The Institution of Engineers (India)

KANCHEPURAM LOCAL CENTRE

NEWSLETTER

ISSUE 1 JUNE 2017

Chairman's Desk

It gives immense pleasure to write this column in our maiden newsletter of IEI Kanchepuram a newly formed local centre of Institution of Engineers under the IEI Tamilnadu State Centre. IEI Kolkatta has recognized the importance to form this Kanchepuram Local Centre (KLC) with a definite goal set to link vast technical professionals in this hub of manufacturing Industries, IT Sectors and educational Institutions in Kanchepuram district.

The newly formed Executive Committee Members with experts from diversified disciplines met recently and planned future activities. We have a qualified Professional Engineer amongst us in this committee. The Centre is receiving adequate support from the Tamilnadu State Centre and through their guidance started functioning very well among professional Engineers, Academicians, Researchers and Students.

The Institution of Engineers (India) or IE (I) is the largest multi disciplinary professional body that encompasses 15 engineering disciplines and gives Engineers a global platform to share their professional interest. It has 97 years of relentless journey towards Engineering Advancement for Nation Building.

IEI – KLC is planned to have membership drive from Industries and educational Institutions. It is proposed to inaugurate IEI – KLC Office at Agni College of Technology Campus on 24th June 2017 to develop the Centre activities. Opening of website of IEI – KLC is also scheduled.

IEI KLC celebrated the World Environment Day at Agni College of Technology on 5th June 2017, wherein Dr. Sultan Ahmed Ismail, Director – Ecoscience Research Foundation, Chennai had delivered very useful lecture titled, "Connecting People to Nature" is also arranged to kindle the minds of young professionals.

We have designed this newsletter to be interesting to read by having articles from students and activities of our Centre. I am glad to inform our maiden proposal to organize a national seminar is approved by IEI HQ. We have been strengthened by joining of Ms Monica ME to communicate with you all in a more effective manner. We are thankful to the management of Agni College of Technology for hosting this Centre

Let me close by thanking everyone who visualized and supported in establishment of IEI Kanchepuram. The Centre is seeking assistance from like-minded engineering professionals to join and make it more rewarding to share our technical expertise to serve the society

With profound regards,

Dr. R.Venkatesan PhD FIE

Chairman

Honorary Secretary's Desk

Dear Engineers,

We have started well, and now need to keep the momentum up making sure we create the maximum benefit for our society from IEI (Kanchepuram) chapter. To achieve progress and to meet the objectives, we have to cross numerous milestones. This maiden issue of the newsletter should inspire all of us for a new beginning enlighten with hope, confidence and faith in each other in the road ahead. Our aim is to send out a newsletter on a monthly basis to advise you of future events, report on previous events and encourage you to share research and professional development.

This newsletter is also an initiative of knowledge sharing program, and we hope that it helps to further promote a sense of professionalism among IEI researchers. Various proposals are submitted to the headquarters for approval for conducting national level workshop / seminars etc; Besides the general activities organized by the committee, let us all join together to develop our professional exposure by attending activities related to giving lectures and organizing workshops at universities and engineering institutions, in order to promote the engineering profession and make engineers and students aware of the recent trends and emerging topics that are involved in engineering practice and thereby know the means and the significance of being an engineer. If you have ideas about how you would like to be involved with us, please contact us.

Let us grow together to make a better community.

Dr. S. R. R. Senthil Kumar, FIE

Hon. Secretary

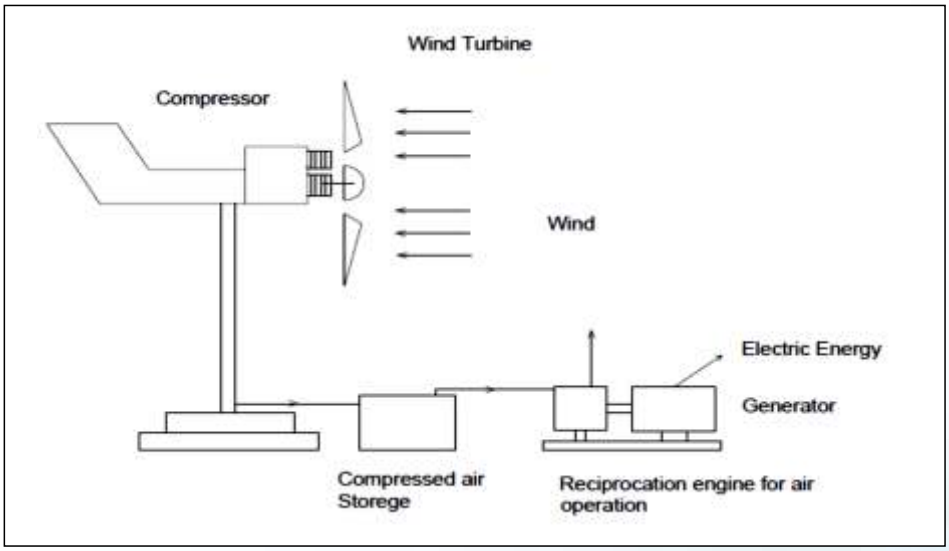
Executive Committee Members

No	Member	Designation	Devision	Membership No.
1	 **Dr. R. Venkatesan, FIE** Scientist & Head, NIOT 9444399829 venkant@niot.res.in	Chariman	Mechanical Engineering	F11839-7
2	 **Dr. S.R.R. Senthil Kumar, FIE** Principal, Agni College of Technology 9445024081 srr_senthilkumar@yahoo.com	Hon. Secretary	Civil Engineering	F-119791-2
3	 **Dr.G.Ranganath,** FIE Principal Adhiyamaan College of Engg. 9443260071 vp@adhiyamaan.ac.in	IEI Chairmam TNSC Ex Officio Member IEI Counsel Member	Mechanical Engineering	F-111669-MC
4	 **Mr.TM Gunaraja,**FIE TMG College of Arts & Science 9444026120 tmgraja@live.in	Ex Officio Member IEI Counsel Member	Mechanical Engineering	F-017041-MC
5	 **Er.R.Ramdoss,** Hon.Secretary,IEI Tamil Nadu State Centre. 9444019091 ramdoss63@gmail.com	Ex Officio Member	Production Engineering	M139538-0
6	 **Prof.K.Palanikumar,** M.E.,Ph.D.,F.I.E., Professor and Principal, Sri Sai Ram Institute of Technology 9677053338 palanikumar_k@yahoo.com	Member	Mechanical Engineering	F-116936-6
7	 **Dr.B.Justus Rabi,** Principal, Shri Andal Alagar College of Engineering. 9894523063 bennisrobi@rediffmail.com	Member	Electrical Engineering	M-1452525
8	 **Commodore Shekar,** **Ex Navy** 9840936730 cmdeshekhar@gmail.com	Member	Marine Engineering	F-11143
9	 **T.R. K. Suriyaprakash** Executive Engineer - PWD O/D to HECE Department 9095444145 surii1960@gmail.com	Member	Civil Engineering	M-1396492
10	 **Dr. R. Ramakrishnan** Professor & Head Tamil Nadu Sports University 9444048854 ramkinr@yahoo.com	Member	Production Engineering	F-129169
11	 **Dr. R. Shiva Shankar** Assistant Professor Sri Sai Ram Institute of Technology 9840525502 shiva_master2005@yahoo.com	Member	Civil Engineering	M-1563496
12	 **Mr.R.Sundar,** Scientist, NIOT 9444041854 rsundar@niot.res.in	Member	Computer Engineering	M-14808107
13	 **Mrs. R. Illakiya** Assistant Professor Sri Sai Ram Institute of Technology 9894365989 ilakkiya.it@sairamit.edu.in	Member	Computer Engineering	M-1563496

A New Approach on Windmill Power Generation

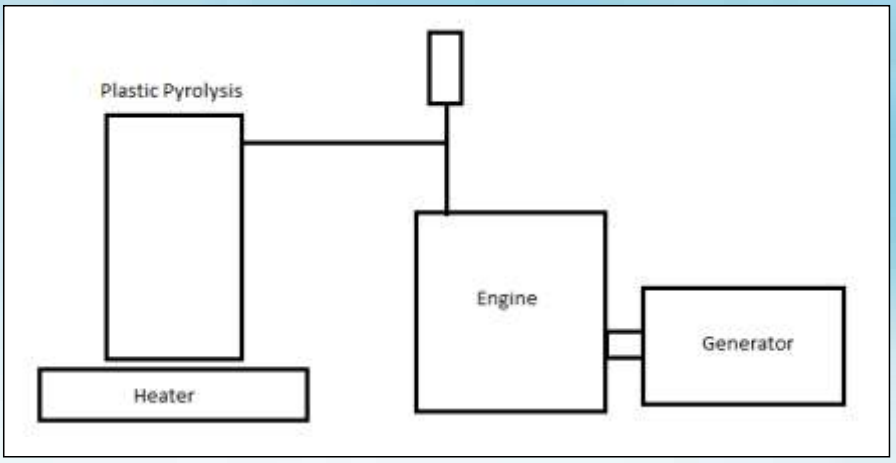
Dr.R.Karthikeyan,
HOD, Mechanical, Agni College of Technology

It is well known that windmills are used for pumping water and milling the grain in the ancient world. Later in the modern society it has been evolved as a power producing device most prominently. The limitations existing in the present windmills are its huge structure and poor speed control mechanism. Due to these problems, it cannot be used for continuous power generation. So, we developed a novel idea in which a light structured windmill coupled with air compressor is deployed for delivering compressed air to produce power. The delivered high-pressure air will be stored in a storage tank and then send to an air motor coupled with generator to produce electricity. This method uses an air motor to derive useful work from the compressed air delivered by the windmill. This work eliminates the conventional cumbersome controls and regulators of the windmill. Hence it is economic method of production of power from the wind. Also, it can be reduced to roof top size to install over the domestic buildings and to supply power for the grid isolated villages.



Energy from Waste Plastic – a new approach

Energy from waste is a revolutionary phrase in presentscenario. Energy in different form helps us to lead a better life day by day. On other hand, our betterment produces unavoidable waste around us and pollute the entire environment. Example for such a pollution is waste plastics around us in various forms like plastic bags, bottles, pipes etc., So there is an urgent need to avoid this pollution in a cost-effective way. Many researchers have been tried various unique techniques for the conversion of energy from waste. One such technique is conversion of waste plastic into liquid fuel and subsequent generation of power using it. Usually waste plastics are converted into liquid fuel through the thermal conversion method called pyrolysiswith or without catalysts. Due to the inherent technological problems in this method, certain fractions of the plastic vapors cannot be condensed into liquid and simply let out to the atmosphere leads to a severe air pollution.So, we proposed a novel technique in which waste plastics are directly converted into plastic vapors insteadof liquid fuel. The avoidance of non-condensed toxic or harmful plastic fractions which cannot be condensed are directly burnt in the engine leads to least possible emissions. This method has more advantages like direct vapour usage in engine, simple or no modification required in engine, easy adaptability, high calorific value as compared to petroleum fuels.



Batteries and Ultracapacitors

G. Guru Sivakumar
Assistant Professor-EEE, Agni College of Technology

Battery is widely used as the only(primary) energy storage system for domestic Hybrid Electric Vehicle systems. Because of frequent stop/go operation of Evs and HEVs, the discharging and charging profile of the energy storage system is much lower than the peak power of relatively short duration required for acceleration and hill climbing. In order to simultaneously achieve high value of specific energy, specific power and cycle life, the Evs and HEVs should be a hybridization of energy source and the power source. The energy source, mainly batteries and fuel cells, has high specific energy, whereas the power source like ultra capacitors has high specific power. The Power source can be recharged from the energy source during less demanding driving. Batteries and ultracapacitors store energy that is either from the kinetic braking or from the engine during costing.(fragment sentence) It also provides energy/power to the propulsion system, including during sudden power demand of the vehicle. It can be seen that the specific energy of the fuel cell is comparable with that of gasoline; however, its specific power is much less than that of gasoline, therefore the starting performance of a fuel cell vehicle could be worse than a conventional vehicle. Consequently, the battery and ultracapacitor may be used in conjunction with the fuel cell to improve the starting performance of the vehicle. Batteries are using (used in) electrochemistry principles to store electric energy, as inherently their specific energy is much less than that of gasoline. Ultracapacitors use static electricity principles to store electric power; therefore, they have high specific power. The major difference between battery and fuel cell is twofold. Firstly, a battery is an electric energy storage device, while (whereas) a fuel cell is an electric energy generation device. A fuel cell combines oxygen and hydrogen to produce electricity. Secondly, secondary batteries are rechargeable and self-contained, while a fuel cell is a complex system, including fuel cell stack, heat exchanger, compressor, etc., just like a power plant system. Therefore, fuel cell commercialization is more complex, since it has more auxiliary systems including the hydrogen infrastructure. The electrical energy storage units must be sized so that they store sufficient energy (in kilowatt hours) and provide adequate peak power (in kilowatts) for the vehicle to have a specified acceleration performance and the capability to meet appropriate driving cycles. Batteries that are suitable for use in EVs, HEVs, and FCVs include the lead acid battery, nickel-metal hydride battery, lithium-ion battery, etc. Batteries generally have high energy density but less power density compared to ultracapacitors. Ultracapacitors have a very high power density, but hold very little energy. Hybrid energy storage that combines a battery and an ultracapacitor pack can provide both the power and energy needs of an HEV. According to the present state of the art of battery technology and the vehicle performance requirements, the following summary on battery and ultracapacitor technologies can be drawn: 1) The energy density and power density characteristics of both batteries and ultracapacitor technologies are sufficient for the design of attractive EVs, HEVs, and PHEVs. The primary questions concerning these technologies are calendar and cycle life and cost. 2) Battery-powered vehicles (EVs) using lithium-ion batteries can be designed with ranges up to 240 km with reasonable size battery packs. The acceleration performance of these vehicles would be comparable or better than conventional ICE vehicles. 3) Charge-sustaining engine powered HEVs can be designed using either batteries or ultracapacitors with fuel economy improvements. The level of fuel economy improvement depends on the size of motor and battery, namely, whether micro hybrid or mild hybrid or full hybrid. 4) Plug-in hybrids (PHEVs) can be designed with an effective all-electric ranges of 30–60 km using lithium – ion batteries that are relative.

Student Section

B. S. Ravi Kiran,
III year EEE, Agni College of Technology

MY CLIMATE, MY FUTURE

India is a country which has a vast and varied heritage. The country is not only a developing country, but also the one which respect the culture, religious, caste and gender in the path of development. As we know that to the gain one thing we need to sacrifice the other likewise in the path of development, India is losing the biodiversity which was India's one of the greatest pride. Change is the only thing that doesn't change, as the technologies change the environment we live in had also been changed. It has a direct impact on the climatic change and human health. Each and every drawn of a day new technologies are developed and for each technology we use nature contributes itself to it. The climatic change does not take place in a day or even a week, it takes years and years to happen. But what we do during that time plays a major role in it.

For each and every action we do, it has an equal action that is taking place in nature. Before a decade these were a time when we use to feed the sparrows and we keep a bowl of water for it. But when we all started using a mobile phone number of sparrows decreased. Now for the next generation, we are searching for sparrow to show and later we will be searching only on Google. Not only that when we take the automobile development, a few years before only for a long distance we used our own vehicle last now even for going to next street we need a bike or car. This increased the emission of carbon dioxide and the carbon footprints has also increased a lot. The main problem with all of us is, we all want to show our status in the society by having a bike or car, but we don't even think of the impact it makes on our nature.

"Education is a most powerful tool," said by Swami Vivekananda, but that powerful tool is used only for the destruction and exploitation. **"Educating the mind without educating the heart is no education at all"** by Aristotle this what is happening in the 20th century, we have used our education in only by mind that means that we are losing our identity, our responsibility and our duties and humanity on this earth. We all want to travel on the journey of development, but we don't want to have nature as our co-passenger, that's the major or foremost crime a human is committing. In India, for every one hour 2000 acres of rainforest are being destroyed and each and every day an animal becomes extinct. These all lead to the change in our climate. When there is a change in our climate there is change in our habitat, when there is change in our habitat there is change in our health. So, what we give to nature comes back to us as a reward from nature and nothing else.

Many new projects, schemes and development programs are being organized by the government of India like the most important one is **"MAKE IN INDIA"**. Yes, we have all decided to make everything in India, it's appreciable but have we thought where it is going to be carried out on and how it is going to take place. Now Indian government is clearing the large forest area and evacuates the tribal people living out there. And it does not stop there, but consumes all the natural resources we have and just leaving a red hot planet called earth, from a blue planet to a red hot planet. Even though when the government takes necessary plans and implements many acts like **Environment protection act 1986, Forest conservation act 1980, Wildlife protection act 1972** is all being just a namesake act. Where the corruption and scams can break all these acts peacefully.

The biggest challenge that India faces is the climatic change, it's not only India but the whole world faces it and India is a part of it. The ground water level has decreased, the green vegetation that were found is now vanishing and more than that the wild lives are drastically gets affected. But 5-6 years, India's states and cities had the types of climate, i.e., autumn, spring, rainy, winter and summer but now throughout the year it's only summer that prevails.

Only in geographical books we are seeing the different types of climates but not in real life. (Rephrase) We see different types of climates in geography books but not in the real life. We have so much of schemes, programs and acts, but still we face such a problem, this makes everyone to think whether acts are in action. And blindly, we cannot say no to technological development too. Once it has become our life, but now it has become our lifestyle and as for a livelihood, we need food, water and shelter. We are in a state that technology should also be included in the list. But how to change this scenario, this is a big question with an answer in all our hands. If education is the most powerful weapon and technology is the driving tool, then why can't we use the same to control, prevent and at one time completely stop it. We have made the change and we can make the change again as we know change is the only thing that doesn't change.

Foremost of all, the acts and programs that are already implemented have to be carried out effectively. This cannot be done only by government, but 'We' people have to join our hands with the

government as we know by a simple proverb "unity is wealth". Actually a role of an individual person is more important.

- When each and every individual are made aware of it, then there is no need of any other acts and programs to be carried out. When every individual does his duties and takes up responsibility then the climatic change will change.
- And the next thing to be done is that the industries and factories should be laid new rules and regulations. When an industry or a factory is being planned to build, the number of trees they clear for the construction, the same number of trees must be planted in less vegetative area. Then the ecological balance will be maintained even when the steps for development is taking place. And not only that, government must ensure that the industries are having proper water and air recycling system to decrease the toxic level in our environment.
- The installation of more and more solar panels for renewable energy will be a great breakthrough in climatic change. Government should take the necessary steps to install a number of renewable energy which will automatically reduce the emission of CO_2 and other greenhouse gases.
- As an individual what's our responsibility and duties has first created awareness among the illiterates people and sometimes even to the educated ones. So making awareness among people is the most important thing when we get into action.

- Government should approve construction of houses, apartments or any other building if there is a proper rain water harvesting system in the plan. If this is followed by the construction companies, we can easily and surely increase the ground water level. Which automatically decreases the temperature of our planet earth and making it always as a blue planet always. If we effectively follow the rainwater harvesting system, then the water scarcity can also be reduced.
- A new smart card system should be introduced, according to that each individual will be provided a smart card depending upon the work they do and the distance travelled by the individual each day. Only a limited amount of petrol will be provided by the petrol bunk that is prescribed by the government to that particular individual. This system is same like the ration card system that is already in action. If this type of system is implemented, then the emission of greenhouse gases can be completely reduced and each individual will be conscious of using the fuel and it will be left for our next posterity.
- The Indian government should implement that all the houses, apartments and buildings should have at least five trees and the government should provide subsidies for the houses having more than five trees. Even planting trees are a common solution that is given by all environmentalists.
- A small village in Madhya Pradesh had a culture that for every girl child born a tree has to be planted. And now there are more than 150 trees in the village and it has automatically increased the ground water level and also the vegetation of the village. This type of culture is spreading to the surrounding villages.
- A farmer in Thailand had created a new forest of 3000 acres by planting tree sampling (sapling), it all had begun when he planted a small tree sampling (sapling). Planting a tree sampling is like “A STEP FORWARD FOR A BIG LEAP AHEAD”. India government is signing many new policies with other countries, but the policies are mostly the industrial growth and technological development. The Indian government must ensure that it does not affect our earth, to check whether it provides enough protection and space for other living organisms too, by not only considering human beings as living ones, but also the wildlife and the rich and valuable heritage as the biggest pride of India as before. Changes will keep on taking place, but how we react to the changes and how we modify our environment matters a lot and it plays the key role in protecting the human health from climatic changes and especially climate change from the activities done by us.

- NECESSITY IS THE MOTHER OF INVENTION
- DEVELOPMENT IS THE MOTHER OF DESTRUCTION
- TECHNOLOGY SHOULD BE THE TREATMENT FOR THAT DESTRUCTION

SO LET US BE THE CHANGE, TO CHANGE THE CHANGE TO STOP THE CLIMATIC CHANGE

Workshop on intellectual property rights & innovations

Two days workshop on Intellectual Property Rights & Innovations was held at Sri Sai Ram Institute of Technology, Chennai during 9 - 10 March 2017.. Cheif Guest Dr.M.Kantha Babu Director, Centre for Intellectual Property Rights consented and delivered the address to the Students


Sri
SAI RAM INSTITUTE OF TECHNOLOGY
(An ISO 9001 : 2008 Certified Institution)
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Department of Electronics and Communication Engineering
IEI sponsored
The Institution of Engineers (India)
Cordially invite you for the
Two Days Workshop on
Intellectual Property Rights & Innovations
Date : 09.03.2017 - 10.03.2017 at 10.00 A.M.
Venue : College Seminar Hall
Dr. M. Kantha Babu
Director, Centre for Intellectual Property Rights,
College of Engineering Guindy, Anna University, Chennai.
have kindly consented to be the Chief Guests
Dr. G. Thamarai Selvi
HOD
Dr. K. Palanikumar
Principal
Sai Prakash Leo Muthu
CEO
Sairam
www.sairamgroup.in


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Certificate of Participation
This is to certify that ..... of
..... has attended Two Days Workshop on
"Intellectual Property Rights and Innovations" held on 09.03.2017 - 10.03.2017.
Hologram
Rajeshwari P
Co-ordinator
Dr. G. Thamarai Selvi
HOD
Dr. K. Palanikumar
Principal
Sai Prakash LeoMuthu
Chief Executive Officer
Sairam
www.sairamgroup.in

Events Conducted

First Executive Committee Meeting

5th May 2017

World Environment Day

5th June 2017

World Environment Day was celebrated on behalf of Institution of Engineers (India) Kanchepuram Local Centre. Dr. Sultan Ahmed Ismail Director- Eco science Research foundation was the Chief Guest. The function started formally with Tamil Thai vazhthu at 2.00pm on 5.6.2017 Dr. R. Venkatesan, Chairman, IE(I) Kanchepuram Local Centre welcomed the gathering and felicitated the Chief guest with a shawl and memento. Dr. Sultan Ahmed Ismail gave an inspiring speech on importance of conserving earth and its natural resources. He explained this year's Environment Day theme “connecting people to nature“ he insisted the need of projects which are useful to the society. He created an awareness of hazards due to adulteration of soil and food related products . He spoke vividly about hybridation and genetically modified seeds and other items.

Dr. S. R. R. Senthil Kumar, Hon. Secertary, IE(I),Kanchepuram Local Centre proposed the vote of thanks and also elaborated about the responsibilities and the scope of the Institution of Engineers in the future. The Programmed came to an end with the national anthem at 3.00 PM.

Dr. S. R. R. Senthil Kumar Honorary Secretary, Kanchepuram Local Centre has been participated in the interactive session for chairman & Honorary Secretaries of IE(I) state & local centers on 19th February 2017 in Engineering Staff college of India at Hyderabad.

Latest Technology. What's New?

Venkatraman Venkitachalam
Director at EFENP Automation P. Ltd.

Tata Motors & ISRO reveals India's first hydrogen fuel cell bus in India. The Hydrogen Powered Starbus Fuel Cell bus is a zero-emission mass transport solution, for inter-city commute and has been developed in partnership with ISRO . Combining hydrogen gas and oxygen, the fuel cell produces electricity to power the electric motor, with water and heat as a by-product. This is the first time an Indian manufacturer has ventured in this direction

Venkatraman Venkitachalam
Director at EFENP Automation P Ltd

Forthcoming Events

1 Workshop on Emerging Trends in Higher Education to be held on 24.06.2017 under the banner of Kanchepuram Local Centre of Institution of Engineers (India) at Agni college of Technology campus, Chennai -600 130

2 Meeting of the Council, Division board & committees where held at New Delhi during 30th June - 2nd July 2017

3 ONE DAY SEMINAR ON "Ethical Hacking", (IEI - 2017) on 22nd July, 2017 Venue: Agni College of Technology campus

4 ALL INDIA SEMINAR on "Green Computing, Intelligent and renewable energies", (IEI-2017) on 7th & 8th January,2017. venue: Agni college of Technology campus.

5 Twenty-fifth IEI convocation and Technicians' / Students' convention on October 28-29, 2017 Goa

6 IEI announces annual awards for the Best Student's chapter Award amongst the Engineering Colleges. The award will be issued during its 25th Annual convocation to be held at Goa on 29th October 2017.

7 Announcement from IEEE Madras, call for papers & registration for the Student Conference cum Paper Contest 2017 being hosted by IEEE Student Branch of Sri Eshwar College of Engineering during 15-16, Sep 2017.

Welcome to New Members

Membership No	Name	Address	Code	E mail	Contact No.
M-1583565	Dr.D.Sathia Narayanan	Chennai	600 100	dhinesh@niot.res.in	98405 06641
M-1578833	Dr.Dinesh	Chennai	600 100	sathia@niot.res.in	94456 49977
M-1578817	Mr.Balaji	Chennai	600 100	dbalaji@niot.res.in	97898 95379
M-1578841	Mr.K.Mullaivendhan	Chennai	600 100	mullai.vk@gmail.com	98842 54642
AM151075-7	Mr.A.Umapathy	Chennai	600 100	aumapathyee@gmail.com	92833 45230
M000249-8	Dr. C. Chellappan	Chennai	600 063	principal@gkmcet.net.in	044 - 2279 2403

The Institution of Engineers (India)

(Established 1920, Incorporated by Royal Charter 1935)

KANCHEPURAM LOCAL CENTRE

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