

## CHAIRMAN'S MESSAGE

Er. N. Rajkumar FIE



Climate change is threatening the whole world. We in India is also facing this situation. Our state is going through a very hot summer and scarcity of drinking water is threatening the life in the state. At this juncture saving every drop of water is the social responsibility of all of us. The shortage of rainfall may lead us to power cut also. The ensuing month is to be very crucial for the state. We, engineers have to spread the message on scarcity of water and power at every nook and corner of the state.

In our State Centre CERCON is to start the gate coaching classes shortly. We are also working out programmes for skill developments for young engineers. Technical consultancy cell is expected to be active in the days to come.

## IEI Alumni Association

It is proposed to form IEI Alumni Association at IEI Kerala State Centre, Thiruvananthapuram. Persons who have passed Section-A & B examinations are eligible for membership. Eligible persons may please submit the following details to the State Centre by e-mail: [ietvm@gmail.com](mailto:ietvm@gmail.com) or phone 0471-2322991, 2322992, 2982102 at the earliest.

- 1) Name :
- 2) Date of birt :
- 3) Date of passing Section A & B Examinations:
- 4) Present IEI Membership and Number :
- 5) Address for Communication :
- 6) Phone No. :
- 7) Mob No. :
- 8) Present position :

For any clarification contact Mr.U.Balagopalan 9447211666.

## HONORARY SECRETARY'S DESK

Er. K. S. Udaya Kumar MIE

### Kerala State Centre Diary

**03-05-2017** Talk on 'Vedic Mathematics' by Prof. (Adv.)N.Hariharan, Former Head of Information Systems, Indian Oil Corporation.

**10-05-2017** Talk on 'Missile Technology' by Er.Jayakishore S.R., Deputy Manager, Planning, BrahMos Aerospace, Thiruvananthapuram.

**17-05-2017** World Telecommunication and Information Society Day 2017 Celebrations. Theme: Big Data for Big Impact.

**24-05-2017** Talk on 'Recent Trends in Food and biomedical Applications' by Dr.N.Moorthy,

**31-05-2017** Talk on 'History of Fracture Mechanics' by Shri A.K. Asraf, Group Director, Structural Dynamics & Analysis Group, LPSC, ISRO



## Voice of Kerala Engineers

### Notice-Please respond urgently

During the Third Committee Meeting of IEI Kerala State Centre for the Session 2016-2018 held on April 2, 2017, while many Members suggested to send this News Magazine by e-mail, some wanted to continue the present method of sending by Post. It is also to limit printing cost. Hence, Members desirous of receiving this News Magazine by Post may inform State Centre, positively, before 15 June 2017 through e-mail, Phone or SMS. The News Magazine is available at [www.ietvm.org](http://www.ietvm.org)

## Summer Vacation Classes for School Students

The Institution of Engineers (India), Kerala State Centre in association with Kerala State Council for Science, Technology and Environment and Energy Management Centre – Kerala is conducting Summer Vacation Classes for School Students on fundamental theory and practise in assembly and testing of electronic devices at The Institution of Engineers (India), Kerala State Centre,VisvesvarayaBhavan,Thiruvananthapuram from April 10 to May 12, 2017.



Inauguration

The inauguration of the classes was held on 10th April, 2017 by Er. N.Rajkumar,Chairman,IEI, Kerala State Centre, who presided over the function. Er.S.Radhakrishnan, Honorary Director, CERCON presented the course details. Earlier, Er.K.S.

Udaya Kumar, Hon. Secretary, IEI KSC welcomed the gathering. 37 students are attending the classes.

The function concluded with vote of thanks by Er.K.Sarat Kumar, Immediate Past Hon. Secretary, IEI KSC. The classes are handled by Mr.G.Sanal Kumar, Consultant Trainer for Practical Electronics.



## Artificial Intelligence - An Overview



*Er. N.T Nair, Past Chairman, IEI, Kerala State Centre & Chief Editor, Executive Knowledge Lines*

“Artificial Intelligence is the science and engineering of making intelligent machines, especially intelligent computer programs. It is related to the similar task of using computers to understand human intelligence, but AI does not have to confine itself to methods that are biologically observable.” As defined by: Stanford University

**Some Highlights of Artificial Intelligence:** Artificial Intelligence (AI) is a branch of computer science that pursues creating machines or computers as intelligent as human beings.

According to John McCarthy, the father of Artificial Intelligence, it is “The science and engineering of making intelligent machines, especially intelligent computer programs”. In another way, Artificial Intelligence is a way of making a computer, a computer-controlled robot, or a software think intelligently, in a manner, we, humans think.

AI is accomplished by studying how human brain thinks, and how humans learn, decide, and work while trying to solve a problem, and then using the outcomes of this study as a basis of developing intelligent software and systems.

**Philosophy of AI:** While exploiting the power of the computer systems, the curiosity of human, lead him to wonder, “Can a machine think and behave like humans do?”

Thus, the development of AI started with the intention of creating similar intelligence in machines that we find and regard high in humans.

**Goals of AI:** To Create Expert Systems – The systems which exhibit intelligent behavior, learn, demonstrate, explain, and advice its users. To Implement Human Intelligence in Machines – Creating systems that understand, think, learn, and behave like humans.

**What Contributes to AI?** Artificial intelligence is a science and technology based on disciplines such as Computer Science, Biology, Psychology, Linguistics, Mathematics, and Engineering. A major thrust of AI is in the development of computer functions associated with human intelligence, such as reasoning, learning, and problem solving.

**Out of the following areas, one or multiple areas can contribute to build an intelligent system:** Computer Science, Psychology, Philosophy, Sociology, Neuron Science, Mathematics, Biology

**What is AI Technique?** In the real world, the knowledge has some unwelcome properties- Its volume is huge, next to unimaginable •It is not well-organized or well-formatted •It keeps changing constantly.

**AI Technique is a manner to organize and use the knowledge efficiently in such a way that** –It should be perceivable by the people who provide it • It should be easily modifiable to correct errors •It should be useful in many situations though it is incomplete or inaccurate.

**AI techniques elevate the speed of execution of the complex program it is equipped with.**

**AI has been dominant in various fields such as –**

**Gaming** – AI plays crucial role in strategic games such as chess, poker, tic-tac-toe, etc., where machine can think of large number of possible positions based on heuristic knowledge.

**Natural Language Processing** – It is possible to interact with the computer that understands natural language spoken by humans.

**Expert Systems** – There are some applications which integrate machine, software, and special information to impart reasoning and advising. They provide explanation and advice to the users.

**Vision Systems** – These systems understand, interpret, and comprehend visual input on the computer. For example, A spying aeroplane takes photographs, which are used to figure out spatial information or map of the areas.

Doctors use clinical expert system to diagnose the patient.

Police use computer software that can recognize the face of criminal with the stored portrait made by forensic artist.

**Speech Recognition** – Some intelligent systems are capable of hearing and comprehending the language in terms of sentences and their meanings while a human talks to it. It can handle different accents, slang words, noise in the background, change in human’s noise due to cold, etc.

**Handwriting Recognition** – The handwriting recognition software reads the text written on paper by a pen or on screen by a stylus. It can recognize the shapes of the letters and convert it into editable text.

**Intelligent Robots** – Robots are able to perform the tasks given by a human. They have sensors to detect physical data from the real world such as light, heat, temperature, movement, sound, bump, and pressure. They have efficient processors, multiple sensors and huge memory, to exhibit intelligence. In addition, they are capable of learning from their mistakes and they can adapt to the new environment.

## NEWS FROM LOCAL CENTRE

### Palghat Local Centre

World Water Day 2017 was observed by Palghat Local Centre of IEI on 22-03-2017. Er Jayakumar P., Senior Principal Scientist & Head, Environmental Studies Division, Centre for Water Resources Development and Management (CWRDM), Kozhikode delivered a speech on the theme “Wastewater”. Er A.Kesavan, Chairman of the Local Centre presided over the function.

Er Jayakumar P, in his speech, pointed out that water is our most precious natural resource which sustains all life on earth. It is a finite and irreplaceable resource that is fundamental to human well-being. In comparison to other states, Kerala is blessed with high rainfall as well as plenty of natural water sources, but it has the lowest per capita share of freshwater resources in the country. Recent evidence shows that high population density, industrialization, urbanization, mismanagement of water resources and vagaries of climate change have taken their toll on the water resources in the state. Evidence also shows a very high degree of contamination of groundwater with a high number of wells contaminated with coliform bacteria due to the mixing of sewage with groundwater.

The wastewater is used water. It includes substances such



*Er A.Kesavan, Chairman delivers the welcome address*

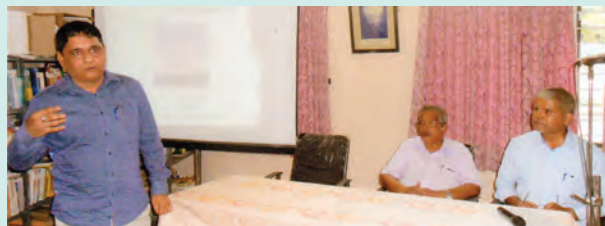
as human waste, food scraps, oils, soaps and chemicals. In homes, this includes water from sinks, showers, bathtubs, toilets, washing machines and dishwashers. Businesses and industries also contribute their share of used water that must be cleaned. Reuse of treated wastewater has been proven a reliable alternative water resource, which can constitute a significant component of integrated water resources management and provides an effective solution to cope with water scarcity conditions. Treated wastewater can be used in agriculture also.

The session concluded with a vote of thanks by Hon. Secretary Dr E.K.K.Nambiar

### Trichur Local Centre

The Institution of Engineers (India) Trichur Local Centre conducted Technical Meeting on Saturday 28th January 2017. Er.Damodaran.V FIE, Chairman presided over the meeting.

Er.V.Narayanan, Past Hon. Secretary introduced the Chief Guest Sri P.Suresh, Int: PE(International Professional Engineer) presented the theme “Managing Electrical Safety in Live Substation”. Er.Sugathan U.K. , Hon. Secretary proposed vote of thanks.



*Present the Theme paper Sri P.Suresh, Int: PE.(International Professional Engineer)*

### Kochi Local Centre

A talk on “Smart Grid Development in India: Problems and Prospects” was presented by Er. K Vijayachandran, FIE, former Chairman of IEI Kochi Local Centre on 11 March 2017 in which he explained the future of smart grid development in India, its prospects and problems. He opined that connectivity from northern side of India to the southern side is not strong enough to transfer Very High Voltage (VHV) to suit the demand. In northern states, he said, power generation is more than the demand and in southern states, it is just the contrary. Hence a 440 kV VHV line (double circuit), 1830 K M long, is planned to be constructed from Chattisgarh to Tamil Nadu which can transfer 4000 MW power! NGPC has awarded this Rs. 5700 cr. project to ABB and BHEL to be executed as a joint venture. This project is included in Prime Minister’s Make in India programme and



*Er. K Vijayachandran, FIE making his presentation*

expected to be completed by 2019. Once commissioned, this will provide a solace to the present power shortage in South India.

A grid to be smart requires good quality power made available at the finger tips of the consumer which in turn requires a strong net work of generation, transmission and distribution.

The speaker pointed out that even though we promote solar plants, there are no P V modules manufactured indigenously and for getting them we are dependent on foreign manufacturers. Hence we have to explore avenues to make them in our country itself.

Earlier, Er. N Paul George., FIE, Chairman of Kochi Local Centre, IEI welcomed the gathering. Er.T.P.Raveendran, FIE, Hon.Secretary, Kochi Local Centre, IEI, proposed the vote of thanks.

### WORLD WATER DAY 2017

World Water Day 2017 was observed on 22, March, 2017, as means of focusing attention on the importance of fresh water and advocating for the sustainable management of fresh water resources. Er.Susan Jacob,FIE , former Managing Director of Kerala Water Authority gave a talk on “Waste Water , the theme of the day.



Er. Susan Jacob, FIE during her talk

She said that the main sources of waste water from domestic use are toilets, bath rooms, and kitchen; that from community use are industry, commercial and business activities, market places, farming activities. With the help of flow chart, she described the treatment of waste water. A slew of new technologies like Rotating Biological Contactors (RBC), Sequencing Batch Reactors (SBR) etc were well explained. She said only a meagre 32% of waste water is treated in class I cities and 8% in class II cities.

She concluded that management of sanitary sewage needs top priority than any other liquid waste. IEI too has a moral

responsibility of conducting awareness campaign about the ill effect sewage.

Earlier Er.N.Paul George, FIE, Chairman of Kochi Local Centre, IEI welcomed the audience. Er. T.P Raveendran,FIE, Hon. Secretary Kochi Local Centre, IEI, proposed the vote of thanks.

### Kerala State Centre- WEDNESDAY TALKS - Glimpses

**05-04-2017** Talk on ‘Skills for Jobs- Walking the Tight Rope’ by Er.P.Vijayachandran, Past Chairman, IEI Kerala State Centre.



**12-04-2017** Talk on ‘Personality Development and Awareness’ by Prof.Sisily Thompson, Police Training College.



**19-04-2017** Talk on ‘How Electrical Safety can be Achieved in Modern Building’ by Er.S.Gopakumar, Managing Director, Cape Electric, Chennai.



**26-04-2017** Talk on ‘Reliable Practices in Satellite Launch Vehicles’ by Dr. B. Valsa, Deputy Director (Systems & Reliability), VSSC, ISRO, Thiruvananthapuram.



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Admission will commence on 1<sup>st</sup> April 2017  
For registration contact our Office  
Telephone : 0471 2322991 or 2982102, Mobile : 9447450870, 9446004363

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May 2017



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**The Institution of Engineers (India)**  
Kerala State Centre  
Visvesvaraya Bhavan  
Opposite Kanakakunnu Palace  
Thiruvananthapuram - 695 033

Phone: 0471-2322991,0471 - 2982102, Fax: 0471 - 2322992  
E-mail: ieitvm@gmail.com, keralasc@ieindia.org  
Web: www.ietvm.org

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