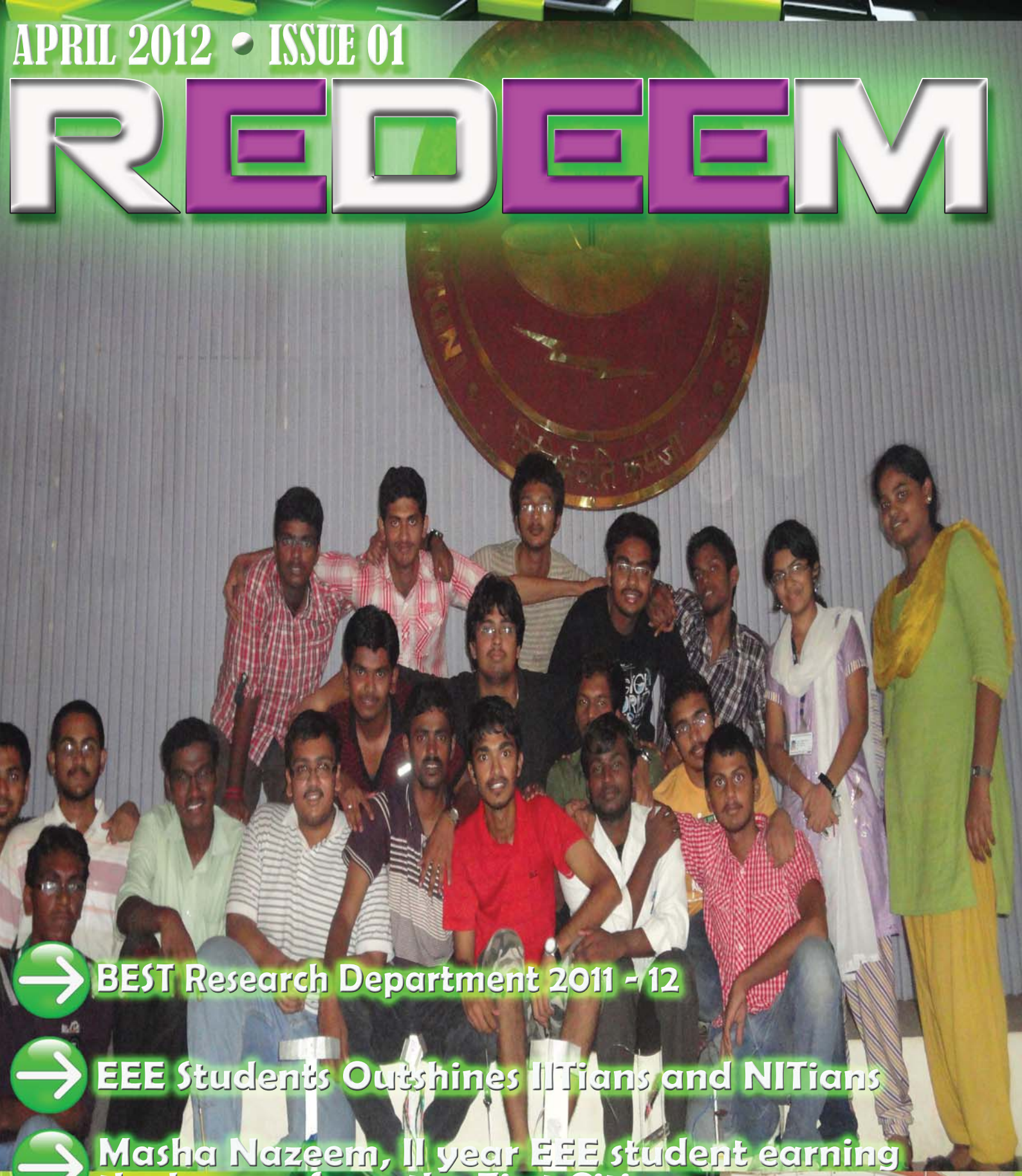
APRIL 2012 • ISSUE 01

REDEEM



- BEST Research Department 2011 - 12
- EEE Students Outshines IITians and NITians
- Masha Nazeem, II year EEE student earning the honour from the First Citizen

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

QUARTERLY NEWSLETTER

Published by

Dr.V.Kamaraj, HOD,EEE

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REDEEM

Preface

Chief Editor

Congratulations to the team, which has put in a lot of effort to make REDEEM possible. Thanks to all the content providers for sharing their achievements. Today's technology is out beaten by tomorrows, so it is essential to constantly learn to keep ourselves abreast of the changes happening around us. Learning hence becomes a lifelong process. Learning to learn, unlearning and relearning are critical for an achieving society. The best way to learn is to learn through mistakes. The fear of making mistakes takes a toll on all our lives. If we are not comfortable with failures we can never do anything original. It is not mistakes but risks that we take that make us more successful. Conventional education makes independent thinking extremely difficult. It merely gives better livelihood, not an authentic life. Most characteristics of our education system harm the potential of the human mind, which facilitates construction, and creation of new knowledge. To be different from the group or to resist environmental changes is not easy and is often risky as long as we worship success. The urge to be successful, which is the pursuit of reward, the search for inward or outward security, the desire for comfort - this whole process builds discontent, puts an end to spontaneity and breeds fear; and fear blocks the intelligent understanding of life and kills the spirit of adventure. In seeking comfort, we generally find a quiet corner in life where there is a minimum of conflict, and then we are afraid to step out of that seclusion. Our whole upbringing and education have made us afraid of thinking contrary to the established pattern of society, and taught us to be falsely respectful of authority and tradition. Natural and refreshing ideas are out of our reach because of our dissipating nature.

With increasing age, dullness of mind and heart sets in. For clear, insightful and freethinking, we have to clear the mental pollution by not feeding the weeds. We cannot afford to mindlessly involve ourselves in trivial things…

April 2012, Issue 1

Contents

"The teacher who is indeed wise does not bid you to enter the house of wisdom but rather leads you to the threshold of your mind"

From the HOD's Desk…

Dr.V.Kamaraj

The editorial of the Department of Electrical and Electronics Engineering takes immense pleasure in publishing the first newsletter- REDEEM. It has been decided to publish the department newsletter once in three months. This issue of the newsletter contains details of some meaningful accomplishments such as the conferences organized and the best research department award, which we received for the academic year 2011- 2012. This also includes some of the outstanding achievements and the notable academic and co-curricular activities of the students. This magnitude of accelerated success would not have been possible without the hard, sincere and dedicated work of our faculty members and students. I congratulate each and every one of them. This is just the beginning and you will find a lot more interesting and informative content in the forthcoming issues of REDEEM.

Preface (Cont. from pg. 1)

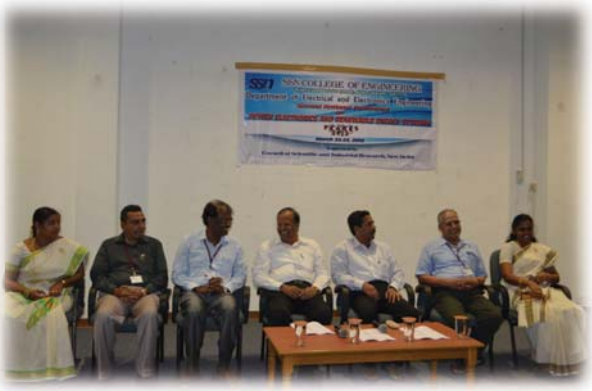
…We cannot afford to play Test matches, when we lack time even to watch T20. We need not give others the privilege to choose our mood and define our success. We often search for the keys to the door, which has already been opened. The most essential things in life are free. Education must in the truest sense help the individual to be mature and free, to flower greatly in love and goodness.

We emphasize more on effort of memory than mind. Far too often the focus, regrettably, is on covering the syllabus rather than on cultivating critical thinking skills and competencies. Let us uncover to discover. Let us not just teach what to think but also about how to think. Let us sensibly use time for a win-win scenario with good intentions than merely covering the syllabus. Let us move from fear to unknown to logic to unknown. Let us redefine education to make confident, solid individuals who have a mind of their own, can think for themselves and for others and are unfazed by the vicissitudes of life. Let us pledge to make productive citizens than problematic ones. Let us reclaim the honour of the profession. Let us dance with the dynamics of life. Let us channelize the emotional energy for a creative purpose and celebrate competition with new thinking and new possibilities. Let us use our skill and will along with the skull to make the learning process an enjoyable experience. Let us strive to be the creators, not just creatures. Let us REDEEM ourselves and rediscover the child within.

"Great things are done by a series of small things brought together."
- Vincent Van Gogh

Conferences Conducted by EEE Department

Energy is the need of the hour. India and several countries of the world are in constant search of Energy solutions. One of the initiatives, by the EEE Department, down the path to this solution was the National Conference on Power Electronics & Renewable Energy Systems- PEARES instituted in 2011. This year EEE Department organized the Second National Conference on Power Electronics & Renewable Energy Systems- PEARES 2012 supported by CSIR on 22nd and 23rd March 2012. Out of 180 papers received, the technical committee approved 40 papers. Around 30 papers were presented in the conference by the delegates from various institutions. The organizing committee of PEARES 2012 was:



- Dr.V.Kamaraj, Convener
- Dr.Ranganath Muthu, Conference Chair
- Dr.R.Seyezhai, Organizing secretary
- Dr.R.Ramaprabha, Organizing secretary
- Mr.M.Balaji, Treasurer

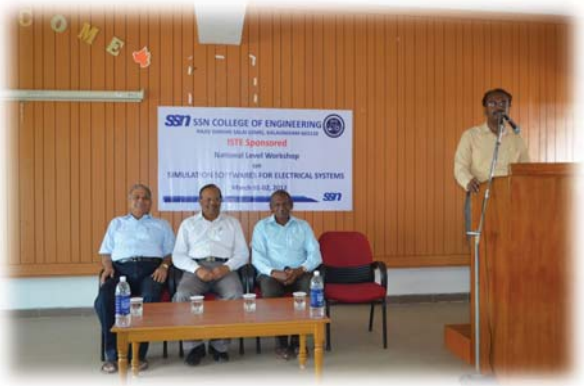
The Conference was inaugurated by Shri.A.Jyothish Kumar, Associate Director, IGCAR followed by Keynote addresses delivered by Ms.Chentamil Selvam, Scientist, and CSIR. Tutorials on Wind Energy Systems, Solar PV systems and Fuel Cell Systems were organized. Four technical sessions were conducted

On the 7th of March 2012, EEE Department convened a meeting with the authorities of Renault Nissan Joint Venture Company to explore the possibility of Industry Academia Research Collaboration.

An Interaction with Danfoss Industries Limited Chennai was held on 10th of January 2012 regarding the research work to be carried out in collaboration with the EEE Department.

The Department of EEE organized ISTE sponsored National level workshop on Simulation Software for Electrical Systems from 1st March 2012 to 2nd March 2012.
The organizing committee members are:

- Dr.V.Kamaraj, Convener
- Dr.R.Ramaprabha, Coordinator
- Dr.R.Seyezhai, Coordinator
- Mr.M.Balaji, Coordinator
- Mr.U.Shajith Ali, Coordinator



The workshop helped the research scholars to gain hands on experience in simulation software packages like PSPICE, MAGNET, PSIM and MATLAB.

"Everyone thinks of changing the world but no one thinks of changing himself" – Leo Tolstoy

Faculty achievements

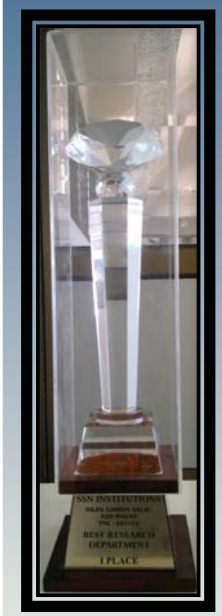
- Dr.A.N.Arvindan, Professor completed the review of a paper sent by Editorial board of IEEE Transactions on Aerospace and Electronics and received due acknowledgement.

- Sarat.K.Sahoo, Ashwinkumar Sahoo & Razia Sultana published a paper entitled, " Labview based speed control of DC Motor using modulus hogging approach" in the European Journal of Scientific Research, Vol.68, No: 3, 2012, pp.367-376.

- Dr. R. Ramaprabha and Dr. B. L. Mathur published a paper entitled, "A Comprehensive Review and Analysis of Solar Photovoltaic Array Configurations under Partial Shaded Conditions", International Journal of Photo energy, Special Issue on Recent Developments in Solar Energy Harvesting and Photo catalysis (ISSN: 2229-712X), Volume 2012, pp 1-16, Feb 2012. Article ID 120214, 16 pages doi:10.1155/2012/120214***SJR Impact factor 1.345***.

Best Research Department Award

With more than 72 Research Publications and several externally Sponsored Projects added to the crown of feathers of the EEE Department, on the 26th of March 2012, SSN Research Day, EEE Department received the Best Research Department Award from the President of SSN Institutions



- Dr.R.Seyezhai, Associate Professor, and Dr.B.L.Mathur, Professor, published a paper entitled, "Design and Implementation of Interleaved Boost Converter for Fuel Cell systems', in the International Journal of Hydrogen Energy (**Elsevier**), February 2012 **(impact factor: 4.0).**

- Dr.R.Seyezhai, Associate Professor has been nominated for the Program committee for the International Conference on Energy Research and Power Engineering to be held at Spain during the month of September 2012. Also, she has been invited to review papers for the conference.

- Dr.R.Seyezhai, Associate Professor, has been recognized as Research Supervisor for guiding research scholars by the Anna University, Chennai.

- Dr.Arvindan, Professor has been invited to review the paper entitled, "Application of Star connected autotransformer based 24-pulse rectifier for MEA'' from the editor of IEEE Transactions on Aerospace and Electronic Systems.

- Dr.R.Seyezhai, Associate Professor, reviewed the papers for the 7th International Conference on Industrial Electronics and Applications, ICIEA2012 to be held on July 18-20, 2012 at Singapore.

- Dr.R.Ramaprabha, Associate Professor, received the Ph.D. degree from Anna University in the Convocation function.

- Dr. R. Ramaprabha, Associate Professor, **r**eviewed papers for the 2nd International Conference on Electronics and Optoelectronics (ICEOE 2012) to be held on July 27 - 29, 2012 at Shenyang, China.

"For every minute you are angry you lose sixty seconds of happiness." - *Ralph Waldo Emerson*

- Mr.M.Pandikumar, A.P. and Mr.P.Saravanan, A.P. attended a two-day workshop on, "Intel Processor development" at Anna University, Chennai.
- M.Senthilkumaran, Siddarth Raju and Ranganath Muthu published a paper entitled, "Matrix converter switching strategy for abnormal voltage conditions using selective tracking algorithm", in the International Journal of Modeling and Simulation, ACTA Press, Canada, pp.57-64, January 2012. (SNIP: 0.030, SJR : 0.071).
- K.Murugesan and Ranganath Muthu published a paper entitled, " Modeling and Simulation of DSTATCOM using Space vector pulsewidth modulation for load variation" in the International Review on Modeling and Simulation, Italy, 2012.
- Dr.V.Kamaraj, Professor &HOD/EEE arranged a one day workshop on, "Staff Development an awareness raising ", in association with the English Department on behalf of ISTE at SSNCE.
- Dr.V.Rajini, Professor published a paper entitled, "Accurate section of transformer hottest spot by FEM and thermal models", in the International Journal of Computer Applications, Jan.2012.
- Dr.R.Seyezhai, Associate Professor, has been nominated as the Editorial Board member for the International Science and Investigation Journal (Indexed by Scopus).

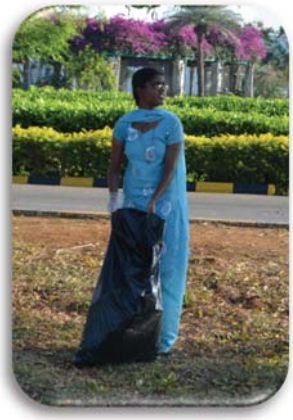
"If you want real peace, don't talk to your friends, talk with your enemies" – Mother Theresa

Guest lectures by EEE Dept. Faculty members

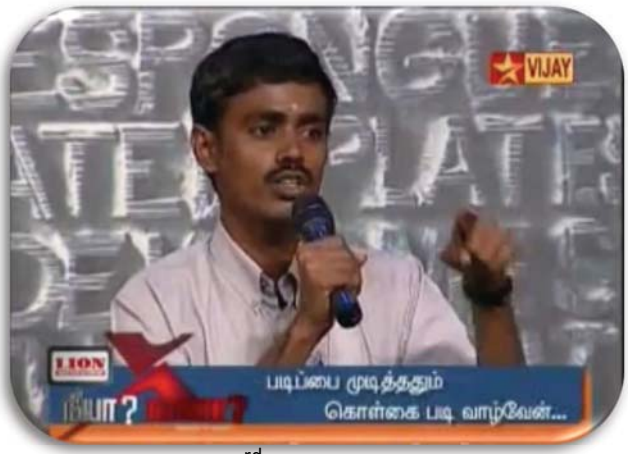
- Dr.Ranganath Muthu, Professor delivered a Lecture on, "Intelligent control", for BARC trainees at IGCAR, Kalpakkam on 5th March 2012.
- Dr.R.Ramaprabha, Associate Professor, delivered an Invited talk in a one day Seminar on SOLAR ENERGY **c**onducted by Sustainable Power and Energy Research Centre (SUPERCEN) at Dr.M.G.R University, Chennai on the 6th of March 2012.
- Dr.V.Rajini, Professor delivered an invited talk on, " Research on high voltage engineering", at Vels University, Chennai on 16th March 2012.
- Dr.R.Rengaraj, Associate Professor, inaugurated the National Conference on Emerging Trends in Electrical & Electronics Engineering NCETEEE - 2012 as Chief Guest held at Dhanalakshmi Srinivasan College of Engineering and Technology, Chennai.
- Dr.R.Ramaprabha, Associate Professor, delivered a lecture on "Partially shaded PV system" in the International Multi Disciplinary Conference on Solar Energy IMDCSC-2012 at Meenakshi Sundararajan Engineering College, Kodampakkam, Chennai on the 2nd of February 2012.
- Dr.AshwinkumarSahoo, Professor, conducted the one-day mathemathics workshop, "MATRICKS", under the banner of IEEE Student branch at SSNCE on 21st February 2012.
- Dr.V.Rajini, Professor delivered a Lecture on, "Major breakthrough in HV Engineering and their Research Potentials" at KCG College of Engineering, Chennai on 29th February 2012.
- Mr.K.Murugesan, Assistant Professor, was invited as the Chief Guest for the Tamil Literary club valedictory program of Bentinck Hr. Sec. School for girls, Chennai.
- Mr.M.Senthil Kumaran, Assistant Professor, delivered a Lecture at INSPIRE Science Camp 2012 (an Initiative of Department of Science and Technology, Govt. of India) at SSN College of Engineering on 27th January 2012

Galleria – SSN Youth Red Cross

EEE gives back to the society



R.Anitha and M.Dhasna of 4th yr EEE presenting a paper at ICPSOEM 2011



K.Vijaykumar of 3rd yr EEE appeared on Vijay TV for the debate "Neeya Naana"

Mr.K.Murugesan of EEE dept. delivering a lecture at the INSPIRE Workshop at SSN College

Dr.R.Ramaprabha of EEE dept. receiving her PhD Degree from Anna University in the presence of the Governor of Tamil Nadu and Dr.A.P.J. Abdul Kalam and Vice Chancellor of Anna University

(From left to right) Ajay San, M.N.Karthikeyan, Karthik Y (REC College), Divya K, Gayathri P and Soundariya G of 3rd yr EEE, appeared in the Mogapair Mail on 8th April 2012 for securing first place at the contraptions event in Ingenious 12, a national level Technical Symposium held at Rajalakshmi Engineering College and also secured first place at the symposium at College of Engineering, Guindy.

Laurels of EEE Dept. Students

Masha Nazeem, 2nd year EEE, Demonstrated her projects to the President of India at the Rashtrapati Bhavan

Kamal.P of 2nd year EEE attended the INDIA-CHINA YOUTH EXCHANGE PROGRAMME 2011 during the month of October via the NSS unit of SSN. He was a part of the 500 members Indian Delegation The delegation was headed by Mr. Ajay Maken, Minister of Sports and Youth Affairs. The places they visited in China include- SHANGAI, BEIJING, NANJING.

Paper Presentations

- Sunanda.G & Vignesh Kumar .A.J of 4th yr EEE presented a paper on "Inter Science Research Network" at International Conference on Electrical and Electronics Engineering at Nagpur.
- K.Neena and Sahaya Sharona.B of 4th yr EEE presented a paper at the International Conference on Technology and Innovation (IRDO Chennai 2011).
- T.Ambika and C.Kiruthika of 4th yr EEE, under the guidance of Dr.R.Seyezhai presented a paper on "Implementation of Digital Control Strategy for Asymmetric Cascaded Multi-Level Inverter" and "Simulation of Cascaded Multi-Level Inverter using hybrid PWM technique" at International Conference on Computing Electronics and Electrical Technologies (ICCEET) at Noorul Islam University, Nagarkoil and at the International Conference on Technology and Innovation (ICTI-2011), Chennai.
- T.Kavaga Priya and J.S.Anu Rahavi of 4th yr EEE, under the guidance of Dr.R.Seyezhai presented a paper on "Designing and Analysis of Interlevelled Boost Converter for Renewable Energy Resource" at the International Conference on Computing Electronics and Electrical Technologies (ICCEET) at Noorul Islam University, Nagarkoil.
- A.Priyaa Gomathi, B.Savitha, Radha Shree.K and N.Yamini Priya of 4th yr EEE, under the guidance of Dr.R.Seyezhai, presented a paper on "Design of DC-DC Boost Converter For Fuel Cell Application" at ETEE-2011, NCNRES-2011.
- R.Anitha and M.Dhasna Presented a paper titled "Design and simulation of Modulation Technique for a Five Level Inverter" at the International Conference on Power system Operation and Energy Management
- B.Soundharya, Malavikka Ramesh and R.Raghavi of 3rd yr EEE, presented a paper on "Power Saving in Solar Powered Fan Drives" at the National Conference on Power Drives and Control at KCG College of Engineering.
- A.K.Vaishnavi, A.Poorni and C.S.Meera of 3rd yr EEE, presented a paper titled "An Investigation of Over Voltages in Inverter fed Induction Motor Drives" at the National Conference on Power Drives and Control at KCG College of Engineering.
- R.Anitha and M.Dhasna presented a paper titled "DESIGN AND SIMULATION OF DUAL CARRIER MODULATION TECHNIQUE FOR A FIVE LEVEL INVERTER" in International Conference on Power system Operation and Energy Management (ICPSOEM 2011) and won "Best Paper Award" for the same.
- Chitra V of 4th yr EEE, mentored by Dr. Ramaprabha R, presented papers on "MPPT algorithms in SPVs in conjunction with PID controllers" at Synchron'11, MNM Jain College of Engineering and "Comparison of Optimization Techniques for SPVs" at Blitzkrieg'11, RMK College of Engineering and secured first prize for both paper presentations.

Robotics

- Four students, J.B.Mervin,S.Vijenthiran,Thatagata Mitra and D.Sai Praveen of the third year participated and won the third place in the robotics event- " cold Fusion " held at IIT Madras in 2011.
- R.Sidharth, C.Vignesh, S.Vishnuvardhan and S.S.Sudharshan of the third year participated and won the 2nd and 3rd place in the events "Traffic Rush" and "Code name 47" respectively at NIT Trichy in 2012.
- In the same year, Aprajith.S, Badri Narayanan and Imthiaz Ahmed belonging to the second year participated and won the 3rd place in the same event "Traffic Rush" at NIT Trichy.
- Kamal.P and Karthik Singaram also belonging to the second year participated and won the 1st place in the event "Code name 47" at NIT Trichy.
- The duo also participated and won the 1st and 3rd places in two other events "Follow-fellow " and "Robo-rash" at Amritha University and Anna university respectively in the same year.

Other Technical Achievements

- K.Masha Nazeem, a student of the second year has the following accolades to her credit:

1. She has won 2 International Awards, 5 National Awards, 1 National Research Fellowship, 1 Award from the President, 1 Southern India Award and 1 State Award for her path breaking and innovative inventions.
2. She has so far invented about 8 Gadgets in various fields, which are simple, yet extremely useful in day-to-day life. Three of them are now in the process of getting patented.
3. She has had the honour of demonstrating the gadgets at the Rashtrapati Bhavan in the presence of Dr.A.P.J.Abdul Kalam and Dr.Prathiba Patil.
4. She has also won the biennial award sponsored by the National Innovation Foundation, Dept. of Science and Technology, Govt of India

- The team comprising five 3rd year students- M.N.Karthikeyan, P.Gayathri, G.Soundariya, Divya Keerthiraj and Malavikka Ramesh bagged the 1st place in the event-"Contraptions" held at Rajalakshmi College Of Engineering.
- Two students of 3rd year EEE -Abhinaya Venkatesan and K.Gayathri won the 1st place in the event "Circuit Hunt" held at the national level symposium of Velammal Engineering College.
- Chitra V of 4th yr EEE Won First Place in Circuit Debugging Competition at Instronics'11, a national level technical symposium held by the Dept. of Electronics & Instrumentation at RMK College of Engineering.
- Nithya Sridhar of 3rd yr EEE secured second place in "K! MAD", a phone application event conducted by Kurukshetra, Anna University Technofest, during the month of February 2012.
- Nithya Sridhar and N.Sabareesh of 3rd yr EEE won second prize in "Circuit Debugging" event in VYUHA'12, a National level Technical Symposium conducted by Panimalar Institute of Technology in the month of March 2012.

Competitive Examinations

GRE:

- Rajesh of 4th year EEE scored 1530.
- Sowmitha.K of 4th year EEE scored 1490.
- Rakshana.B of 4th year EEE scored 1460.
- Sunanda.G of 4th year EEE scored 1430.
- G.Rohit of 4th year EEE scored 1410.
- S.Dipikaa Shree of 4th year EEE scored 1350.
- M.H.Dinesh of 4th year EEE scored 1300.

CAT:

- V.Sharona of 4th year EEE scored 97.6%.
- B.Savitha of 4th year EEE scored 94.76%.
- M.H.Dinesh of 4th year EEE scored 94.6%.

GATE:

- Swathi of 4th year EEE secured a rank of 425 with a 99.4 percentile in GATE.

- Nithya Sridhar and G.Soundariya of 3rd yr EEE won second prize in "C Debugging" event in PRANAV'12, a National level Technical Symposium conducted by Meenakshi Sundararajan College of Engineering in the month of February 2012.

Journal Publications

The team of Dr.R.Seyezhai, T.Ambika and C.Kiruthika also have two publications in the "International Journal of Systems, Algorithm and Applications (IJSAA)" and the "IOSR Journal of Engineering (IOSRJEN)" to their credit.

-> Simulation of Cascaded Multilevel Inverter using Hybrid PWM technique-Volume 1,Issue 1,Dec 2011.

-> Implementation of Digital Control Strategy for Asymmetric Cascaded Multi-Level Inverter-volume 1,issue 2,December 2011.

Sports Achievements

Manohar.K of 2nd yr has won laurels to our college in the field of Table Tennis.

- Represented TN in School Games Nationals in 2010.
- Represented Anna University in Inter-University South Zone meet.
- Runners-up in Tamil Nadu inter engineering sports meet 2012.
- Winner of All India inter collegiate tournament conducted by SBM JAIN, Bangalore 2012
- Winner of All India inter collegiate tournament conducted by VNRV, Hyderabad 2012

National Service Scheme (NSS)

On the eve of "National Voters Day" on 19th of January 2012, NSS unit of our college conducted various competitions in which:

- Divya Priya.L of 2nd yr EEE secured first place in "Tamil Thalir Sirukadhai" completion and one of her works has been published in the Tamil magazine of our college "Tamil Thulir-Part 2", under the title "Thannambikkai".
- Malathi.R of 2nd yr EEE secured second place in Tamil Essay writing competition.

Other Achievements

K.Vijayakumar of 3rd yr EEE has the following achievements to his credit:

- Participated in the Vijay TV's Debate "Neeya Naana" which was aired on 26th January 2012
- Received the third place in IIT-M Tamil Elocution competition from the Director of IIT-M on 8th January 2012
- Was selected for and participated in the debate conducted by Zee Tamil TV channel which was aired on 12th February 2012
- On 26th of January 2012, he addressed a gathering of students as part of the INSPIRE workshop on the topic "Energy Saving", which took place at SSN College of Engineering.
- Secured First place in the Tamil debate organized by YuvaShakti Youth Foundation
- On the 11th of March 2012, he was once again selected for and participated in the debate organized by Zee Tamil TV channel.

International Awards

- Geeth Prajwal Reddy of 3rd yr EEE Received the GLOBAL SCHOLAR AWARD and was one among the top 25 delegates from around the world to take part in the GLOBAL SCHOLARS AND YOUNG LEADERS CONFERENCE, conducted by the International Presidential Scholars council, at Singapore.
- Geeth Prajwal Reddy is also a recipient of the Kairos Society Research Fellowship, MIT, USA (The Kairos Society is a global network of top student and global leaders using entrepreneurship and innovation to solve the world's greatest challenges).

ICell

ICell was started, under the guidance of Dr.R.Seyezhai, Associate Professor, EEE and they have organized a workshop on "Exploring Engineering with ROBOTS" on 16th March 2012. Many more events and workshops are to follow in the coming months.

Electrical Research Fraternity (ERF)

The walls looked dull and room seemed to be in chaos with resistors and bolts scattered around. But the room was filled with the bliss and joy of innovation. A layman would go crazy with the nauseating smell of the etching solution and the high pitched sound of the drilling machine but to the students working passionately there, the place felt peaceful though busy. It was another world for them, a place to experiment, innovate and enjoy engineering, a place to invoke the creativity in them, which would result in an overwhelming sense of elation. This would sum up the atmosphere of the current working laboratory of the Electrical Research Fraternity (ERF).

The ERF was founded Visweshwar Chandrasekaran and Krishna Prasad (2007-2011 batch) in the year 2010 with Tamil KadirRajavel sponsoring the website and programming kits.

The goal of Electrical Research Fraternity is to make advances in technology and produce engineering graduates who will be creative innovators in a global economy.

Specifically, the ERF aims at:

- Establishing itself as a dream club for electrical and electronic hobbyists
- Being an open platform for technical exploration that shows no difference between sophomores and the juniors.
- Be a gateway to learn and experience engineering the way it is meant to be.

At present ERF functions in the embedded systems lab of the EEE department of our college with members from II, III and IV years.

The ERF has conducted various workshops to enlighten students on various interesting topics such as

- PIC developer board making along with EAGLE tutorial.
- PCB fabrication with hands on session.
- LOGICBOTS (An annual workshop and competition).
- PIC programming for ROBOTICS.
- Machine winding and introduction to different types of electric motors.
- Basics of ARDUINO.

Achievements of ERF:

The ERF has nurtured various teams in the field of robotics. The following achievements clearly exhibit the competency of those teams in this interesting aspect of engineering.

→IIT-Madras: SHAASTRA 2011

- Team MITVEINZ won the 3rd prize (₹9k) at an event called cold fusion competing against more than 40 teams across India.

→AMRITA UNIVERSITY: ANOKHA 2012

- Team SIMPLE MINDS won the 1st prize (₹8k) at an event called follow fellow.

→NIT-Trichy: PRAGYAN 2012

- Team SIMPLE MINDS won the 1st prize (₹20k) at code name 47.
- Team ALT F4 bagged the 2nd prize (₹7k) at an event called traffic rush and the 3rd prize (₹7k) for Code name 47.

- Team MEGATRON won a consolation prize (₹ 1k) for the event traffic rush.

→Anna University – CEG Chennai: WAVES 2012

- Team SIMPLE MINDS won the 3rd prize (₹3k) at line follower event

→Anna University – CEG Chennai: PINNACLE 2012

- Imthiaz Ahmed won the 2nd prize (₹4k) at line follower event

On-going projects at ERF:

→Team MITVEINZ is working on an Intel Atom Microprocessor based Tunnel Creek Board sponsored by INTEL to develop an application related to robotics.

Upcoming Events of ERF:

- 2nd annual LOGIC BOT workshop and a try to break the world record in the maximum number of line following bots running at the same time (previous record held by IIT-M for running 61 bots during SHAASTRA 2011 in the LIMCA BOOK OF RECORDS).
- A design quest for making a DIY digital oscilloscope.

WEBSITE: http://www.erfssn.org/
E-MAIL:contactus@erfssn.org

LAKSHYA – SSN's Entrepreneurship Development Cell (EDC)

Lakshya has grown by leaps and bounds right since its inception and the academic year 2011-12 has been a testament to this fact. It was an honour for SSN when it was named as the host institute for TATA First Dot powered by NEN, a national level student startup showcase on the 9th and 10th of January 2012. Lakshya was also named as the Runners up in the National Entrepreneurship Network (NEN)'s All India E-week championship held in the first week of February this year.

A number of students from the Department of EEE played pivotal roles in the both of the above mentioned achievements. The list includes Rohan Sridhar Raghavan, Harish Reddy and M H Dinesh Chowdhary from Final year, Vidharth Jaikrishnan, Rohit Damodaren, Shiva Gnaneshwar and Vinay Kumar from Third year, Nandini Suryanarayanan, Kavya Rajendran and Shreenivas Ravikumar from Second year. Special mention must be made of the third year students who were instrumental in the 'Light a School' campaign, which even saw them featured on the front page of The Hindu's Education Plus newspaper. We hope that in the coming years, more students from the department participate in Lakshya activities and keep the entrepreneurial spirit alive on campus.

EEE Tryst with "Instincts"

With the tag of "**the most passive participant**" in ***"INSTINCTS"***, nothing much was excepted from the current final years of our department. But a group of students had different ideas. They wanted to make ***"INSTINCTS"*** a bigger brand. Their contribution to ***"INSTINCTS"*** was huge. ***Five*** out of the ***seventeen*** core committee members were from ***EEE department***. ***M.S.Sudharsan***, 4th year is ***" the associative convener", Srinath.N*** , 4th year holds the ***"treasurer" post , Rohan Sridhar Ragavan*** , 4th year is the ***"Sponsorship Head",Savitha.B*** , 4th year is the ***"documentation Head"*** and ***Venkateshwaran.R***, 2nd year is the ***"Joint Secretary"***. Apart from these posts, EEE students Babu.M, 4th year the brain behind the beautiful stage with mood lighting, ***Sreeram.R,*** 4th year the ***"Hospitality Head"***, ***Bhargav Raj,*** 4th year the ***"Variety Events Head"*** have played a major role in contributing towards the huge success of ***"INSTINCTS 2K12".***

This year's ***"INSTINCTS"*** was without doubt, the ***"BEST"*** ever in the seven editions that the college has seen. This batch of final years have shown what team work can do. Hope the juniors take inspiration from them and make EEE department proud in the fourth coming years!!

MEMRISTOR-INSIGHT INTO MAKING OF THE DEVICE

By T.Manasa, 2nd yr EEE

Memristor is a passive two- terminal electrical component, which works as a fundamental non-linear circuit element relating electric charge and magnetic flux linkage. The memristor is currently under development by Hewlett-Packard. The device integrates the operation of a resistor, capacitor and Inductor and is considered as a fourth type of passive element in a circuit.
Leon Chua initially observed this in the year 1971 and later a paper was published on it. Now HP labs are working on the fabrication of memristor using Titanium-Oxide in a thin film form. Even now there are a lot of controversy and debate going on to classify which device behaves as memristor and which don't. Many say that the memristor developed by HP falls under a broader class of variable resistance. Many researchers have claimed that biological structures such as blood and skin should also be considered as a type of memristor.

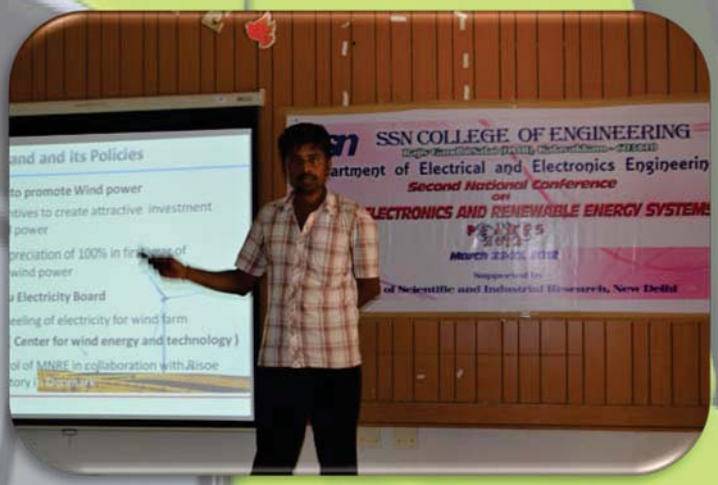
The basic operation of the memristor can be summarized as, when current flows through it in one direction the resistance increases and when it flows in the other direction it decreases and when the current doesn't flow through it the resistance is held constant. When the current starts flowing through the circuit the resistance will be what it was when it was last active. This unique property has made it a vital component it various fields like computers, memory storage devices etc..
The HP labs who were working on another project accidently stumbled upon the making of this device; They started initially by making a crossbar in which the junction between each vertical and horizontal wire consisted of a switch, These switches can be opened and closed depending upon the voltage which is supplied to the horizontal and vertical wires corresponding to a particular switch, by which we can program the entire circuit and store large amount of information in a single circuit.
To develop the model they started working on the switching molecules, which are used to produce a large OFF to ON resistance ratio of about 1000. Models, which were developed on the above, were not successful enough.

On reading the paper submitted by Leon Chua they developed the device by depositing a layer of Titanium-Oxide over a layer of pure platinum, another layer of Titanium-Oxide deficient in oxygen atoms was deposited over it followed by another layer of platinum.
Since the Tio2 layer deficient of oxygen atoms are positively charged, on application of a positive or a negative voltage the positively charged layer will either move down or up thereby varying the thickness of the Tio2 layer. As the thickness of the Tio2 is varying, the resistance of the Tio2 layer also varies. The man behind this research Stanley Williams of HP labs has claimed that 10 transistors on the present IC circuit can be replaced by just a single memristor thereby reducing the size of the IC chips.
Mostly memristors are Nano-scale devices, which are developed to hold large amount of information. The basic relationship of the voltage and current of the memristor with the flux and charge are, voltage is the differential of the flux produced with respect to time and the current is the differential of the charge flowing through the device with respect to time. The ratio of the voltage and current will give the resistance of the memristor. When the current is zero the voltage will also be zero and ultimately the resistance of the device is a constant. Therefore we see that the resistance of the memristor is a function of the charges flowing through it. When the resistance of the device is a constant it follows ohms law. The power consumed by the device is given by the same formula as that of consumed by the resistance.

The memristors are seen as a new development that will revolutionize the way a large amount of information can be stored in a single memory unit; it will soon be replacing our conventional transistor based circuits, further reducing the size of circuitry, its complexity, and increasing its efficiency manifold.

“Stay Hungry Stay Foolish”

- Steve Jobs



It is the Beginning, a lot more to Come…