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A CENTURY OF SERVICE TO THE NATION

Volume 28

Number 5

IEI Technical Webinar under the aegis of Textile Engineering Division Board

Recent Trends in Textile Manufacturing

West Bengal State Centre of The Institution organized Technical Webinar on the topic, **Recent Trends in Textile Manufacturing** under the aegis of Textile Engineering Division Board (TXDB), IEI on 30 June, 2021. Eminent Panelists on the occasion, Prof Md Mahbubul Haque, Professor & Former Head, Department of Textile Engineering, Daffodil International University, Dhaka, Bangladesh; Dr Anjan Kumar Mukhopadhyay, Former Director, Bombay



Prof Md Mahbubul
Haque

Textile Research Association (BTRA), Mumbai; and Prof Kalesh Nath Chatterjee, Former Professor & Head, Department of Fashion & Apparel Engineering, The Technological Institute of Textile & Sciences (TIT&S), Bhiwani, Haryana, enlightened the audience with their thought-provoking deliberations. Prof Sadhan Chandra Ray, Former Professor & Head, Department of Jute and Fibre Technology, University of Calcutta, West Bengal graced the function as Session Moderator.

Mr Sandip Kumar Deb, Chairman, West Bengal State Centre and Council Member, IEI extended the warm welcome to the Panelists, Moderator, dignitaries, guests and attendees and highlighted different activities organized by West Bengal State Centre, IEI. Moderator of the session, Prof Sadhan Chandra Ray, Former Professor & Head, Department of Jute &

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IEI Technical Webinar under the aegis of Electronics and
Telecommunication Engineering Division Board

Design and Development of Microwave Biosensors

Bathinda Local Centre, IEI organised Technical Webinar on the theme **Design and Development of Microwave Biosensors** on 9 July, 2021 under the aegis of Electronics and Telecommunication Engineering Division Board (ETDB), IEI. Panelists during the session were, Dr Pravin R Prajapati, Associate Professor, Department of Electronics and Communication Engineering, A D Patel Institute of Technology, New Vallabh Vidyanagar, Gujarat; and Dr Brijesh Iyer, Associate Professor, Department of Electronics & Telecommunication Engineering, Dr Babasaheb Ambedkar Technological University, Lonere, Maharashtra. Ms Manpreet Kaur, Assistant Professor, Electronics and Communication Engineering Department, Yadavindra College of Engineering, Talwandi Sabo was the Moderator during the session. Prof (Dr) Jagtar Singh, Chairman Bathinda Local Centre and Council Member IEI welcomed the Panelists, Moderator, IEI dignitaries, and participants. Prof (Dr) T S Kamal, Chairman, Electronics and Telecommunication Engineering Division Board and Council Member, IEI deliberated on the theme. Prof (Dr) Swapan Bhaumik, Chairman, Committee for Advancement of Technology



Dr Pravin R Prajapati

Chairman Bathinda Local Centre and Council Member IEI welcomed the Panelists, Moderator, IEI dignitaries, and participants. Prof (Dr) T S Kamal, Chairman, Electronics and Telecommunication Engineering Division Board and Council Member, IEI deliberated on the theme. Prof (Dr) Swapan Bhaumik, Chairman, Committee for Advancement of Technology

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From the President's Desk.....



In order to ensure that the manufacturing organizations deliver products in shortest possible time and at a competitive cost, an intelligent, modular, co-operative production system is a necessity. Smart Factory principally focuses on optimization and automation of industrial resources through application of Artificial Intelligence, Robotics, Internet of Things, Cyber physical Systems, which enables communication between two entities, human to machine or machine to machine. In the advent of fourth industrial revolution, when intelligent and smart manufacturing have taken the pivotal role, the concept of Smart Factory with data driven decision making has resulted significant impact, in terms of flexibility and cost effectiveness. Thus Smart Factory represents the transformation from traditional automation to a high-end automation system, characterized by data-driven decision making process to cope with increasing business demands. Smart Factory is flexible in nature, able to optimize its own performance, self-adapt in real time, operate on-premise as well as able to connect to global network. Smart Factory, is also able to reduce costs, material waste etc and thus reinforce Lean and Agile entities, which results in delivering precise output in shortest lead time to meet the customers requirement for value added products and thus move forward the business as a distinct entity with more granular and up-to-date information.

Further, in order to meet the varying demand and operational conditions in smart factories, a fully integrated and collaborative manufacturing system has been introduced, known as smart manufacturing, that enable data driven smart operations with deep expertise in manufacturing analytics. Smart manufacturing aims to convert data acquired across the entire product lifecycle into manufacturing intelligence in order to yield positive impacts on all manufacturing aspects. In this system, Industrial Internet of Things (IIoT) is operational with full swing with enhanced connectivity, generation of data and

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Antenna Technology for 5G Applications

Bathinda Local Centre, IEI organised Technical Webinar on the theme **Antenna Technology for 5G Applications** under the aegis of Electronics and Telecommunication Engineering Division Board (ETDB), IEI on 7 July, 2021. Dr Sonia Goyal, Assistant Professor, Electronics and Communication Engineering Department, University College of Engineering, Punjabi University, Patiala and Ms Manpreet Kaur, Assistant Professor, Electronics and Communication Engineering Department, Yadavindra College of Engineering, Talwandi Sabo graced the function as Panelists. Ms Sunita Rani, Assistant Professor, Electronics and Communication Engineering Department, Yadavindra College of Engineering, Talwandi Sabo was the Moderator during the session. Er Narendra Singh, President, IEI graced the function with his august presence and addressed the audience. Prof (Dr) T S Kamal, Chairman, Electronics and Telecommunication Engineering Division Board (ETDB), IEI was present on this occasion and briefed the audience about the theme. Prof (Dr) Jagtar Singh, Chairman, Bathinda Local Centre, and Council Member IEI welcomed the Panelists, Moderator, IEI dignitaries, and participants.

Dr Sonia Goyal, Assistant Professor, Electronics and Communication Engineering Department, University College of Engineering, Punjabi University, Patiala in her address, discussed the Multiple Input Multiple Output (MIMO) technology for 5G communication, on the functional aspects of the fifth-generation network, and explained the advantage of 5G technology. Dr Goyal highlighted the significant benefits of the fifth-generation network by means of data speed, higher data rate, low latency, increased throughput, provision of support to the Internet of Things (IoT) enabled devices and smart vehicles and also described the challenges of 5G technology including Frequency bands, Coverage, Cost, Device Support, Cyber Security, and Privacy. She further explained the sixth-generation network and its feature like transmission speed, smart antenna, large memory in cell phone and huge optical network, higher frequency in the THz band. Dr. Goyal described the feature comparison of 4G, 5G, and 6G network and introduced about



Dr Sonia Goyal

the Sub-Millimeter or Terahertz Band. The speaker also discussed the Full Duplex Technology and difference between MIMO and Massive MIMO.

Ms Manpreet Kaur, Assistant Professor, Electronics and Communication Engineering Department, Yadavindra College of Engineering, Talwandi Sabo in her address defined antenna as a metallic device, which is able to radiate or receive radio waves. Ms Kaur, while explaining the working principle of Microstrip Patch Antenna (MPA), mentioned that the concept of MPA was first introduced by G A Deschamps, in the year 1953. However practical antennas were developed by Munson and Howell in the 1970s. She also explained the features of MPA, namely low cost, lightweight, simple structure, and easy installation, which facilitate its application in mobile phones and cellular systems. Due to its conformability to the host surfaces, these antennas are being used in missiles, aircraft, and radar systems, she added.



Ms Manpreet Kaur

She also explained the working principle and application domain of Fractal Antenna. She explained that today's wireless, satellite communication, and advanced military systems require antennas with higher performance, higher gain, wider bandwidth, multiband support, low cost, and small design dimension, and to fulfill these requirements, researchers are exploring more advanced antenna designs. One such field of advanced antenna design is



Ms Sunita Rani

Fractal Antennas, she mentioned. She explained the advantages and disadvantages of Fractal Antennas, different types of fractal geometries, etc. The speaker further conceptualized the audience about Hybrid Fractal Antenna (HFA), 5G antenna, Ultra-Wideband Antennas and its significance.

Moderator of the session, Ms Sunita Rani, Assistant Professor, Electronics and Communication Engineering Department, Yadavindra College of Engineering, Talwandi Sabo summed up the proceedings of deliberation.

The Session was concluded with the vote of thanks, proposed by Mr J S Deol, Honorary Secretary, Bathinda Local Centre.



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Recent Trends in Textile Manufacturing

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Fibre Technology, University of Calcutta, Kolkata briefed the august audience about the theme of the webinar. Prof Ray introduced the Panelists of the session, which was followed by the valuable and meaningful deliberations by the Panelists.

Prof Md Mahbubul Haque, Professor & Former Head, Department of Textile Engineering, Daffodil International University, Dhaka, Bangladesh, elaborated the scenario of growth in textile industries in post-independence Bangladesh including the scale of export of textile products, namely home textiles and garments. Prof Haque elucidated that although woven products were in dominating position earlier, surprisingly, in the recent past, knitted products have become more popular than woven products in garment manufacturing as well as in earning foreign exchange. He also discussed in detail the different process combinations of manufacturing denim fabrics and products with their relative merits and demerits.



Prof Kalesh Nath Chatterjee

Prof Kalesh Nath Chatterjee, Former Professor & Head, Department of Fashion & Apparel Engineering, The Technological Institute of Textile & Sciences (TIT&S), Bhiwani, Haryana, started his lecture with the introduction of garment manufacturing in the centralised sector as well as the establishment of related academic institutes in India. He discussed the new techniques of producing 2-D and 3-D garments including virtual designing in order to achieve accuracy in design in a shorter time. Prof Chatterjee also elaborated the latest concept of six stages design thinking process for minimizing waste as well as utilization of waste materials. The magical application of Robotics in garments was not only discussed but also shown with an attractive audio-visual presentation by Prof Chatterjee.

Dr Anjan Kumar Mukhopadhyay, Former Director, Bombay Textile Research Association (BTRA), Mumbai, in his address scientifically introduced the



Dr Anjan Kumar Mukhopadhyay

principles of nano-particles and Phase Change Material (PCM) formation and their application in various finishing treatments of textile materials for improving the functional properties of both apparel and technical textiles. Dr Mukhopadhyay discussed the UV protection of textile material including the determination of UV protection factor. In brief, he touched the plasma technology, nano-composites, and production of nanofibres. He finished with the application of nano-technology in COVID-19 mask preparation and tissue engineering.



Prof Sadhan Chandra Ray

After the presentations by all the three esteemed Panelists, Prof Sadhan Chandra Ray, Moderator of the event placed the summary of the presentations. Prof Ray mentioned that the presentations given by the Panelists in the respective fields of their expertise are research-based having huge in-depth knowledge and basic information, which definitely very much useful for the participants. The Panelists dealt with the topics which have been playing important and critical roles in the development and manufacturing of textile products and hence intensive researches are being carried out in pioneering Research and Academic Institutes all over the country, he added.

Prof Nitosh Kumar Brahma, Honorary Secretary, West Bengal State Centre, IEI proposed the vote of thanks.

Design and Development of Microwave Biosensors

Contd. from page 1

and Engineering (CATE) IEI was present on this occasion and addressed the virtual audience.

Dr Pravin R Prajapati, Associate Professor, Department of Electronics and Communication Engineering, A D Patel Institute of Technology, New Vallabh Vidyanagar, Gujarat in his lecture discussed on design and development of microwave biosensors and stated that the biosensor is a device that is used to detect and quantify biological targets based on biochemical reaction or intrinsic properties of the biological target material. Dr Prajapati stated that biological targets refer to biomolecules like proteins, DNA, biomarkers, pathogenic organisms, hormones, or other medically relevant analytes like glucose, medical parameters like pulse, heart-beat, etc. He further explained the functional principle of microwave biosensors, which is a detection device that converts biological responses to measurable signals. He also explained the function of water in microwave biosensor, which is the principal constituent of biological materials during interaction of electromagnetic waves in the microwave frequency range. He also discussed about different methods for detection of breast cancer and stated that during the detection of the concentration of biomarkers,



Dr Brijesh Iyer

pathogens, concentration or type of cell, microwave (GHz range) dielectric sensing is an extremely attractive alternative. He further discussed about the function of compact Dielectric Resonator Antenna (DRA) which is compact stair-shaped sensor, designed and fabricated for microwave breast cancer detection.

Dr Brijesh Iyer, Associate Professor, Department of Electronics & Telecommunication Engineering, Dr Babasaheb Ambedkar Technological University, Lonere, Maharashtra in his lecture discussed at a length about the working principle, applications, benefits, advantages and disadvantages of Radio Frequency (RF) sensors, used in television broadcasting, radar system, computer, and mobile platforms, disaster management, healthcare applications, social sectors, national security, etc. Since the 1970s, Radio Frequency systems are used for measuring and monitoring of vital health parameters like blood pressure, body temperature, respiration rate, pulse rate, etc, he added.



Ms Manpreet Kaur

Moderator during the session, Ms Manpreet Kaur, Assistant Professor, Electronics and Communication Engineering Department, Yadavindra College of Engineering, Talwandi Sabo summed up the Proceedings for deliberation. Mr J S Deol, Honorary Secretary, Bathinda Local Centre concluded the webinar and proposed the vote of thanks.

E-Waste: A Challenge for Sustainable Development

Faridabad Local Centre, IEI organized Technical Webinar on the theme **E-Waste: A Challenge for Sustainable Development** on 3 July, 2021 under the aegis of Electronics and Telecommunication Engineering Division Board (ETDB), IEI. Eminent Panelists on the occasion, Dr Anita Khosla, Professor, Department of Electrical & Electronics Engineering, Faculty of Engineering & Technology, Manav Rachna International Institute of Research and Studies (MRIIRS), Faridabad; Mr K K Mahajan, Ex Senior Executive, Tata Chemicals Limited, Gujarat, DCW Limited, Gujarat, and SIEL Chemical Complex, Rajpura, Punjab and Delhi & Approved Faculty for Energy Conservation & Energy Efficiency; Dr Manu Sharma, Visiting Research Fellow, Guildhall School of Business and Law, London Metropolitan University, London, United Kingdom; and Mr Sandeep Ganguly, Executive Director, EarthRon Management Services Private Limited, New Delhi graced the event with their extremely enlightening and informative deliberations. Dr Pradeep Kumar, Professor, Department of Electronics Engineering, J C Bose University of Science & Technology, YMCA, Faridabad graced the function as Session Moderator.

Mr Sandeep Handa, Chairman, Faridabad Local Centre, IEI in his opening address stated that e-waste has been identified as the fastest-growing waste stream in the world, when rapid socio-economic development and technological advancements are the main driver of this trend. Mr Handa opined that the hazardous chemical components of e-waste have potential adverse impacts on ecosystems and human health if not managed properly, which represents an imminent challenge to achieve Sustainable Development Goals (SDGs). Although technologically developed countries are the main source of e-waste generation, the generated volume has also been increasing in developing countries, Mr Handa added. Prof (Dr) T S Kamal, Chairman, Electronics and Telecommunication Engineering Division Board and Council Member, IEI in his address stated that with restrictions in place, IEI Technical Webinars are being conducted on topical issues, which provide a virtual knowledge-sharing platform for the Corporate members and many other professionals attached to the trade. Er Narendra Singh, President, IEI, in his address, welcomed the distinguished Panelists, Moderators, IEI dignitaries and the august audience and stated that the effort of the Institution has always been to keep its members informed and abreast about the latest engineering and technological developments occurring in the national and international arena through the conduct of technical events involving eminent professionals and practitioners.



Dr Anita Khosla

Dr Anita Khosla, in her address, stated that the main cause of the rapid generation of e-waste is the replacement of electrical and electronic equipment (EEE) around a shorter time span in industrialized countries, due to technological obsolescence and decreasing life span of EEE. Dr Khosla further mentioned the major components of e-waste management as e-waste collection, sorting and transportation, and e-waste recycling. In Industries,

e-waste management is obtained by waste minimization techniques, which involves inventory management, product-process modification, reduction in product volume, recovery, and reuse, she mentioned. Dr Khosla further opined the ways to minimize e-waste by re-evaluation of electronics, extend the life of electronics, procurement of environmentally friendly electronics, donation of used electronics and reuse large electronics.

Mr K K Mahajan, in his address, stated that the aim of e-waste management is and should be to promote e-waste minimization, which can be obtained by recycling, reuse, refuse, recover, reduce and refurbish. Mr Mahajan, in his address defined waste as an unavoidable by-product for growth and development and mentioned that the development of sound policies and legal instruments can only be achieved with better e-waste data. Understanding the quantities and flows of e-waste provides a basis for monitoring and control of the



Mr K K Mahajan

same, that ultimately prevent illegal transportation, dumping and improper treatment of e-waste, he added.

Dr Manu Sharma, deliberated on the topic 'E-Waste Management: Challenges



Dr Manu Sharma

and Opportunities' and opined that e-waste is not a waste, it is a vital resource, which is about to change the direction of the prevailing linear 'take, make and dispose' model as the first step towards the circular economy we want to see in the future. However, as opined by Dr Sharma, this requires bold solutions, expertise, incentives, and policies. She further stated that the entrepreneurs, investors, academia, business and labour leaders, and lawmakers should

come forward to make the circular economy work. Innovative business and reverse supply chain models, circular designs, safety for e-waste collectors, and ways of formalizing and empowering informal e-waste workers are all part of the circular economy methodology, she added.

Mr Sandeep Ganguly presented on the topic 'E-Waste: Creating a Sustainable Model of Development' and stated that rapid obsolescence of equipment



Mr Sandeep Ganguly

due to innovations leading to generation of more e-waste. Mr Ganguly also mentioned that India approximately generate two million Tons of e-waste annually and recycles less than 2% through formal channels, whereas global e-waste is estimated to be more than 50 million Tons. India is ranked fifth in the top e-waste producing countries after the USA, China, Japan, and Germany, Mr Ganguly added. He further explained about the number of initiatives by the Government of India, which include Extended Production Responsibility (EPR), Role of State Pollution Control Board (SPCB) and Recycler Facilities.

Moderator of the session, Dr Pradeep Kumar, Professor, Department of Electronics Engineering, J C Bose University of Science & Technology, YMCA, Faridabad while summed up the Proceedings of deliberation, mentioned that the objective of the webinar is to demonstrate the present global e-waste scenarios; however, health hazards may prolong the achievement of sustainable development targets. He mentioned that the deliberation from different perspectives raises concerns about e-waste, identify information gaps and provides a basis for knowledge and awareness building and technological improvement to facilitate global long-term sustainable development.



Dr Pradeep Kumar

Mr Kuldip Raj Gupta, Honorary Secretary, Faridabad Local Centre, IEI concluded the session with a vote of thanks and expressed his gratitude to Panelists, Moderator, the dignitaries present on the occasion and the participants.



Maj Gen MJS Syali, VSM (Retd) has joined as Secretary & Director General of The Institution of Engineers (India).

Micro Manufacturing towards Digitization

Coimbatore Local Centre of the Institution organized IEI Technical Webinar on the theme **Micro Manufacturing towards Digitization** on 20 April, 2021 under the aegis of Mechanical Engineering Division Board (MCDB), IEI. On the occasion, Mr V Sudhakar, Assistant Technical Manager, Seco Tools India Private Limited, Coimbatore; Mr Sriram Nagarajan, Co-Founder, and Industrial Automation Engineer, RoboRAM, Nagercoil, Tamil Nadu; and Mr S Saravana Kumar, BusEx/OpEx Consultant & PM/AGILE/StartUps/Grads Coach -Trainer, Chennai graced the function as Panelists and enlightened the audience through different aspects of micro manufacturing and digitization. Dr S Balasubramanian, Associate Professor, Department of Mechanical Engineering, Kumaraguru College of Technology, Coimbatore and Mr M A Vinayagamoorthis, Assistant Professor, Department of Mechanical Engineering, Kumaraguru College of Technology, Coimbatore graced the occasion as the Moderators. Mr P R Natarajan, Chairman, Coimbatore Local Centre and Council Member, IEI delivered the welcome address and highlighted the modern trends in manufacturing through the interface within man, material and machine. Prof (Dr) R L Shrivastava, Member, Mechanical Engineering Division Board and Council Member, IEI, briefed the audience regarding the theme and deliberated on the applications of micro, nano, digital and additive manufacturing in the advent of fourth industrial revolution. Prof Shrivastava emphasized four principal factors to enhance organizational productivity, namely, Quality, Cost, Delivery and Disposables.



Mr V Sudhakar

Mr V Sudhakar, Assistant Technical Manager, Seco Tools India Private Limited, Coimbatore in his address explained digitization as the transition from the industrial age, characterized by transformation of analogue technologies to digital business innovation by means of knowledge and creativity. He further explained the application of digitization in automotive sector, application of micro-manufacturing for production of miniaturized parts and components in the field of printing, healthcare, communication, fuel cells, avionics etc. Mr Sudhakar also explained the fabrication of micromechanical components by means of sophisticated manipulations of silicon/substrates using



Mr Sriram Nagarajan

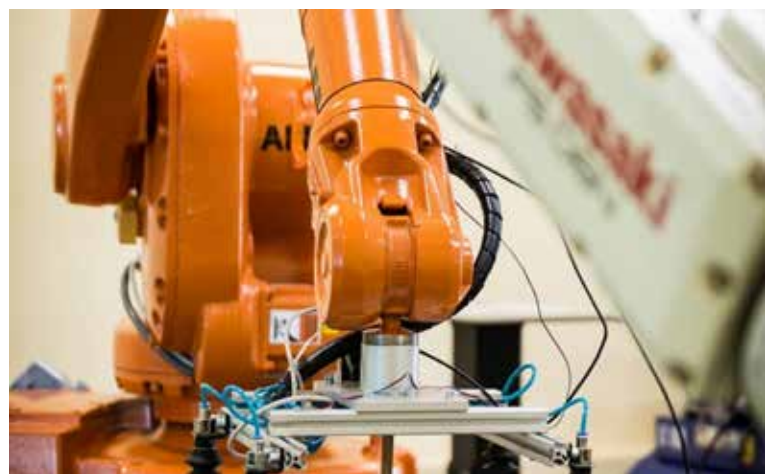
micromachining processes. He mentioned about the application of MEMS technologies to obtain finer precision, when semiconductor processing technologies are employed. The speaker also demonstrated about the fabrication of microelectrodes using micro tuning process.

Mr Sriram Nagarajan, Co-Founder and Industrial Automation Engineer, RoboRAM, Nagercoil, Tamil Nadu delivered his address on the topic 'Robotics and 3D Printing's Position in the Smart manufacturing Ecosystem' and mentioned that smart manufacturing refers to the set of technologies and solutions, which contains the ability to restructure the existing business environment and subsequently create a new generation of market leaders. Mr Nagarajan, in his deliberation, mentioned Industry 4.0 as the principal driving force and highlighted diversified applications of the Internet of Things, when data can be accessed from machine to machine or human to machine and every device in the system is connected to different data communication modules for data sharing, monitoring, and control. The speaker discussed at a length the role of cloud computing and mentioned that when the equipment or machines are embedded to sensors, they are capable to generate manufacturing data that transferred to a cloud network for storage through data communication systems for future reference. He further highlighted that data analysis is one of the crucial component of IoT, since it allows machines to predict human behavior. Mr Nagarajan explained the application of industrial robots, Gantry, SCARA Robots, and Automated Guided Vehicles and added that technological development in industrial robotics results in enhanced productivity and precise output.



Mr S Saravana Kumar

Mr S Saravana Kumar, BusEx/OpEx Consultant & PM/AGILE/StartUps/Grads Coach -Trainer, Chennai delivered his presentation on the topic 'Essentials of Smart Manufacturing, IoT) and deliberated on different phases of transformation towards the digitization in industry, namely Computerization,



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From the President's Desk.....

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unlocking potential to drive new opportunities and challenges. In a smart manufacturing environment, all information regarding manufacturing processes are available across manufacturing supply chains and product life cycles, which facilitate designing production planning and control strategies by means of predictive analytics and machine learning, which results precise decision making insights within complex set of information.

At the outset, when revival of national economy is the need of the hour, the manufacturing sector should boost up and transform from traditional functional domain to data driven manufacturing and thus obtain the best output with minimum lead time and less cost. State and Local Centres of IEI should come forward and organize more events on this contemporary topic.

Wish you all a Happy Independence Day.

Involved Air Separation Processes in Mitigating Oxygen

West Bengal State Centre, IEI organized Technical Webinar on the theme **Involved Air Separation Processes in Mitigating Oxygen** on 23 July, 2021 under the aegis of Chemical Engineering Division Board (CHDB), IEI. Dr Smarajit Roy, Director, Solar Win UK Limited, London, UK; Mr Apurba Kr Bhattacharyya, Associate Manager, Production, Linde India Limited, Haldia; and Prof Dr S N Roy, Ex-Chief Scientist & Former Head, Ceramic Membrane



Dr Smarajit Roy

Division, CSIR-Central Glass & Ceramic Research Institute, and Professor Emeritus, Adamas University, Kolkata graced the function as eminent Panelists. Dr Avijit Ghosh, Assistant Professor, Heritage Institute of Technology and Honorary Secretary, IICChE, JU Kolkata moderated the session.

The expansive role of oxygen, starting from evolution of life on this planet to some of its more specific applications in steel making, material processing and most importantly in health care system has made it a commodity of immense interest and value. The recent surge in demand of medical grade oxygen and the consequent duress of the victims has made it a desideratum. The webinar on 'Involved Air Separation Processes in Mitigating Oxygen' has subtly touched upon these pertinent issues emphasizing on the need to mitigate and manage oxygen demand. State of the art issues like the existence of O₃ (Ozone) in the context of cellular development and for regenerative medicine, especially for cancer, were also discussed in course of the webinar. The paramagnetic molecular nature of O₂, reacting with biological cells and inanimate heavy and rare metals, latest viable and scalable oxygen separation technologies were covered in a thread-bare

manner in course of the webinar. At the outset, Prof Nitosh Kumar Brahma, Honorary Secretary, West Bengal State Centre, IEI, welcomed the Panelists, Moderator, and all attendees.

Speaking on the occasion, Dr Smarajit Roy, Director, Solar Win UK Limited, London, UK, deliberated on various aspects of Oxygen uses and its recovery. He spoke on functional aspects of Pressure Swing Absorber (PSA) and Chemical Oxygen Reactor (COR) and outlined the economics involved in the use of COR and PSA for air separation processes. He further discussed possible development of small Oxygen generating units for dedicated use in hospitals and allied healthcare facilities. He cited an example of such unit developed in Germany, where he was personally associated and has successfully commissioned one or two such units back in India.

Dr Roy was followed by Mr Apurba Kr Bhattacharyya, Associate Manager, Production, Linde India Limited, Haldia. Mr Bhattacharyya, an expert in cryogenic engineering, spoke on physicochemical properties of as well as thermodynamic aspects of cryogenics in the context of oxygen separation from air. Mr Roy dwelt upon graphical plots to describe the influence of Normal Temperature and Pressure in cryogenics, particularly in air separation, purification, compressing and cooling and thereafter treating the condensed air involving cryogenic distillation where the specific gravity of N₂ and O₂ played a significant role.

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Micro Manufacturing towards Digitization

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Connectivity, Data Analysis, Predictive Capacity, and Adaptability. Mr Saravana Kumar, in his address explained smart manufacturing as intelligent, real time orchestration and optimization of business, the physical and digital processes within the factories and across the entire value chain. He explained that in smart manufacturing environment, resources and processes are continuously automated, integrated, updated, monitored and evaluated, based on available information close to real time as possible. Mr Kumar explained IIoT as the network of interconnected sensors, instruments and other devices in an industrial set up and mentioned that the connectivity within the network facilitate remote access, monitoring, acquisition and collection of data, exchange and analysis of different data sources, which contains enormous potential to improve productivity and efficiency. He highlighted that applications of AI, Big Data Analytics, Cloud Computing and Industrial Internet of Things have made smart manufacturing practices fully comprehensive. The speaker also demonstrated different applications of smart manufacturing and IIoT in healthcare, Defence sector, agriculture,

retailing etc. A brief question-answer session was organized at the end of the session.

Moderators on the occasion, Dr S Balasubramanian, Associate Professor and Mr M A Vinayagamoorthi, Assistant Professor, Department of Mechanical Engineering, Kumaraguru College of Technology, Coimbatore summed up the Proceedings of the deliberation and advocated



Dr S Balasubramanian

for more applications of smart manufacturing tools, smart grid systems with IoT interface, promotion, advancement and improvement of specialized skills to implement modern manufacturing practice etc. Mr H Ram Mohan, Honorary Secretary, Coimbatore Local Centre proposed the vote of thanks.



Mr M A Vinayagamoorthi



A Recent Study of Nano Material and its Implications in General

West Bengal State Centre of the Institution organized Technical Webinar on the theme **A Recent Study of Nano Material and its Implications in General** on 23 April, 2021 under the aegis of Metallurgical and Materials Engineering Division Board (MMDB), IEI. On the occasion, Dr Arnab Ghosh, S N Bose National Centre for Basic Sciences, Salt Lake, Kolkata and Dr Rajat Banerjee, CSIR-Central Glass & Ceramic Research Institute, Jadavpur, Kolkata graced the event as Panelists and addressed the virtual audience. Dr B K Sarkar, Chairman, Metallurgical & Materials Engineering Divisional Sub-Committee, West Bengal State Centre, IEI was the Moderator of the session. In his opening remarks, Mr B K Sarkar welcomed the Panelists, dignitaries from IEI, Corporate Members and attendees. Mr K K Mehrotra, Chairman, Metallurgical and Materials Engineering Division Board and Council Member, IEI delivered the welcome address and explained the applications of nano-materials in different core sectors.

Dr Rajat Banerjee, CSIR-Central Glass & Ceramic Research Institute, Jadavpur, Kolkata in his address focused on applications of nanotechnology in medical science in particular. Based on the theory introduced by noted Physicist Richard Feynman, Dr Banerjee explained nanotechnology as a disruptive technology and the study of controlling and manipulating matters on an atomic and/or molecular scale. Dr Banerjee highlighted the dimensional classification of nanotechnology in nanoscale and explained the concept of zero, one and two dimensions to obtain nanomaterials. The speaker further discussed on nanoscale surface areas, size spectrum of environmental particles, behavior of materials at the nano level and highlighted the fact that at nano level, materials begin to demonstrate entirely new chemical and physical properties and by manipulating the arrangement of atoms, nanotechnology may be able to create new materials and devices. While explaining the biological approach of nano science, Dr Banerjee stated the versatility of carbon in constructing polypeptide chains, that forms different body proteins and discussed on nanoscale dimensions, confine to carbon, namely Fullerene, Quantum Dots and Carbon Nanotubes. He further discussed at a length, the applications, specifications and control of Medical Nano Robots for treatment of brain cancer and removing

blood cholesterol, application of Cell Repairing Machines with the capacity of selective destruction of cells, application of molecular imaging for treatment of malignancy, and gold nano particles – tumor seeking missiles for treatment of prostate cancer. Dr Banerjee, in his lecture outlined the major development in nano composites, application of nanotechnology in food science, food safety and food packaging, nanotechnology assisted armour materials, a shock resistant protective material, five times stronger than steel and at least twice as strong as any impact resistant material currently in use. He further discussed on application of carbon nano tube glass composites, which is able to transform a highly insulating material like glass to an electrically conducting composite by introducing single walled carbon nano tube inside the glass.



Dr Arnab Ghosh

Dr Arnab Ghosh, S N Bose National Centre for Basic Sciences, Salt Lake, Kolkata delivered his lecture on the topic 'Synthesis of 2D Nanostructures with Efficient Up-Conversion Photoluminescence and Superior Electrochemical Properties for Optoelectronic and Energy Storage Device Applications'. Dr Ghosh started his deliberation on the application of 2D materials, which are ultrathin structure with thickness in the range 0.1-10 nm and may be monolayered or multilayered. He deliberated on the synthesis of freestanding 2D Copper Oxide (CuO) nano sheets for applications in super capacitors and fabrication of rare earth doped 2DMoS₂ (Molybdenum Disulfide) nano sheets. He explained AFM Microscopy Analysis to measure the thickness of nano sheets and study of optical absorption spectroscopy of CuO. The speaker further explained on the analysis of cyclic stability and EIS spectroscopy, application of MoS₂ with large surface area, superior chemical durability, biocompatibility and lower cytotoxicity. He also explained application of NIR sensors in up-conversion emission.



Dr B K Sarkar

A question-answer session was organized at the end of the session. Moderator of the session, Dr B K Sarkar summed up the Proceedings of the session. The session was concluded with vote of thanks.

Introduction to 2D Materials

Definition
Materials having sheet like ultrathin structure with thickness in the range of 0.1 – 10 nm. It can be monolayered or multilayered

Reference - A. K. Geim, I. V. Grigorieva, Nature 499 (2013) 419 - 425

Carbon Nanotube

- A sheet of graphene of one atom in thickness when rolled into a tube creates a single-walled carbon nanotube. Unlike fullerene which is spherical, CNT is elongated.
- Carbon nanotubes have diameters as small as 1 nm and lengths up to several centimeters. Carbon nanotubes are strong, they are not brittle it can be bent, and when released, they will spring back to their original shape.



IEI Celebrates

World Environment Day

2021

Theme : Ecosystem Restoration

World Environment Day was celebrated by the Centres of the Institution all over the country on 5 June, 2021. Brief accounts of the celebration as received from various Centres are reported hereunder.

STATE CENTRES

Jharkhand

Jharkhand State Centre, IEI observed World Environment Day on 5 June 2021 and organised a technical webinar on the theme. Panellists, Mr Vinod Kumar Pandey, Chief Manager, Environment, Central Mine Planning & Design Institute Limited, Ranchi and Dr Sailendra Kumar Singh, Ex-General Manager, Environmental Engineering, MECON Limited, Ranchi deliberated lectures on the theme. Mr Pandey, in his address, deliberated on Millennium Ecosystem Assessment, Global Footprint Network study etc and recommended measures for restoration of ecosystem, which include reduction per capita global consumption, increase the cycle efficiency to convert the biosphere's supply of goods and services into global output and the investment to nature through conservation and restoration to increase the stock of resources and its regenerative values. Dr Singh, in his deliberation, explained that ecosystem restoration is to prevent, halt and reverse the damage caused by mankind and thereby restore the healthier future of the planet by adopting suitable measures, which include plantation, cleaning up coasts and rivers, re-introducing lost animal species to the environment etc. Earlier Mr Siyaranjan Kumar Singh, Chairman, Jharkhand State Centre and Council Member, IEI delivered the welcome address. Mr Jitendra Kumar, Honorary Secretary, Jharkhand State Centre proposed the vote of thanks.

Manipur

Manipur State Centre, IEI observed World Environment Day on 30 June 2021 in hybrid mode on the theme. Mr Ningombam Shyamsundar Singh, Immediate Past Chairman, Manipur State Centre, IEI graced the occasion as theme speaker. In his address, Mr Singh spoke at a length about the importance of ecosystem restoration in the present context and mentioned that the encashment of rivers and continuous deforestation contributed to climate change by the destruction of the ecosystem. Yet the flora and fauna play a major role in combating climate change, he added and emphasized on the preservation of the same. Mr Thangjam Joykumar Singh, Chairman, Manipur State Centre and Council Member, IEI spoke on the theme and mentioned that various steps are being taken up by different authorities and much effort has been put into the successful implementation of ecosystem restoration. Earlier, on behalf of Manipur State Centre, Dr Thokchom Subhaschandra Singh welcomed the audience and at the end proposed the vote of thanks.

Rajasthan

Rajasthan State Centre, IEI observed World Environment Day on 5 June 2021, and organised a webinar on the theme. Keynote Speaker of the session, Prof (Dr) Upendra Nath Roy, Department of Rural Development, National Institute of Technical Teacher's Training & Research, Chandigarh delivered lecture on the theme and demonstrated restoration of ecosystem in a detailed manner. Prof Roy further explained Bio hot spots and causes & remedies of soil degradation. Mr Dariya Singh Yadav, Former Chairman, Rajasthan Board of Technical Education deliberated lecture on the occasion and opined that, for ecosystem restoration, young engineers need to be skilled in sustaining clean environment, clean water and clean energy technologies. Earlier, Mr Sajjan Singh Yadav, Chairman, Rajasthan State Centre and Council Member, IEI delivered the inaugural address. At the end,

Mr Mahendra Kumar Chauhan, Honorary Secretary, Rajasthan State Centre proposed the vote of thanks.

LOCAL CENTRES

Angul

Angul Local Centre, IEI observed World Environment Day on 5 June 2021, and organised a webinar on the theme. On the occasion, Mr A P Panda, Executive Director (S&P), NALCO addressed the audience as Chief Guest. Dr Anup Kumar Mallick, Environment Scientist-cum-Regional Officer, Odisha State Pollution Control Board, Angul, Odisha and Mr Y Pattanaik, Vice President, Nava Bharat Ventures Limited, spoke on the occasion as Distinguished Guests. Dr Nihar Ranjan Sahoo, Chief Environment Engineer, Odisha State Pollution Control Board, Bhubaneswar, addressed the participants as Chief Speaker and touched upon various facets of the topic lucidly and vividly and further stressed on integration of stratosphere, biosphere, and atmosphere techno-sphere for a symbiotic sustainability. At the outset, Mr Sangram Keshari Samantaray, Chairman, Angul Local Centre, IEI welcomed the dignitaries and Mr Siba Ram Panda, Honorary Secretary, Angul Local Centre introduced the guests and dignitaries and also proposed the vote of thanks at the end of the function.

Belagavi

Belagavi Local Centre, IEI observed World Environment Day on 5 June 2021 and organized a webinar on the theme. Mr Siddalingayya Hiremath, Assistant Professor, Department of Civil Engineering, Vishwanathrao Deshpande Institute of Technology, Haliyal was the Keynote Speaker on the occasion. Earlier, Mr R T Jangal, Chairman, Belagavi Local Centre, IEI welcomed the participants. At the end of the session, Mr Basavanneppa G Dharenni, Honorary Secretary, Belagavi Local Centre proposed the vote of thanks.

Coimbatore

World Environment Day was observed by Coimbatore Local Centre, IEI in association with Department of Civil Engineering, KPR Institute of Engineering and Technology, Coimbatore through online platform on 7 June 2021. Chief Guest on the occasion, Dr Sultan Ahmed Ismail, Advisor and Former Director, Ecoscience Research Foundation, Chennai delivered lecture on the topic 'Sustainable Living – The Way Forward – For Earth's Sake'. During deliberation, he focuses on the Ecosystem & its importance, discussed, how to promote food chains and food webs and described about animal ecosystem and its life cycle. Earlier, Mr P R Natarajan, Chairman, Coimbatore Local Centre, IEI welcomed the Chief Guest, dignitaries and participants of the webinar. At the end of the session, Dr H Ram Mohan, Honorary Secretary, Coimbatore Local Centre proposed the vote of thanks.

Gwalior

Gwalior Local Centre, IEI observed World Environment Day on 5 June 2021 on the theme through online mode. Speakers during the function were; Mr R S Bhadoriya, Retired Chief Engineer, Public Health Engineering (PHE) Department, Government of Madhya Pradesh; Mr U S Pandey, Ex-Superintending Engineer, PHE and Consultant; Mr R K Batra, Former Professor and HoD, Civil Engineering Department, Institute of Professional

Studies, (IPS) Group of Colleges, Gwalior; Mr Rahul Sharma, Manager, Design and Engineering, NHPC Limited; Dr R S Kushwah, Director, DigitalKal, Gwalior; Mr R K Khetan, Past Honorary Secretary, Gwalior Local Centre, IEI and Mr P Y Khanwilkar, Honorary Secretary, Gwalior Local Centre, IEI deliberated lectures on the theme. Speakers elaborately discussed the restoration of the ecosystem and how to save the environment from pollution by more plantation of trees, etc. Earlier, a welcome address was presented by Mr Prabhat Kumar Bhargava, Chairman, Gwalior Local Centre. Mr P Y Khanwilkar, Honorary Secretary, Gwalior Local Centre proposed the vote of thanks.

Kadapa

Kadapa Local Centre, IEI organized technical webinar on the occasion of observation of World Environment Day on 5 June 2021. Speaker of the event, Dr P V Krishna Reddy, Assistant Professor, Department of Botany, Government College for Men, Kadapa delivered lecture on the theme and shared his views and knowledge regarding restoration of ecosystem. Earlier, Mr C Sree Ramachandra Murthy, Chairman, Kadapa Local Centre, IEI inaugurated the webinar.

Kanpur

Kanpur Local Centre, IEI jointly with The Institution of Electronics Telecommunication Engineers, Kanpur Centre; IEEE, Uttar Pradesh Section and MedTech, Indian Institute of Technology, Kanpur observed World Environment Day on 25 June 2021 by organising a webinar on the theme 'Ecosystem Restoration: Waste Management Strategies'. Mr Devendra Surve, Founder Director, Star Projects and Consultancy, Mumbai was the Guest Speaker on the occasion. In his deliberation, he explained about bioconversion/biotransformation, which refers to the conversion of organic materials, including plant or animal waste, fruits and vegetable waste, industrial wastewater, etc. into Biomethane, CO₂, elemental Sulphur or energy sources by means of biological processes or agents, such as certain microorganisms. The programme started with the welcome address by Prof (Dr) J Ramkumar, Chairman, Kanpur Local Centre, IEI. The programme ended with a vote of thanks by Dr Rajat Kumar Khare, Honorary Secretary, Kanpur Local Centre.

Kollam

Kollam Local Centre, IEI and IEI Civil Students' Chapter in association with M-trac, Civil Engineering Association; Department of Civil Engineering, MES Institute of Technology & Management (MESITAM), Kollam observed World Environment Day on 5 June 2021 through online platform. Prof (Dr) J Nazar, Principal, MESITAM delivered lecture on the occasion. Ms Suhana Navas addressed the gathering based on the theme of the day. Earlier, the programme was inaugurated by Mr Rajan K, Honorary Secretary, Kollam Local Centre, IEI.

Muzaffarpur

Muzaffarpur Local Centre, IEI observed World Environment Day on 6 June 2021 by organizing a webinar on the theme. On the occasion, Prof (Dr)

Bharat Raj Singh, Scientist, Environmentalist and Director General, School of Management Sciences, Lucknow and Past Chairman, UP State Centre, graced the function as Chief Guest and discussed on the rotational disparity of earth as an effect of global warming. During the technical session, Mr Vijay Kumar, Assistant Professor, Civil Engineering Department, Muzaffarpur Institute of Technology, Muzaffarpur presented a paper on the topic 'Disaster Ecosystem Restoration Tools'. Earlier, Dr Anjani Kumar Mishra, Chairman, Muzaffarpur Local Centre, IEI presented the welcome address and discussed the theme. The programme was ended with a vote of thanks proposed by Mr Narendra Kumar Jha, Honorary Secretary, Muzaffarpur Local Centre.

Palghat

Palghat Local Centre, IEI observed World Environment Day on 9 June 2021, and organised a webinar on the topic 'Ecosystem Restoration for a Sustainable Future – Issues and Challenges'. On the occasion, Prof (Dr) K Vasudevan Pillai (Retd), Principal, Coaching Centre for Minority Youth, Directorate of Minority Welfare, Government of Kerala delivered lecture on the topic and stated that ecological restoration is the process of assisting the recovery of degraded, damaged or destroyed ecosystem occurred due to land clearing, urbanization, coastal erosion & mining and suggested measures to restore the ecosystem. Earlier, Mr K Unni Krishnan, Chairman, Palghat Local Centre, IEI welcomed all participants of the programme and mentioned that 'Ecosystem Restoration' means preventing, halting and reversing the damage done to the ecosystem. He mentioned the significance of observation of the Environment Day and the theme, to understand the present predicament and advocated for making joint efforts and sincere attempts for ecosystem restoration process. At the end of the session, Mr A Ramesh, Honorary Secretary, Palghat Local Centre proposed the vote of thanks.

Rourkela

Rourkela Local Centre, IEI observed World Environment Day on 5 June 2021 on virtual mode. Speaker of the day, Dr Rakhee Das, Department of Civil Engineering, NIT Rourkela delivered lecture on the theme. Earlier, Dr Hara Mohan Jena, Honorary Secretary, Rourkela Local Centre welcomed the participants, spoke about the importance of the day and also presented the bio-data of the speaker.

Ranipet

Ranipet Local Centre, IEI observed World Environment Day on 28 June 2021 and organised a lecture session on the topic 'Remote Sensing and GIS in Ground Water Management' through online platform. Dr Annie Jenifer, Assistant Professor, Department of Agricultural Engineering, VIT School for Agricultural Innovations and Advanced Learning, VIT University, Vellore delivered lecture on the topic and discussed on different issues of Ground Water Management by adopting suitable methods of recharging, rainwater harvesting, drainage management, etc. Earlier, Mr M Salai Manalan, Honorary Secretary, Ranipet Local Centre, IEI delivered the welcome address and at the end proposed the vote of thanks.

Involved Air Separation Processes in Mitigating Oxygen

Contd. from page 6

Finally, Prof Dr S N Roy, Ex-Chief Scientist & Former Head, Ceramic Membrane Division, CSIR-Central Glass & Ceramic Research Institute, and Professor Emeritus, Adamas University, Kolkata presented his research findings involving mitigation of CO₂ from air and subsequently working on improving its purity for potential uses in various applications. He also shared his views on the uses of high pressure pyrolytic carbon assimilation technique aimed at converting carbon to oil which



Prof Dr S N Roy



Dr Avijit Ghosh

is eco-friendly and contributes to decarbonisation of the planet. His profound deliberation on the process of assimilation and recovery of waste to oil, increasing O₂ concentration in air were invigilant and informative.

The virtual event was moderated by Dr Avijit Ghosh, Assistant Professor, Heritage Institute of Technology and Honorary Secretary, IICChE, JU Kolkata and the event ended with a vote of thanks to all concerned.

News-in-Brief

The following are the brief account of Technical Activities organised by various Centres, Overseas Chapter and Fora of the Institution.

STATE CENTRES

Punjab & Chandigarh

Organised technical talk-cum-webinar on 21 January, 2021 in association with BAM Khalsa College, Garhshankar, Punjab on the topic 'Role of Big Data in Sciences'. Prof (Dr) T S Kamal, Council Member, IEI was the Chief Guest of the programme. Speaker, Dr Satwinder Singh, Associate Professor & Head, Department of Computer Science and Technology, Central University of Punjab, Bhatinda deliberated lecture on the topic.

Organised technical talk-cum-webinar on 23 January, 2021 in association with BAM Khalsa College, Garhshankar, Punjab on the topic 'Engineers' Role in Energy Conservation, Efficient Use of Energy Resources, Environment, Climate Change, etc.'. Mr R R Tanwar, Council Member, IEI was the Chief Guest of the programme and Prof (Dr) T S Kamal, Council Member, IEI presided over the programme. On this occasion, Speaker, Mr K K Mahajan, Ex-Senior Executive, Tata Chemicals Limited, Gujarat deliberated lecture on the topic 'Instrumental Training Program - Renewable Energy' and focused on energy self reliance at all levels and lowering the carbon footprints.

Organised webinar on 'COVID 19 - A Scientific Perspective' on 26 June 2021. Prof (Dr) T S Kamal, Council Member, IEI was the Chief Guest and Mr R R Tanwar, Council Member, IEI was the Guest of Honour during the event. On the occasion, Dr Rakesh Kumar, Assistant Professor, School of Biotechnology, Shri Mata Vaishno Devi University, Katra; Dr Vineeta Tanwar, Research Scientist, Ohio State University, USA; Dr Jaspreet Sachdeva, Clinical Scientific Expert, Novartis Healthcare Private Limited, Hyderabad; Dr Farhan, Assistant Professor, College of Health & Life Sciences, Hamad Bin Khalifa University, Doha Qatar; Dr Azaz Bhat, Research Scientist, Sidra Medicine, Doha Qatar deliberated lecture on the topic.

West Bengal

Commemorate 168th Birth Anniversary of Sir R N Mookerjee on 23 June 2021 and organised a technical webinar on the topic 'Research-led Innovation Entrepreneurship - Collaboration Ecosystem and IPR'. On the occasion, Dr Goutam Sengupta, Vice Chancellor, Techno India University, West Bengal and Mr Somnath Raychaudhury presented their thoughts on Sir R N Mookerjee and on entrepreneurship. Panellist, Dr Arpan Pal, Distinguished Chief Scientist and Research Area Head, Embedded Systems and Robotics, TCS Research deliberated the commemorative lecture on the topic, talked on the importance of Entrepreneurship in India and how AI, IOT could help the process. He explained the up and downstream of business strategy, implications of environmental factors, technological innovations to enrich the business entity. Dr Pal opined that Indian Business strategy must be changed as per demand and supply and sustainable nature of marketing attitude.

LOCAL CENTRES

Agra

Organised National Conference on the topic 'Frontier Research in Electrical Engineering - 2021' through online platform during 5-6 March, 2021 in association with the Institute of Engineering and Technology, Dr Bhim Rao Ambedkar University, Khandari Campus, Agra. Chief Guest on the occasion was Dr Anil Kumar, State Project Administrator (SPA), State Project Implementation Unit (SPIU) UP. During the technical session, Prof D K Jain Deenbandhu Chhotu Ram University of Science and Technology, Murthal, delivered lecture on Integration of renewable energy into the

local power grids. Prof Mahua Bhattacharya, Department of Information Technology, Atal Bihari Vajpayee Indian Institute of Information Technology & Management, (ABV-IIITM) Gwalior delivered lecture on computer vision on medical imaging. Dr W Wilfred Godfrey, Assistant Professor, Department of Computer Science, ABV-IIITM delivered lecture on Image Processing in Health Care. Prof Abilasha Saxena from National Rail Institute, Vadodara delivered lecture on 'Robotics in Manufacturing'. Prof Yogesh Vijay Hote delivered lecture on the topic 'Applications of Control Systems on Signal Processing'. Prof Samuel Paulson lectured on state of art electric vehicles. Mr Devendra Singh Chaudhary, Honorary Secretary, Agra Local Centre, IEI proposed the vote of thanks.

Alwar

Observed Energy Conservation Week 2020 on 8 January 2021 through hybrid mode. The Keynote speaker on the occasion, Mr K K Mahajan, Energy Management and Conservation Professional, Petroleum Conservation Research Association, Ministry of Commerce and Industrial Consultant explained the value of energy, methods of its production including conventional and non-conventional energy.

Observed 'Road Safety Month' on 6 February 2021 and organised seminar on the topic 'Sadak Suraksha – Jeevan Raksha' at Alwar. Ms Tejaswini Gautam, IPS, Superintendent of Police, Alwar was the Chief Guest during the function and strongly advocated for Road Safety Audit to reduce road accidents. Mr Yashpal Tripathi, RPS, DSP, Rajasthan Police and Ms Sunita Singh, DSP, Rajasthan Police, graced the function as Special Guests.

In collaboration with Laxmi Devi Institute of Engineering & Technology, observed World Water Day on 22 March 2021 at Alwar, and organized a technical talk on the theme of the day, 'Valuing Water'. Chief Guest of the programme was Dr Rajesh Bhardwaj, Director, Laxmi Devi Institute of Engineering & Technology. Keynote Speaker of the event was Mr Subhash Chandra Joshi, Chariman, Alwar Local Centre. Command Speaker was Mr Kailash Chand Sharma, Junior Hydrologist, Central Ground Water Board, Government of India.

Belagavi

Organised technical talk on 15 April 2021 on the topic 'Occurrence, Distribution and Sustainability of Natural Springs for Rural Water Supply' at Belagavi. Dr B K Purandara, Scientist F, National Institute of Hydrology, Belagavi, the Keynote speaker for the technical talk, focused on occurrence, distribution and sustainability of natural springs especially for rural water supply.

Organised webinar on the topic 'Opportunities and Challenges in 6G Wireless Technology' on the occasion of observation of World Telecommunication and Information Society Day on 29 May 2021. The session was started with a retrospect of wireless technology highlighting the manner, in which 4G networks have reshaped the human society. Dr Sridhar Iyer, Associate Professor & Dean, R&D, S G Balekundri Institute of Technology, Belagavi, the Keynote speaker of the event, focused on the need to shift from the current 4G/5G technology towards the 6G technology. Various open research avenues in the 6G technology communication such as AI/ML integration, terrestrial and satellite communication interoperability, user-centric ultra-dense networking, etc were focused too.

Organised webinar on 26 June 2021 on the topic 'Need for Power Factor Improvement'. Keynote speaker during the event, Mr Ashok S Bhavikatti, Superintending Engineer (Retd), Karnataka Power Transmission Corporation Limited (KPTCL) spoke on the subject need for power factor improvement.

Bareilly

In association with EICT Academy, IIT Roorkee and The IoT Academy organised technical webinar on 30 May 2021 on the topic 'Applied Machine Learning in Nutshell'. Keynote speaker of the session, Mr Kaushlendra Singh Sisodia, Director, UniConverge Technologies Private Limited deliberated lecture on the topic and explained that Learning can be viewed as applying

direct or indirect experience to approximate a chosen target function and function approximation can be viewed as a search through a space of hypotheses for one that best fits a set of training data. Dr Partha Pratim Roy, Associate Professor, Department of Computer Science and Engineering, IIT Roorkee deliberated lecture on application of Machine Learning in data analysis and automation.

In association with IIT Roorkee Alumni Association, organised technical webinar on 1 June 2021 on the topic 'Mission Mangal'. Panellists, Dr Swati Mohan, Mars 2020 Guidance & Control Operations Lead, NASA's Jet Propulsion Laboratory and Dr Dinesh Singh Pawar, Professor, IIT Roorkee Alumni Association deliberated lecture on the topic and shared their views.

In association with Rajshree Institute of Management & Technology, Bareilly organised National Webinar on 16 June 2021 on the topic 'Building an Effective Identity and Access Management (IAM) Roadmap'. Panellists, Mr Rajendra Kumar Verma, Senior Consultant, HCL Technologies, Singapore and Dr Dinesh Singh Power, Professor, IIT Roorkee Alumni Association deliberated lecture on the topic and shared their views, expertise and experiences with the august audience.

In association with Rajshree Institute of Management & Technology, Bareilly organised webinar on 17 June 2021 on the topic 'Analysis & Design in STAAD Pro'. Panellists, Mr Sovan Mohanty, Assistant Professor, Department of Electronics and Communication Engineering, SRMS College of Engineering and Technology, Bareilly and Dr Manish Saxena, Assistant Professor and Head, Department of Applied Science and Humanities, MIT Group of Institutions, Moradabad deliberated lecture on the topic.

In association with IEEE conducted webinar on 18 June 2021 on the topic 'Networking with Routing and Switching'. Panellists, Mr Rahul Kumar, Network Trainer, Mapping Skills, Greater Noida; Mrs Chaavi Sharma, Assistant Professor, MJR University, Bareilly and Dr Nazia Parveen, Assistant Professor, Department of Electronics and Communication, SRMS College of Engineering and Technology, Bareilly deliberated lectures on the topic and explained about routing and switching of network communication.

In association with Rajshree Institute, Bareilly organised technical webinar on 19 June 2021 on the topic 'Impact through CAD/CAM/CAE'. Panellists, Mrs Manvi Mishra, Assistant Professor, MJR University, Bareilly; Prof. Pradeep Kumar Garg, Civil Engineering Department, Indian Institute of Technology, Roorkee and Ms Tulika Agarwal, Academic Advisor, Rajshree Group of Institutions, Bareilly deliberated lectures on the topic. Prof Garg in his address explained spare parts manufacturing, supply and replacement in critical equipment by means of CAD/CAM/CAE in the shortest possible time. Ms Tulika Agarwal in her deliberation discussed on development of products, dimensions, tolerances by means of CAD. Mr Sudhir Gupta, Chairman, Bareilly Local Centre explained that Computer-aided Design, Computer-aided Manufacturing and Computer-aided Engineering technologies find more and more applications in the automotive, aerospace and naval sectors.

In association with Rajshree Institute of Management & Technology, Bareilly organised Webinar during June 21-22, 2021 on the topic 'Modern Geospatial Approaches in Civil Engineering Projects & Advancement in Transportation Engineering'. Panellists, Prof P K Garg, Civil Engineering Department, Indian Institute of Technology, Roorkee deliberated lecture on the topic 'Modern Geospatial Approaches in Civil Engineering'; Mr Sudhir Gupta, Chairman, Bareilly Local Centre, IEI deliberated lecture on the topic 'Advancement in Transportation Engineering' and Prof Pankaj Kumar Sharma, Director (R&D), Rajshree Group of Institutions, Bareilly also deliberated lecture on the occasion. Prof Praveen Kumar, Civil Engineering Department, Indian Institute of Technology, Roorkee deliberated lecture on the topic 'Modern Geospatial Approaches in Civil Engineering' and Ms Tulika Agarwal, Academic Advisor, Rajshree Group of Institutions, Bareilly deliberated lecture on Internet mapping technology. The proceeding of webinar was conducted by Dr Hemant Yadav, Director, Future Institutions, Bareilly.

In association with Rajshree Institute, Bareilly organised technical webinar on 23 June 2021 on the topic 'New Advancement in Transportation'. Panellist,

Dr C S P Ojha, Professor, Department of Civil Engineering, Indian Institute of Technology, Roorkee deliberated lecture on the topic and explained about Transportation Management Systems. Panellist, Dr Pankaj Sharma, Director (R&D), Rajshree Group of Institutions, Bareilly deliberated lecture on the topic and told that innovations in transportation technology are essentially born out of three necessities – efficiency, ease and safety.

Coimbatore

In association with Department of Electronics and Communication Engineering, Hindusthan Institute of Technology, Coimbatore organised a technical webinar on 19 March 2021. Chief Guest, Mr Gopal Dharmavarapu, EDP Consultant & Master Trainer for MSME, Tata Projects & APSSDC Andhra Pradesh delivered lecture on the topic 'A Sustainable Resilient Recovery after COVID-19 using Solar Technology towards the Improvement of Rural Livelihood'.

A technical webinar was organised by Coimbatore Local Centre, IEI in association with Department of Mechatronics Engineering, Kumaraguru College of Technology, Coimbatore on 26 May 2021. Chief Guest of the event, Mr G Sivakumar, Manager, Diesel Powertrains, FEV India Private Limited, Chennai delivered lecture on the topic 'Latest Emerging Technologies in Automotive Applications: Advancement in IC Engines, Alternate Fuels, EV Technology'. Dr M Saravana Mohan, Professor and Head, Department of Mechatronics Engineering, Kumaraguru College of Technology, Coimbatore also addressed the audience.

In association with the Department of Textile Technology, Kumaraguru College of Technology, Coimbatore organised technical webinar on 11 June 2021. Chief Guest, Mr P Sivagurunathan, Head-Industrial Engineering, Pearl Global Industries Limited, Bangalore delivered lecture on the topic 'Lean Manufacturing'. Dr V Ramesh Babu, Associate Professor and Head, Department of Textile Technology, Kumaraguru College of Technology, Coimbatore was present on the occasion and addressed the audience. Dr M Dhinakaran, Senior Associate Professor, Department of Textile Technology, Kumaraguru College of Technology, Coimbatore introduced the Chief Guest.

In association with Department of Mechatronics Engineering, Hindusthan College of Engineering and Technology, Coimbatore organised technical webinar on 14 June 2021. Chief Guest, Mr Naveen Kumar Reddy Rondla, Technical Support Engineer, Pert Info Consulting Private Limited, Hyderabad delivered lecture on the topic 'IoT Enabled in Mechatronics for Home Appliances'.

In association with Department of Information Technology, Kumaraguru College of Technology, Coimbatore organised technical webinar on 26 June 2021. Chief Guest, Mr Pugazharasan Chandrasekar, Full Stack Mentor and Placement Lead, GUVI Geek Network Private Limited, Chennai delivered lecture on the topic 'Introduction to IT Opportunities for Full Stack Developer'.

Faridabad

Observed World Telecommunication & Information Society Day on 15 May 2021 and a webinar was organised on the occasion. Three eminent Panellists graced the event with their extremely enlightening and informative deliberations, namely Dr Charu Virmani, Associate Professor, Department of Computer Science Engineering, Manav Rachna International Institute of Research and Studies (MRIIRS); Mr Shailender Kumar, Group Manager, Broadcast Operations, Zee Entertainment Enterprise Limited. and Dr Shruti Vashist, HoD, EC & Dean, Students Welfare, Manav Rachna University. Moderator of the session was Dr Rajender Kumar, Assistant Professor, Mechanical Engineering Department, MRIIRS.

Kalaburagi

Organised technical talk on the topic 'Applications of Data Science and IoT in Agricultural Sector' on 12 March 2021 at Kalaburagi. Mr Basavaraj Khanderao, Governing Council Member, HKE Society, Kalaburagi was the Chief Guest of the programme. Speaker, Prof Ashok Patil, Assistant Professor, Department of Information Science and Engineering, PDA College of Engineering, Kalaburagi deliberated lecture on the topic.

Kattankulathur

In association with Department of Aerospace Engineering, SRM Institute of Science and Technology, Kattankulathur, Chennai organised technical webinar on 27 July, 2020 on the topic 'Introduction to Aircraft Structural Analysis using Patran and Nastran'. Speaker, Mr Balakrishnan K V, Lead Engineer, Stress Team, Cabin Interiors, AIM, Aviation Avic Group, UK deliberated lecture on the topic and explained on aircraft structural analysis using Patran and Nastran.

In association with Department of Aerospace Engineering, SRM Institute of Science and Technology, Kattankulathur, Chennai observed Engineers Day and organised a technical webinar on 15 September 2020 on the topic 'Electric Propulsion System'. Chief Guest, Ms Tejaswi Shinde, Saber Astronautics deliberated lecture on the topic and explained about futuristic spacecraft electric propulsion.

In association with Department of Aerospace Engineering, SRM Institute of Science and Technology, Kattankulathur, Chennai organised a technical webinar on 19 September 2020 on the topic 'Recent Trends in Aircraft Maintenance of Airline Industries'. Chief Guest, Wing Commander K Manoharan (Retd), General Manager (CAMO) & Continuing Airworthiness manager, Blue Dart Aviation Limited, Meanambakkam Airport, Chennai deliberated lecture on the topic and explained about importance of aircraft maintenance and safety.

In association with Department of Aerospace Engineering, SRM Institute of Science and Technology, Kattankulathur, Chennai organised a technical webinar on 2 October 2020 on the topic 'Combustion Fundamentals and Propulsion Systems'. Chief Guest, Dr Arun Balakrishnan, Engine Calibration Engineer, John Deere Power Systems, US deliberated lecture on the topic and explained about ongoing combustion research.

In association with Department of Aerospace Engineering, SRM Institute of Science and Technology, Kattankulathur, Chennai organised technical webinar on 10 October, 2020 on the topic 'Current & Future Technology Trends in Aircraft Propulsion'. Chief Guest, Mr Vikram Reddy, General Manager, Aviation Engineering, GE India deliberated lecture on the topic and explained about current and future trends in aircraft engine development.

In association with Department of Aerospace Engineering, SRM Institute of Science and Technology, Kattankulathur, Chennai organised technical webinar on 15 October 2020 on the topic 'UAV Propulsion'. Keynote Speaker on the occasion, Mr Raam Kumar Sampath, Aerospace Engineer, Mejlzik Propellers, Brno-Zidenice, Czechia deliberated lecture on the topic and explained about design and construction of Unmanned Aerial Vehicle.

In association with Department of Aerospace Engineering, SRM Institute of Science and Technology, Kattankulathur, Chennai organised technical webinar on 6 November 2020 on the topic 'Gas Turbine Design Process'. Keynote Speaker, Mr Vinod S Chaudhari, Director, Dheya Engineering Technologies Private Limited, Bangalore deliberated lecture on the topic and explained about design and marketing strategy of gas turbine engine.

In association with Department of Aerospace Engineering, SRM Institute of Science and Technology, Kattankulathur, Chennai organised technical webinar on 17 November 2020 on the topic 'Advanced Flight Instruments & Approach Procedures'. Keynote Speaker of the session, Mr Sethunathan, Senior First Officer, IndiGo Airlines Private Limited, in his address explained the functional aspects of different flight instruments.

In association with Department of Aerospace Engineering, SRM Institute of Science and Technology, Kattankulathur, Chennai organised technical webinar on 18 November, 2020 on the topic 'Artificial Intelligence in Aerospace'. Keynote Speaker of the session, Mr Pawan Rama Mali, Managing Director, TechWork Lab, Bangalore deliberated lecture on the topic and explained about the vital role of AI in various applications.

North Bengal

Organised seminar on the topic 'Applications of MATLAB in Electrical & Electronic System Analysis' on 23 March 2021 through online platform. Speakers of the programme were Mr Shubhasish Sarkar and Mr Ujjal Dey, Assistant Professors, Department of Electrical Engineering, Jalpaiguri Government Engineering College. Mr Sarkar in his deliberation mentioned that MATLAB is a high performance language for technical computing, which integrates computation, visualization and programming in an easy-to-use environment where problems and solutions are expressed in familiar mathematical notation. Mr Dey explained that Simulink is a MATLAB based graphical programming environment for modelling, simulating and analyzing multi domain dynamical systems. He elaborated that the primary interface of Simulink is a graphical block diagramming tool and customizable set of block libraries, which integrated with MATLAB, able to incorporate MATLAB Algorithms into models and export simulation results to MATLAB for further analysis.

South Gujarat

One Day National Workshop on 'Industry-Academia Collaboration for Future Engineering Innovations and Solutions' was organized by the South Gujarat Local Centre, IEI in association with A Y Dadabhai Technical Institute (AYDTI), Kosamba on 6 March 2021 at Surat. The workshop intended to enhance the robust collaboration between the Industry-Academia which will augur well for developing economy enabling innovations, growth in the education system and providing an employment ready workforce particularly for sought Gujarat Region. During the inaugural session, Dr V S Purani, Principal, Government Engineering College, Valsad was the Chief Guest and Mr M M Dalchawal, Director, AYDTI, the Guest of Honour. During the session, five lecture papers were presented. Ms. Preeti Sakhre, HR Manager TUV-Nord, Pune, presented paper on 'Digital Transformation – changing the role of engineering education in industry 4.0 era'; Mr Shailesh Thakkar, Advisor, TRIFED on 'Industry-Academia'; Mrs. Deval Joshi, Prolific Speaker and Trainer on the topic 'Innovation in brand creation'; Prof. K D Panchal, GEC, Surat on 'Needs of Innovations for Industries and how to Implement' and Mr K H Patel, Head, Mechanical Department, A Y Dadabhai Technical Institute, Kosamba explained his experience in training & placement at Dr S & S S Ghandhy College of Engineering & Technology, Surat.

Sunabeda

Observed World Water Day on 22 March 2021 on the theme 'Valuing Water' through online mode. Chief Speaker on the occasion, Mr Laxmi Narayan Gouda, Chief Manager (Services), HAL elaborated various dimensional aspects of water and also emphasized on the conservation of water in the present context.

Tiruchirappalli

Organised lecture meeting on 7 April 2021 through virtual mode. Dr V Balasubramanian, Professor Head & Director, CM & RE, Manufacturing Engineering, Annamalai University, Chidambaram delivered lecture on the topic 'Synthesis & Fabrication of Bulk Nano Materials for Automotive Applications' and explained Nanotechnology as the creation of USEFUL materials, devices and systems through control/manipulation of matter on the nanometer length and exploitation of novel phenomena and properties arise due to the same.

Jointly with Computer Society of India, Tiruchirappalli Chapter organize lecture meeting on 13 April, 2021 through virtual mode. Dr Shriram K Vasudevan, Dean, M/s K Ramakrishnan College of Technology, Samayapuram, Tiruchirappalli delivered lecture on the topic 'Machine Learning & Deep Learning - building Affordable Products'. As part of the presentation, Dr Shriram K Vasudevan emphasized how to build innovate products for problems faced by people day-to-day and presented solutions for challenges in healthcare, education, industrial and automobile sector. The solutions are based on the internet of Things, Deep Learning and Machine Learning., he added.

Jointly with Computer Society of India, Tiruchirappalli Chapter organized lecture meeting on 20 April, 2021 through virtual mode. Dr R Malathy, Professor, Dean R&D, Department of Civil Engineering, Sona College of Technology, Salem, Tamil Nadu delivered lecture on the topic 'Digital Construction (4.0) - An Attraction for Millennial Civil Engineers'. In his address, Dr Malathy mentioned that the Civil Engineering is an inevitable part played in everybody life directly or indirectly as the society attempts to civilize day by day in every aspect of their choices for a better world. He also mentioned fourth industrial revolution in construction, which is termed as Construction 4.0 and contains lot of verticals clubbed into it. Construction 4.0 encompasses the imaginary to reality through prefabrication, automation and virtual reality, drones, building information modelling, sensors, Internet of Things (IoT), 3D printing, cyber security, smart materials, site logistics and robots and so on to shape the decisions of the organizations for a better tomorrow, the speaker opined.

Organized lecture meeting on 30 April 2021 through virtual platform. Dr Darshana O, Assistant Professor, Department of Civil Engineering, National Institute of Technology, Tiruchirappalli, Tamil Nadu delivered lecture on the topic 'Incorporating Users Perception into Transportation Projects : Issues and Challenges'.

Jointly with National Institute of Technology, Tiruchirappalli; Computer Society of India, Tiruchirappalli Chapter; Indian Institute of Welding, Tiruchirappalli Branch; Indian Institute of Metals, Tiruchirappalli Chapter and Indian Welding Society, Southern Zone organized lecture meeting on 8 May 2021 through virtual mode. Mr Dalley Krishnan, Students Activity and Sports Officer, National Institute of Technology, Tiruchirappalli delivered lecture on the topic 'Stress Management and Exercise (Health and Fitness)'.

Jointly with Computer Society of India, Tiruchirappalli Chapter observed World Telecommunication and Information Society Day on 11 May 2021 through virtual mode. Speaker, Dr V K Sanjeevi, ITS, Chief General Manager, Chennai Telephone District, BSNL, Chennai delivered address on the theme of the day 'Accelerating Digital Transformation in Challenging Times'. As part of the presentation, he shared his experience in BSNL and mentioned the role of International Telecommunication Union (ITU), the United Nation's specialized agency for information and communication technologies.

Jointly with the Computer Society of India, Tiruchirappalli Chapter, Indian Institute of Welding, Tiruchirappalli Branch; Indian Institute of Metals, Tiruchirappalli Chapter and Indian Welding Society, Southern Zone organized lecture meeting on 11 May 2021 through virtual mode. On the occasion, Mr G Sasikumar, Head of Engineering, M/s MOSIP, Bangalore delivered lecture on the topic 'Zero Trust Security Architecture'. As part of the presentation, he mentioned that the Zero Trust is a new deployment model in cyber security and a new way of thinking in cyber security defence. The speaker, in his deliberation, explained the tenets, blue print and threat map of Zero Trust Architecture.

Tirunelveli

Organised technical seminar on 25 March, 2021 on the topic 'GIS Applications and Uses' at Tirunelveli. Mr V Dinesh, Product Manager, Mobius Knowledge Services, Chennai was the resource person of the event, delivered lecture on the topic and discussed on various applications of GIS in real time.

Organised technical seminar on 26 March 2021 on the topic 'Application of ANSYS in Marine Engineering' through online mode. Dr M Appadurai, Assistant Professor, Department of Mechanical Engineering, Dr Sivanthi Aditanar College of Engineering, Tiruchendur was the resource person and delivered lecture on the topic.

Organised technical seminar on 30 March 2021 through online platform on the topic 'Machine Learning Approach to Programming'. Mr A Muthuraj, Research/Teaching Assistant, Department of Computer Science and

Engineering, Dr Sivanthi Aditanar College of Engineering, Tiruchendur acted as a resource person and delivered lecture on the topic.

Organized seminar on 1 April 2021 on the topic 'PHP Programming Basics' at Tirunelveli. Mr Jeba Kumar, SmackCoders, Tirunelveli acted as a resource person and delivered lecture on the topic and explained different aspects of webpage design etc.

Organised technical seminar on the topic 'Beginner's Guide for Mainframe Storage' on 17 June, 2021 through online mode. On the occasion, Mrs A Gnana Sundari, Systems Management Specialist, IBM India Private Limited, Chennai delivered lecture on the topic and explained about mainframe evaluation systems and storage management systems.

Organised technical seminar on the topic 'Incipient Fault Detection in Transformers using Dissolved Gas Analysis' on 27 June 2021 through online mode. Dr K S Krishna Veni, Assistant Professor, Department of Electrical and Electronics Engineering, Mepco Schlenk Engineering College, Sivakasi, Tamilnadu was the speaker of the day and delivered lecture on the topic.

Udaipur

In association with Ultra Tech Cement organised webinar on 28 May 2021 on the topic 'Innovations in Civil Industry – Zero Energy Buildings & Plastic Roads'. Keynote speaker of the event, Mr Abhijeet Patankar, Senior Business Support Manager, CADD Centre Training Services Private Limited, Pune highlighted that zero or minimum energy demand is the link between efficient technology and renewable energy use. He also explained on eco-friendly methodology of plastic waste disposal.

OVERSEAS CHAPTER

Qatar

Qatar Chapter, IEI organised technical webinar on 12 June 2021 on the topic 'Blockchain and Future'. Chief Guest of the event, Dr Pratapsinh Kakasaheb Desai, President, Indian Society for Technical Education, New Delhi explained about the Indian Societal Reforms, Education System and various scenarios of technological advancement in India. Mr Ahmed Jassim Al Jolo, Former Chairman, Qatar Society of Engineers graced the occasion as the Guest of Honour. He emphasized the online security issues, cyber security threats and necessary measurements. Keynote speaker of the session, Dr Anish Mohammed, Co-Founder and CTO, Panther Protocol explained Block chain technology and its generation, privacy, half life of data & Permissions, homomorphic encryptions, zero knowledge proofs, trusted platform modules and post quantum cryptography. Earlier, Mr M Abdul Sathar, Chairman, Qatar Overseas Chapter, IEI welcomed the gathering, introduced the guests and speaker. Dr P Abdul Hameed, Honorary Secretary, Qatar Overseas Chapter, IEI compered the event and Mr Salihudeen, Executive Committee Member of the Qatar Chapter, IEI proposed the vote of thanks.

FORA

Safety and Quality Forum

Safety and Quality Forum, IEI jointly with Alwar Local Centre, IEI celebrated the Fire Safety Week 2021 on 20 April, 2021 through virtual platform. Mr Surendar Singh, Deputy Chief of Factories & Boilers, Alwar Region, CIFB, Government of Rajasthan was the Chief Guest of the function and in his address, focussed on the rising trends of fire incidents in industries. Mr R C Sharma, Former Director, Delhi Fire Services, Government of NCT of Delhi and Mr Devendra Gill, General Manager (Safety), Delhi Metro Rail Corporation & Immediate Past Chairman, Delhi State Centre, IEI delivered Keynote address on the topics 'Fire Safety in Industries' & 'Fire Disaster Preparedness in Industries' respectively. During his lecture, Mr R C Sharma shared his experience on major fire hazards in industries and the innovative measures to mitigate the severity of these hazards. Mr Devendra Gill in his address, elaborated in detail the effective strategy to be adopted by the industries for fire disaster preparedness.

ANNOUNCEMENT

54th ENGINEERS' DAY

Theme:

Engineers for Skill Development & Employment in combating COVID

September 15 is celebrated every year in the country since the year 1967 as "Engineers' Day" to commemorate the birthday of the legendary engineer Sir Mokshagundam Visvesvaraya. Sir Visvesvaraya, an eminent Indian engineer and statesman was born in a remote village of Karnataka, the State that is incidentally now the Hi-tech State of the country. Due to his outstanding contribution to the society, Government of India conferred "Bharat Ratna" on this legend in the year 1955. He was also called the precursor of economic planning in India. His learned discourse on Economic Planning in India, Planned Economy for India and Reconstructing India, was the first available document on the planning effort of the country and it is still held as the parent source matter for economic planners. A theme of national importance is chosen every year by the Council of the Institution and deliberated at its various State/Local Centres to educate the engineering fraternity in general and the society in particular. This year the 54th Engineers' Day will be celebrated all over the country on the theme "Engineers for Skill Development & Employment in combating COVID."

The heralding of a new decade in 2020 was marred with plummeting of the global economy pushing millions into penury as the COVID 19 pandemic took centre stage. Reeling under an economic downturn, many industries have adopted conservative approaches like hiring freezes, pay-cuts and layoffs to remain afloat while others were forced to shut down. The shutting of commercial establishments due to the second wave of COVID-19 has rendered several people jobless leaving them financially vulnerable.

As we move along, the biggest challenge at hand will be getting back on track and accept the new normal. Under the new normal, the jobs, which are heavily dependent on migratory workforce and involve work spaces

with higher levels of physical proximity, are likely to see greater transformation and would require skilling and re-employing our workforce.

We, as professional engineers, need to think of technical interventions to design and implement sound labour market information systems, including accurate market assessment and need anticipation, and putting in place processes for skills recognition to prevent attrition, poor labour market integration and deterioration of working conditions for all workers.

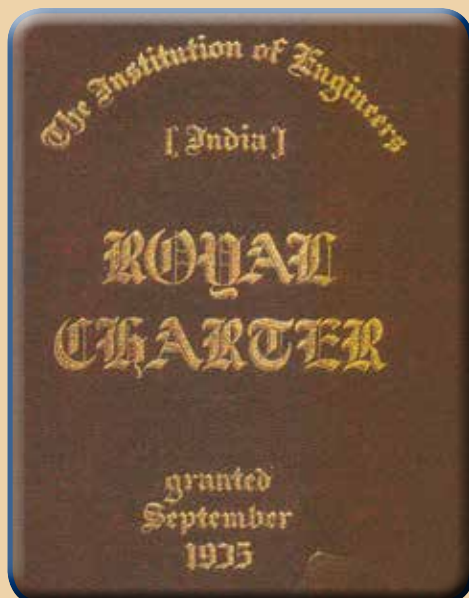
There is a dire need to scale up Skill Development Ecosystem while strengthening our cloud based infrastructure. Access to skills recognition processes, especially for low- and medium-skilled migrant workers, will be crucial and would assist us in formulating policy recommendations for improvement of the relevant legislative and operational mechanisms.

The COVID-19 pandemic has provided us with an opportunity to come up with a well-crafted strategy to deal with this crisis. As uncertainty persists, it is imperative that our workforce is empowered with the right skills through timely and relevant skilling, upskilling and reskilling efforts. This will make our people more agile and resilient, and able to cope with the challenges posed by the current pandemic and what lies beyond.



Bharat Ratna Sir M Visvesvaraya

ROYAL CHARTER DAY



Established in 1920, with its Headquarters at 8 Gokhale Road, Kolkata-700020, The Institution of Engineers (India) was incorporated by Royal Charter on September 09, 1935 and remains the only professional body in India to be accorded this honour.

As decided by the Council, on September 09 of every year, this day is observed by all Centres of IEI as Royal Charter Day. On this auspicious day, Royal Charter of Incorporation was granted to IEI by His Majesty, The King and Emperor George V at the Court at Buckingham Palace, London.



Engineering Staff College of India

Autonomous Organ of The Institution of Engineers (India)
(An ISO 9001: 2015 Certified Institution)
Old Bombay Road, Gachi Bowli, Hyderabad – 500 032

CONTINUING PROFESSIONAL DEVELOPMENT PROGRAMMES (CPDPs) FOR THE MONTH OF SEPTEMBER 2021

Sl. No.	Name of the Course	Scheduled Dates
1.	Flexible Pavements and Overlays - Design, Construction and Maintenance	06 – 08 Sep, 21
2.	Interstate Transmission Charges and Loss Sharing	06 – 07 Sep, 21
3.	Total Quality in Purchase Process (Including ERP & e-Procurement)	06 – 08 Sep, 21
4.	LiDAR Technology for Irrigation & Agriculture Sector	06 – 08 Sep, 21
5.	Water Pollution Monitoring & Modelling using Software Applications – Theory & Practical's.	07 – 09 Sep, 21
6.	Hybrid Additive Manufacturing	13 – 15 Sep, 21
7.	Cyber security Maturity Model Certification (CMMC)	13 – 16 Sep, 21
8.	Laboratory Management System Awareness & Internal Auditing (As per ISO/IEC 17025 : 2017 & NABL Requirements)	13 – 16 Sep, 21
9.	Contract Management and Dispute Resolution in Engineering Projects	13 – 17 Sep, 21
10.	Network Administration: Configuring & Securing LANs and WANs	13 – 17 Sep, 21
11.	Engineering Leadership for Emerging Leaders	13 – 17 Sep, 21
12.	Erection, Commissioning & Best Practices in O&M & Failure Analysis of Synchronous Generators, Large Motors including static excitation in Power Plants & Process Industries	13 – 17 Sep, 21
13.	Application of Bio- Engineering Technologies for Waste Water Treatment in Nalas, Drains And Canals	14 – 16 Sep, 21
14.	Flood analysis using HEC-RAS Software	14 – 16 Sep, 21
15.	Design & Monitoring of Slope Stability	15 – 17 Sep, 21
16.	3D Printing Simulation using ANSYS AM Module	20 – 22 Sep, 21
17.	Vibrations, Balancing, Alignment and Condition Monitoring of Rotating Equipment	20 – 23 Sep, 21
18.	Systems Engineering	20 – 23 Sep, 21
19.	Big Data Analytics using Hadoop & PySpark	20 – 24 Sep, 21
20.	Energy Internet of Things (e-IoT) in Green Energy Infrastructure	20 – 24 Sep, 21
21.	Rooftop Solar Grid Engineer-Design, Erection, Commissioning & Maintenance	20 – 24 Sep, 21
22.	Sustainable Solid Waste Management System	21 – 23 Sep, 21
23.	ISO 9001 : 2015 QMS – Effective Implementation & Internal Auditor Training	21 – 23 Sep, 21
24.	Destructive & Non Destructive Testing Methods in Civil Engineering Structures	22 – 24 Sep, 21
25.	Uncertainty Measurement	27 – 28 Sep, 21
26.	National Mineral Policy & Mineral Security in India	27 – 29 Sep, 21
27.	Heat Treatment - Metallurgy and Processes	27 – 29 Sep, 21
28.	Microsoft Azure Cloud Administration	27 – 30 Sep, 21
29.	Power Quality, Harmonics Mitigation and Reactive Power Management in T&D Systems	28 – 30 Sep, 21
30.	Quality Control and Engineering Inspection	28 – 30 Sep, 21
31.	Smart Irrigation Technology for better Water Use Efficiency	28 – 30 Sep, 21
32.	Cold Forging / Cold Extrusion Technology	29 Sep – 01 Oct, 21

For detail information please contact:

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President, IEI Conferred with 'Distinguished Friend of Africa' Award



Federation of African Engineering Organisations (FAEO) conferred the **Distinguished Friend of Africa Award** on to Er. Narendra Singh, FIE, President, The Institution of Engineers (India) for putting efforts towards advancing engineering education and practice in Africa as well as consistent support to FAEO. The said Award was presented to Er Narendra Singh by Mr G L Rao, Past President, The Institution of Engineers (India) at the 709th Council Meeting of The Institution of Engineers (India) held at Engineering Staff College of India (ESCI), Hyderabad on 30 July 2021.



Er Narendra Singh, FIE, President, The Institution of Engineers (India) inaugurated the **East Gate** of Engineering Staff College of India (ESCI) on 29 July, 2021 in presence of Council Members, ESCI officials and other dignitaries.



Er Narendra Singh, FIE, President, The Institution of Engineers (India) has laid down the foundation stone for **Centenary Convention Centre** of Engineering Staff College of India (ESCI) on 12 June 2021 virtually. President, IEI along with Council Members and other guests visited the construction site on 30 July 2021 during the 709th Meeting of the Council.



Er Narendra Singh, FIE, President, The Institution of Engineers (India) laid down the foundation stone for **Academic Blocks Complex** of Engineering Staff College of India (ESCI) on 31 July, 2021 in presence of Council Members, ESCI officials and other dignitaries.

I.E.I NEWS

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