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A CENTURY OF SERVICE TO THE NATION

Volume 27

Number 11

IEI Technical Webinar under the aegis of Mining Engineering Division Board

Prospects of Artificial Intelligence Application in Mining Industry

Jharkhand State Centre of the Institution organized Technical Webinar on the topic **Prospects of Artificial Intelligence Application in Mining Industry** under the aegis of Mining Engineering Division Board (MNDB) of IEI on 17 January, 2021. Eminent Panelists, namely, Prof Satish Kumar Sinha, Chairman, Career Development Centre, Indian Institute of Technology (Indian School of Mines), Dhanbad and Dr Haider Banka, Department of Computer Science & Engineering, IIT(ISM), Dhanbad were present during the function. The first Panelist during the session, Prof Satish Kumar Sinha, in his lecture referred that Artificial Intelligence (AI) has been utilized to the simulation of human intelligence in machines that are programmed to think like human beings along with their actions. He also highlighted that AI may be applied to any machine that exhibits traits associated with the human mind such as, learning and adaptation during problem-solving processes. He stated that huge amount of data is being generated during any geological / mining operation venturing into new working conditions every next time. Prof Sinha later discussed on the possible AI application in mine manifestations to prevent accident / catastrophic failures like, roof fall, inundation etc. He also focused on dump failures and fire occurrence, which are few promising areas where AI can provide wonderful results in terms of safety enhancement and overall smart culture in



Prof Satish Kumar Sinha

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IEI Technical Webinar under the aegis of Electrical Engineering Division Board

Power Electronics Technology- Opportunities and Challenges

Tiruchirappalli Local Centre of the Institution organized Technical Webinar on the topic **Power Electronics Technology-Opportunities and Challenges** on 8 December, 2020 under the aegis of Electrical Engineering Division Board (ELDB), IEI. Prof (Dr) Natarajan Kumaresan, Chairman, Tiruchirappalli Local Centre, IEI delivered the welcome address, introduced the Panelists during the session, namely, Dr Kamalesh Hatua, Assistant Professor, Department of Electrical Engineering, Indian Institute of Technology Madras, Dr M Arunachalam, Former General Manager & Senior Specialist (EE), EDN, BHEL, Bengaluru, Mr Arghya Sardar, Scientist F, & Head, Technology Foresight for Automotive R&D, Technology Information Forecasting and Assessment Council (TIFAC), New Delhi, Dr C Nagamani, Professor (HAG), Department of Electrical and Electronics Engineering, National Institute of Technology, Tiruchirappalli and Dr B Dastagiri Reddy, Assistant Professor, Department of Electrical and Electronics Engineering, National Institute of Technology Karnataka, Surathkal, Mangalore and Moderator during the function, Prof (Dr) G Narayanan, Professor and Chairman, Department of Electrical



Dr Kamalesh Hatua

Department of Electrical and Electronics Engineering, National Institute of Technology, Tiruchirappalli and Dr B Dastagiri Reddy, Assistant Professor, Department of Electrical and Electronics Engineering, National Institute of Technology Karnataka, Surathkal, Mangalore and Moderator during the function, Prof (Dr) G Narayanan, Professor and Chairman, Department of Electrical



Dr M Arunachalam

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From the President's Desk.....

Advances in engineering have been central to human progress ever since the invention of the wheel. For the last hundred years, engineering and technology have transformed the world we live in, contributing to significantly longer life expectancy and enhanced quality of life for large percentage of the world's population. However, till yet, improved healthcare, housing, nutrition, transport, communications, and many other benefits in engineering and technology are unevenly distributed throughout the world. Even now, millions of people do not have clean drinking water and proper sanitation, they do not have access to proper medical care, they may have to travel a long way to get to work or school.



In September 2015, the United Nations General Assembly adopted its Resolution 70/1 announcing the 2030 Agenda for Sustainable Development and its 17 Sustainable Development Goals (SDGs), which take an integrated approach to future development, combining progress in economic prosperity, social inclusion and environmental sustainability.

Earlier, in the year 2010, United Nations Educational, Scientific and Cultural Organisation (UNESCO) in partnership with the World Federation of Engineering Organizations (WFEO), the International Council of Academies of Engineering and Technological Sciences (CAETS) and the International Federation of Consulting Engineers (FIDIC), produced the world's first comprehensive study on engineering, intended to identify the issues, challenges and opportunities for engineering, promote better public understanding of engineering and its role in society, and highlight ways of making engineering and engineering education more attractive to the young generation. The landmark UNESCO report, 'Engineering: Issues, Challenges and Opportunities for Development', highlights the significance of engineers for the socio-economic development of mankind. The second UNESCO Engineering Report is under preparation, which continues and builds upon the work, findings and recommendations of the first UNESCO Engineering Report. The second UNESCO Engineering Report has a focus on the role of engineering in development and addressing the 17 UN Sustainable Development Goals.

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Industry 4.0: Reimagining Manufacturing Operations after COVID-19

Tiruvallur Local Centre of the Institution organised Technical Webinar on the theme **Industry 4.0: Reimagining Manufacturing Operations after COVID-19** on 10 December, 2020 under the aegis of Interdisciplinary Coordination Committee, IEI. Eminent Panelists during the session, Mr Kirubakaran Reddy, Founder and CEO, Experts Hub, Mr V S Ramesh, Director, Steps Knowledge Services Private Limited and Mr K Sathyanarayanan, Edutech Professional



Mr Kirubakaran Reddy

views and expertise. Dr G P Ramesh, Professor & Head of Electronics and Communication Engineering, St. Peter's Institute of Higher Education and Research, was the Moderator during the function. Mr G Jayarajan, Chairman, Tiruvallur Local Centre, IEI presented the welcome address. Mr Pradeep Chaturvedi, Chairman, Interdisciplinary Coordination Committee, IEI, while addressing the august participants, mentioned that in post pandemic situation, industries are adopting digital transformation in a faster pace and the man-machine interface results enhancement of productivity and efficiency of the organization. Mr V S Ramesh, in his lecture discussed about different aspects of intelligent production systems, function of the key assets of Industry 4.0 infrastructure, which include; Cloud, Artificial Intelligence (AI), Big Data, Internet of Things, Additive Manufacturing, Cyber Security, Networking, Simulation etc. Mr Ramesh highlighted about Multiple Factory Integration, applications of AI in maintenance, generative design, optimizing supply chain, computer vision etc. He stressed on solid and integrated network within internal and external stake holders with full proof cyber security and discussed at a length new business model with implementation of IoT enabled manufacturing, where objects, people and cloud services interconnected via internet and further



Mr V S Ramesh



Mr K Sathyanarayanan

mentioned the requirement of Industry 4.0 for comprehensive digitization of the horizontal and vertical value chains. The speaker also discussed on the major issues in manufacturing and supply chain in post pandemic situation, which include shortage of materials, steep drop in product demand, unavailability of skilled manpower and challenging financial situation and recommended more integrated business systems, restructuring manufacturing industry with new initiatives, including workers' health and safety measures, digital work instructions, Augmented Reality based job instructions and operator assistance, inexpensive retrofit automation for material handling, digital transformation in the company and digital performance management applying IIoT, Robotic Process Automation in services, automation in plants, warehouse & logistics, Digital Twin Simulation for optimization, Blockchain for supply chain traceability etc. Mr Kirubakaran Reddy in his address deliberated about revolving manufacturing operations after Covid 19 and explained about the challenges in implementing Industrial Internet of Things (IIoT). Mr K Sathyanarayanan, in his lecture, discussed about the capability building related to industry with various aspects of phases to fix it and explained about selection of accurate technology and development of the competency. He also discussed pertinent and challenging issues to construct business models in post COVID situation, enhancement of process excellence, development of collaborative skills for manpower etc. An interactive session was also organized at the end of the session. Dr L Ramesh, Honorary Secretary, Tiruvallur Local Centre proposed the vote of thanks.



Dr G P Ramesh

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Power Electronics Technology–Opportunities and Challenges

Engineering, Indian Institute of Science, Bangalore. Prof Kumaresan briefly outlined the significance of the webinar and mentioned that lot more inventions can take place with continued research and developmental activities by the academic institutions in collaboration with relevant industries, contributing to further growth in the application of this exciting field of Power Electronics. Mr P Rajamani, Chairman, ELDB, IEI while addressing the audience, described the application of power electronics in various fields including renewable energy conversion systems, HVDC transmission and application of Flexible AC



Mr Arghya Sardar

Transmission Systems (FACTS) devices etc.

The first Panelist during the session, Dr Kamalath Hatua deliberated over the ever increasing scope of power electronics and underlined that power electronics technology has been employed in varied fields and has immense prospects for further research and job opportunities. Dr Hatua mentioned that owing to the very fast switching characteristics, Wide Band Gap devices such as Silicon Carbide (SiC) and Gallium Nitride (GaN)



Dr C Nagamani

will eventually replace Silicon Insulated Gate Bipolar Transistors (Si IGBTs) in the near future and reduce the size of the magnetics used in the power converters, which may result efficient operation of the converter topologies.



Prof (Dr) G Narayanan

Design and development of the Active Gate Driver play a vital role in employing such Wide Band Gap devices in the power converters, he added. Dr Hatua further shared his experience on design and fabrication of Active Gate Driver circuits and highlighted that the technique can also be extended for series connecting SiC devices which will be very useful for high power converter configurations. He also described the design and development of the Thyristor based Load commutate Induction motor drives and their deployment in the field. As part of the presentation, Dr Kamalath Hatua also mentioned that a vibrant Power Electronics group at IITM, Chennai, is engaged with industrial product-oriented research. In conclusion, Dr Hatua emphasized that, with continued research, lot of new modifications will emerge in the field of Power Electronics Technology, which ensure reliability and compactness of the products.

The second Panelist during the session, Dr M Arunachalam, shared his experience in the deployment of several power electronic converters, while

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E-Bike Design, Retrofitting and EV Charging

Kattankulathur Local Centre, IEI organized Technical Webinar on the theme **E-Bike Design, Retrofitting and EV Charging** on 12 January 2021 under the aegis of Electrical Engineering Division Board. Prof (Dr) P T Ravichandran, Chairman, Kattankulathur Local Centre, IEI in his welcome address, welcomed the Panelists during the session, Mr Chandra Sekhar S P K, Electromagnetics Engineer, Rizel Automotive Private Limited, Chennai and Dr Dipankar Debnath, Assistant Professor, Department of Electrical Engineering, IIT Kharagpur and Moderator of the session, Dr C Balaji, Assistant Professor, Department of Electrical and Electronics Engineering, SRM Institute of Science and Technology, Kattankulathur. Mr P Rajamani, Chairman, Electrical Engineering Division Board, IEI graced the occasion and addressed the audience.



Mr Chandra Sekhar S P K

Mr Chandra Sekhar, delivered his lecture on the topic 'E –bikes: Discussion on Major Subsystems and the Motors' and in his address pitched the light on the basic difference between IC engine based bike and e-bike. His deliberation highlighted the major subsystems of electric two-wheelers including Battery Management System (BMS), Insulation Monitoring Device (IMD), Inertia switch, Pre-charge circuit and Shut down circuit with emphasis

on safety aspects and significance of those systems installation. The speaker further outlined the working principle and the commissioning method of these systems and relative merits and demerits of Permanent Magnet Synchronous Motor (PMSM), Synchronous Reluctance Motors etc. Mr Chandra Sekhar, in his lecture also explained working principle of various types of motors with digital representations and simulation case studies. The speaker concluded by briefing about the selection criteria of motors for Electric Vehicles and the future trends in motor technology for E- bikes.



Dr Dipankar Debnath

Dr Debnath delivered his presentation on the topic 'E-bikes: Discussion on Major Sub-systems, Motor Controllers, Few Protection Feature Charging' focused on the significance of e-bike and the basic differences in operation between two, three and four e-wheelers. His lecture highlighted the operating principles and functional aspects of major subsystems of electric two-wheeler including motor, motor controller, protection features in motor controller, and battery charger. In addition, various types of motors and controllers including Brush Less DC Motors (BLDC), Synchronous

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Prospects of Artificial Intelligence Application in Mining Industry

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Dr Haider Banka

the mines. The second Panelist during the session, Dr Haider Banka in his deliberations, highlighted that the ideal characteristics of AI is its machine learning applications, that refers to the concept of computer programs which can automatically learn to adapt new data without being assisted by human beings. He also focused on adequate AI related research works as a study of intelligent agents that perceives its environment and takes proper actions. The general problem simulation

through AI in mining industry has also been discussed by Dr Banka. Earlier, Mr Siyaranjan Kumar Singh, Chairman, Jharkhand State Centre, IEI welcomed the Panelists and participants and Mr D V Pichamuthu, Chairman, MNDB, IEI addressed the participants with his visionary deliberations on the theme. Mr M I Alam, Former General Manager, CIL-Central Coalfields Limited, Ranchi & Executive Committee Member, Mining Engineering Division, Jharkhand State Centre, the Moderator during the session deliberated briefly about the application of AI in



Mr M I Alam

mining industry especially in safety domain and other potential multi-hazard early warning (MHEW) area. Mr Alam stated that AI applications in the industry can predict for any untoward impending incidence with minimizing the loss of function forewarn. At the end of the session, Mr Jitendra Kumar, Honorary Secretary, Jharkhand State Centre proposed the vote of thanks.

Maths in Mining (data)

How does all the jargon fit into these jars?

Putting it all together



From the President's Desk.....

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UNESCO has proclaimed 4th March as World Engineering Day for Sustainable Development with the objective to provide an opportunity for dialogue between engineers, decision makers, industry leaders, scientists, NGOs and the public at large to address the multidimensional aspects of sustainable infrastructure development. Moreover, this Day opens an avenue for presenting the recent achievements of engineers and how engineering and technology are central to modern life and sustainable development. The World Engineering Day 2021 (WED2021) will emphasize on celebrating

the launch of the 2nd UNESCO Engineering Report with prime focus on activities that promote awareness of engineering as a career, as well as on those that demonstrate the importance of youth studying science, technology, engineering and mathematics (STEM).

IEI being a Member of World Federation of Engineering Organizations (WFEO), requests the engineering community to celebrate this Day in a befitting manner and organize suitable events to mark the occasion.

Smart Grids in Integration with Distributed Generation: Challenges and Solutions

Salem Local Centre, IEI in association with Department of Electrical and Electronics Engineering, Sona College of Technology, Salem organized Technical Webinar on the theme **Smart Grids in Integration with Distributed Generation: Challenges and Solutions** on 29 December, 2020 under the aegis of Electrical Engineering Division Board, IEI. Mr D Arul Selvan, Chairman, Salem Local Centre, IEI welcomed the gathering and briefed about the importance of smart grids in integration



Mr V Suresh Babu

with distributed generation of electricity. Mr P Rajamani, Chairman, Electrical Engineering Division Board, IEI was present during the function and addressed the audience. Panelist during the session, Mr V Suresh Babu, Assistant Director, National Power Training Institute (NPTI), Ministry of Power, Government of India in his lecture dealt with cost-effective distributed generation technologies, that can be used to generate electricity at homes and businesses using renewable energy resources such as solar power and wind. The presenter explained smart distribution grid and interaction with auxiliary device such as converter inverter and batteries. While deliberating on the applications of smart grid, Assistant Director, NPTI explained smart grid as an automated, widely distributed energy delivery network characterized by a two-way flow of electricity and information, capable of monitoring and responding to changes in everything from power plants to customer preferences to individual appliances and a concept and vision that captures a range of advanced information, sensing, communications, control and energy technologies. The presenter in his address, further deliberated on the impact of smart grid on power grids across the country with distributed generation in small or large communities. The second Panelist during the session, Dr B Chitti Babu, Assistant Professor, Department of Electronics and Communication Engineering, Indian Institute of Information Technology, Design and Manufacturing, Kanchepuram delivered lecture on the topic 'Grid Connection Requirements and Control of Grid –tied Solar PV System'.



Dr B Chitti Babu

The presenter dealt with cost-effective distributed generation technologies, that can be used to generate electricity at homes and businesses using renewable energy resources and discussed on grid-connection requirements and control of grid-tied solar Photo Voltaic (PV) System in India and extended to use advantages of applying PV system in distributed generation system. In his address, Dr Babu explained key considerations of grid connected solar PV system, which include design and



Dr S Albert Alexander

operation of power converters to achieve high efficiency for different power configurations, different aspects of load dynamics, etc and explained Solar PV interaction with decentralized generations and numerous benefits in comparison to the conventional centralized systems. The third Panelist of the session, Dr S Albert Alexander, Associate Professor, Department of Electrical & Electronics Engineering, Kongu Engineering College, Erode delivered lecture on the topic 'Fault Detection and Diagnostic Tools for Smart Grid Environment' and deliberated at a length different aspects of micro grids, smart grids, combination of IoT technologies and industry expertise to achieve broad set of intelligent application solutions, key issues is information sharing and information security, deployment of Smart Meters and Advanced Metering Infrastructure (AMI), Substation renovation and modernization with deployment of Gas Insulated Sub-stations (GIS), Development of distributed generation in the form of roof top PVs, creation of EV charging infrastructure for supporting proliferation of EVs, and so on. Dr S Padma and Dr R Arulmozhiyal, Professors, Department of Electrical and Electronics Engineering, Sona College of Technology, Salem were the Moderators during the session. Mr S Loganathan, Honorary Secretary, Salem Local Centre proposed the vote of thanks.



Dr S Padma



Dr R Arulmozhiyal



IEI - Springer Journal Springer



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

SCOPUS Indexed



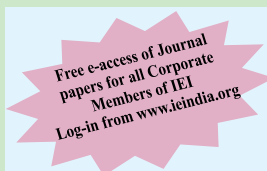
ISSN Print: 2250-2483
ISSN Online: 2250-2491

SCOPUS Indexed



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

SCOPUS Indexed



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

SCOPUS Indexed



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

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IEI Celebrates Energy Conservation Day

The Institution of Engineers (India) celebrated Energy Conservation Day all over the country on 14 December, 2020. Brief account of the celebration as received from various Centres are reported hereunder.

STATE CENTRES

Tripura

Tripura State Centre of the Institution observed Energy Conservation Day through organising webinar on 19 December 2020. Mr D Radhakrishnan, Chairman, Tripura Electricity Regulatory Commission (TERC), Agartala graced the occasion as Chief Guest. Ms Debjani Dey, Head of Projects, NEEPCO Limited, Agartala & Monarchalk Project and Mr Tapash Bhaumik, In-charge of Plant, ONGC Tripura Power Company (OTPC) Limited, Palatana Project, Udaipur, Tripura graced the occasion as Special Guests. Mr Debasish Sarkar, Director (Technical), Tripura State Electricity Corporation Limited (TSECL), Agartala delivered the Keynote address. Earlier, Mr Chinmay Debnath, Chairman, Tripura State Centre and Council Member, IEI addressed the audience. Dr Subhadeep Bhattacharjee, Honorary Secretary, Tripura State Centre delivered the welcome address.

LOCAL CENTRES

Durgapur

Durgapur Local Centre, IEI observed Energy Conservation Day on 14 December 2020. Prof (Dr) Kartik Chandra Ghanta, Chairman, Durgapur Local Centre and Council Member, IEI welcomed the audience. Mr M K Biswal, Honorary Secretary, Durgapur Local Centre delivered lecture on energy conservation and proposed the vote of thanks at the end of the session.

Indore

Indore Local Centre, IEI observed Energy Conservation Day on 14 December, 2020. Mr Vijay Garg, Expert – Energy Management and Conservation was the theme speaker during the session. Earlier, Prof (Dr) Ms Shilpa Tripathi, Chairman, Indore Local Centre delivered the welcome address. Mr Deepak S Shah, Honorary Secretary, Indore Local Centre proposed the vote of thanks.

Nagpur

Nagpur Local Centre of the Institution observed Energy Conservation Day on 15 December, 2020 through organizing a Webinar. Keynote speaker on this occasion, Mr Harish Kathaley, eminent Energy Auditor from Nashik delivered Lecture on the topic 'Energy Conservation – Challenges and Opportunities' and stressed on periodic energy audits to detect energy loss and wastage in the system. Mr Millind Pathak, Director, Elesun Automation Private Limited, Nagpur also present during the session and addressed the audience. Earlier, Prof (Dr) Rakesh L Shrivastava, Chairman, Nagpur Local Centre & Council Member, IEI delivered the welcome address. Mr Mahendra Shaligram Kadu, Honorary Secretary, Nagpur Local Centre proposed the vote of thanks.

North Bengal

North Bengal Local Centre, IEI observed Energy Conservation Day on 14 December, 2020 through online platform. Mr Ujjal Dey, Department of Electrical Engineering, Jalpaiguri Government Engineering College was the speaker during the session. Dr Santanu Das, Honorary Secretary, North Bengal Local Centre welcomed the audience and at the end of the session, proposed the vote of thanks.

Palghat

Palghat Local Centre of the Institution observed Energy Conservation Day on 26 December, 2020 in cloud mode. The Guest speaker during the session, Mr Rajesh K, Assistant Executive Engineer, Kerala State Electricity Board Limited, Kanjikode, Palakkad deliberated on the theme 'Green Building'. Mr Unni

Krishnan K, Chairman, Palghat Local Centre delivered the welcome address. Earlier, Mr Ramesh A, Honorary Secretary, Palghat Local Centre introduced the Speaker and at the end of the session, proposed the vote of thanks.

Ranipet

Ranipet Local Centre, IEI observed Energy Conservation Day on 14 December 2020 through online platform. Dr. P Anbarasan, Associate Professor, Department of Electrical Engineering, VIT, Vellore deliberated Lecture on the topic 'Energy Conservation for the Present & Future'. Earlier, Mr M Salai Manalan, Honorary Secretary, Ranipet Local Centre delivered the welcome address.

Rourkela

Rourkela Local Centre, IEI, observed Energy Conservation Day on 14 December, 2020 through virtual mode. Speaker on the session, Dr Adhidesh S Kumawat, Department of Chemical Engineering, National Institute of Technology, Rourkela deliberated address on the topic 'Energy Conservation, Sustainable Development and Environment Protection through Electrochemistry' and mentioned that renewable energy is an integral part of world's energy supply and becomes an important component for sustainable development and environmental protection. He explained that electrochemistry has numerous applications in energy generation, storage and conversion through various modes such as catalysis and material synthesis procedures. Thus, electrochemical methods open a viable route for achieving the goals of sustainability and protection of environment. Earlier, Dr Hara Mohan Jena, Honorary Secretary, Rourkela Local Centre welcomed all and at the end of the session proposed the vote of thanks.

Saurashtra

Saurashtra Local Centre, IEI in association with Government Engineering College Rajkot observed Energy Conservation Day on 14 December, 2020 by organising technical webinar on the theme 'Renewable Energy Solar Power Plant'. Mr Kamlesh B Sangani, Principal, Amrut Institute, Junagadh & Director, Super Specialist Techno Crats LLP was the theme speaker. Mr Ranchhod Kanjibhai Babaria, Honorary Secretary, Saurashtra Local Centre welcomed the speaker and all dignitaries and proposed vote of thanks at the end of the session.

South Gujarat

South Gujarat Local Centre, IEI observed Energy Conservation Day on 23 December 2020. Mr Kirti Hiralal Shethna, Chairman, South Gujarat Local Centre and Council Member, IEI, Mr Dipak Gomanbhai Patel, Honorary Secretary and all other committee members were present in the function. Mr Patel delivered the Keynote speech on present Indian energy scenario with conservation and issues related to audit and power quality in today's concept.

Sunabeda

Sunabeda Local Centre observed Energy Conservation Day on 14 December, 2020. Chief Speaker, Mr Sunil Biswal lectured on the theme 'Conserve Energy Save the Future' and emphasised on various activities to save energy, that leads to preserve non-renewable resources. Mr Arabinda Swamy, Honorary Secretary, Sunabeda Local Centre welcomed the audience.

Tiruchirappalli

Tiruchirappalli Local Centre, IEI jointly with IEEE Student Branch, NIT,

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Power Electronics Technology–Opportunities and Challenges

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he was serving at BHEL for more than 30 years. Starting from thyristor devices in nineteen sixties, Dr Arunachalam, traced the growth of power electronic devices, circuits and applications. Dr Arunachalam stated that, with the advent of microcontrollers and Digital Signal Processor (DSP) units, circuits for controlling the operation of power devices have advanced with lot of added sophisticated features, including ease of control, efficiency and cost effectiveness. He narrated his experience in the development of High Voltage Direct Current (HVDC) transmission, Static Synchronous Compensator (STATCOM) and Flexible Alternating Current Transmission Systems (FACTS) devices for power system operations and more recent Smart Grid installations. Citing several examples, he stated, exploitation and utilization of renewable energy resources, with varied configurations are possible only by the power electronics technology. Further, design and efficient operation of Brush Less DC motors (BLDC) and Doubly fed Induction generators have been achieved only with improved power electronic configurations. He concluded that with continued research activities by the academic institutions, in collaboration with relevant industries, lot more inventions can take place, contributing to further growth in the application of this exciting field of Power Electronics.

The third Panelist during the session, Mr Arghya Sardar narrated his experience in dealing with various problems in the development of electric vehicles (EVs). He mentioned in his lecture that number of countries have already announced their target to achieve 100% zero emissions by near future and there is a great push from Indian government as well, through Faster Adoption and Manufacturing (FAME) scheme for faster adaption of EVs. The major issue in this initiative, he opined is battery specific energy and cost and the power electronics technology plays a vital role in development of EVs. When it comes to public transportation, especially e-bus, there are different solutions available in the market such as deep charging, opportunity charging, flash charging and battery swapping, the speaker added. However, Mr Sardar felt that there is a huge scope for further improvements in power devices, novel power converters, control units and e-motors. In his interaction with the Panelists, he mentioned that the three-phase AC motors used in today's EVs run at voltages up to 1,000V and switching frequencies up to 20 kHz, is very close to the operational limits of the silicon-based Metal Oxide Semiconductor Field Effect Transistor (MOSFETs) and Insulated-Gate Bipolar Transistor (IGBTs), which are currently being used in traction inverters. The speaker also underlined that despite more efficiency of the inverters at higher frequencies, the devices' inherent switching losses rapidly outweigh those gains as the operating frequency increases, which limit to meet the higher operational requirements of next-generation EVs and offers the scope for the researchers to identify the newer devices for overcoming such limitations as there are lot of scope for improvements in power devices, novel power converter topologies, control units, e-motors etc. The speaker also discussed at a length applications of motors for EV applications, which include, BLDC hub motor/ Permanent Magnet Synchronous Motor (PMSM) for Two/Three Wheelers; PMSM Switched Reluctance Motor (SRM) for Passenger Cars; and Induction Motor and PMSM for Heavy Vehicles.

The next Panelist during the function, Dr C Nagamani, in her lecture pointed out various outcomes as a result of continued research in the field of power electronics technology, such as wind and solar energy conversion systems for isolated as well as grid connected power supplies, development of FACTS devices, HVDC transmission system, consumer electronics, usage of new technologies for battery charging, super capacitors, fuel-cell technologies for enhancing the deployment of EVs, and GaN devices for high voltage, high temperatures, and high frequency applications. She also emphasized on the need for the 'green' design concept for improved efficiencies in power electronic converters. Dr Nagamani felt that availability of skilled manpower

and testing facilities in the laboratories results adequate product-oriented training for the students.

The last Panelist during the session, Dr B Dastagiri Reddy, in his address pointed out that starting from the selection of semiconductor switches, there are many challenges to arrive at the appropriate power electronics technology application, i.e. design of gate drive & protection circuits, magnetics, thermal aspects, EMC compliance, reliability enhancement etc, which provides immense scope for new topologies and their control to meet the specific consumer requirements. The speaker felt that it is the time to look into the utilization rate of power converters available in a given system. Ensuring effective utilization of existing ones, the investment in manufacturing and marketing of the final product versions can be optimised, he added. Dr Dastagiri also described his experience in developing the charging infrastructure for electric vehicle while he was with ABB GISL, Chennai and concluded by mentioning that a simple rectifier can effectively charge the electric vehicle.



Dr B Dastagiri Reddy

Moderator during the session, Prof (Dr) G Narayanan in his briefing, mentioned that the application of power electronics expanded its scope due to the advancement in power semiconductor devices and digital control techniques over the last few decades. Prof Narayanan outlined the application of power electronics, ranges from power supplies to motion control, multi-megawatt industrial drives, electric power transmission / distribution, distributed generation, energy storage, factory automation, transportation, e-mobility and electric traction and emerging needs in commercial / residential areas. Power Electronics has also extended its role in the 21st century renewable energy sources, particularly the wind and solar energy electric conversion systems, not only for replacing conventional sources but also to substantially reduce the environmental pollution, he added. He further mentioned that the present-day power electronics technology design offers compact as well as very highly reliable units with enormous control features. Dr Narayanan mentioned that the aim of this webinar to provide a forum for open-house discussion, wherein the experts / panelist can share their experience in devising various power electronic circuits, offer their suggestions for further enhancing the efficacy of their working and summarize the road-map for promoting and widening the utility of this technology has been fulfilled. Further, based on the deliberations, Dr. Narayanan summarized / recommended the following:

Institutions should secure sponsored projects of current practical relevance from various organizations offering suitable funding, through appropriate initial planning and preparation, so that research could be continued along with teaching and positive outcomes could also be informed to students. The effectiveness of the training and internship undertaken by the students, in product-oriented industries and research laboratories, during their vacation periods, could be assessed by a formatted procedure; The laboratory courses and projects should not only be given more importance in terms of content but also in the overall evaluation and award of marks/grade points, so that students are encouraged to evince more interest, instead of treating them as mere supplement to theoretical courses; Students should become conversant with the development of high frequency devices aiming at compactness and corresponding research in magnetic materials capable of handling this frequency level, so that they can go ahead making use of them in designs; A consortium could be formed through which adequate consumable components and sample of newer devices are being introduced, to enable the faculty and students to make use of them in their innovative project ventures.

The session concluded with vote of thanks delivered by Mr A Anand, Honorary Secretary, Tiruchirappalli Local Centre, IEI.

News-in-Brief

The following is a brief account of Technical Activities organised by various Centres and Fora of the Institution.

STATE CENTRES

Andhra Pradesh

Organised 'Er Yarlagadda Sreeramulu 17th Endowment Lecture' on 23 November, 2020. The Chief Guest and Speaker of the day, Ms Mahima Datla, Managing Director, Vaccines and Branded Formulations, Biological E Limited delivered lecture on the topic through virtual platform.

Gujarat

Organised Webinar in association with Water Management Forum, IEI and Gokul Global University, Sidhpur for awareness of water conservation on 10 October, 2020 in the august presence of Prof (Dr) Ing Anupam Kumar Singh, Director, Indus Institute of Technology and Engineering, IITE, INDUS University, Ahmedabad, Dr Vedvyas J Dwivedi, Vice Chancellor/Provost, Gokul Global University, Sidhpur and Mr M P Raval, Former Chairman, BOG, WMF, IEI and Special Secretary (S), Water Resources Department, Government of Gujarat.

Jammu & Kashmir

Organised Webinar on 16 January, 2021, jointly with National Institute of Disaster Management and Jammu & Kashmir Fire and Emergency Services, State Disaster Response Fund (SDRF), Divisional Administration Kashmir and State Emergency Operation Centre on the topic 'Fire Safety Measures in Winter'. The webinar was inaugurated by Dr B Srinivas, Director General, Fire & Emergency Services and Commandant General CD, HG and SDRF. Divisional Commissioner, Kashmir, Mr Pandurang K Pole was present and spoke during the function. Panellists during the session, Mr R C Sharma, Former Director, Delhi Fire Service, Mr Ravi Kumar Panditta, Commandant 7th Bn, NDRF from Bathinda Punjab, and Mr Bashir Ahmed Shah, Joint Director, F&ES, Kashmir shared their views and expertise. Mr Amir Ali, Chairman, Jammu & Kashmir State Centre and Council Member, IEI also delivered lecture on the topic. The programme was coordinated by Ms M Auquib Sultana Waheed Deva, Honorary Secretary, Jammu & Kashmir State Centre.

Organised Disaster Preparedness Training on in collaboration with Kashmir Welfare Trust, Nigeen Tourist Traders Association, Civil Defence, Srinagar and J & K State Emergency Operation Centre organised Community Disaster Preparedness Training on 19 January 2021.

Jharkhand

Organized webinar on 27 June 2020 on the topic 'City Gas Distribution'. On this occasion, Mr K K Mishra, Senior General Manager, CGD Projects, MECON Limited, Ranchi and Mr Shubham Kumar, APE, CGD Projects, MECON Limited, Ranchi delivered lecture on the topic.

Gujarat

Gujarat State Centre, IEI jointly with Water Management Forum and Gokul Global University, Sidhpur organised webinar on 'Water Conservation – A Necessity of the Present to Secure the Future' on 20 October, 2020. Chief Guest Mr M P Raval, Past Chairman, Water Management Forum & Special Secretary(S), Water Resources Department, Government of Gujarat addressed the gathering and presented detailed information & methods of Water Conservation. Keynote Speaker, Prof (Dr) Ing Anupam Kumar Singh, Director, Indus Institute of Technology and Engineering, IITE, INDUS University, Ahmedabad deliberated in detail on the theme.

Kerala

Organized Lecture Meeting through online platform on the topic 'E Waste Management School for the Homeless – An Ideal Concept' on 9 December,

2020. Dr Sudha Balagopalan, Professor & Dean – Academics, Vidya Academy of Science & Technology, Thrissur was the speaker on the theme.

Tripura

Observed Transport Day through online platform on 10 November 2020. Mr S K Nirmal, Additional Director General, Ministry of Road Transport and Highways (MoRTH) & Secretary General, Indian Roads Congress, New Delhi graced the function as Chief Guest. Mr Adelbert Susngi, RO (Engineering), MoRTH, N.E. Zone, Guwahati and Mr S Banik, Chief Engineer, PWD(NH), Government of Tripura, graced the occasion as Special Guests. Mr A K Khushwaha, Executive Director, National Highways & Infrastructure Development Corporation Limited (NHIDCL), Tripura delivered the Keynote lecture. Mr Tarun Malik, Asset Manager, ONGC Limited, Tripura also deliberated in this occasion.

Uttar Pradesh

Organised webinar on the topic 'Rural Entrepreneurship in Food Processing to increase Farmer's Income' on 28 December 2020. The Chief Guest & Keynote Speaker in the session, Dr R T Patil, Former Director, Central Institute of Post Harvest Engineering & Technology, ICAR, Ludhiana in his lecture discussed on food processing, Extrusion Expelling technology for natural oil, Osmotic Dehydration of citrus fruits, Cryogenic Grinding of spices, production of protein isolates from de-oiled meal of soybean and ground nut etc.

West Bengal

Organised lecture meeting on the topic 'Targets of Renewable Energy 2030 Wind – Solar – Bio Energy and CO₂ Reduction' through online platform on 8 December, 2020. Speaker, Prof (Dr) Jens Bo Holm Nielsen, Head of Centre for Bioenergy and Green Engineering, Head of Esbjerg Section of Department of Energy Technology, Aalborg University presented lecture on the topic.

LOCAL CENTRES

Ahmednagar

Observed World Telecommunication and Information Society Day on 17 May 2020 through releasing Video presentation.

Observed World Environment Day on 5 June 2020 on virtual platform. On the occasion Prof B R Patil released video presentation on 'Carbon Footprint and its Types'.

Aurangabad

Observed World Environment Day on 5 June 2020 through online platform in association with Chh. Shahu College of Engineering (CSMSS) Aurangabad. Prof Rajendrakumar Saraf, Chairman, Viraj Envirozing India Private Limited, Pune & Former Vice-Chairman, India Water work Association, Pune Centre was the Chief Guest of the session.

Observed 53rd Engineers' Day on 15 September, 2020 and organised a webinar on the occasion. Dr V S Sapal, Ex Vice-Chancellor, RSTM Nagpur University & Ex-Chairman, Task Force, Government of Maharashtra was the Chief Guest & speaker of the function and deliberated lecture on the topic 'National Education Policy 2020 : Initiatives, Implementation and Impact' under the theme of 'Engineers for Self-Reliant India'.

Bhilai

Organised Webinar on the topic 'Leadership and Excellence in Today's Covid 19 Pandemic Context' on 12 September, 2020. Dr Shiena Shekhar, Head of the Department & Professor, Mechanical Engineering Department, Bhilai Institute of Technology, Durg was the speaker during the session.

Organised Webinar on the topic 'National Building Code and Design of Fire Alarm System' on 26 September, 2020. Guest Speaker, Mr Amit Verma, Entrepreneur, Director, Elecsol, Raipur delivered lecture on the topic.

Organised Webinar on the topic 'Artificial Intelligence and its' Applications' on 10 October, 2020. Dr Vasundhara Mahajan, Associate Professor, Electrical Engineering Department, SVNIT Surat was the speaker during the session.

Chandrapur

Observed 53rd Engineers' Day on 15 September, 2020 and organised webinar on this occasion. Keynote Speaker, Dr Ajay Kumar Agrawal, Assistant Professor, Department of Mining Engineering, VNIT, Nagpur, Dr Z J Khan, Principal and Professor, Department of Electrical Engineering, Rajiv Gandhi College of Engineering, Research & Technology (RCERT), Chandrapur and Prof P K Singh, Associate Professor, Department of Mining Engineering, RCERT Chandrapur delivered lecture on the theme.

Coimbatore

Observed World Environment Day through online platform on 4 December, 2020. Chief Guest, Dr Madhu Ganesh, Visiting Professor, Department of Mechanical Engineering, PSG College of Technology, Coimbatore presented lecture on the topic 'Waste to Energy Overview and Opportunities for Research' and deliberated on different thermo chemical waste to energy conversion technologies. Mr A K Dhussa, Advisor, MNRE and Prof Dasappa, Centre for Sustaining Technologies, IISc Bangalore also addressed the audience.

Organised webinar in association with Department of Information Technology, PSG Polytechnic College, Coimbatore on 10 December 2020. Panelist during the session, Mr Senthilkumar N, Director, Brightspot Technology Solutions Private Limited, Coimbatore gave a lecture on the topic 'Digital Transformation and Future of Tech Jobs'. The session focused on industrial revolution, development in automation and IT etc.

Dhanbad

Organised technical lecture on the topic 'Unconventional Gas Resources: Present Status, Prospects and Scope in India' on 27 November, 2020 in association with CSIR-Central Institute of Mining and Fuel Research (CIMFR), Dhanbad. Dr V A Mendhe, Senior Principal Scientist, CSIR-CIMFR, Dhanbad delivered lecture on the topic.

Dharwad

Observed Royal Charter Day on 9 September 2020 through online platform. Dr Vadiraj V Katti, Principal, Karnatak Law Society's (KLS) Vishwanathrao Deshpande Institute of Technology (VDIT) Haliyal was the Chief Guest on the day.

Observed 53rd Engineers' Day on 15 September 2020 through online platform. Chief Guest, Dr Mrityunjaya Kappali, Professor, Department of Electrical and Electronics Engineering, SDM College of Engineering and Technology, Dharwad delivered lecture on the theme of the day.

Durgapur

Observed Royal Charter Day on 9 September 2020 through virtual mode. Prof (Dr) Kartik Chandra Ghanta, Chairman, Durgapur Local Centre and Council Member, IEI delivered the welcome address. Mr Manoj Kumar Biswal, Honorary Secretary, Durgapur Local Centre proposed the vote of thanks.

Hosur

Observed Royal Charter Day on 9 September, 2020 in association with Adhiyamaan College of Engineering, Hosur and organised webinar on the topic 'Embedded System Skill Development'. Mr Javed, Embedded System Engineer, Edgate Technologies Limited, Bengaluru was the Keynote speaker during the session.

Observed 53rd Engineers' Day on 15 September, 2020. Keynote speaker during the session, Ms Jothi Sekaran, Senior Project Manager, HP R&D, Bengaluru delivered lecture on the topic 'Software Qualification as a Career'.

Indore

Observed World Habitat Day on 2 December, 2020 through online platform. In this occasion, Mr Ashish Singhai, General Manager, Customer Technical Services, Central Zone, J K Cement, delivered lecture on the topic 'Sustainable Construction with Green Materials' on this occasion. The speaker highlighted different aspects and dimensions of sustainable construction, energy efficient construction, rain water harvesting, recycling waste at construction site etc.

Jabalpur

Organised Webinar on the topic 'Wireless Transmission of Power through Solar Power Satellite' on 8 November, 2020. Mr R R Tanwar, Council Member and Chairman, Centres' Co-ordination Committee, IEI was the Chief Guest and Mr P A R Bende, Former Managing Director, Madhya Pradesh Power Transmission Company Limited & Madhya Pradesh Power Generation Company Limited, Jabalpur, the Guest of Honour. Dr D C Chourasia, Former Honorary Secretary, Jabalpur Local Centre, IEI delivered the keynote address. Dr Shailja Shukla, Professor, Electrical Engineering Department, Government Engineering College, Jabalpur also delivered guest lecture on the topic.

Jamshedpur

Organised webinar on the topic 'Industrial Hydraulics' on 24 November, 2020. Mr P D Mundhra, CEO, Tayo Rolls Ltd, Jamshedpur delivered lecture in the topic.

Kanpur

Organised Lecture Meeting on virtual mode jointly with The Institution of Electronics and Telecommunication Engineers (IETE), Kanpur Centre, IEEE, Uttar Pradesh Section, Med Tech, Indian Institute of Technology, Kanpur and Incubation Hub. HBTU, Kanpur on the topic 'Entrepreneurship and Product Development in Pandemic times' through online platform on 6 December, 2020. Mr Vikram Singh Rana, Founder & CEO, McGeeks Mechatronics was the Guest Speaker on this occasion and discussed about entrepreneurship, start ups, market research etc. Prof Narendra Kumar Kohli, Chairman, IETE also delivered lecture in this occasion.

Kharagpur

Organised webinar on the topic 'Intelligent Asset Management and Physical Infrastructure' on 19 August, 2020. Eminent Panellists during the session were; Dr Anne Gibbs, Manager, Major Projects and Procurement at Victorian Government, Department of Education and Training, Greater Melbourne Area; Mr John Hardwick, Group Executive, Network Strategy of Networks NSW; Dr Gopinath Chattopadhyay, Senior Lecturer, Post Graduate Program Coordinator for Maintenance and Reliability Engineering, School of Engineering, Information Technology and Physical Sciences, Federation University, Australia, Prof Pradip Kumar Ray, Industrial & Systems Engineering, IIT Kharagpur and Prof Khanindra Pathak, Dean, Infrastructure, Professor, Mining Engineering Department, IIT Kharagpur and Chairman, Kharagpur Local Centre addressed the audience in this occasion.

Organised webinar on 11 September, 2020 on the topic 'Being Entrepreneurial – with a Focus on Industry Institution Linkage'. Keynote Speaker, Ms Uma Reddy, Managing Director, Hitech Magnetics & Electronics Private Limited presented lecture on the topic and mentioned the importance of interaction between start ups and academic institutions.

Madurai

Jointly with Tamil Nadu State Centre, IEI organized Lecture Meeting on the topic 'Air-Conditioning & Ventilation for Nuclear Facilities - Safety Features'

on 31 October 2020 through online mode. The speaker of the session, Mr E Mohanraj, Scientific Officer (E), Materials Chemistry & Metal Fuel Cycle Group, Indira Gandhi Centre for Atomic Research (IGCAR) Kalpakkam delivered lecture on the topic and covered the factors to be considered for air conditioning & ventilation, design features of nuclear ventilation system etc.

Muzaffarpur

Observed World Environment Day on 5 June, 2020. Dr Manendra Kumar, Director, Academic Staff College, Bihar University, Muzaffarpur graced the occasion as Chief Guest and addressed the audience. Dr Niraj Kumari, Darbhanga College of Engineering, Mr S K Choudhary and Dr Subha Sinha, MIT Muzaffarpur, Prof (Dr) Achintya, Principal, Darbhanga College of Engineering and Dr Anjani Kumar Srivastava also addressed the audience.

Organised Lecture Meeting through online platform on 13 December, 2020 on the topic 'Use of Artificial Intelligence for Flood Control'. Keynote Speaker, Prof (Dr) Nirmal Kumar, Bhagalpur College of Engineering delivered Lecture on the topic.

Nagpur

Observed Royal Charter Day on 9 September 2020 on virtual platform. Dr Madhav Kumthekar, Principal, Government College of Engineering, Nagpur delivered lecture on the topic 'Advancements in Science & Technology for Sustainable Development'.

Observed 53rd Engineers' Day on 15 September 2020 through online platform. Chief Guest during the function, Mr M P Chaudhari, CMD, (Manganese Ore India Limited) MOIL Limited, Nagpur delivered lecture on the theme. Dr Hemant Omkarrao Thakare, Council Member, IEI presided over the function.

Observed World Habitat Day on 3 November, 2020. Mr Mahesh Moroney, Deputy Chief Executive Officer, Nagpur Smart and Sustainable City Development Corporation was the Keynote speaker during the function.

Neyvelli

Observed World Environment Day on 5 June 2020 through online mode. Speaker Dr V Deepak Samuel, Scientist 'E, Ministry of Environment, Forest & Climate Change (MoEF&CC) & Project Lead in Charge, Conservation of Coastal and Marine Resources Division, National Centre for Sustainable Coastal Management, MoEF&CC, Government of India delivered lecture on the theme.

Observed 53rd Engineers' Day on 01 December 2020 through cloud mode. Mr A Ravindran, Executive Director (Thermal), NLC India Limited, delivered Lecture on the topic 'Engineers for Self-reliant India'.

Ranipet

Organised Industrial Visit to BHEL 5 MW Solar Power Plant, Ranipet.

Mr V S Suresh Kumar, Senior Deputy General Manager- EDC-AQCS & Embedded Systems, BHEL, Ranipet delivered Lecture on the topic 'Air Quality Monitoring and Control Systems on 23 November, 2020. The speaker discussed at a length the sources and severity of pollution, Government regulations on air quality, various initiatives to reduce global green house gas emission, etc.

Rourkela

Organised Technical Lecture on 27 December 2020 both in online and offline mode on the topic 'Security in IoT: Issues, Challenges and Solutions'. Speaker, Dr Ramesh Kumar Mohapatra, Department of Computer Science and Engineering, National Institute of Technology, Rourkela presented lecture on the topic.

Saurashtra

Organized workshop through virtual mode on the topic 'Leveraging of Cloud Based Technology in CAD' on 3 December, 2020. The speaker in the occasion, Mr Rajesh Yadav, Education Engagement Specialist, Autodesk India Private Limited discussed about applications of cloud based technology, different CAD/CAM software etc.

Sunabeda

Observed World Standards Day on 7 October, 2020. Mr Arabinda Swamy, Honorary Secretary, Sunabeda Local Centre delivered lecture on the theme.

Observed World Habitat Day on 5 October 2020 and organised a Lecture on the theme. Mr N C Behera, AGM (Planning), Hindustan Aeronautics Limited, Koraput and Chairman, Sunabeda Local Centre delivered Lecture in this occasion.

Trichur

Organised National Webinar during 7-11 December, 2020 in association with Professional Trainers Club, Thrissur and ATMA Foundation, Thrissur. Mr S M Vijayanand, IAS, Former Chief Secretary, Government of Kerala, inaugurated the webinar and delivered lecture. Other Resource persons on the occasion were Dr Murali Thummarukudi, Operations Manager, UNEP, Geneva; Mrs Smitha Keeran Warriar, Senior Campus Councillor, Christ University, Bangalore and Mr M Keshav, Corporate Trainer and Founder, Mantra, Chennai.

Tiruchirappalli

Organised Technical Lecture jointly with Computer Society of India, Tiruchirappalli Chapter, The Indian Institute of Welding, Tiruchirappalli Branch, Indian Welding Society, Southern Zone, Indian Institute of Metals, Tiruchirappalli Chapter on 9 December 2020 through virtual mode. Dr Georgion Tsaramiris, Department of Computer & Information Science, Faculty of Computer Information System, Higher College of Technology, King Abdullah University, Abu Dhabi, United Arab Emirates delivered lecture on the topic 'Augmentation Reality & Virtual Reality'.

Organised Technical Lecture jointly with Tamil Nadu State Centre, IEI, Computer Society of India, Tiruchirappalli Chapter, The Indian Institute of Welding, Tiruchirappalli Branch, Indian Welding Society, Southern Zone, Indian Institute of Metals, Tiruchirappalli Chapter on 22 December 2020 through virtual mode. Dr Pranjal Kumar Phukan, Global General Secretary, World Mathematics Association & Advisor to Japan Education & Skill Development Council delivered Lecture on the topic 'Smart Supply Chain using IoT'.

In association with Tamil Nadu State Centre, IEI organised Technical Lecture on the topic 'Bipedal Robot Locomotion – An Overview' through online mode on 29 December, 2020. Dr A P Sudheer, Mechanical Engineering Department, NIT Calicut was the speaker during the session.

Tirunelveli

Observed World Standards Day on 28 October, 2020 in virtual mode. Dr R Velayutham, Honorary Secretary, Tirunelveli Local Centre and Principal, Einstein College of Engineering, Tirunelveli was the resource person during the function.

Organised Technical Seminar on 21 December, 2020 through online platform on the topic 'Recent Advancements in the field of Prosthesis'. Prof. P S R Senthil Maharaj, Department of Mechanical Engineering, AAA College of Engineering and Technology, Sivakasi acted as resource person and delivered Lecture on the topic.

Organised technical discussion on the topic 'Demystifying Industry Expectation from Engineers' on 28 December, 2020. Resource person

during the function, Mr Balaji, CEO & Founder, Jilaba Software Solutions, Chennai, delivered lecture on the topic.

Organised webinar on the topic 'Achieve Your Dream Project Ideas' on 30 December 2020. Mr Rajendran Subramanian, Founder, Silicon Software Services was the resource person during the session and delivered the lecture.

Tiruvallur

In association with Mysore Local Centre, IEI conducted technical lecture on the topic 'Green Technologies Opportunities in India' on 26 November 2020 in virtual mode. Er Narendra Singh, President, IEI graced the function as Chief Guest with his virtual presence and delivered the Presidential Address. Speaker during the function, Mr D K Dhinesh Kumar, Honorary Secretary, Mysore Local Centre deliberated lecture on the topic and explained lots of points about the Renewable Energy & Energy Conservation for sustainable development in future and further explained green technology opportunities in future India.

In association with UrsaGO Solutions conducted lecture meeting on 'Monsoon Internship 2020-Ignite 2.0' through virtual mode on 22 November 2020. The Chief Guest during the function, Dr S Sankara Narayanan, General Manager, Tamil Nadu Energy Development Agency, delivered lecture on the topic 'Manufacturing and Opportunity in Renewable Energy Sector'.

FORA

National Design and Research Forum

Organized four-day training programme on 'Advanced Robodynamics' during 7-10 October, 2020. Chairman, BOG, NDRF, IEI, Dr M Annadurai delivered Lecture on the topic 'ISRO's Lander and Rover Autonomous Systems – Challenges'.

In association with Goa State Centre, IEI organized lecture programme on the topic 'Lessons Learnt and Challenges Faced during the Design and Development of Electronic Systems' on 12 December 2020. Dr Latha Christie, Scientist-G & Associate Director, Microwave Tube Research & Development Centre, DRDO, Ministry of Defence delivered lecture on the topic.

In association with Kanpur Local Centre, IEI inaugurated the 'NDRF Online Mini Project Scheme for Engineering Students' on 27 December 2020. Padmashri Dr Kota Harinarayana, Former Programme Director, Light Combat Aircraft was the Chief Guest of the programme.

Sustainable Development Forum

Sustainable Development Forum (SDF), IEI in association with ERDMP Academy Bhopal organized webinar on the theme 'Make Cities & Human Settlement – inclusive Safe Resilient & Sustainable' on 18 November 2020. Er Narendra Singh, President, IEI was the Chief Guest during the function. Mr Ashwani Kumar Saxena, Chairman, BOG-SDF, delivered welcome address and briefed about the theme. Mr R Srinivas, Town & Country Planner, Head,

Metropolitan & Union Territories Division, Ministry of Housing & Urban Affairs delivered Lecture on the topic 'Streamlining the Sustainable Cities & Communication – Indicator for Resilient Cities – An approach to SDG 11'. Dr Rakesh Dubey, CEO, ERDMP Academy was the Moderator on the session. Mr Suneel Grover, Chairman, BOG-NSDF delivered the concluding remarks. Mr A Rajasekaran, Director, BOG-SDF proposed the vote of thanks.

Sustainable Development Forum, IEI organized webinar on the theme 'SDG 5: To Achieve Gender Equality and Empower All' on 28 November 2020. Er Narendra Singh, President, IEI graced the function as Chief Guest. Mr Ashwani Kumar Saxena, Chairman, BOG-SDF delivered welcome address and briefed on the theme. Ms M A S W Deva, Honorary Secretary, Jammu & Kashmir State Centre, IEI delivered Lecture on the topic 'Gender Equality and Women Empowerment'. Prof (Dr) J Sumathi, Chairperson, Thanjavur Local Centre, IEI delivered Lecture on the topic 'SDG-5 in India and IEI'. Prof (Dr) Ms T Menakadevi, Chairperson, Hosur Local Centre, IEI delivered Lecture on the topic 'Women Empowerment & How to promote Gender Equality'. Prof (Dr) Shilpa Tripathi, Chairperson, Indore Local Centre, IEI delivered Lecture on the topic 'SDG5: Where India Stand in Gender Equality'. Mr Suneel Grover, Chairman, BOG NSDF delivered concluding remarks. Mr A Rajasekaran, Director, BOG-SDF proposed the vote of thanks.

Sustainable Development Forum, IEI in association with ERDMP Academy Bhopal organized webinar on 'SDG 9: Industry, Innovation & Infrastructure' on 3 December 2020. Er Narendra Singh, President, IEI graced the function as Chief Guest. Mr Ashwani Kumar Saxena, Chairman, BOG-SDF delivered welcome address and briefed about the theme. Dr Rakesh Dubey, CEO, ERDMP academy was the Keynote speaker. Mr A K Tiwari, Ex-Executive Director, IOCL delivered Lecture on the topic 'Cross-Country Pipelines – A vital infrastructure for sustainable development & Innovation'. Dr R K Sharma, Head, Sustainability India Glycols Limited delivered Lecture on the topic 'A Case Study on Sustainability with Invocation in Industry'. Mr Suneel Grover, Chairman, BOG-NSDF delivered the concluding remarks. Mr A Rajasekaran, Director, BOG-SDF proposed the vote of thanks.

Sustainable Development Forum (SDF), IEI in association with Jharkhand State Centre, IEI organized a webinar on the topic 'Role of Roads in achieving SDG' on 23 December 2020. Er Narendra Singh, President, IEI graced the function as Chief Guest and delivered Presidential Address. Mr Ashwani Kumar Saxena, Chairman, BOG-SDF delivered opening remarks and briefed on the theme. Dr H R P Yadav, Secretary & Director General, IEI was the Moderator during the function. In this occasion, Prof P K Sikdar, President, ICT Private Limited delivered Lecture on the topic 'Road Safety & Sustainable Development Goals' and Dr Satish Chandra, Director, Central Road Research Institute, New Delhi delivered Lecture on the topic 'Sustainable Materials for Development Goals'. Mr Suneel Grover, Chairman, BOG-NSDF delivered the concluding remarks. Mr A Rajasekaran, Director, BOG-SDF was also present during the function. Mr Deepesh Kumar Srivastava, Executive (Technical), HQ Cell, New Delhi proposed the vote of thanks.

E-Bike Design, Retrofitting and EV Charging

Contd. from page 3

Motors, PE Controllers, PE Converters were explained too in his deliberation along with the forthcoming challenges in the research and development of electric vehicles. Dr Debnath further deliberated on the role of new start ups to develop and commercialize the electric vehicles. He also discussed various design aspects of motor control units, chargers, conventional boost



Dr C Balaji

PFC, DC-DC Converters, hardware prototype for interleaved boost PFC and proposed strategies to use electric vehicles for public transport. The speaker concluded with highlighting the commercial charging stations and the interesting research work being conducted in E-bike worldwide and associated challenges faced. Moderator during the session, Dr C Balaji briefed on the proceedings of the session. Dr (Ms) S Dhanalakshmi, Honorary Secretary, Kattankulathur Local Centre proposed the vote of thanks.



MOU Signed between IEI and LCI-Qatar

A Memorandum of Understanding signed between The Institution of Engineers (India) Qatar Chapter and Lean Construction Institute- Qatar on 11th January, 2021 at Hotel Radisson Blu.

The MOU signed ceremony was conducted in Hybrid mode owing to the unusual circumstances and prevailing restrictions due to COVID-19 pandemic.

Dignitaries and office bearers joined in person at the venue, with over 100 members and engineers from Qatar, India, and other parts of the world joining in via zoom online.

Er Abdul Sathar, Chairman of IEI Qatar Chapter welcomed the delegates with an inspiring address, calling upon all members of the engineering profession as well as the wider community to utilize their skills, knowledge, and efforts for the welfare of society and humankind.

Dr Abdulla Al Sayed, President, Lean Construction Institute-Qatar, highlighted the efforts of IEI Qatar Chapter as a high performing Chapter of the organization, and also complimented the Government of Qatar for supporting the cause of the engineering profession in a big way. He highlighted the importance for engineers to be aware of and prepared for the ever-changing engineering paradigms.

The MOU was signed by Dr. Abdulla Al Sayed, LCI-Qatar and Er. Abdul Sathar, IEI as well.

In this historical tie-up the ceremony was addressed by Ms Angelina Premalatha, Consular of Indian Embassy and lauded the contribution of IEI Qatar Chapter to the Indian community resident in Qatar, including its engineers, towards strengthening and furthering the friendly relations between Qatar and India through their work. She commended the dedicated efforts of IEI Qatar chapter in bringing together the engineering community through excellent events and meaningful themes despite the challenges posed by COVID-19 throughout this difficult year.

The Event was felicitated by Mr Nishad Azeem, CEO, Coastal Qatar, Mr. Abdulla Mohamed Al-Baker, Vice President, LCI Qatar, Dr Luai EL Sabek, General Secretary, LCI Qatar, Er Ahmed Jassim Al Jolo, Former President, Qatar Society of Engineers, Eng. Yaqoub Y. Al Mulla, Mr. Abdulla Al Hajri, Mr. Azmy Ameer, Executive Director, OUC | Liverpool John Moores University, Mr. Sunil Kulkarni, Qatari Diar.

They highlighted the importance for engineers to be aware of and prepared for the ever-changing engineering paradigms. And they all congratulated LCI Qatar and IEI for their mutual agreement and cooperation for the benefit of Engineers community in Qatar. Dr. Abdul Hameed Pathiyil, Secretary of IEI Qatar chapter compered and delivered the vote of thanks.



Energy Conservation Day

Contd. from page 5

Tiruchirappalli observed Energy Conservation Day on 14 December 2020 through virtual mode. Dr R Harikumar, Director-in-Charge, Energy Management Centre, Kerala delivered Lecture on the theme 'Energy Conservation and Energy Efficiency'. Earlier, Prof (Dr) Natarajan Kumaresan, Chairman, Tiruchirappalli Local Centre and Council Member, IEI delivered the welcome address. Dr S Dharmalingam, Past Chairman of the Centre and Convener of the program briefed about the importance of the day. Mr A Anand, Honorary Secretary, Tiruchirappalli Local Centre introduced the speaker.

Tirunelveli

Tirunelveli Local Centre observed Energy Conservation Day on 18 December, 2020. Mr C Rajasekar, Assistant Executive Engineer, Rural Tirunelveli, Tamil Nadu Generation and Distribution Corporation Limited (TANGEDCO) and Ms. A Narvin Aashika, Assistant Engineer, Rural North, TANGEDCO, Tirunelveli, deliberated Lecture on the topic 'Making India Energy Efficient'. Earlier, Dr R Velayutham, Honorary Secretary, Tirunelveli Local Centre delivered the welcome address. Mr M S Ulganathan, Committee Member, Tirunelveli Local Centre proposed the vote of thanks.

Trichur

Trichur Local Centre, IEI observed Energy Conservation Day on 14 December, 2020. Dr P Shaji James, Professor, Farm Power, Machinery and Energy, Kerala Agricultural University, Thrissur was the speaker in the function.

Tuticorin

Tuticorin Local Centre, IEI observed Energy Conservation Day on 14 December 2020. Mr I Emerson Irudayaraj, Director, Sacred Heart Institute of Engineering was the Chief Guest of the event. Mr I Maria Michael Raj, Past Chairman, Tuticorin Local Centre delivered welcome address. Mr A Ravichandran, Honorary Secretary, Tuticorin Local Centre proposed the vote of thanks.

Upper Assam

Upper Assam Local Centre observed Energy Conservation Day on 14 December 2020 through online mode. On the occasion four technical papers were presented by Mr Shekhar Ranjan Sonowal, CE (FE), Oil India Limited on the topic 'Initiative undertaken by FE Department of Oil India Limited on Energy Conservation'; Mr Kunal Anand, Superintendent Engineer, Logistics, Oil India Limited on the topic 'Energy Conservation in Automobiles'; Mr Rakesh Kalita, Deputy Manager(Excavation) NEC, Coal India Limited on 'Emerging Technologies for Power Generation and Power Conservation' and Mr P K Purakayastha, Deputy General Manager (TA), Oil India Limited on the topic 'Oil and Gas from Waste'. Mr Dibakar Bhattacharjee, Ex-Deputy General Manager, Indian Oil Corporation Limited was the Moderator during the session. Mr Sasanka Pratim Deka, Chairman, Upper Assam Local Centre delivered the welcome address. Mr Debajeet Sarma, Honorary Secretary, Upper Assam Local Centre proposed the vote of thanks.



The Institution of Engineers (India)

A Century of Service to the Nation

celebrates

World Engineering Day for Sustainable Development



Theme

**Engineering for A Healthy Planet: Celebrating the UNESCO
Engineering Report**

Superannuation from IEI



Ms R Gayathri, an employee of The Institution of Engineers (India), Karnataka State Centre will be superannuated from the services of IEI on 28 February, 2021. She joined the Institution on May 23, 1989 and rendered her services to the Institution for a period of 32 years.

IEI wishes Ms R Gayathri and her family a happy and healthy life in future.

Important Notice

It has been observed that there are many Corporate Members of IEI whose mobile number/email id is not registered with IEI till date. Non availability of the mobile numbers and email ids precludes us not only from providing our full range of services but also from participation in the Online Election Process.

The Corporate Members whose mobile number/email id is not registered with IEI are therefore requested to kindly communicate their mobile no. and email id along with membership number to datamemb@ieindia.org by 10 March 2021.

For any further clarification, one may feel free to speak to us at (033)40106248/ 246/ 269/ 299.

Dr H R P Yadav
Secretary and Director General

IEI NEWS

ISSN 0971-3352

Owner : The Institution of Engineers (India), 8 Gokhale Road, Kolkata 700 020
Printer : Dr H R P Yadav, Secretary & Director General
Publisher : Dr H R P Yadav, Secretary & Director General
Published from : 8 Gokhale Road, Kolkata 700 020
Printed from : M/s Sailee Press Pvt. Ltd.
4A Manicktala Main Road, Kolkata 700054
Editor : Dr H R P Yadav, Secretary & Director General

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