Issue #06

Redeem

Passive Sparks

MONTH JULY 2013
EEE NEWSLETTER

Main Event

Conference on Power Conversion Technologies for Renewable Resources.

this issue

HOD's Desk

It gives me immense pleasure to release the **5th** Issue of our department newsletter—**REDEEM**. I would like to take this opportunity to thank the editorial team for their efforts in the preparation of this newsletter.

Notable achievements by students, alumni, and colleagues have been highlighted in this issue. I wish to congratulate the faculty and students for retaining "**The Best Research Department Award –2013** ". Hope this issue will help us to stay connected. We welcome your valuable inputs for improvement in the future editions.

Thank you.

~ Dr.V.Kamaraj
(HOD EEE)

Preface

We wish SSN Academic ICON The Great Prof B.L Mathur a healthy and long life. He is an invaluable academic resource and Pillar of EEE Department. We salute him for establishing EEE in the initial stages and all the things he has done for the development of the department.

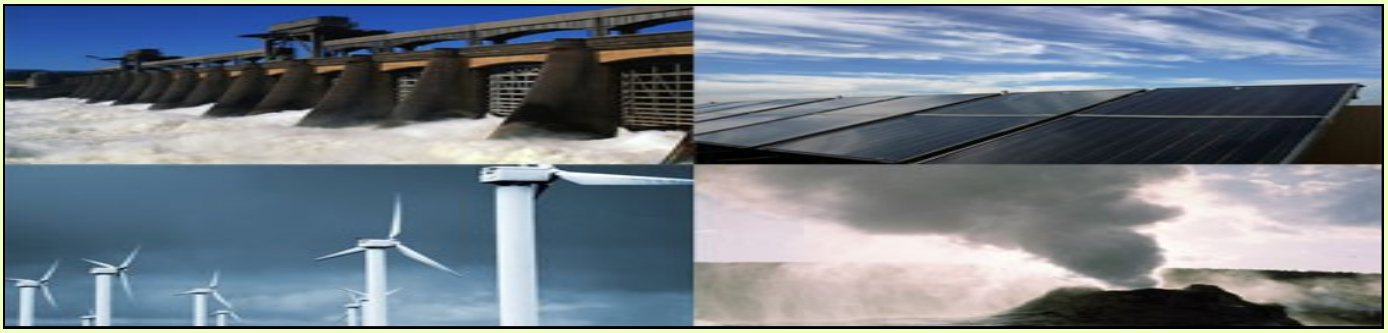
Most of our waking hours are at work. A person who is not peaceful at work cannot be peaceful in life. A work that doesn't provide you self-expression can never give you peace. There is a whole range of things that you can do in life to earn, but only the work that is done as if it is your hobby will give you peace. In fact, the secret is to make your hobby your profession. Ask yourself, "If I have all the money in the world, will I still be doing what I am doing?" If the answer is 'yes', you are in the right path- a path that gives you everything you need and also your peace. Peace is discovered when your yearning gains precedence over earning.

We might ask, "*Why would you need so many seeds to grow just a few more apple trees?"* Nature has something to teach us here. It's telling us: "Not all seeds grow. In life, most seeds never grow. So if you really want to make something happen, you better try more than once." Successful people fail more often. When we understand the 'Law of the Seed', we don't get so disappointed. We stop feeling like victims.

The most fundamental aggression to ourselves is the most fundamental harm we can do to ourselves. Most of the problem originates due to lack of self love, words like self esteem, self confidence and self worth are connected with self love. We learn how to deal with things that happen to us. But they plant more seeds. Demand less, and instead, have preferences! To become happier, we either need to change the world, or change our thinking towards the world. It is easier to change our thinking!

IIT Madras has come out with life skill course , a two credit course in first semester for all the students. These course are activity based and project based and expected to help the students develop affirmative thinking, deal with success and failure, relationships, regional and gender diversity, alternate sexual orientation, health and hygiene, substance abuse, time management, decision making, communication and social responsibility, stress ,peer acceptance issue, middle class guilt, how to use the new found freedom, etc. They follow Corporate style outbound experiential learning to promote team spirit and interaction among the students. This is the good initiative .Due to repetitive and monotonous training for long period, their brains get tired and all their power of critical and creative thinking gets dried up.. There is no comprehensive growth in the individuals because of education. Except the creamy layer all others need some training to take on the problems rather than being timid. This course teaches not only how to live well but also how to live wisely. They learn how to be calm to be creative .We welcome the new initiative by IITM and expect Anna University to introduce such courses in the near future for benefit of student community

~Chief Editor



Power Conversion Technologies for Renewable Energy Resources.

Dr. Ranganath Muthu, Mr. Kota Srinivas, Dr. V.Kamaraj, Dr. M.Balaji (from left to right)

CSIR Sponsored three days National Level Workshop on **Power Conversion Technologies for Renewable Energy Systems** was organized on May 6,7,8, 2013.

The conveners of the worshop were **Dr. V. Kamaraj** and **Dr. Ranganath Muthu** along with the coordinators **Dr. R. Seyezhai, Dr. R. Ramaprabha** and **Dr. M. Balaji.** The Chief Guest who presided over the woskshop was **Mr. Kota Srinivas**, Scientist Incharge, CSIO -CSIR, Chennai .

The total number of participants were 28 and various tutorial sessions/ lectures were held on wind energy systems, solar photo-voltaic and interfacing circuits, fuel cells, matrix converters, STAT-COM, etc. by the faculty of the department.

Tribute to Dr. B(e).L(oved).Mathur

We salute Dr.B.L Mathur for dedicated service for a decade in EEE.

He was not only a leader but ladder for many people to climb up in their life.

He used to raise the question which raised many in other people's life.

He guided many with his wide experience.

He proved, knowledge is proportional to age.

Institute measured his finger print but not his brain prints.

Just remembering is not the right way of respecting.

Try to follow fraction of his deeds!!

~ EditorialTeam@EEE

Contd.

IEEE AWARNESS PROGRAM

An IEEE Awareness Program was conducted by IEEE Madras Section Student Network (MSSN) in SSN on April 16, 2013.

IEEE SB OF SSN organized this program for the benefit of IEEE Members and to encourage Non IEEE Members to join IEEE. **Mr.Hari Krishnan, Ms.Apoorva Naidu, Ms.Salma saithoon zachariya** handled the session.

More than 100 IEEE Members had participated in this program. Ms. Apoorva Naidu gave a brief history about the history of IEEE along with Ms. Salma elaborating the need of WIE (Woman In Engineering). The necessity and benefits of IEEE were depicted by the services carried out by the IEEE society and gaming sessions were held along with questionnaires.

Finally the program was ended with the vote of thanks by **Dr. Ashwin Kumar Sahoo** (Student branch councilor of SSN).

Faculty Development Training Programme

The Anna University sponsored Faculty Development Training Programme (FDTP) on 'CS2461 Applied Soft Computing/ EE2025 Intelligent Control' was held in the Department of Electrical and Electronics Engineering, SSN College of Engineering during June 11-18, 2013. Twenty four participants had registered for the FDTP including 6 for outside Chennai.

The FDTP had a good mix of theory and practical with 21 sessions (of 1 ½ hrs) of theory classes and 7 sessions of practical classes. In addition, advanced topics namely **modeling and control of drives, multi-objective optimization using genetic algorithm and particle swarm optimization** was covered in the FDTP.

There were sessions in the area of **fuzzy logic and control, artificial neural networks and control, genetic algorithms, expert systems, etc**. Hands-on practice in MATLAB- fuzzy logic, neural networks, and genetic algorithms toolboxes, was given to the participants during the laboratory sessions. The FDTP was highly successful with the participants thoroughly satisfied with the programme.

Dr. Ranganath Muthu, Dr. V.Kamaraj, Mr. A. Balasubramanium (from left to right)

Tribute to Dr. B(e).L(oved).Mathur

(Contd.)

Dr B.L.Mathur, an IIS c Ph.D gold medalist and IIT Mumbai alumni, was one of the most respectable person in EEE department. He used to say "*Teaching is indeed the best way to learn anything*" and in the process of preparing for lectures there is an opportunity to organize one`s thoughts and explore the subtleties of the subject that one may otherwise miss. He is a workaholic and put in long hours in systematic study. This soft spoken person is an inspirational man, who never gave up.

The vacuum created in EEE department due to his absence will never be filled. I am proud to have got a chance to work under him and complete my Ph.D programme under his able guidance. I pray to the Almighty to give him good health and long life.

~ Dr.Mrunal Deshpande

Dr. B.L.Mathur, was the most valued and respected professor in the department. He has shown an enviable depth of intellectual rigor in all his roles. He has earned a reputation for unfailing courtesy and charm together with an unparalleled ability to remain calm at all times.

I am particularly grateful to Prof. Mathur that he has inculcated in me a sense of confidence, commitment, a sense of keeping my motivation levels always high. He has shown an exemplary leadership, often rescuing us when our energy levels are down or when there is a lack of vision.

I am very much sure that he will always continue to be involved in all our efforts in spite of the physical distance.

~ Dr.V.Rajini

Professor Mathur proved that there is no end to learning and one can learn at any age. He is an example for the saying that your success is not measured by not what you own but by how many people are successful because of you.

~ Dr. Ranganath Muthu

Staff Ventures

Journal Publications

Dr.V.Kamaraj *published a paper entitled, "**Explicit necessary and sufficient conditions for Quadratic linearization** "in the Asian Journal of Control, Wiley, Vol.15, Issue1, Jan.2013. (Impact Factor: 1.034).*

Dr.Ranganath Muthu *and* **Nalin Kant Mohanty** *published a paper entitled, "**Simulation and Experimental Based Four Switch Inverter Fed Induction Motor Drive**", World Journal of Modelling& Simulation, Vol. 9 (2013),*

Dr.R. Ramaprabha and **M. Venmathi** (Full-time Research scholar) published "***A comprehensive survey on multi-port bidirectional DC-DC converters for renewable energy systems***", *ARPN Journal of Engineering and Applied Sciences* (ISSN: 1819-6608), Vol. 8

Dr.R. Ramaprabha, Dr.V. Rajini, K. N. Dineshbabu and **Kamal Bansal,** "**Analysis *of Synchronization Techniques for Photovoltaic Fed Grid Systems***", Wulfenia Journal (ISSN: 1561-882x), Vol. 20

Dr.R.Seyezhai *and* **M.Tamilarasi** *(Research Scholar) published a paper entitled, "**Analysis and Design of Directly coupled Interleaved Boost Converter for Fuel Cell applications**", International Journal of Mathematical Sciences and Engineering (IJMSE), Volume – II, Issue-I, May 2013.*

N. Pandiarajan, Dr.A. K. Sahoo *and* **Dr.RanganathMuthu** *published a paper entitled, "**Simulink Circuit Model of a Thin Film PV Module and its Validation**", Wulfenia Journal, Vol. 20,*

Dr.V.Rajini *and* ***V.Vasanprabhu****(Research Scholar) published a paper entitled ,"**Design of GT FLC Speed Controller and Position Sensorless Control Using ANN for 8/6 SRM**", Journal of electrical engg, Article 13.1.6, Vol.13, Edition1, 2013*

Paper presentations

Dr.R.Seyezhai *and* **A.InbaRexy** *(Part-time scholar), presented a paper entitled, "**A comparative study on passive power factor correction**", in the second International Conference on Science and Innovations in Engineering, ICSIE 2013, Jawahar Engineering College, Chennai*

Dr.R. Ramaprabha *and* **M. Venmathi** *(Full-time Research Scholar) presented a paper entitled, "**A Review on Multi-Port Bidirectional DC-DC Converters for Renewable Energy Systems**", presented in International Conference in MAGNA on Emerging Engineering Trends (ICMEET-2K13)) at MAGNA College of Engineering, Tiruvallur, Chennai, Tamilnadu, India*

Dr.R. Ramaprabha *and* **M. Vijayalakshmi** *(Full-time Research Scholar), presented a paper entitled "**A Comprehensive Review on Flywheel Energy Storage for Micro grids** ", in International Conference in MAGNA on Emerging EngineeringTrends (ICMEET-2K13)) at MAGNA College of Engineering, Tiruvallur,Chennai, Tamilnadu, India*

Project Proposals

- **Dr.V.Rajini** *submitted a project proposal entitled, "**Reliability improvement of HTS transformers using G10 FRO at cryogenic emperature**" - DRDO Amount Rs. 30 lakhs.*
- **Dr. R. Ramaprabha** and **Ms. SP. Chitra** (Full-time Research Scholar) submitted a project proposal titled, "**Design and Implementation of ModuleIntegrated Converters for Partially Shaded Solar Photovoltaic Array**" to Department of Science and Technology under Fast Track Proposals for YoungScientists scheme for Rs. 21.83 lakhs.

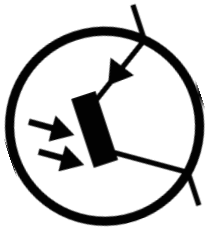
"Those who meet me will never fail to succeed"

- **FAILURE**

Dr. R. Ramaprabha and S. P. Chitra (Full-time Research Scholar) *presented a paper entitled "**A Review on Topological Classification of Module Integrated Controller for Solar Photovoltaic Array**", in International Conference in MAGNA on Emerging Engineering Trends (ICMEET-2K13)) at MAGNA College of Engineering, Tiruvallur, Chennai, Tamilnadu, India.*

S. Malathy *and* **Dr. R. Ramaprabha** *presented a paper entitled "**Maximum Power Point Tracking Based on Look up Table Approach**" IEEE International Conference on Energy Efficient Technologies for Sustainability (ICEETS-2013), at St. Xavier's Catholic College of Engineering, Nagercoil, Tamilnadu, India*

Dr. R. Ramaprabha *and* **M. Venmathi** *(Full-time Research Scholar) presented a paper entitled "**Analysis of Three Port Full Bridge and Half Bridge DC-DC Converter Interfacing Renewable Energy System**" IEEE International Conference on Energy Efficient Technologies for Sustainability (ICEETS-2013), at St. Xavier's Catholic College of Engineering, Nagercoil.*



M.Pandikumar, Dr. R. Ramaprabha *and* **Dr.Ranganath Muthu**, *presented a paper entitled "**Design and Modeling of Photovoltaic System Fed Brushless DC Motor**" IEEE International Conference on Energy Efficient Technologies for Sustainability (ICEETS-2013), at St. Xavier's Catholic College of Engineering, Nagercoil, Tamilnadu, India*

Ram Meenakshi *and* **Dr.Ranganath Muthu** *presented a paper entitled '**Doubly Fed Induction Generator for Wind Energy Conversion System – A Survey**', International Conference on Energy Efficient Technologies for Sustainability, St. Xavier's Catholic of Engineering, Nagercoil, India*

Dr.R.Seyezhai *and* **A.Bharathi Sankar** *(Full-time scholar) presented a paper entitled, "**Investigation of PMSG fed Diode-Clamped Multilevel Inverter for Wind Energy System**", IEEE International Conference on Energy Efficient Technologies for Sustainability (ICEETS-2013),*

Dr.R.Seyezhai and **M.Tamilarasi** *(part-time scholar) presented a paper entitled, "**Simulation and Hardware and Implementation of Directly Coupled Four Phase Interleaved Boost Converter for Fuel Cells**", IEEE International Conference on Energy Efficient Technologies for Sustainability (ICEETS-2013), presented at St. Xavier's Catholic College of Engineering, Nagercoil,Tamilnadu, India.*

Dr.R.Seyezhai and **M.Sudhakaran** *(part-time scholar) presented a paper entitled, "**Simulation of Phase shift PWM Technique for a Three-Phase Nine-level Cascaded MLI**", National Conference on methods enriching power and Energy developments, Jeppiaar Engineering College, Chennai.*

Dr.Ranganath Muthu, **Nirmala.S** *and* **VeenaAbirami** *published a paper entitled, '**A comparative study of linear model predictive control strategies for Multi-Drug Infusion Control for critical care patients**', Vol. 20, No. 4, pp. 248-258, Impact Factor 0.267*

Dr.V.Rajini *and* **B.SanthiSaravana***(Research Scholar) presented a paper entitled, "**Prefeasibility analysis of wind power generation for standalone applications**", International conference on energy efficient technologies for sustainability ICEETS-2013 at St.Xavier's catholic college of Engg, April 10-12, 2013*

Dr.V.Rajini *and* **B.SanthiSaravana** *(Research Scholar) presented a paper entitled "**A Novel approach for utilization of green energy for sea water desalination in India**", International conf on green technology in engg and applied sciences ICGTEAS 2013) on March 29,30,2013at APEC, Melemaruvathur*

Dr.R.Seyezhai, G.Ramathilagam, P.Chitra, V.Venila published a paper entitled," **Investigation of Half-Bridge LLC Resonant DC-DC Converter for Photovoltaic Applications**", IJIREEICE

Dr.R.Arumugam *and* **P.Ramyadevi** *presented a paper entitled, "* ***Mathematical Modeling and speed control of Permanent Magnet Brushless DC motor'****, International conference on Innovations in Instrumentation, Optimization and Signal Processing(2013),Karunya University,Coimbatore,March2013.pp.1346-1352*

Dr.V.Rajini, Dr.M.Balaji and **Mrs.R.Deepalaxmi** published a paper entitled, "**Particle Swarm Optimization Based Selection of Optimal Polymeric Blend**' has been accepted for publication by IEEE

Dr.Ashwin Kumar Sahoo was invited as keynote speaker and chairperson to chair paper presentation sessions at the National conference on "**Emerging vistas of Electrical Electronics & Communication Technology – (NCEVEECT – 2013)**", organized by Kingston Engineering College, Vellore

Dr.R.Seyezhai and **M.Tamilarasi** (part-time scholar) published a paper entitled, **"Simulation and Hardware and Implementation of Directly Coupled Four Phase Interleaved Boost Converter for Fuel Cells"**, Advanced Materials Research (AMR)

S. Malathy and **Dr.R. Ramaprabha**, "**Maximum Power Point Tracking Based on Look up Table Approach**" Advanced Materials Research (ISSN: 1022- 6680)

Guest Lectures

- **Dr.R.Arumugam** delivered a special lecture on "**Switched Reluctance Motor Drives**" for the college teachers at Dhanalakshmi College of Engineering, Manimangalam, Chennai.
- **Dr.R.Seyezhai** *delivered a guest lecture on , "* ***Power Converters for Fuel Cells****", in the CSIR sponsored National Workshop on Fuel cells at VIT University, Chennai Campus*
- *Dr.Ranganath Muthu , Prof./EEE delivered Guest Lecture at AVIT, Vinayaka Missions University, Chennai.*
- **Dr.V.Kamaraj** delivered a special lecture on" **Modeling and Control of Electric Drives**" for the Anna University sponsored FDP Programme held at SSN College of Engineering.

Dr.R.Seyezhai and **A.Bharathi Sankar** (Full-time scholar) published a paper entitled, "**Investigation of PMSG fed Diode-Clamped Multilevel Inverter for Wind Energy System**", Advanced Materials Research (AMR)

Dr.R.Seyezhai and **V.Chamundeeswari** (Research Scholar) published a paper entitled, "**Dynamic Analysis and Parameter Evaluation of Negative output Superlift Luo Converter**" Wulfenia Journal, No: 6, Vol.20, June 2013.

Dr.R.Seyezhai *and* **M.Rasan** *(Research Scholar) presented a paper entitled, "****MATLAB Simulation of Modular Multilevel Inverter Based on Level-shifted PWM Technique****", Sixth International Conference on Science, Engineering and Technology, May 7th , 2013, VIT University, Vellore.*

Dr.R. Ramaprabha and M. Venmathi published a paper, "**Analysis of Three Port Full Bridge and Half Bridge DC-DC Converter Interfacing Renewable Energy System**" Advanced Materials Research (AMR) (ISSN: 1022-6680)

M.Pandikumar, **Dr.R. Ramaprabha** and **Dr.Ranganath Muthu**, "**Design and Modeling of Photovoltaic System Fed Brushless DC Motor**" Advanced Materials Research (AMR) (ISSN: 1022-6680), Vol.768, pp. 136-142 , 2013. *SJR Impact factor 0.03.*

Dr.R.Seyezhai and **T.Tamizhselvan** (Research Scholar) published a paper entitled, "**Performance Study of Fundamental frequency & PWM switching of Hybrid Multilevel Inverter for Fuel Cells**", Wulfenia Journal, No: 6, Vol.20, June 2013.

Dr.R.Arumugam , **JyotiKoujalagi** *and* **B.Umamaheswari** *(Research Scholars) published a paper entitled, "****Performance prediction of switched reluctance generator with time average and small signal models****", Front. Energy 2013,7(1):.*

Dr.R.Seyezhai *and* ***R.Niraimathi*** *(Research Scholar) presented a paper entitled, "* **Cascaded Multilevel Inverter for PV Applications***", Sixth International Conference on Science, Engineering and Technology, May 7th , 2013, VIT University, Vellore.*

"Faith is to believe what you do not see" , the reward of it is, "you see what you believe" !

- Swami Chinmaya

Academic achievements

Dr. R. Ramaprabha *delivered an invited talk on "**Introduction to Solar Energy**" in AICTE sponsored STP on Power Electronics for Green Energy (15- 27, April 2013) at Jerusalem College of Engineering,Chennai*

Dr.V.Rajini, Dr.R.Ramaprabha *and* **Dr.M.Balaji** *chaired a Session at National Conference on "**Modelling,Simulation,Design and Experimental Study of Electrical Systems**" at B.S.Abdur Rahman University, Chennai*

Dr.V.Kamaraj *conducted the ISTE monthly seminar entitled, "**Building large scale software systems**" delivered by Dr.D.Janakiram, Professor, IIT,Chennai.*

Mr. Pandikumar.M *attended " **Research methodology and Latex**" workshop at SSN college of Engineering, Chennai*

Ms.Alagu dheeraj attended the TEQIP / FDP on , "**Recent Trends in Power Electronics and Power Systems**" at PEC, Pondicherry.

Dr.Ashwin KumarSahoo delivered an invited lecture at the AICTE-ISTE sponsored two weeks FDP program on "**FACTS Controller Application on Transmission Lines**", organized by Department of EEE, Adhiparaskthi Engineering College, Melmaruvathur, during 12th to 25th June 2013.

Dr.R.Seyezhai *delivered an invited talk on "**Modeling of Fuel cells**" in AICTE sponsored STP on Power Electronics for Green Energy (15-27, April 2013) at Jerusalem College of Engineering, Chennai*

Dr.RanganathMuthu *delivered an invited talk on "**Introduction to Wind Energy**" in AICTE sponsored STP on Power Electronics for Green Energy (15- 27, April 2013) at Jerusalem College of Engineering, Chennai*

Dr.RanganathMuthu *delivered an invited talk on "**Introduction to Wind Energy**" in AICTE sponsored STP on Power Electronics for Green Energy (15- 27, April 2013) at Jerusalem College of Engineering, Chennai*

Dr.V.Rajini *chaired a session for second national conference on "**Recent trends in power and control engineering**", RAPCE-13 at Karpagavinayaga college of Engg and technology.*

Dr.A.N Arvindan *accepted the invitation to judge the project exhibition for the year 2012-2013 –Projects displayed by final year EEE department students of Sri Sairam Engineering College, Chennai.*

RHAPSODY

Dr.V.Rajini, Professor in the Department of Electrical and Electronics Engineering has 18 years of teaching and research experience including 4 years of research experience in polymeric insulating materials in Anna University

She received her BE and M.E(University Rank1) degrees in Electrical Engineering from Annamalai University and Ph.D in High Voltage Engineering from Anna University.

During her Ph.D, she has worked on various polymeric insulating materials (outdoor/indoor) under aggravated service conditions. This includes testing them under nuclear irradiation conditions also. This work was partially supported by SSN Trust.

She has published over 70 research publications in referred journals and international conferences. She is currently working on the development of novel cable insulating materials for nuclear power plants..She is the recognized supervisor of Anna University and Anna University of Technology- Chennai. She is currently guiding 10 Ph.D scholars working on Insulating materials, High voltage applications in Process Technologies, Hybrid Electric Vehicles and Power Electronics in HV applications.

She has received Best paper awards in various conferences , Best teacher awards and **CTS – SSN Best Faculty Award –** 2011 for the outstanding performance for the academic years 2010-11. She is a member of IEEE and Life member of ISTE.

MAJOR R&D PROJECTS :-

1. *Risk / Reliability Assessment of Composite Insulating Materials -- Rs.9 lakhs (funded by SSN Trust)*

2. *Characterization of Polymeric blends for cable applications in nuclear power plants-- Rs 2.63 lakhs (funded by SSN Trust)*

3. Modernization of High Voltage Lab by AICTE under MODROB Scheme — Rs. 30 lakhs.

Interview with Dr.R.Seyezhai !

Everybody in the department is awestruck by her knowledge, prowess and her ability to make even the toughest and driest of subjects sound easy and interesting. She demonstrated her exemplary talent, clarity, consistency, grit, determination in various professional works she involved so far. She has the rare ability to carry out any work with high degree of perfection. For her Excellency is a way of life. She has forged strong ties with everyone, and is respected and admired by office boy to the professors in the department. She has very good social capital. She has high degree of professional integrity and she always tries to make workplace happier with her warm feelings and radiating optimism. She enjoys reading, and is keen on keeping herself updated with all the current research and technology in her field. For the kind of work she deserve a lot more accolades and appreciation.

In this issue of Redeem, we bring you excerpts from an interview with a woman of substance, **Dr.R.Seyezhai**.

Did teaching happen by chance or by choice?

My parents were teachers. That was a huge source of inspiration. I had the opportunity to work in the industry. But I took up teaching instead. So teaching was by choice. I have tremendous interest in the subject and find it an excellent way to contribute something to the society.

In your opinion, how have students evolved in the last 10 years?

There is a big difference. They are more open-minded now and are able to deal with any task. They have a lot more exposure and I can see the fire and drive in their eyes. If I give some work, they make sure they complete it. They are also playful when compared to the previous generation. They need to focus on understanding concepts and make sure that they are sincere in whatever they do. This way, they will come out with flying colours.

What are the recent research projects you have undertaken?

I just finished a project on hard switched silicon carbide based dc to ac power converters. It was funded by AICTE. I have now received another AICTE funding of Rs. 24.5 lakhs for a project based on development of multilevel inverters that involve renewable energy sources like photo-voltaic cells. I'm now focusing on power converters for renewable energy. I have planned to set up a Power Conversion for Renewable Energy Lab in the college. The equipment is very specialized and of a high standard.

It is seen that most of the projects in our college receive only government funding. Why are we unable to obtain funds from private companies for research?

We should have collaboration with private companies. I can't approach a company by myself. The industry should collaborate with us if they need to develop a prototype. We can develop models and designs but only they have the technology to develop the actual hardware. For example, boost converters come in just a single IC chip nowadays. So the companies need to collaborate with us and help develop products that would be useful for the society.

You have worked and published papers with a multitude of students, patiently helping them with their projects. What motivates you to put in so much extra effort?

Basically, I want my students to learn and benefit from me. When students approach me for projects, I make sure that I guide them in such a way that they have something very valuable to take away once they've finished their projects. I ensure that they publish their work in journals and conferences. That has been the case with all my students for the last three years.

As a woman, tell us how you manage both your career and your home?

It is very difficult to manage both. I wake up at 4 and start my day. I have been doing this for the last 10 years. After college, I go home and help my daughter with her work too. So, it is difficult. You cannot do it if you're lazy. You should always be on your toes.

You have been known to be good in debates and Tamil *Pattimandrams*. How did that happen?

My father was a very good Tamil poet. He was a huge source of inspiration. I have been a part of debates and extempore competitions ever since my school days. Earlier, I would prefer English debates. I then decided to give it a shot in our own language, Tamil. It clicked. I have spoken in several TV shows as well. I maintain a diary with all the good quotes I come across anywhere in books and papers. My husband also has been a constant support.

~ Supriya.V and Nandhini.S

(4th yr, EEE-B)

Is it possible to make "**NOTHING**" with 6 match-sticks ?

[Hint: Seven Segment Display]

Ans. in page **11**

Diary says,

"I too have emotions"

Linguistic Splendor

***D**ear Diary,*

This is might probably be the last time I'm writing. Time has progressed quickly and yesterday is nothing more than today's memory. Everything I am today and all that I have done up till will be long forgotten one day. Yet you remain veiled in serene existence to remind the world of the essence of my life.

Those were the last words he had written. I wished he had been around a bit longer. Tonight I'm really lonely without him. The moon is spreading its radiance, the winds carry the scent of rain, a perfect night for the fire flies to rejoice the company of stars. But here do I sit alone without my master watching them in solitude. *Chance rules our life and the future is something unknown. If I hadn't accidently fallen into his bag that day, I wouldn't have experienced this intensity of emotions.*

People can be so erratic. One moment they seem so delightful and I feel like I'm drowning in the ocean of ecstasy yet sometimes life can also be so gloomy that it gives you the blues too. Some days appear to be monotonous and aimless in such a way that going into saintly-hood is a better option. Still life goes on and every twilight has a new story to tell. Every day I was told a new tale. These were not ordinary fables but emotions from the depth of the human heart.

He once taught me that the human heart is weak and fragile. I used to mock at his stories. It seemed so dim that desire and expectations is what makes life miserable. I knew about his pleasures, misfortunes, fears, love, dreams, responsibilities, works and ambitions. I was there for him every single moment but I was nothing more than a silent listener. *From a book with nothing but blank pages, I have become the past of my master and now do I have to deal with the burden of bearing this reminiscence.*

I once lived with the pride that I was special in his eyes. I was no ordinary book or novel but something more personal to someone. But today the very same feeling depresses me when he is no longer around. Time sure has passed and when did I get so much entangled with all these emotions. How foolish of me to ridicule those humans! I guess I have been too much involved in this person's life that even a lifeless, static object like me can perceive so much. *To find joy in his laughter and sorrow in his grief, this has become my life.*

Humans are such tiresome creatures but it is their perseverance and undying love that makes them irreplaceable. Locked inside the closet, clogged up by dirt and worn out stuff, still the memories of my master linger around me. These emotions lie deep within me, engraved on to every page. *To watch over them is my purpose, time has ruthlessly bestowed upon me.*

~ Iswariya.M

(3rd yr, EEE-A)

Dollar up and Rupee down - Why?

1 US dollar = 60.35 Indian rupees.

The oil minister will raise petrol prices this year as rupee is down again. RBI always tried to protect rupee by selling off dollars but still has been unable to hold rupee from falling at a rapid pace. The last resort of controlling rupee fall is issuing bonds by Reserve Bank of India. To prevent further downfall of Indian rupee, RBI is considering selling dollars directly to oil marketing firms.

Now let's look into why dollar is appreciating heavily against rupee.

Recession is less in India, then why dollar is moving up when rupee must be strong.

We all know about recession and it is worse in US and better in India as compared to US, then how come dollar is appreciating with respect to Indian rupee? Don't you think that Indian rupee should go up and US dollar should move down?

There are so many reasons of depreciating rupee, but I would like to explain the first one, which is most important.

Why dollar is moving up and rupee is going down? There has been a recent fall in rupee since some days ago and a

dramatic increase in dollar. It was 49.50, then 50.12, 51.10, 52.60, 53.54, 54.40,55.18,57.30 and now 1 US dollar = 60.35 Indian rupees.

Why is this happening?

First Reason - Dollar is in Demand

BRIC countries like India have emerging economy, so a huge percentage of investment in India is from outside the country, especially from US but due to recession in US, big institutions are collapsing and many of them are on the verge of breakdown. They are suffering huge losses in their country. They have to maintain their balance sheets and look strong on all statements, so to recover losses in their country, they are pulling out their investments from India. Due to this pulling out of investment by these big companies from India or in other terms disinvestment, demand of dollar is raising up and rupee is depreciating.

There was a huge interest rate differential between India and US. Now RBI is reducing all kind of rates to increase money supply in market, so deposit rates will also move downwards. It will reduce the rate differential between two countries and affect the fixed investment in India in a negative manner.

Second reason - Collapse of International Trade

If you observe in terms of international trade, commodity prices are crashing at international level.

Importers are trying to accumulate dollars, as they have to pay in terms of dollars and at the end demand is increasing against the rupee. This has not happened yet due to lack of confidence in all kind of markets.

Exporters have a very few orders from outside countries, so there is no matter of converting dollar into rupee thereby decreasing demand for rupee.

Now 1 USD is at 60.35 INR and rupee is expected to depreciate further due to RBI instructions to exporters and banks. The major gainers due to rupee down were Indian IT companies including BPOs, call center outsourcing, medical transcription outsourcing, and Indian content writers, especially Indian Adsense publishers who also earn in dollars.

~ Balaji.R

(3rd yr, EEE-A)

INTERNSHIP AT THE INDIAN INSTITUTE OF TECHNOLOGIES

Out of the four rattling years of Engineering the third year is the pivotal duration involving maximum activities like mini projects and internships. With internships broadly divided into industrial and research internships , the latter is preferred by students aspiring for their higher education . The research internship opportunities are provided to the students by the premier institutions of our country like the IIT's and IISC . It is a fellowship program offered to the students completing their sixth semester . Being in the top of research institutes, the IIT's pick only a handful from the several thousand applicants for the fellowship . The selection criterion circumscribes the project proposals that we submit and the cumulative grade points obtained . Other superfluous criteria involves the math and science Olympiad ranks . The internship period is for two months and the stipend offered is around Rs.6600.

During my sixth semester I had the opportunity to undergo my internship at IIT , Madras. Majority of the courses offered there are inter-disciplinary , the task that was assigned to me was to design an OFDM Transmitter and Receiver that is prominently used in 4G Wireless communication. The Electrical Sciences Block (ESB) of IITM has world class infrastructure , it is a complete package that can aid any research oriented project . The laboratories work 24 X 7 around the clock and provide a work environment that is highly conducive for complete focus in work . During the period of internship every individual tumbles into the rooms rich with information and resources . There is nobody to spoon-feed the tasks that has to be performed but there are always people around you incase you are stuck . Apart from the technical erudition gained it indeed teaches the principles of independence and allows the individual to play with the science of engineering and embellish ones innovativeness into the task assigned to him/her . The entire duration is an ambivalence of complete pleasure and responsibility that everyone of us “must” experience, this is the sole purpose of the entire article.

~ Rajeswari.B

(4th yr, EEE-B)

The answer is **zero**.

Paper presentations by Students

K. Balaji, S. Bhargav Raj,V. D. Logeshwaran (UG Students) and **Dr.R. Ramaprabha** published, "**Comparison of Interleaved Boost Converter Configurations for Solar Photovoltaic System Interface**", *Journal of Engineering Research (TJER)*(ISSN: 726-6009), Vol. 10, No. 2, pp. 87-98, TJER 2013.

S. Ajay, S. Maneesha, A. Arunkumar *and* **G. Deepika** *(B. E. III year), " **Compact Maximum Power Point Tracking of Solar Photovoltaic System using Analog ICs** " presented a poster paper in TI India Educator's Conference 2013 (TIIEC 2013) at NIMHANS Convention Center, Bangalore, April 4-5, 2013 under the project guidance of Dr. R. Ramaprabha*

P.Ramalingam, M.Vignesh, D.Vignesh *(Final yr.EEE) and* **U.Shajith Ali**, *presented a paper entitled, "**Quasi Z Source inverter with enhanced voltage gain using sine carrier PWM for photovoltaic systems** "International conference on Global Innovations in Technology and Sciences, Chennai, PP.39-45.*

G.Ramathilagam, V.Vennila, P.Chitra *(IV Yr.EEE Students) and* **Dr.R.Seyezhai** *presented a paper entitled, "**Design and simulation of LLC DC-DC converters for automobile vehicle applications**", in the second International Conference on Science and Innovations in Engineering, ICSIE 2013, Jawahar Engineering College, Chennai*

MounicaGanta, PallamreddyNirupa ,ThimmadiAkshitha *(IV Yr.EEE Students) and* **Dr.R.Seyezhai** *presented a paper entitled, "**Inverstigation of Multi-leaved Boost converter for Renewable Energy Source**", in the second International Conference on Science and Innovations in Engineering, ICSIE 2013, Jawahar Engineering College, Chennai.*
(This paper received the **BEST PAPER AWARD** *and the project was funded by SSN Management)*

Sudarshan V.J., Sunil Kumar M.,VenkatBramaVignash S *(III Year EEE Students) and* **Dr.R.Seyezhai** *presented a paper entitled, "**Design and simulation of a five-level modular inverter**",in the second International Conference on Science and Innovations in Engineering, ICSIE 2013, Jawahar Engineering College, Chennai*

P.Ramalingam, M.Vignesh, D.Vignesh *(Final yr.EEE) and* **U.Shajith Ali**, *presented a paper entitled, "**Performance Analysis of Carrier Based PWM techniques for Quasi Z source inverter**", International Conference in MAGNA on Emerging Engineering Trends (ICMEET-2K13)) at MAGNA College of Engineering, Tiruvallur, Chennai, Tamilnadu, India.*

Prithiviraj, N.Sabareesh, S.Rahul *and* **Dr.M.Balaji**, *presented a paper titled "**Design and Implementation of Hybrid Controller for Brushless DC Motor Drive** " at National Conference on Green Energy Organized by RMD Engineering College, Chennai. (This paper received the BEST PAPER AWARD)*

G.Shobana, P. Sornadeepika*(Final Year UG students) and* **Dr.R.Ramaprabha**, *presented a paper entitled "**Global Maximum Power Point Tracking of Photovoltaic Arrays under Partial Shaded Conditions**", in International Conference in MAGNA on Emerging Engineering Trends (ICMEET- 2K13)) at MAGNA College of Engineering, Tiruvallur, Chennai, Tamilnadu,India*

K.Radhasree, Sivapathy, V.Varhdaman *(passed out UG students) and* **Dr.R.Seyezhai** *presented a paper entitled, "**Analysis and Experimentation of a Three Phase Asymmetric Cascaded Multilevel Inverter for Electric Vehicles**", IEEE International Conference on Energy Efficient Technologies for Sustainability (ICEETS-2013), presented at St. Xavier's Catholic College of Engineering, Nagercoil,Tamilnadu, India.*

S. Santosh Kumar, M. Saravanan *(UG Students),* **Shanmugapriyen** *(PG Student) and* **Dr.M.Balaji** *presented a paper titled "**Performance Analysis Of Hybrid Self Tuned Fuzzy Logic Control For Switched Reluctance Motor Drive**" at National Conference on Green Energy Organized by RMD Engineering College, Chennai.*

K.Masha Nazeem made an 18 minute presentation at **Sri Sankara Leadership Summit 2013** held Tidal Park, Chennai on 29-06-2013. This progamme was organised by the alumini of Adyar Sri Sankara Mr. Baskar Ramamoorty - IIT, Director, Robo Balaji, Comedy actor TM Karthick and Senior officials from IBM, Cognizant also made their speech there.

M.Pradeep, V.Ramasamy *(UG Students) and* **Dr.M.Balaji** *presented a paper titled "**Voltage Harmonic Elimination in AC Voltage Controller Using Partice Swarm Optimization** " at National Conference on Technological Advancements in Power Systems & Power Electronics Engineering Organized by SRM Easwari Engineering College, Chennai.*

N.Janani*(II Yr.M.E., PED) and* **Dr.A.N.Arvindan** *presented a paper entitled, ,"**Performance Analysis of modern 12 pulse line commutated converter using PSCAD**' in the National conference on Modelling, Simulation,Design and Experimental study of Electrical systems,MOSDES2013 at B S AbdurRahman University, Chennai.*

J.Karthikeyan*(II Yr.M.E., PED),* **R.Arumugam** *and* **Dr.A.N. Arvindan** *presented a paper entitled"**Harmonic Analysis of Three Phase Symmetrical Multi pulse modulated AC chopper fed Three wire Wye Load**", in the National conference on Modelling, Simulation,Design and Experimental study of Electrical systems,MOSDES2013 at B S AbdurRahman University, Chennai*

P.PraveenKumar *(II Yr.M.E.PED) and* **Dr.A.N. Arvindan** *presented a paper entitled, ' **THD reduction in line currents by Elimination and mitigation of triplen and non-triplen harmonics respectively using the delta-wye transformer**", in the National conference on Modelling, Simulation,Design and Experimental study of Electrical systems,MOSDES2013 at B S AbdurRahman University, Chennai*

K.Radhasree, **Sivapathy**, **V.Varhdaman** (passed out UG students) and **Dr.R.Seyezhai** published a paper entitled, "**Analysis and Experimentation of a Three Phase Asymmetric Cascaded Multilevel Inverter for Electric Vehicles**", Advanced Materials Research (AMR)

Aid the Handicapped!!!

Susant Patnaik, a 13 year old kid has developed a Breathing Sensor Apparatus to assist the Physically challenged.
This system consists of a circuit, which uses the changes in breathing patterns to select several options such as food, water etc. It thus enables paralyzed/physically challenged people articulate their wish and be self-reliant in routine activities. The technology has a range of
applications like operating a wheelchair, electronic appliances, prevention of accidents, detecting thefts, etc.
Susant has designed a proof-of-concept electronic circuit of a wheel chair, which can be navigated through commands given by changing breathing patterns, just like a morse code.

Parting Ways....

A glimpse into the future, everything set for new adventures, it was on April 12th, that we bid farewell to our final years!

There were a lot of innovative ideas implemented in the event! We had all the final year guys dressed up in dhothis with casual shirts and girls in sarees, was a feast to watch! We had some of the senior staff members during the start of the event. The event started with an introductory speech given by the 3rd year student **Barani.B** (the current **AEEE President**). It was followed by the speech of our Honorable HOD **Dr.V.Kamaraj**. Mr.Pandiarajan, Dr.Mathur and other senior staffs of our department poured in their wishes and greetings for the final year students. The formal session came to an end by the vote of thanks given by **R.Sindhuri** (the current **AEEE Vice-President**). There was a break for half an hour, during which refreshments were provided for all the students and the staff members who attended the event. It was followed an informal session which included dance and various entertainment shows for the final years. The final years too thoroughly enjoyed this session and everyone participated actively.

Class of 2013

Solar Energy

"*Larry Page and I are convinced that within five years we will reach a tipping point where energy from solar will be less expensive per watt than from coal and oil*." This was quoted by Ray Kurzweil (engineer, inventor, futurist and now-Google employee) at a recent conference at Berkeley University.

Solar enthusiasts already believe they've picked the winner. No surprise there. But faith in their technology is backed by some of the brightest brains in science. Cleantech investors believe that the future is already here but not yet evenly distributed.

Let us take an analytical approach to reason why we should rapidly embrace solar technology as a primary source of power. The most recent elaborate energy auditing shows the unmistakeable dependence of the world on fossil fuels for power generation.

Countries like USA, Germany, Japan and China have realised the importance of adopting non-conventional energy sources. The reason for the rapid investment in solar technologies within a short period of time can be understood by performing a cost analysis of the present technologies.

Let us see the various schemes utilised by USA to ensure energy self-sufficiency, which produces 71 quadrillion Btu per year and consumes 21% of the world power .The major source of energy remains to be fossils fuels but has begun rapid investment in alternate source of energy due to the following disadvantages. In order to maintain a constant supply of fossil fuels for power production , it has to incur the following hidden costs in the form of maintaining a proper functional government in Iraq and Iran to facilitate supply. The funding needed by the defence departments to develop such technologies and destruction involved which such development are heavy burden to scientific growth.

Nuclear fission/fusion power generation produces efficient power however the problems of waste disposal of radioactive material and the cost involved in protecting from natural disaster and terrorists threat is large. Hydro-electric and geothermal power generation is highly localised and cost involved in transmission and distribution is high.

Going solar is not only a *"Green" initiative* but also a very profitable one .Let us consider The sun generates approximately 66 x 10^{20} kilowatt-hours every minute. The earth's outer atmosphere intercepts about one two-billionth of the energy generated by the sun, or about 1.5 x 10^{18} kilowatt-hours per year. Because of reflection, scattering, and absorption by gases and aerosols in the atmosphere, however, only 47% of this, or approximately 700 quadrillion kilowatt-hours, reaches the surface of the earth. In the earth's atmosphere, solar radiation is received directly (direct radiation) and by diffusion in the atmosphere. The sum of the two is referred to as global radiation. Let us consider a photovoltaic cell with an efficiency of 10% and a region where solar radiation range varies from 4kwhr/m^2 to 0.8kwhr/m^2 from summer to winter respectively let us consider a10hr on time for the photovoltaic cells for 365 days , from the following assumption we can safely predict only 1% of the land area is required for production of three times the power requirement at present .

With wind, geothermal and hydroelctric powerplants to meet peak demands solar technology can definitely be turned into the most efficient and competitive providers of power .Generally you could assume that solar power plants in sun-rich countries produce electricity cheaper than wind, coal and gas power plants. .In Germany, solar power can now be generated for 10 euro cents per kilowatt-hour and rate is expected to fall by a factor of 2 every year due the learning curve (A learning curve is a graphical representation of the increase of learning (vertical axis) with experience)

However populating of 1% of the land area with photovoltaics is no easy task but an obligatory one which we owe to our planet.

~ Sibi.S

(3rd yr, EEE-B)

Thinking Big.....

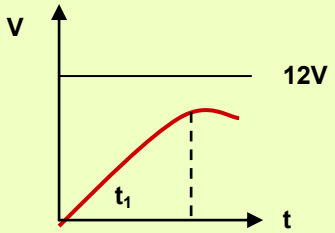
Can we charge up our mobiles within a less time (a span of 5 mins) **???**

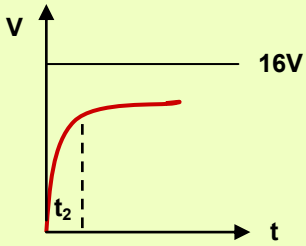
- B.Pratyusha

Yes, it would be possible by boosting up the float charge using DC-DC buck boost technique. If the voltage of battery is 12v and if the time taken to reach it is say some t, now by boosting up the float charge we would be providing a voltage of 16v or so (because the variation generally brought would be in range of 25-30%) now 12v is reached in a less time than t .

But once we reach up to 12 v in the second case we need to decrease the voltage given exponentially so as to reach 12v as shown ,otherwise battery gets heated up.

The graph shown makes ur understanding easy.



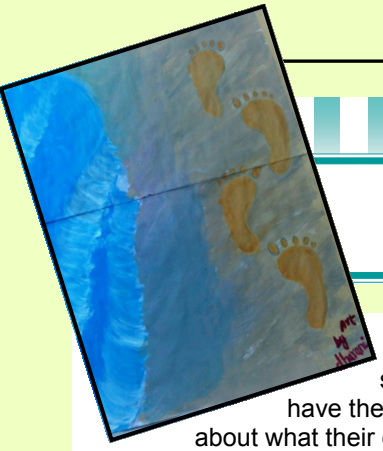


From graph its clear that $t_2<t_1$ For a clear understanding please refer to the buck boost techniques.

- Mr.A.Balasubramanium

~ Narapa Naidu

(4th yr, EEE-B)



FOOTPRINTS TO FOLLOW!

Every year there is a new bunch of students entering into college. Everyone have their dreams, hopes and are so curious about what their experience is going to be like the next four years. College is a place where one's future is decided. Especially when it comes to undergraduate engineering, the options you have at the end of college can be broadly classified into two categories. Its either you go for a job immediately after completing college, which people refer to as "campus placement" or aiming for higher studies.

The greatness comes when you're really tested, when you take some knocks, some disappointments and when sadness comes. Recently I did come across some fine people – **Mervin.J.B, Vijayenthiran, Sai Praveen, Tathagata Mitra** - who have achieved quite a feat during their college days. Starting up their adventure from building tiny robots, to getting their names printed in LIMCA BOOK OF RECORDS and "*Exceeding Expectations*" in the field of research. With their greatness veiled in modesty and humility, they have given a few tips that would be useful for us juniors at the end of graduation.

Campus recruitment has become a figure of merit for almost every college these days. People are so keen about what company you join, whether it is a reputed one or not, and the most important concern is the pay you get.

Work until you are out of your minds!!

With the booming IT sector on side and the apparently depleting core companies in the other side, students are left in a dilemma as to which to join. The core companies these days prefer students with a higher CGPA. "*Technical achievements are often considered to be secondary, especially when you don't have a consistent CGPA*", says Mervin. So those who are trying hard for core companies here is your solution – a decent CGPA above 8 with due consistency along with a few paper presentations and projects.

The work load in either case will be 12 to 14 hours. Irrespective of whether it is an IT company or a Core company, the work scenario is very different as one will be given a separate training session for 6 months if it is an IT job or 1 year in the case of a core company. Whichever the case is the work scenario is very different when compared to life in the college. It is like almost whatever basics you have learnt during your 4 years in college will completely be over-written by the training course assigned to you.

Higher Education comes Next!!

For those who are passionate about higher studies, GRE/ GMAT, CAT, GATE, etc are the available options. Most people who opt for ME or Mtech usually enter into research or in the teaching line because opportunities relating to core electrical are limited in India with the developing infrastructure.

People who have a strong or atleast moderate financial background, go along with GRE because the cost is around 30 lakhs when it comes to studying in US and around 15 lakhs in Germany. The job opportunities are definitely better, education is of a higher standard with the available global exposure. "*We have students from our college studying in University of Minnesota under full scholarship, prior to 3 years of experience in their respective research fields. And currently about six students are on their way to RWTH Aachen University in Germany*", says Vijenthiran.

The future belongs to those who believe in the beauty of their dreams.

In the end everything boils down to the individual. It is ultimately you who has to decide your future whichever path you may take. Your personal interests, financial background, family circumstances, etc are crucial factors which play an important role in decision-making. These people have had their time from establishing the ERF (Electrical Research Fraternity) in SSN to achieving their dreams. Its high time everyone of us start deciding upon our goals in life. Education is just a passport to the future and tomorrow belongs to the people who prepare for it today…

~ Iswariya.M

(3rd yr, EEE-A)

From the Alumni

Just out of school, the four year path ahead seemed very cryptic and esoteric, but SSN College of Engineering made the journey comfortable and joyous. In addition to a very meritorious degree, SSNCE provided me with vast technical knowledge and refinement in many ways. It provided all round development, not just mentally and emotionally but physically as well, helping me develop endurance to long bus journeys and waking up early in the morning. To top these wonderful gifts, the guidance, experience and friendships that I procured will definitely be treasured for years to come. At this junction, I'm both gratified and obligated to extend my heartfelt gratitude all my Professors, lectures, staff and friends at SSN for making my path educative and successful.

Being *Student Chief Editor of REDEEM*, felt as refreshing as an evening drizzle on a hot summer day. The hustle of final year, with the ever hectic record books, UTs, project work and the progressive use of software like Matlab, Xilinx, etc., getting back to using Word and Photoshop to work on REDEEM was a breath of fresh air. Through my work here, I got the opportunity to interact better with my professors through the numerous interviews and also the chance to know about the literary talents of my friends through their articles. Overall, REDEEM helped me develop new skills and proved to be a new experience. I would like to express my sincere thanks to our HOD *Dr.V.Kamaraj, Mr.Leo, Mr.Pandikumar, Mr.Murugesan* and the entire REDEEM team for the wonderful opportunity.

Having completed my bachelors at SSNCE, I am going to pursue my Masters in Germany, M.Sc. Electrical Power Engineering at RWTH Aachen University. I hope it would provide me with new experiences.

I do not have the age or wisdom to advice, but I would like to share my perspective. Day in and day out, we come across so many people who are negligent and insincere in their work right from rash drivers to people in high offices and these people exasperate us. But often, mostly unknowingly, we too fall into that category. I hope everyone will be more cautious and conscious of the work they choose to take up and give it their best and honest effort in all parameters. As the Mahatma rightly said

"Be the change that you wish to see in the World"

All the very best to all my juniors and wishing them all smiles and success in all their endeavors.

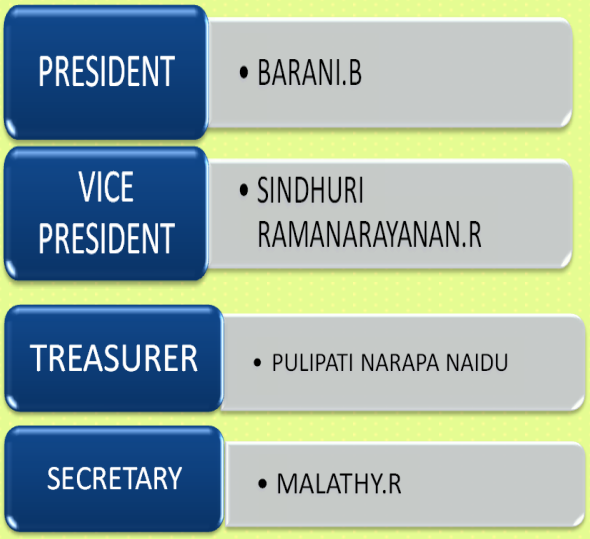
~ Geeth Prejwal Reddy

(Alumni)

COMING UP SOON.....

National Level Technical Symposium of the EEE Department,

SSN College of Engineering.



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