



**NATIONAL ENGINEERING COLLEGE**

**(AN AUTONOMOUS INSTITUTION, AFFILIATED TO ANNA UNIVERSITY, CHENNAI)**

**K.R.NAGAR, KOVILPATTI - 628 503**



# EEE

## NEWSLETTER

**October 2015**

**Volume No. 3**

**Issue 5**

**DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING**

*Dear Techies,*

As another month ticks by, we look back with Joy and Happiness at the large number of laurels that we have garnered in Education and extra-curricular activities. We are proud to unleash the *Fifth Issue* of *Volume 3* of *EEE Newsletter – October 2015*, which paves us an unique way to Success.

Time is a companion that accompanies with each and every Engineer during his life journey. *"A Good Engineer is a person who makes a design that works with as few original ideas as possible"*. In this issue we have added a technical article regarding "Solar Energy" where you will find fascinating information. We hope it would help you to enlighten your thoughts and implement your ideas.

Our Former President *Dr. A.P.J. Abdul Kalam*, said that *"Dream is not what you see in your sleep but Dream is what which never let you sleep"*. His words got soul from our Charming EEE Engineers who created their identity with their dreams. It gives me a great pleasure to say that our smart seniors have set their path for themselves. My dear Engineers, now its our turn to aim high and strive hard to achieve our aim.

Thanks to those loyal hearts who contribute for the success of the Newsletter.

We would be pleased to receive any suggestions that would assist us in the forth coming editions. With Best wishes and a great hope, I am presenting this issue to you...

Enjoy Reading it.....

*Selva Karthika.N*

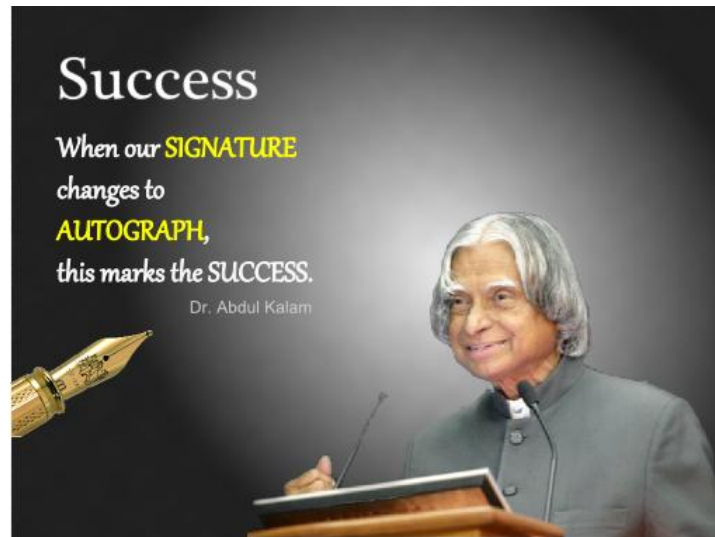
*Pre final year*

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# October!!!

It's the month that is mainly dedicated to **the Great Legend** who just transcended his **Great Dreams** into us, the Futures of India....



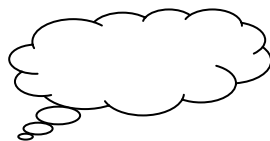
*Avul Pakir Jainulabdeen. Abdul Kalam (15 October 1931 – 27 July 2015) was the 11th President of India from 2002 to 2007, a career scientist turned reluctant politician. Kalam was born and raised in Rameswaram, Tamil Nadu, and studied physics and aerospace engineering.*

*Being an Engineer himself, he had a high trust on the students and expected them to be the Future Pillars of India...*

*So we, the Electrical Engineers should have dreams as he suggested and make our country that is being ruled by the Youth.*

*Let's make India the **Youngest Country** of the world.*

## DREAMS



Is not what you see in Sleep?

Is the thing which doesn't let you Sleep..

- Raechel Annisha Angel. L (Second Year B)

**STAFF ACTIVITIES/PUBLICATIONS/ACHIEVEMENTS****ACTIVITIES:**

S.No.	Name of the Staff	Events/Guest Lecture	Topic/Event	Date	College
1	Dr.M.Willjuice Iruthayarajan, Prof & Head/EEE	Chief Guest	National Level Technical Symposium	25.09.2015	Renganayagi Varatharaj College of Engineering, Sivakasi
2	Dr.M.Ravindran, Asso. Prof	Guest Lecture	Recent Trends in Energy Management	01.10.2015	Sri Vidya College of Engineering and Technology, Virudhunagar
3	Dr.L.Kalaivani, Asso. Prof (SG) & Dr.R.V.Maheswari, Asso. Prof	Hands on Training Programme	Soft Computing using MATLAB	09.10.2015 to 11.10.2015	MIT Campus, Anna University, Chennai
4	Mr.M.P.E.Rajamani, AP(SG), & Mr.S.Sankarakumar, AP(SG)	Short Term Course	Digital Signal Processor controlled Power Electronic Converters & Drives (DSPEC 2015)	28.09.2015 to 30.09.2015	National Institute of Technology, Warangal
5	Mr.R.Muniraj, AP(SG) & Ms.C.Nivetha Indumathi, AP	National Level Workshop	Advanced Control Engineering	09.10.2015 & 10.10.2015	National Institute of Technology. Trichy
6	Mr.R.Muniraj, AP(SG)	MHRD Sponsored	e-Yantra Robotics	15.10.2015	National Engineering College, Kovilpatti

## DEPARTMENT ACTIVITIES

### SPECIAL INTEREST GROUP

#### HIGH VOLTAGE ENGINEERING



A session about “*Fundamentals of Liquid Dielectrics*” was conducted on 10.10.2015 from 10.15 A.M. to 12.00 P.M. at Class Room H1 for *Special Interest Group (SIG) - High Voltage Engineering* members. The session was handled by *Mr.M. Bakruthen (Assistant Professor/EEE)*. He gave brief explanation about liquid dielectrics and its research scopes.

Content of the sessions are:

- *Introductions about dielectrics and liquid dielectrics*
- *Evolution of liquid dielectrics*
- *Critical properties of liquid dielectrics and its measurement techniques*
- *Diagnostic tools used in liquid dielectrics*
- *Enhancement techniques for properties of liquid dielectrics*
- *Future and research scopes on liquid dielectrics*

The session was started by 10.00 A.M. and completed by 12.00 P.M. Totally 30 students from Pre final years were participated and got the relevant information about liquid dielectrics.

#### POWER AND ENERGY SYSTEM



The *Power and Energy Systems* SIG was conducted on 10.10.2015 at EEE department seminar hall.

The first session was handled by *Mr.T.Sivakumar, AP/EEE*, in the topic “*Introduction to Power System Restructuring*”. He discussed about the factors motivating the restructuring process in power industry, benefits of restructuring. He also explained the structure of restructured power system model and its participants.

Then the session was continued with an introduction to “*Voltage Stability in Power System*” handled by *Ms.S.Jayanthi, Assistant Professor /EEE*, She explained about basics of voltage stability and case studies related to blackout.

The session was started by 10.00 AM and completed by 12.30 PM. Totally 31 students from third year & Final year were participated.

## CONTROL AND INSTRUMENTATION

EEE department Control and Instrumentation Special Interest Group (SIG) conducted a technical workshop on the topic “*Implementation of Genetic Algorithm using MATLAB*” on 10.10.2015 in the EEE department Computer Centre.



First session was handled by **Dr.M.Willjuice Iruthayarajan**. He gave a brief introduction about the MATLAB commands to execute genetic algorithm. In second session, students were guided by **Dr.M.Willjuice Iruthayarajan & Ms.R.Sunitha** to implement optimization problems like PID controller tuning and economic power dispatch using genetic algorithm in MATLAB.



19 number of prefinal year students of EEE C&I - SIG attended the practice session. The session was concluded with a general discussion about the workshop and feedbacks from the students.

## LABVIEW WORKSHOP

*Mr.R.Muniraj Assistant Professor (Senior Grade)/EEE*  
*Mr.M.Sivapalanirajan Assistant Professor/EEE*



EEE department SIG – C&I organized a short term course in LABVIEW on the topic “*Applications of Digital Circuits and Interfacing Measurement Instruments using LABVIEW*”. Under the guidance of the HOD the course was completed successfully (05.09.2015 to 16.10.2015).

The Valedictory function was arranged in the EEE seminar hall on 17.10.2015 in the valuable presence of our honorable **Principal Dr.S.Shanmugavel** and our beloved **HOD Dr.M.Willjuice Iruthayarajan**.



**Dr.S.Shanmugavel** encouraged the faculties and students to upgrade their practical skills in various simulation software packages like LabVIEW. **Dr.M.Willjuice Iruthayarajan** delivered the significance of using LABVIEW as development tool for their future projects. Then he insisted the students to make use of the 10 original version of LabVIEW software which is available in Control and Instrumentation laboratory of our department.

## MINI PROJECT FORUM

*Mr.B.Venkatasamy Assistant Professor/EEE*

Our department decided to bring the innovative thoughts of the students as an application which will earn them self-confidence and a will power to build a larger application. As a start up, we concentrated on the nurturing buds of our department. ***Around 60 students of second year EEE actively participated to do mini projects and completed some application oriented real time projects on 10<sup>th</sup> October 2015.*** The students used to do mini projects during working Saturdays in the Microprocessor and Microcontroller lab of our department. The students are motivated to do more innovative projects with their ideas. The students found the session as very useful and requested the department to conduct many more fruitful sessions further.



## INSTRUMENT SOCIETY OF INDIA (ISOI)

*Mr.M.Sivapalanirajan Assistant Professor/EEE*



ISOI members of EEE department prefinal year students organized individual and team events under ***ISOI Student's Chapter*** on 07.10.2015 and 14.10.2015 in EEE department Seminar Hall. 30 team (2 per team) of ISOI members from ***Second year EEE*** and ***EIE department*** participated in the events. The prize winners are

### Quiz:

1. Suriya & Sankar rangam (II EIE)
2. Vinoth Kumar & Saravana Kumar (II EEE C)

### Turn coat:

1. Veera Shanthi Ram (II EIE)
2. Sam Christopher Ponraj (II EEE C)

### Event Organizers:

*The events were organized by our students*

### Quiz

- S.Ganapathy Vinayagam (III EEE A)*  
*M.Arun Kumar (III EEE A)*  
*A.Acsal Premi subha (III EEE A)*  
*K.Maheswari (III EEE A)*

### Turn coat

- S.Sathya (III EEE B)*  
*N.Selva Karthika (III EEE B)*  
*M.MuthuSelvi (III EEE B)*  
*K.Soundarya (III EEE B)*



## **FLOURISH YOUR SOFT SKILLS**

*Mr.R.Uma Maheswaran, Final Year EEE*

### **COMMUNICATION SKILLS**

In this issue, we are going to see about the remaining part that completes a view on communication skills. Those are,

- ❖ Non verbal communication
- ❖ Writing skills
- ❖ Barriers for having effective communication
- ❖ Improving communication

### **NON VERBAL COMMUNICATION:**

Non-verbal communications include facial expressions, the tone and the pitch of the voice, gestures displayed through body language (kinesics) and the physical distance between the communicators (proxemics). These non-verbal signals can give clues and meaning over and above spoken (verbal) communication. There are many different types of non-verbal communication. They include:

- *Body Movements (Kinesics), for example, hand gestures or nodding or shaking the head;*
- *Posture, or how you stand or sit, whether your arms are crossed, and so on;*
- *Eye Contact, where the amount of eye contact often determines the level of trust and trustworthiness;*
- *Para-language, or aspects of the voice apart from speech, such as pitch, tone, and speed of speaking; Closeness or Personal Space (Proxemics), which determines the level of intimacy;*
- *Facial Expressions, including smiling, frowning and even blinking; and*
- *Physiological Changes, for example, sweating or blinking more when nervous.*

- Face and Voice: This include ,
- *Eye contact, which is helpful to give and return feedback, to know the turn of speaking etc.*
- *Voice signals, this includes tone and pitch of voice, speed of voice, pauses, hesitations etc. which can indicate the feeling of the person.*

### **WRITING SKILLS:**

Good writing skills allow you to communicate your message with clarity and ease to a far larger audience than through face-to-face or telephone conversations. An effective writing skill include the following functionalities in it,

- *Grammar*
- *Punctuation*
- *Usage of capital letters*
- *Usage of plain English etc.*

To have a good writing skill, one must be well aware of the circumstances of writing and the audience of the write up. The importance of the structure of the write up finds a good hold in the skill set since the structure gives a general idea about the content to the reader. The writing skill comprises of writing styles. There are different styles based on the circumstances, for instance, Formal and informal styles. The common mistakes which persist during writing are the grammatical errors, spelling errors, structural errors etc. The main way to improve effective writing is to read aloud. A good writer should always be a good reader. Also practice makes a man perfect. So good practice also helps this process.

### **BARRIERS TO EFFECTIVE COMMUNICATION:**

Having a good communication would have the following barriers.

- *Use of jargon, Over-complicated, unfamiliar and/or technical terms.*

- *Emotional barriers and taboos. Some people may find it difficult to express their emotions and some topics may be completely 'off-limits' or taboo.*
- *Lack of attention, interest, distractions, or irrelevance to the receiver*
- *Differences in perception and viewpoint.*
- *Physical disabilities such as hearing problems or speech difficulties.*
- *Physical barriers to non-verbal communication like not being able to see the non-verbal cues, gestures, posture and general body language*

A skilled communicator must be aware of these barriers and try to reduce their impact by continually checking understanding and by offering appropriate feedback.

### **IMPROVING COMMUNICATION:**

As said above, to be a good communicator one must have good practice. Communication is a two way process so improving communication involves both how we send and receive messages.

- *Learn to Listen*
- *Be Aware of Other People's Emotions*
- *Empathise*
- *Encourage*
- *Use Humor*
- *Effective speaking*
- *Maintain a Positive Attitude and Smile etc.*

All these tips would bear you the fruit only if you adopt these in your routine. The communication wouldn't be effective unless both the sender and receiver get the content of delivery of message. When one takes this fact into mind, the communication would be transformed to another level.

With this part, a brief in on communication skill gets over.

*[Keep on Flourishing.....]*

## **NPTEL – VIDEO SESSION**



*EEE Department ICT Forum* had conducted a NPTEL Video Session at *EEE Seminar Hall (16.10.2015)* on the topic of “*Illumination Engineering*”, by *Prof.N.K.Kishore, Department of Electrical Engineering, IIT, Kharagpur*. Initially our staff member *Ms.A.Tamilarasi, AP/EEE* gave an introduction about Illumination Engineering, After that the video session took part. The main objective of this session to create awareness about the recent issues in electrical engineering and the teaching methodology by eminent professor. *Around 20 students of second years actively participated.*

## **HUNT THE ANSWER**

- *A. Anto Sharon Prakash & R.Uma Maheswaran, Final/EEE*

## **INTERACTIVE QUESTION**

1. What is the name of the circuit that generates square wave?
2. Recent attacks on writers has been on the mount in recent days. After the murder of renowned writer MM Kalburgi, another writer has been attacked in Karnataka, in the recent past.
  - 1) Who is the victim?
  - 2) For what he has been subjected to attack?

*Mail ID: [neceenewsletter@gmail.com](mailto:neceenewsletter@gmail.com)*

## ALUMNI INTERACTION

*Mr. Bala Subhapasath.C (2004 Batch) - TCS*  
*Mr.Assan Fakkir.M.K (2010 Batch) – Infosys*  
*Mr.Mohamed Javith.S (2012 Batch) - TCS*



Realizing this, the alumni interaction is held regularly. And in the day of 26.09.2015 our alumni **Mr. Bala Subhapasath.C (Alumni 2004 Batch)**, **Mr.Assan Fakkir.M.K (Alumni 2010 Batch)** and **Mr.Mohamed Javith.S (Alumni 2012 Batch)** had an interaction with Final EEE students. The interaction went on for about one hour from 11.00 AM to 12.00 PM.

During this session they interacted and guided the students on

- ✓ Resume preparation
- ✓ Dressing sense
- ✓ Communication skills
- ✓ Interview questions
- ✓ Organizational structure in IT companies

The students found very helpful. The students interacted interestingly even though that day was a holiday. The interaction fetched positive feedbacks.



*Ms. Revathi. M –2015 Batch*  
*Infosys, Mysore*

On September 29, 2015 **Revathi. M**, Alumnus of our college visited our College and had an interaction with final year students. She gave more information about the different stages of IT sector. She also insisted that after getting the job, one has to be punctual, no matter how good you work, but discipline and etiquettes always matter.

At many times we need the answers for the questions 'Where I have to go? What I have to choose?'. Yes, sure. We need guidance. Guidance helps us to select better things. Guidance removes the fog in our path. Guidance brightens our mind.

## Placement Details

**TATA CONSULTANCY SERVICES**






Experience certainty.



On behalf of the Chairman, Managing Director, Director, Principal, Head of the Department and staff members, we heartily congratulates the final year students who placed in *TATA Consultancy Services* Campus drive in our campus during the month of October 2015.

- *Total No. of Students Placed : 28 No.s*

<i>Ms. Anitha. J</i>	<i>Mr. Anto Sharon Prakash. A</i>	<i>Ms. Archana Dharsini. G.K</i>	<i>Mr. Arun. A</i>	
<i>Mr. Balamurugan.P</i>	<i>Ms. Bhuvaneshwari. N</i>	<i>Ms. Deivashree. B</i>	<i>Ms. Divyalakshmi. S</i>	
<i>Mr. Gokul sakhivel.M</i>	<i>Ms. Karpagavalli. K</i>	<i>Ms. Malarkodi. G</i>	<i>Mr. Manikandan. M</i>	<i>Ms. Nagalakshmi. P</i>

				
Mr. Besil Bal Chandru. G	Ms. Pradeepa. C	Mr. Pranava karthikeyan.M.S	Ms. Saktheesvari. S	Mr. Santhoshkumar. S
				
Ms. Sathya.P	Ms. Shanmuga Priya. U	Mr. Sheikmoideen. N	Ms. Siva Ranjani. B	Mr. Sivaram. S.G
				
Ms. Sivaranjani.G	Mr. Subbiah. M	Ms. Sunitha. R	Mr. Suresh kumar.P	Ms. Suvastika. S

*Facing Challenges with Strength, determination and confidence is what matters, and you have done it.*

*Congrats!!!!*



On behalf of the Chairman, Managing Director, Director, Principal, Head of the Department and staff members, we heartily congratulate the final year student **Mr. Muneeswaran. R** who placed in VVDN Technologies Campus drive in our campus during the month of October 2015.



Mr. Muneeswaran. R

- *To be Continued*

## SOCIAL AWARENESS CELL – ELECTRICAL SAFETY



Social Awareness Cell of Department of Electrical and Electronics Engineering, National Engineering College organized a “Social Awareness Program” on “Electrical Energy Conservation, Safety and its Awareness” on 25<sup>th</sup> September 2015 at Ketchilapuram, Kilavipatti, Kovilpatti.

The function was organized under the guidance of **Dr.Kn.K.S.K.Chockalingam, Director, Dr.S.Shanmugavel, Principal, Dr.M.Willjuice Iruthayarajan, HOD/EEE.** Ms.Rathna Priya of final year student/EEE welcomed the gathering. **Mr.Madavan, AP/EEE** delivered the lecture on electricity savings and its usages. **Dr.Ravindran, Asso. Prof/EEE** delivered the lecture on electricity safety and its awareness to peoples. **Mr.N.B.Prakash, Asso. Prof/EEE** delivered the lecture on Importance of Renewable Sources. **Mr.Pradeep, Mr.Rajkumar, Mr.Vartharajan, Mr.Ram kumaran, Mr.Shunmugaraj, Mr.Ramasubramanian, Mr.Narayanakannan, Mr.Sankilimurugan, Mr.Venkatakrishnan and Mr.Rajkumar** of EEE students presented a skit about Safety and Energy conservation of Electricity. The function was organised by Dr.Ravindran and Mr.Prakash, and Mr.Madavan, **Mr.Subburaj and Mr.Marichamy, Lab Assitant/EEE with NCC Cadets.** Ms.Akila of final year student/EEE thanked the gathering.

## SOFT SKILL PROGRAM



The Training and placement counselling cell of our college is taking good efforts to develop the skill set of our students and so it organizes various training and development programs for the students who make use of it in a fruitful manner. As a part of the development program, a training session was organized on "**Soft skill development and interview techniques**" for the final year students of our department on 18.09.2015 at EEE Seminar Hall. The session was handled by **Ms. Sundara Kamalam, the soft skill trainer** of our college. She with her wide spread experience in the interview skill and soft skill, made the students to thrive their knowledge in those fields and trained them to be good in those. The session was for about 1 hr, which is very helpful for the students who are getting ready for the placement season. The students are trained about the importance of the soft skills, mainly the communication skills, interpersonal skills etc., which plays a major role, not only in corporate sector but also, in various fields across the globe. Also, our students were told about the significance of the interview skills and were trained how to perform well in a personal interview. The students told that the session was really useful and imperative and they also feel that it has a crucial role in the preparation of the placement.

## FEEDBACK FROM PLACED STUDENTS

*Mr. Muneeswaran. R – Final Year*

*Dear Friends and my juniors,*

I am so happy to share my experience on interview and preparation for **VVDN Technologies**. First round was a written test for 1:30 Hrs. In the test there were three sections of questions (**Technical Apps – 30 Marks, General Apps – 20 Marks, C Apts – 20 Marks**).

There were no multiple choices available. We have to write actual answer which we get on our own calculations. We were asked to attend questions on the priority basis – Technical, General Aptitude and then C-Apts. Most of the Technical Apts questions were from **Circuit Theory**. Second round was technical interview focusing on the **project, Transformers, Motors, Transmission line, Clamper circuits, Transistors and filters**. And the third round (HR) was at Chennai, simple HR questions were asked to check our communication skills.

Another round was conducted for me to check which department would be apt for me to work in (**Embedded H/W or Embedded S/W**). This round was also technical such as **how digital multi-meter measures the voltage, current, resistance, How the mobile phone works, How to shift the waveforms with given time period, How transistor works as amplifier etc.,**

The following books I referred,

<b>Circuit Theory - William Hayt</b>
<b>Microprocessor &amp; Microcontroller – Biju Azeez, Shemeena. M</b>
<b>Digital Logic Circuits - Salivahanan</b>
<b>Principles of Electronics - V.K.Mehta, Rohit Mehta</b>
<b>Linear Integrated Circuits - Roy Choudry</b>
<b>GATE- Arihant publication</b>



*- Final Year TCS Placed Students*

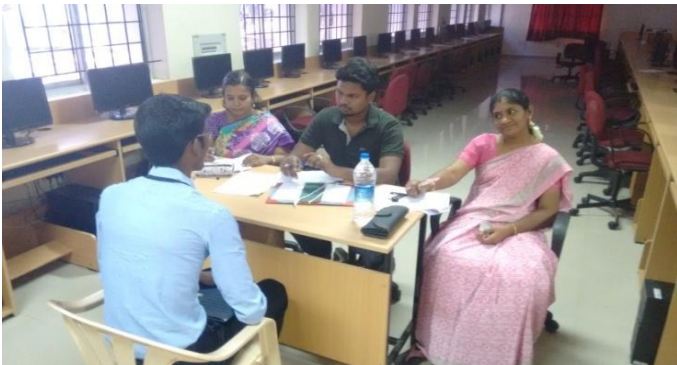
*Dear Juniors*

We are extremely delighted to share our experience towards **TCS placement** and also the efforts taken by us to reach our desire. It's the major role of our institution who initiated our preparation in aptitude by offering training for us during our second and pre-final years. We utilized the training effectively and made use of some tricks taught to us by them in solving aptitude quickly. Students who are well-versed in some topics will also explain those concepts in our classes. These alternate ways helped us to approach a problem in a much easier way. Even during our final year we had aptitude training classes which helped us to recollect the concepts and provided opportunity to solve different kinds of problem. When we had extremely a month for the interview we started completely focusing on placement. Our department too helped us to focus on it by suspending the classes. We thank our **HOD Dr.M.Willjuice Iruthayarajan**, for motivating us always in positive ways. We also attended many online mock exams which helped us to complete the aptitude on time. The next round is the HR round which became easier for us as we had nearly **5 mock-interviews** conducted by our department and institution. These mock interviews helped us to improve our confidence in facing an interviewer. Also, we learnt the ways of answering a question in a positive way via these interviews.



We also had discussion in groups in our class in the ways of answering the interview questions impressively. Our mock interview panel members too guided us in improving our gestures and postures. Our college *soft skill trainer, Ms.Sundara Kamalam* has a major role in attaining this success. She has been constantly following us in our resume preparation, email writing and so on. It has been possible because of the team work and the efforts taken by us and our institution in the placement preparation. We extend our thanks and greatfulness to the institution and our department in being a pillar of support. We also thank our *placement co-coordinators Mr.G.Kannayeram and Mr. M.Gengaraj* who stood as our backbone in achieving it.

## MOCK INTERVIEW



Man always wants to taste the sweetness of success. Some achieves in the first attempt itself. And some with constant practice achieves one's goal. 'Practice, Practice, Practice' – the mantra for success. Practicing a thing makes that familiar with us. In every sort of life, the same applies. And even in education also. Once the students finish their studies, their ultimate next target is Job. To be placed to work in any organization or a company, the primary hurdle they have to cross is '*The Interview*'. To be successful at this hurdle, students need practice. So, mock interview was conducted on 26.09.2015. It was started at 10.00 AM. The interview went on through both technical and non-technical section.

The situation and stress management areas were also touched lightly. There were about two interview panels. The interview panel consisted of both alumni and internal staff members of our college.



The presided alumni were *Mr.Assan Fakkir.M.K (Alumni 2010 Batch) and Mr.Mohamed Javith.S (Alumni 2012 Batch)*. The presided staff members are, *Dr.V.Kalaivani, Prof/CSE, Dr.D.Santhi, Asso. Prof(SG)/E&I, Dr.R.V.Maheswari, Asso. Prof/EEE and Mr.N.B.Prakash, Asso. Prof/EEE*. Around 135 students of Final EEE benefitted from the mock interview. The mock interview was finished by about 5.00 PM. The students responded positively having developed more confidence in facing the interviews.

## FEEDBACK FROM ALUMNI

- *Karthik.V (Alumni – 2014 Batch)*

I am very much impressed with our progress. I have just gone through the newsletter, You have arranged so much of live exposures with *Hands-on-Training, Industrial Visit, Expert Lecture and Computerized training*. I also noticed *the Special Interest Group's activities* which seem to be improving month by month. We have missed lot of facilities which has been there now.

# KNOW EVERYTHING PRACTICALLY

S.Ebenezer & M.Manikandan, Final EEE

## Implementation of Universal Gate

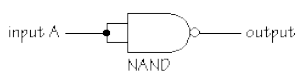
### References - MATLAB-Simulink:

<http://testbook.com/blog/realization-of-logic-gates-using-universal-gates/>

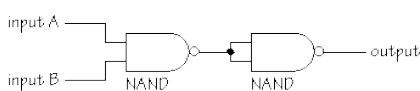
### UNIVERSAL GATES:

A universal gate is a gate which can implement any Boolean function without need to use any other gate type. The NAND and NOR gates are universal gates. In practice, this is advantageous since NAND and NOR gates are economical and easier to fabricate and are the basic gates used in all IC digital logic families.

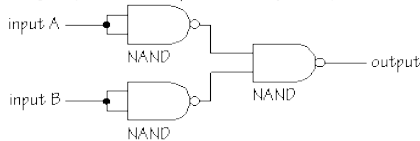
NOT gate (inputs joined together)



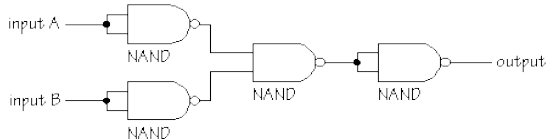
AND gate (NAND followed by NOT)



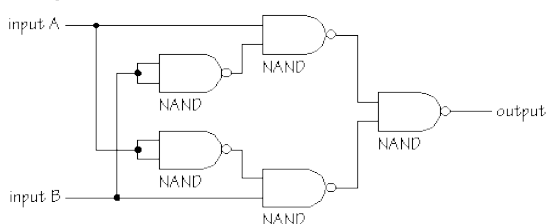
OR gate (NOT of each input followed by NAND)



NOR gate (OR followed by NOT)



EXOR gate



### Steps to be followed in the process of implementation of Logic Gates:

#### Step 1:

For NAND implementation, add Bubbles at the outputs of AND gates and at the inputs of OR gates.

For NOR implementation, add Bubbles at the outputs of OR gates and at the inputs of AND gates.

#### Step 2:

Add an inverter symbol wherever you created a Bubble.

#### Step 3:

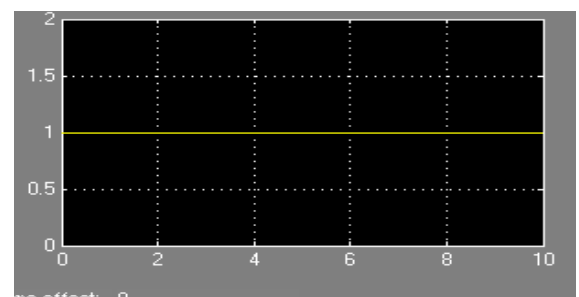
Ignore cascading connection of two NOT gates, if any are present.

#### Step 4:

Replace all gates with NAND gates or NOR gates depending on the type of implementation.

### Let us work it with an example:

$Y=AB'+CD'+EA'$  (Constant are in order in MATLAB simulation)



For all the logic gates (NAND, NOR) you get the same output:

*Work out for various inputs and logics .....*

## TECHNICAL ARTICLE BY STAFF MEMBER

### *Multi-Master Micro-Inverter for a Photo-Voltaic System*

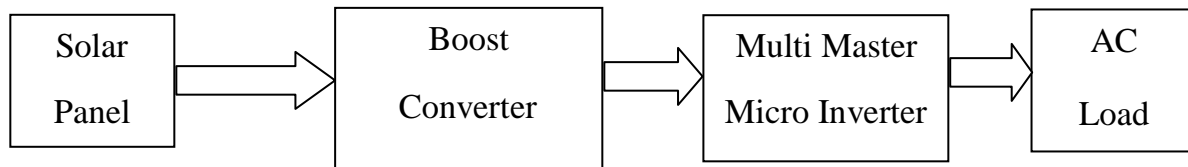
- *Intelligent Inverter Management (IIM)*

***Ms.P.Subathra***

Assistant Professor

*Department of Electrical and Electronics Engineering*

Electricity generated from sunlight is called solar electricity and the process of solar light into electricity is known as the photovoltaic process. In this process direct current (DC) electricity is produced. The energy produced by photovoltaic process can solve the power crisis experienced by the developing nations. In India there are about 300 clear sunny days in a year and solar energy is available in most parts of the country, including the rural areas. But still solar power is not effectively utilized to replace the fossil fuels and become a cheap and effective solution for domestic and commercial applications. Its efficient usage has led to increasing role of photovoltaic technology as scalable and robust means of harnessing renewable energy. To make solar energy more viable, the efficiency of solar array systems must be maximized.



Photovoltaic Energy Conversion system

### **GRID CONNECTED PHOTOVOLTAIC SYSTEM**

The PV system is connected to utility grid using a quality inverter, which converts DC power from the solar array into AC power that conforms to the grid electrical requirements. During the day, the solar electricity generated by the system is either used immediately or sold off to electricity supply companies. In the evening, when the system is unable to supply immediate power, electricity can be bought back from the network. However, the technical requirements from both the utility power system grid side and the PV system side need to be satisfied to ensure the safety of the PV installer and the reliability of the utility grid. Inverter system is therefore

very important for grid connected PV systems. Inverter technology is very important to have reliable and safety grid interconnection operation of PV system. It is also required to generate quality power to AC utility system with reasonable cost. To meet with these requirements, up to date technologies of power electronics are applied for PV inverters. Reduction of inverter system cost is to be accomplished. The greatest influence on system cost is the amount of PV modules installed. The cost of grid connected PV systems varies considerably. Because as day by day the demand of electricity is increased and that much demand cannot be meeting up by the conventional power plants. And also these plants create pollution. So if we go for the renewable energy it will be better but throughout the year the generation of all renewable energy power plants. Grid tied PV system is more reliable than other PV system. If generated solar energy is integrated to the conventional grid, it can supply the demand from morning to afternoon (total 6 hours mainly in sunny days) that is the particular time range when the SPV system can fed to grid. It was found that at certain shading conditions, especially at rooftops in urban areas are supposed to have more shading due to the neighboring buildings or trees which can lead to additional losses in string inverters due to peak-power tracking errors and voltage limitations. Whenever any one of the panel in the string is shaded, then it reduces the overall system performance. The time it takes to install is quite higher.

Conventional method suggests that a micro-inverter-based system will be less prone to partial shading. In addition, micro-inverters may provide greater energy per panel compared to central inverters due to reduced loss from partial array shading. This technology uses a distributed inverter topology, with an inverter associated with each individual PV panel. This topology provides the greatest flexibility, with no need for string sizing and “grow as you go” capability. Here this inverter is a low voltage input, so in order to obtain a required rating of the voltage a boost converter is used in between the panel and the inverter.

Micro-inverters are installed on the roof under or next to a module and usually serve one single module at a time. Some serve two modules but the double ones have not been as successful as the micro-inverters attached to a single module.

- Because the micro-inverters service an individual module, the power performance and the overall health of each module can be tracked and monitored in real time.
- Additionally, module-level electronics offer enhanced maintenance and greater system performance visibility via module-level monitoring

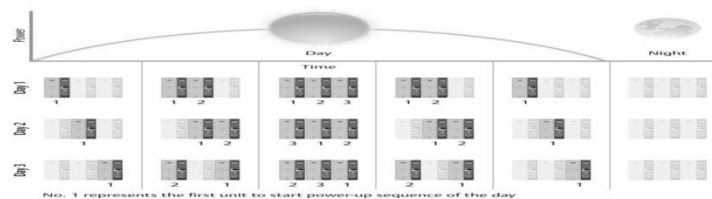
- The micro-inverter installation is about one to one and a half days shorter than the string inverter installation

### MULTI MASTER MICRO-INVERTER

It is an Intelligent Inverter Management (IIM) control to maximize the yield of the inverter. The solar photovoltaic inverter topology incorporates the multi-master concept within the IIM to control both the active and standby status of each inverter module. The main advantage of the Multi-master inverter is that it has an alternating starting sequence. It has three parallel inverters in it. For each day it has a different starting sequence, so that all the three inverters will have an equal opportunity to enhance the performance of the system.

### MULTI MASTER TOPOLOGY

- Loads on the Inverters are not the same through-out the day, as the solar insolation is not constant.
- Inverter Efficiency is not flat for all loads from 0-100%
- At lesser input loads, the efficiency is less than the peak efficiency.
- Optimized inverter usage according to sunlight
- Altering start up sequence extends overall lifetime of set-up
- Allows repairs and maintenance without complete shutdowns



Operation of the multi-master inverter

### Key Inverter Features

- High conversion efficiency, 98.0% peak, 97.6% EU factor
- Compact inverter footprint

According to the unit commitment concept the multi-master micro inverter is scheduled correspondingly. This scheduling can be done by designing proper switching sequences of the inverter, and then only it can produce the required pulse pattern generation. But the pulse pattern for the multi master micro inverter is not same for every day, it will alter its sequences

respectively for the upcoming days. Because of the alternating startup sequence the ageing of the inverter is same, and the number of working hours of the inverter is also same. Thus the life span of the inverter is extended over a long time.

### **CONCLUSION:**

The PV system with multi-master micro-inverter integrates to form an on-grid Multi-master solar based distributed generation. As a result, the proportional active power sharing can be enhanced based on the ratings. Loads on the Inverters are not the same through-out the day, since the solar insolation is not constant. The Multi-master inverter has an equal ageing factor. Since all the inverters were operating in a Maximum efficiency condition through-out the day, the overall efficiency of the Multi-master inverter was high, when compared to others. This Multi-Master inverter has an advantage that it posses an alternate power starting sequence for each day, so the efficiency and the lifetime of the inverter gets enhanced. This Multi-master inverter has an efficiency of about 98%. Whereas the overall system efficiency will be around 97.6% (excludes the PV cell).

### **References:**

- [1]. Hadeed Ahmed Sher , Khaled E. Addoweesh, "Micro-inverters — Promising solutions in solar photovoltaics" ,Elsevier journal on Energy for Sustainable Development 16 (2012).
- [2]. Shuai Jiang, Dong cao, Yuan Li, Fang Zheng Peng, "Grid-connected Boost Half-bridge Photovoltaic Microinverter System using Repetitive current Control and Maximum Power Point Tracking", IEEE Transactions on Power Electronics, vol. 27, No. 11. November 2012
- [3]. C.Woo-Young, K.Bong-Hwan, and L.Jih-Sheng, "High-efficiency grid-connected photovoltaic module integrated converter system," in Industrial Electronics, 2009. IECON '09. 35th Annual Conference of IEEE, 2009, pp. 731-736

## TIME TO KNOW OUR ALUMNI

### **MR. BALA SUBHAPRASATH. C, B.E.,**

**PASSED OUT: 2004**

**CURRENT WORKING STATUS:**

*Tata Consultancy Services*

**PREVIOUS WORKING STATUS:**

*Tata Consultancy Services,  
Covansys India Pvt Ltd,  
Sutherland Global Services*



### **PROFILE SUMMARY**

**eCommerce Web Operations- Service Delivery Manager Tata Consultancy Services**  
*November 2012 – Present (3 years) Chennai Area, India*

Service Delivery Manager for IT Web Operations ([www.homedepot.com](http://www.homedepot.com))

Responsible to manage end to end performance for eCommerce eco-systems. Works with Internal and external parties to develop and maintain appropriate monitors, alert configuration and procedures for triage. Collaborate with cross functional teams for problem resolution in a timely manner. Develop plans for 24X7 support operations. Leads critical issues and guide the teams for quick resolution. Works with cross functional team to perform stress testing based on business goals and follows through the implementation of recommendation. Team management and development for future growth within the department and organization. Conduct performance appraisals, interviews and discipline/documentation, as needed. Attract and retain high quality team members. Provide coaching on performance and professional development issues and motivates team to achieve efficiency and productivity Ensure that the right associates are in the right roles based on business and technology drivers.

**Site Lead Tata Consultancy Services**

*June 2008 – November 2012 (4 years 6 months)*

Designation of Assistant Consultant in TCS, currently serving a role of Senior Site Support Engineer for Kimberly-Clark Corporation, on behalf of TCS.

- Provide hardware support for Laptops, Tablets, desktops and printers using the tools and procedures designed by TCS approved by the Client
- Installation and configuration of Client customized image of Operating System , designed by TCS for the same

- Carry out incident management activities including but not limited to troubleshooting of HP desktops and laptop pc's running on Windows OS and HP Printers. This also includes warranty part replacement of authorized HP products
- Carry out Request management activities including but not limited to Windows server and Network configurations. Co-ordination with various vendors and to ensure connectivity and limited IT Service disruption
- Support user move within Client offices
- Inventory Management of IT assets ranging from Desktops-laptop pc, network and server equipment. This includes receiving and deploying of new equipment to final disposition of the equipment at the end of Client specified roadmap.
- Assist team lead in incident Ticket Review/Audit, Tracking Individual performance/work load, Consultation to the Engineers for any Hardware/software Issues, Incident Management (Incident Trend analysis and spot the abnormal behavior with respect to Hardware or Software), SLA Management

**Project Leader Tata Consultancy Services**

June 2006 – June 2008 (2 years 1 month)

Maintaining Wintel servers in Target stores

- Managing Jobs in Control M
- Providing First Level Support for all the servers in Target
- Supporting the Time keeping application, Network Devices
- Voice support for Critical Applications
- Resource management including mentoring and training of new hires.



Students AchievementsCo-curricular Activities  
Paper PresentationsSecond Year B

S.NO	NAME	VENUE	REWARDS	DATE
1.	S.Meenakshimeyyammai	Ramco Institute of technology	2nd Prize	28.8.15

Third Year A

S.NO	NAME	VENUE	REWARDS	DATE
1.	R.Bavithra	National Engineering College(on behalf of NCC)	3 <sup>rd</sup> prize	15-09-2015

Extra Curricular Activities  
CompetitionsSecond Year C

S NO	NAME	EVENT	VENUE	REWARDS	DATE
1	S.Suriya	Essay writing- Envision and innovation on Dr.Abdul Kalam's dream	Anna University- Chennai	1 prize	15-10-2015
2	S.Suriya	Speech -Envision and innovation on Dr.Abdul Kalam's dream	Anna University- Chennai	2 prize	15-10-2015

Students ActivitiesCo-curricular ActivitiesPaper PresentationsSecond Year B

S.No.	NAME	EVENT	DATE	VENUE	Rewards
1.	L.RaechelAnisha Angel	PPT	28.08.2015	Ramco Institute of technology	Participation
2.	M.MohamedAzarudeen	PPT	28.08.2015	NEC, Dept of CSE	Participation
3.	S.Kumari	PPT	04.09.2015	Vaigai Engineering College	Participation
4.	S.Prabhu P.R.Prakash	PPT	11.09.2015	P.S.R Engineering College	Participation
5.	M.Maragatha Lakshmi S.Maheshwari	PPT PPT	9.10.2015	Kalasalingam Institute of technology	Participation

Second Year C

S NO	NAME	TITLE OF PAPER	VENUE	DATE
1	N.Vijay	Views on Dr.Abdul Kalam's dream	Bannari Amman Institute of Technology-Erode	15-10-2015
2	M.Sanjeevi mariappan	Views on Dr.Abdul Kalam's dream	Bannari Amman Institute of Technology-Erode	15-10-2015
3	S.Rajesh	Innovation on Dr.Abdul Kalam's dream	Bannari Amman Institute of Technology-Erode	15-10-2015
4	B.Sorna kumar	Innovation on Dr.Abdul Kalam's dream	Bannari Amman Institute of Technology-Erode	15-10-2015

## Workshops Third Year A

S.NO	NAME	TOPIC	VENUE	DATE
1.	M.Jennifer K.Kiruthika S.Kalaiveni B.Jerlin J.Manisha Mariel Raj J.Caroline Joy	Design and development of small satellites	National Engineering College, Kovilpatti	21-09-2015, 22-09-2015
2.	S.Kalaiveni K.Kiruthika F.Blessintha S.Gulshan S.Kirthika R.Anushya	Hands on training in PLC, SCADA and HMI		27-08-2015 to 29-08-2015
3.	K.Kiruthika J.Caroline Joy S.Lakshmi	Embedded Systems		24-08-2015, 25-08-2015

## Extra Curricular Activities

### Sports Final Year A

S.NO	NAME	SPORT	VENUE	DATE
1.	K.Arunkumar	Hockey	Government college of Engineering, Tirunelveli	26.10.2015

## Competitions

### Second Year A

S NO	NAME	EVENT	VENUE	DATE
1	M.Hariharan	Quiz	ISTE club-ENI Seminar hall-National Engineering College	15-10-2015
2	D.Franklin	Quiz	ISTE club-ENI Seminar hall-National Engineering College	15-10-2015
3	M.Ajith kumar	Quiz	ISTE club-ENI Seminar hall-National Engineering College	15-10-2015
4	M.Hariharan	C-Program Debugging	CSE Department- National Engineering College	08-10-2015

5	D.Franklin	C-Program Debugging	CSE Department- National Engineering College	08-10-2015
6	A.Dhanushya & N.Deepa	Quiz	IT Department- National Engineering College	08-10-2015

## Second Year B

S.NO	NAME	VENUE	REWARDS	DATE
1.	S.Meenakshimeyyammai	Adzap, Ramco Institute of technology	2nd Prize	28.8.15

## Third Year B Co-Curricular Activities

WORKSHOPS				
S.NO	NAME	TOPIC	VENUE	DATE
1.	Venkatakrishnan.S Vignesh.R Selvakumar.G Velusamy.M	Bazaar, EDC Cell	National Engineering College, Kovilpatti	12.10.2015 & 13.10.2015
2.	Primika.K Soundarya.K Venipriya.M Shanmuga Nithya.G	Bazaar, EDC Cell	National Engineering College, Kovilpatti	12.10.2015 & 13.10.2015

## Final Year B

SOCIAL AWARENESS CELL				
S.NO	NAME	CLUB	VENUE	DATE
1.	Rama Subramanian.S RamKumaran.D RajKumar.M Pradeep.M VarathaRajan.G RatnaPriya.M	Social Awareness Cell – Electrical Safety	Ketchilapuram, Kilavipatti, Kovilpatti	25.09.2015

S.NO	NAME	SPORT	VENUE	DATE
1.	Shanmugam. P Narayanan. K Naveen Lingam. M	Hockey	Anna University, Tirunelveli.	26-10-2015 and 27-10-2015

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**DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING**

**NATIONAL ENGINEERING COLLEGE**

**(AN AUTONOMOUS INSTITUTION, AFFILIATED TO ANNA UNIVERSITY, CHENNAI)**