful to the planet's flora and fauna.

Er C Debnath, President-Elect, IEI, in his address, enumerated the ways in which the Indian engineering community has done itself proud in recent years by adhering to the principles of self-reliance and self-sufficiency. He felt that leadership for India will come only when all those with authority and money use them not only for their own profit, but also for the benefit of those who do not have them. He further opined that rationalization of resource allocation will be required to uplift the poorer and more vulnerable sections of society. He added



Contd. on page 2



### Role of Engineers for Creating a Sustainable & Self Reliant India

Contd. from page 1

that the ultimate goal should be poverty reduction through fair pursuit of prosperity, and the engineering community will harness and manage natural resources through an equity lens and a level playing field of demand.

On the occasion, the Technical Proceedings and the Souvenir of the 37<sup>th</sup> Indian Engineering Congress were released in the august presence of Chief Guest, Guests of Honour and the dignitaries on the dais. The prestigious IEI Industry Excellence Award 2022, IEI Education Excellence Award 2022, IEI Safety & Quality Awards 2022 were presented during the occasion.

The IEI Industry Excellence Award has been instituted to recognize industry leaders for their innovation, excellence in engineering operations and services, and their capacity to sustain excellence in a competitive manner. The benchmarks created by the industries in India have included productivity, quality, safety and performance assurance, which will give India its rightful place in the global markets. Delegates from reputed industries all over India graced the Award function with their august presence. For the year 2022, the IEI Industry Excellence Awards were presented in three categories, namely: Engineering Manufacturing & Processing, Engineering Organizations in Construction Industry and Engineering Services and Consultancy.

In the category, **Engineering Manufacturing and Processing**, the Awardees are

Hyundai Motor India Limited, Chennai  
Hindustan Aeronautics Limited, Bangalore  
NMDC Limited, Hyderabad  
Lenovo India Private Limited, Puducherry  
Action Construction Equipment Limited, Palwal, Haryana  
ONGC Tripura Power Company Limited, Gomati, Tripura  
Bharat Fritz Werner Limited, Bangalore  
Carborundum Universal Limited, Ernakulam  
Shakti Hormann Private Limited, Dundigal  
Global Engineers Limited, New Delhi  
CDET Explosive Industries Private Limited, Nagpur  
Avantel Limited, Hyderabad

In the category **Engineering Organization in Construction Industry**, the Awardees are

Afcons Infrastructure Limited, Mumbai  
TATA Projects Limited, Secunderabad

In the category **Engineering Services and Consultancy**, the Awardees are

Engineers India Limited, New Delhi  
Intercontinental Consultants and Technocrats Private Limited, New Delhi  
Maharashtra State Electricity Transmission Co Limited, Mumbai  
Consulting Engineers Group Limited, Jaipur  
Development Envionergy Services Limited, Delhi  
Structwel Designers & Consultants Private Limited, Mumbai  
B&S Engineering Consultants Private Limited, Delhi

On the occasion, the **Certificate of Appreciation** for commendable quality of industrial performance were presented to

JSW Steel Limited Dolvi Works, Maharashtra  
Maral Overseas Limited, Khargone, Madhya Pradesh

Eagle Burgmann India Private Limited, Pune

Automat Industries, Aurangabad

Adani Transmission Limited, Ahmedabad

Chhattisgarh State Power Transmission Company Limited, Raipur

Power Trading Corporation. India Limited, New Delhi

Delhi Integrated Multi-Modal Transit System Limited

Epicons Consultants Private Limited, Mumbai

Avant-Garde Systems and Controls (P) Limited, Chennai

Tandon Consultants Private Limited, Delhi

Ruky Projects Private Limited, Hyderabad

The IEI Engineering Education Excellence Award has been instituted to recognize leading Engineering Educational Institutions and encourage them to provide better and more effective engineering education across the country. Recognizing that such engineering educational institutions can provide leadership to a significant number of other prospective institutions in the country, the IEI Council decided to evolve a mechanism to appreciate and recognise these institutions with this Award. The IEI Education Excellence Award 2022 was presented to the following engineering institutions/colleges for their remarkable performance and high benchmarks in the field of engineering education in three categories, namely Best Engineering College/ Institution, Best Engineering Polytechnic and Best Women Engineering College/ Institution.

In the category **Best Engineering College/ Institution**, the Awardees are

Visvesvaraya National Institute of Technology Nagpur  
Mepco Schlenk Engineering College, Tamilnadu  
G H Raisoni College of Engineering, Nagpur

In the category **Best Engineering Polytechnic**, the Awardee is

Thiagarajar Polytechnic College, Salem

In the category **Best Women Engineering College/ Institution**, the Awardees are

Shri Vishnu Engineering College for Women, Andhra Pradesh  
G Narayanamma Institute of Technology and Science, Hyderabad

On the occasion, the **Certificate of Appreciation** for satisfactory contribution in the field of Engineering Education were presented to the following institutions. In the category Best Engineering College/ Institution, the Certificate of Appreciations were presented to

Manipal Institute of Technology, Karnataka  
Hindustan Institute of Technology and Science, Chennai  
National Institute of Technology Srinagar  
Sona College of Technology, Tamilnadu  
New Horizon College of Engineering, Bengaluru  
Rajalakshmi Engineering College, Tamilnadu  
Sant Longowal Institute of Engineering & Technology, Punjab  
All India Shri Shivaji Memorial Society College of Engineering, Pune

In the category **Best Women Engineering College/ Institution**, the Certificate of Appreciations were presented to

Vivekanandha College of Engineering for Women, Tamilnadu  
Indira Gandhi Delhi Technical University for Women, Delhi

Contd. on page 6



## Address by



## Er C Debnath

### President, IEI

Text of the Presidential Address delivered by Er C Debnath, President, IEI during the 103<sup>rd</sup> Annual General Meeting of the Institution held in Chennai on December 18, 2022

**Respected Immediate Past President, Past Presidents of the Institution, my dear fellow Council Members and the Corporate Members of The Institution of Engineers (India)**

It is a matter of great pleasure, honour and privilege for me to have been installed as the 94<sup>th</sup> President of The Institution of Engineers (India) for the session 2022-23 at its 103<sup>rd</sup> Annual General Meeting in the city of Chennai, famous for its rich architecture and cultural heritage. I would like to sincerely thank the Council of the Institution for reposing their faith on me and I look forward to the collective wisdom of the IEI Council in rendering efficacious services to all our stakeholders. I am thankful to all my well-wishers and friends in the engineering community and those who are present here whose encouragement and support that have provided me an opportunity to serve the Institution. I assure all of you of my unswerving commitment and dedication to undertake the task at hand.

On this occasion, I feel it appropriate to remember the doyens of engineering profession namely Bharat Ratna Sir Mokshagundam Visvesvaraya, Sir R N Mookerjee, Dr A N Khosla, Dr Triguna Sen, Dr Amitabha Bhattacharyya, Padma Bhushan Dr K L Rao, Dr M S Thacker and many other illustrious engineering personalities whose dedication and contribution to the development of engineering in the country have been widely acclaimed and respected. It is also with pride that we take note of many luminaries who were at the helm of affairs of this august Institution and contributed to its multidimensional growth through their visionary approach and leadership. I must also extend my thanks and appreciation to my immediate predecessor, Dr Hemant Omkarrao Thakare, who has rendered able leadership to this Institution.

I seek guidance and whole hearted co-operation from the esteemed Immediate Past President, Past Presidents and Council Members of this Institution to discharge my responsibilities for achieving the objectives and goals of this great Institution. I also look forward for support & Co-operation of all State/Local Centres, Fora, Corporate members with active involvement of all Staff of IEI, HQ & Centre level.

#### The Institution of Engineers (India)

During its glorious journey spanning over 102 years, the Institution has been at the forefront of Nation building by promoting the general advancement of engineering among its members and attached persons and acquired prestige of the engineering fraternity by upholding its interests. The growth and effectiveness of the Institution is attributable to the robust governance system which has withstood the test of time and also to the commitment and dedication of leaders and employees.

The Institution has always believed in inclusivity. In 1928, when the infrastructure of engineering education in India was inadequate, the Institution in its wisdom commenced conducting Sections A and B Examinations in engineering disciplines which came to be popularly known as AMIE examinations for diploma holders and working professionals, creating engineers with a strong theoretical and practical foundation.

AMIE recognition, issues/lapses in financial management, severe strain of IEI Finances, restoring dignity and honour of our Members in the Engineering Profession, our role in new digital world are some of our challenges. We shall all have to put our effort together to resolve them and move ahead.

The Institution of Engineers (India) is recognised as Scientific and Industrial Research Organisation by Govt. of India. IEI is promoting the R & D Grant-in-Aid programme which is recognised by the Department of Scientific & Industrial Research Organisation, Ministry of Science & Technology, Govt of India. This R & D Grant-in-Aid is provided by IEI to encourage researches by IEI Members who are Faculty and Students of Engineering Institutes.

We are privileged and fortunate to have the guidance of a visionary Council who established various Fora to address specific interest areas in the cause of the development of the Nation and also the Engineering Staff College of India (ESCI), the Autonomous Organ of IEI which has now become the cornerstone of our continued professional development initiatives. Our 125 State & Local Centres all over India are vibrant, conveniently located and provide yeoman service to the engineering community.

The Institution serves its overseas members through six Chapters; Abu Dhabi, Bahrain, Kuwait, Qatar, Dubai and Nepal. IEI has bilateral relationships with 34 international professional societies of repute. IEI has bilateral relations with World Federation of Engineering Organizations (WFEO), Federation of Engineering Institutions of South and Central Asia (FEISCA) and Federation of Engineering Institutions of Asia and the Pacific (FEIAP), Federation International du Beton (*fib*).

IEI is dedicated to provide technological support for societal development to achieve congruence and harmony through its Seven Forum:

- **Rural Development Forum, (RDF)** is the functional body for developing and promoting technologies in rural mechanization.
- **Sustainable Development Forum (SDF)** promotes advancement of engineering for sustainable development.
- **Water Management Forum, (WMF)** promotes and advances the engineering and practice of economic and cost-effective management of water resources.
- **National Design and Research Forum (NDRF)** of the Institution provides a national platform for promotion of design, research and development in a multi-dimensional framework.
- **Safety and Quality Forum (SQF)** promotes and propagates the concept of Safety and Quality through networking mechanism, assist industrial/government unit in undertaking quality and/or safety audits and develop courses.
- **National Skill Development Forum (NSDF)** plays the key role in the area of skill enhancement, capacity building, and quality training in emerging field of technologies.
- **The Disaster Awareness and Management Forum (DAMF)** has been extending technical co-operation and assistance in natural calamities e.g. landslide, cloud bursting, earthquake etc.

The Institution has a rich legacy of establishing and nurturing links with renowned global professional engineering bodies. These global linkages have facilitated us in extending our outreach to further our bonding and sharing of knowledge with fellow engineers.

The Institution played pioneering role in building technical competencies in all branches of engineering. The 15 Engineering Divisions of IEI, vibrant with a variety of technical activities, makes it a unique multidisciplinary professional body of engineers.



For a number of years the Institution was the regulatory organ for recognition of quality in engineering education prior to AICTE. It is now time to set new goals with more meaningful and pragmatic perspective.

The Indian Engineering Congress is the Annual Flagship event of The Institution of Engineers (India). The Mega Event enlightens the engineering fraternity about the trends and developments in different engineering application domain.

### Significant Opportunities and Way Forward

#### *Digital Transformation*

In the post pandemic era, digitalisation is the top priority for the business and organisational leaders in both public and private sectors. Organizations are engaged with the strategic adoption of a wide range of digital alternatives and solutions in order to improve internal processes, productivity, and having the specific goal for its implementation to increase value through innovation, invention, customer experience or efficiency. Thus the organizations are reskilling their workforce, overturned age-old business models, and embraced digital technologies from chat bots to block chain, in rapid response to the pandemic. Similarly, digital transformation in the education industry helps to improve the learning experience for the community, which principally focus on improving engagement and accessibility through interactive and customized learning. I am very much hopeful that in this phase of transformation in both industry and academia, IEI, with its multidisciplinary technical discourse all over the country, is able to establish the synergy within the industry leaders, academicians, industry experts, research scholars and the students, resulting immense benefit for all stakeholders for their professional advancement.

To ensure that technical activities continue to run in a smooth, flexible and ubiquitous manner during this global pandemic time and beyond, IEI has introduced cloud based events under the nomenclature 'IEI Technical Webinar' using virtual event hosting platform.

#### *More Involvement of Industries*

IEI recognized the contribution of pioneering industry leaders in the country and strongly advocated for dissemination of knowledge and expertise by means of interaction within industry and academia. Enhanced participation in the technical activities of IEI by the industry professionals will also augur well for the organization. It is worth mentioning that with modest effort, we have witnessed substantial increase in participation from the industries in the technical events organized by the Institution. The encouraging response received in IEI Industry Excellence Award and papers received from number of industries for technical sessions in Indian Engineering Congress reinforce the matter further. It is the time for the academia and industries to embark on a single platform to share ideas and views and provide significant policy inputs.

#### *Upskilling and Reskilling of Manpower: Role of IEI*

The global pandemic has ushered in a scenario, when the workers across different industries are trying to figure out how they can adapt to the rapidly changing disruptive technologies, and companies have to learn to map the skills of these workers to new roles and activities. To meet these unforeseen challenges, companies have crafted talent strategies that develop employees' critical digital and cognitive capabilities, their social and emotional skills, and their adaptability and resilience. Similarly academic institutions are engaged to redraft their course curriculum based on hybrid learning model. The faculties and students are also adopting the state-of-art teaching-learning tools. IEI has a significant role in this skill orientation programmes. As I already mentioned, importance of industry-academia interface is self-explanatory.

#### *New Opportunities and Challenges*

Keeping in mind the contemporary needs of industry and society, I feel that our Institution should concentrate on the following five-point programmes.

#### *Alignment of Technical Activities with National Education Policy 2020*

This is the right time for the Institution to align with the mandates of national

Education Policy 2020 with the objective to empower IEI as an Institute of national importance/institute of eminence.

#### *IEI Start Up Initiatives*

This is the right time to utilize and integrate the deep domain expertise available with the dynamic and vibrant Corporate Members of the Institution. IEI should formulate suitable strategy to encourage the entrepreneurial zeal of our members, students and to this end, IEI may constitute a Startup Incubator, where there will be a common platform, when the incumbents can interact with the venture capitalists/angel investors. IEI may coordinate with the Department for Promotion of Industry and Internal Trade (DPIIT), Government of India, mandated to coordinate implementation of Start-up India initiative with other Government Departments.

#### *Membership Outreach Programmes with Industry*

This is the challenge for our Institution to align the technical activities with the needs and expectations of the industries from IEI. I feel that IEI with its strong network and outreach all over the country is well-poised to address this challenge. IEI should intensify the interaction with industries through a structured framework. Organization of technical events on regular basis by the State and Local Centres of IEI in association with the local industry bodies and sharing common platform with them on contemporary technical issues will definitely help IEI to achieve the milestone of IEI.

#### *Skill Development and Faculty Development Workshops*

As I have already mentioned, in the post pandemic situation, with the introduction of digital transformation and technological disruption, upskilling and reskilling of manpower in both industry and academia are the need of the hour. The National Conventions, All India Seminars & Workshops, One Day Seminars & Workshops are organised on regular basis all over India to enhance professional competency at all levels. IEI may organise Faculty Development Programmes in both physical and virtual mode, when the notable academicians from different fields will deliver on the state of art teaching learning tools.

#### *Intervention for Policy Formulation in State and Central Government Levels*

Just I have mentioned that technical activities are organised in full swing all over India under the active involvement of our State and Local Centres. I request the Centres of the Institution to formulate the themes of the technical events in line with the policies and strategies of the relevant Ministries as well as concurrent issues, need and focus of the respective State Government. I also request the organizers to emphasize upon the fruitful deliberations during the technical sessions, which results emanations of recommendations at the end of the technical sessions and thus be a part of strategic policy formulation at state and central level.

To achieve the goal, we shall try our best to glorify IEI as an Institution of National Importance and provide new dimension to professional education by introducing user-friendly learning concept. We should provide sincere efforts to encourage R&D and more technical activities by the Institutional Members of IEI. IEI is putting its relentless effort to bring out the publications including IEI News, IEI Epitome, IEI Springer Journals, technical proceedings, enriched with updated technical content, which provide adequate academic and professional support for the Corporate Members of IEI. I am very much hopeful that IEI will retain its rank and recognition in global forum. It is the time to interact more with our Corporate members, Institutional members, industries and collaborative organizations frequently and in a more meaningful way. This continuous persuasion will be helpful in strengthening our Membership.

#### **Conclusion**

I am confident to achieve the goal with whole hearted support from all stakeholders of IEI and can usher into a new era of development for our beloved Institution. Let us join hands and work in tandem to uphold the banner of this prestigious Institution.

I wish you all and your family members a Very Happy Prosperous New Year 2023.



## WFEO-CIC SESSION ON

# SDG 9 - Industry, Innovation and Infrastructure: Ahmedabad Metro Rail Project

A WFEO-CIC Session on the topic '**SDG 9 - Industry, Innovation and Infrastructure: Ahmedabad Metro Rail Project**' was organized under the aegis of WFEO-CIC on 17 December 2022, between 15:45-16:45 (IST), concurrently with the 37th Indian Engineering Congress at Chennai.

The program was graced by Dr H O Thakare, President, IEI, Mr Navinchandra B Vasoya, Member, Executive Council, WFEO & Past President, IEI, Mr Ashok Kumar Basa, Vice-President, WFEO & Past President, IEI, Mr S S Rathore, Chair, WFEO-CIC & Past President, IEI and Maj Gen MJS Syali, VSM (Retd), Secretary & Director General, IEI.

The program commenced with a pre-recorded brief address from Prof. Dr. José Vieira, President, WFEO who congratulated the organizers of this Congress and The Institution of Engineers (India). He mentioned that WFEO, the International Organization for the Engineering Profession, was founded in 1968 under the auspices of UNESCO and brings together national and international engineering institutions from some 100 nations and represents more than 30 million of engineers around the world. WFEO serves as the peak body of engineering organizations and represents the profession of engineering at the global level before the United Nations and other international and intergovernmental organizations. The Federation also relies on its national and international members to foster regional cooperation to the benefit of their communities. WFEO sees high value in professional engineering institutions, cooperation at a variety of levels and in as many fields of engineering as possible. All partnerships between national and regional engineering institutions enhance the global effort of engineers, towards contributing to a better future and towards building a more sustainable world. He mentioned that according to estimated figures, the population of India will be largest in the world in the year 2030. India is one of the important countries in the world which is playing a vital role in several pertinent global issues, added Prof Vieira. He mentioned that The Institution of Engineers (India), established in 1920, is the largest and oldest professional body in India, spreading over the entire country, and is a founding and a very important member of WFEO and thanked IEI for its continuous support to WFEO throughout recent years. He brought out that currently, IEI is well represented in the governance of WFEO with two Past Presidents of IEI, namely, Mr S S Rathore and Mr Navinchandra B Vasoya as Members of WFEO Executive Council and Mr Ashok Basa, Past President, IEI elected as the WFEO Executive Vice President for the period of 2021 to 2025. All these members of IEI are having a very active participation in WFEO. Prof Vieira went on to mention that Indian engineers have achieved remarkable developments in science and technology over the past years, and IEI has made a huge contribution to WFEO's activities during the past decade in successfully hosting the Committee on Engineering and Innovative Technologies and then the Committee on Information and Communication for the periods of 2015 to 2019 and 2019 to 2023 shared by the Mr S S Rathore. He expressed his satisfaction over the fact that WFEO-CIC will be hosting an exclusive session alongside the 37th Indian Engineering Congress on SDG 9 showcasing an example of good practices that engineers can bring to the interlinked communication and transportation industries and how our commitments can be brought to action.

Prof. Dr. José Vieira, President, WFEO mentioned that in 2021, UNESCO published its second Engineering Report. The report acknowledged that engineering is critical to building more resilient societies industries and to successfully fight against climate change and adapt to its consequences. Those objectives are closely dependent on emerging technologies that will allow some substantial improvements in strategic fields such as decarbonized energies, resilient infrastructures, reducing disaster risks as well as mitigating the effects of climate change and providing high-quality

education to all through a synergy involving government support, industrial vision and partnerships. Moreover, it is crucial that scientists and engineers work closely together in a context that fosters cooperation and creativity.

Address by the President, WFEO was followed by a keynote address by Mr S S Rathore, Past President, IEI and Chair, WFEO-CIC. After a brief introduction and welcome to the audience, Chair WFEO-CIC explained the long relationship between WFEO & IEI, about IEI being the founder member of WFEO and its involvement with the UNESCO, the activities of WFEO-CIC and the details of efforts to achieve UN SDG's, WFEO role in the same and CoP meetings. He then delivered his keynote lecture on "SDG 9 – Industry, Innovation and Infrastructure: Ahmedabad Metro Rail Project" in which he explained the various items of a Metro network, planning etc. He mentioned that nowadays, Sustainable Development is the keyword and all countries are concerned about the environment.

At present, WFEO works on sustainable development goals through its Standing Technical Committees and working groups which form the backbone of the Federation.

Chair, WFEO-CIC mentioned that the countries hosting the Standing Technical Committees go through the procedure of bidding for a Committee by submitting the strategic plan and budget along with the commitment following the Rules of Procedure of WFEO. WFEO-CIC is working on SDGs 9 and 11 in accordance with the requirement that each committee should only focus on two SDGs. He added that the Committee must think internationally rather than locally while defining CIC initiatives. The Committee takes on its own projects and manages on its own the expenses required to run its affairs and surpluses, if any, are contributed to the coffer of WFEO.



Chair, WFEO-CIC went on to mention that India represents a developing economy with burgeoning population and rapid urbanization, which needs to be managed safely against defined targets enumerated under the SDGs with focus on key aspects like resilience, safety, inclusivity and most importantly, sustainability. The population growth coupled with land shortage prompted the need for a better public transport network. He presented a detailed report on Ahmedabad Metro, which involved works under the following verticals-construction, systems and operations. The other highlight of the presentation was the multi-modal integration (connectivity with other transport modes) concept. The presentation on the metro project brought out the following issues that are associated with a modern transportation system: less travel time, increase in productivity (cost & time), reduction in traffic congestion, shift towards public mode of transport, reduction in air pollution, reduction in carbon emissions and revenue generation through carbon credits. The Central Government and the State Government each contributed equally to the funding of the project.

The Session concluded with a vote of thanks by Maj Gen MJS Syali, Secretary & Director General, IEI.

## Role of Engineers for Creating a Sustainable & Self Reliant India

Contd. from page 2

The objective of the Safety and Quality Forum, the autonomous Fora of IEI is to promote and propagate the concept of Safety and Quality through networking mechanism, assist industrial/government units in undertaking quality and/or safety audits and develop courses, syllabi and course materials for 'Safety Engineering', 'Quality Management' and 'Reliability Engineering' for different levels of engineering education and recommend the same to educational authorities/institutions. The Safety and Quality Forum instituted the Safety and Quality Awards for recognizing professional excellence in the Manufacturing and Service Sector, which are presented during the Indian Engineering Congress every year.

The recipient of the Safety Award for the year 2022 is Dr R K Sharma, Commissioner of Railway Safety & Commissioner of Metro Rail Safety, Western Circle, Mumbai and the recipient of the Quality Award for the year 2022 is Shri Manoj Kumar, Chief Engineer, South (M), Public Works Department, Government of NCT of Delhi.



The Inaugural Function was well attended by illustrious Past Presidents, Vice Presidents, Council Members & Corporate Members of IEI, Delegation from industries, Awardees, Engineering Professionals, Academicians, Research Scholars and representatives from the entire gamut of the engineering fraternity. Maj Gen MJS Syali, VSM (Retd), Secretary & Director General of the Institution, proposed the vote of thanks.

The inaugural ceremony was followed by Memorial Lectures in memory of distinguished engineering personalities, delivered by eminent experts in the field, felicitation of distinguished engineering personalities, Visionary Talks, delivered by eminent speakers & doyens of engineering personalities and Women Engineers' Meet.

In the august presence of Dr Hemant O Thakare, President, IEI, and Er C Debnath, President-Elect, IEI, the prestigious Prizes and Awards in various categories for papers published in the journals of The Institution of Engineers (India) during the year 2021 were presented to the respective awardees.

During the occasion, a Technical Exhibition was inaugurated by the President, IEI with active participation from reputed organizations.

During the technical sessions organized during the Engineering Congress, papers were presented on diversified topics, which included digital



transformation, advances in biofuel, application of green hydrogen, advances in manufacturing technology, studies on alternative building materials, construction materials, waste management, application of IoT in agriculture, modern digital world, material selection in engineering design etc. Dr Seeram Sathyanarayana, Council Member, IEI chaired the Technical

Session of Production Engineering Division, Dr Enti Ranga Reddy, Council Member, IEI chaired the Technical Session of Mechanical Engineering Division, Prof (Dr) Girish Shrikisan Mundada, Council Member, IEI chaired the Technical Session of Electronics & Telecommunication Engineering Division, Dr S Dharmalingam, Council Member, IEI chaired the Technical Session of Electrical Engineering Division. Dr S Kanmani, Professor and Director, Department of Civil Engineering, Centre for Environmental Studies, Anna University, Chennai and Dr S Lavanya Prabha, Professor & Head, Department of Civil Engineering, Easwari Engineering College, Chennai chaired the Technical Session of Civil Engineering Division. The sessions drew a large number of audience comprising practitioners, academics, researchers, and students.

During the Valedictory Function, Dr T M Gunaraja, Chairman, Organizing Committee delivered the welcome address. Dr Hemant O Thakare, Immediate Past President, IEI introduced Er C Debnath, President, IEI. In his Valedictory Address, President, IEI mentioned that the goal of the Congress was to promote ideas, broaden the operational horizons of engineers from various disciplines, and pursue newer domains and concepts, as well as to provide engineers with a forum for exchanging information, updating knowledge, and stimulating a sense of responsibility in their professional work. The event is also intended to enhance worldwide and national cooperation in engineering domains, as well as to instill and promote among engineers a growing commitment to the profession's social objectives, and to advocate engineering methods that lead to sustainable development, he added. President, IEI went on to say that during the Congress, an attempt was made to provide a platform for encouraging the interconnection and integration of societal needs, as well as the advancement of engineering and technologies for the dissemination of contemporary knowledge and the exchange of ideas and thoughts, in order to lay the groundwork for achieving the optimum and ethical technological enrichment, so that engineering and technology truly address the needs of society. President, IEI in his address highlighted that IEI has consistently engaged with policymakers to provide valuable engineering inputs that have been at the heart of many of the country's significant development initiatives. On the occasion, the Abhiyanta Bandhu, the IEI publication in national languages, was released. Mr K N Sivaraju, Honorary Secretary, Tamilnadu State Centre, proposed the vote of thanks.



The Valedictory Function was followed by the 103<sup>rd</sup> Annual General Meeting of the Institution on December 18, 2022, which was attended by a large number of Corporate Members of the Institution. The Annual Report of IEI for the year 2021-2022 and Audited Accounts of IEI for the year ending 31 March 2022 were accepted and noted during the Annual General Meeting. Thereafter, the ceremonial function of installation of New President of IEI took place, when Er C Debnath took over the charge from Dr Hemant Omkarrao Thakare as the President of The Institution of Engineers (India) for the session 2022-23 and delivered the Presidential Address. Er C Debnath presented the Scroll of Honour to Dr Hemant Omkarrao Thakare, Immediate Past President, IEI in recognition of his devoted contributions and selfless service rendered by him in the High Office as the President of The Institution of Engineers (India) for the session 2021-22.



## Presentation of IEI Industry Excellence Awards 2022



1. Hyundai Motor India Limited, Chennai; 2. Hindustan Aeronautics Limited, Bangalore; 3. NMDC Limited, Hyderabad; 4. Lenovo India Pvt Ltd, Puducherry; 5. Action Construction Equipment Limited, Palwal; 6. ONGC Tripura Power Company Limited, Gomati, Tripura; 7. Bharat Fritz Werner Limited, Bangalore; 8. Carborundum Universal Limited, Ernakulam; 9. Shakti Hormann Private Limited, Dundigal; 10. CDET Explosive Industries Pvt. Ltd., Nagpur; 11. Avantel Limited, Hyderabad; 12. Afcons Infrastructure Limited, Mumbai; 13. TATA Projects Limited, Secunderabad; 14. Engineers India Limited, New Delhi; 15. Intercontinental Consultants and Technocrats Pvt Ltd, New Delhi



## Presentation of IEI Industry Excellence Awards 2022



16. Maharashtra State Electricity Transmission Co. Ltd., Mumbai; 17. Consulting Engineers Group Limited, Jaipur; 18. Development Environergy Services Ltd, Delhi; 19. Structwel Designers & Consultants Pvt Ltd, Mumbai; 20. B&S Engineering Consultants Pvt Ltd, Delhi

## Presentation of Engineering Education Excellence Awards 2022



1. Visvesvaraya National Institute of Technology, Nagpur; 2. Mepco Schlenk Engineering College, Tamilnadu; 3. G H Raisoni College of Engineering, Nagpur; 4. Thiagarajar Polytechnic College, Salem; 5. Shri Vishnu Engineering College for Women, Andhra Pradesh; 6. G Narayanamma Institute of Technology and Science, Hyderabad



# Memorial Lectures

The following Memorial Lectures, instituted by the Institution in memory of stalwarts in the engineering profession, are a salient feature of the Indian Engineering Congress organized annually by The Institution of Engineers (India). During the Thirty-seventh Indian Engineering Congress, these lectures were delivered by leading experts from diverse fields. Following are some excerpts of the lectures.

## The 65<sup>th</sup> Sir M Visvesvaraya Memorial Lecture

### Strategies to Emerge as Aatma Nirbhar Bharat & to Turn as Vishwaguru in 2047

**Prof R Velraj**

*Vice Chancellor, Anna University, Chennai*

Dr R Velraj in his address elaborated in detail the national agricultural sustainability and food security. He spoke on different phases of the transformation of material, energy and information, emission scenario of the country and its' effect on sustainable growth. Dr Velraj further spoke on global competency in higher education and explained SWOT Analysis for sustainable development and societal upliftment and stated that citizen-centric deformation, harnessing youth power and strong leadership are the strengths of the nation. He also advocated for the introduction of social entropy in order to close the weakness gap and constitution of human capital for long term growth. Dr Velraj discussed the key components and technology roadmaps for societal development and economic empowerment. He emphasized on managing human resources, implementing value based education, product development through an entrepreneurial eco system and so on. The speaker concluded his lecture with the identification of ideological key drivers, linked with education to sustain the megatrend towards global leadership, which include demographic and social change, shift in global economic power, rapid urbanization, climate change, scarcity of resources and technological breakthroughs.



## The 44<sup>th</sup> Sir Rajendra Nath Mookerjee Memorial Lecture

### Self Reliance Aspects in Launcher and Launch Vehicle Operation

**Dr R Venkataraman**

*Outstanding Scientist and Associate Director, Satish Dhawan Space Centre, Sriharikota*

Dr Venkataraman began his lecture by recalling Sir R N Mookerjee's contributions to engineering, science and technology. In his lecture, he went over the properties of the launch material in great detail. He explained the self ignition properties of chemicals in liquid propulsion system. He further spoke on the application of hydrogen and oxygen at low temperatures as cryogenic fluids. He explained the development of space technology in terms of prosperity and technological advancement. He explained significant aspects of launch vehicles, propellants, propulsion systems, satellite power management, application of satellites, functional aspects of orbits, satellite launch pads, launch vehicle assembly, PSLV integration activities etc. He explained active and passive control of aircraft, locus of trajectories, avionics, data communication, Radio Frequency Telemetry etc. He further spoke on the function of reusable launch vehicles, flight profiles, environmental control, life support systems etc.



## The 31<sup>st</sup> Dr Amitabha Bhattacharyya Memorial Lecture

### Role of Engineers for creating a Sustainable & Self Reliant India

**Dr R Umamaheswaran**

*Distinguished Scientist & Director, Human Space Flight Centre, ISRO, Bengaluru*

Dr. Umamaheswaran began his lecture by focusing on engineers' roles, which include: converting resources into products for propelling growth of economy and enhance development; Providing solutions that are efficient, user friendly, cost effective and time saving; Development of various kinds of technologies for different sectors, namely Agriculture, Communication, Defence, Energy, Industries, Information Technology, Minerals, Space, Infrastructure development, Education, Health Care, Sports, Transport and Tourism. In his lecture, the speaker elaborated on the path leading to a sustainable & self-reliant India, namely; Adopting world class processes; Manufacturing with indigenously available resources; Indigenization of critical technologies; Giving thrust to new research and development domains; Skill Development including re-skill and up-skill; Promoting competitive domestic manufacturing market; Encouraging establishment of startups and encouraging affordable innovations. He explained self reliance in manufacturing launch vehicle and satellites, ocean and agricultural sciences, remote sensing, defence communication systems etc. He explained the contribution of ISRO in resource management, disaster management, communications, navigations, space research oriented mission etc. He went on to discuss Gaganayan Mission, which envisaged the demonstration of human space flight capability. He explained the Crew Module, Environmental Control and Life Support System, He discussed



the Crew Module, the Environmental Control and Life Support System, the Precursor Missions, the Crew and Crew Module recovery operations, mission-specific training in India, and the Crew Training Simulators at ATF, which include Virtual Reality Training Simulator (VRTS), Static Mock up Simulator (SMS) and Independent Training Simulator (ITS). He further explained the Mission beyond Gaganayan for promoting Sustainable India, which includes increasing investments in space mining technologies, adoption of in-situ resource utilization in space exploration, etc. He further emphasized the introduction of collaborative models with R&D labs and academia for space science development. The speaker concluded his lecture by recommending a few anecdotes for making India self-reliant in space science, which include technology transfer, interdepartmental collaboration, capacity building, enhanced testing support and technical consultancies, authorization in spacecraft control, data access, communication, navigation etc.

## The 48<sup>th</sup> Bhaikaka Memorial Lecture

### Role of Engineers for Creating a Sustainable & Self Reliant India

**Mr Ganesh Mani**

*President and Chief of Operations, Ashok Leyland, Chennai*

Mr Ganesh Mani highlighted the Net Zero Emission Policy in India. He further spoke on the manufacturing excellence and global position of India in manufacturing. He focused on the future of auto industry, future prospects of eco-friendly vehicles, connected vehicles, autonomous vehicles etc. He explained the significant aspects of sensor processing, adaptive algorithms, high processing maps, enhanced AIs etc in the auto sector and further stressed on future mobility solutions. He spoke on the future business direction, elevating the level of competency by means of flexibility approach, which leads to rebuild mixed production eco system. Mr Mani further emphasized career and competency development in core engineering sectors with more exposure to data driven decision making systems, data analytics and digital transformation.



## The 57<sup>th</sup> Nidhu Bhushan Memorial Lecture

### Integrated Project Delivery (IPD) and Digital Intervention

**Dr C Velan**

*Head, CapitaLand Investment (India), Chennai*

Dr Velan began his talk by discussing digital intervention at various stages of projects, starting with design, conception, tendering, construction, and operations. He elaborated on the Project Alliance concept, in which an owner and one or more service providers collaborate to deliver a specific project under a contractual framework in which their commercial interests are aligned with genuine project interests. He outlined the Interim Alliance Agreement Stage, the Project Alliance Agreement Stage, and stated that Integrated Project Delivery (IPD) is a project delivery model built around a collaborative alliance of stakeholders who share risk and reward, which involves the key project stakeholders, such as the client, architect, contractor, and so on, entering a single contract that encourages collaboration, optimises results, reduces waste, and maximises efficiency and expertise. He stated that IPD includes integrated practise and lean construction, which are utilised to raise productivity, decrease resource waste, avoid time overruns, improve end product quality, and reduce stakeholder conflicts. Collectively, the stakeholders determine project objectives, finances, risk allocation, and remuneration. He stated that while the contract normally stipulates the different tasks of the stakeholders, it also enshrines collective responsibility for the project's successful completion. The speaker went on to discuss the primary advantages of IPD, which include the removal of design conflicts, increased visualisation with less building time, access to scheduled optimization and constructibility assessments, and so on. He spoke about the digital intervention in IPD and the use of Building Information Modeling (BIM), BIM enabled facility management, Digital Twin and Asset Twin, and other technologies. The speaker further discussed at a length Sustainable Green Building, Net Zero water Building, Net Zero waste Building etc.



## The 35<sup>th</sup> Dr Ajudhia Nath Khosla Memorial Lecture

### Role of Engineers for Creating A Sustainable & Self Reliant India - Industry 4.0 and Sustainability

**Prof G Aghila**

*Director, NIT Tiruchirappalli*

Prof Aghila begun her talk by explaining the conceptual framework and moderating elements of Industry 4.0 in relation to sustainability. Industry 4.0 technologies, she said, have a direct impact on the adoption of sustainability practises, environmental performance, social performance, and economic performance. She went on to say that external factors like as organisational and technology readiness, regulatory actions, the economic model, and stakeholder involvement limit the impact of Industry 4.0 on sustainability performance. According to her, Industry 4.0 is the integration of massively deployed smart computer and network technologies in industrial production and manufacturing settings to enable real-time interconnection, mutual recognition, and effective communication between humans, equipment, and goods. She discussed the use of IoT in the power sector, healthcare, smart grids, and smart metres. She discussed edge cloud architecture, IoT data-driven prospects, cyber physical systems, and other topics. Prof Aghila's talk focused





## 37<sup>th</sup> Indian Engineering Congress, Chennai

on the primary sector themes driving IoT growth in India, which essentially include industry, the consumer sector, and the services sector. She also spoke about the major problems of implementing Industry 4.0, such as the diversified type of data collecting, insufficient encryption capability, and so on. She developed context awareness and visualisation in IoT, Consumer IoT, and Industrial IoT, among other things. She cited healthcare, smart agriculture, and transportation as the primary industries driving IoT investment. She completed her presentation by discussing the vision of Industry 5.0 and its importance to sustainability, as well as the Government of India's initiative to promote the growth of IoT in India.

### The 12<sup>th</sup> Prof C S Jha Memorial Lecture

#### Make in India: Make for the World

**Mr Sasikumar Gendham**

*Managing Director, Selcomp Technologies India Private Limited, Sriperumbudur, Chennai*

Mr Gendham, in his speech, stated that the key targets and sectoral pushes to attain a \$5 trillion economy by 2025, include healthcare products, white goods, food items, semiconductor manufacturing, and such. He also discussed India's global position in software exports, top commodities shipped by India, the state of the anticipated \$300 billion in sustainable electronics production and export by 2026, and the importance of product quality improvement. The speaker went on to discuss the digital economy and digital ecosystem, highlighting essential variables to accelerate the domestic value chain and emphasising the importance of expanding the domestic value chain. The speaker closed his speech by emphasising the overall shift of the manufacturing and export ecosystem in the electronics sector.



### The 8<sup>th</sup> Dr K L Rao Memorial Lecture

#### Major Environmental Concerns of India and Role of Industries towards Nation Building

**Dr S Kanmani**

*Professor & Director, Department of Civil Engineering, Centre for Environmental Studies, Anna University, Chennai*

Dr. Kanamani began her talk by discussing the history of industrialisation, global population expansion, and the influence of industry on the environment. She discussed the industrialization roadmap and its environmental impact, which includes depletion of natural resources, contamination of land, water, and air, among other things. The speaker emphasised resource optimization for manufacturing with a zero-emission strategy throughout her talk. She also voiced concern about the earth's finite freshwater resources, spoke about world population and freshwater availability, the Indian water resource scenario, water quality and shortage, and passionately campaigned for the need to address environmental pollution. She underscored the fact that the primary industries contribute to pollution and the accompanying Disability Adjusted Life Years (DALY). She went into great detail on the categorical segmentation of industries, waste water generation by various industries, and so on. She emphasised the pollution created by the textile industry's affluence, and she believes that cleaner production in wet processing sectors is urgently needed. The speaker went on to cover environmental management, such as pollution prevention and control, advances in industrial pollution control, and so on. She went on to explain the Indian Standards for disposing of treated effluents, highlighting non-biodegradable pollutants in industrial waste water and claiming that effluents are highly coloured due to the presence of dyes, pigments, fermentation products, lignin, and other similar compounds. She spoke on the Minimum National Standards (MINAS) for effluent discharge notified under the Environmental Protection Act of 2014, as well as biological treatment technologies for different effluents.



## Be proud to be a Certified Professional Engineers (PE) and International Professional Engineers (IntPE)

### Professional Engineers (PE) Certification by IEI

#### ELIGIBILITY REQUIREMENT

- BE/ BTech or equivalent recognised by Statutory Authority or Government of India
- Five years or more professional experiences
- Membership of recognised professional engineering institution / association
- Maintained Continued Professional Development (CPD) at a satisfactory level

For details, please visit the following link :

[https://www.ieindia.org/webui/IEI\\_PE\\_Certification.aspx](https://www.ieindia.org/webui/IEI_PE_Certification.aspx)

### International Professional Engineers (IntPE) Certification by IEI

#### ELIGIBILITY REQUIREMENT

- BE/ BTech or equivalent recognised by Statutory Authority or Government of India
- Seven years or more professional experiences
- Minimum two years professional experience in significant engineering activity
- Membership of recognised professional engineering institution / association
- Maintained Continued Professional Development (CPD) at a satisfactory level

For details, please visit the following link :

[https://www.ieindia.org/webui/IEI\\_IntPE\\_Certification.aspx](https://www.ieindia.org/webui/IEI_IntPE_Certification.aspx)

The eligible candidate can submit application in the prescribed format to:  
The PE Cell, The Institution of Engineers (India), 8 Gokhale Road, Kolkata 700020

For any query and assistance, please send email to: [pe@ieindia.org](mailto:pe@ieindia.org)

## IEI's Best Centre Award



**Telangana State Centre**



**Madurai Local Centre**

The **Telangana State Centre** and **Madurai Local Centre** of the Institution have been adjudged the 'Best State Centre' and 'Best Local Centre', respectively for their all-round performance during the year 2021-2022. The awards, comprising trophies and the certificates along with cash awards were given away to the respective Centres on December 16, 2022 during the inaugural function of the 37<sup>th</sup> Indian Engineering Congress held at Chennai.

## Felicitation of Eminent Engineering Personalities



**Dr Rupinder Singh Sodhi**

*Managing Director, Gujarat Co-operative Milk  
Marketing Federation Limited, Anand*

**Mr Vikas Kumar**

*Managing Director  
Delhi Metro Rail Corporation Limited, New Delhi*





## Visionary Talk



**Prof Ashok Jhunjhunwala**  
Professor, IIT Madras



**Prof S R Chakravarthy**  
Department of Aerospace Engineering, IIT Madras

## Best Student Chapters Awards

### Best Engineering College Student Chapters



Department of Electronics & Telecommunication Engineering, AISSMS College of Engineering, Pune  
Best Engineering College Student Chapter



Department of Civil Engineering, Easwari Engineering College, Chennai  
Second Best Engineering College Student Chapter



Department of Mechanical Engineering and Department of Information Technology, Mepco Schlenk Engineering College, Sivakasi, Tamilnadu  
Third Best Engineering College Student Chapter

### Best Polytechnic College Student Chapters



Periyar Centenary Polytechnic College, Vallam  
Best Polytechnic College Student Chapter



PAC Ramasamy Raja Polytechnic College, Rajapalayam  
Second Best Polytechnic College Student Chapter



Arasan Ganesan Polytechnic College, Sivakasi  
Third Best Polytechnic College Student Chapter



**Praveen Kumar Roy**

## The H Nandy Memorial Award

The Institution of Engineers (India) instituted the Award in the name of Late H Nandy, renowned Council Member, a doyen and eminent engineer in the field of Metallurgical and Materials Engineering and to be given away to a student who tops the list of Section B Examination of the Institution in the branch of Metallurgical & Materials Engineering. Considering both Summer and Winter examinations for the year 2020, **Praveen Kumar Roy** was selected for the award.



## Release of **Abhiyanta Bandhu**



## Release of **Students' Journal**



The Steel Authority of India Ltd (SAIL) had instituted two Awards, namely, SAIL AWARD and DR M VISVESVARAYA AWARD to be given away every year during the Indian Engineering Congress to author/s of the articles adjudged best on selected topics.

## Recipients of **SAIL Award**

For the year 2022, **Subhra Dhara** and **Golap Mohammad Chowdhury** for their Paper titled 'Countering Cyclic Downtrends in Steel Industry'.



**Subhra Dhara**

## Recipients of **Dr M Visvesvaraya Award**

For the year 2022, **B Khalkho**, **S Sudershan**, **P Saravanan** and **S Srikanth** for their Paper titled 'Contribution of Indian Steel Sector towards Net Zero emission by 2070'.



**B Khalkho**



## Recipients of IEI Prizes & Awards

One of the important events of the Congress was the presentation of prizes and awards to the authors whose papers were published in the Journals of The Institution of Engineers (India) co-published by Springer Nature during the year 2021 and were adjudged the best in respective fields. Details of prizes and awards, the titles of the winning papers along with the authors' names are listed hereunder.

### The President of India's Prize

**Sourabh Jain** and S S Jain for their Paper titled 'Development of Intelligent Transportation System and Its Applications for an Urban Corridor During COVID-19', *Journal of The Institution of Engineers (India): Series B, Volume 102, Issue 6, Pages 1191-1200.*



### Dr Jai Krishna Prize

Hitesh Kumar and **Sandip Kumar Saha** for their Paper titled 'Seismic Fragility of Fixed Base and Base Isolated Ground Supported Liquid Storage Tanks Considering Soil-Structure Interaction', *Journal of The Institution of Engineers (India): Series A, Volume 102, Issue 3, Pages 829-839.*



### The Institution Prizes (1)

Subhankar Pramanik, **Sreyashi Das** and Arup Guha Niyogi for their Paper titled 'Free Vibration and Buckling Analysis of Stiffened Sandwich Plates with Repeated Fold', *Journal of The Institution of Engineers (India): Series C, Volume 102, Issue 1, Pages 87-98.*



### Sir Rajendra Nath Mookerjee Memorial Prize

**T Panneerselvam**, S Raghuraman and N Vamsi Krishnan for their Paper titled 'Investigating Mechanical Properties of 3D-Printed Polyethylene Terephthalate Glycol Material Under Fused Deposition Modeling', *Journal of The Institution of Engineers (India): Series C, Volume 102, Issue 2, Pages 375-387.*



### The Institution Prizes (2)

Ankush Galav, **Gaurishankar Prasad Singh** and Sanjay Kumar Sharma for their Paper titled 'Design and Performance of Protective Water Barrier Pillars for Underground Coal Mines in India – A Review', *Journal of The Institution of Engineers (India): Series D, Volume 102, Issue 2, Pages 539-547.*



### Pandit Madan Mohan Malaviya Memorial Prize

**Alok Mukherjee**, Palash Kumar Kundu and Arabinda Das for their Paper titled 'A Differential Signal-Based Fault Classification Scheme Using PCA for Long Transmission Lines', *Journal of The Institution of Engineers (India): Series B, Volume 102, Issue 3, Pages 403-414.*



### Corps of Engineers Prize

**Kamal Singh**, Aniket Anand, Anjane Kumar Mishra, Bhim Singh and Kuldeep Sahay for their Paper titled 'SEPIC Converter for Solar PV Array Fed Battery Charging in DC Homes', *Journal of The Institution of Engineers (India): Series B, Volume 102, Issue 3, Pages 455-463.*



### Sir Thomas Ward Memorial Prize

**Halebeedu Subbaraya Suresha** and Srirangapatna Sampathkumaran Parthasarathy for their Paper titled 'Probabilistic Principal Component Analysis and Long Short-Term Memory Classifier for Automatic Detection of Alzheimer's Disease using MRI Brain Images', *Journal of The Institution of Engineers (India): Series B, Volume 102, Issue 3, Pages 403-414.*



### Institution Prize (Donated by Col G N Bajpai)

**K G Durga Prasad**, K Venkata Subbaiah and P Krishna Murthy for their Paper titled 'Mechanical Characterization and Selection of Polyamide Nano-Composites Subjected to Sea Water Environment in Marine Applications', *Journal of The Institution of Engineers (India): Series C, Volume 102, Issue 3, Pages 723-729.*



### Shrimati Saroma Sanyal Memorial Prize

**Ravi Shankar**, Shambhoo Sharan, Anil Kumar Varma, Prasenjit Mondal, Shri Chand, Lokendra Singh Thakur, Poonr Prakash Pande and Vinod Kumar Yadav for their Paper titled 'Sulphide Removal from Water Through Electrocoagulation: Kinetics, Equilibrium and Thermodynamic Analysis', *Journal of The Institution of Engineers (India): Series A, Volume 102, Issue 2, Pages 603-621.*



### The John C Gammon Prize

**Gayatri Patel** and Amar Nath Nayak for their Paper titled 'Static Stability Analysis and Design Aids of Curved Panels Subjected to Linearly Varying In-Plane Loading', *Journal of The Institution of Engineers (India): Series A, Volume 102, Issue 2, Pages 565-589.*



### Nawab Zain Yar Jung Bahadur Memorial Prize

**Baskaran V**, Saravanane R and Govindaradjane S for their Paper titled 'Experimental Study on Domestic Solar Still Desalination with Cotton Gauze : An Approach to Field Model', *Journal of The Institution of Engineers (India): Series A, Volume 102, Issue 3, Pages 713-718.*



### Sir Arthur Cotton Memorial Prize

**Krishnachandran S** and Arun Menon for their Paper titled 'A Normative Framework for Assessment and Retrofit of Existing Unreinforced Masonry Buildings in India', *Journal of The Institution of Engineers (India): Series A, Volume 102, Issue 2, Pages 369-387.*



### Dr Rajendra Prasad Memorial Prize

Aveek Mangal and **Falguni Sarkar** for their Paper titled 'Underground Coal Pillar Extraction Under Shale Roof and Caved Goaf of Upper Lying Seam in Raniganj Coalfields', *Journal of The Institution of Engineers (India): Series D, Volume 102, Issue 1, Pages 223-236.*



## Sir Ganga Ram Memorial Prize

Tajamul Shafi Panditha, S Sudalai and **Arumugam A** for their Paper titled '*Renovation of Waste Chrysanthemum Morifolium (Marigold) into Valuable Biochar : A Study on the Utilization of Solid Waste by Pyrolysis*', **Journal of The Institution of Engineers (India): Series E, Volume 102, Issue 2, Pages 239-248.**



## N K Iyenger Memorial Prize

**Maharudra Ranjere**, Rajanna T and Bheemsha Arya for their Paper titled '*Influence of Trapezoidal Shapes and Linearly varying Edge Loads on the Buckling Characteristics of Plates with Cutouts*', **Journal of The Institution of Engineers (India): Series C, Volume 102, Issue 5, Pages 1231-1249.**



## Brij Mohan Lal Memorial Prize

**Balkar Singh**, Sanjay Kumar Sharma and Poonam Syal for their Paper titled '*Net Zero Energy Building (NZEB) Design*', **Journal of The Institution of Engineers (India): Series A, Volume 102, Issue 1, Pages 237-247.**



## Tata Rao Prize

**Pushpendra Singh**, Rajesh Arya, Lakhan Singh Titare and Liladhar Arya for their Paper titled '*Optimal Load Shedding to Avoid Risks of Voltage Collapse Using Black Hole Algorithm*', **Journal of The Institution of Engineers (India): Series B, Volume 102, Issue 2, Pages 261-276.**



## Aerospace Engineering Division Prize

**Piyush Thakorbbhai Patel**, A Rajanna Srinivas and Piyush P Gohil for their Paper titled '*A Novel Barrel Design of a Light Weight Camera for a Remote Sensing Satellite*', **Journal of The Institution of Engineers (India): Series C, Volume 102, Issue 6, Pages 1365-1378.**



## Agricultural Engineering Division Prize

Arshi Siddiqui, **Khan Chand** and Navin Chandra Shahi for their Paper titled '*Effect of Process Parameters on Extraction of Pectin from Sweet Lime Peels*', **Journal of The Institution of Engineers (India): Series A, Volume 102, Issue 2, Pages 469-478.**



## Computer Engineering Division Prize

**Pragma Kar**, Soumya Banerjee, Sandip Chakraborty and Matangini Chattopadhyay for their Paper titled '*Auto Notes : A Touch-Free Blink-Based Interactive Model for Generation of Notes from Lecture Videos*', **Journal of The Institution of Engineers (India): Series B, Volume 102, Issue 6, Pages 1157-1166.**



## Marine Engineering Division Prize

Akash Sahu, Satheeshkumar Jeyaraj and **Balaji Ramakrishnan** for their Paper titled '*Hindcast Modelling of Waves and Estimation of Power Potential in the Bay of Bengal*', **Journal of The Institution of Engineers (India): Series C, Volume 102, Issue 2, Pages 471-476.**



## Metallurgical and Materials Engineering Division Prize

**Tarang Ramaro Shinde**, Rohit Vivekanand Chavan, Piyush Lalit Savadekar, Deepali Suresh Shinde and Nikita Pratap Jagtap for their Paper titled '*Failure Analysis of a Wheel Hub of Formula Student Racing*



*Car*', **Journal of The Institution of Engineers (India): Series D, Volume 102, Issue 1, Pages 73-78.**

## Production Engineering Division Prize

Atul Kumar Shrivastava, Ashwani Sharma, Akash Subhash Awale, Mohd Zaheer Khan Yusufzai and **Meghanshu Vashista** for their Paper titled '*Assessment of Grinding Burn of AISI D2 Tool Steel Using Barkhausen Noise Technique*', **Journal of The Institution of Engineers (India): Series C, Volume 102, Issue 4, Pages 885-896.**



## K F Antia Memorial Prize

**Adewale George Adeniyi**, Joshua O Ighalo, Sulyman Age Abdulkareem and Rebecca Akinwolemiwa for their Paper titled '*Water Absorption, Thermal and Microstructural Properties of Plastic Composites Developed from Isoberlinia Doka Wood Sawdust and Polystyrene Wastes*', **Journal of The Institution of Engineers (India): Series E, Volume 102, Issue 1, Pages 105-114.**

## Corps of Electrical and Mechanical Engineers' Prize

Swagat Dwibedi and **Swarup Bag** for their Paper titled '*Development of Micro-plasma Arc Welding System for Different Thickness Dissimilar Austenitic Stainless Steels*', **Journal of The Institution of Engineers (India): Series C, Volume 102, Issue 3, Pages 657-671.**

## Union Ministry of Energy – Department of Power Prize

**Vasantha Gowri**, Ramalinga Raju Manyala and B P Singh for their Paper titled '*Investigation of Partial Discharge Due to Particle Movement in Power Transformer Using Computational Fluid Dynamics and Monte Carlo Technique*', **Journal of The Institution of Engineers (India): Series B, Volume 102, Issue 3, Pages 509-519.**

## Hem Prabha – S N Gupta Prize

**Ram Krishna Regmi** for his Paper titled '*Sedimentation Modeling of Karnali Chisapani Multipurpose Project Reservoir, Nepal*', **Journal of The Institution of Engineers (India): Series A, Volume 102, Issue 3, Pages 815-827.**

## Hindustan Zinc Limited Prize

Sphephile Z Dlodlu and **L D Meyer** for their Paper titled '*A Trade-Off Study Between Drill & Blast Operations and Reef Boring Method*', **Journal of The Institution of Engineers (India): Series D, Volume 102, Issue 2, Pages 271-282.**

## Dr Triguna Charan Sen Prize

**Joyjit Ghosh**, Zulfikar Hasan and Amit Chakraborty for their Paper titled '*Development of Antimicrobial and Wound Healing Properties on Cotton Medical Bandage by using the Extract of Eco-Friendly Herbs*', **Journal of The Institution of Engineers (India): Series E, Volume 102, Issue 1, Pages 75-86.**

## Rekha Nandi and Bhupesh Nandi Prize

Dheeraj Alshetty, Rohit Jaikumar, **Shivanagendra Saragur Madanayak** and Avinash Balachandra Akolkar for their Paper titled '*Impact Assessment of Short-Term Interventions on Air Quality in a Megacity : A Case Study on Odd-Even Policy Implemented in Delhi City*', **Journal of The Institution of Engineers (India): Series A, Volume 102, Issue 4, Pages 1151-1159.**

## Suchit Kumar Ghosh Memorial Prize

**Keke Peng** for his Paper titled '*Dynamic Ship-bridge Collision Risk Decision Method Based on Time-Dependent AASHTO Model*', **Journal of The Institution of Engineers (India): Series A, Volume 102, Issue 1, Pages 305-313.**

## Architectural Engineering Division Prize

Katayoon Taghizadeh, **Esmatullah Noorzai**, Zahra Zaman, Milad Amiri Dastanaee and Nayereh Samaee Rahnee for their Paper titled '*Identifying the Most Important Rework Factors in Building Projects and Providing a Solution to Reduce Their Effects*', **Journal of The Institution of Engineers (India): Series A, Volume 102, Issue 4, Pages 1027-1043.**



## Green Energy & Clean Energy for New India

**Jabalpur Local Centre**, IEI organized the 37<sup>th</sup> National Convention of Electrical Engineers during 12-13 November 2022 at Bhopal. A National Seminar was also organized on the occasion on the theme **Green Energy & Clean Energy for New India**. Shri Mangu Bhai Patel, Hon'ble Governor, Madhya Pradesh graced the function through his virtual presence as Chief Guest and inaugurated the National Convention. In his virtual address, Shri Patel voiced his concern about the running out of fossil fuels and emphasised the increased use of renewable energy sources, such as solar and wind power, for the production of electricity. He talked about the 750 MW Rewa Solar Project, one of the biggest solar projects in the world. He also emphasised the importance of exchanging ideas and perspectives during the National Seminar, which will contribute to the ongoing development of renewable energy technology that will benefit the nation. Dr Rakesh Kumar Gupta, IRS, Principal Chief Electrical Engineer, West Central Railway and Dr Pravin Kondekar, Director, PDPM Indian Institute of Information Technology Design and Manufacturing, Jabalpur were present on the occasion. Mr Prakash Chandra Dubey, Chairman, IEI Jabalpur Local Centre, commenced

capacity, reduce carbon emissions by 1 billion tonnes, and lower carbon intensity by 45%. He also added that the Indian Railway is already producing its own electricity and has set a goal of becoming a net-zero entity by 2030.

The IEI Young Engineers Award in Electrical Engineering Division for the year 2021-22 were presented to Mr Karuppasamyandiyan M, Assistant Professor, Department of EEE, Kalasalingam Academy of Research and Education, Krishnankoil, Tamil Nadu; Dr Dipak Ashok Jadhav, Department of Agricultural Engineering, Maharashtra Institute of Technology, Aurangabad and Dr Vuddanti Sandeep, Assistant Professor & Head, Department of Electrical Engineering, National Institute of Technology Andhra Pradesh for their contribution in the field of Electrical Engineering. For the year 2022-23, the recipients of the Award were Dr Mohammed Aslam Husain, Assistant Professor, Department of Electrical Engineering, Rajkiya Engineering College, Ambedkar Nagar, Dr A P J Abdul Kalam Technical University, Lucknow, UP; Dr Arnab Ghosh, Assistant Professor, Department of Electrical Engineering, National Institute of Technology Rourkela, Odisha and Dr R Palanisamy, Assistant Professor, Department of EEE, SRM Institute of Science and Technology, Tamil Nadu.



the inaugural session with a welcome address. Prof (Dr) Sudhir Kumar Calla, Chairman, Electrical Engineering Division Board (ELDB), IEI [session 2021-22], presided over the event. Dr Calla expressed his gratitude for Jabalpur Local Centre's honest efforts in organising the National Convention in a suitable manner. Mr Rakesh Kumar Rathore, Council Member of the IEI, was also present at the event. On the occasion, Mr R S Thakur, Deputy General Manager, AI Engineering Service Limited; Mr K C Sharma, Additional Chief Engineer (Mechanical), Nuclear Power Corporation of India Limited; Mr Mridul Khare, Director, Latent Renewable Energies Private Limited and Mr R K Sharma, Chairman & Managing Director, Rajasthan Rajya Vidyut Utpadan Nigam Limited (RRVUNL), Rajasthan were felicitated as eminent engineering personalities for their immense contribution in the field of Electrical Engineering. Mr Sanjay Kumar Mehta, Honorary Secretary, Jabalpur Local Centre, IEI proposed the vote of thanks.

Dr Rakesh Kumar Gupta, IRS, Principle Chief Electrical Engineer, West Central Railway, Jabalpur delivered the M S Thacker Memorial Lecture on the theme 'Green & Clean Energy for New India'. Dr. Gupta, in his talk, touched on the importance of sustainable development for Mother Earth's existence. He also underlined the importance of having reliable and competitively priced energy to ensure the country's economic prosperity. He stated that the Government of India has launched various policies, namely, Green Hydrogen Policy, Offshore Wind Policy, Promotion of Electric Vehicles and also eased the terms and conditions for green energy procurement. He informed the distinguished audience that, in addition to the overarching goal for 2070, the country has established the following targets for 2030: Meet 50% of energy needs with renewables, attain 500 GW of non-fossil fuel

The Key Note Address was delivered by Dr Pravin Kondekar, Director of the Pandit Dwarka Prasad Misra Indian Institute of Information Technology Design & Manufacturing, Jabalpur. Mr K K Murty, Former Chief Engineer of the Madhya Pradesh State Electricity Board, delivered a State of the Art Lecture on the topic 'Concept of Bonding/earthing of Power Cables with Special Emphasis on Xipe Cables'. Mr Hitesh Tiwari, Executive Engineer, Madhya Pradesh Power Transmission Company Limited, delivered a State-of-the-Art Lecture on the topic 'Renewable Energy Potential in India and Grid Integration Challenges'. The other State-of-the-Art lecture was delivered by Mr Mridul Khare, Director of Latent Renewable Energies Private Limited, on the theme 'Renewable Development in the State of

MP with Special Emphasis on the RUMS Project'. Dr S Dharmalingam, IEI Council Member, gave a presentation on 'Certain Aspect of Green Energy for Powering a Safer Future'. During the two-day technical sessions, twenty-eight papers on emerging topics were presented, including: Renewable Energy; International Protocols & Conventions on Climate Change, Net Zero Transition & Socio Economic Concerns; Role of Nuclear Energy in Reshaping the Energy Requirement; latest Developments in Power Transformers; Government Initiatives in promoting Clean Energy in the Indian Automobile Sector; New Approach in Maintenance Practices in Power Distribution; Power Quality Problems and Solutions; Harmonics: The Root Causes of Premature Failure of Distribution Transformers in the Office and Commercial Complexes; Smart Meters – improving the Health of Discoms; and so on.

Prof (Dr) Sudhir Kumar Calla, Chairman, Electrical Engineering Division Board, IEI, was the Chief Guest at the Valedictory Function. The guests of honour were Mr R R Tanwar, Council Member, IEI, and Mr S K Gaikwad, Chief Engineer, MPPTCL. Mr A Sekar, Council Member, IEI, also attended the function. Mr Prakash Chandra Dubey, Chairman, Jabalpur Local Centre, IEI presided over the function.

*Recommendations emanated from the National Convention are as follows.*

*Study on System Stability: Due to the intermittent nature of solar energy, a significant number of PV systems' output can suddenly decrease, which can lower system frequency and potentially cause grid instability.*

Contd. on page 18

## Green Building, Innovation and Sustainability

**Madhya Pradesh State Centre** of the Institution organized 36th National Convention of Architectural Engineers during 19-20 November, 2022 at Pandit Sundarlal Sharma Central Institute of Vocational Education, Bhopal. A National Conference was also organized on the occasion on the theme **Green Building, Innovation and Sustainability**. Shri Satyanand Rajhans, Chief General Manager, MP Telecom Circle, Bhopal, was the Chief Guest at the inaugural function. Guests of honour included Shri Saurabh Bandopadhyay, Divisional Railway Manager, Bhopal, and Prof (Dr) Sameer Sood, Director, NIFT Gandhinagar. The session was presided over by Mr Sandip Kumar Deb, Vice President, IEI & Chairman, Architectural Engineering Division Board (ARDB), IEI [Session 2021-22]. In his address, Chief Guest, Shri



Rajhans, highlighted the line of sustainability activities carried out by BSNL. Mr Sandip Kumar Deb, in his address discussed the expanding spectrum of the Architectural Engineering profession. Mr Saurabh Bandopadhyay, Guest of Honour, discussed initiatives underway in the realm of sustainability in the Railways, with special reference to Kamalapati Railway Station. Dr Amogh K Gupta, Architect, Government Approved Valuer, Past Chairman, School of Planning & Architecture, Delhi; Mr Nilesh Suchdev, Founder, Suchdev Associates, Architectural Engineer & Valuer, Techno Legal Consultant; and Er Mahavir B Chopda, Managing Director, Chopda Builders and Developers Nashik were honoured as Eminent Engineering personalities on the occasion. In the august presence of the dignitaries on the dais, a Technical Proceedings was released on the occasion. Earlier Mr Rajesh Bisaria, Chairman, Madhya Pradesh State Centre, IEI delivered the welcome address. Dr Anupama Sharma, Professor, MANIT Bhopal and Convenor briefed about the theme of the National Convention. Dr Mukesh Kumar Mishra, Honorary Secretary, Madhya Pradesh State Centre, IEI proposed the vote of thanks at the end of inauguration.

Ar Jitendra Mehta, Mehta and Associates Indore, presented the T S Narayana Rao Memorial Lecture on the subject of "Urban Transformation: Green Realms." This is the moment, according to Ar Mehta, to look beyond green buildings and apply a well-balanced egalitarian design approach to producing the appropriately conducive, sustainable, and healthy Built eco system for all, he said in his lecture. He explained the integrated approach of Sustainable Architecture for People as Blue and Sustainable Architecture for Nature as Green and strongly advocated for the commitment to practise Blue-Green Architecture strategy to keep cities air pure and breathable, water resources pollution free, promote equity and resilience, catalyse economic evolutions, and encourage continuous capacity building for a sustainable urban future. Eminent speakers from renowned institutions and organizations delivered lecture during the technical sessions.

Prof Savita Raj, Associate Professor, Department of Architecture & Planning, MANIT, Bhopal delivered Keynote address on the topic 'Sustainable Site Planning and Built Environment'. Ms Ravisha Merchant, Chairperson, IIID Bhopal Regional Centre, Principal Designer, Trivera Designs delivered lecture on 'Sustainable Materials and Building Technology-Sustainable Green Materials for Interior Design'; Dr Mohd. Akram Khan, Chief Scientist & Head, Industrial Waste Utilization, Nano and Biomaterials Division AMPRI, CSIR on 'Industrial Waste as Resource Material for Product Development'; Dr Vishakha Kawathekar, Associate Professor & Head, Conservation Department, SPA, Bhopal on the topic 'Indian

Knowledge Systems and Practices: Rethinking Indian Knowledge Systems to enrich the Pedagogy, Theory and Practice of Future India, Dr V K Sethi, Former Vice Chancellor, RKDF University on 'Sustainable Policies and Governance: Climate Change - International Perspective of Sustainability and innovative Approaches as per India's Nationally Determined Contribution'; Mr Om Shankar Shrivastav, NGT Lawyer, Bhopal presented on the topic on 'Environmental Sustainable Policies and Governance'; Ar Rajpal Singh, Practicing Architect and Industrial Product Designer, Nagpur on 'Sustainable Architecture and Design Tools'; Ar Shruti C Purohit, Architect & Urban Planner, Nine Squares Architects, Indore spoke on 'Sustainable Architecture and Design Tools'. During the Valedictory Function, Mr Harish Kumar Mittal, Member ARDB, IEI was the Chief Guest. Dr H B Khurasia, Group Director, BGI and Dr Jitendra Singh, Past Chairman, ARDB, IEI were the Guests of Honour. The National Convention was well attended by engineers, teachers, students and other stakeholders including representatives of various executive departments, educational institutions, and industries, as well as teachers, students.

## Green Energy & Clean Energy for New India

Contd. from page 17

*Redesigning the distribution network's protection system as part of renewal integration: It is necessary to alter the protection system to allow for two-way power flow. The current protection system is not designed to withstand bi-directional power flow.*

*Voltage Fluctuation and Imbalance: A PV system's ability to produce solar energy depends on the amount of sunshine available. Power generation*

*can fluctuate significantly during the day, and even within seconds, due to factors such changing cloud cover and weather. This results in abrupt voltage swings that could harm connected devices..*

*Promotion of Vehicle: Integrated planning for renewable energy production, transmission, and distribution, including smart charging, for electric mobility.*



## Augmented Reality and Virtual Reality



Under the auspices of the IEI's Computer Engineering Division, the **Indore Local Centre** organised a One Day Seminar on the theme **Augmented**

**Reality and Virtual Reality** on August 9, 2022. Mr Rajendra Prasad Gautam, Chairman, Indore Local Centre, IEI, was the session's Chief Guest. Prof (Dr) Ms Shilpa Tripathi, Council Member, IEI, was the Guest of Honour.

Dr S K Somani, Vice Chancellor, Oriental University, Indore; Dr. Prithvi Yadav, Vice Chancellor, Symbiosis University of Applied Sciences (SUAS), Indore; Mr Amrith Polekar, Software and AR/VR Specialist; and Mr Vishal Sharma, ATMECH were also present and addressed the audience. In his address, the Chief Guest emphasised how IEI brings together the brightest of minds to create a community and how IEI Students' Chapters will benefit students. Dr Dipti Patil, Director of SCSIT, SUAS, delivered an introductory lecture on Augmented Reality and Virtual Reality following the Inaugural Session. Mr Amrith Polekar gave a talk on the most popular game engines, 'Unity 3D' and 'Unreal Engine'. Mr Vishal Sharma conceptualised AR/VR and its applications through programming.

## Fundamentals of Artificial Intelligence

Under the aegis of the Electronics and Telecommunication Engineering Division Board (ETDB), the Institution's **Kanchepuram Local Centre** conducted an All India Seminar on the theme **Fundamentals of Artificial Intelligence** on July 29-30, 2022. The main purpose of the Seminar was to instil the importance of Artificial Intelligence in students and to offer them with in-depth knowledge of the subject. The speakers, dignitaries,



and attendees were greeted by Prof (Dr) D Elango, Chairman of the IEI Kanchepuram Local Centre.

The Seminar was formally inaugurated by Dr G Sundari, Director of Administration at Sathyabama Institute of Science and Technology. Mr Hariharan Veerappan, Founder, NEEVEE Technologies, Chennai delivered lecture on 'Fundamentals of Artificial Intelligence'. Dr N Vinoth, Associate Professor, MIT Campus, Anna University, Chennai expounded on the topic 'Research Approach to Machine Learning'. The session provided a fresh perspective on several approaches to machine learning in real-time applications.

Dr Deepa Jose, Professor, Head Research, KCG College of Technology, Chennai delivered lecture on the topic 'Fundamentals of Machine Learning and the Need of Deep Learning'. Mr Manikandan R, Technical Manager, Medical Electronic Systems, HCL Technologies Limited, Chennai also delivered a lecture on the topic 'Industrial approach to Artificial Intelligence'.

## Challenges and Opportunities for Alternative Energy Systems

**Indore Local Centre**, IEI hosted a One-day Seminar on the theme **Challenges and Opportunities for Alternative Energy Systems** on November 17, 2022, in collaboration with Oriental University, Indore under the aegis of the IEI's Mechanical Engineering Division Board (MCDB). The session's Chief Guest



was Prof (Dr) Ms Shilpa Tripathy, Council Member, IEI. The Guest of Honour was Prof (Dr) D K Panda, Pro-Vice Chancellor, Medi-Caps University, Indore. The Hon'ble Vice Chancellor, Pro-Vice Chancellor, and Dean (Academics) of Oriental University were also present. Mr Pradeep Yadav, Certified Energy Auditor & Corporate Trainer, Manish Shah and Associates, Indore, spoke on 'Challenges in Demand Side Management (DSM), Solar Rooftop & Renewable Energy Technologies' during the technical session. Mr Rambabu Raghuvanshi, Certified Energy Auditor, SABS Group, Sustainable Solution Company delivered presentation on the topic 'Net Zero Emission Mission 2070 by using Alternate Energy'; Dr Dheerendra Vikram Singh, Professor & Head, Department of Mechanical Engineering, IIST Indore, delivered lecture on 'Use of Artificial Intelligence in Energy Systems' and Mr Santosh Rathore, Assistant Professor, Mechanical Engineering Department, SAGE University, Indore delivered lecture on 'Introduction of Solar Energy and Its Applications'.

# IEI Celebrates Energy Conservation Day

The Energy Conservation Day was celebrated by the Institution on December 14, 2022. Brief accounts of celebration as received from various Centres are reported hereunder.

## STATE CENTRES

### Bihar

On December 14, 2022, the Bihar State Centre, IEI observed Energy Conservation Day 2022 in Patna. A Seminar was organised on the theme 'Effective Utilization of Energy and Saving Operation Cost in Hospitality Industry'. Dr. Rakesh Kumar Singh, Registrar, Aryabhatta Knowledge University, Patna, the event's keynote speaker, explained that the application of nano science and nanotechnology to engineering will pave the way for the creation of nano materials as well as the design, construction, and use of engines, machines, and nano devices for a variety of engineering applications that have been established and used for human advancement. Earlier in the event, Mr N K P Sinha, Immediate Past Chairman, Bihar State Centre, IEI, welcomed the Corporate Members, Technocrats, Guests, and representatives from Academia. At the end, Mr Dilip Kumar Jha, Honorary Secretary, Bihar State Centre, IEI proposed the vote of thanks.



### Delhi

The Delhi State Centre, IEI observed Energy Conservation Day 2022 online on December 30, 2022. The function's Chief Guest was Dr Suresh Vishwakarma, Chairman of Chartered Engineers Pacific in Vancouver, Canada. Dr Ruchi Tyagi, Senior Lecturer, Birmingham City University, RAK, UAE, delivered a presentation on the topic 'Integrating Behaviour Change in Energy Conservation Measures' as the event's keynote speaker. The welcome address was delivered by Dr Santosh Kumar Singh, Chairman, Delhi State Centre, IEI. Maj Gen MJS Syali, VSM (Retd), Secretary & Director General, IEI, who was a special invitee to the function, also spoke on the theme. As Special Guests, Mr Dinesh Kumar, Dr G S Yadava, Mr Pradeep Chaturvedi, and Mr Ravindra Kode, Industrial Safety, MIT Pune graced the occasion and addressed the virtual audience. Mr Rajesh, Honorary Secretary, Delhi State Centre proposed the vote of thanks.

### Gujarat

Gujarat State Centre, IEI observed Energy Conservation Day 2022 through hybrid mode on December 14, 2022. The welcoming address was delivered by Mr Pravinkumar Mohanbhai Chaudhari, Chairman, Gujarat State Centre, IEI, who emphasised the relevance of energy use and shortage, as well as the impact on the sustainability of global ecosystems. Mr Sandip B Vasava, Council Member of the IEI and Secretary to the Government of Gujarat's Roads and Building Department, was the event's Chief Guest. Mr Vasava mentioned in his speech that the goal of the Day is to limit the use of energy and encourage everyone to utilise it efficiently. Mr Suresh Ankam, Chief Engineer, Hotel Leela and



Mahatma Mandir Convention & Exhibition Centre, Gandhinagar, delivered a presentation on the topic 'Effective Utilization of Energy and Saving Operational Costs in the Hospitality Industry' as the event's keynote speaker. Mr Dineshchandra Odhavjibhai Nakrani, Honorary Secretary, Gujarat State Centre, IEI, outlined the goal of energy saving and proposed the vote of thanks at the end.

### Karnataka

On 14 December 2022, the Karnataka State Centre, IEI observed Energy Conservation Day 2022 in Bengaluru through hybrid mode. A Seminar was organised on the topic



'Energy Efficiency in India - A Retrospect'. This Day was established to raise awareness among the people of the country about the importance of energy saving. In his talk, Mr Abraham Varughese, Director (Sales and Operations), Ecolibrium Private Limited, Bengaluru, hailed India as one of the pioneers in Energy Conservation and advocated for the phrase 'Necessity is the Mother of Invention'. He mentioned that the cement industry in India recorded the best specific energy consumption (SEC) globally deploying a few policy interventions such as the Electricity Act, the Energy Conservation Act, the PAT scheme, and so on, as well as proceeds from ECert trading to Carbon Credit Trading. He spoke in detail about IoT-based energy management systems, Condition Based Monitoring of Assets (CBM), Net Zero Carbon (NZC), and managing using IoT. He predicted that by 2030, India will achieve 50% of its energy from renewable sources and Net Zero Carbon status by 2070. The speaker was honoured by Dr Enti Ranga Reddy, Honorary Secretary, Karnataka State Centre, IEI.

## LOCAL CENTRES

### Agra

On 14 December 2022, Agra Local Centre, IEI observed Energy Conservation Day 2022 in collaboration with Department of Electrical Engineering, Institute of Engineering and Technology, Dr Bhimrao Ambedkar University, Khandari Campus, Agra. Dr Tanveer Qamar, Faculty of Engineering and Technology, Agra College, Agra, spoke at the event. The welcome address was given by Mr Anil Kumar Goyal, Chairman, Agra Local Centre, IEI. Mr Rajneesh Kumar Yadav, Honorary Secretary, Agra Local Centre, IEI, proposed the vote of thanks at the end of the session.



### Ahmednagar

On December 16, 2022, Ahmednagar Local Centre, IEI observed Energy Conservation Day 2022. Mr Baban Pagire, General Manager - Maintenance, Schneider Electric India Private Limited, Ahmednagar, spoke at the event.



He underlined the rapid depletion of nonrenewable energy reserves and the importance of using energy more effectively to enhance energy efficiency, lower operating costs, promote green energy, and reduce greenhouse gas emissions. He stated that the industrial sector adds to carbon footprint and contributes significantly towards greenhouse gas emissions. He presented an energy-saving case study implemented by Schneider Electric India. Earlier, Mr Manohar Mukund Anekar, Chairman of the IEI's Ahmednagar Local Centre, welcomed everyone and emphasised the significance of energy saving.



### Asansol

On 14 December 2022, Asansol Local Centre, IEI observed Energy Conservation Day 2022. On the occasion, a panel discussion on the theme of 'Energy Saving' was held. The welcome address was given by Mr Tarun Tapan Lahiri, Chairman, Asansol Local Centre, IEI. Mr Debashis Sarkar, Immediate Past Secretary, Asansol Local Centre, IEI and HoD, Mechanical Engineering Department, Asansol Engineering College, was the event's Guest of Honour. Mr Tarun Tapan Lahiri; Mr Dibyendu Chakraborty, Manager, Crescent Power Ltd; Mr Anish Deb, Assistant Professor, Asansol Engineering College; and Dr Kuntal Ghosh, Associate Professor, Asansol Engineering College were among those who spoke at the ceremony. Mr Sumanta Karmakar, Honorary Secretary, Asansol Local Centre, IEI, proposed the vote of thanks.



### Bathinda

Bathinda Local Centre, IEI observed Energy Conservation Day 2022 in hybrid mode on December 10, 2022. Mr Naveen Kumar, Chief Engineer, Military Engineering Services, Bathinda Zone, and Mr Kusam Ranjan, Director (Design), HQ Chief Engineer, Bathinda Zone, were the event's Chief Guests (MES). Dr Manjit Bansal, Dean, Consultancy and Industry Linkage, Maharaja Ranjit Singh, Punjab Technical University, Bathinda, delivered a speech on the topic 'Alternate Energy Resources' as the event's keynote speaker. Prof (Dr) T S Kamal, Former Vice President, IEI, attended the event virtually. The programme was enthusiastically attended by engineering professionals both in person and online. Earlier, Prof (Dr) Jagtar Singh, Chairman, Bathinda Local Centre, IEI, welcomed everyone and highlighted the significance of the Day.



### Bareilly

On December 14, 2022, the Bareilly Local Centre of the Institution marked Energy Conservation Day 2022. Mr Navneet Prakash, Honorary Secretary, Bareilly Local Centre, IEI, convened the program. The opening remarks were delivered by Mr Raj Goel, Chairman, Bareilly Local Centre, IEI covering the key energy-saving strategies, such as adopting energy-efficient bulbs and routine maintenance on refrigerators and air conditioners. On the occasion,



Mr K B Agrawal, founder Chairman, Bareilly Local Centre, spoke and shared his insights. The vote of thanks was delivered by the Honorary Secretary, Bareilly Local Centre, IEI.

### Bokaro Steel City

On December 14, 2022, Bokaro Steel City Local Centre, IEI observed Energy Conservation Day 2022. Inaugurating the event as the Chief Guest, Mr V P Upadhyay, Chief General Manager (RED), SAIL, Bokaro Steel Plant, stressed the significance of energy conservation in the steel sector for reducing production costs and boosting profitability. Technical papers were presented on the occasion, and Mr Nitesh Ranjan, AGM (ECD) SAIL, Bokaro Steel Plant, and Mr Sourav Singh, AGM (EMD) SAIL, Bokaro Steel Plant, talked about the importance of saving energy. Earlier, everyone was welcomed by Mr Navin Prakash Srivastava, Chairman, Bokaro Steel City Local Centre, IEI. The vote of thanks was proposed at the conclusion by Mr Sunil Kumar, Honorary Secretary, Bokaro Steel City Local Centre, IEI.



### Faridabad

On December 15, 2022, Faridabad Local Centre, IEI marked Energy Conservation Day 2022. Mr J P Malhotra, President of the DLF Industries Association, spoke during the ceremony. The event's Keynote speakers were Dr P P Mittal, Accredited Energy Auditor, and Mr Manish Mangla, Energy Auditor, LEED AP. Mr Kuldip Raj Gupta, Chairman, Faridabad Local Centre, IEI, gave the welcome address. In his talk, Mr J P Malhotra emphasised the necessity of energy saving and the establishment of energy clubs in educational institutions to raise awareness about energy conservation. He discussed the National Motor Replacement Program (NMRP) for MSM, the necessity of solar energy, and other topics. In his address, Dr P P Mittal discussed the long tryst of mankind with energy, the journey of the power sector in India, the growth of the solar power industry in India, various aspects of climate change, and so on. In his speech, Mr. Manish Mangla discussed important aspects of HVAC design, various HVAC components and their functions, HVAC conservation options, etc. He discussed several energy control measures, such as cooling tower and chiller optimization, night purging, IAQ maintenance, and so on. The vote of thanks was proposed by Mr Inderdeep Singh, Honorary Secretary, Faridabad Local Centre.



### Gorakhpur

On 14 December 2022, Gorakhpur Local Centre, IEI observed Energy Conservation Day 2022 in collaboration with Madan Mohan Malaviya University of Technology, Gorakhpur. A seminar on the 'Need for Energy Conservation and the Role of Engineers' was conducted concurrently. Mr Pankaj Kumar Singh, CPRO, North Eastern Railway, Gorakhpur, was the Chief Guest, and Mr J B Rai, President, Malaviya Alumni Association (MAA), was the Guest of Honour. Mr M P Kandoi, Former Superintending Engineer, UP Irrigation, explained briefly the seminar's



objectives. Prof Jeeoot Singh, Professor & Head, Department of Mechanical Engineering, MMM University of Technology, Gorakhpur; Mr Pankaj Kumar Singh, CPRO, North Eastern Railway, Gorakhpur; Mr Om Shankar Maurya, Former General Manager, Tehri Hydro Development Corporation; Mr M W Beg, Former Chief Plant Manager, Refinery Division, Indian Oil Corporation Limited; and Prof Govind Pandey, Dean, Infrastructure and Planning, MMM University of Technology, Gorakhpur spoke during the technical session. Mr Ramesh Chandra Pandey, Honorary Secretary, Gorakhpur Local Centre, IEI, proposed the vote of thanks at the end of the session.

## Indore

Indore Local Centre, IEI observed Energy Conservation Day 2022 on 24 December 2022 at Indore. Mr Devendra Sharma, Chairman, Himachal Pradesh Electricity Regulatory Commission, Shimla and Er Abhay Bakre, Director General, Bureau of Energy Efficiency, New Delhi were the Guests of Honour on the event. The programme was started with welcome address delivered by Mr Rajendra Prasad



Gautam, Chairman, Indore Local Centre, IEI. Mr Devendra Sharma, in his lecture mentioned the initiatives to save energy and the environment from contamination and advocated for promoting pumped storage to make up the grid balance caused by renewable energy. He further stressed on reduction on import of conventional energy and more use of renewable energy with more emphasis on hydro energy and hydrogen energy. Mr Bakre forecasted the stage wise energy transition and the subsequent increase in cooling load in the near future. He further stated the role of Bureau of Energy Efficiency to increase the performance of air conditioners. Mr Jitendra Vyas, Consultant on Structures and Green Building, Indore explained the application of waste energy in daily life. He explained briefly about the precautions and efforts, which should be taken during building and structure design to prevent energy wastage. Mr Sanjay Sharma, Consultant, Ecofav Services Private Limited informed about the International Fund for Environment, Social and Governance. At the end, Mr Ramesh Chauhan, Convener of the programme, proposed the vote of thanks.

## Jammu

On 14 December 2022, Jammu Local Centre, IEI observed the Energy Conservation Day 2022. The Keynote address was delivered by Mr Ajay Gupta, Member, Joint Electricity Regulatory Commission, Jammu & Kashmir, and Ladakh UT. Mr Gupta praised the Jammu Local Centre for organising the event and stressed the importance of energy conservation programmes undertaken by the Bureau of Energy Efficiency and the Government of India. Earlier, Dr Sanjay Khar, Past Chairman, Jammu Local Centre, IEI, gave the welcoming address and discussed IEI's efforts to educate the public about the need of energy saving. Mr Satish Chalotra, Ex-AEE, Power Development Department, Jammu & Kashmir Government and Certified Energy Auditor, Bureau of Energy Efficiency, Government of India, delivered the keynote address. At the end, Mr Sachin Tickoo, Honorary Secretary, Jammu Local Centre, IEI proposed the vote of thanks.



## Jodhpur

Jodhpur Local Centre, IEI observed Energy Conservation Day 2022 on 14 December 2022 at Jodhpur. Mr M M Agarwal, Chairman, Jodhpur Local Centre, IEI delivered the welcome address. Speakers of the event were

Mr Vikas Parihar, VXL, Enterprises and Dr Amit Kumar Rathi, Assistant Professor, Department of Civil and Infrastructure Engineering, IIT Jodhpur. Convenor of the program, Dr Ghanshyam Prasad Vaishnav, proposed the vote of thanks.



## Kadapa

Kadapa Local Centre, IEI observed Energy Conservation Day 2022 on 14 December 2022 at Kadapa. Speaker of the event, Mr N Vijayabhaskar Reddy, Deputy Executive Engineer, MRT Division, Andhra Pradesh Southern Power Distribution Company Limited (APSPDCL), Kadapa explained about renewable and non-renewable energy, energy conservation, energy efficient applications, Energy Conservation Act, etc. Earlier, Mr N Bramhananda Reddy, Chairman, Kadapa Local Centre, IEI delivered the welcome address.



## Kalaburagi

Kalaburagi Local Centre, IEI observed Energy Conservation Day 2022 on 14 December 2022 at Kalaburagi. Dr Akshay S Aspilli, Electrical and Electronics Engineering Department, Poojya Doddappa Appa College of Engineering, Kalaburagi, spoke at the event and discussed energy conservation through the usage of natural resources and its impact on global climate. Mr Subhash Sugoora, Chairman, Kalaburagi Local Centre, IEI presided over the function and Mr Hanmayya, Honorary Secretary, Kalaburagi Local Centre, IEI welcomed all the participants.



## Kanpur

Kanpur Local Centre, IEI observed Energy Conservation Day 2022 on 14 December 2022 through hybrid mode. Mr Vivek Asthana, Chairman, Kanpur Local Centre, IEI delivered the welcome address. Speaker of the event, Prof Yaduvir Singh, Department of Electrical Engineering, Harcourt Butler Technical University, Kanpur spoke on the topic 'Energy Saving by using Internet of Things (IoT) for Engineering Applications' and discussed at a length the application of embedded systems, wireless sensor networks, control systems in smart home, healthcare and so on. He explained the industry-specific benefits of IoT, which include improvement of customer experience, enhancement of productivity etc. At the end, Mr Rama Kant Yadav, Honorary Secretary, Kanpur Local Centre, IEI proposed the vote of thanks.



## Kollam

Kollam Local Centre, IEI observed Energy Conservation Day 2022 in association with Mechanical Engineering Students' Chapter, IEI, Baselos Mathews II College of Engineering, Sasthancotta on 13 December 2022.



Dr (Prof) Ms Sheeba R, Honorary Secretary, Kollam Local Centre, IEI inaugurated the program. Special address was delivered by Dr Madhusoodanan Pillai, Former Professor, TKM College of Engineering, Kollam.



## Meerut

Meerut Local Centre, IEI observed Energy Conservation Day 2022 on 14 December 2022 at Meerut. Mr A K Gupta, Past Chairman, Meerut Local Centre, IEI welcomed the guests and dignitaries. Chief Guest of the event was Mr K K Sharma, Principal, BBSSM Inter College, Meerut. Mr C P Gupta, Past Chairman, Meerut Local Centre, IEI also spoke on the occasion. At the end, Mr Raj Pal Agarwal, Honorary Secretary, Meerut Local Centre, IEI proposed the vote of thanks.



## North Bengal

North Bengal Local Centre, IEI observed Energy Conservation Day 2022 on 14 December 2022 at Jalpaiguri. Mr Chinmoy Ghosh, Honorary Secretary, North Bengal Local Centre, IEI delivered the welcome address. Prof (Dr) Sudip Mukherjee, Chairman, North Bengal Local Centre, IEI in his address said that saving energy reduces air and water pollution and conserve natural resources and thus creates a healthier living environment for people. He mentioned that energy is the fundamental source of living and is classified into various types depending on its nature. Mr G K Panda, Member, North Bengal Local Centre, IEI explained the law of conservation of energy. At the end, Prof (Dr) Sudip Mukherjee, proposed the vote of thanks.



## Roorkee

On 14 December 2022, Roorkee Local Centre, IEI observed Energy Conservation Day 2022. Dr Ashish Pandey, Chairman of the IEI Roorkee Local Centre, delivered the welcoming address and emphasised the need of energy conservation in our daily lives. Prof R P Saini, Hydro and Renewable Energy Department, Indian Institute of Technology Roorkee, was the event's keynote speaker. He delivered a lecture on the topic 'Energy Conservation Opportunities in Pumping Systems,' in which he discussed the basic concept of energy, the importance of energy conservation, the benefits of energy efficiency, the different types of pumps and turbines, the effects of cavitations, cavitation prevention, pump applications, the characteristics curve of a centrifugal pump, and so on. Mr Vineet Kumar Saini, Honorary Secretary, Roorkee Local Centre, IEI, proposed the vote of thanks at the end.



## Rourkela

Rourkela Local Centre, IEI observed Energy Conservation Day 2022 on 14 December 2022 through hybrid mode. A Webinar was organised on the topic 'Impact of Initiatives in Energy Conservation'. In his address, the event's Keynote speaker, Dr Adhidesh S Kumawant, Assistant Professor, Department of Chemical Engineering, National Institute of Technology Rourkela, stated that the Sustainable Development Goals of ensuring access to affordable, reliable, sustainable, modern energy and the commitment to the Glasgow Climate Pact - COP26, are critical towards intertwined development. He also mentioned that policies and practices of a large economy like India should pace towards cleaner, greener and sustainable energy. Earlier, Dr Rama Chandra Pradhan, Honorary Secretary, Rourkela Local Centre, IEI welcomed all and briefed about the theme and at the end of the event, proposed the vote of thanks.



## Saurashtra

Saurashtra Local Centre, IEI, in association with Shri Labubhai Trivedi Institute of Engineering & Technology observed Energy Conservation Day 2022 on 14 December 2022 at Rajkot. Speaker of the event, Dr Virang Oza, Associate Professor, Shri Labhubhai Trivedi Institute of Engineering and Technology Rajkot delivered lectures on the occasion on the topic 'Energy Conservation'. Earlier, Mr Deepak V Suchde, on behalf of Saurashtra Local Centre, IEI, Rajkot delivered the welcome address. At the end, Mr B V Harsoda, Honorary Secretary, Saurashtra Local Centre, IEI proposed the vote of thanks.



## Sunabeda

Sunabeda Local Centre, IEI observed Energy Conservation Day 2022 on 14 December 2022 at Sunabeda. Mr Arabinda Swamy, Chairman, Sunabeda Local Centre, IEI, delivered the keynote address, and Mr Babrubahan Sahu, Honorary Secretary, Sunabeda Local Centre, IEI, provided an overview of the event's theme.



## Trichur

Trichur Local Centre, IEI observed Energy Conservation Day 2022 on December 14, 2022. A Webinar was organised on the occasion on the topic 'Renewable Energy for a Sustainable & Carbon Neutral World'. Dr Ajith Gopi, Joint Chief Technical Manager, ANERT, spoke at the event about the importance of using renewable energy in general, and solar PV in particular, to achieve a Green Future and alleviate energy poverty. He also mentioned grid-connected solar power plants, wind energy, and nuclear fusion. Earlier, Prof Sunil Kumar C P, Chairman, Trichur Local Centre, IEI delivered the welcome address and discussed the over exploitation of natural resources due to industrial revolution, which has affected global development. He further spoke on reforming global development systems to minimize GHG and increase CO<sub>2</sub> capture to achieve carbon neutrality. At the end, Mr U K Sugathan, Former Honorary Secretary, Trichur Local Centre, IEI proposed the vote of thanks.

Contd. on page 27

## New Technologies and Renewable Energy-Based Electro Mobility

The **West Bengal State Center** of IEI hosted a technical webinar on the theme **New Technologies and Renewable Energy Based Electro Mobility** on 06 July 2022 under the aegis of Electrical Engineering Division Board [ELDB], IEI. Speaker of the event was Dr Eng Marta Zurek-Mortka, Scientist, Lukaszewicz Research Network, Institute for Sustainable Technologies in Radom, Poland, Department of Control Systems. The webinar began with a welcome address from Dr. Nirmal Das, Chairman of the IEI's West Bengal State Centre. In his address, Dr H O Thakare, Immediate Past President of the IEI, emphasized the increased use of electric vehicles to reduce fossil fuel depletion and carbon emissions in the global transportation sector.



**Dr Eng Marta Zurek-Mortka**

Dr Mortka in her lecture stated that the primary energy consumption all over the world is constantly increasing and this is the time to enhance the energy share from renewable sources in terms of global consumption in order to improve the energy efficiency of classic heating systems, as well as reduce the share of CO<sub>2</sub> in the transport systems. In her lecture, Dr Mortka focussed on the working principle of thermoelectric generator (TEG) for generating electricity from waste and waste heat recovery system from TEG and opined that one of the possibilities to implement the postulate of increasing the energy efficiency of thermal systems is the use of thermoelectric generators for the local production of auxiliary energy for such systems. She explained the water preparation system for an electrolyzer producing hydrogen installation and a prototype of a laboratory installation for the production, storage and conversion of hydrogen into electricity. She further stated that rapid acceleration towards the use of electric vehicles is

a feasible alternative to reduce the harmful effects of traditional transport based on the use of combustion vehicles. She further stressed the need for renewable energy storage and discharge by means of functioning of more battery charging stations. She explained the integration methodology of the fast charging stations for electric vehicles with the power systems. She discussed the principle of Li-ion battery energy storage, EV battery



**Prof Asoke Kumar Paul**

charging models of hybrid EV fast charging stations, component analysis of EV charging stations with a DC microgrid, the working principle of an AC/DC converter, and a DC/DC converter with accessories. She further elaborated the simulation research models of cooperation of the PWM voltage inverter with the input rectifier of frequency converter of an AC microgrid, cooperation of the PWM voltage inverter with an input rectifier loaded with a capacitor battery for EV fast charging stations and so on. She also enumerated the DC/AC/DC converter model of EV battery charging station. The speaker concluded her lecture with more stress on the proposed use of DC microgrid for charging the EV batteries and mobile electric machines in industry; use of AI for energy management of industry with DC microgrids to fulfil the needs of production and EV charging stations. A brief question-answer session was held at the end of the deliberation. Moderator of the event, Prof Asoke Kumar Paul, Associate Professor, Electrical Engineering Department, Techno India University summed up the proceedings of the deliberation and further spoke on Thermo electric generator. He concluded the session with more stress on the use of renewable energy, installation of more battery charging stations etc. Dr Raju Basak, Honorary Secretary, West Bengal State Centre, IEI proposed the vote of thanks.



## Project Management Associates Weekend Programme



### International Project Management Association

IPMA is a federation of about 72 Member Associations (MAs) who develop project management competences in their geographic areas of influence. Through IPMA, project management practitioners from all parts of the world can network, share ideas through effective collaboration and cooperation.

### Who / Why to Attend

Professionals across all levels who want to understand the intricacies of Project Management and want to excel in managing projects to advance their career.

### Discounted Program Registration Fee for IEI Members (15% discount from the published fee)

Participation Fee for Level C: Rs. 47,090 per person plus GST @ 18%

Participation Fee for Level D: Rs. 24,650/- per person plus GST @ 18%

- Registration fee is non refundable. However, alternate persons can be nominated.
- Cheque / draft or NEFT is payable to "Project Management Associates" at Delhi.
- The registration fee does not include travel and hotel accommodation.

Next batch of on-line learning sessions on Project Management Competence Building (PMCB) based on ICB Version 4, knowledge base for IPMA Level C and Level D by our Learning partner PMA is from **3, 4, 10, 11 February 2023**. The relevant material is available in the link <https://www.pma-india.org/brochures>.

**Exam Dates for Level C:** 18, 24, 25 February 2023

**Exam Dates for Level D:** 18 February 2023

**Exam Venue:** Secure and Seamless Online Exam & Assessment

### For more details, please contact:

Arvind Agarwal, Head, PMA Cert (Certification Body)

Project Management Associates

FC-33, Plot No. 1 & 2, Periyar Centre, 3rd Floor, Institutional Area, Jasola, New Delhi – 110025

Tel: 011 41421511 Mob: +91 9711631534-35/39, 9840432229, Website: [www.pma-india.org](http://www.pma-india.org), Email: [info@pma-india.org](mailto:info@pma-india.org) /





## The Institution of Engineers (India)

### IEI YOUNG ENGINEERS AWARD 2023-2024

#### Notification

The Institution of Engineers (India) is a multi-disciplinary professional body of engineers with 15 engineering disciplines and over 9,00,000 members in India and abroad. The Institution was established in 1920 and was incorporated by Royal Charter in 1935. It has been in the forefront of engineering profession addressing the socio engineering problems for progress of the country. IEI functions among professional engineers, academicians, research workers to update their professional knowledge through continuous professional development. With its large international linkages and a network of 125 Centres in India and Six Overseas Chapters, the Institution has built up wide reach and large infrastructure to meet its objectives of promoting engineering in all aspects.

With a view to promote the pursuit of excellence in the field of engineering, IEI has instituted 'IEI Young Engineers Award'. The Award consists of a Plaque and a Certificate. The purpose of the Award is to recognize outstanding achievements/contributions made by young engineers in engineering research, excellence in engineering technology development, technology transfer, etc. Any engineer citizen of India not older than 35 years of age as on March 31, 2023 is eligible for the Award. The IEI Young Engineers Award is presented to awardees for all the 15 Engineering Divisions of the IEI during the respective National Conventions. The awardees attending the National Convention will be provided with free accommodation & their traveling expenses (AC-3 Tier train fare by shortest route) will be reimbursed on production of original documents.

The Application Proforma may be downloaded from IEI website (<https://www.ieindia.org>). Soft copy of the filled-in application proforma should be forwarded to [award@ieindia.org](mailto:award@ieindia.org) by March 31, 2023. Further, six copies of the duly filled application form, along with all supporting documents, endorsed by appropriate authority should be sent to the below mentioned address so as to reach us latest by **April 10, 2023**:

#### Director (Technical)

The Institution of Engineers (India)  
8 Gokhale Road, Kolkata 700020

The envelope containing the application should be superscribed at the top as 'IEI Young Engineers Award 2023-2024' and name of the engineering division under which the applicant desires to be considered for the Award.



## The Institution of Engineers (India)

*A Century of Service to the Nation*

*Celebrates*

### World Engineering Day for Sustainable Development



**March 4, 2023**

*Theme:*

## Engineering Innovation for a more Resilient World



## The Institution of Engineers (India)

(A Century of Service to the Nation)

### Second Regional Conclave of Students' Chapters

Organised by

The Institution of Engineers (India)

In Association with

Punjab & Chandigarh State Centre, IEI

&

Ludhiana Local Centre, IEI

Hosted by



Theme

### Engineering Investments for Our Planet

23 February 2023

Venue

Block D1 (Auditorium), Chandigarh University, Mohali (Punjab)

# IEI DIARY



## Agricultural Engineering Division

One Day Seminar on **"Water Conservation Technologies – A Way forward for water related Sustainable Development Goals of United Nation"**

Hyderabad, February 04, 2023

The Honorary Secretary, IEI, Telangana State Centre, IEI, 6-2-910, "Visvesvaraya Bhavan", Khairatabad, Hyderabad 500004 [☎: 040-23314969/23373087/23370779, E-mail: telanganasc@ieiindia.org, Website: www.ieitsc.org.in]

## Architectural Engineering Division

Thirty-seventh National Convention of Architectural Engineers on **"Modern Trends in Architectural Engineering & Construction Practices"**

Pune, March 18-19, 2023

The Honorary Secretary, IEI, Pune Local Centre, 1332, Abhiyanta Bhavan, Shivajinagar, J M Road, Pune 411005, [☎: 020-25533376/25530250/25520239, E-mail : punelc@ieiindia.org; Website : www.ieipune.org]

## Civil Engineering Division

One Day Seminar on **"Sustainable Management of Clean Water and Sanitation in Rural and Urban Areas"**

Kanchepuram, February 15, 2023

The Honorary Secretary, IEI, Kanchepuram Local Centre, Agni College of Technology – ACT, Old Mahabalipuram Road, Thalambur, Chennai 600130 [Email: kanchepuramlc@ieiindia.org]

All India Seminar on **"Remote Sensing & GIS Applications on Water Resources Engineering"**

Kanchepuram, March 03-04, 2023

The Honorary Secretary, IEI, Kanchepuram Local Centre, Agni College of Technology – ACT, Old Mahabalipuram Road, Thalambur, Chennai 600130 [Email: kanchepuramlc@ieiindia.org]

All India Seminar on **"Impact of Waste Water on the Environment & Its Efficient Management"**

Lucknow, March 18-19, 2023

The Honorary Secretary, IEI, Uttar Pradesh State Centre, Engineers' Bhawan, River Bank Colony, Lucknow 226018 [☎: 0522-2625322, E-mail : upsc@ieiindia.org, Website: www.ieiup.org.in]

## Computer Engineering Division

One Day Workshop on **"Big Data Analytics, Artificial Intelligence and Machine Learning"**

Agra, February 10, 2023

The Honorary Secretary, IEI, Agra Local Centre, Institute of Engineering and Technology (Dr B R Ambedkar University, Agra), Ground Floor, Swatantrata Bhawan, Khandari Campus, Agra

282002, [☎: 8126892221, E-mail: agralc@ieiindia.org]

All India Seminar on **"Recent Trends in Information and Communication Technology"**

Kanchepuram, March 15-16, 2023

The Honorary Secretary, IEI, Kanchepuram Local Centre, Agni College of Technology – ACT, Old Mahabalipuram Road, Thalambur, Chennai 600130 [Email: kanchepuramlc@ieiindia.org]

## Electrical Engineering Division

One Day Seminar on **"Advancements and Research Challenges on Integration of Vehicle to Grid (V-G) and Renewable Sources"**

Coimbatore, February 03 2023

The Honorary Secretary, IEI, Coimbatore Local Centre, PSG Tech Campus, Peelamedu, Coimbatore, 641004, Tamilnadu [☎:0422-2580733, E-mail: coimbatorelc@ieiindia.org]

All India Workshop on **"Role of Power Converters and Drives for Electrical Vehicles"**

Tiruchirappalli, February 17-18, 2023

The Honorary Secretary, IEI, Tiruchirappalli Local Centre, Near Ganesa Bus Stop, BHEL Main Office Road, Opposite to 79 Building, Tiruchirappalli 620014 [☎: 0431-2554285 /2574022, E-mail: tiruchirappallilc@ieiindia.org]

## Electronics and Telecom. Engineering Division

One Day Seminar on **"Impact of Engineering Model in Nanotechnology, Intelligent Robots and Drones for Next Gen Precision Agriculture"**

Coimbatore, February 10, 2023

The Honorary Secretary, IEI, Coimbatore Local Centre, PSG Tech Campus, Peelamedu, Coimbatore, 641004, Tamilnadu [☎:0422-2580733, E-mail: coimbatorelc@ieiindia.org]

One Day Seminar on **"Emerging Signal Processing Applications"**

Hyderabad, February 11, 2023

The Honorary Secretary, IEI, Telangana State Centre, 6-2-910, "Visvesvaraya Bhavan", Khairatabad, Hyderabad 500004, Telangana, [☎: 040-23314969/23373087/23370779, E-mail: telanganasc@ieiindia.org, Website: www.ieitsc.org.in]

One Day Seminar on **"Basics of 5G Technology and Its Advantages"**

Gwalior, February 12, 2023

The Honorary Secretary, IEI, Gwalior Local Centre, Green Park, Engineer Road, Behind New Collectorate, City Centre, Gwalior 474011 [☎: 0751-2454168, E-mail: gwaliorlc@ieiindia.org]

## Marine Engineering Division

All India Seminar on **"EESG (Environment, Social and Governance) in Ship Operation: Digitalisation, Decarbonisation, Disruption - 2023"**

Dehradun, February 25-26, 2023

The Honorary Secretary, IEI, Uttarakhand State Centre, Near ISBT Flyover, Saharanpur Road, Dehradun 248002 [Telefax : 0135-2641190 /9412056431]

## Mechanical Engineering Division

All India Seminar on **"Challenges and Opportunities in Electric Vehicles"**

Madurai, February 15-16, 2023

The Honorary Secretary, IEI, Madurai Local Centre, E r T M Jambulingam Bhavan, No 1, Vivekananda Nagar, 120 Feet Road, Surveyor Colony, K Pudur, Madurai 625007 [☎: 0452-4373067; E-mail: madurailc@ieiindia.org]

Thirty-eighth National Convention of Mechanical Engineers on **"Emerging Trends and Developments in Smart Manufacturing , Renewable Energy and Mechanical Systems Diagnostics/Design"**

Nagpur, September 08-09, 2023

The Honorary Secretary, IEI, Nagpur Local Centre, North Ambazari Road, Nagpur 440010, [☎: 0712-2525617, E-mail : nagpurlc@ieiindia.org]

## Production Engineering Division

Thirty-seventh National Convention of Production Engineers on **"Recent Trends and Future Direction in Production Engineering and Management: Vision 2030"**

Kolkata, June 16-17, 2023

The Honorary Secretary, IEI, West Bengal State Centre, 8 Gokhale Road, Kolkata 700020 [☎: 033-22238914, Fax: 033-22233140, E-mail: wbsc@ieiindia.org]

## Textile Engineering Division

One Day Seminar on **"Industrial Engineering Concepts in Textile & Garment Production"**

Coimbatore, February 06, 2023

The Honorary Secretary, IEI, Coimbatore Local Centre, PSG Tech Campus, Peelamedu, Coimbatore, 641004, Tamilnadu [☎:0422-2580733, E-mail: coimbatorelc@ieiindia.org]

## Interdisciplinary Coordination Committee

One Day Workshop on **"Study, Job & Business Opportunities in Environment Sector"**

Pune, February 04, 2023

The Honorary Secretary, IEI, Pune Local Centre, 1332, Abhiyanta Bhavan, Shivajinagar, J M Road, Pune 411005, [☎: 020-25533376/25530250/25520239, E-mail : punelc@ieiindia.org; Website : www.ieipune.org]



## IEI Celebrates Energy Conservation Day

Contd. from page 23

### Upper Assam

Upper Assam Local Centre, IEI observed Energy Conservation Day 2022 in association with Brahmaputra Cracker and Polymer Limited, Dibrugarh on 14 December 2022 at Dibrugarh. Mr Sasanka Pratim Deka, Chairman, Upper Assam Local Centre, IEI delivered the welcome address. Chief Guest of the event was Mr P Dash, Director Finance, BCPL, Dibrugarh and Guest of Honour of the event was Mr V K Pal, Chief Operating Officer, BCPL, Dibrugarh. The technical session was chaired by Mr Bhairab Bhuyan, CGM (Instrumentation), Oil India Limited, Duliajan and co-chaired by Mr Sandeep Kejriwal, Prateen Engineering, Tinsukia. Seven technical papers were presented on the technical session. Mr Arindam Choudhury, Logistic Department, OIL, Duliajan presented paper on the topic 'Steps towards Energy Conservation for Sustainable Mobility'; Mr Pranjal Changmai, GM (Operation), BCPL, Dibrugarh on 'Mission to Zero Emission'; Mr Geetali Kalita, DGM (Tech Services), NRL, Golaghat on 'Best Practices in Energy Efficiency under PAT Scheme'; Mr Kalpajyoti Biswas, Senior Engineer

and Mr Sandeep Singh, Superintending Engineer, OIL, Duliajan on 'Energy Conservation by Process Optimization at STF – Madhuban'; Mr Brajendra Kumar Talukdar, CM, Electrical (Energy Co-Ordinator), BCPKL, Dibrugarh on 'Renewable Energy and Role of India in Survival of our Planet'; Mr Rakesh Rajknowar, Assistant Manager (M), DNP Limited, Duliajan on 'Energy and a Conservation Perspective'; and Mr Dibyajyoti Boruah, Superintending Engineer (Inst) Drilling, Oil India Limited, Duliajan delivered lecture on 'Dynamic Gas Blending'. At the end, Mr Debajeet Sarma, Honorary Secretary, Upper Assam Local Centre, IEI and Assistant Manager (HSE), Assam Gas Company Limited, Duliajan proposed the vote of thanks.



## Superannuation from IEI

Mr Sandip Das, an employee of the Durgapur Local Centre of the Institution has superannuated from the services of IEI on January 31, 2023. He joined the Institution on January 04, 1991 and rendered his services to the Institution for a period of 32 years.

IEI wishes Sandip Das and his family a happy and healthy life in the future.



## Empanelment as Advocate/ Attorneys & Chartered Accountant for Engineers

The Engineers practicing as Advocate/ Attorneys and Chartered Accountants are invited to be empanelled with The Institution of Engineers (India) for promoting their visibility in public domain.

The application fee for empanelment is, Rs 5900/- (GST included), which may be made in Demand Draft/ Multi-city Cheque in favour of **"The Institution of Engineers (India)"** payable at Kolkata.

The hard copy of application should reach to:-

The Director (Membership)

The Institution of Engineers (India), 8 Gokhale Road, Kolkata 700020

Please visit : <https://www.ieindia.org/webui/iei-home.aspx> for further details.



IEI - Springer Journal  Springer



ISSN Print: 2250-2149  
ISSN Online: 2250-2157  
SCOPUS Indexed

**Series A**  
CiteScore 2021  
1.6  
Google Scholar h5  
Index 2021  
16



ISSN Print: 2250-2106  
ISSN Online: 2250-2114  
SCOPUS Indexed

**Series B**  
CiteScore 2021  
1.6  
Google Scholar h5  
Index 2021  
17



ISSN Print: 2250-0545  
ISSN Online: 2250-0553  
SCOPUS Indexed

**Series C**  
CiteScore 2021  
2.3  
Google Scholar h5  
Index 2021  
20



ISSN Print: 2250-2122  
ISSN Online: 2250-2130  
SCOPUS Indexed

**Series D**  
CiteScore 2021  
1.6  
Google Scholar h5  
Index 2021  
13



ISSN Print: 2250-2483  
ISSN Online: 2250-2491  
SCOPUS Indexed

**Series E**  
CiteScore 2021  
1.3  
Google Scholar h5  
Index 2021  
11

Free e-access of Journal papers for all Corporate Members of IEI log-in from [www.ieindia.org](http://www.ieindia.org)

## Role of IEI for Nation Building

Tripura State Centre, IEI Organized a technical talk on 29 December 2022 on the topic 'Role of IEI for Nation Building' at Tripura State Centre, IEI. Er C Debnath, President, IEI graced the function as Chief Guest and delivered a lecture on the topic. Special Guests and Special Speakers of the event were Prof (Dr) Swapan Bhaumik, Former Vice President, IEI and Mr Ranjit Kumar Majumder, Past Chairman, Tripura State Centre, IEI. The Speakers emphasised IEI's contribution towards nation-building since its inception in 1920 through its 125 State and Local Centres. Dr Subhadeep Bhattacharjee, Chairman, Tripura State Centre, IEI presided over the programme. Earlier, Dr Mrinal Kanti Deb Barma, Honorary Secretary, Tripura State Centre, IEI delivered the welcome address. Before starting the programme, a minute's silence was observed in memory of the Late Prof S K Chakraborty, Past Chairman, Agartala Local Centre, IEI.



## Engineering Staff College of India

**Autonomous Organ of The Institution of Engineers (India)**  
(IMS [ISO 9001:2015, ISO 14001:2015, ISO 50001:2018, ISO 45001:2018],  
ISO/IEC 17025:2017 Certified, AICTE & CEA Recognized Institution)

### Continuing Professional Development Programmes (CPDPs) for the Month of February 2023

Sl. No.	Name of the Course	Scheduled Dates
1.	Advanced in Project management	01 – 03 Feb
2.	Request for Proposal (RFP) for a IT Contract Management System	01 – 03 Feb
3.	Concurrent Engineering - Role of Designer in Product Development	06 – 08 Feb
4.	Enhancing Managerial Excellence for Scientists, Engineers, Managers & Executives	06 – 08 Feb
5.	Advance Excel for Report Generation & Analytics	06 – 10 Feb
6.	Six Sigma Green Belt	06 – 10 Feb
7.	Hydraulic Gates and Hoists – Design, Erection and Operation & Maintenance including Dismantling	06 – 10 Feb
8.	Online Monitoring Industrial Emission Effluent (Technical Guidelines and Demonstration).	07 – 09 Feb
9.	CEA Regulations 2010 - Measures relating to Safety, Electric Supply Associated Maintenance and Safety Practices	07 – 10 Feb
10.	Instrumentation for Monitoring in Mining- Mine Environment, Ventilation, Strata, Slope Stability, Blasting	08 – 10 Feb
11.	Pilferage of Electricity - Detection & Prevention - Issues & Challenges	13 – 16 Feb
12.	Information Security Policies & Security Audit	13 – 17 Feb
13.	Climate resilient water supply system design for sustainability	15 – 17 Feb
14.	Total Productivity Maintenance	15 – 17 Feb
15.	Design Awareness Program	20 – 22 Feb
16.	Networking and use of sensors for onfarm Irrigation Water Management	20 – 22 Feb
17.	ISO 13485 International Standards for Medical Instruments	20 – 23 Feb
18.	Understand, Predict, and Optimize Real-World Designs, Devices, and Processes with COMSOL Simulation Software	20 – 24 Feb
19.	Desalination Process – Planning, Design & Operation	21 – 23 Feb
20.	Construction Management – Best practices and latest trends	22 – 24 Feb
21.	Power Quality, Harmonics Mitigation and Reactive Power Management (concepts of SIL, FACTS devices)	22 – 24 Feb

For detail information please contact:

**Engineering Staff College of India**

Old Bombay Road, Gachibowli, Hyderabad – 500 032

Landline : 040-66304100 & Mobile: +91 7337319038 / Email : mis@escihyd.org / URL : https://escihyd.org

# IEI NEWS

ISSN 0971-3352

Owner : The Institution of Engineers (India), 8 Gokhale Road, Kolkata 700 020  
Printer : Maj Gen MJS Syali, VSM (Retd), Secretary & Director General  
Publisher : Maj Gen MJS Syali, VSM (Retd), Secretary & Director General  
Published from : 8 Gokhale Road, Kolkata 700 020  
Printed from : M/s Florence Offset Process Pvt. Ltd.  
6A S N Banerjee Road, Kolkata 700013  
Editor : Maj Gen MJS Syali, VSM (Retd), Secretary & Director General

**President : Er C Debnath**

**Editor : Maj Gen MJS Syali, VSM (Retd)**

**Associate Editor: Dr Jitendra Saxena**

*Special Contributors:* Mr S Chakraverty, Dr K Sen  
Mr D Nath, Mr A Das, Ms H Roy, Mr S Bagchi

The Institution of Engineers (India) as a body accepts no responsibility for the statements made by individuals. Reprints of any portion of the publication may be made provided reference thereto is quoted.

Telephones: 91-33-40106299/248/228/215; Web: <http://www.ieindia.org>; E-mail: [iei.technical@gmail.com](mailto:iei.technical@gmail.com)