



The Institution of Engineers (India)  
(ESTABLISHED 1920, INCORPORATED BY ROYAL CHARTER 1925)

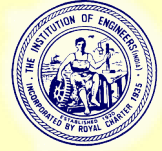


## **IEI - TLC - NEWS**

IN-HOUSE NEWS LETTER OF  
THE INSTITUTION OF ENGINEERS (INDIA)

**TIRUCHIRAPPALLI LOCAL CENTRE**

[www.ieitiruchi.org](http://www.ieitiruchi.org)



Issue No. 2017/07-08

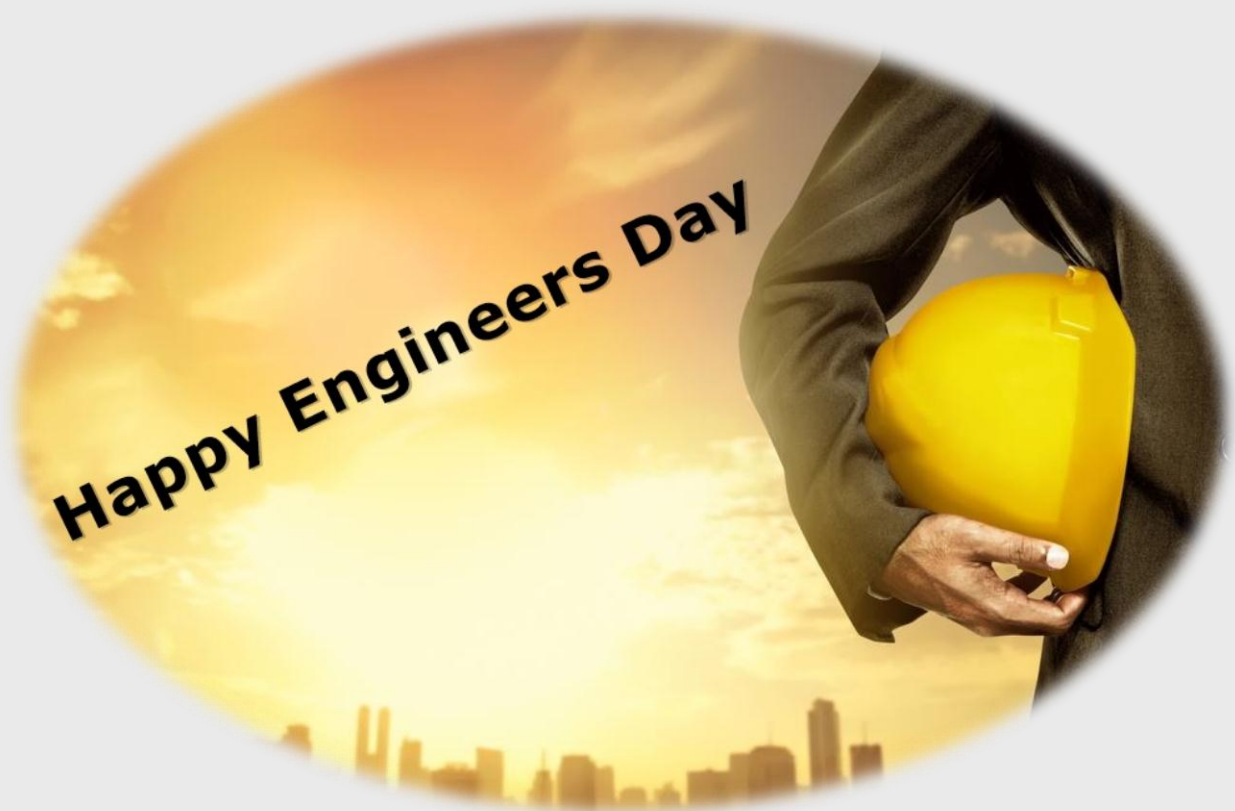
CHAIRMAN: **Er. R. SELVARAJ, FIE**

HON. SECRETARY: **Er. S. LAKSHMANAN, MIE**

# **IEI – TLC - NEWS**

## **Wishes**

## **It's Readers**





## **CHAIRMAN SPEAKS.....**

Dear Engineers,

Warm & Best Greetings to all.

Very happy to meet all of you through our IEI-TLC E Newsletter.



It is a great pleasure for me to appreciate that the editorial team of IEI-Tiruchirappalli Local Centre in bringing out the fifth issue by taking lot of initiatives. From April 2017, so far we have conducted & covered the following 14 engineering disciplines technical programmes. (I.e.) Chemical Engineering, Computer Engineering, Electrical Engineering, Electronics & tele.comm.engg, Mechanical Engineering, Marine Engineering, Production Engineering and also about Goods & Services Act in General & Inter Disciplinary area. Architectural Engineering, Aerospace Engineering, Environmental Engineering, Metallurgical & Materials engg, Textile Engineering. We are yet to cover the Mining Engineering, which we are planning in November.

I request all the members to attend the forth coming technical programs & get benefitted. We have successfully conducted 50<sup>th</sup> Engineers Day 2017 on 15<sup>th</sup> September 2017 Evening at our Local Centre Premises. More than 300 Engineers participated with their Families & it was a very good Get together.

The Activities are in advanced stage for 33<sup>rd</sup> National convention of Electrical Engineers in the emerging topic "Hybrid AC/DC Power System for effective Utilization of Renewable Energy" from 24 & 25<sup>th</sup> Nov 2017 at NITT in association with BHEL, Tiruchirappalli & National Institute of Technology, Tiruchirappalli. I request all the interested members to participate & disseminate the same to all the relevant industries & get benefitted. The relevant brochure is also attached with our E News Letter.

32<sup>nd</sup> INDIAN ENGINEERING CONGRESS is going to be conducted in DECEMBER 21-23, 2017 by our IEI Tamil Nadu State Centre at Hotel Le Royal Meridian, Chennai. We have to extend all our support for the same.

I request all our members to motivate new members to join our IEI to increase our strength.

We are requesting, expediting & trying to motivate all the engineering colleges and polytechnics in our zone to establish student chapters.

We solicit your support to make our local centre to be the best to disseminate the Engineering knowledge to this part of our country.

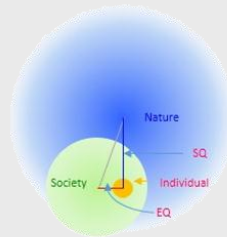
**My Advance Wishes to You & Your Family for a Happy Deepavali.**

With Best Wishes.

**(R. SELVARAJ)**



## SECRETARY'S DESK.....



Dear Member,

Warmest Greetings to you and your family.

The above figure represents Individual, Society and Nature and the interactions among them.

**Nature:** The Nature is represented by Living things and non-living things all together which what we see, feel and know about. The boundless blue Circle represents Nature. Nature includes Society and Individual within it. Nature have two parts Living things and Non-living things.

**Society:** The Society is represented by all human beings living in this world. The Society is a collective from of Individuals. Hence the general term Individual is within the Society. The Green Circle represents the Society which is completely within the Nature.

**Individual:** This is the most important component of everything. Individual means an individual human being. The Orange circle represent the Individual and is completely within the Society and within the Nature.

**Interactions:** The interaction between Individual and Society and between Individual and Nature forms all living activities. Actually an Individual represents within himself about Society and Nature. Without the five senses and the collective sixth sense these is no way for the individual to know about the Society or Nature. With these six senses and intuition an Individual understands nature to some extent.

The Individual gradually know about Non-Living part of the Nature by his five senses. As the time pass on with these knowing there is a collective sense which forms the collective details and experience. This is called the sixth sense. And Individual understands about the Non-Living part of the Nature which does not change over time or change with a definite rule which can be known by the sixth sense.

But all these six senses and Knowledge are not sufficient to know about the Society. To know about and to have control over the Society Individual have to know about the feelings of others. It is not possible to know about others feelings without told by themselves. But not all the members of the Society aware about their own feelings and to communicate about exactly. But there is a way. The individual is having their own feelings and can be understood by himself over time. The same way others also feel. Hence one who is capable of understanding his owns feelings & Emotions can also understand others feelings & Emotions represented by Emotional Quotient (EQ). This leads the understanding of the Society and to have control over that. This is the link between the Individual and the Society.

The living part of the Nature includes all living beings including Society and also the Individual. To understand this part of nature all the six senses and feelings are not sufficient. There is collective representation of everything. One can understand within himself this collective from by knowing himself represented by Spiritual Quotient (SQ). This is the link between Individual and the Nature. Every New Discovery and Invention by Individuals adds up the understanding of the Nature by the Individual. The Society gradually understands the Nature only through Individuals. Spiritual development of the individual helps to a large extent to understand and gain control over Nature.

**With Warm Regards,**

(S. Lakshmanan)



*Heartiest*

*Congratulations !* **to Er. SISIR KUMAR BANERJEE, President, Elect**

Er Sisir Kumar Banerjee FIE has been elected as the President of the IEI for the Session 2017-2018 at the 698<sup>th</sup> Council Meeting held at Shimla on 23<sup>rd</sup> September, 2017. The President-Elect will assume office during ensuring Indian Engineering Congress to be held in Chennai in December 18-20, 2017.

On Behalf of IEI, Tiruchirappalli Local Centre and its corporate members, we convey hearty congratulations and best wishes to the President Elect. Pray for all success during his tenure and the IEI excel its commitment to the engineering fraternity as a whole.





# CONTENTS



**NCEE 2017 BY TIRUCHY LOCAL CENTRE**



**ENGINEERS' DAY ACROSS THE GLOBE**



**RECENT LECTURES**



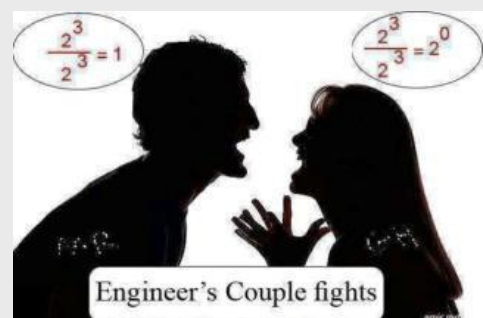
**UPCOMING EVENTS**



**TECHNICAL PAGES**



**FEEDBACK**





## **33<sup>rd</sup> NATIONAL CONVENTION OF ELECTRICAL ENGINEERS (NCEE 2017)**

### **& NATIONAL SEMINAR on**

### **Hybrid AC / DC power Systems for effective utilization of renewable energy**

**24 - 25 NOVEMBER, 2017 AT TIRUCHIRAPPALLI**

Tiruchirappalli Local Centre of The Institution of Engineers (India) located in BHEL Campus, is organizing the **National Convention of Electrical Engineers on 24 & 25<sup>th</sup> November 2017** at Tiruchirappalli. As a part of this National Convention, a **national seminar on “Hybrid AC/DC power Systems for effective utilization of renewable energy”** is also arranged. The convention is held at the premises of **National Institute of Technology, Tiruchirappalli**.

Global warming and limited fossil resources have forced people to pay more attention to renewable energy and the efficiency of energy utilization. Many electrical engineers have investigated adding dc micro-grids (MGs) in local distribution systems. A favorable solution is to build a hybrid dc and ac grid at distribution levels, to couple dc sources with dc loads and ac sources with ac loads. This explains the background for the National Seminar on “Hybrid AC/DC power Systems for effective utilization of renewable energy”.

**Chairman & Managing Director / IREDA has consented to inaugurate this event.** Leading organizations like BHEL, Tiruchirappalli, National Institute of Technology Tiruchirappalli, Dalmia Cements, TNPL, Velmurugan industries, Kalasalingam University are supporting this event. A technical exhibition is also arranged as part of this programme. Memorial Lecture in the memory of “M S Thacker”, former Director General, Council of Scientific & Industrial Research, Govt of India, New Delhi will be delivered by Dr. Ramamoorthy, Chancellor, K L University, Green fields, Vaddeswaram, AP. **More than 300 experts are expected to participate in this event. The details of the event are available in the brochure uploaded in the following websites – [www.ieitiruchi.org](http://www.ieitiruchi.org) and [www.nitt.edu](http://www.nitt.edu).** In case of any clarification, please contact IEI TLC office at 0431- 2554285 or Dr. Dharmalingam, convenor at 9443342066. IEI members can avail the concessional delegate fee. The registration form printed overleaf can be used for delegate registration.



# REGISTRATION FORM

**33<sup>rd</sup> National Convention of Electrical Engineers  
and National Seminar on  
'Hybrid AC/DC Power Systems for Effective Utilization of Renewable Energy'  
November 24-25, 2017, Tiruchirappalli**

Name (in Block letters) .....

Designation .....

Organization .....

Address .....

.....Pin.....

Ph No. (Office) ..... Mobile.....

**Registration category: (Tick the boxes as per your category / Strike out whichever is not applicable)**

**Delegate from**

- Industries & Govt. organizations     Academic institutes     Listeners
- IEI Member                             Student

**Sponsors**

- Gold Sponsor             Silver sponsor     Sponsor             Co-sponsor
- Lunch sponsor             Advertiser             Exhibitor

**Payment Details:**

DD/Cheque No..... Dt..... for Rs.....

Deposit slip for online payment Dt..... for Rs.....

**Signature**

**Note:** Please send this form along with DD/Cheque to "The Honorary Secretary, The Institution of Engineers (India), Tiruchirappalli Local Centre, BHEL Main Office Road, Tiruchirappalli – 620014" by post. In case of online payment, please send the scanned copy of this form along with deposit slip for online payment by email to [ieitlc1973@gmail.com](mailto:ieitlc1973@gmail.com) with a copy to [sdharma59@gmail.com](mailto:sdharma59@gmail.com). In case of any clarification please contact IEI office at 0431- 2554285 or Dr. Dharmalingam, convenor at 9443342066.



## ENGINEERS' DAY ACROSS THE GLOBE

Country	Date	Notes
Argentina	June 16	
Bangladesh	May 7	
Bahrain	July 1	
Belgium	March 20	
Bolivia	October 16	
Brazil	11 December 1933	Day that the Law 23.659 regulated the Engineer, Architect and Surveyor professions.
Canada	Month of March	
Chile	May 14	
Colombia	August 17	
Costa Rica	July 20 <sup>1</sup>	Corresponds to the date of Panamerican engineer's day
Croatia	March 2	Engineer's Day is celebrated on 2 March as a tribute to the date in 1878 on which first association of engineers was established in Croatia.
Ecuador	June 29	
Egypt	September, date variable	
Greece	March 10	Known in the across the engineering student community as "Hemera Mihanikou"
Honduras	July 16	
Iceland	April 10	
India	Sep 15	The Engineering Community across India is celebrating Engineers Day on 15 September every year as a remarkable tribute to the greatest Indian Engineer Bharat Ratna <a href="#">Mokshagundam Visvesvaraya</a> (popularly known as <b>Sir MV</b> ). He is held in high regard as a pre-eminent engineer of India. "Engineering Challenges for Knowledge Era" is the theme of Engineers Day 2015.
Iran	Week of 19 to 25 February - (23 February every year)	This day is celebrated to respect <a href="#">Nasir al-Din al-Tusi</a> , Iranian scientist.
Italy	June 15	
Mauritius	September 13	
Mexico	July 1	
Netherlands	Third Wednesday of March	



Country	Date	Notes
Panama	January 26	
Perú	June 8	
Poland	August 14	
Portugal	November 23	
Puerto Rico	13 to 19 May	Engineer's & Geometer's week
Romania	September 14	
Russia	December 22	Power Engineer's day
Singapore	23 to 24 July	Organised by The Institution of Engineers, Singapore (IES)
Slovakia	March 16	
Spain	March 19	
Sri Lanka	September 15	
Taiwan	June 6	
Tanzania	15 September	
United States of America	Week of February 22	Always the week in February that encompasses George Washington's birthday
Uruguay	October 12	
Venezuela	October 28	In commemoration of the instalment of the Engineers College on October 28, 1861

Source: Wikipedia

Visit our Website

<http://ieitiruchi.org>

and send your feedback to

[ieitlc1973@gmail.com](mailto:ieitlc1973@gmail.com)



# RECENT

## Lectures



### PROBLEMS IN KIDNEYS & ITS REMEDIES

*Division: General & Interdisciplinary*



On 4<sup>th</sup> July 2017, the centre organised a lecture programme on “Problems in Kidneys and its Remedies”. Dr Rajesh Rajendran, the speaker of the day explained clearly about the various problems in kidneys, bladder, urinary track, etc. using power point slides. Particularly he explained about the reasons for stone formation in kidneys, bladder and given

health advice to drink more water every day to avoid stone formation. He also explained about people living in which areas in and near by Tiruchirappalli district are found to be affected by stone formation problems. The different treatment procedures for kidney stones are also explained. This lecture was more informative and useful for the audience. About 45 people attended the lecture programme. Er. S Lakshmanan, Honorary Secretary, IEI TLC conducted the proceedings. Er. S Ramadas, Former General Manager, BHEL & Sr. Member of IEI introduced the speaker. After the presentation there was interactions with the Speaker from among the audience for more than 15 minutes. Er R Selvaraj, Chairman IEI TLC presented a memento and it was followed by felicitation by Er C Sivan FIE, Member IEI TLC. Er S Madhavan, Former Committee Member, IEI TLC proposed the vote of thanks.



### COMPUTERISATION OF LIBRARY TRANSACTION

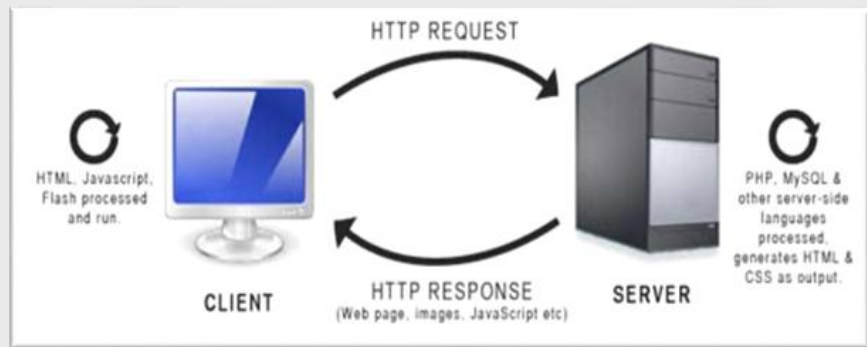
*Division: Computer Engineering*

Computer Society of India, Tiruchirappalli chapter joined hands with the local centre in organising the lecture programme on “Computerisation of Library Transaction”. Er. S Rajagopal, Deputy Engineer, ITS &S, BHEL delivered the lecture in the programme conducted on 11<sup>th</sup> July 2017 at the institute premises.





In his lecture the speaker elaborated the on the methodology followed in computerizing the community centre library of BHEL Township which has more than 11 500 books. He explained the Client – Server Architecture used for this purpose.



Earlier, Er. Dinaharan, Member welcomed the gathering. Er. R Selvaraj, chairman of the centre presented a memento the speaker. Er. B Chandrakanth, Committee member, IEI TLC proposed the vote of thanks. Er. S Lakshmanan conducted the proceedings.



## AN INSIGHT ON PROJECT MANAGEMENT

*Division: General & Interdisciplinary*



On 18<sup>th</sup> July 2017, Ms P Navya Product Manager, Synergy School of Business Skills, Tiruchy delivered the lecture on “An Insight on Project Management” which was a well-attended programme. In her lecture, the speaker said, “A project can be defined as a temporary endeavour undertaken to create a unique product or service. Projects are Unique, are temporary in nature and have definite start and end date. Projects are completed when project goals are achieved”.



ambitious scope”.

She further said, “There are three most significant restrictions on any project viz. Scope, Schedule and Cost. The three constraints are interdependent: None of them can be altered without affecting one or both of the others. For example, if the scope of a project is increased, it is likely to take longer and/or cost more. Likewise, an earlier deadline is almost certain to either require more money or a less



She also informed the audience that the project management Framework, according to the PMBOK Guide Fifth Edition embodies project life cycle and five major project Management process groups (Encompassing a total of 47 Processes) mapped to five process groups. She also briefed about the ten knowledge areas required for project management.



Earlier Er G Arumugam welcomed the gathering and introduced the speaker. Er. R Selvaraj, Chairman presented a memento to the speaker. Er. Annamalai, SADB offered his felicitations. Er. N Rajasekaran, Committee member proposed the vote of thanks. Er. S Lakshmanan conducted the proceedings.

## INTRODUCTION TO CALPHAD

*Division: Metallurgical & Materials Engineering*



Dr. K Santhy, Lecturer, Department of Materials Science Engineering, CARE College, Tiruchirappalli delivered a lecture on “Introduction to CALPHAD” on 25<sup>th</sup> July 2017 in the joint programme with IIIE.

In her lecture she said, “Microstructure and thereby engineering properties of alloy, strongly depend on the alloy chemistry. To understand their

correlations, multi-component phase equilibrium information is critically needed. In the traditional approach a series of experiments have to be carried out to determine the phase relations. The amount of experimental work required increases dramatically when one goes from a binary to a multi-component system. With the advent of the computational thermodynamic approach known as CALculation of PHase Diagram (CALPHAD) method, one is able to obtain multi-component



constitutional and thermochemical information rather quickly in a cost-effective manner. In this method multicomponent information can be extrapolated from mere knowledge of Gibbs energy functions of phases in lower order systems, usually not exceeding ternary.



Using CALPHAD techniques, it is possible for the alloy developer to quickly and reliably calculate phase equilibrium in a matter of minutes without an in-depth knowledge of thermodynamics. Present session gives introduction to CALPHAD and its wide application in industries”.



Earlier Er. G Arumugam welcomed the gathering. Er. R. Selvaraj, Chairman presented a memento to the speaker. Er. S Ramadas, former GM, BHEL offered his felicitations. Er. G. Balakrishnan, committee member, IEI TLC proposed the vote of thanks. Er. S Lakshmanan, Hon.

Secretary conducted the proceedings.

## POWER GENERATION FROM NON-EDIBLE SEED CAKES

*Division: Electrical Engineering*

“Non eatable seeds are a divine being blessing from the 21<sup>st</sup> century. They are utilised in different fields, like cleanser oils, fuel as diesel motor, warm application, control era, and so forth. The non consumable



oil extricated from the seeds is utilized as a mixture with diesel. However reusing of the cakes is has some issues. The research work is an attempt in that direction” said, Er. M Vivek, Research scholar from Periyar Maniammai University, in the lecture programme conducted on 1<sup>st</sup> August 2017.



Earlier Er S Mahadevan, Consultant, PCRI, Chennai welcomed the gathering. Er. R Selvaraj, Chairman of IEI, TLC presented a memento to the speaker. Er. S Samidas, past chairman IEI, TLC offered his felicitations. Er. M Anvar Ali Committee Member proposed the vote of thanks. Er. S Lakshmanan, Hon. Secretary conducted the proceedings.



## DIGITALISATION

*Division: Computer Engineering*

Er. R Rohith, Sr. Manager (Planning & Development), BHEL delivered a lectrue on Digitalisaiton at the the institute premises on 08<sup>th</sup> August 2017. The programme was jointly organised in association with Computer Society of India, Tiruchirappalli Chapter. In his lecture he said, “In a nutshell, digitalisaiton can be told as follows.

### Smart Information Technology

- Connected Devices
- Plug & Play Standardisation
- Edge Computing Data Sharing

### Intelligent Data Processing

- Data Analysitcs,
- Rules Based Logics for Interpretation, Inferences & Solutions

### Smart Operation Technology

- Linked Facilities
- Integrated Operation, Interoperability”

He further said, “The drivers of digitalisation are the Consumer Market Trend, End User Demands and developments in hardware and software Technologies like Cloud, edge computing, reorganisation, etc. He concluded his lectrue with the following.

- Digital transformation -exponential growth of connected devices.
- move toward Digitalization will provide a broader and greater opportunity even beyond the current levels of automation.





- digitization is the answer to the industry's current economic woes.
- way ahead is to lower costs, become more flexible and improve quality while building your capabilities for the future.



Earlier Er D Senthil Kumar, Hon. Treasurer CSI, Tiruchy chapter welcomed the gathering and introduced the speaker. Er. R Selvaraj, Chairman presented a memento to the speaker. Er. V G Kadirvell, Fellow of IE offered his felicitations. Er S Rajagopal, Deputy Engineer, ITS&S proposed the vote of thanks. Er. S Lakshmanan conducted the proceedings.

## INTRODUCTION TO ARCHITECTURE

*Division: Computer Engineering*

Ar. G Rajaa, Principal Architect, Signature Designs, Tiruchy delivered the lecture at the Institution premises on 16<sup>th</sup> August 2017 on the above topic. The excerpts of his lecture are published in the technical pages of this newsletter.



Earlier Er D Senthil Kumar, Hon. Treasurer CSI, Tiruchy chapter welcomed the gathering and introduced the speaker. Er. R Selvaraj, Chairman presented a memento to the speaker. Er. S Ramadas, Senior member offered his felicitations. Dr. G Swaminathan, Committee member, IEI TLC proposed the vote of thanks. Er. S Lakshmanan conducted the proceedings.

## COMPOSITE MATERIALS AND ITS APPLICATION IN WIND TURBINE GENERATORS

*Division: Metallurgical & Materials Engineering*



“Innovation in composites is of great importance to face the upcoming global challenges by providing safe and engineered materials with specific properties, new lean and precise processing technologies and novel recycling pathways in order to capture the full value of waste” was emphasised by the speaker of the day 22<sup>nd</sup> August 2017 during the joint lecture on “composite materials and its application in wind turbine generators”. The programme was

organised jointly by IIW, ISNT and IIM.

The salient features of the lecture by Er Mohana Krishna Dhamodharan, Product development & Composite materials professional, Project Lead & Wind Energy - Domain Consultant at Tech Mahindra is detailed in the technical pages of the newsletter.





Earlier S Ramadas, Senior member welcomed the gathering and presented the memento to the speaker. Er. G. Balakrishnan, committee member, IEI TLC proposed the vote of thanks. Er. S Lakshmanan, Hon. Secretary conducted the proceedings.

## IMS5 (Integrated Management System)

*Division: General & Interdisciplinary*

Er. M Pavithra, Manager (Industrial Acoustics), Acoustics India Private Limited, Tiruchirappalli delivered a lecture on iMS5 (Integrated Management System). The programme was jointly organised with IIIE, Tiruchy chapter on 29<sup>th</sup> August 2017.

Earlier Er. D Senthil Kumar welcomed the gathering. Er. R Selvaraj, Chairman presented the memento to the speaker. Er. S. Samidas, Past Chairman offered his felicitations. Dr. E Kirubakaran proposed the vote of thanks. Er. S Lakshmanan, Hon. Secretary conducted the proceedings.





# UPCOMING Events

OCTOBER 2017			
Date	Division	Topic	Speaker
03-10-2017	Civil Engineering	World Habitat Day (02-10-2017)	Dr K Baskar Associate Professor, Department of Civil Engineering, National Institute of Technology, Tiruchirappalli - 620 015
10-10-2017	Computer Engineering	Network address Translation	Er. M J JeyaSheela Rakkini Assistant Professor Grade II SASTRA University, Thirumalaisamudram, Thanjavur – 613401
16-10-2017	General & Inter-Disciplinary	World Standards Day (14-10-2017)	Dr S Dharmalingam Former General Manager, Bharat Heavy Electricals Limited, Tiruchirappalli - 620014
24-10-2017	General & Inter-Disciplinary	Termite control and other General pest management	Er. Anandha Baskaran A Branch Manager, Tiruchy Branch, PCI Pest Control Pvt Ltd., Old No. 21C / New. No. 2, Iqbal Colony, Pudukottai road, Tiruchy - 620 020
31-10-2017	Production Engineering	Interpulse TIG Welding & its Applications	Dr. Devakumaran K Deputy Manager, Welding Research Institute, Bharat Heavy Electricals Limited, Tiruchirappalli - 620014
NOVEMBER 2017			
07-11-2017	Computer Engineering	Fractals	Mr. Praveen Kumar C T Assistant Engineer Gr 1, Information & Communication Technology, Bharat Heavy Electricals Limited, Tiruchirappalli - 620014
14-11-2017	Environmental Engineering	Green Environment & Green Buildings	M Shahul Hameed Assistant Professor, Department of Civil Engineering, K. Ramakrishnan College of Technology, Tiruchy
21-11-2017	Production Engineering	Technology Challenges & Developments	Dr R Dhanuskodi Senior Deputy General Manager, Research & Development, Bharat Heavy Electricals Limited, Tiruchirappalli - 620014
28-11-2017	Mechanical Engineering	Finite Element Analysis of Mechanical Component and Design Optimization	Dr G Jayaprakash Professor & Head, Mechanical Engineering Department, Saranathan College of Engineering, Tiruchy

For Details Please see Tiruchy Today of Leading Newspapers of Tiruchirappalli



# TECHNICAL PAGES

## INTRODUCTION TO ARCHITECTURE

Architecture is an Art of making Buildings and the idea of Architecture involves in the passion of making an artistically evolved Built Environment.

The Explanation of understanding Architecture starts with understanding the variation between 2 dimensional, 3 dimensional and 4 dimensional values of Geometry. A painting is a 2 dimension in which we can see, a sculpture is a 3 dimension in which we can understand and revolve around, In both cases we are not able to feel the inner feeling and emotive aspect. But a Building is a 4 dimension aspect in which we can feel, travel around emotively involved with spaces, The Architectural understanding of making the spaces- feel is the primary objective of an Architect. So an Architect makes a building beyond three dimensions by touching upon the inner feeling of the people's emotion in his built environment. Making a reality in the real world.

Architecture studies involves with studying about various parameters of Buildings. It is comprehensive study only about building Technologies. It involves in making a creative environment with various technologies and material science. Architecture develops into Designing of Landscapes, Designing Interiors. Architecture thus fulfills itself in the way of developing a deep understanding in every build environment which is associated with this and the Interior built environment where one can feel and realize the Built Environment.

Architects design buildings with the sense of form, space and ambience to reflect the functional, technical, social, environmental and Aesthetic conditions. It requires great amount of Creative Manipulation, coordination of materials, technology and of comfort. An Architect thus reflect a great amount of Artistic, Technocratic, psychological and emotional values.

An Architectural process starts with the client or end user of the built environment, from them architect understands the requirements for his built environment and he puts in creative, technological solution in the form of drawings, models and gives solutions. He is providing solutions to the end user (CLIENT) appearance and behavior of buildings using his Visualization skills of drawings. Architect then advises and guides the client to obtain a developer and skilled technocrats to develop the design- Process II – Solutions to the developer to create a reality. Prescribe the drawings and other essential solution to the developer to construct and cooperate to build the Creative dream built environment. This is the role of an Architect.

I have taken an example of TAJ MAHAL as creative manipulation of how the buildings behave in its environment; TAJ MAHAL inherited the idea of LOVE as feeling in itself by the Architect with the help of creativity, Aesthetic beauty, technological understanding and material usage. It stands as a creative symbol of understanding Architecture.

Why Architecture because of, An Architect is a creator who creates a built environment in a barren land to environment friendly, human living space to feel physically and mentally satisfying spaces. So



Architecture turns a human into reality of creator. Thus, talking about architecture is to talk about music and is like dancing; Architecture is about you having to do it: act and make, construct and create. Still we talk a lot together in Architecture, discussing possibilities, criticizing the projects, forming questions, as lot of our teaching in Architecture is based on Dialogues.

Architecture: Architect is a recognized professional, Registered with COUNCIL OF ARCHITECTURE under an act of PARLIAMENT (Architects Act 1972). Any resident of India, who has completed 5 years of B. Arch can apply for registration.

My second part is about the evolvement of Architecture through times.

The Art of practice of designing is done with regards to specific period, place and culture. It starts which dates back to 4000 BC, where a prehistoric man created spaces that allowed them to better understand their spaces in the world. It continues with the time of Stone Age where settlement of man as a group (people).

Age of civilization made the creative understanding of Human in a much mature form in developing cities such as HARAPPA and MOHENJO-DARO, The ever inspiring built environment of Indus Valley Civilization and Egyptian civilization shows the ability of technology, art and Architecture. The building built to touch or connect to the skies, making wonders fulfill the dreams of their lifetime reflected in building Pyramids and Monuments. Architecture translate wonders giving hope to the future, A man's highest thoughts spell out in his architectural theme.

New Era of civilization making new beginning in human life, Greece Architecture is strengthening the democracy and peoples movement enhanced not only in private spaces and wonders, it is more of public spaces also. Movement god created wonders and created a society consciously touching the skies. The marvels and majesty of Architecture enhances the Might of God. In Roman Architecture the Christian era humbly begins to relate man with god, weather with surroundings. Architecture keeps both god and common man happy. Renaissance the mighty power of church and wealth increases the beauty of living. Majestic ideas created by great architects and their Great buildings give respect to Architecture.

India, forbidden treasure has its own glory of Architecture with temples and rock cut architectural marvels which measures the Glory of Golden Era of Indian Culture and Tradition.

Today in contemporary Architecture, architects in India glorify architecture with the use of sustainable materials and traditional form of construction.

## CONCLUSION

Architecture flourished through times with the understanding of emotional, environmental feelings. It is now moving new heights in India as the professional architectural colleges and the students pursuing architecture is improving every year.

*Ar G Rajaa, Principal Architect, Signature Designs*



## *Composite Materials and its application in Wind turbine Generators*

**Er. Mohana Krishna Dhamodharan, MIE**

### **COMPOSITE MATERIALS**

Composites are strong and lightweight. Products made with composites are resistant to corrosion from weather and chemicals and are made to last. Composites can be molded into flexible and complicated shapes, giving designers the freedom to create almost any shape or form. Compared to other materials, composites offer a number of advantages. Designers, engineers and architects are replacing materials such as steel, aluminum, wood and granite with composites. Why? Because in head-to-head comparisons, composites are stronger, lighter, more versatile and stand the test of time.

Composites are used in numerous markets, including aerospace, architecture, automotive, energy, infrastructure, marine, military, and sports and recreation. Researchers continue to find new ways to use composites to develop life-changing applications. With composites, the possibilities are endless.

### **COMPOSITES MANUFACTURING TECHNIQUES**

Commonly used composite manufacturing techniques are:

- Spray Lay-up
- Wet Lay-up/Hand Lay-up
- Vacuum Bagging
- Filament Winding
- Pultrusion
- Resin Transfer Molding (RTM)
- Vacuum Infusion Process (VIM)

### **WIND TURBINE GENERATOR**

When wind blows past a turbine, the blades capture the kinetic energy and rotate, turning it into mechanical energy. This rotation turns an internal shaft connected to a gearbox, which increases the speed of rotation by a factor of 100. That spins a generator to produce the electricity.

The four key parts to a modern wind turbine

- Foundations
- Tower
- Nacelle
- Rotor blade assembly

Wind turbines use the rotor blades to turn the kinetic energy of the wind into electrical energy.

Rotor blades are the main part of wind turbine for Power Production. Improving the performance of the rotor is considered a very promising way to reduce the cost of energy from wind.



### Two main areas in Blade configuration:

- **Aerodynamic area** : Responsible for power production
- **Root area** : Joins the aerodynamic portion to the Turbine

### Rotor blade - Tooling



Expandable PS (EPS) foam, CNC machined



VARIM for mould skin

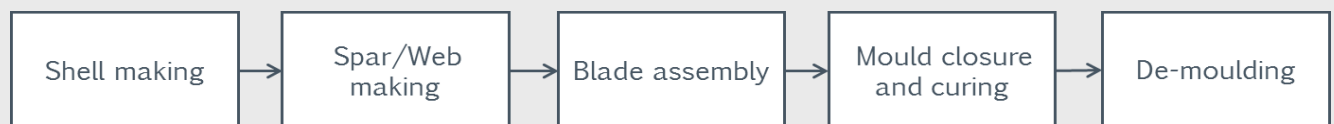


Mould frame



Mould de-mould from plug

### Rotor blade – Production



Resin infusion



Assembling spar web on the shell mould



Blade assembly



de-mould from mould

### Nacelle cover



A nacelle is a cover housing that houses all of the generating components in a wind turbine, including the generator, gearbox, drive train, and brake assembly.

### CONCLUSION

Composites will materialize tomorrow's sustainable future. Innovation in composites is of great importance to face the upcoming global challenges by providing safe and engineered materials with specific properties, new lean and precise processing technologies and novel recycling pathways in order to capture the full value of waste.



**From:** sakthi kasi [mailto:sakthibhel@gmail.com]  
**Sent:** Thursday, August 24, 2017 9:25 PM  
**To:** IEI, Tiruchirappalli Local Centre  
**Subject:** Re: IEI, Tiruchirappalli LC News Letter 2017/05-06

Dear Sir

Quite a good work deserves high appreciations. Kudos to the Editorial team for bringing out such a nice news letter. Keep it up with the same standard in the days to come.

with best wishes

sakthi

K. Sakthi ME LL.B FIE FIV  
e-mail: [sakthibhel@gmail.com](mailto:sakthibhel@gmail.com)  
phone: mob: 94433 95498

---

**From:** sk samy [mailto:sksamy.bhel@gmail.com]  
**Sent:** Wednesday, August 23, 2017 10:07 PM  
**To:** Lakshmanan S  
**Cc:** laks@bheltry.co.in  
**Subject:** Re: IEI, Tiruchirappalli LC News Letter 2017/05-06

The IEI TLC E-News compilation and presentation is excellent. My appreciation to all contributors.

With Regards

S. Karuppasamy

---

**IEI – TLC – NEWS solicits technical articles from members on various topics for publication.**



First Information Brochure  
**The Institution of Engineers (India)**  
97 years of Relentless Journey towards  
Engineering Advancement for Nation Building

**Thirty-third National Convention of Electrical Engineers 2017  
(NCEE 2017)  
and National Seminar on  
'Hybrid AC/DC Power Systems for Effective Utilization of Renewable Energy'**

November 24-25, 2017  
Organised by

**The Institution of Engineers (India)**  
Tiruchirappalli Local Centre

Under the Aegis of  
**Electrical Engineering Division, IEI**

In association with

**Bharat Heavy Electricals Limited, Tiruchirappalli**

**National Institute of Technology, Tiruchirappalli**

VENUE  
**National Institute of Technology, Tiruchirappalli**  
TamilNadu, India  
[www.nitt.edu](http://www.nitt.edu)

#### Travel & Accommodation

The delegates will have to make their own arrangement for travel, boarding & lodging. The list of nearby hotels is available on the website. The Centre will assist in booking the accommodation on advance payment. For details visit website [www.ieitrcchi.org](http://www.ieitrcchi.org)

#### Sponsorship

Institutional sponsors are invited to support NCEE 2017. The organizers request the kind patronage from the various Governmental Organizations, Industries, Private Sector Companies, Education and R&D Institutions, Consultants, Trading houses – both under private and public sectors for the successful conduct of the event. The names of the sponsoring and cosponsoring organizations will be displayed prominently at the Seminar Venue.

Sponsorship	Am't in Rs.	Privileges
Gold Sponsor	1,00,000/-	05 Free Delegates, Banner in the Seminar Hall, Full Page Color Advertisement in Souvenir, Stall in Exhibition, if held
Silver Sponsor	75,000/-	02 Free Delegates, Banner in the Seminar Hall, Full Page Color Advertisement in Souvenir, Stall in Exhibition, if held
Sponsor	50,000/-	02 Free Delegates, Banner in the Seminar Hall, Full Page Black-White Advertisement in Souvenir, Stall in Exhibition, if held
Co-sponsor	25,000/-	01 Free Delegate, Banner in the Seminar Hall, Full Page Black-White Advertisement in Souvenir
Lunch / Dinner Sponsor	50,000/-	02 Free Delegates, Banner in the Seminar Hall, Full Page Black-White Advertisement in Souvenir

Lunch Sponsor on 24th / 25th Nov. 2017 and Dinner Sponsor on 24th Nov. 2017

#### Advertisement

A Souvenir will be published during the Convention. It will consist of information on seminar, programme schedule, abstracts of papers and advertisements. It will be distributed to delegates and all those associated with the seminar.

Advertisement	Charges in Rs.
Cover Page Back (4) Colour	30,000
Inside Cover Page Front (2) Colour	20,000
Inside Cover Page Back (3) Colour	15,000
Full Page Color	10,000
Full Page Black & White	6,000

Note : One Free Registration will be provided for every Advertiser

#### Exhibition Stalls :

10 ft. x 10 ft. - Rs. 15,000/-

An exhibition is planned to be arranged as part of this seminar for the two days. Stalls of size 10 ft x 10 ft will be provided for display of various products related to the theme of the seminar. One free registration will be provided for the sponsors of each exhibition stall. Additional details will be provided later.



# 32<sup>nd</sup> INDIAN ENGINEERING CONGRESS

Chennai, December 21-23, 2017

Theme:

**Innovation in Engineering : Competitive Strategy Perspective**

Organized by: **The Institution of Engineers (India)**

Hosted by: **Tamilnadu State Centre**

Contact : Organising Secretary, 32nd Indian Engineering Congress, The Institution of Engineers (India), Tamilnadu State Centre, 19 Swarni  
Sivaramanda Salai, Chepauk, Chennai 600005, Tel: (044) 25360614, 64998729, Fax: (044) 25369453  
Email: [tnsc@ieindia.org](mailto:tnsc@ieindia.org)

On behalf of the Institution of Engineers (India), Tiruchirappalli Local Centre, published by  
Er. S. Lakshmanan, Hon. Secretary, IEI, TLC

Edited by: Er. S. Dharmalingam FIE, Er. N Rajasekaran FIE & Er. A. Anand MIE. Feedback &  
Suggestions are welcome through E mail to: [ieitlc1973@gmail.com](mailto:ieitlc1973@gmail.com)