

I.E.I NEWS

February 2024

Emerging Technologies for Advances in Agriculture and.....

3

Sustainable Development of Industries through.....

4

Innovative Trends and Aspects of Nanotechnology:.....

5

Creating Hope through Action

7

Future Technologies and Its Impact.....

8

Reports of Energy Conservation Day

9

News-in-Brief

14

A CENTURY OF SERVICE TO THE NATION

Volume 30

Number 11

IEI Confers Honorary Life Fellowship on S Somanath, Chairman, ISRO



The Institution of Engineers (India) had the privilege of conferring the 'Honorary Life Fellowship' on Mr S Somanath, Chairman, Indian Space Research Organization (ISRO). More gratifying is the fact that Mr Somanath himself belongs to the engineering fraternity, his gracious acceptance of this honour has given the Institution an impeccable stature. In a ceremonial function held at the Headquarters of ISRO, Dr G Ranganath, President of the Institution conferred the Honorary Life Fellowship on Mr S Somanath on 14 February 2024. Dignitaries present on the occasion included the Council Members of IEI, Prof (Dr) M Chowde Gowda, Er M Nagaraj, Dr Aloknath De, Dr Enti Ranga Reddy, Er M Lakshmana; Committee Member, Karnataka State Centre, IEI, Dr V Jayaram, and Director, National Design & Research Forum (NDRF), IEI, Dr S Seetharamau.

Thirty-third National Convention of Mining Engineers and National Seminar

Amended Mines Regulations and its Impact on Mining Industry

The Thirty-third National Convention of Mining Engineers was organized by **Karnataka State Centre, IEI** at Bengaluru during 11-12 August 2023 under the aegis of Mining Engineering Division Board [MNDB], IEI. A National Seminar was organized on the theme **Amended Mines Regulations and its Impact on Mining Industry**. The objective of the Convention was to shed light on the significant amendments to the Mines & Minerals Development & Regulation



Contd. on page 2

From the President's Desk.....



As we step into a new year filled with opportunities and challenges, I am thrilled to share with you the upcoming celebrations that resonate with the core values of our engineering community. The World Engineering Day for Sustainable Development on March 4th and World Water Day on March 22nd are not just dates on the calendar; they represent moments of reflection, collaboration, and commitment towards a better world.

This year, the World Engineering Day for Sustainable Development carries the theme, "Engineering Solutions for a Sustainable World." It's a call to action for all engineers, a reminder of our pivotal role in creating a resilient and sustainable future. As engineers, we commit to translating the UN's Sustainable Development Goals into tangible solutions. From renewable energy to waste management, sustainable infrastructure to water conservation, our contributions will shape a world that respects the environment and meets the needs of all. Furthermore, inclusivity and diversity take center stage. Breaking gender stereotypes and encouraging diversity within our field ensures a collaborative force drawing on a multitude of perspectives and experiences. Global collaboration becomes paramount in tackling challenges, with engineers, researchers, policymakers, and industry leaders working hand in hand, transcending borders to share knowledge and resources.

On March 22nd, we celebrate World Water Day with the theme 'Water for Peace.' Water, a source of life, becomes a catalyst for stability and prosperity when managed wisely. With over 3 billion people depending on shared water resources, collaboration becomes essential. Only through united efforts can we ensure water's role as a stabilizing force amidst climate change and a growing global population.

On behalf of IEI, I urge each of you to embrace these celebrations actively. Let us embody the spirit of innovation, inclusivity, and environmental responsibility. Our collective efforts can truly make a difference.

Let's engineer a sustainable and peaceful future for all.

Amended Mines Regulations and its Impact on Mining Industry

Contd. from page 1

Act in 2015 and subsequent changes to the Mineral Concession Rules and Mineral Conservation & Development Rules. Dr H C Mahadevappa, Hon'ble Minister for Social Welfare, Government of Karnataka, graced the occasion as the Chief Guest and inaugurated the event. Shri Deo Kumar, Deputy Director General of Mines Safety, Southern Zone, Bengaluru, was the Guest of Honour. Other esteemed guests included Shri Girish R, IAS, Director, Mines & Geology Department, Government of Karnataka, Shri Jayavibhava Goswami, IAS, Director, Karnataka State Mineral Corporation Limited, and Prof (Dr) Netai Chandra Dey, Chairman, Mining Engineering Division Board, IEI [Session 2022-23], who presided over the function. Er D V Pichamuthu, Former Managing Director, M/s Almora Magnesite Limited & Past Council Member, IEI, also graced the occasion.

In his Inaugural Address, Dr H C Mahadevappa emphasized that the mining industry globally faces multifaceted challenges including environmental concerns, geopolitical tensions, fluctuating demand, technological advancements, and a scarcity of skilled labor. He stressed the importance



of addressing these challenges for the sustainable development of mining, highlighting its role in employment generation, infrastructure development, foreign exchange earnings, and support for green technologies. However, he noted that despite these contributions, there hasn't been significant improvement in the country's GDP attributed to mining in recent years. He advocated for an inclusive culture within the industry, offering solid career paths and improvements in working conditions, benefits, and skills development. Guest of Honour, Sri Deo Kumar, echoed these sentiments, underscoring the need for mining businesses to adapt to evolving challenges while balancing risks and costs to remain competitive. He identified the critical challenge of attracting and retaining maintenance talent in an industry perceived as environmentally damaging and physically demanding, particularly among younger generations. Dr Meda Venkataiah, Convener of the event, highlighted the importance of the Convention in addressing the ramifications of major amendments to mining regulations and rules. He expressed confidence that the deliberations would yield concrete suggestions for overcoming existing challenges.

On the occasion, Mr V J K Babu, Controller of Mines, Indian Bureau of Mines, Bangalore; Mr K Madhusudhana, President, Mining Engineers' Association of India, Hyderabad and Mr Muralidhar Bidari, Director of Mines Safety, Bangalore were felicitated as eminent engineering personalities in recognition of their eminence and contribution to the profession of Mining Engineering. The IEI Young Engineers Award in Mining Engineering Division for the year 2023-24 were presented to Dr Ashok Kumar, Assistant Professor, Department of Mining Engineering, Indian Institute of Technology Dhanbad - Indian School of Mines, Dhanbad, Jharkhand; Dr Hemant Agrawal, Manager (Mining), Central Mine Planning and Design Institute Limited, Ranchi, Jharkhand and Dr Satya Prakash Sahu, Deputy Manager (Mining), Mahanadi Coalfields Limited, Sambalpur, Odisha in recognition of their contributions in the field of Mining Engineering. Earlier, Er M Lakshmana, Chairman, Karnataka State Centre, IEI [Session 2021-23] welcomed the guests and invitees and at the end, Dr Enti Ranga Reddy, Honorary Secretary [Session

2021-23] proposed the vote of thanks. A Souvenir was released on the occasion in the august presence of the dignitaries on the dais.

Followed by the inaugural session, Sri Ujjwal Tah, Deputy Director General of Mines Safety (HQ), Dhanbad delivered the Prof S K Bose Memorial Lecture in virtual mode.

Er D V Pichamuthu, Former Managing Director, Almora Magnesite Limited delivered Keynote address on the topic 'Amended Mines Regulations and its Impact on Mining Industry'. There were six technical sessions spread over two days during the National Convention. The Invited Talks were delivered by the specialists as detailed. Sri K Madhusudhana, CEO, MSPL Limited and President, MEAI delivered invited lecture on 'Forest Conservation Rules and Its Implementation – Issues and Way Forward'; Dr T N Venugopal, Former Joint Director, Department of Mines & Geology, GoK on 'National Mineral Policy – An Intent not Fulfilled (For Non-fuel and Non-coal Minerals)'; Dr Sandi Kumar Reddy, Assistant Professor, Mining Engineering Department, NITK, Surathkal on the title 'Stability Assessment and Optimum Pit Slope Design in Open Pit Iron Ore Mines'; Sri Rajiv Kumar, Head of Mineral Resources-Goa & Karnataka, Fomento Resources on 'Mineral Royalty Rates for Iron Ore – A Critical Perspective'; Sri Vijay Singh A R, Chartered Accountant, Bengaluru on 'Amendments to the Mineral Laws (MMDR Act) 1957 and its Rules-Issues & Concerns'; Dr V D Rajagopal, Former Director, DMG, AP & Past President, MEAI on 'Recent Amendments to MMDR Act and its intricacies in Conversion of Industrial Minerals as Minor Minerals'; Sri Sabyasachi Nayak, Founder, M/s Mine Magna on 'Amended Mine Regulations and their Impact on the Mining Industry'; Dr Shibaji Ch Dey and Prof Netai Chandra Dey on 'Comparison of Thermal Comfort between two Bolter Miner Panel in a Deeper Underground Mechanized Mine of India'; Sri Deepak Vidyarthi, Consultant Mining Assessor, National Accreditation Board on 'Industrial Crisis Management'; Sri P Venkatesan, Chief Manager-Planning-Mine, NLC India Limited, Neyveli on 'Cradle-to-Cradle Approach in Indian Mining'; Dr P Sharath Kumar & Ms Kavitha R, Department of Mineral Processing, Vijayanagar, Sri Krishna Devaraya University, Ballari, on 'Valorization of Banded Magnetite Quartzite for Allied Applications'; Prof A H Sagar, International Educationalist & Analytic Philosopher delivered Invited Lecture on 'Importance of Research Mindset as well as Analytic Skills for Mining Engineers and Professionals'; An industrial presentation was obtained by M/s FLSmidth. These sessions provided a comprehensive overview of critical issues affecting the mining sector and offered valuable insights for industry professionals.

The Valedictory Function, graced by the Chief Guest, Dr Richard Vincent D'Souza, Secretary to Government, Commerce & Industries (MSME & Mines), Government of Karnataka, marked the successful conclusion of the Convention. Dr D'Souza commended the outcomes of the deliberations and assured continued support to the mining industry. The recommendations formulated during the Convention were submitted to Shri S S Mallikarjuna, Hon'ble Minister for Mines & Geology, GoK, Bengaluru, focusing on key areas such as mineral area delineation, public sector utilization, auction planning, fund allocation, clearance process streamlining, and private sector involvement in exploration.

The National Convention was well attended by the Mining Engineers, Mineral Processing Engineers, Geologists, Metallurgists. Faculty Members, students from Mining Engineering Institutes. The Convention received valuable support from Nandihalli Alumni Association, Coal India Limited, BKG Mining Private Limited JSW Cements, MSPL Limited, M/s R Praveen Chandra, Sri Kumaraswamy Mineral Exports Pri, Tata Steel Ltd, The Hutti Gold Mines Company Ltd, UltraTech Cement Limited, Vedanta Limited, Karnataka State Minerals Corporation Limited, Sri Rai Bahadur Seth Shreeram Narasingdas Private Limited and Zeenath Transport Company.

Emerging Technologies for Advances in Agriculture and Horticulture

Jabalpur Local Centre, IEI, in association with ICAR – NAHEP, Center of Advanced Agricultural Science and Technology, College of Agricultural Engineering, Jawaharlal Nehru Krishi Vishwa Vidyalaya (JNKVV), Jabalpur, organized the 35th National Convention of Agricultural Engineers during 12-13 September 2023 at Jabalpur under the aegis of Agricultural Engineering Division Board [AGDB], IEI. A National Seminar was also organized on the theme **Emerging Technologies for Advances in Agriculture and Horticulture**. The event commenced with Dr S N Jha, Deputy Director General (Agricultural Engineering), Indian Council of Agricultural Research, New Delhi, gracing the function as the Chief Guest and inaugurating the event. Dr C R Mehta, Director, ICAR - Central Institute of Agricultural Engineering, Bhopal, and Er Rajeev Choudhary, Director, Directorate of Agricultural Engineering, Bhopal, were honored as Guests of Honour. Dr Pramod Kumar Mishra, Hon'ble Vice Chancellor, JNKVV, Jabalpur, also addressed the audience. Prof (Dr) M Nemichandrappa, Chairman, Agricultural Engineering Division Board [AGDB] [Session 2022-23], IEI, acknowledged the sincere efforts of the Jabalpur Local Centre, IEI, in organizing the National Convention graciously. Er Rakesh Kumar Rathore, Council Member, IEI, was also present at the event.

The program commenced with a welcome address by Er Prakash Chandra Dubey, Chairman, Jabalpur Local Centre, IEI [Session 2021-23]. In his address, Chief Guest Dr S N Jha emphasized the pivotal role of agricultural



engineering in shaping the Indian agricultural landscape. He stressed the significance of adopting state-of-the-art technologies in the face of rapidly changing environmental factors, limited resources, and a burgeoning global population. He lauded the National Convention and Seminar as platforms for interactive discussions, knowledge exchange, and the exploration of innovative solutions vital for the future of agriculture and horticulture. Guest of Honour, Er Rajeev Choudhary, delivered the Keynote lecture on the topic 'Role of Policy Makers to Promote Farm Mechanization in India'.

Guest of Honour, Dr C R Mehta, delivered the Rathindranath Tagore Memorial Lecture, forecasting emerging trends in agricultural mechanization and highlighting its advantages and benefits. He emphasized the importance of mechanizing farm operations to reduce human labor, ensure quality food production, and adhere to economic feasibility and time schedules. He also advocated for the accessibility of high-end technologies at affordable costs, citing mechatronics, robotics, drones, and other innovations as major highlights in the agricultural domain's future.

On the occasion, Prof (Dr) Atul Kumar Shrivastava, Dean, Faculty of Agricultural Engineering, Professor and Head, Department of Farm Machinery & Power Engineering, Jawaharlal Nehru Krishi Vishwa Vidyalaya, Jabalpur; Dr Sharanagouda Hiregoudar, Professor & Head, Department of Processing & Food Engineering, College of Agricultural Engineering, UAS, Raichur and Dr Nachiket Kotwaliwale, Director, ICAR-Central Institute of Post Harvest Engineering & Technology, Ludhiana were felicitated in recognition of their eminence and contribution to the profession of Agricultural Engineering. The IEI Young Engineers Awards in Agricultural Engineering Division for the year 2023-24 were presented to Dr Jeevarathinam G, Associate Professor and Head, Department of Food Technology, Hindusthan College of Engineering

and Technology, Coimbatore; Dr Siddesh Marihonnappanavara, Testing Engineer, Farm Machinery Testing Centre, Department of Farm Machinery and Power Engineering, College of Agricultural Engineering, University of Agricultural Sciences, Raichur, Karnataka and Mr Yallappa D, Assistant Professor, Department of Farm Machinery and Power Engineering, College of Agricultural Engineering, University of Agricultural Sciences, Raichur, Karnataka in recognition of their contributions in the field of Agricultural Engineering.

The technical sessions featured presentations aligned with the theme and sub-themes of the event, covering diverse topics such as performance evaluation of agricultural equipment, advancements in farm mechanization, sustainable agriculture practices, and the role of technology in horticulture.

Dr K N Agrawal, Project Coordinator, AICRP on FIM, CIAE, Bhopal delivered State of Art Lecture on the topic 'Ergonomical Consideration in Design of Equipment, Workplaces and their Safety Aspects'. Dr Atul Kumar Shrivastava, Dean, Faculty of Agricultural Engineering, Jawaharlal Nehru Krishi Vishwavidyalaya, Jabalpur delivered State of Art Lecture on the topic 'Rice Mechanization in India: Recent Advances and Perspective'. Dr Vinay Kumar Pandey, Dean, S V College of Agricultural Engineering and Technology, Indira Gandhi Krishi Vishwavidyalaya, Raipur delivered State of Art Lecture on the topic 'Agricultural Engineering: Education, Research and Natural Resource Management in the State of Chhattisgarh'. Er A K Nema, Joint Director of Agriculture, JNKVV, Bhopal delivered State of Art Lecture on 'Simplified Hydrological Model for Estimating Area, Cross section, Flow Volume, Runoff rate and waste weir disposal system. Dr Nachiket Kotwaliwale delivered State of Art Lecture on the topic 'Some Newer Frontiers in Post-Harvest Processing of Agricultural Commodities'. Dr S Patel, Former Professor, IGKV delivered State of Art Lecture on 'Scope and Opportunities in Processing and Value addition of Millets for Entrepreneurship Development - A Way Forward'. Dr Awani Kumar Singh, Principal Scientist, IARI delivered State of Art Lecture on the topic 'Protected Cultivation and Mechanization for Horticulture Crop'.

During the technical sessions, papers were presented embracing the theme and sub theme, which include; performance evaluation of animal drawn solar powered sprayer for selected crop, development of robotic transplanter for transplanting of plug-type nursery seedlings, feasible and viable solar operated portable cold storage for small and marginal farmers, design and testing of multi-vegetable seedling transplanting machine, development and performance evaluation of tractor operated onion digger, role of icar-circot raftaar-abi centre in strengthening Indian startups in farm mechanization and IoT sector, the prospects and challenges of autonomous farming in the technological landscape, performance and evaluation of different types of reaper binder for harvesting of wheat, performance evaluation of tractor operated hydro mechanical offset rotavator for intra row weeding in orchards etc.

The valedictory session, graced by D. Dharendra Khare, Dean, Faculty of Agriculture, JNKVV, Jabalpur, marked the conclusion of the event. Recommendations stemming from the technical deliberations were presented, focusing on promoting sustainability, optimizing resource utilization, enhancing mechanization, and fostering knowledge exchange and training initiatives for farmers. Er. Sanjay Kumar Mehta, Honorary Secretary, Jabalpur Local Centre, IEI [Session 2021-23], extended the vote of thanks.

The recommendations stemming from the technical deliberations include:

Encourage the use of advanced equipment for crop residue management and precision agriculture to promote sustainability and reduce dependency on fossil fuels; Focus on promoting the adoption of efficient agrochemical application systems and seed planters to optimize resource utilization and

Contd. on page 6

Sustainable Development of Industries through Industry-5.0 Applications

Gwalior Local Centre, IEI, hosted an All India Seminar on **Sustainable Development of Industries through Industry-5.0 Applications** on 23-24 September, 2023, under the auspices of the Mechanical Engineering Division Board [MCDB], IEI. Er Radha Kishan Khetan, Chairman of the Gwalior Local Centre, IEI, extended a warm welcome to the attendees and elucidated the significance of implementing Industry 5.0 for the sustainable growth of industries. Prof C S Malvi, Head of the Mechanical Engineering Department at Madhav Institute of Technology & Science, Gwalior (MITS), delivered the Keynote address, highlighting how Industry-5.0 fosters sustainable development through various functions such as Intelligent Automation, Renewable Integration, and Supply Chain Adaptability. The speaker



emphasized that Industry 5.0 prioritizes human well-being in manufacturing systems, thus advancing social objectives beyond mere employment and growth for humanity's sustainable development. Col (Retd) A S Bais delved into Next Generation Innovation, elaborating on the concept, architecture, enabling technologies, and challenges of Industry 5.0. PE Vinay Kumar Shukla, Former Manager at NFL, elucidated the disparities between Industry 4.0 & Industry 5.0, underscoring that while Industry-4.0 integrates IT and Operational Technology (OT) for mass customization/personalization with intelligence, Industry-5.0 amalgamates human subjectivity and intelligence with machine efficiency and precision, reflecting a humanistic approach

to industrial production. Er Anuj Pratap Singh, Director of Azakti Energy Private Limited, addressed the socio-environmental aspects of the Industry 4.0 paradigm and explored the challenges in its implementation. He further elucidated that Industry 5.0 builds upon the disruptions experienced during the pandemic, aiming to develop a hyper-connected and data-driven industrial ecosystem that aligns with sustainable development goals. Dr (Ms) Chhavi Singhal, Director of GEC Overseas, discussed 'Emerging Trends in Industry-5.0 Revolution', elucidating data mining and major aspects of Industry 5.0, including supply chain evaluation and optimization, enterprise innovation and digitization, and human-machine interface. Dr (Ms) Mugdha Shrivastava from the Mechanical Engineering Department at Rustamji Institute of Technology Gwalior (RJITS) spoke on 'Green Manufacturing Strategies for Sustaining the Reliability of Rooftop Solar Plants', advocating for the promotion of rooftop solar PV systems. Mr Abhay Pratap Singh from MITS, Gwalior, addressed 'Evaluating Sound Insulation Materials for Mass Customization', emphasizing sound insulation as an effective measure for maintaining indoor environmental quality. Er Anshuman Khetan, also from MITS Gwalior, discussed 'Sustainable Development in Industries', shedding light on the challenges, barriers, and limitations encountered during industrial transformation, and providing valuable research directions for future development. Ms Prachi Kanherkar from the Mechanical Engineering Department at RJITS presented 'Design and Development of Extreme Cold Weather Composite Clothing Material based on Mass Customization', highlighting the critical considerations involved in the system design of cold weather protective clothing. Mr Tejesh Nayak and Ms. Kusum Sahu from MITS Gwalior provided insights into Industry-4.0 and Industry-5.0 respectively, emphasizing the merging of information technology and operational technology in Industry 4.0, and the human-centric, sustainable, and resilient characteristics of Industry 5.0. Dr (Ms) Sulochana Wadhawani, Honorary Secretary of the Gwalior Local Centre, IEI, extended a vote of thanks at the conclusion of the session.

Recent Trends in Apparel & Fashion Manufacturing

Coimbatore Local Centre, IEI organized a One Day Seminar on the theme **Recent Trends in Apparel & Fashion Manufacturing** in association with the Department of Apparel Technology, PSG Polytechnic College (PSGPTC), Coimbatore on 31 August 2023 under the aegis of Textile Engineering Division Board [TXDB], IEI. Dr S Shanmugam, Chairman, Coimbatore Local Centre, IEI [Session 2021-23] welcomed the gathering and presided over the inaugural function. Dr B Giriraj, Principal, PSGPTC, was present on the



dais and addressed the audience. Dr V Chandrasekaran, Head, Department of Apparel Technology, PSGPTC, briefed the audience about the Seminar. Mr A N Sai Krishnan, Lecturer (Selection Grade), Department of Apparel Technology, PSGPTC, introduced the Chief Guest of the function, Mr P R Sreedhar, Vice President, KG Fabriks, Coimbatore. Mr P R Sreedhar, in his address, mentioned about learning and updating the knowledge of

apparel and garments Industry. He shared his insights about the sustainable manufacturing concepts applicable for Apparel and garment production with numerous case studies. Mr T Yuvarasu, Lecturer, Department of apparel Technology, PSGPTC, also spoke on the occasion.

During the technical session, Mr P R Sreedhar delivered his presentation on the topic 'Sustainable Denim Manufacturing' and explained the denim manufacturing process in industry. He also emphasized on the importance of sustainability manufacturing practices. Mr S Anandhakumar, Vice President - Export, Sieger Spintech Equipments Private Limited, Coimbatore, delivered lecture on 'Sewing Machine Automation & IoT Techniques in Apparel Manufacturing'. He spoke on the expectations from the industry regarding the requirement of automation skill. He further recommended the resource materials for indepth knowledge on automation & IoT techniques. Dr P Kanakaraj, Assistant Professor (Sl.Gr), Department of Fashion Technology, PSG College of Technology, Coimbatore, delivered lecture on 'Virtual CAD Fashions'. He spoke about CAD fashions and it's importance in apparel & garment industry. His presentation also highlighted the developments of virtual CAD in digital fashion product development. Dr K Chandrasekaran, Associate Professor, Department of Textile Technology, PSG College of Technology, Coimbatore, spoke on 'Lean Manufacturing and Industrial Engineering Techniques for Garment Industry'. He explained the principles and procedures of IE techniques, importance of ergonomics and time & motion studies in garment manufacturing.

Non Conventional Energy Resources for Power Plant Design: Advanced Green Energy Sources

Bareilly Local Centre of IEI hosted the All India Seminar on **Non-Conventional Energy Resources for Power Plant Design: Advanced Green Energy Sources** on 12-13 October 2023, under the aegis of Mechanical Engineering Division Board [MCDB], IEI at Bareilly. Dr D S Murthy, Professor at the University of Agriculture and Technology, Pantnagar, Uttarakhand, graced the occasion as the Chief Guest. The seminar commenced with a welcome address by Er Raj Goel, Chairman of the Bareilly Local Centre,



IEI. Er P K Madhwar, Honorary Secretary of the Bareilly Local Centre, IEI, provided insights into the Seminar's relevance to the distinguished audience. Dr D S Murthy delivered a Keynote address on 'Process Intensification: Case Studies', emphasizing its role in enhancing efficiency and sustainability in chemical industries through transformative processes, illustrated by case studies across various sectors. Prof (Dr) Mohammad Rihan from Aligarh Muslim University (AMU) discussed 'Smart Grid: A Stronger, Smarter,

and Safer Electric Power Grid', highlighting its transformative impact on energy distribution efficiency, cost reduction, and enhanced safety through real-time monitoring and rapid response mechanisms. Dr Tauseef Uddin Siddiqui from MJP Rohilkhand University (MJPRU), Bareilly, focused on 'Sustainable and Eco-friendly Milling Operation using Vegetable Oil-based Nano-Lubrication', advocating for eco-friendly alternatives to petroleum-based lubricants in traditional machining processes, thus reducing environmental impact. Er Sudhir Kumar Gupta, Immediate Past Chairman of the Bareilly Local Centre, IEI, discussed 'Green Technology with Special Reference to Biogas and Green Transportation', underscoring its significance in addressing global environmental challenges, particularly in biogas production and transportation. Dr Shailendra Deva from SRMS College of Engineering and Technology, Bareilly, presented on 'Policies and Regulatory Norms for Green Energy', covering renewable energy targets, financial incentives, and emissions reduction commitments. Dr Sanjeev Tyagi, Professor and Head of the Department of Electronics and Instrumentation Engineering, MJPRU, Bareilly, discussed 'Advances in Solar Technologies', highlighting innovations in photovoltaic materials and energy storage, offering cost-effective solutions to combat climate change. He further mentioned that breakthroughs in photovoltaic materials and innovations in energy storage, like next-gen batteries promise cost-effective alternatives, offering a promising solution to combat climate change and transition towards a greener, more sustainable future. The technical session included presentations on various sub-themes such as 'Renewable Energy Sources', 'Energy Storage', 'Wind Energy', 'Geothermal Energy', 'Energy Efficiency and Conservation' and 'Ocean Energy'. The valedictory session concluded with a vote of thanks by Er P K Madhwar.

Innovative Trends and Aspects of Nanotechnology: Fueling the Chemical Industry's Future

Coimbatore Local Centre, IEI, in association with the Department of Chemical Engineering, KPR Institute of Engineering and Technology (KPRIET), Coimbatore, organized an All India Seminar on the theme **Innovative Trends and Aspects of Nanotechnology: Fueling the Chemical Industry's Future** during 21-22 September 2023 under the aegis of Chemical Engineering Division Board [CHDB], IEI. Prof (Dr) S Shanmugam, Chairman, Coimbatore Local Centre, IEI [Session 2021-23] delivered the welcome address and presided over the function. Dr S Balasubramanian, Professor and Head,



Department of Chemical Engineering, KPRIET presented an overview of the seminar. Dr Yoshimitsu Uemura, Professor, Universiti Teknologi Petronas, Malaysia, graced the occasion as the Chief Guest and delivered an address on the topic 'Supported Metal Catalyst: Metallic Nanoparticles', where he had elaborated the importance of supported metal catalysts featuring metallic nanoparticles in chemical industries. Dr R Selvakumar, WARI and Endeavour Research Fellow, Professor and Head, Department of Nanobiotechnology &

Biotechnology, PSG Institute of Advanced Studies (PSGIAS), Coimbatore delivered Keynote lecture on 'Antibiotic Mitigation Using Nano Bio Approach', where he had highlighted that nano-bio approach can improve the delivery of antibiotics to target pathogens, ensuring more effective treatment. He further added that nanoparticles can encapsulate antibiotics directly to the infection sites, increasing their concentration as required. Dr Udaya Bhaskar Reddy Ragula, Associate Professor, Department of Chemical Engineering and Material Sciences, Amrita Vishwa Vidyapeetham, Coimbatore delivered presentation on 'Nanocatalysis for Hydrogen Production', where the critical importance of nano particles were discussed with respect to higher surface area-to-volume ratio and increased catalytic activity. Dr R Ranjithkumar, Co-founder & Chief Scientific Officer, Viyen Biotech LLP, Coimbatore, delivered lecture on the topic 'Potential Applications of Green Chemistry in Nanotechnology and Opportunities'. In his lecture, the speaker had highlighted the benefits of green chemistry principles applied to nanotechnology, which offer several significant benefits like promoting more sustainable and environmentally friendly approaches to nanomaterial synthesis and applications and reduced environmental impact. He further explained that green chemistry principles prioritize the design and synthesis of nanomaterials with minimal environmental harm and subsequently minimizes the release of hazardous byproducts, toxic substances and waste materials into the environment, mitigating potential harm to the ecosystem and human health. Dr G Surendran, Associate Professor, Department of Chemical Engineering, KPRIET, discussed on 'Dispersion Modelling', which is applied in environmental science and engineering domain as a

Contd. on page 8

Optimizing the Demand of Material Science with the help of Recent Technologies

Tamilnadu State Centre, IEI, in association with Thiagarajar Polytechnic College, Salem, organized an All India Seminar on the theme **Optimizing the Demand of Material Science with the help of Recent Technologies** during 28-29 July, 2023 under the aegis of Metallurgical and Materials Engineering Division Board [MMDB], IEI. Er S Kannan, Chairman, Tamilnadu State Centre, IEI [Session 2021-23], delivered the welcome address. Er S



Natarajan, Convener and Committee Member, Tamilnadu State Centre, IEI, briefed the august audience about the theme of the Seminar. Chief Guest of the session, Mr Chocko Valliappa, Vice Chairman, Thiagarajar Polytechnic College and Sona Institutions, Syndicate Member, Anna University, delivered the inaugural address and discussed the evolution of material science, shedding light on its remarkable journey. He also detailed about the smart

and innovative materials used in various industries. Dr William Oakes, 105th Anniversary Professor, Director of EPICS and Professor of Engineering Education, Purdue University, USA, delivered the Keynote address. Er K N Sivaraju, Honorary Secretary, Tamilnadu State Centre [Session 2021-23] proposed the vote of thanks. During the technical session, Dr K Pandian, Committee Member, Tamilnadu State Centre, delivered lecture on the topic 'Automation in Welding'. Er G Balasivaramasubramanian from Thiagarajar Polytechnic College spoke on the topic 'Aerospace Materials'. Dr K T Thilagham from Government College of Engineering, Salem, delivered lecture on 'Ceramic Matrix Composites'. Dr Murugaiyan Amirthalingam and Dr K G Pradeep from IIT Madras, Chennai, delivered lectures on the topics 'Ultrasonic Additive Manufacturing' and 'Functional Materials' respectively. Dr V Karthik and Dr D Nagarajan from NIT Trichy delivered lecture on the topics 'Material Science and Nano Technology' and 'Advanced Materials and Processes' respectively. A Souvenir was released by the dignitaries during the Seminar.

During the technical sessions, papers were presented on diversified topics, which include; Next-Gen IoT driven by Energy Harvesting in Nanotechnology; Innovations in Nanotechnology as a Potential Alternatives for the Control and Prevention of Crop Infectious Disease; Investigation on Manufacturing and Characteristics of Al-Sic Nano Composite; Optimizing Material Science

Contd. on page 13

Future Technologies, Human Resources Development and Entrepreneurship in Marine Industry

The **Tamilnadu State Centre** of IEI, in association with Institute of Marine Engineers (India), Chennai Branch organized the One Day Seminar on the theme **Future Technologies, Human Resources Development and Entrepreneurship in Marine Industry** on 22 July 2023 in Chennai under the agis of Marine Engineering Division Board [MRDB], IEI. Mr C V Subba Rao, Managing Director, Sanmar Shipping Limited graced the function as the Chief Guest. The program started with the welcome address delivered by Er S Kannan, Chairman, Tamilnadu State Centre, IEI [Session 2021-23].

Mr Sanjeev S Vakil, Chairman, IME(I) Chennai Chapter addressed the gathering. During the technical session, eminent speakers had shared their views and expertise with the august audience. Capt Arvind Shankar, Culture and Capability Manager at Maersk and a champion of diversity in the maritime industry, delivered a compelling presentation on closing the gender gap in seafaring to foster greater 'Thought Diversity.' He emphasized the stark reality of the dearth in Indian women seafarers today, underlining the need for inclusivity and its advantages. Through his presentation, he shed light on the global and national commitments supporting industry transformation, such as the UN-SDG Goal 5 and the Maritime India Vision 2030. He opined that these initiatives reinforce the importance of promoting gender equality and diversity in the maritime sector. Mr Manoj Kumar Pandit, Faculty, Hindustan Institute of Maritime Training [HIMT] spoke about the recent developments in Maritime Industry toward green energy transition. As a part of these initiatives he spoke on the usage of hydrogen fuel cell technologies and electrical propulsion for future ships. Having considered these green energy transitions already happening worldwide, he further emphasized, how India can benefit from such technology developments through the Make in India initiatives and how various maritime technology



start ups can emerge as ancillary supports to the Indian as well as Global shipbuilding projects working on such green energy transition projects. Dr K Sivasami, Associate Professor and Head, Marine Engineering Department, Indian Maritime University, Chennai Campus delivered his presentation on the topic 'Studies of Impact on Environment due to E-Waste and Refrigeration Waste during Ship Recycling Process In India- A Way Out'. He pointed out that the ship dismantling process and its consequences is creating a big challenge for the environment as well as to the human health;

Currently, the ships which are being dismantled, are manufactured in the 80s, before the time on banning of harmful materials that are vulnerable for the environment; It has been noticed that the ship dismantling process without proper health, environment and safety precautions leads to major disproportionate environmental footprints. He opined that the ship dismantling procedure be obtained with proper recognition of the wastes that have been generated from the ship breaking process. Mr R Muthusamy, Honorary Treasurer, IME(I) Chennai Branch spoke on the topic 'Zero Carbon and IMO Regulation on Carbon Intensity Indicator' and said that the International Maritime Organization (IMO) established its greenhouse gas (GHG) strategy in response to the mounting pressure for climate action following the Paris Agreement. Mr Sanjeev S Vakil, Founder & CEO, HIMT delivered lecture on the topic 'Maritime Education & Training for Autonomous Shipping of the Future'. He said that this is the time for the introduction of commercially sensible as well as viable solutions for remote controlled as also fully unmanned autonomous cargo and passenger ships and said that the goal is to make the safety of an unmanned ship better than the safety of a manned ship, to justify its total autonomy. He opined that new regulations and standards

Contd. on page 7

Scope for Mechanical Engineers in HVAC & R Sector



Puducherry State Centre, IEI, organized a One Day Workshop on the theme **Scope for Mechanical Engineers in HVAC & R Sector** on 10 July 2023 under the aegis of Mechanical Engineering Division Board [MCDB], IEI in Karaikal. The program started with the welcome address delivered by Prof (Dr) B Radjaram, Chairman, Puducherry State Centre, IEI [Session 2021-23]. Er K Francis, Principal, Karaikal Polytechnic College graced the function as the Chief Guest. Dr K Senthilvel, Lecturer in Mechanical Engineering, Karaikal Polytechnic College briefed about the Workshop. Mr R Ilandjezian, Assistant Professor, Department of Mechanical Engineering,

Manakula Vinayagar Institute of Technology, Puducherry, delivered Lecture on the topic 'Cold Chain & Cold Storage'. Mr A Thiagarajan, Assistant Professor, Department of Mechanical Engineering, Manakula Vinayagar Institute of Technology, Puducherry, delivered Lecture on the topic 'Indoor Air Quality & Ventilation'. Prof (Dr) B Radjaram, Professor & Head, Department of Mechanical Engineering, Manakula Vinayagar Institute of Technology, Puducherry delivered Lecture on the topic 'Safety with Advanced Technologies for HVAC Sector'. Dr D Candane, Lecturer & HoD, Department of Mechanical Engineering Karaikal Polytechnic College, Karaikal, delivered Lecture on the topic 'IoT for Smart HVAC & R'. Mr N Delli Babu, Regional Manager, Haier India Limited spoke on 'Future of HVAC & R Sector – Prospects and Potential'. Also a hands on Training on HVAC & R with Haier Appliances was organized. Demonstration was given about AC product installation, testing, service, etc. During the valedictory session, Er D Karunakaran, Committee Member, Mechanical Engineering Division, Puducherry State Centre summed up the deliberations and findings of the One Day Workshop. Dr S Thirugnaname, Honorary Secretary, Puducherry State Centre, IEI [Session 2021-23], delivered the vote of thanks.

Remote Sensing & GIS Application in Flood Risk Management

Kerala State Centre of the Institution organized a One Day Seminar on the theme **Remote Sensing & GIS Application in Flood Risk Management** on 12 September 2023 under the aegis of Civil Engineering Division Board [CVDB], IEI, in Thrivananthapuram. Dr A G Mathew, Principal, St. Thomas Institute for Science & Technology, Trivandrum, delivered the opening remarks. Dr (Prof) K P Sudheer, Executive Vice President, Kerala State Council for Science, Technology and Environment [KSCSTE], Trivandrum, inaugurated the Seminar and delivered the inaugural address. Prof (Dr) M Jayaraju, Chairman, Kerala State Centre, IEI [Session 2021-23], presided over the function. Dr K Soman, Former Head, Resources Analysis Division, Centre for Earth Science Studies, delivered the Keynote address on the topic 'Remote Sensing & GIS Application in Flood Risk Management'. During the technical session, Mr Rahul Raj, Assistant Flood Modeller, Atkins, Bangalore delivered lecture on the topic 'Study of Pluvial Flooding in Trivandrum City under Changing Climate Conditions'. Dr (Prof) K P Sudheer delivered lecture on the topic 'Disaster Risk Assessment and Mitigation supported by GIS'. Er Kurian George Former Executive Engineer, KSEB Limited, delivered lecture



on the topic 'Save Kuttanadu from Massive Floods and provide Fresh Water for Drinking and Irrigation Purposes'. In the fifth technical session, Dr N R Chips, Scientist, Centre for Environment and Development, Trivandrum delivered lecture on the topic 'Navigating Floods: Mapping and Assessing Hazards'. During the Valedictory Session, Chief Guest of the event, Mr Cherian Varghese, Treasurer, Mar Thoma Church Educational Society, Trivandrum, delivered Special Address. Er Roy Mathew, Honorary Secretary, Kerala State Centre, IEI [Session 2021-23] proposed the vote of thanks.

Emerging Technologies for Advances in Agriculture and Horticulture

Contd. from page 3

ensure environmental safety; Highlight the importance of sharing knowledge on machinery and material properties for the development of farm implementation, benefiting both researchers and machinery manufacturers; Promote research on sub-basin prioritization using remote sensing and GIS for water management; Involve local communities in soil protection initiatives where it's most needed; Prioritize Groundwater Potential Zones Assessment (GPZ) and ensure easy access to GPZs maps and data through user-friendly online platforms for informed decision-making; Identify critical areas through groundwater trend analysis and plan suitable management strategies for efficient groundwater utilization; Frame policies to encourage better adoption of processing machineries among farming communities for

on-farm processing, leading to employment generation and rural income enhancement; Develop research strategies for organic and natural farming of horticultural crops under protected structures; Improve mechanization in horticultural crops and precision farming to increase productivity, especially among small farmer groups, saving time and adding value; Introduce Artificial intelligence and IoT for more precision in horticulture operations; Create awareness and training programs for farmers in farm mechanization, remote sensing, GIS, drone technology, etc., to enhance future agricultural practices; These recommendations aim to address key challenges and opportunities identified during the convention, fostering sustainable and efficient agricultural practices.

Future Technologies, Human Resources Development and Entrepreneurship in Marine Industry

Contd. from page 6

will need to be developed including the revision of existing SOLAS, STCW and other conventions; The future training requirements will also need to be developed by conducting an analysis of the gaps between the existing training methodology and the possible future needs. The speaker felt that, based on such study, an appropriate plan will need to be drawn up to

upgrade the existing seafarers' skills and impart appropriate skills to the new inductees to the profession. Mr T S Devanand, Chief Engineer, Faculty, MASSA, Cheshnai delivered on the topic 'Zero Carbon with Go Green' and enumerated on powering sustainable shipping by moving towards zero carbon. Er K N Sivaraju, Honorary Secretary of Tamilnadu State Centre, IEI [Session 2021-23] proposed the vote of thanks.

Space 2:0 Emerging Trends in Deep Learning and Medical Image Processing

Tuticorin Local Centre of the Institution organized a One Day Seminar on the theme **Space 2:0 Emerging Trends in Deep Learning and Medical**



Image Processing on 27 September 2023 under the aegis of Electronics & Telecommunication Engineering Division Board, [ETDB], IEI in Tuticorin. Chief Guest of the function, Er Justin Jagadeep Kumar, Chief Engineer,

Tuticorin Thermal Power Station inaugurated the Seminar and addressed the young engineers to learn more advanced networking tools including IoT, AI, Cloud Computing, etc. Er A Sivakumar, Chairman, Tuticorin Local Centre, IEI, presided over the function and welcomed the dignitaries and delegates. He emphasized the need to keep up with the growth of science and technology and harness the benefits for the well being of future generations. Mr I Maria Michael Raj, Former Senior Scientific Officer, Department of Atomic Energy, Heavy Water Board & Convener of the event delivered lecture on the topic 'Necessity & Roadmap for Deep Learning in this Era of Artificial Intelligence'. Dr K Gopalakrishnan, Director, 75 Students' Satellites Mission, Secretary General, UNISEC-India, delivered lecture on the topic 'New Space Era/Space 2:0 Small Satellites-Big Applications'. Dr Antony Louis Priyakumar, Dean (R&D), CITech, Bangalore, delivered presentation on the topic 'Designing Deep Learning Architecture for Life Saving Medical Applications'. Prof Jenita Subhash, Research Scientist, 75 SSM, UNISEC-India, discussed on the topic 'Emerging Trends in Medical Image Processing. At the end, Er Sivageerthi T, Honorary Secretary, Tuticorin Local Centre, IEI, proposed the vote of thanks.

Future Technologies and its Impact on Human and Society

Bathinda Local Centre of the Institution organized a One Day Seminar on the theme **Future Technologies and its Impact on Human and Society** on 28 October 2023 under the aegis of Interdisciplinary Coordination Committee



[ICC], IEI. Prof (Dr) Jagtar Singh, Chairman, Bathinda Local Centre, IEI [Session 2021-23] welcomed the dignitaries and the participants. He highlighted the impact of artificial intelligence, biotechnology and quantum computing on human and society. Prof (Dr) Tara Singh Kamal, Former Vice President, IEI, graced the occasion as Chief Guest. Er Sukhvir Singh Mundi, presently Vice President, IEI and Dr Savina Bansal, Dean, Planning and

Development, Maharaja Ranjit Singh Punjab Technical University (MRSPTU), were the Guests of Honour. Er Swinder Singh, Honorary Secretary, Punjab & Chandigarh State Centre, IEI, was the Special Guest. Prof (Dr) Amarpartap Singh, Professor, SLIET Longowal, highlighted different future technologies and its impact on human and society. In the technical session, Dr Satwinder Singh, Associate Professor, Central University, Punjab, delivered lecture on 'Big Data & IoT: Making Sense of Data from Sensors'. Dr Rakesh Kumar Bansal, Director, Punjab Institutes of Technology Nangarh; Dr Ramkrishan, Assistant Professor and Head, Computer, Mata Sundri Girls College, Mansa and Dr Rajbir Kaur, Assistant Professor, Department of ECE, Punjabi University, Patiala, chaired the technical sessions. Papers were presented on relevant topics, which include; Big Data and IoT; Review of Microstrip MIMO Antenna for 5G Applications; Study of Hybrid Architecture Network of 40G-NGPON-2 and LTE Advanced Pro for 5G and Beyond Network; Design of Wearable Hybrid Fractal Antenna using IFS and PSO Techniques; Linear Feedback Shift Registers in Wireless Applications; Impact of IoT in Healthcare; Image Classifications using Machine Learning Models; Impact of Soft Computing Techniques; Handwritten English OCR using Neural Networks etc. At the end, Dr Harsimran Singh, Honorary Secretary, Bathinda Local Centre, IEI proposed the vote of thanks.

Innovative Trends and Aspects of Nanotechnology: Fueling the Chemical Industry's Future

Contd. from page 5

computational tool for predicting the distribution and concentration of pollutants or particles in the air, water or soil. Dr M Laxmi Deepak Bhatlu, Assistant Professor, Department of Chemical Engineering, KPRIET, delivered presentation on the topic 'Nanotechnology's Role in Clean Water: Innovations in Water Treatment', and explained that nanotechnology plays a pivotal role in advancing clean water technologies by offering innovative solutions for water treatment. Dr Nitu Kumari, Assistant Professor,

Department of Chemical Engineering, KPRIET, delivered lecture on 'Use of Nano Materials in Solar Cell', and shared her expertise in solar cells. she explained the optimization technique of each and every layer of solar cell and the importance of same in real life. Ms L Dharani, Assistant Professor, Department of Chemical Engineering, KPRIET, delivered her presentation on 'Nanomaterials: Building Blocks of the Future' and stated that nanomaterials are the foundation of the future, offering unprecedented potential in various fields.

IEI Celebrates Energy Conservation Day

The Energy Conservation Day was celebrated by the Institution on December 14, 2023. Brief accounts of celebration as received from various Centres are reported hereunder.

STATE CENTRES

Andaman & Nicobar



Andaman and Nicobar State Centre, IEI observed Energy Conservation Day 2023 on 14 December 2023 in Port Blair. Speaker of the event, Er Sateesh Babu Grandhi, IDSE, Director, Utilities A&N

Zone, MES, engaged the audience with an insightful discussion on energy conservation, particularly within the demanding context of the Military station at Leh. Next Speaker, Er Tamilselvam, Deputy Chief Engineer, NLC described the operational features of Solar Power Plants in Port Blair and shared his views about energy efficiency and conservation methods adopted in the solar power plants. Earlier, Er (Ms) T Shanti, Chairperson, Andaman & Nicobar State Centre, IEI, welcomed the speakers and participants. Er Arun Bepari, Honorary Secretary, Andaman & Nicobar State Centre, IEI, proposed the vote of thanks at the end of the event.

Bihar

On 14 December 2023, Bihar State Centre, IEI, observed Energy Conservation



Day 2023 in Patna. Chief Guest and Keynote speaker of the function, Prof (Dr) Mithilesh Kumar Jha, Principal, Muzaffarpur Institute of Technology, Muzaffarpur, stressed the need of transition from fossil fuel to renewable energy. He

further elaborated on energy transition goal and discussed policy impetus to renewables, renewable purchase obligation, role of international energy system, etc. Earlier, Er Jai Prakash Narayan, Chairman, Bihar State Centre, IEI, welcomed all and discussed various aspects of energy conservation for sustainable development and the benefits of energy efficient devices. At the end, Er Neel Mani Rangesh, Honorary Secretary, Bihar State Centre, IEI, proposed the vote of thanks.

Jharkhand

Jharkhand State Centre, IEI, observed Energy Conservation Day 2023 on 14 December 2023 in Ranchi.



Dr Mahesh Kumar Gupta, Chairman, Jharkhand State Centre, IEI welcomed the Speakers, dignitaries and guests of the event. Chief Guest of the event, Er Bijay

Kumar Sinha, Project Director, JREDA, Ranchi, emphasized the need of energy conservation at rural level and explained the initiatives by the Government of Jharkhand to promote Solar Roof Top Scheme, Solar Water Pump Set Kusum Scheme, Solar Hot Water System and Solar Street Light Scheme. Keynote Speaker of the event, Er Subhas Biswas, GM (E&M), CMPDI, Ranchi, emphasized on using more BEE certified equipment for energy conservation. The Keynote address was delivered by Er Suchandra

Sinha, General Manager (E&M) at CCL, Ranchi. She elucidated the environmental challenges associated with fossil fuel usage and highlighted Coal India's initiatives in energy conservation. At the end, Er Harun Ansari, Honorary Secretary, Jharkhand State Centre, IEI, proposed the vote of thanks.

Odisha

Odisha State Centre, IEI, observed Energy Conservation Day 2023 on 14 December 2023 in Bhubaneswar. Prof (Dr) Sudhansu Sekhar Dash,



Chairman, Odisha State Centre, IEI, presided over the function and welcomed the dignitaries and delegates. Shri Piyus Kumar, General Manager (OS), NTPC (ER-II), Bhubaneswar, graced the occasion as the Chief Guest

and Prof Subhransu Ranjan Samantaray, Professor and Head, School of Electrical Engineering, Indian Institute of Technology, Bhubaneswar graced the occasion as Chief Speaker. Er Sangram Keshari Pattnayak, Honorary Secretary, Odisha State Centre, IEI, proposed the vote of thanks at the end of the event.

Punjab & Chandigarh

Punjab & Chandigarh State Centre, IEI, observed Energy Conservation Day on 14 December 2023 through online mode. Chief Guest of the session, Er Jotinder Singh, Former Engineer-in-Chief, Punjab State Electricity Board (PSEB) and Consultant/Advisor to PFC, Gol, emphasized on judicious use of energy, application of energy efficient technologies and adoption of renewable energy to save the Mother Earth. Keynote speaker, Er Bhupinder Singh, Former Deputy Chief Engineer, Punjab State Power Corporation Limited explained various methods to conserve energy and energy efficiency measures for different sectors like industrial, commercial, buildings, agriculture and domestic sector. He highlighted how PSPCL is able to save millions of units of electricity by its efforts and mentioned that the growth of the country depends upon how much energy we save. Earlier, Dr Labh Singh Bhari, Chairman, Punjab & Chandigarh State Centre, IEI welcomed the members and the distinguished guests. At the end, Er Swinder Singh, Honorary Secretary, Punjab & Chandigarh State Centre, IEI proposed the vote of thanks.

Tamilnadu

Tamilnadu State Centre, IEI observed Energy Conservation Day 2023, on 16 December 2023 through online mode and in association with Thiagarajar Polytechnic College, Salem on 18 December 2023 in Salem. In the virtual event, Dr V Karthikeyan, Chairman, Tamilnadu State Centre, IEI welcomed all. Guest Speaker of the event, Mr Huzefa A C, General Manager and Head – Core Engineering (R&D), Electric Buses and LCVs, Chennai, spoke about the electrification of buses in Ashok Leyland, development of electric bus with different fuel options, etc. Er D Gokul, Honorary Secretary, Tamilnadu State Centre, IEI, proposed the vote of thanks.

In the next event in Salem, Dr N I Maheshwari, Committee Member, Electrical Engineering Division, Tamilnadu State Centre, IEI, delivered the welcome address. The event witnessed the presence of Chief Guest Er N Tedapani, Superintending Engineer, TANGEDCO and Guests of Honour, Dr



N Gunavardhini, Executive Engineer (East) TANGEDCO and Er A Anbarasan, Executive Engineer (South), TANGEDCO. They highlighted various methods

about energy conservation, impacts of conservation and also discussed about rules and standards related to energy conservation. Dr V Karthikeyan, Chairman, Tamilnadu State Centre, IEI, presided over the function and explained about the conservation of electrical energy.

Telangana



Telangana State Centre, IEI, observed National Energy Conservation Week 2023 from 14 December to 20 December 2023 in Hyderabad. Dr G Venkata Subbaiah, Chairman,

Telangana State Centre, IEI, welcomed the gathering and presided over the function. Er N Janaiah Garu, Vice Chairman and Managing Director, TSREDCO, graced the occasion as the Chief Guest. During the valedictory function, Er B V Rao, Former Director (Technical), IREDA, graced the occasion as Chief Guest. Dr K Seetha Ram Babu, Honorary Secretary, Telangana State Centre, IEI proposed the vote of thanks at the end of the event.

Tripura



Tripura State Centre, IEI, in association with Oil and Natural Gas Corporation (ONGC) Limited, Tripura Asset and Tripura Institute of Technology, Government of Tripura, observed

Energy Conservation Day 2023 on 22 December 2023 in Agartala. A Seminar was organized on this occasion on 'Energy Conservation for a Sustainable Future'. Chief Guest of the event, Er Krishna Kumar, Asset Manager, ONGC Limited, Tripura Asset, mentioned the scope of a robust environmental future and highlighted the initiatives of ONGC Tripura Asset on energy conservation. Special Speakers of the function were Dr P Padmagirisan, Assistant Professor, Department of Electrical Engineering, NIT Agartala and Dr Shantanu Acharya, Associate Professor, Department of Electrical and Electronics Engineering, ICFAI University, Tripura. Dr Subhadeep Bhattacharjee, Chairman, Tripura State Centre, IEI, presided over the function. Earlier, Dr Mrinal Kanti Deb Barma, Honorary Secretary, Tripura State Centre, IEI, delivered the welcome address. Topics discussed in the Seminar were energy scenario, role of electric vehicles in energy conservation, low cost new solar and wind driven technologies for energy conservation purposes, etc.

Uttar Pradesh



On 14 December 2023, Uttar Pradesh State Centre, IEI observed Energy Conservation Day 2023 in Lucknow. Chief Guest of the event, Mr Jaideep Verma, Joint Director, Directorate

of Urban Transport, Urban Development, Uttar Pradesh focused on the prevention of energy loss due to rapid increase of population and mentioned the establishment of Bureau of Energy Efficiency with the Ministry of Power for implementing the Energy Conservation Act in 2001 for saving energy sources. Earlier, Mr V B Singh, Former Vice President, IEI welcomed the speaker and the guests and stressed on energy conservation by replacing

non-renewable energy resources with renewable sources and the energy users to be made aware of efficient energy conservation along with less energy consumption. At the end, Er Vijaya Pratap Singh, Honorary Secretary, Uttar Pradesh State Centre, IEI proposed the vote of thanks.

LOCAL CENTRES

Alwar

Alwar Local Centre, IEI, in association with Jaipur Vidyut Vitran Nigam Limited, Alwar, observed Energy Conservation Day 2023 on 14 December 2023 in Alwar. A technical talk was organized on the topic 'Energy Efficient Practices and Technologies across



Various Sectors'. Chief Guest of the function, Er J L Meena, Superintendent Engineer (O&M), JVVNL, Alwar shared his views on energy conservation and transmission losses. Keynote Speaker, Er S C Joshi, Immediate Past Chairman, Alwar Local Centre, IEI, explained the useful application of solar & wind power like industry, domestic, use of geo-thermal, tide and hydrogen energy. Er M P S Yadav, Superintendent Engineer (T&C), RVPNL, Alwar, focussed on the present scenario of energy crisis and the importance of energy conservation. Earlier, Er Ashok Kumar Gupta, Chairman, Alwar Local Centre, IEI, welcomed all the guests and explained the value of saving energy. Er R C Sharma, Honorary Secretary, Alwar Local Centre, IEI, proposed the vote of thanks.

Chandrapur



Chandrapur Local Centre, IEI, observed Energy Conservation Day 2023 on 14 December 2023 in Chandrapur. Er Rajesh Eknathrao Thombre, Honorary Secretary,

Chandrapur Local Centre, IEI welcomed all. Chief Guest of the event was Er M K Shende, Associate Professor, Rajiv Gandhi College of Engineering, Research and Technology, Chandrapur. Prof Shrikant Kulkarni, Associate Professor, Rajiv Gandhi College of Engineering, Research and Technology, Chandrapur in his Keynote address discussed about the need of water conservation and the effect of water pollution.

Coimbatore



Coimbatore Local Centre, IEI, in association with Department of Mechanical Engineering & Indian Green Building Council Student Chapter, PSG College of Technology (PSG Tech), Coimbatore, observed

Energy Conservation Day 2023 on 14 December 2023 in Coimbatore. A Seminar was organized on the topic 'Energy Conservation through the Green Building – An Overview of the LEED Rating System'. The guest speaker, Er Mahesh Sivaprakasam, Green Officer and Accredited Professional Associate at the Indian Green Building Council in Thanjavur, provided a comprehensive overview of green building concepts. He delved into various construction methods and presented insightful case studies illustrating the practical application of green building principles. Earlier, Prof (Dr) G Madhan Mohan Gopalsamy, Honorary Secretary, Coimbatore Local Centre, IEI, welcomed the Guest Speaker, participants and explained the history of Energy Conservation Day. Dr S Syath Abuthakeer, Associate Professor, Department of Mechanical Engineering, PSG College of Technology, Coimbatore, introduced the Guest Speaker. Prof (Dr) G Madhan Mohan Gopalsamy proposed the vote of thanks at the end of the event.

Dhanbad



On 14 December 2023, Dhanbad Local Centre, IEI, observed Energy Conservation Day 2023 in Dhanbad. Prof B K Naick, Assistant Professor, Department of Electrical

Engineering, IIT ISM, Dhanbad delivered lecture on 'Solutions and Challenges of Mileage Concern in Electric Vehicles'. Prof (Dr) Biswajit Paul, Honorary Secretary, Dhanbad Local Centre, IEI, delivered the vote of thanks.

Durgapur

Durgapur Local Centre, IEI, observed Energy Conservation Day 2023 in Durgapur on 14 December 2023. In the beginning, Dr Bimal Das, Honorary Secretary, Durgapur Local Centre, IEI, welcomed the august gathering and mentioned that 14 December is observed on every year as the Energy Conservation Day to spread the message about the importance of conserving energy. He emphasized the need of collective responsibility to



protect the environment. Prof (Dr) Chandan Koner, Chairman, Durgapur Local Centre, IEI, stressed the need of collective efforts to build sustainable futures, protect and preserve our planet for future generations. He emphasized the pivotal role of engineers in developing these challenges. Mr Sanjay Kumar, Vice President and Head, Essar Oil and Gas Exploration and Production Limited, graced the occasion as the Chief Guest. In his address, Mr Kumar stated that Energy Conservation Day serves as a reminder of our shared responsibility to protect and preserve our planet for future. Guest of Honour and Keynote speaker, Dr Chittatosh Bhattacharya, Deputy Director, NPTI (ER) discussed about energy efficiency, energy performance, energy conservation, energy management, energy resilience, etc. Guest of Honour, Mr Sudipto Pal, Deputy General Manager (Project), The Durgapur Projects Limited deliberated on the topic 'Overall Plant Performance Indicators in a Thermal Power Plant' and discussed about impact of deviated parameters on heat rate, best operational practices for APC reduction, etc. Dr Bimal Das proposed the vote of thanks at the end of the event.

Gorakhpur



Gorakhpur Local Centre, IEI, in association with Institute of Technology and Management (ITM), GIDA, Gorakhpur, observed Energy Conservation Day 2023 on 14 December 2023 in

Gorakhpur and a Seminar was organized on 'Energy Conservation: Need of Hour'. Er Ashutosh Kumar Srivastava, Managing Director, G C Consultancy Services, Gorakhpur graced the occasion as the Chief Guest and Er M P Kandoi, Former Chief Engineer, Irrigation Department, UP, was the Guest of Honour. The event witnessed the presence of Er H R Jaiswal, Chairman, Urja Gasifiers Private Limited; Er J B Rai, President, Malviya Alumini Association and other dignitaries. Dr N K Singh, Director, ITM, GIDA, Gorakhpur introduced the guest and dignitaries. Er M P Kandoi discussed about the energy crisis and opined that drastic increase in population with non-sustainable production of energy is causing multiple environmental problems. Er Srivastava delivered a very informative lecture on different sources of new and renewal energies along with pros & cons and also suggested to save energy in different ways in daily life. Er H R Jaiswal presented the details of procedure and a comparative study of energy saving. Er Ramesh Chandra Pandey, Honorary Secretary, Gorakhpur Local Centre, IEI, proposed the vote of thanks at the end of the event.

Gwalior

Gwalior Local Centre, IEI, in association with IETE Bhopal and MITS, Gwalior, observed Energy Conservation Day 2023 on 14 December 2023 in Gwalior. Er Radha Kishan Khetan, Chairman, Gwalior Local Centre, IEI, welcomed all and explained the importance of energy consumption, its uses in our



daily life and its impact on sustainability of global ecosystems. He addressed critical issues pertaining to the future of mankind concerning energy. Dr P K Singhal, Past Chairman, Gwalior Local Centre, IEI,

spoke on the Energy Conservation Act 2001 which provides efficient use of energy and its conservation. Col A S Bais, Retired Colonel, India Navy, said that energy usage is a major source of global warming, which is making the earth uninhabitable. Prof (Dr) Manoj Gaur, HoD, Mechanical Engineering Department, MITS, spoke about energy savings in business, public-sector/government organizations and homes. Prof C S Malvi, MITS, mentioned that the resources of commercial energy are available in limited quantity. P E V K Shukla, Organizing Secretary proposed th vote of thanks.

Kadapa

Kadapa Local Centre, IEI, in association with KSRM College of Engineering, Kadapa, observed Energy Conservation Day 2023 on 15 December 2023 in Kadapa. Speaker of the session, Er D Lakshmi Pathy, Deputy Executive



Engineer, APSPDCL/SPM, Kadapa, in his presentation explained energy savings from waste, awareness of people about the importance of energy, depletion of non-

renewable energy reserves and the importance of using energy more effectively to enhance energy efficiency, lower operating costs, conservation of resources, reduce greenhouse gas emissions, Energy Conservation Act 2001, energy conservation strategies, etc. Earlier, Prof (Dr) V Adinarayana Reddy, Chairman, Kadapa Local Centre, IEI, welcomed all.

Kanpur

Kanpur Local Centre, IEI observed Energy Conservation Day 2023 on 14 December 2023 in Kanpur. Dr Mukesh Kumar Singh, Chairman, Kanpur Local Centre, IEI, welcomed the Guest Speaker, Dr Indra Prakash Mishra, Head, Department of Engineering, Uttar Pradesh Textile Technology Institute, Kanpur and the participants. Er Rama Kant Yadav, Immediate



Past Honorary Secretary, Kanpur Local Centre, IEI, introduced the Guest Speaker. Dr Mishra delivered lecture on the theme 'Energy Conservation: Initiatives and

Limitations' and emphasized on the relevance of energy conservation in terms of climate change. He explained the function and scope of National Mission for Enhanced Energy Efficiency (NMEE) and National Action Plan on Climate Change (NAPCC). He extensively discussed the standards and labeling program implemented by BEE. Er Ram Autar Dixit, Honorary Secretary, Kanpur Local Centre, IEI, proposed the vote of thanks at the end of the event.

Kollam

Kollam Local Centre, IEI in association with IEI Mechanical Student Chapter of Baselios Mathews II College of Engineering, Kollam, observed Energy



Conservation Day 2023 on 14 December 2023 in Kollam. Dr Madhusoodanan Pillai K, Chairman, Kollam Local Centre, IEI, presided over the function. Prof (Dr)

Ms Sudhi Mary Kurian, Honorary Secretary, Kollam Local Centre, IEI, delivered the opening remarks. Er Asha Ashokan, Executive Engineer and Chief Safety Officer, Project Management Unit, KSEB delivered the Keynote address and explained about energy conservation, energy saving methods, charging of electric vehicles, electric safety etc.

Kozhikode

Kozhikode Local Centre, IEI, observed Energy Conservation Day 2023 on 14 December 2023 in Kozhikode. Dr Gireesan P, Chairman, Kozhikode Local Centre, IEI, welcomed the gathering and explained the importance



of energy conservation. He stressed the importance of active global participation in enhancing energy efficiency and increasing the utilization of renewable energy sources. Specifically, he

highlighted the need to boost energy production from wind, solar, small-scale hydro projects, and advocated for endeavors aimed at generating more energy from fewer resources, alongside the promotion of renewable energy. Er M Pramod Kumar, Honorary Secretary, Kozhikode Local Centre, IEI, proposed the vote of thanks at the end of the event.

Ludhiana

Ludhiana Local Centre, IEI, observed Energy Conservation Day 2023 on 21 December 2023 in Ludhiana. Dr Ashwani Kumar Kushwaha, Chief Scientist, CMERI-CSIR graced the occasion as Chief Guest. He mentioned that small measures could pave way for large energy savings and reduction



of CO₂ emissions. Dr Arvind Dhingra, Chairman, Ludhiana Local Centre, IEI, and Executive Director, STEP-GNDEC, Certified Energy Auditor delivered the

Keynote address on Energy Conservation for Sustainability and stressed the need for sustainability in energy production and consumption. He described with numerous examples as to how energy could be conserved without compromising the comfort. Er Surinder Singh, Honorary Secretary, Ludhiana Local Centre, IEI, proposed the vote of thanks.

Palghat

Palghat Local Centre, IEI, observed Energy Conservation Day 2023 on 14 December 2023 in Palakkad. Er K Madana Mohan, Chairman, Palghat Local Centre, IEI [Session 2021-23], welcomed all. Guest Speaker of the event, Er Selvaraj V, Assistant Executive Engineer, Electrical Subdivision, KSEBL, Kalpathi, Palakkad, delivered Keynote address on 'Energy Conservation



Methods'. He emphasized the crucial role of worldwide engagement in improving energy efficiency and maximizing the use of renewable energy sources. Specifically, he underscored

the imperative to enhance energy production from wind, solar, and small-scale hydro projects. Additionally, he advocated for initiatives focused on achieving greater energy output from fewer resources, while concurrently promoting the adoption of renewable energy technologies. Er A Ramesh, Past Honorary Secretary, Palghat Local Centre, IEI, proposed the vote of thanks at the end of the event.

Saurashtra

Saurashtra Local Centre, IEI, in association with The Amiya University, Rajkot, observed Energy Conservation Day on 14 December 2023 in Rajkot. A Seminar was organized on the topic 'National Energy Conservation Day – Energy Conservation & Energy Audit'. Speaker of the event, Mrs Seema V Aachhani, Energy Auditor, Senior Assistant Professor, Department of Electrical Engineering, Atmiya University, Rajkot, focused on energy scenario at a glance, sector-wise energy consumption in India, emissions

due to energy use, Energy Conservation Act, Energy Management & Energy Audit, etc. Earlier, Er Urvish C Kakkad, Chairman, Saurashtra Local Centre, IEI, welcomed the participants and Er Gaglani Kapil Divyakantbhai, Honorary Secretary, Saurashtra Local Centre, IEI, introduced the Speaker. At the end, Er Gaglani Kapil Divyakantbhai proposed the vote of thanks.

Tirunelveli

Tirunelveli Local Centre, IEI, observed Energy Conservation Day 2023 on 15 December 2023 in Tirunelveli and a technical Seminar was organized on this



occasion. Dr Avudaiappan S, Chairman, Tirunelveli Local Centre, IEI, delivered the welcome address. Er E Petchimuthu, Assistant Executive Engineer, System Development, TANGEDCO,

Regional Office, Tirunelveli, Tamilnadu, graced the occasion as Chief Guest. He briefly explained various power generation and conversion methodologies. Er Siva Ganesh E, Honorary Secretary, Tirunelveli Local Centre, IEI, proposed the vote of thanks at the end of the event.

Udaipur

Udaipur Local Centre, IEI, observed Energy Conservation Day 2023 on 14 December 2023 in Udaipur. In the beginning, Er Prushottam Paliwal, Honorary Secretary, Udaipur Local Centre, IEI, welcomed the guests, dignitaries and participants. Er Chandra Prakash Jain, Chairman, Udaipur Local Centre, IEI, welcomed the Guest of Honour of the function, Dr Anshu Kothari, Senior Vice President, Udaipur Chamber of Commerce and Industry,



Udaipur and Keynote Speaker, Dr Raju Kumar Swami, Dean (Academic), Pacific University, Udaipur. Er Jain shared his valuable insights on renewable energy and the importance

of synergy between industry and academia towards a better sustainable future. Dr Kothari discussed about energy conservation and highlighted that Government should spread publicity in social media about the importance of energy conservation so that people and the society take energy conservation seriously. Dr. Swamy emphasized the utilization of wind energy as an alternative source of electricity generation, highlighting its ability to reduce reliance on fossil fuels, greenhouse gas emissions, climate change impact, and carbon footprint. He also emphasized its role in mitigating environmental degradation. Er Y K Bolia, Former Chairman, Udaipur Local Centre, IEI highlighted to invest more in solar energy to produce electricity at lower cost to reduce our dependence on fossil fuels. Er Prushottam Paliwal proposed the vote of thanks at the end of the event.

Upper Assam

Upper Assam Local Centre, IEI, in association with Assam Gas Based Power Station, NEEPCO Limited, Bokuloni, observed Energy Conservation Day 2023 on 18 December 2023 in Bokuloni. Mr Mohon Chandra Dihingia, General Manager (Tech), AGBPS-NEEPCO, Bokuloni, graced the occasion as Chief Guest. Mrs Ibha Kalita, General Manager (R&D), HoD, Oil India Limited, Duliagan, graced the occasion as Guest of Honour. Papers were presented by Mr Subodh Purohit, Chief Research Scientist, Oil India Limited, Duliagan, on 'Green Hydrogen' and Mr Dibyajyoti Das, Sr Manager (E/M) &



Mr Tassadur Ali, Sr Manager (E/M), AGBPS-NEEPCO, Bokuloni on 'Power Generation and Energy Management'. Earlier, Er Bhairab Bhuyan, Chairman, Upper Assam Local Centre, IEI delivered the welcome

address. Er Kishore Kumar Das, Honorary Secretary, Upper Assam Local Centre, IEI & Chief Engineer (Civil), Frontier Basin, Oil India Limited, Duliagan, proposed the vote of thanks at the end of the event.



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 March 2024

Sl. No.	Name of the Course	Scheduled Dates
1.	Metal Additive Manufacturing and its Applications	04 - 07 Mar 24
2.	Preparation of DPR and Tender Documents for Sewage Treatment Plant.	04 - 06 Mar 24
3.	Web Development using Python & React JS	04 - 08 Mar 24
4.	Planning, Design, Construction and O&M of Lift Irrigation Schemes	04 - 07 Mar 24
5.	Safety Management in Civil Structures	06 - 08 Mar 24
6.	Supply Chain Analytics	06 - 08 Mar 24
7.	Fundamentals of Mining - Geology, Exploration, Surveying, Mineral Extraction, Rehabilitation	06 - 08 Mar 24
8.	Solar Energy Storage Battery Maintenance and Related Issues (Online)	06 - 08 Mar 24
9.	Total Productive Maintenance	11 - 14 Mar 24
10.	Current Environment legislation and Regulations	13 - 15 Mar 24
11.	Power Plant Chemistry for Chemists and Operation Engineers	13 - 15 Mar 24
12.	Improving Leadership, Managerial and Administrative Skills at Alley	13 - 15 Mar 24
13.	Laboratory Management System Awareness & Internal Auditing (As per ISO / IEC 17025 : 2017 & NABL Requirements)	18 - 21 Mar 24
14.	Automation in Micro Irrigation Systems for improving Irrigation Efficiency	18 - 22 Mar 24
15.	Industrial Decarbonization in India	19 - 20 Mar 24
16.	Tariff Policy - Basics of Tariff Calculation & Procedure / Information Required for Preparation of Tariff Petition (ARR) & Energy Scheduling	20 - 22 Mar 24
17.	Advanced Earthquake Resistant Techniques of Building	25 - 29 Mar 24
18.	Advanced Industrial Automation and Robotics for Engineers and Scientists	25 - 27 Mar 24
19.	Best Practices in O&M of Coal & Ash handling plants	26 - 29 Mar 24
20.	Training on Corporate Social Responsibility at Manali	26 - 28 Mar 24
21.	City Water Action Planning	27 - 29 Mar 24
22.	TQM Practices and Tools for Organizational Excellence	27 - 29 Mar 24

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>

Optimizing the Demand of Material Science with the Help of Recent Technologies

Contd. from page 6

Demand through IoT; Application of Nanotechnology in Textile Industry; Properties of Fly Ash Concrete Composite reinforced with Nano-SiO₂ and Steel Fibre; Carbon Nanotubes in Piezoelectric Energy Harvesting: A Sustainable Power Solution; AI-driven Nanotechnology for Catalyst selection in Pollution Control and Environmental Monitoring; Development of Automation and Artificial Intelligence Technology for Welding and Inspection Process in Aircraft Industry; Piezoelectric Energy Harvesting Tiles: Design and Challenges; An Investigation of Peening Techniques in the Direct Metal Laser Sintering Process for Stainless Steel Grade 316; An

Analysis of Mechanical Properties on Jute /Glass Fibre Reinforced Epoxy Based Hybrid Composites; etc.

The event was well attended by the Committee Members, Corporate Members, Council Members, Local Centre Chairman, faculties, industrialists and students from various institutions. During the valedictory function, Dr T M Gunaraja, Past President, The Institution of Engineers (India) was the Chief Guest and delivered the valedictory address and explained the important role of engineers in the nation building. Dr V Karthikeyan, Principal, Thiagarajar Polytechnic College, Salem and presently Council Member, IEI delivered the Keynote address during the valedictory session.

News-in-Brief

The following are the brief account of Technical Activities organised by various Centres

STATE CENTRES

Delhi

Organized 28th Dr S P Luthra Memorial Lecture on 27 July 2023 at New Delhi. Chief Guest of the function, Prof Amarjit Singh, Professor at University of Howali at Manoa, USA, delivered the Memorial Lecture on the topic 'Crisis in the Future of Automobile Fuels'. Guest of Honour of the session, Er Pradeep Chaturvedi, Past Chairman, Delhi State Centre, IEI, spoke on Dr Luthra's contribution in the technological advancement. Earlier, Dr Santosh Kumar Singh, Chairman, Delhi State Centre, IEI, delivered welcome address and recalled the educational excellence of Prof S P Luthra, contribution towards development of engineering education. Prof Amarjit Singh, in his lecture, focused on limited availability of petroleum fuels for automobiles. He emphasized on transition to electric vehicles, need for rare earth for storage systems and stressed on mix of fossil fuels, renewable fuels for future needs.

Gujarat

Organized Expert Talk in association with Gujarat Technological University Graduate School of Engineering and Technology (GSET), Chandkheda, Ahmedabad & Water Management Forum of IEI on 'Optimal Consumption of Water Resources' & Exhibition on 'Save Water' on 12 May 2023 in Ahmedabad. Dr J A Amin, Professor & Head, Civil Engineering Department, GSET, Ahmedabad spoke on the occasion. Er Vijay Solanki, Water Management Forum, IEI, suggested different ways for saving water in our daily usage and in agriculture practices. The Chief Guest, Dr D J Shah, Provost, Indrashil University, Kadi, North Gujarat expressed his view that the seminar's theme is highly relevant in the current scenario of climate change. He emphasized the challenging task engineers face in identifying sustainable solutions to these pressing issues. He explained about the design and commercialization of green engineering and its uses for processes and products that minimize pollution, promote sustainability, protect human health without sacrificing economic viability and efficiency. Keynote Speaker Ketan Lakhtaria, Assistant Professor, INDUS University, Rancheda, Ahmedabad, delivered lecture on 'Optimal Consumption of Water Resources'. Guest of Honour, Prof S D Panchal, Director, Gujarat Technological University, Graduate School of Engineering and Technology (GSET), Chandkheda, Ahmedabad elaborated on the optimal utilization of resources such as capital and labor. He underscored the importance of maximizing benefits while minimizing costs through their efficient allocation and utilization.

Karnataka

Organized Expert Lecture on 'Safety Concerns for Competitive MSMEs' on 11 April 2023 through online mode. Speaker of the session, Cdr (Dr) Bhaskar M Bhandarkar, Chairman, Marine Engineering Division Board, IEI [Session 2022-23], shared his valuable insights the importance of safety in Micro, Small and Medium Enterprises (MSMEs) and various factors affecting safety management. He explained the roadmap for MSMEs' in the context of 5 Trillion Vision, concepts of productivity and safety, factors affecting safety in MSMEs, safety management in MSMEs. In his concluding remarks, Cdr Bhandarkar highlighted the role of the factors affecting safety. He emphasized the need for effective safety management strategies and a supportive work culture to address these concerns effectively. This webinar served as a platform to gain knowledge and understanding about the significance of safety in the context of MSMEs and provided actionable insights that can help MSMEs prioritize safety, implement appropriate measures for the overall growth and development of the sector.

Organized Expert Lecture on 'Scopes and Potentials of Fabric Manufacturing Techniques' on 13 April 2023 through online mode. Speaker, Prof Sadhan Chandra Ray, Council Member, IEI and Chairman, Textile Engineering Division Board, IEI [Session 2022-23], spoke on the historical significance and current fabric manufacturing techniques, specifically weaving and knitting. He

emphasized that these techniques have been instrumental in textile industry and plays a vital role in meeting global fabric demand. Prof Ray delved into the intricacies of weaving, which is considered as the oldest and most prevalent fabric manufacturing technique. His deliberation covered advances in knitting, computerized looms, digital textile printing, production of garments without stitching or seams. He encouraged the industry professionals to embrace these innovations to enhance productivity, quality and sustainability.

Kerala

Organized Technical Talks in association with IEEE, CSI, INSARM, ASI, SSI, ISTD, SAME, IITArb, PMI, IETE on the topics

'Legal Aspects for Startup' on 01 March 2023 in Thiruvananthapuram. Speaker of the event was Adv Bindu Sankarapillai, Founder Member & Chief Legal Officer, 2nd Innings.

'Green Hydrogen – Fuel of the Future' on 08 March 2023 in Thiruvananthapuram. Speaker of the event was Er J Sudhakaran Nair, Former Deputy Chief Engineer, Kerala State Electricity Board.

'Universal Human Values and Ethics' on 15 March 2023 in Thiruvananthapuram. Speaker of the event was Dr S Ushakumari, Professor and Dean, Corporate Relations, Mar Baselios College of Engineering and Technology, Thiruvananthapuram.

'Energy Conservation and Renewable Energy' on 29 March 2023 in Thiruvananthapuram. Speaker of the event was Dr R Harikumar, Director, Energy Management Centre – Kerala, Government of Kerala.

'Reusable Launch Vehicles – An Overview' on 12 April 2023 in Thiruvananthapuram. Speaker of the event was Dr Krishnadasan C K, former Deputy Director, VSSC, Structures Entity.

'ChatGPT: A Paradigm Shift in AI' on 19 April 2023 in Thiruvananthapuram. Speaker of the event was Mr Satish Babu, Co-Founder & President, InAPP, Technopark, Thiruvananthapuram.

'Quality – in the Medical Device Domain' on 26 April 2023 in Thiruvananthapuram. Speaker of the event was Mrs Sarada Jayakrishnan, General Manager (Quality), Terumo Penpol Private Limited, Thiruvananthapuram.

'Hidden Messages of Water' on 03 May 2023. Speaker of the event was Prof (Dr) V Rajendra Babu, Former Professor & Head (Civil), Dean (PG Studies), College of Engineering, Thiruvananthapuram.

'Our Earth and Our Engineer: Raw Materials and Value Addition for Electric Vehicles' on 24 May 2023. Speaker of the event was Dr R Bhima Rao, Former Chief Scientist, CSIR-IMMT, Bhubaneswar, National Mineral Award Winner and Council Member, IEI.

'Arbitration in Environment and Climate Change' on 31 May 2023. Speaker of the event was Dr K R S Krishnan, Director, Karunya Institute of Technology & Sciences (A Deemed to be University).

Maharashtra

Organized Lecture on 'Methods of Demolition for Buildings and Bridges' on 17 February 2023 in Mumbai. Er S H Jain, Past Chairman, Maharashtra State Centre, IEI, explained about Foundation Day of Indian Society of Structural Engineers. Er Hemant Vadalkar, Honorary Secretary, Indian Society of Structural Engineers, also addressed the august audience. Eminent Speaker, Er Ram Matte, Specialist in Demolition shared his valuable insights in demolition of various type structures like buildings, industrial structures and bridges and explained various methods of demolition using chisel-hammer, diamond ropes for cutting RCC elements and controlled blasting techniques.

Organized a Seminar on 'Mechanical Testing: Basics and Advances' on

25 April 2023 in Sambhajnagar. This seminar served as an introduction to the theme of Materials Engineering by providing structure-property co-relationship. Speaker of the event, Dr Atul Ballal, Professor, Department of Metallurgical and Materials Engineering, Visvesvaraya National Institute of Technology Nagpur emphasized the significance of precise mechanical testing methods for materials. He provided an overview of various testing techniques, including tensile, creep, and fatigue tests, encompassing both low and high cycle fatigue. Furthermore, he touched upon advancements in miniaturized specimen testing, highlighting discussions on small punch creep and automated ball indentation methods.

Tripura

Organized 6th M L Dasgupta Memorial Lecture, in association with the Department of Electrical Engineering, Tripura University (a Central University). A Seminar was organized on 'Energy & Environment' on 18 August 2023 at Agartala. Prof Badal Kumar Datta, Dean, Faculty of Science, Tripura University, Dr Rup Narayan Ray, Head, Department of Electrical Engineering, NIT Agartala and Er Jiten C Das, General Manager, Agartala Gas Based Power Station, NEEPCO, graced the occasion as Guest of Honour, Special Guest and Keynote Speaker, respectively. The seminar covered two main themes: Energy Efficiency & Conservation and Electric Vehicle Technology for a Clean Environment. These topics were discussed by speakers, including Ar. Dhaval Karwa, Project Officer at the ECBE Cell of Tripura State Electricity Corporation Ltd, and Dr P Padmagirisan, Assistant Professor in the Department of Electrical Engineering at NIT Agartala. Dr Champa Nandi, Assistant Professor & Head, Department of Electrical Engineering, Tripura University was also present on the occasion and addressed the audience.

Organized 5th N K Sinha Memorial Lecture in association with Public Works Department (PWD), Government of Tripura. A Seminar was organized on 'New Technology for Road Construction' on 24 August 2023 in Agartala. Shri Abhishek Singh, IAS, Secretary, PWD, Government of Tripura, inaugurated the event and suggested to adopt more technological innovation for road construction and expressed concern for the occurrence of road damage caused due to poor drainage systems. Chief Guest, Dr Sandeep R Rathod, IAS, Secretary, Rural Development (RD) & Drinking Water & Sanitation (DWS), Government of Tripura, stressed on utilization of locally available resource with quality work for durable road. Guest of Honours of the event, Er Rajib Debbarma, Chief Engineer, PWD (Roads & Bridges) and Er Bimal Das Chief Engineer, PWD (PMGSY), Government of Tripura shared their valuable insights on the latest practices in road construction. Special Speakers of the event, Er R K Majumder, IAS (Retd), Former Director, Urban Development Department, Government of Tripura and Past Chairman, Tripura State Centre, IEI and Er Sudip Chakraborty, Executive Engineer, PWD (PMGSY), Government of Tripura suggested for consideration of sustainable design and new technologies for roads. Dr Subhadeep Bhattacharjee, Chairman, Tripura State Centre, IEI, highlighted the applications of Internet of Things (IoT), solar-powered roadways and interactive lights in order to create safer, less congested and energy efficient roads. Er Nihar Kanti Sinha, Engineer-in-Chief & Secretary, PWD, Government of Tripura and Former Chairman, Agartala Local Centre, IEI, and President, Indian Road Congress attended the event. Er Rajib Paul, Deputy Secretary, PWD, Government of Tripura, also present on the occasion and addressed the august audience.

Organized a Seminar in association with Shyam Steel Manufacturing Limited on 'Modern Civil Construction' on 25 August 2023 in Agartala. The program focused on concrete repair and structural strengthening, earthquake resistant civil construction, modern construction steel, sustainable development and infrastructure. Keynote Speaker and Guest of Honour of the event was Er R K Majumder, IAS (Retd), Former Director, Urban Development Department, Government of Tripura and Past Chairman, Tripura State Centre, IEI. Special Speakers of the event were Dr Debasish Bandyopadhyay, Professor of Construction Engineering, Jadavpur University, Kolkata; Er Surajit Dasgupta, Vice President, Shyam Steel Manufacturing Limited and Dr Malay Kumar Deb, Managing Director, Civil Engineering Consultancy Private Limited.

Organized a Seminar on 'National Small Industry Day' on 30 August 2023 in Agartala. The day emphasizes the importance of small-scale enterprises in

creating work opportunities for individuals in rural and urban regions and plays an important role towards the realization of the vision of self-reliant India. The event witnessed the presence of Guest of Honour, Er Beerbal Prasad Meena, Director, Ministry of Micro, Small & Medium Enterprises – Development and Facilitation Office (MSME-DFO), Government of India; and Keynote Speaker, Er Rajesh Kumar Das, Additional Secretary, Tripura Legislative Assembly & Chief Executive Officer, Tripura Khadi & Village Industries Board and Special Speaker, Mr Rabin Bose, Vice President, Mutha Industries Private Limited, Bodhjungnagar, West Tripura.

Organized a Technical Talk on 'Wireless Communication' on 01 September 2023 in Agartala. Prof Sarat Kumar Patra, Director, NIT Agartala, former Director, IIT Vadodara, Professor, NIT Rourkela, former Scientist of Defence Research Development Organization (DRDO), Government of India graced the occasion as the Special Speaker. The program was graced by distinguished senior engineers and academicians.

Observed the 104th Foundation Day of IEI on 13 September 2023 at Agartala and a Technical Talk was organized on 'Agriculture Engineering and National Food Security'. Dr Amaresh Sarkar, Assistant Professor in Agriculture Engineering, College of Agriculture, Tripura, stressed on the application of agriculture engineering and technology for national food security.

Organized a Seminar on the topic 'Empowering Elders with Technology Support' on 03 October 2023 in Agartala in connection with the observance of International Day for the Elderly. The event witnessed the presence of Guest of Honour Er G K Malakar, Former Engineer-in-Chief, Public Works Department, Government of Tripura and Special Speaker Er Subehndu Chaudhuri, Former Superintending Engineer, Power Department, Government of Tripura and Dr Suman Deb, Assistant Professor & Head, Department of Computer Science & Engineering and Chairman, Institute Innovation and Start up, NIT Agartala.

LOCAL CENTRES

Bareilly

Organized Technical Tour 2023 on 'Impact of Noise Pollution on Jungle Habitat and Ecosystem' during 09-10 April 2023 at Dudhwa National Park, Uttar Pradesh, to acquaint the members about the importance of conservation, management of natural ecosystems and balancing between human activities and wildlife conservation.

Belagavi

Organized Technical Talk on 'Features of Yettinahole Project' on 01 April 2023. Invited Speaker of the event, Er Madhava, former Chief Engineer, Yettinahole Project, Water Resource Department, Tumkur, said that Yettinahole Project is designed to cater the drinking water needs of four districts namely Ramnagar, Tumkur, Doddaballapur and Hasan with the support of world bank for around 2500 lakh crores. This project has a unique features like over head canals and gravity feeding systems, he added.

Bhimavaram

Organized National Survey Day in association with Department of Civil Engineering, SRKR Engineering College, Bhimavaram, on 10 April 2023. Chief Guest, Dr M Jagapathi Raju, Principal, SRKR College, Bhimavaram delivered lecture on the topic 'Modern Land Surveying Technology'.

Observed National Technology Day, in association with the Department of Computer Science and Design, S R K R Engineering College, Bhimavaram, on 11 May 2023 through online mode. A Seminar was organized on the topic 'School to Startups – Igniting Young Minds to Innovate'. Chief Guest, Dr Suresh Babu Mudunuri, Professor, IT & Incharge CSD, delivered lecture on the topic and shared his valuable insights on innovation and start-ups. Prof (Dr) K Brahma Raju, Council Member, IEI, delivered the Keynote lecture on the topic.

Bokaro Steel City

Organized a Technical Paper presentation on the topic 'Railway Signalling System' on 21 April 2023 in Bokaro. Speaker of the session, Er Rajendra Kumar Singh, Manager, EL & TC emphasized the need of Railway Signalling System and various aspects of the systems. He discussed the purpose of

signalling in railways, objectives of signalling and how signalling is achieved. He explained semaphore signals, multi-aspect colour light signal, train detection system, DC track circuit and so on. He explained the function of visual display unit used in modern electronic interlocking systems, evolution of signal interlock and a relay rack of RRI System.

Coimbatore

Organized an Innovation Contest titled 'Technology and innovations in Technical Textiles', in association with Department of Textile Technology, PSG College of Technology (PSGCT), Coimbatore on 01 April 2023 in Coimbatore. The event witnessed the presence of Dr G Thilagavathi, Past Chairperson, Textile Division Board, IEI, Prof (Dr) Krishnamoorthi J, Honorary Secretary, Coimbatore Local Centre, IEI [Session 2021-23] and Dr H Rammohan, Immediate Past Honorary Secretary, Coimbatore Local Centre, IEI. This event aimed to foster design, innovation, and product development initiatives among students. It invited participation in a contest focused on textiles, clothing, and fashion products that incorporate innovative technologies.

Organized a Technical Lecture in association with Department of Mechanical Engineering, Sri Ramakrishna Engineering College, Coimbatore on 'Industry 4.0' on 10 June 2023 in Coimbatore. Guest Speaker of the event, Mr T Gift Selvin, Director for Learning & Innovation, Maxbyte Technologies Private Limited, Coimbatore, explained about different stages of industrial revolutions and its importance. He emphasized the application of disruptive technologies and trends, which include such as Internet of Things (IoT), Robotics, Augmented Reality (AR), Virtual Reality (VR), Mixed Reality (MR), Artificial Intelligence (AI), Data Analytics etc.

Kalpakkam

Organized webinar on 'Role of Embedded Controller in Design of Smart IoT Systems' on 06 July 2023. The speaker for the session, Dr J Anishkumar, Assistant Professor at Saveetha Engineering College, Chennai, delivered a comprehensive presentation on various aspects of the Internet of Things (IoT). He elaborated on topics such as Smart IoT, Cloud computing, Gateways and Data Analysis. Dr Anishkumar provided insights into Smart IoT's scalability, interoperability, security, reliability, energy efficiency, and data analysis. Moreover, he delved into connectivity technologies for Smart IoT systems, including Cloud Computing and Edge Computing. Additionally, he discussed firmware and software updates, data privacy measures, and threat monitoring in IoT systems. He spoke about future application of IoT in smart agriculture, transport, health care. He also discussed the use of various components of IoT hardware's such as IoT sensors, IoT controller, IoT actuators and IoT communication modules.

Kochi

Organized a webinar on 'Construction Safety, Practical Aspects' on 23 May 2023. Speaker of the session was Prof (Dr) D K Sahoo, Professor, Safety & Fire Engineering and Principal, School of Engineering, CUSAT, Kerala. Dr Sahoo explained the basic principles of safety and its practical applications. He categorized various types of accidents in construction field as technological, organizational and behavioural and concluded that human factors are responsible for different accidents. He advised to take precautionary measure to avoid accidents such as using personal protective gears and employing other safety measures.

Organized Workshop in association with Energy Management Centre, Government of Kerala on 'Energy Management E-Quest Software Training' during 10-11 June 2023 in Kochi. Resource persons of the session were Shri Biplav Kumar Mater and Shri Kuldeep Sadevi from Energy Management Centre, Kerala. During the workshop, on-hand practical training was delivered on the application of E quest software for valuation of energy consumption impacts. The application of simulation software to evaluate energy performance to fulfil the LEED energy performance credits was also discussed.

Mangalore

Organized a Lecture Meeting on the topic 'The Spectacular Lightning: Revisiting Some Interesting Facts' on 13 June 2023 in Mangalore. Chief Guest of the event, Dr Gururaj S Punekar, Professor, Department of Electrical

and Electronics Engineering, NITK Surathkal, delivered an insightful lecture on lightning.

Organized World Earth Day on 27 April 2023 at Mangalore. A Seminar was organised on the topic 'Earth Science and Energy Transition –The Balance between Science and Engineering' Dr Vinosh Srinivasan, Assistant Professor, Department of Civil Engineering, NITK Surathkal, highlighted that the challenge with implementation of renewable systems shall be addressed with engineering solutions at all level.

Nagpur

Organized a Lecture Program, in association with Janaakrosh a NGO on 'Road Safety' on 12 April 2023 in Nagpur. Keynote Speaker, Mr A D Joshi, former CMD, Vizag Steel, discussed on road safety and explained various reasons for road accidents.

Organized Lecture Meeting on 'Basics of Earthing Concept' on 15 April 2023 in Nagpur. Speaker of the session, Er Vinay Nagdeo, Former Superintending Engineer, Nagpur Regional Electrical Inspection, Industry, Energy & Labour Department, Nagpur, highlighted the basics of earthing, need of earthing for the devices to achieve safety to personnel and equipment in industry/residential complex. He explained different types of earthing, namely, equipment grounding, system grounding, lightning/surge grounding and RF grounding. He informed that 50% equipment failures in an electrical system are attributed to faulty or inadequate earthing. He mentioned that touch potential and step voltage play a crucial role, especially for safety of working personnel working near metallic structures and earth terminals. He also discussed the concepts of Faraday's cage, equi-potential bonding, high speed fault clearing, regulations on earthing as per IS:3043 and so on.

Rourkela

Observed National Technology Day 2023 on 11 May 2023 in Rourkela. Speaker of the event Dr B B V L Deepak, Assistant Professor, Department of Industrial Engineering, NIT Rourkela, delivered lecture on the topic 'Chronological Developments of Technology Innovation'. In his address, Dr Deepak stated that science and technology is a pair since the dawn of human civilization, which has been transmogrifying with the timeline, that concomitants in more and more advancements enabling th innovations in materials and process. He highlighted the latest trends on Very Large Scale Integrated Circuits (VLSI) and Ultra Large Scale Integrated Circuits (ULSI) that made the mankind to visualize a paradigm shift from large computers to palmtops. He also mentioned the role of artificial intelligence, additive manufacturing and robotics towards innovations and converting them to sophisticated products with user centered design.

Organized World Population Day on 11 July 2023 in Rourkela. A seminar was organised on the topic 'Population Growth in India: Unravelling the Paradox, Empowering Family Planning for Sustainable Development'. Speaker of the session was Mr Binayak Kandapan, Senior Research Fellow (SRF), Department of Humanities and Social Sciences, National Institute of Technology Rourkela.

Saurashtra

Organized Expert Talk on 'Scrap Policy for Vehicles-2021 & Employment Opportunities' on 04 April 2023 through online mode. Expert Speaker of the session, Er K V Trivedi, former Deputy Executive Engineer, NWRWS & K Department, Gandhinagar delivered lecture on the theme. Er Trivedi explained voluntary vehicle fleet modernization policy, automated testing station, automate fitness testing, registered vehicle scrapping facilities to promote safe scrapping of vehicles and enhance value discovery, criteria for scrapping of vehicles at RVSF etc.

Tiruchirappalli

In association with G 20 India, Ministry of Electronics and Information Technology, (MeitY) Government of India, Computer Society of India, Tiruchirappalli Chapter, Safety & Quality Forum, IEI, Indian Institute of Welding,

Contd. on page 17



The Institution of Engineers (India)

Notification for R&D Grant-in-Aid

To promote appropriate technology, assist in building up design & research talents and, most importantly, to help in nurturing potential R&D venture amongst engineering students pursuing Diploma/UG/PG/PhD courses, The Institution of Engineers (India) had instituted the R&D Grant-in-Aid program way back in 2001.

Like every year, the Institution invites applications for the session 2024-2025 for funding industry-oriented R&D projects and research initiatives aimed at improving the life-style of common people from engineering students pursuing full time Diploma/UG/PG/PhD engineering program in AICTE/UGC/NAAC approved Institutions/Colleges/Universities. The application form and guidelines are available in our website <https://www.ieindia.org>. The projects should be carried out under the guidance of faculty members who are Corporate Members of IEI. Membership criteria for student(s), guide(s) and Institution(s) are as follows:

Project Category	Student/Applicant Membership	Guide(s) Membership	Institutional Membership	Quantum of Grant (INR)
1. Diploma	Exempted [Membership of Student Chapter is desirable]	AMIE/MIE/FIE	Not Mandatory	Not exceeding ₹20,000/- for a single project
2. UG (BE/BTech/AMIE/Equivalent)	SMIE	AMIE/MIE/FIE	Applicant's Institute should preferably be an Institutional Member with NBA / NAAC Accreditation or valid NIRF Rank	Not exceeding ₹50,000/- for a single project
3. PG (ME/MTech/Equivalent)	AMIE/MIE/FIE	MIE/FIE	Applicant's Institute should preferably be an Institutional Member with NBA / NAAC Accreditation or valid NIRF Rank	Not exceeding ₹1,00,000/- for a single project
4. PhD	AMIE/MIE/FIE	MIE/FIE	Applicant's Institute should preferably be an Institutional Member with NBA / NAAC Accreditation or valid NIRF Rank	Not exceeding ₹1,50,000/- for a single project

The soft copy of the duly filled-up applications (in editable format), as per the pro-forma available in our website www.ieindia.org, should be sent through email to research@ieindia.org and one printed copy of the same should reach the following address:

Director (Technical)
The Institution of Engineers (India), 8 Gokhale Road, Kolkata 700 020

Applications received in format other than that available on our website will not be accepted. Application should be forwarded through the Guide, Head of the Department or Head of the Institution. Please note that preference will be given to project proposals received from Institutions who are members of The Institution of Engineers (India) and with NBA / NAAC Accreditation or valid NIRF Rank. Kindly go through the guidelines (visit link <https://www.ieindia.org/webui/IEI-Activities.aspx#RnD-Initiative>) carefully before filling up the application.

The grant is not intended for the faculty members / working individuals who have access to other avenues of research funding. Proposals received will be scrutinized and the recipients of R&D Grant will be informed accordingly.

Contd. from page 16

Tiruchirappalli Branch, Indian Welding Society Southern Zone, Indian Institute of Metals, Tiruchirappalli Chapter, Indian Institution of Industrial Engineering Tiruchirappalli, Kumari Arivial Peravai Kanyakumari and Indian Society for Non-destructive Testing Trichy Chapter, organised lecture on the topic

'Internet Addiction: Recognizing and Managing Compulsive Online Behaviour' on 14 March 2023 through online mode. Speaker of the event was Er S Saravanan, Assistant Professor and Placements In-charge, Saranathan College of Engineering, Trichy. The Speaker discussed on internet addiction, the reasons behind compulsive online behaviour, and its effect etc.

'Ongoing Climate Change, Global Warming and Sea Level Rise – An Analysis' on 28 March 2023 through online mode. Speaker of the event was Dr G A Thivakaran, Director, Blue Bay Coastal Research Foundation, Chennai. The Speaker discussed on Climate Change Adaptations, Impacts of GW and SLR on Economic-Social Spheres, Melting of Glaciers and Ice Caps and its implication etc.

Organized a Lecture in association with Computer Society of India, Tiruchirappalli Chapter, Safety Quality Forum – IEI, New Delhi, Indian Institute of Welding Tiruchirappalli Branch, Indian Welding Society Southern Zone, Indian Institute of Metals Tiruchirappalli Chapter, Indian Institution of Industrial Engineering Tiruchirappalli, Kumari Arivial Peravai Kanyakumari and Indian Society for Non-destructive Testing, Trichy Chapter on 'Corrosion of Copper Based Alloys in Marine Environment' on 04 April 2023 through online mode. Speaker of the event was Dr Rakesh C Barik, Principal Scientist, Corrosion and Materials Protection Division, CSIR – Central Electrochemical Research Institute, Karaikudi, Tamilnadu.

Tirunelveli

Organized Seminar on 'Industry Expectations from Academia' on 08 August 2023 in Tirunelveli. Mr Venkatesh Narayanasamy, Founder of Innovative Solutions, Chennai, graced the occasion as the Chief Guest and delivered the Keynote address. His presentation focused on bridging the gap between academia and industry. He explained soft skills, leadership qualities, resume preparation, fostering positive attitudes, staying updated with latest technology, the importance of teamwork and nurturing innovative ideas.

Visakhapatnam

Observed National Technology Day, in association with Indian Society of Heating, Refrigerating & Air Conditioning (ISHRAE) on 11 May 2023 in Visakhapatnam. A seminar was organized on the topic 'An Overview of Indian Nuclear Program'. Er Venkata Satya G Pakki, Chairman, Visakhapatnam Local Centre, IEI, mentioned that the day is observed to acknowledge the contribution of engineers and scientists for national development. Shri UCM Patnaik, Chairman, ISHRAE Visakhapatnam Chapter, highlighted the growth of India due to technological advancements. He said that skill development is important in the fast changing technological era and felt that engineering education needs to focus on this aspect. Guest Speaker, Shri P K Mishra, Head of Advanced Light Water Reactor, BARC, Visakhapatnam delivered lecture on Indian Nuclear programme. He highlighted three stage national nuclear power programme and mentioned that India's nuclear policy has always been directed for peaceful objectives. He further presented an overview of development of nuclear power plants, next generation reactors, etc and portable reactors. He explained various applications of nuclear energy in power generation, food processing and health management and spoke on radioactive waste management, role and function of HVAC systems in nuclear plants etc.

IEI DIARY



Peelamedu, Coimbatore 641 004 [☎: 0422-2580733; Email: coimbatorelc@ieindia.org; Website: <https://www.ieicoimbatore.org>]

Civil Engineering Division

One Day Seminar on "Sustaincon Bridging Ideas For A Greener Future"

Coimbatore, April 03, 2024

The Honorary Secretary, IEI, Coimbatore Local Centre, PSG College of Technology Campus, Peelamedu, Coimbatore 641 004 [☎: 0422-2580733; Email: coimbatorelc@ieindia.org; Website: <https://www.ieicoimbatore.org>]

Computer Engineering Division

All India Workshop on "High Performance Computing in Health Care and Big Data Analytics"

Kattankulathur, February 05-06, 2024

The Honorary Secretary, IEI, Kattankulathur Local Centre, SRM Institute of Science and Technology, Mahatma Gandhi Road, Potheri, SRM Nagar, Dist Chengalpattu, Kattankulathur, Tamilnadu 603203 [☎: 044-2745 2270]

All India Workshop on "Advanced Code Wizardry Uncovering Secrets for Designing and Architecting Impactful Applications"

Kattankulathur, March 04-05, 2024

The Honorary Secretary, IEI, Kattankulathur Local Centre, SRM Institute of Science and Technology, Mahatma Gandhi Road, Potheri, SRM Nagar, Dist Chengalpattu, Kattankulathur, Tamilnadu 603203 [☎: 044-2745 2270]

Electrical Engineering Division

International Conference on "Green Hydrogen and Clean Energy"

Nagpur, February 10-11, 2024

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

Thirty-ninth National Convention of Electrical Engineers on "Green Hydrogen, Electric Vehicle and Energy Storage System"

Chennai, May 24-25, 2024

The Honorary Secretary, IEI, Tamil Nadu State Centre, No. 19, Swami Sivananda Salai, Chepauk, Chennai 600005 [☎: 044-25360614 /9962950333, E-mail : tnsce@ieindia.org, Website : www.ieitnsc.org]

Environmental Engineering Division

All India Seminar on "Sources of Planet Energy Environment and Disaster Science SPEEDS24 Climate Justice and Equity"

Lucknow, June 22-23, 2024

The Honorary Secretary, IEI, Uttar Pradesh State Centre, Engineers Bhawan, River Bank Colony, Lucknow 226 018 [☎: 0522-2625322, Fax: 0522-2625322, Email: upsc@ieindia.org, Website: <http://www.ieiup.org.in>]

Mechanical Engineering Division

All India Seminar on "Advancements in Electric Vehicles"

Madurai, April 03-04, 2024

The Honorary Secretary, IEI, Madurai Local Centre, T M Iambulingam Bhavan, 1 Vivekanandha Nagar (100 Feet Road), Surveyor Colony K.Pudur, Madurai 625 007 [☎: 0452-2561783 / 0452-4373067; Email: madurailc@ieindia.org; Website: <http://www.ieimadurailc.org>]

All India Seminar on "Sustainability through Green Vehicles: Powered by Hydrogen, Fuel Cell, CNG and Flexi Fuel Vehicles"

Coimbatore, May 15-16 2024

The Honorary Secretary, IEI, Coimbatore Local Centre, PSG College of Technology Campus, Peelamedu, Coimbatore 641 004 [☎: 0422-2580733; Email: coimbatorelc@ieindia.org; Website: <https://www.ieicoimbatore.org>]

Thirty-ninth National Convention of Mechanical Engineers on "Innovations in Mechanical Engineering, Sustainable Manufacturing Technologies, Design and Energy Systems"

Chandigarh, September 13-14, 2024

The Honorary Secretary, IEI, Punjab and Chandigarh State Centre, Sector 19A Madhya Marg, Chandigarh 160 019 [☎: 0172-2775418, Fax: 0172-2540133, Email: pcsc@ieindia.org]

Fortieth National Convention of Mechanical Engineers on "Recent Advances in Mechanical Engineering"

Durgapur, August 23-24, 2025

The Honorary Secretary, IEI, Durgapur Local Centre, Nehru Avenue, B Zone, Durgapur 713 205 [Fax: 0343-2564770, Email: durgapurlc@ieindia.org, Website: <http://www.ieidurgapurlc.org>]

Metallurgical & Materials Engg. Division

One Day Seminar on "Automation in Foundries"

Coimbatore, April 03, 2024

The Honorary Secretary, IEI, Coimbatore Local Centre, PSG College of Technology Campus,

All India Seminar on "Refractory Technology : Current Practices, Evolving Market, and the Future Forecast in Steel Industry"

Bokaro Steel City, April 12-13, 2024

The Honorary Secretary, IEI, Bokaro Steel City Local Centre, Abhiyanta Bhawan, Sector - 5 A, Bokaro Steel City 827 006 [☎: 06542-267227/288972, Email: bokarolc@ieindia.org]

Production Engineering Division

Thirty-eighth National Convention of Production Engineers on "Green and Bio-inspired Manufacturing – The Way Forward"

Bareilly, May 02-03, 2024

The Honorary Secretary, IEI, Bareilly Local Centre, 44, Camphor Estate Colony, Near Champhor Hospital, Rampur Road, C B Ganj, Bareilly 243502, Uttar Pradesh [Mobile: 9634953691, Email: bareillylc@ieindia.org]

Interdisciplinary Co-ordination Committee

All India Seminar on "Green Technologies for Sustainable Development"

Pune, 16-17 March, 2024

The Honorary Secretary, IEI, Pune Local Centre, Office Address:1332 Shivaji Nagar, Jangli Maharaj Road, Pune 411 005 [☎: 020-25533376/25520239/25530150, Email: punelc@ieindia.org, Website: <http://ieipune.org>]

All India Seminar on "Challenges and Opportunities of Machine Learning Techniques on Structural Health Monitoring"

Madurai, April 11-12, 2024

The Honorary Secretary, IEI, Madurai Local Centre, T M Iambulingam Bhavan, 1 Vivekanandha Nagar (100 Feet Road), Surveyor Colony K.Pudur, Madurai 625 007 [☎: 0452-2561783 / 0452-4373067; Email: madurailc@ieindia.org; Website: <http://www.ieimadurailc.org>]

All India Seminar on "Revolution in Healthcare - AI and IoT"

Tuticorin, April 26-27, 2024

The Honorary Secretary, IEI, Tuticorin Local Centre, 1/27 Sacred Heart Institute of Engg., Meelavittan Road, Tuticorin 628 002 [☎: 0461-2300577, Email: tuticorinlc@ieindia.org]

Empanelment as Advocate/ Attorneys & Chartered Accountant for Engineers

The Institution of Engineers (India) invites practicing Advocates/Attorneys and Chartered Accountants who are also Engineers to apply for empanelment to enhance their visibility in the public domain. Empanelment entails a nominal application fee of Rs. 5900/- (inclusive of GST) payable by Demand Draft/Multi-city Cheque made in favor of "The Institution of Engineers (India)" and payable at Kolkata.

Applicants are requested to send a hard copy of their application to the **Director (Membership)**, The Institution of Engineers (India), 8 Gokhale Road, Kolkata 700020. For further details, please visit our website at <https://www.ieindia.org/webui/iei-home.aspx>.



The Institution of Engineers (India)

A Century of Service to the Nation

Celebrates

World Water Day

March 22, 2024

Theme:

Water for Peace



The Institution of Engineers (India)

A Century of Service to the Nation

Celebrates

World Engineering Day for Sustainable Development



March 4, 2024

Theme:

Engineering Solutions for a Sustainable World

Certificate of Practice for Practicing Chartered Engineers

The Corporate Members of the Institution having Chartered Engineer Certificate in the current grade of Membership with five years of experience as an Engineer in the relevant field can apply for **Practicing Chartered Engineers Certification**. The Institution will issue **Practicing Registration No.** for practising Chartered Engineers, which is valid for **five years**.

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-RegistrationForPPCE.aspx> for more details.

Know-Your- Member (KYM)

The Institution of Engineers (India) is updating the database of all its Corporate Members along with their achievements for which a Know-Your-Member (KYM) form has been introduced.

Every Corporate Member is requested to kindly fill up the form and forward it along with the self-attested copy of photo ID proof to the address given below:-

The Director (Membership)

The Institution of Engineers (India)

8 Gokhale Road, Kolkata 700020

Email: datamemb@ieindia.org

The form is available in IEI Website:

https://www.ieindia.org/WebUI/ajax/Downloads/WebUI_PDF/HIGHLIGHTS_DOCUMENT-3332.pdf

PUBLICATION BY THE WFEO COMMITTEE ON INFORMATION AND COMMUNICATION (CIC) HOSTED BY IEI

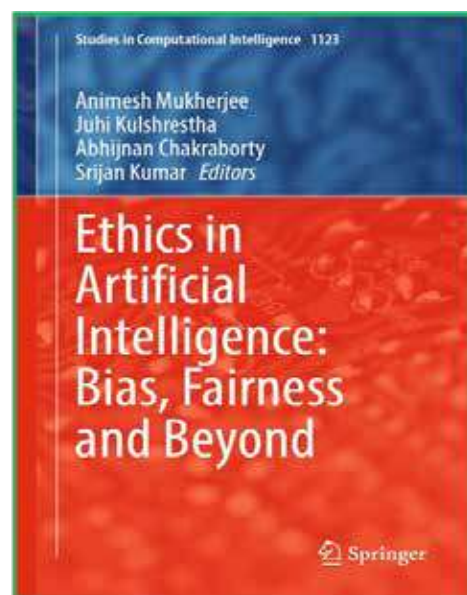
Book

Ethics in Artificial Intelligence: Bias, Fairness and Beyond

Part of the book series: **Studies in Computational Intelligence (SCI, volume 1123)**

Abridged Foreword by Shri S S Rathore, Past President, IEI & Chair, WFEO-CIC

The Institution of Engineers (India), under the aegis of the WFEO Committee on Information and Communication (WFEO-CIC), is proud to bring you this book. It serves as a testament to our commitment to the ethical progression of AI. As we usher in an age where AI's influence on society is undeniable, it becomes imperative to equip ourselves with the critical thinking skills necessary to discern the ethical nuances that permeate this technology. The book delves into the pivotal role of Artificial Intelligence (AI) in the contemporary era, placing a strong emphasis on the ethical considerations enveloping its advancements. Titled "Ethics in Artificial Intelligence: Bias, Fairness and Beyond," this work serves as a comprehensive exploration of the intricate ethical landscape within AI, skillfully crafted by seasoned experts in the field. It meticulously addresses pressing questions and challenges concerning bias, discrimination, fairness, and accountability in AI systems.



Far beyond a mere examination of AI ethics, the book is presented as a guide and intellectual compass, offering valuable navigation through the intricate terrain of the AI landscape. It stands as a poignant reminder that the trajectory of AI's future must be firmly anchored in ethical principles. Readers are not only invited but encouraged to embark on an enlightening journey through the book, where they can glean insights and perspectives that illuminate the ever-evolving realm of AI and its far-reaching

societal implications.

About this book

This book is a collection of chapters in the newly developing area of ethics in artificial intelligence. The book comprises chapters written by leading experts in this area which makes it a one of its kind collections. Some key features of the book are its unique combination of chapters on both theoretical and practical aspects of integrating ethics into artificial

intelligence. The book touches upon all the important concepts in this area including bias, discrimination, fairness, and interpretability. Integral components can be broadly divided into two segments – the first segment includes empirical identification of biases, discrimination, and the ethical concerns thereof in impact assessment, advertising and personalization, computational social science, and information retrieval. The second segment includes operationalizing the notions of fairness, identifying the importance of fairness in allocation, clustering and time series problems, and applications of fairness in software testing/debugging and in multi stakeholder platforms. This segment ends with a chapter on interpretability of machine learning models which is another very important and emerging topic in this area.

Keywords: Fairness, Bias, Discrimination, Interpretability, Ethics, Philosophy of Artificial Intelligence

Editors and Affiliations

Animesh Mukherjee, Department of Computer Science and Engineering, IIT Kharagpur, West Bengal, India

Juhi Kulshrestha, Department of Computer Science, Aalto University, Espoo, Finland

Abhijnan Chakraborty, Department of Computer Science and Engineering, IIT Delhi, New Delhi, India

Srijan Kumar, School of Computational Science and Engineering, College of Computing, Georgia Institute of Technology, Atlanta, USA

Bibliographic Information

Book Title: Ethics in Artificial Intelligence: Bias, Fairness and Beyond

Series Title: Studies in Computational Intelligence

DOI: <https://doi.org/10.1007/978-981-99-7184-8>

Publisher: Springer Singapore

Copyright Information: The Institution of Engineers (India) 2023

Hardcover ISBN: 978-981-99-7183-1

Due: 30 January 2024

Softcover ISBN: 978-981-99-7186-2

Due: 30 January 2025

eBook ISBN: 978-981-99-7184-8

Published: 29 December 2023

Series ISSN: 1860-949X

Series E-ISSN: 1860-9503

Edition Number: 1

Number of Pages: XII, 143

Number of Illustrations: 2 b/w illustrations, 16 illustrations in colour

IEI NEWS

ISSN 0971-3352

Owner : The Institution of Engineers (India), 8 Gokhale Road, Kolkata 700 020

Printer : Maj Gen (Dr) MJS Syali, VSM (Retd), Secretary & Director General

Publisher : Maj Gen (Dr) 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 (Dr) MJS Syali, VSM (Retd), Secretary & Director General

President : Dr G Ranganath

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

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

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