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REDEEN QUARTERLY EDITION

WORDS OF WISDOM

Interview with Dr. M . Senthilkumaran

FOCUS ON CAT EXAM

Experience of M.S.Karthikeyan, Final Year EEE

Best ISTE Chapter Award

Design by M. Pandikumar, AP/EEE, SSNCE



12 Internal funded Projects

From the Alumni (13

HOD's Desk

The Department of Electrical and Electronics Engineering is constantly striving to achieve excellence in teaching, research and professional activities. In the last few months our faculty, staff and students worked meticulously for the 2nd International Conference on Electrical Energy Systems (ICEES 2014) in association with IEEE Madras Section, Power Engineering Society (PES)-Madras Chapter and Control Systems Society (CSS). The conference was approved by IEEE and received letter of acquisition for inclusion of proceedings in IEEE Xplore. The conference was well received. Our faculty is focusing on preparing for the accreditation of UG and PG programmes. Complete documentation work was done during this period.

To further strengthen our relationship with industry, Mr.B.Chandrasekaran, Director R&D and Dr. Paramasivam of Danfoss Industries Pvt Ltd have visited our Institution for the launch of Danfoss Innovator Project Award 2013. Our UG and PG students received internships from Danfoss Industries and Hibrise Technologies. This year also our students actively participated in the TI India Analog Design contest conducted by Texas Instruments. Our faculties are instrumental in getting the ISTE Best Chapter Award 2013 in the National Convention held at Kohlapur.

This issue of EEE Newsletter presents the details of our major achievements in several academic and sports activities. I hope this newsletter provides a complete coverage.

Thank you.

~ Dr.V.Kamaraj (HOD EEE)

Jan 2014, Issue-08

Preface

REDEEM Team wishes all the readers a happy and prosperous new year

Renewable energy is the future

Today, India is one of the fastest growing economies in the world, with current electricity generation capacity of ~ 200 GW to meet the needs of over 1.2 Billion population. India's per capita annual consumption of energy at ~ 600 kWh is one of the lowest in the world, even when compared to developing countries like Brazil and China. This is a decade where India needs a clean energy revolution for transforming the electricity infrastructure to provide energy access to over 400 million of households that still lack basic access to electricity. At the same time India currently has made a good start in wind energy, and is today ranked number five in the world, producing 17000 megawatts of power by wind. Another 3000 megawatts by wind power is expected to be added every year. When the Jawaharlal Nehru Solar Mission began two years ago, India generated only 2 megawatts of solar power. By 2013, the mission will have 13000 megawatts of solar power. We might soon see every roof top with solar panels that generate power and feed power to the grid

There is an urgent need for transition from petroleum-based energy systems to renewable energy resources to decrease reliance on depleting reserves of fossil fuels and to mitigate climate change. In addition, renewable energy has the potential to create many employment opportunities at all levels, especially in rural areas. Smart energy is the application of digital information technology to optimize the electrical power system.

The smart grid is the product of applying smart energy technology to electrical power delivery and generation. Smart energy technologies are beginning to transform the power network into a smart grid capable of meeting 21st century economic, security and environmental challenges. But the smart grid still faces hurdles, in particular the need for extensive field testing to prove new energy systems and regulatory reform to remove financial disincentives to adopting new technologies. A host of new smart energy devices and systems are emerging that can take pressure off overloaded grid infrastructure and power costs, dramatically improve grid reliability and security, and accelerate the growth of cleaner power generation. Smart energy is defined as the application of digital information technology to optimize electrical power generation, delivery and end use. The smart grid is the product of applying smart energy technology to systematically optimize power delivery and generation.

In recent years, interest towards smart grids has increased abundantly throughout the world. Although the idea of smart grid is highly attractive, it presents a number of challenges due to its broad nature and multi-disciplinary aspects, that makes it difficult to implement. This has led to a strong focus for research in this area.

"If you live life with an attitude of turning everything you encounter into material to refine yourself and into seeds of self growth, then the very path you walk will be none other than the path to success" - Anonymous





Dr.V.Kamaraj(HOD) , Dr.M.Balaji Receiving the Best ISTE Chapter Award on behalf of SSN College of Engineering

The "43rd ISTE National Annual Convention" was held at Tatyasaheb Kore Institute of Engineering and Technology, Waranagar, Kolhapur during 19th,20th & 21st of December, 2013. The main theme of convention was "Empowering Technical Education to Address Sustainability and Global Competitiveness". This convention aimed at bringing all eminent personalities in the technical field on a platform to share their views, experiences and to find solutions for challenges in the field of tech-

nical education in India.

As a part of the convention various awards were given to engineering and polytechnic institutes and professors from various institutes recognizing their service in the field of Technical Education. **SSN College of Engineering** was honored with the **Best ISTE Chapter Award** (for TamilNadu and Pondicherry Section) for the various ISTE activities conducted here.

-Paulo Coelho

[&]quot;One day you wake up and there wont be any more time to do the things you have always wanted. Do it now!"

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Faculty Publications

Project Proposals



- Dr.V.Kamaraj and Dr.M.Balaji submitted Project Proposal titled "Design and Development of High Performance Controller for Permanent Magnet Synchronous Motor Drive" to DRDO on 4-11-13.
- **Dr. R. Ramaprabha** and **Ms.S.Malathy** got sanctioned Rs. 3.5 laks for a project proposal titled, "**Design** and development of efficient building integrated PV system under partial shaded conditions" by SSN Trust. (Internally funded Project)(9-11-13)
- Dr.V.Rajini submitted project proposal titled, "Fused Converter for solar wind hybrid systems applied to Telecom loads" to MNRE for funding of Rs.55,00,000/- .(5-11-13)
- **Dr.R.Seyezhai** received the sanction letter for the Internal funded project titled, "**Design of Solar Powered Electric Vehicle using BLDC Drive**", for Rs.4.5 Lakhs from SSNCE (4-12-13).

Journal Publications

- **Dr.Mrunal Deshpande**, published a paper on "**LC Tuned Magnetic Levitation System**", British Journal of Applied Science & Technology, Vol4, Issue-3, 11 Nov 2013 pg 568-577
- Dr.R.Ramaprabha and S. Malathy, published a paper on "Modelling and simulation of MATLAB/ Simulink based lookup table model of Solar photovoltaic module", ARPN Journal of Engineering and Applied Sciences (ISSN: 1819-6608), Vol. 8, No.11, pp 948-953, Nov 2013. SJR Impact factor 0.13. (01-12-13)
- Dr.R.Ramaprabha, R.Hemalatha and S.Radha, "Modeling of Photovoltaic Charging System for the Battery Powered Wireless Sensor Networks", has been published by the Springer.- Proceedings of the Third International Conference on Trends in Information, Telecommunication and Computing, Lecture Notes in Electrical Engineering 150, Chapter 25, pp. 225-235, DOI: 10.1007/978-1-4614-3363-7_25, _ Springer Science Business Media New York, 2013. (listed in Annexure II).(10-12-13)

Paper presentations

- **Dr.Ranganath Muthu** presented the paper on **'Drug Infusion Control for Mean Arterial Pressure Regula tion of Critical Care Patients'** at IEEE TENCON 2013 held at Xi'an, China (Anna Univ Annexure II).(22 -10-13 to 25-10-13)
- Dr.R.Ramaprabha and M. Venmathi (Full-time Research scholar), "Design and Analysis of Three Port Bidirectional Converter Interfacing Solar Photovoltaic System", 4th International Conference on Sustainable Energy and Intelligent System (SEISCON 2013)- Proceedings of IET, K.C.G College of Technology, Chennai, Tamil Nadu, India. December 12-14, 2013. Awarded as Best paper presentation.
- **Dr.V.Kamaraj** presented a paper entitled **"Fostering teaching and research with technology enabled learning**" in the 43rd ISTE National Convention 2013 at Kohlapur.

- A paper titled,"A novel parallel power conversion Technique for efficiency improvement in Hybrid DC -DC converter based rural Telephony" was published by W.MargaretAmutha, V.Renuka, V.Rajini at IEEE international conference on Renewable energy and sustainable Energy ICRESE 13 held during 5,6 Dec 2013 at Karunya University.(5-12-13)
- **Dr.A.N.Arvindan** Received **'Best Presentation Award'** and **'Certificate of Merit'** for research paper entitled **''Experimental Investigation of Harmonics in Line and Neutral Currents of 3-Phase Utility Feeding 2-Pulse Rectifiers**'' at the IET-UK 4thInternational Conference on Sustainable Energy and Intelligent System, SEISCON 2013, organized by IET YPS, Chennai and K.C.G. College of Technology, held in December 12-14, 2013 at K.C.G. College of Technology, Chennai, Tamil Nadu, India.

Academic achievements



Dr.Ashwin Kumar Sahoo and **Mr.A.Balasubramanian** attended the AICTE sponsored short term course on "**Recent Trends in Condition Monitoring of Power Apparatus and Systems**" at IIT, Madras, organized by Department of Electrical Engineering.(14-18 october2013)

- **Dr.R.Seyezhai** has been appointed as technical board member on 18-10-13 for the International Conference on Sustainable Energy and Intelligent System Conference- SEISCON -2014 to be held at KCG College of Technology during Dec. 12-14th, 2013.
- **Dr.R.Seyezhai** has been appointed as Reviewer board member for the International Journal on Electrical Engineering Research and Applications, India on 19-10-13
- **Dr.Ranganath Muthu** had Research Discussions with Dr.Prahlad Vadakkepat, Associate Professor, National University of Singapore and Dr.Ponnuthurai Nagaratnam Suganthan, Associate Professor, Nanyang Technological University, Singapore. Also visited their Laboratories(17 &18 October)

Dr.R.Seyezhai presented the roadmap of her research activities in the presence of Dr.Baraou at SSNRC on 4-10-13.

- **Dr.Mrunal Deshpande** has been designated as reviewer on the technical program committee for the 2014 IEEE Symposium on Computer Applications and Industrial Electronics (ISCAIE 2014) Malaysia on 21-10-13 and 2014 IEEE Innovative Smart Grid Technologies Conference - Asia (ISGT ASIA) (ISGT14) to be held in Malaysia on 28-10-13.
- **Dr.R.Seyezhai** and **Dr.R.Ramaprabha** attended the two day workshop on , " Control and Optimization in Energy Systems", organized by Dept. of Electrical & Applied mechanics at IIT, Chennai on 28-10-13.
- **Dr.V.Rajini** has been appointed as reviewer for International conference on Computer communications and information ICCCI2014 to be held at Srisakthi Institute of Engg& Technology Coimbatore on 5-11-13.
- **Dr.R.Ramaprabha** presented her research activities and progress in roadmap on 12.11.2013 at SSN Research center in the presence of Dr. Barua on 12-11-13.
- **Dr. Ranganath Muthu** attended the Short-term training programme on 'Introduction to Smart Systems' at IIT Madras, Chennai(25-11-13 to 28-11-13)
- **U.Shajith Ali** attended Faculty Development Program on "**Classical and Modern Control With Matlab**/ **Simulink**", at Indian Institute of Space Science and Technology, Thiruvananthapuram, 10th – 13th December 2013.

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- **Dr.A.N.Arvindan** attended Pre-Conference Talk that included presentations by:
- a. Dr. C. Palanichamy (Professor, Curtin University, Malaysia)
- b. Dr. Niladri Chakraborthy, (Professor, Jadavpur University, Kolkata, India)
- c. Mr. Vineeth Vijayaraghavan, (Founder and Editor Panchabuta Renewable Energy and Cleantech, Chennai, India) and participated in the IET-UK 4th International Conference on Sustainable Energy and Intelligent System, SEISCON 2013, organized by IET YPS, Chennai and K.C.G. College of Technology, held in December 12-14, 2013 at K.C.G. College of Technology, Chennai, Tamil Nadu, India.
- Mr.N.Pandiarajan attended Faculty Development and Training Programme on EE2355 – Design of Electrical Machines at College of Engineering Guindy, Anna University, Chennai – 600025(13-20,dec 2013).
- **Dr.R.Seyezhai** has been nominated for the editorial board for the International Journal on Electrical Engineering, Science Publishing Group(15-12-13).
- **Dr.V.Kamaraj** received ISTE Best Chapter Award on behalf of SSN at Kohlapur(19-12-13).
- **Dr.Ranganath Muthu** took part in the Tutorial sessions of International Conference on Trends in Industrial Measurements and Automation (TIMA-2013) as Chairman, Tutorial Committee(22-12-13).
- **Dr.Ranganath Muthu** chaired a session at the International Conference on Trends in Industrial Measurements and Automation (TIMA-2013) (23-12-13).
- **Dr.V.Rajini** conducted confirmation meeting For research scholars Ms.Alagudheeraj and Mr.A.Tamizhselvan (31-12-13).
- **Ms.Deepalakshmi** attended lecture series on "How to do a good Ph.D Thesis" Organised by Centre for International Affairs, Anna University, Chennai (23&24 nov).
- **Dr.V.Rajini,** applied for Seminar grant for ICEES2014 to AICTE on 5-11-13.
- **M.Senthil Kumaran** inaugurated a science club lab at DRBCC Government School, Perambur, Chennai. Gave a Lecture on Demonstrative education system for 10th and 9th standard students with demonstrative sessions on physics and chemistry on 26-10-13.
- **Dr.V.Rajini** conducted Synopsis Meeting for Mr.M.Subramoniam at Sathyabama University on 23-11-13.

<u>RHAPSODY</u>



Dr. R. Seyezhai, Associate Professor in the Department of Electrical and Electronics has 15 years of teaching and research experience, including 6 years of research experience in the field of Power converters, Fuel Cells, Multilevel Inverters and Silicon carbide power devices.

She received her B.E (ECE) degree first class from Manonmaniam Sundaranar University, M.E. Power Electronics and Drives from Bharathidasan University, Trichy and Ph.D from Anna University, Chennai.

She has published over 62 research publications in refereed international journals and 65 in proceedings of international and national conferences. She has completed one AICTE funded project worth Rs. 5 lakhs under Research Promotion Scheme. Her current research work includes multiport DC-DC converter, grid connected fuel cell system, hybrid multilevel inverters, modeling of SiC semiconductor devices and power converters for navy applications. Project details:

1. Title: Design of Silicon carbide based hard switched DC-AC Power Converter. (completed)

Funding Agency: AICTE Duration: 2007 – 2010 Amount: Rs. 5 lakhs

2. Title: Design and development of cascaded Z-source multilevel inverter for photovoltaic applications (Ongoing)

Funding Agency: AICTE Duration: 2013 – 2016 Amount: Rs. 24.5 lakhs

 Title: Design of solar powered electric vehicle using BLDC drive (Ongoing) Funding Agency: SSNCE Duration: 2013 – 2016 Amount: Rs. 4.5 lakhs

Guest Lectures

- **Dr.R.Seyezhai** delivered a guest Lecture on, "**Transistors and its characteristics**" (3-10-13) at KCG College of Technology, Chennai.
- **Dr.M.Balaji** delivered a guest lecture on "**3D Vibration Analysis & Magnetic Radial force calculation in BLDC**" at AICTE sponsored Faculty Development Program organized by Manakula Vinayagar Institute of Technology, Puducherry (20-11-13).
- Dr Ranganath Muthu delivered a special Address at the Two days National Level Technical Conference on 'Emerging Trends in Networking, Automation and Control Technologies' (3-10-13) at Sathyabama University.
- **Dr.R.Seyezhai** inaugurated the National Seminar on, "Intelligent Controllers for Power Converters in Renewable Energy system" (5-10-13) at Jeppiaar Engineering College, Chennai. Also, she delivered a Lecture on, "Multilevel Inverters for Solar PV Systems" in the first session of the workshop.
- **Dr.Ranganath Muthu** delivered keynote speech on **'Wind Turbine Control'** at the AICTE sponsored National Seminar on **'Current Trends and Future Role of Renewable Energy'** (9-10-13)at Sri Sai Ram Engineering College, Chennai.
- **Dr. R. Ramaprabha** delivered a guest lecture on "**Artificial Neural Networks for DC-DC Converters**" on 19th October 2013 at Sri Venkateswara College of Engineering, Chennai in the National workshop on "Soft Computing Control Applications to Renewable Energy Systems" held during Oct 18-19, 2013.
- **U.Shajith Ali** delivered a lecture on "**Digital Signal and Analog Signal Conversion Methods**" at Faculty Development Programme on Mechatronics conducted by Department of Mechanical Engineering, SSN College of Engineering (6-12-13).
- **U.Shajith Ali** conducted laboratory classes on "**Working with ADC, DAC & Multiplexer**" at Faculty Development Programme on Mechatronics conducted by Department of Mechanical Engineering, SSN College of Engineering (6-12-13).
- **Dr.Ranganath Muthu** delivered Lectures on **'Stability in Time and Frequency Domain'** and **'Stability using MATLAB**' at Anna University Sponsored Faculty Development Training Programme at KCG College of Technology, Chennai (7-12-13).
- **Dr.M.Balaji** handled Lab Session "**Working with Operational Amplifier & Filters**" and Theory Session "**Understanding Micro-controller**" at FDP on Mechatronics, Department of Mechanical Engineering, SSN College of Engineering (10-12-13).
- Mr.N.Pandiarajan delivered lecture and conducted "Hands on Tutorial Sessions" in the Faculty Development and Training Programme on EE2355 – Design of Electrical Machines at College of Engineering Guindy, Anna University, Chennai – 600025 (18-12-13).
- **Dr.R.Ramaprabha** delivered a guest lecture on "**Power Converters for Solar Photovoltaic Systems**" in AICTE sponsored National level technical seminar on Power Electronics Applications in Renewable Energy Sources (held during 19th & 20th, Dec 2013) on 20th December 2013 at Mailam Engineering College, Mailam, Villupuram.

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Research Seminars by Scholars

S.No	Date	Title	Research Scholar	Guide
1.	9-10-13	Motor current signature Analysis of Induction Motor faults	Ms.Abitha Memala	Dr.V.Rajini
2.	9-11-13	Renewable hybrid energy systems	Mrs.Maragaret Amu- tha	Dr.V.Rajini
3.	16-11-13	Investigation of AC-DC Power Converters for Power factor Correction	Ms.Inba Rexy	Dr.R.Seyezhai
4.	16-11-13	Investigation on converters for wind solar hybrid system	Mrs.Pranati Katyal	Dr.Ranganath Mu- thu
5.	26-12-13	Design and analysis of Buck-Boost type Three phase AC-DC converter	Mr.A.Tamizhselvan	Dr.V.Rajini

Dr.Ranganath Muthu's Visit to China

Attended the **IEEE TENCON 2013** at Xi'an, China during October 22-25, 2013. The Chinese people are friendly and very helpful. However, communication with them is difficult as very few speak English. The Chinese are highly disciplined and particular in keeping up with the time. All the conference sessions started on time. Participants of this Conference were from countries like India, Malaysia, Sri Lanka, Pakistan, Cambodia, Thailand, although a majority of them were from Chinese Universities.

Food especially vegetarian food was a major problem and I subsisted with fruits and juices for 5 days. Visited some nearby tourist places with colleagues from SSN and a few Indian conference participants like Xi'an wall, Teracotta Army, Giant Wild Goose Pagoda, Bell Tower and Drum Tower, which showcased China's varied culture and history. My heartfelt thanks to the SSN Management for supporting my travel to China to present my paper at TENCON 2013.



Interview with Faculty-Dr.M.Senthil Kumaran

He is young, pragmatic, vibrant and dynamic personality in the department. He is in charge of EEE intranet .He is technically sound and has a razor sharp mind. His PhD examiner commented that his work is worth two PhDs. Nobody can miss his philosophical and spiritual comments in the departments. He finds solace in visiting the spiritual places along with his kind of friends quite often. He speaks straight from his heart . He spends more of his time with the research scholars and the students doing projects. Many staffs benefitted from him by clearing their technical doubts and installation of softwares in their laptops. He makes the class more interesting for inquisitive students. He is trying to live bachelor life after marriage. Here we bring you the excerpts from an interview with Dr.M.Sentil Kumaran.

Firstly, we would love to congratulate on your PhD, sir...

What is there to congratulate? It is just a degree! PhD means nothing without a useful and soulful research. And, research should not be done just for the sake of it. It should be done to solve a problem, not create one and then solve it. When you walk the path of life and you encounter a stone, you try to remove it from your path – that is research. You don't go in search of the stone. **Travelling the path is education; throwing the stone away is research – the final point.**

How hard was getting a PhD? Could you share your experience with us?

PhD was frustrating. It was mainly because of the two factors, not enough funding and no practical application of the thesis. We just study a concept and leave, with no way, nor interest, to perform the practical analysis or the physical implementation of the concepts in the real world. There are also not much funding involved in the research sector in India as very few believe in the power of research – in the power of an inquisitive mind.

What do you think about the idea of research among the students?

Sadly, students do not show much interest in technical education. They study to earn and not for the joy or learning. This also fueled by the current education system, which had somehow commercialized the learning process. **It feeds to the memory and not the heart.** We are not enjoying education. We are not enjoying the equations; we see equations as equations. We do not see the life in it; we do not connect it to the physical world and analyze it. Students see education as an object, forgetting to see the subject in it. In the object, there is a subject. In the book, which is an object, there is a subject, which we interpret using the symbols – using the words.

What do you think would improve this situation?

There are just two words for this answer – Patience and Perseverance. Students must be convinced that it is okay to lose. If you are ready to lose, you always win. The concept of winning and losing should change from the point of money and status, to a point of internal happiness. People think positive thinking means "not to lose". But, it means the opposite; dedication means "ready to lose". They think that to win is to achieve the goal. The concept of goal-oriented work should be denounced. We should concentrate more on our journey rather than the goals. Goals are a byproduct of our journey, of our work. Einstein did not work for the Nobel Prize. Nobel Prize was a byproduct of his brilliant work.

The society has painted an image that successful people never lose, forgetting the fact that behind every success was a string of failures, teaching the person what was right and what was wrong. And hence, students are molded by society to not try the hardest and not venture into what their conscience wants to do; instead, they appreciate what the society says even when it contradicts their principles, and live by it. No matter how many movies like **3 idiots** come, we will always be idiots, not the kind the actors were in the movie but the kind the society was and still is. This must be changed and I am fighting to change it.

"No matter how many movies like 3 idiots come, we will always be idiots, not the kind the actors were in the movie but the kind the society was and still is."

Coming to your thesis, sir, why matrix converters?

I didn't want a conventional topic; when people were working on commercial inverters, I wanted to do research in something that was not well known, something like Matrix converters.

Can wind energy replace thermal energy?

The main purpose of electricity is to transmit the energy. Any form of energy can be transformed into electrical energy. After transmitting it over a long distance, it can be transformed or reconstructed back to the any other form of energy. The source of energy can be anything like solar, wind, thermal, etc. Of them, I am concentrating on wind, on systems which may implement and improvise the process of transformation and reconstruction.

What made you take up teaching?

Teaching, for me, was an accident. I was going through my options and suddenly took a decision to teach; maybe that decision was influenced by the times I used to teach 12th standard students and some of my B.E classmates. But mainly, I started doing it because I liked it and because it felt easy. It was tough during my primary years as my technique was quite radical, opposing the current education system. I believed in practical implementation of concepts, the reason why I encourage my students to do many projects, mainly hardware based implementation of concept. But, it contradicts the present education system, which, as already mentioned, I wanted to change.

Teachers who influenced you?

I had a wonderful teacher named Ramamurthy; he was my college's H.O.D. he was a graduate from IIT. He enjoyed his life. He always was happy because he was doing something that he liked – teaching, that is. This made me stick to the profession, in spite of various hurdles.

When do you think students should take up research? After M.S or when they get a job?

One should take up research only after they get a PhD (*laughs*). **Research is not getting a PhD. Research is your very nature. In fact, you had started your research the very first day you were born.** You wanted to walk. Everything in your development was an outcome of research. But, as a degree, you can start research even after 12th standard. What should be noted is how useful your research is going to be. That lies in how far you can implement your research practically. If you cannot put whatever you learnt into use, then it is called useless. Don't do useless things.

What do you think about the present generation students?

There is nothing wrong with the present genera-

tion students. They are ready to learn.

What suggestion would you give to the students?

Do your works happily; be what you want to be. You live your life; don't live somebody else's life. That is what many students are doing here – they live their parents' lives. You fight against your parents strongly if you want to live. If you don't, then these four years would be a waste; then next twenty years where you'd work would also be a waste. You are in a position of a manager but your conscience will always know if you are truly a manager or not. You will create conflict with yourself. And because of that conflict, your life will be frustrating. If your job gives happiness then, you do it, else don't.

What about the staffs guiding the students?

Only if the students are ready to listen, the guidance of the staff is of any use. So, the contributions are mainly from the students. We, the staffs, are here only by their side. We contribute absolutely nothing. That is my true idea. I don't contribute anything. I just am happy, doing my own work. If being happy is considered a form of contribution, maybe I contribute in that way.

What we expected to be a professional interview turned out to be a very valuable lesson for us in philosophy, understanding the very basic concepts of education, research, and also the concept of life, understanding the **subject in the objects** around us, the soul of what we do rather than brushing over it to please the evaluators and not our conscience.

"So, you got all the answers you wanted? I'm pretty sure they were all negative," he adds and laughs as we stand up to leave. But then, as he says, in these negative answers are positive meanings which we dearly need to implement in this society. He concludes the conversation by bringing in his famous 'subject-object' theory, quoting, "The objects of these answers are negative but the subjects are positive."

> ∼ Varshini.K & Subhadhra.P.D (4th yr, EEE-B)



AD: Hey, why are you so eager to know about wars and feuds? Looks as though you are obsessed with it!

BC: I'm not obsessed. I'm just curious. Sometimes, it is intriguing to know that without some of these controversies, some great theories probably would not have been developed.

AD: Seriously?

BC: Of course! Feuds have been known to exist even way back in the seventeenth century. Isaac Newton and Gottfried Leibniz fought over who had invented calculus first. Newton claimed to have been working on "fluxions" which was how he referred calculus in 1666 but he didn't publish it until a decade later. Meanwhile Leibniz began working on his version of calculus 1674 and published it in 1684. Newton accused Leibniz of plagiarizing though there was no solid evidence.

AD: Poor Leibniz died while Newton took the credit. Only later mathematicians accepted that both of them developed it independently. Yet England did not recognize Leibniz's work and followed Newton's notations for years together until they realized that Leibniz's notation of d/dx were more useful. This is more like a cal-

culus war!

BC: Arguments have, in a way, led to better understandings in science. The debates between Einstein and Bohr in Solvay Conference in 1912 laid the foundations of quantum mechanics.

AD: That's true. War of currents is also quite popular. Tesla suggested the use of AC for practical applications while Edison proposed the use of DC. Edison, who invented the incandescent bulb, had many patents for direct current applications.

BC: It was quite natural that he supported DC for commercial power systems even though he knew that it was better to transmit AC economically. Tesla developed poly phase induction motor after he quit from Edison Machine Works. Edison even campaigned to discourage the use of AC!

AD: Such conflicts and competitions will probably be permanently present. Every single day, every company is trying to outsmart its rivals and increase its revenue. Luckily, only this results in rapid growth.

> ➤ Nanditha.K (2nd yr, EEE-A)

"the problem is not the problem; the problem is your Attitude"



Focussing on CAT

"Dare to live the life you have dreamed for yourself. Go forward and make your dreams come true." – Ralph Waldo Emerson.

Passion towards one's goal is what drives us forward in life. Here is an account of the achievement M.S.Karthikeyan (4th year, EEE-A), who has secured 96 percent in CAT and XAT. With his bright chances of entering into IIM, Ranchi and XLRI, which is one of the premier institutes for MBA in India, he has given valuable advice for young students to pursue their career in MBA.

The CAT (Common Aptitude Test) assesses the managerial skills through a verbal ability test and quantitative ability test. The vocabulary section is quite easy provided you have a good command of languag but the quantitative aptitude demands at least solid six months of preparation with sincere effort. "I was confident with my vocabulary and hence I attended 26 out of 30 questions. But the quants were a tough challenge. I didn't much concentrate on it and hence my score was only 68% in this section."

The task of solving the problems is arduous because the most optimal solution is that one could only possibly take 3 minutes at the maximum to solve a problem . Constant practice is essential if you want a high score in the quantitative test. A regular reading of newspaper would suffice for developing one's vocabulary and much effort is not required for CAT, unlike GRE. "Going to a coaching class is not a must but you can if you don't feel confident about self preparation. It would definitely help you in clearing the aptitude tests during placements."

The major difference between pursuing an MBA in IITs and IIMs is that IIMs are exclusive B-schools in which exposure to managerial skills would be certainly better than in IIT's which focus more on technical education.

Often we come across people who prefer more management based jobs even though they have a strong technical background. Karthikeyan is one such person, who decided on MBA during his second year of engineering. *"So decided upon your future and start working hard towards it."*

Mathivathani..A
(3rd yr, EEE-A)

Journal Publications

- Siddharth Raju, Dr.Ranganath Muthu and M.Senthil Kumaran, 'Elimination of Common Mode Voltage using Phase Shifted Dual Source Matrix Converter with Improved Modulation Index', COM-PEL: The International Journal for Computation and Mathematics in Electrical and Electronics Engineering, Vol. 32, No. 6, pp. 2005-2026 (Anna University Annexure I & II).(22-10-13)
- P.Ganesan, and V.Rajini, published a paper titled "Image Quality Parameters for the Analysis of Segmentation of Satellite Images in Two Different Color Spaces", Indian Stream Research Journal, Vol III, Issue IX, October 2013, pp.3138-3147.(2-11-13)
- Dr.R.Seyezhai, B.Savitha and Priyaa Gomathi (Passed out UG Students, 2013) published a paper entitled, "Simulation and Implementation of a seven-level Multistring Multilevel inverter for Fuel cell applications", INTERNATIONAL JOURNAL OF INNOVATIVE TECHNOLOGY AND RESEARCH, Volume No. 1, Issue No. 5, August -September 2013, 380 – 385.(10-10-13)
- P.Ganesan, Dr.V.Rajini, published a paper titled "Segmentation and Denoising of Noisy Satellite Images based on Modified Fuzzy C Means Clustering and Discrete Wavelet Transform for Information Retrieval", International Journal of Engineering and Technology, Vol 5, No 5, Oct-2013, ISSN : 0975-4024, pp 3858-3868. Annexure II.(4-11-13)
- R Hemalatha, Dr.R.Ramaprabha and S.Radha, "Modeling of Photovoltaic Charging System for the Battery Powered Wireless Sensor Networks", has been published by the Springer.- Proceedings of the Third International Conference on Trends in Information, Telecommunication and Computing, Lecture Notes in Electrical Engineering 150, Chapter 25, pp. 225-235, DOI: 10.1007/978-1-4614-3363-7_25, _ Springer Science Business Media New York, 2013. (listed in Annexure II).(10-12-13)
- V.Nithin, P.Sivapriya, N.Siva Sumanth (III Year EEE,B), K.Vigneshwar and Dr.R.Seyezhai, "Investigation of Two-phase Bridgeless Interleaved Boost Converter for Power Factor Correction ", International Journal of Recent Advances in Engineering and Technology, IJRAET, Vol.1, Issue-3, 2013,pp.155-159.(2-12-13)
- R.Seyezhai, V.Abhinaya, M.Aishwarya & K.Gayathri (Passed out UG Students, 2013), "Hardware Implementation of Two-Phase Bridgeless Interleaved Boost Converter for Power Factor Correction", Caribbean Journal of Science & Technology, Vol.1, 2013, pp.194-202, ISSN – 0799-3757.(15-12-13)

Paper Presentations



- V.Nithin, P.Siva Priya, K.Vigneshwar, N.Siva Sumanth (III Yr.EEE, B) and Dr.R.Seyezhai presented a paper entitled, "Performance evaluation of bridgeless and phase shifted semi bridgeless interleaved boost converters (IBCs) for power factor correction" in the Fourth International Conference on Sustainable Energy and Intelligent Systems, SEISCON -2013, KCG College of Technology, Chennai.(13-12-13)
- Nithya.S and Dr.R.Seyezhai presented a paper entitled, "A Comparative Study Of Conventional, Coupled Inductor And RCN Based Interleaved Boost Converter For Photo-Voltaic Applications".(13-12-13) in the Fourth International Conference on Sustainable Energy and Intelligent Systems, SEISCON-2013, KCG College of Technology, Chennai.

Internal funded Projects

S.No	Student Name	Guide	Project Title	Amount (Rs.)
1.	V.Nithin, N.Siva Sumanth, P.SivaPriya, Vigneshwar.K (III yr)	Dr.R.Seyezhai	Implementation of a Bridgeless Interleaved Boost Converter Power Factor Correction Circuit For Hybrid Electric Vehicles	18,000
2.	Nithya.S, Subesh.R.R, Pridhivi Prasanth, Srinivasan.R (III yr)	Dr.R.Seyezhai	Development of Multiphase Boost Converter With Ripple Cancellation Network For Pho- to-Voltaic Applictions	15,000
3.	Nagarajan.V.S (II yr, ME)	Dr.V.Kamaraj	Back emf based Sensorless con- trol of Permanent magnet Syn- chronous Motor	25,000
4.	S.Sreemallika (II yr, ME)	Dr.R.Seyezhai	Design And Control SEPIC PFC AC/DC Converters for LED Applications	19,500
5.	V.J.Sudarshan, M.Sunil Kumar, S.Venkat Brama, Vignesh (IV yr)	Dr.R.Seyezhai	Development of Modular MLI for Photovoltaic Applications	22,000
6.	SH.Jubair, K.Suhas, A.Lokesh (IV yr)	kesh (IV Dr.R.Ramaprabha Development of Load Self Adaptive PV Panel Characteris- tics Curve Tracer		18,800
7.	Imthiaz Ahmed.A, Hari Prasath.E, Dr.V.Kamaraj FPC Gowtham.K (IV yr)		FPGA based Control of Brush- less DC Motor Using Digital PWM Technique	25,000
8.	S.Ajay, G.Deepika, S.Maneesha (IV yr)	Dr.R.Ramaprabha	Development of a Novel High- Efficiency Compact-Size Low Cost Balancing Method for Se- ries-connected Battery Applica- tions	20,500
9.	Suriya Nila.S, Vivitha S, , Akshaya.K (IV yr)	Mrs.Latha Dinesh	Design and Fabrication of a dy- namic voltage restorer for sensi- tive load	22,000

Student Name	GRE Score
R.Aswini	320
Srinidhi.R	320
G.Sai Kalyan Krishna	317
R.Abhilash	317
B.Rajeswari	317
V.Supriya	317
Sandhya Narayanan	314
P.Kamal	314
K.Suhas	314
R.Karthik Singaram	312
Sharan Rajendran	312
K.R. Goutham	311
V.Aravindhan	311
K.M.Anirudh	310
S.Aparajith	310

Student Name	CAT Score
M.S.Karthikeyan	96%
S.Nandhini	90%



From the Alumni

RESEARCH career in ScIeNcE for engineers

Inquisitive people are not rare. We all have that one inquisitive (considered a Geek in the modern world) friend of ours who is constantly on the lookout for answers for everyday problems. Amidst engineers who settle for high-paying Analyst jobs with Procurement Consultants, there is this kid, who cannot imagine himself being satisfied with a monotonous job offering a fat pay-cheque. He wants challenging problems to work on and find convincing answers to problems breaking his head; He wants to do research. This article is intended to throw some light on possible areas of research in Sciencethat I have come across, where there is significant contribution by engineers.

Astronomy

Though this is a field dominated by Physicists and Cosmologists, engineers contribute to an equal extent for scientists to realize their dreams. Radio Astronomy, the most spoken about method in Astronomical Circles heavily depends on building ground station equipment by engineers. How many of us know that GMRT (Giant Meterwave Radio Telescope), the largest antenna array (low frequency) in the World at present, is located in Pune? India is certainly a pioneer in the field of Astronomy & Astrophysics and has produced numerous scientists working on several astronomical wonders. Engineers typically are in huge demand for instrumentation (Antenna design, construction and control, Low Noise Amplifiers and Filters etc.) and Signal Processing. A large number of PhDs are also offered in institutes like IISc, RRI, IIAP, IIST, NCRA and TIFR in India, while opportunities galore in the rest of the world too, especially in Europe and Australia.

Quantum Mechanics & Quantum Information Theory

Quantum mechanics is an entirely new world of Physics, very different from the Newtonian (or Classical Mechanics) that all of us were taught in school. I will not be surprised to know that most of us engineers have not even heard of Richard Feynman! QM deals with physical phenomena at microscopic levels. When elements dealt with are of atomic/sub-atomic realm, their behavior is described by a new branch of physics, called the Quantum Physics. Research in this field has developed so much that there are Quantum Computers are for sale now! In order to study and characterize the behavior of matter of such size, scientists use Optics and carry out experiments on photons to study Quantum Mechanical phenomena. Research carried out on Quantum Information Theory continues to attract many Engineers to work on Theoretical Computer science and algorithm development over realistic models of quantum computation. Besides, laboratories also employ engineers for instrumentation.

Neuroscience

Neuroscience is not purely a biological research field anymore. Mathematicians, Physicists, Instrumentation engineers, Computer Scientists and Linguists form a big chunk of people contributing to research in neuroscience. Cognitive Neuroscience involves study of how cognitive functions are produced in the brain with evidences from Psychology and Neurobiology whereas Computational Neuroscience involves modeling the brain function in terms of the information processing properties that make up the nervous system. Typically, engineers get involved in Signal Processing, Programming (and Algorithm design) and Instrumentation.

The fields mentioned above are intended to give an idea about the kind of work being done in such fields. The discipline of engineering of a graduate/student does not really matter when seeking internship/ project assistantship in such fields in India. Typically, research institutes expect their interns to have Programming skills, knowledge of Signal processing and Instrumentation skills (Analog and Digital electronics and interfacing sensors). Engineers are expected to have all the abovementioned skills to kick-start a career in (experimental) Research. With more inputs and inspiration from people in their research group, one can actively contribute to research in his/her domain of interest in future by working towards their PhDs.

Jai Hind!

➤ Krishna Prasad (Alumni EEE)



In the next issue more on

- International Conference on Electrical Energy Systems (ICEES-2014) held from January 7 to 9, 2014
- FDP on Electro Magnetic Design to be held in March 2014.

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