

Alone we can do so little, Together we can do so much.

-Helen Keller



VOLTZFEST 2K18 - SYMPOSIUM

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Editorial Board

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Faculty coordinator:

Mrs.M.Monica

Student coordinators:

S.Vikraman

P.Soundarya

P.Jhona Prasanakumar

E.Suruthi

S.A.Shreyesh

E.Balaji

T.S.R. Hrishikesh

V.Pavithra

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K. Manigandan

From HOD's Desk...

The department newsletter is one of the wonderful presentation of the department regarding the achievements and participation of the faculty members and the students. It is a great achievement that Volume 2, Issue 2 of the Newsletter is released by our EEE Department. The Newsletter gives all the details of the activities undergone in the Department during the Even Semester of 2017-2018. I appreciate the faculty members, students and supporting staff for their tireless efforts and contributions to the various activities held in the Department.

All the best....

- HoD-EEE



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From Editorial Board...

The various updates about the developments and achievements in the Electrical and Electronics Engineering department are published in this issue. It gives us great pleasure to know that the previous editions of our newsletter "VOLTZWAVES" had reached out to the students well and was a great success.

This issue of the newsletter also aims



to cover the achievements, and participation of the faculty members and students in the department. The Readers can use this opportunity to take a look over the last semester achievements of the department. VOLTZWAVES has been a student team work entirely, thriving to bring out the best headlines.

Happy Reading!!!

-Editorial board

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

VISION:

To be a yardstick in the field of electrical and electronics engineering and allied fields with high quality teaching, learning and a centre of excellence for research activities to produce employable and disciplined professionals to serve the nation with competency measured by continuous and quantitative methodologies.

MISSION:

- 1.To provide high quality technical education in electrical and electronics engineering and allied areas.
- 2.To maintain state of art facilities to achieve continuous knowledge enhancement.
- 3.To have industrial collaboration to ensure industry relevant academic development and research activities.
- 4.To inculcate the discipline of lifelong learning in the students for successful career and employment and to serve society with ethics.

PROGRAMME EDUCATIONAL OBJECTIVES :

- 1.Have strong foundation, to be a successful technical professional in electrical and electronics engineering as well as interdisciplinary groups.
- 2.Be proficient in analysis, design, manufacturing and testing in the domains of electrical and electronics engineering.
- 3.Have the necessary skills to use modern computing techniques to arrive at efficient solutions for real world problems.
- 4.Demonstrate professional ethics, an aptitude for Engineering and passion for lifelong learning.

PROGRAMME SPECIFIC OUTCOMES :

The Graduates will be able to

- 1.Analyze, design and develop systems based on electrical machines, power, control and electronics and embedded technologies.
- 2.Develop proficiency in spice modeling and simulation to design, analyze and explore electrical and electronics systems.
- 3.Exhibit professionalism in their career.

PROGRAMME OUTCOMES (POs):

The Graduates will be able to:

- 1.**Engineering knowledge:** the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
- 2.**Problem analysis:** Identify, formulate, review

research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences.

3.**Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

4.**Conduct investigations of complex problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

5.**Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

6.**The engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

7.**Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

8.**Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

9.**Individual and teamwork:** Function effectively as an individual, and as a member or leader in diverse teams, and in multi disciplinary settings.

10.**Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

11.**Project management and finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multi disciplinary environments.

12.**Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

DEPARTMENT ACTIVITIES

International Conference on Power, Energy, Signals and Automation (ICPESA '18)

Our department organized an International Conference on Power, Energy, Signals and Automation (ICPESA '18) on 25th and 26th of May, 2018 in association with IEEE madras section.

Several countries showed interest towards this conference. A few are Ecuador, Egypt, Indonesia, Bangladesh, China, American Samoa, Iran, Italy, Philippines, Algeria, Latvia, Morocco, South Africa and United States.

About 120 technical paper submissions across the globe were received. The main programme of ICPESA'18 covered two days of three technical oral presentation sessions and two keynote talks.

The inauguration of the conference was held on 25th May, 2018 at the Ratan Tata gallery, Rajalakshmi Institute of Technology in the presence of our Advisor Dr. C. R. Muthukrishnan, Principal Dr.M.Velan, Chief Guest Dr. Deepak Waikar, our guest of honour Dr. Subarna Shaky, and Program Chair Dr.Anitha



Karthi, Heads of the other departments, faculty members of Electrical and Electronics, other departments and the participants.

The distinguished gathering was addressed by our chief guest Dr. Deepak Waikar and guest of honor Dr.Subarna Shaky with their inspirational speech.

12 scholars have presented their research findings in session -I on 25th may, 2018 followed by cultural programmes.

Day 2, started with the keynote lecture by Dr.SubarnaShaky, Tribhuvan University, Nepal on "**Security Issues In Cloud Computing**". After that 22 participants shared their research ideas in the sessions II & III held on the same day.

The conference concluded with the valedictory function in the presence of the guest of honour Dr. Subarna Shaky, Principal Dr.M.Velan, Program Chair Dr. Anitha Karthi, faculty members and students of the EEE department.

DEPARTMENT ACTIVITIES

Intercollege Symposium VOLTZFEST 2.0

The intercollege symposium “**VOLTZFEST 2K18**” was conducted by the Electrical and Electronics Engineering department on 29th of January, 2018 by our students and faculty co-ordinator Ms.P.Kalaivani Asst. Prof,. A total of 59 students from various colleges actively participated in the events such as Tech Buzz, Connex, Paperazzic, Project presentation and also enjoyed participating in skill events such as Minuto clash, Baffle Psychout, Hidden stars and Luck Sey Click. A total Cash prize worth Rs. 5000 was awarded to the winners and runners of the technical events and gift vouchers from Green Trends, Tony & Guy and Mc Donalds were presented to the winners of the skill events.

Conduction of the program was blissful and carried away smoothly. The valedictory program began at 2.00 pm with the dignitaries and the gathering assembled in the green building fourth

floor. President Mr.T.S.R Hrishikesh, Third year, of “VOLTZWAVES” association greeted the gathering with a welcome address. The symposium report was delivered by Mr. Keerthivasa.T of second year followed by prize distribution for all the winners of the events by our Principal Dr.M.Velan. The toppers of our department in the internal examination were provided with medals along with a letter of appreciation from our Head of the department to motivate the students. The program concluded successfully with vote of thanks delivered to the gathering by the Vice president Ms.Pavitra.V, of Third year. The day ended up with the national anthem around 3.00 pm. This day all the students had a great exposure in organizing the event right from the start to the end with pleasant and memorable moments.



INDUSTRIAL VISITS

Sathish dhawan space centre Sriharikota for the students of *third year* was organized. Mr.M.Poomanirajan, Asst. Prof., & Ms.S.Laksana, Asst. Prof. accompanied the students on Jan 30th, 2018.



Neyveli Thermal Power Station for the students of *third year* was organized and accompanied by Mr.R.Elavarasu, Asso.Prof. & Ms.P.Kalaivani, Asst.Prof. on February 7th, 2018.



SNR Dairy, Sholinganallur for students of *second year* was organized and accompanied by Mr.Manimaran.B Asst. Prof & Mrs Sasikala.B, Asst. Prof, on 27th Feb, 2018. The students had a good interaction with the officials at Aavin and learnt the daily process happening at the Industry.



North Chennai Thermal Powerstation, Ennore for the students of *final year* was organized and accompanied by Ms.G.Dharanya, Asst. Prof. & Ms.P.Kalaivani, Asst. Prof. on February 26th, 2018.



North Chennai Thermal Powerstation, Ennore for the students of *Second year* was organized and accompanied by Mr.S.Sathish Kumar, Asst. Prof. & Ms.M.Monica, Asst. Prof. on February 27th, 2018.



GUEST LECTURES

Three Guest Lectures were organized by the Department of EEE in the even semester of the academic year 2017-2018 .

On 22nd February 2018, Dr.K.Premkumar Asso.Prof/EEE/REC delivered a lecture on the topic **"Power System Operation and Control"**. It was organized by Mr.S.Sathish Kumar, Asst.Prof for a total of 48 Students of III year EEE .



On the topic **"Transmission and Distribution (Insulators and cables)"** was delivered by Dr.R.Kalaivani, Professor, EEE Department, REC on 28th February 2018, organized by Mr.M.Poomanirajan, Asst.Prof. A total of 53 Students of II year EEE attended the Lecture.



On 1st march 2018, Mr.P.Balaji, Prolific Systems & Technologies Pvt Ltd, delivered lecture on the topic **"Solid state drives(Speed control of DC Motor, Stepper Motor)"**. It was organized by Mr.R.Elavarasu, Asso. Prof. A total of 48 Students of III year EEE attended the Lecture.



STUDENT'S ACTIVITIES

WORKSHOPS & HANDS ON TRAINING ATTENDED

- Logeshwari V, Poorinimadevi M, Babu E, Pasupathi, Vignesh G, Mythili R of third year underwent a hands on training on **Unified Technology Learning Platform** organized by WIPRO in the duration 13-17th Feb, 2018.
- Mukeshkanna B and Ranjith V of second year attended a workshop on **AVR for robotics** organized by Mitra, a event called DEXBOT in the duration 16-17th March, 2018.
- Pooja P of second year attended a workshop on **Electro hydraulics panel design** conducted by Kurukshetra on 31-1st Jan, 2018.
- Duvvuru Kishore of second year attended a **Android App development workshop** organized by Prayatna'18 on 02nd and 03rd March, 2018.
- Vinson R, Greeshma R.R, Sivani S, Narmadha T, Nirmala A, Mano Ranjitha M, of second year has attended a **workshop on Internet of things** organized by INLEARN TECH on 12th Feb, 2018.
- Abirami R, Anjan Srinivas, Govardhanan V, Pooja P, Nirmala A, Monisha K, of second year attended a **Workshop on Internet of things** organized by RESPROLABS on 24th and 25th January, 2018.
- Rahul Kanna of second year attended **Java app development workshop** organized by TECHMENTOR on 11th March, 2018.
- Vignesh G, Ramalingam TS of third year attended an IEEE workshop on New Gen Tech organized by CADD SCHOOL on 25th Jan, 2018.
- Shreyesh S A of second year attended a state level workshop on **Python & Django** organized by Free Software Foundation Tamil Nadu on 19th and 20th January, 2018 at RIT, Chennai.



INPLANT TRAINING

- Bharathi Laxmi, Uma Nisita, Vikraman, Naresh, Hrishikesh of third year attended an Inplant training at **Chennai Port Trust** from *December 12 to 16, 2017*.
- Abinaya, Vanmathi, Poornimadevi, Soundarya, Karthick, Vignesh, Yegneshwar, Shuruthi, Gopinath, Sivaprasad of third year attended an Inplant training at **Schneider Electric Pvt. Ltd** from *November 20 to 27, 2017*.
- Mythili, Abrar Ahamed, of third year attended an Inplant training at **Integral coach factory** from *October 28 to 05, 2017*.
- Pavithra, Monisha of third year attended an Inplant training at **Integral coach factory** from *November 29 to December 06, 2017*.
- Babu, Hrishikesh, Diwakar, Udaya Kumar, Vikraman of third year attended an Inplant training at **North Chennai thermal power station** from *November 20th to 24th, 2017*.
- Kaaviya Jaisri, Rathna, Krithiga, Diwakar, Jhona Prasanakumar of third year attended an Inplant training at **Kaashiv Infotech** from *December 12th to 16th, 2017*.
- Nirmala, Narmadha, Pooja.P, Monisha, Abirami, Sivani of second year attended an Inplant training at **Hyundai Motor India Pvt. Ltd., Irungattukotai** from *11th to 15th December, 2017*.

- Anjan Srinvas S, Venkatesh S, Venkat Raman V, Balaji K, Govardhanan V, of second year attended an Inplant training at **Bharat Sanchar Nigam Limited** from *4th to 8th December, 2017*.
- Balaji.E, Keerthivasa.T, Viswanathan.R, Vignesh.A.R, Aravind.S, Sanjay R, Jemila Jerin, Greeshma, Yazhini S, Manoranjitha, Ranjani, Venkata Srikanth of second year attended an Inplant training in **Bharat Sanchar Nigam Limited** from *11th to 16th December, 2017*.

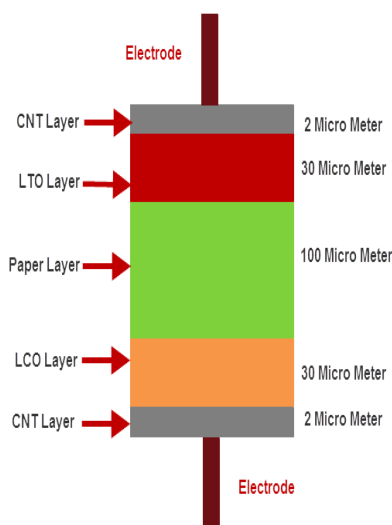


“Imagine a kind of system where you have lightweight electric vehicles relatively small battery capacity, and then picking up charge wherever they park. You never have to worry about filling up your car, never go to the gas station, never plug it in, never do any of these things.

- William J.Mitchell

PAPER BATTERY

- ♦ *Major constituent is CELLULOSE*
- ♦ *It can produce upto 2V*
- ♦ *The battery thickness is less than 0.025mm .*



WHAT IS A PAPER BATTERY?

- An article by S.A Shreyesh III year

A paper battery is an ultra-thin, flexible energy storage device that is used as a battery and also as a good capacitor. It is created by combining two things: nano composite paper and nanotubes (nano composite paper made from cellulose and nanotubes made from carbon). Nanocomposite paper is a hybrid energy storage device made of cellulose, which combines the features of super capacitors and batteries. It takes the high-energy storage capacity of the battery and high-energy density of the super capacitor producing the bursts of extreme power.

A carbon nanotube material is a cylinder shaped material, made of carbon. These tubes have different structures that differ in thickness, length, type and number of layers. Carbon nanotubes are characterized into different types based on their structure. They are single walled carbon nanotube, double-walled carbon nanotube, triple-walled carbon nanotube and multi-wall carbon nanotube.

Nanotube Paper Battery = Paper (Cellulose) + Carbon Nanotubes

This combination permits the battery to provide both long term, bursts of energy, steady power and production. Paper batteries have the potential to power the next generation of medical devices, electronics and hybrid vehicles. Paper batteries can be folded, twisted, molded, crumpled, shaped and cut for various applications without any loss of efficiency.

PROPERTIES :

Paper battery properties are mainly attributed to the properties of its parts such as cellulose and carbon nanotubes. The properties of Cellulose include high-tensile strength, biodegradability, low-shear Strength, biocompatibility, good absorption capacity and excellent Porosity, non-toxic, reusableness & recyclability. The properties of Carbon Nanotubes are the ratio of width: Length (1:107) high-tensile Strength (which is Greater than Steel) high packing density and low mass density, Lightness, Flexibility, Electrical Conductivity (which is better than Silicon) Low resistance (~33 ohm per square inch) and thickness is typically about 0.5 to 0.7mm.

Kindly send your suggestions to: voltzwaves@ritchennai.edu.in