EEE

NEWS LETTER

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DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

$\mathcal{D}$ear Buddies,

"Life always has the best teacher disguised as experience"

January-JANA implies a new birth.

People always love trying something new into track

New places for vacation

New food for delight

New attire for festivals

New desire, new resolution in every new year.

We always perceive something new and exciting in every door of life. Seasons, people, love, academics never make a difference .Only the person with new thoughts and perseverance can bring a difference.

"Experience to achieve more"

Take up challenges!!!

"Head or Tail

Smart work never fails"

We as "**JANA MEMBERS**" have decided to sow fresh thoughts in your aspiring mind. This newsletter is to celebrate the winners and participants who have given their utmost effort. Keep cheering us with your valuable feedbacks.

Happy Reading…!!!!

-Mr.S.Arun Jeyakumar

Third Year EEE

CONTENTS

STAFF ACTIVITIES/PUBLICATIONS/ACHIEVEMENTS

ACTIVITIES:

S.No.	Name of the Staff	Events/Guest Lecture	Topic/Event	Date	College
1.	Dr.M.Willjuice Iruthayarajan, Professor/EEE	4 Days IEEE CSS Winter School	Cyber Physical Systems	05.01.2017 to 08.01.2017	Kalasalingam University, Krishnankoil
2.	Dr.M.Willjuice Iruthayarajan, Professor/EEE	National Conference Organized by IQAC	Cosmic Concerns: AN Interdisciplinary Dialogue in Applied Ethics	27.01.2017 & 28.01.2017	St. Mary's College, Thoothukudi

ACHIEVEMENTS:

✓ *M. Bakrutheen, M. Willjuice Iruthayarajan and S. Senthil Kumar,* paper titled on "Investigation on the properties of natural esters blended with mineral oil and pyrolysis oil as liquid insulation for high voltage transformers", has been awarded as **BEST PAPER AWARD** in the session on Power System held at PSG College of Technology, Coimbatore. – *CASH Award 300 Euros*

DEPARTMENT ACTIVITIES

EEE ASSOCIATION – A INTRA COLLEGE TECHNICAL SYMPOSIUM – TESLA'17

TESLA2K17 is devoted to the contributions of Tesla in the field of Electricity. His life history and his findings were remembered on that day.

10th January 2017, the Symposium was inaugurated at the EEE seminar Hall of National Engineering College. During Inaugural, our Principal **Dr.S.Shanmugavel** in his speech highlighted the importance and objectives of technical symposium. He motivated the students to develop the communication skill set. He urged the students to do research and society related projects.

In the Inaugural Speech, Chief Guest, *Mr.R.Brightson Devotta , SQA Manager , Netskope, Los Altos, California (Alumni: 2007)* gave away a motivational speech to encourage the Engineering students. Being an alumnus, he talked about his experience in the college. He shared the know-how about his working area. The students were more enthusiastic during the session.

The symposium was stuffed with both technical and non-technical events. The events included Paper Presentation, Mock Interview, Crime Buster and Best Manager.

The Launch for TESLA2K17 was launched by the chief guest. The launch was based on the Life history of TESLA. The launch was technically stuffed by Zainy Mohammed Yousuf.

The National Level Technical Symposium ended with the winners of all the competitions being felicitated with awards and certificates. The Rolling Trophy was hand over to IT Department.

SOCIAL AWARENESS CELL

As a part of Social Awareness cell of EEE department an awareness camp was conducted for *St. Joesph Higher Secondary School, Kovilpatti* students on 31.01.2017 in the topic "Electricity usage, conservation and safety". The session was started by *Dr.M.Ravindran, Asso. Prof(SG)/EEE* with the importance of energy conservation. He told that energy conservation is unquestionably of great importance to all of us since we rely on energy for everything we do every single day. Energy supplies are limited and, to maintain a good quality of life, we must find ways to use energy wisely and without energy conservation, the world will deplete its natural resources. Then he explains the importance of renewable over non renewable energy resources as renewable energies generate from natural sources that can be replaced over a relatively short time scale and he listed out the pros of using renewable energy as follows,

Following the session final year lateral entry students explains the safety tips to be followed while handling electricity. He pointed out the rules as,

- Disconnect the power source before servicing or repairing electrical equipment.
- Use only tools and equipment with non-conducting handles when working on electrical devices.
- Never handle electrical equipment when hands, feet, or body are wet or perspiring, or when standing on a wet floor etc.

Finally the lateral entry students of third and final year gave presentation about electricity generation from renewable sources and show video demonstration on electricity generation and safety methods. They also put a drama on the theme "electricity conservation". The session was coordinated by *Dr.M.Ravindran, Asso. Prof(SG)/EEE, Mr.N.B.Prakash, Asso.Prof/EEE, Mr.K.Kumar, AP/EEE, Mr.Subburaj* along with lateral entry and NCC volunteers. Around 250 members attend the program and got benefited.

SPECIAL INTERST GROUP

POWER ELECTRONICS AND DRIVES
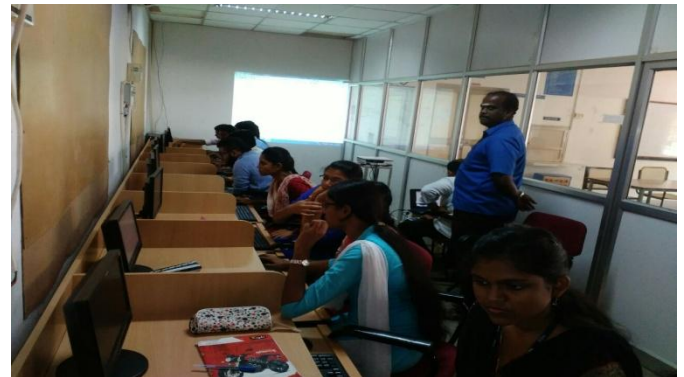
The Special Interest Group on "Power Electronics & Drives" was held on 07/01/2017 at Control and Instrumentation Laboratory for Special Interested Group (SIG) members. Around 12 members attended the session.

The first session was handled by Mr.M.P.E.Rajamani Assistant Professor (Sr.Gr)/EEE on the topic "MATLAB Simulation Tools for Power Converter Circuits". He gave an introduction to the usage of tools for simulation of Power Converter Circuits.

The second session was handled by Mr.Sankarakumar.S, Assistant Professor (Sr.Gr)/EEE on the topic "Simulation of Power Converters using MATLAB" Students were given the Hands-On training in MATLAB Simulation Tools for simulation of Power Converter Circuits.

EMBEDDED SYSTEM

An introduction to "**INTERNET OF THINGS**" was given by Ms.A.Tamilarasi, Assistant Professor /EEE. Then the session was continued with an introduction to "**IMAGE PROCESSING**" handled by Mr.N.B.Prakash, Associate Professor/EEE at Seminar Hall for Special Interest Group (SIG) members.

Ms.A.Tamilarasi, AP/EEE, started the session with introduction to Internet of Things (IOT). She defined that IOT is a technology which connects everything. A device can able to communicate with the other device through IOT. Nowadays, IOT is among rapidly growing technologies. Then she explained the characteristics of IOT along with four pillars which are RFID, M2M, WLAN and cloud services. Finally she concluded the session by showing some applications of IOT through videos.

Then, *Mr.N.B.Prakash, Associate Professor/EEE*, gave an introduction to Image Processing and its applications. He explained briefly about sampling, quantization and face recognition. And also about finger print (biometric) and identifying morphing image using image processing techniques. Finally he showed some real time applications of image processing to the students.

POWER AND ENERGY

Short term course was conducted on the topic of "**PSCAD/EMTDC simulation course on Power Electronics Applications to Power Systems**" for third and final year EEE students for three odd Saturdays (3rd and 17th Dec, 7th Jan) during the even semester of the academic year 2016-17 through Power and Energy Special interest group **(SIG)** of our department at Research Simulation Lab. The course was handled by **Mr.A.Pandiyarajan AP (EEE) and Mr.T.Sivakumar AP (EEE).** 24 students were attended the course. The course started with the introduction to PSCAD/ EMTDC simulation software package and then Hands on training was given for following topics such as Electrical circuits design, uncontrolled and controlled rectifiers, Inverters, Voltage controller, modeling of voltage sag and swell, Reactive power compensation, Fault analysis, Parallel operation of Alternators. Also mitigation of power quality issues and effects of Harmonics in power distribution system were discussed.

This training program focuses for the students to flourish their knowledge in power electronics and its applications in Power system. After attending this program, the students have able to construct and carry out simulation using PSCAD/EMTDC software. Students felt that the training program will be useful for their final year project in future.

MINI PROJECT FORUM

The students used to do mini projects during working Saturdays in the Microprocessor and Microcontroller lab of our department. Around **30 students of second year EEE** was actively participated to do mini projects and completed some application oriented projects like automatic street light control, mini inverter, water level controller, IR based remote controlled electrical apparatus etc. on **7th January 2017**.The students are motivated to do more innovative projects with their ideas. In this continuation, it is planned to conduct a project expo at the end of February 2017. The session was guided by *Mr.B.Venkatasamy, AP/EEE, Ms. K. Gowthami AP/EEE and Mr. F.Antony Jeffery Vaz AP/EEE.*

ENTREPRENEURSHIP DEVELOPMENT CELL

On the 12th of January, 2017 an Entrepreneur development cell meeting was conducted for EDC members at department seminar hall. It comprises of two sessions like video session and a motivational talk. First a motivational talk was delivered by *Ramachandra Bharathi.P (Pre-final year),* on the topic of 'The Qualities of a Good Entrepreneur'. She listed out the essential qualities like

- Confidence
- Open Minded
- Self Starter
- Competitive
- Creativity
- Determination etc.

Next the video session is made where the students can know more about those successful entrepreneur's and their struggles in succeeding. The life history of Ratan Tata and Ambani were displayed as a video to the students. These video were prepared by Venkatesh.D of pre-final year. Thus at the end of the meeting student coordinator of EDC Kannan.M (Final year) discussed the list of events which is going to conduct on the month of February. *Mr.N.B.Prakash, Asso.Prof/EEE and Mr.K.Kumar, Assistant Prof/EEE* coordinated the session.

INTERACTION WITH OUTSIDE WORLD

Our Professor with Prof T.Sundararajan

Our Professor with Prof. Juri Vain

Our Professer with Prof. Luigi Glielmo

Dr.M.Willjuice Iruthayarajan, Professor and HOD/EEE has participated in the IEEE CSS Winter School on CPS workshop at Kalasalingam University, Srivilliputhur on 5th -8th January 2017. On that workshop he had a wide interaction with foreign delegates about various technological developments. He shared his ideas with Prof T.Sundararajan, NTU, Singapore and Former scientist/ISRO about Intelligent Optimization especially Self Regulating Particle swarm Optimization (SRPSO) and also about Intelligent Techniques for CPS with Dr. Suresh Sunadaram NTU, Singapore. He had a brief conversation about CPS Model Verification, Introduction to Formal Methods as well distributed model based testing with Prof. Juri Vain , Tallinn University of Technology, Estonia. Then he had an interaction with Prof. Luigi Glielmo, University of Sannio, Italy about the Optimization in CPS and Cyber-Physical Energy Systems and also the possibility of Genetic Algorithm in the model predictive control. Dr. Jagannathan Sarangapani, Missouri University of Science and Technology, USA has discussed about Event Triggered Systems and Optimal Control of CPS with our professor. He interacted with Dr. Srini Kaveri, Director, CNRS France regarding Research and Funding Opportunities for scientists in France. Finally our professor had a remarkable interaction with resource persons from ABB about CPS in Industrial and Grid Automation.

Placement Details

On behalf of the Chairman, Managing Director, Director, Principal, Head of the Department and staff members, we heartily congratulates the final year students who placed in *M/s. Infoview Private Ltd., Bangalore, M/s. Mobius Knowledge Services Ltd., Chennai,* Campus drive in our campus during the month of January 2017.

- *Total No. of Students Placed: 10 Nos.*

Infoview

-

Mr. Hari Sankar.R

mobius
knowledge services
Enabling Data, Delivering Value

Ms. Abbiramy Devibala.E

Ms. Bavithra.R

Ms. Caroline Joy.J

Ms. Jesintha.R   *Ms. Kavitha.S*   *Ms. Kirthika.S*

Mr. Jegan.M   *Mr. Alagu Selva Kumar.M*   *Mr. Subash. S*

CONGRATS!!!!!

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

ARTICLE FROM INDUSTRY EXPERT/ALUMNI

INDUSTRY'S EXPECTATIONS ON ACADEMIC INSTITUTIONS

Ramesh. M,
Hardware Design & Development,
Data Patterns India Pvt Ltd,
Chennai.

Today the 21st century can be claimed as an era of technology as the world grows exponentially with the drastic power of science. Every country has evolved from its own civilization and built its own culture, food habits, infrastructures and health measures. Today whatever be the latest technology in the market, it's accessible in our palm. Technology has grown up such great and this generation enjoys the harvest.

Education is the key for success and prosperity. In this era of survival of the fittest, indigenization is the only path for any country to have sustained growth. Indigenization can simply defined as do whatever we develop with the technology evolved from our own knowledge and utilize the resources of our origin, so that we do not depend on anybody. This could be achieved by strengthening our education systems. Academic institutions play a major role in building the right architects for the nation.

There is always a gap between the graduates and the industries, which most academic institutions trying to bridge. Though the curriculum is same across different colleges affiliated to the same university, the outcome is different which is mainly due the ambiance / facility offered by the institution to the students to enjoy learning.

Today in this competitive world, it is highly challenging for the industries to meet the manpower cost and sustain the business. Almost 60% of the development cost is spent on man power which is a over burden to them. Fresh graduates, who join the industries, require six months to 2 years as gestation period to show their contribution. The industries will also invest much in training the fresher about the technology and process and expects the results from the employees. Hence most of the industries and R&D labs have made MOUs and partnership with the centers of higher learning. These programs actually drive the academia to design its syllabi and pedagogy so that it can match with the current industrial requirements of the market and shapes themselves into a highly productive Human Resource Centre.

This also enables industries to reduce the time required to orient a fresh graduate before she / he could be inducted into shop floor. This model may reduce the expenses of per-employment training & increases the proficiency level of graduates, leading to trust in the educational sector and enhance the economic growth.

While coming back to students, they also have lots of concern while opting a job like remuneration, job sophistication & mobility. The belief & attitude that merely getting a degree

will get me a job mostly prevails and of course it will not earn the bread and a sustained growth in career.

I have interviewed around 50+ students for the job of Hardware design engineer. I have seen few students extraordinarily performing on the interview and job. Their thirst for knowledge and development drives them. At the same time, I felt pains when I could see few students who could not even explain the concepts of their projects they do and very basics of engineering. Students are overly focused on theoretical knowledge and scoring marks, but while applying the case methodology they mostly struggle. There is always a phase shift from theory to practice. Understanding of the subject base is most important. Today our education aids has improved so much that a student can access any information via internet across the world. The academic institution should teach students more on application oriented rather using conventional practices.

Knowledge, Attitude, skills, commitment, dedication, self-discipline, self-motivation, Analytical and communication skills are the key areas to be focused to meet industries expectation. Institutions can focus much on those aspects by organizing training and workshops in coordination with industries.

Today India is one of the pioneers in software services, due to our strength in the human resources. It caters a lot of employment opportunities. Almost 70% of employed engineering professionals choose software domain. Though it adds a remarkable percent in the revenue to the nation, it adversely affects the industrial sector. Today lot of small scale industries cannot sustain the market needs of the human resources and competition of MNCs. This condition prevails due to our infrastructure and the education policies have slowly migrated to adapt to the MNC culture. But still there are lots of domains where the students can focus for their career, which in turn will also add up to the technology asset of the nation.

India is one of the largest importers of defense products and solutions to strengthen our country. Every year government spends thousands of crores in the defense sector to enhance our defense infrastructures. Today though we have explored a lot in missile, space technology and communications, still we rely on other nations for the technology and support. The recent government's make in India policy attracts a lot of employment opportunities to our professionals in the core field and to improve the small & large scale private sectors.

I started my career with Data Patterns as a fresher and continue to have 9+ years of services in the Defense and Aerospace electronics design. We do indigenous product design for Indian defense like mission computers for Avionics & UAV, missile launch fire control systems, rugged digital displays for Cockpits, wide variety of RADARs, Identification of Friend or Foe , RF electronic war fares, jammers and nano Satellite building blocks. I started with just a simple board design, then moved onto high speed processor designs, now into products domain and it moves on. We now proud to say we have contributed to each of the above product line up and support our nation's initiatives. Though lot other hardware services organization are available

across India, very few product companies like Data Patterns provides both a rewarding career and pride to take forward our nation's goals.

The academic institutions shall organize for live interactive workshops by bringing in their Alumni's who are in multiple domains once a year and create awareness among students on opportunities on multiple domains, need for indigenization and the entrepreneur skills. The college also shall organize mock workshops for students on industrial engineering that involves capturing, structuring and accurately representing the client's requirements, effectively implemented in a system that will conform to the client's specifications. This can be done as mock projects in association with the industries.

With proper orientation, induction and guidance from the academic institutes in touch with the industries and current technologies, students are sure to excel in their domains. Proper focus and awareness at the right time drives them to a perfect career, utilize their skills and come out with flying colors. This would bring in turn indigenization in all sectors as envisaged by our beloved former president Dr. A.P.J Abdul kalam to make our nation a supremo in the world. Let us all work towards his vision.

Jai Hind.

STUDENTS ARTICLES

MYSTERY UNDER WATER: OUR BIRTH PLACE

- *N.Selva Karthiga, Final EEE*

One night while dreaming, it occurred to me, in my dream, that I was dreaming, I was awake but in a dream, I realized that everything around me was part of my dream, that moment, that revelation was so powerful that I did then actually wake up. However from that exquisite moment I knew that I had discovered the secret that would allow me to penetrate the greatest Mysteries. I came to know that "**Mystery creates Wonder and Wonder is the basis of man's desire to understand"**. Yeah, It's true because it increases my curiosity to know more about the mysteries in the world. Right from that time I started spending my leisure time in surfing the happenings and unknown things drowned in this world. I assure that you too find interesting in knowing about the mysteries around us. But I didn't expect that I will get a chance to share about one such mystery with all of you. When I was given this job to be done, I was confused in choosing an interesting article that everyone will enjoy reading it.

One thing that kept striking in my mind was about our Culture, Where does it originate from? Who taught us? Whom we followed? Who discovered sculptures? Where are

they from? Who is the sculptor? What do they represent? , like this so many questions are there to point out whose answers are hidden under world. It's time to explore the sunken continent which gives us answers for our questions.

The legendary sunken continent is named as **"Kumari Kandam"** also called as Kumari Nadu, birth place of our **Sentamizh mozhi and Tamilians**. Though there are many traditions narrated in early literature," Kumari Kandam", the land that lay to the south of India and, which later submerged in the Indain Ocean, has been a matter of conjecture for a study of scholars. Just like Atlantis, the story behind **Kumari Kandam** is a fascinating one. The word 'Kumari Kandam' was first mentioned in a 15th-century version of the **Skanda Purana the largest <u>Mahapurana</u>**, a genre of eighteen <u>Hindu</u> religious texts and was written by **Kachiappa Sivacharyara** (1350-1420). **Kumari Kandam** is considered as the cradle of civilization, the place where everything started.

KUMARI KANDAM & LOST LANDS

49 TERRITORIES
7 Coconut territories (Eluthenga Nadu)
7 Madurai territories (Elumadurai Nadu)
7 Old sandy territories (Elumunpalai Nadu)
7 New sandy territories (Elupinpalai Nadu)
7 Mountain territories (Elukunra Nadu)
7 Coastal territories (Elukunakarai Nadu)
7 Dwarf-palm territories (Elukurumpanai Nadu)

RIVERS
River Pahruli
River Kumari

MOUNTAINS
Kumarikkodu
Mani Malai

CITIES
Thenmadurai
Kapatapuram
Muththoor

hemanththiru.blogspot.com

During the end of the last Ice age, earth's temperature started rising, large icy masses and glaciers started melting, and thus sea levels started rising. India's Dravidian peninsula was swallowed by the ever rising seas. Various oceanographic researches have shown that the sea level in the Indian peninsula has risen by 100 meters within the past 14,500 years. There had been three major episodes of sea level fluctuations resulting in the submergence of the Kumari continent which existed to the south of <u>Kanya Kumari</u>. The area had been ruled by the **<u>Pandya kings</u>** with 49 territories surrounded by rivers and mountains.

The Tamil Revivalists listed several rare musical instruments such as the **thousand-stringed <u>lute</u>** and books on a wide range of topics, including medicine, martial arts, logic, painting, sculpture, yoga, philosophy, music, mathematics, alchemy, magic, architecture, poetry, and wealth, which had been lost to the sea. From all these I come to a conclusion that the Ancient South India would have been with tall cliffs, dense forests with high fertility. Because of a calamity, a terrific destruction occurred and destroyed Chera, Chola and Pandiya Kingdoms

and they all then came and settled in South India. From Kumari Kandam, people moved to Bengal and became Cholas and those who moved to Sind and Punjab became Cheras.

Most of us are not aware of our lost continent and about Tamil language, our mother tongue, which is fading away from human's mind now-a-days due to the entrance of other foreign languages. We are intended in working towards the development of our Nation but we are not aware of our lost cultural values so far. This is not the only thing we have lost, also we have lost many medicinal formulae to cure unknown diseases that are emerging now. Ours will be a developed nation only when **"Tamil, Our Semmozhi"** is approved to be an Universal Language. We are in verge of extinction of our culture and heritage, I conclude with a request to all the great Tamil scholars, eminent astronomers and mathematical experts to join together in this noble research to establish the glory of Tamil language and Tamil race to the whole world.

VAZHGHA TAMIL..!!

ARTIFICIAL TREE TO PRODUCE ALTERNATIVE ENRGY

Today electricity is very essential for human life. But the nature source is not enough to produce electricity. Solar energy production technologies need direct sunlight to give optimal performance and this raises a need for a lot of obstruction free space. Sometimes solar energy plant don't work properly,if the surface has obstruction and shades fortunately this problem is restricted to man-made solar power generation facilities; A typical tree is a prime example of a mechanism that optimally utilizes the solar energy. My idea is about the topic building artificial trees and generate well solar power with the help of latest *"NANO TECHNOLOGY TINY SOLAR GENERATERS"* will use sun light and heat to generate

power. So the leaves are made by or designed by **"PHOTOVOLTIC, THERMOVOTIC *and* PIEZOVOLTIC".** They converting three free available energies Sun, wind and heat into electricity. It is plans to design twenty different species of artificial trees. As first step an unclosed Middle East location. This facility will have thirty six power generating fronds and it will generate more than five thousand kilowatt hours per year of electricity.

- *Mr.G.Viswanath, Second EEE*

BEFORE THERE WERE LIGHTS

For thousands of years, people all over the world have been fascinated by lightning. But it wasn't until the 18th century that the path to the everyday use of electrical power began to take shape.

Ben Franklin proved that lightning was a form of electricity.

Maybe you have heard about the famous kite experiment by American Founding Father and inventor Benjamin Franklin. In 1752, to prove that lightning was electrical, he flew a kite during a thunderstorm. He tied a metal key onto the string and, as he suspected it would, electricity from the storm clouds flowed down the string, which was wet, and he received an electrical shock. Franklin was extremely lucky not to have been seriously hurt during this experiment, but he was excited to have proved his idea.

Throughout the next hundred years, many inventors and scientists tried to find a way to use electrical power to make light. In 1879, the American inventor Thomas Edison was finally able to produce a reliable, long-lasting electric light bulb in his laboratory Today, Americans' standard of living has risen as nearly everyone has electric power at home, school, and at work

TIME TO KNOW OUR ALUMNI

Mr. BRIGHTSON DEVOTTA

Batch: 2007

Quality Engineer Manager
Netskope, California,

PROFILE SUMMARY

Mr.Brightson was born on 1985, at tuticorin where he completed his schooling at St. Francis Xavier Hr.Sec School. He did his B.E degree in the branch of Electrical and Electronics Engineering from 2003-2007

After the completion of his degree he joined Paypal at Chennai which is a leading company helps in providing solutions for online payment to their customers and there he worked as **Automation Quality Assurance Engineer** up to November 2010.

By the year 2011 March he joined Info stretch Corporation there he worked as a **Software Quality Assurance Engineer** till May 2012 at San Francisco. During this period he was the test lead on cloud based web services. Apart from these he was also expert in the area of back-end automation, selenium automation, UI automation.

Later he joined HP cloud services as a **Lead Quality Assurance Engineer** there he worked up to July 2013.

Currently he was working as a **Quality Engineering Manager,** Netskope at Los Atlos California. During this he was involved in building of QA team, soft configurations and source code management, hiring.

TECHNICAL ARTICLE BY STAFF MEMBER

Ms.S.Balakiruthiha, M.E.,
Assistant Professor
Electrical and Electronics Engineering
National Engineering College

DEMAND SIDE MANAGEMENT IN SMART GRID

Smart Grid:

Even in the most developed countries electricity grid that is used today was designed more than 50 years ago and is becoming outdated. By modernizing electricity grids it is possible to increase the efficiency of electricity production and the use of grid assets, to decrease carbon footprint and to make the whole power network more reliable and secure. New technologies are currently being developed that will enable so called smart grid. Although smart grid does not have a single clear definition, the European Technology Platform (European Commission, 2006) defines it as follows: "Smart grid is an electricity network that can intelligently integrate the actions of all users connected to it – generators, consumers and those that do both in order to efficiently deliver sustainable, economic and secure electricity supplies".

The idea of a smart grid has been around for a while and recent technological advancement in communications and sensing areas enables the development of smart grid. The traditional power grid landscape consists of centralized generation, where energy is pushed one-way through transmission and distribution networks to the end users. Currently this paradigm evolves by adding distributed renewable energy generation, distributed energy storage, utility scale renewable, utility scale energy storage, etc. It is also converting from radial networks to mesh networks with the possibility to reconfigure and self-heal. On top of the existing power network layer there will be a new communications layer for information exchange and control. The whole landscape is dramatically changing from what it has been historically.

Drivers of Smart Grid

From the global perspective, main drivers behind smart grid are capacity, efficiency, reliability, sustainability and customer engagement. Higher capacity electricity grid is needed in most developing countries. At the same time electric vehicles will also demand some changes on the grid in most developed countries. Electricity throughput can be increased by enhancing efficiency. At the same time the virtual capacity would be increased using peak-shaving techniques. Reliability is another big issue. Most of the system failures that lead to outages occur as a result of problems in the distribution system. Information from advanced sensors through supervisory control and data acquisition (SCADA) system might help to prevent accidents or react to the fault more rapid. Smart grid also looks at sustainability problem, where one of the major elements is the interconnection of renewable generation and how that generation is managed in order to meet the demand. Finally, residential customer engagement would enable demand side management to reduce the peak load, thus decreasing the required capacity and cost as well as increasing the overall efficiency.

Two main elements when considering efficiency are losses in the system and how the assets are deployed/used. Losses often depend on the load shape in the system, for example partially loaded trans-formers are less efficient, so it is desired that system operates at near capacity level. Utilization of system is a major factor when considering investment in system assets. Optimal planning of how system assets should be deployed and used (energy management) plays a key role when considering overall system efficiency. Smart grid technologies mainly focus on advancements in distribution side of electricity network.

Demand Side Management (DSM):

The term Demand Side Management (DSM) stands for actions to entice or force the consumer to change his/her habits and expectations to deal with electrical energy consumption by basically reshaping the demand (load) diagram. This can be done in different ways by either reducing peak load or shifting loads from peak to off- peak load hours. These activities include energy conservation methods, replacement of less efficient equipment, consumer generating plants such as PV, small wind and micro gas turbines. Also more awareness and participation of energy conservation is expected from the consumer. The benefits of DSM are felt not only by the consumer but also, and very importantly, by the utilities involved, since it not only reduces peak load but also eases network and generation compliance to operating limits.

DSM Classifications:

DSM can be classified as direct (Direct Load Control – DLC) where by the utilities have control over certain loads such as boilers to be disconnected as needed during peak loads or contingencies. The consumer is then benefitted by lower bills. Indirect DSM, on the other hand, takes advantage of the consumer's willingness in modifying consumer habits, thus contributing to reshape the load curve. In DSM, load can be projected as a curve (load curve). DSM has six main objective load curve representation which is shown in Fig. 1.

a. *Peak clipping: Reduction of loads from the electricity rush hour.*
b. *Valley filling: Construction of loads in off-peak hours.*
c. *Load shifting: Shifting loads from electricity rush hour to off-peak hours.*
d. *Strategic Conservation: Conservation of power by reducing the complete load for a long term (in hours or in days).*
e. *Strategic Load growth: Increase in the consumption of power with certain limit.*
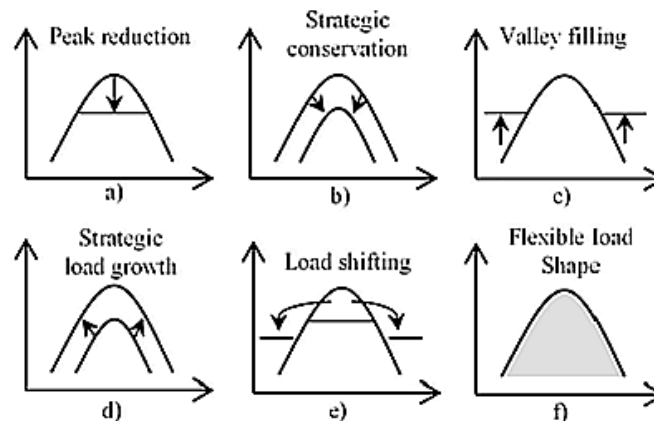f. *Flexible load shaping: Redistribution of load to various time slots for On-Demand Service.*

Fig. 1. Load curve representation of techniques used in DSM

Successful attempts have been made to model the effect of load elasticity and cross load elasticity to price. The first implies in peak load reduction when the price signal is high, while the second shifts load to neighboring time intervals. DSM programs may cause some consumer discomfort which requires habit changes among those affected. A way to overcome this possible discomfort is to implement large-scale energy storage devices in the system; however this is not always economically or technically possible. Peak demand reduction is the main goal of DSM, mainly to avoid power line congestion and/or use of expensive local peak thermal power plants.

Personality to Know

The Honorable Sir **Edwin Howard Armstrong** was an American electrical engineer and inventor best known for developing FM (frequency modulation) radio. He had 42 patents and received numerous awards, including the first Medal of Honor awarded by the Institute of Radio Engineers (now IEEE), the French Legion of Honor, Franklin Medal at 1941 and Edison Medal in the successive year. He was inducted into the National Inventors Hall of Fame and further included in the International Telecommunication Union's roster of great inventors.

Personal Life:

Armstrong was born in the Chelsea district of New York City, the oldest of John and Emily (Smith) Armstrong's three children. At the age of eight, Armstrong contracted Sydenham's chorea, an infrequent but serious neurological disorder precipitated by rheumatic fever. For the rest of his life,
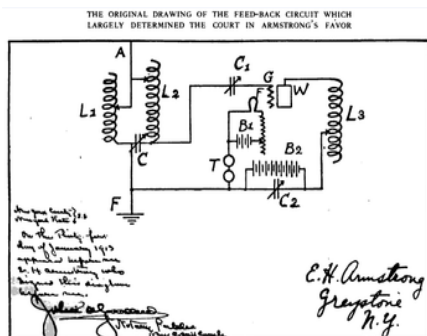
Armstrong was afflicted with a physical tic exacerbated by excitement or stress. From an early age, Armstrong showed an interest in electrical and mechanical devices, particularly trains. In 1909, Armstrong enrolled at Columbia University in New York City, where he became a member of the Epsilon Chapter of the Theta Xi engineering fraternity, and studied under Professor Michael Pupin at the Hartley Laboratories, a separate research unit at Columbia. Armstrong graduated from Columbia in 1913, earning an electrical engineering degree. Finally he set up a self-financed independent research and development laboratory at Columbia, and owned his patents outright.

Regenerative circuit:

Armstrong began working on his first major invention while still an undergraduate at Columbia in conjunction with his Professor Morecroft. He used an oscillograph to conduct comprehensive studies. His breakthrough discovery was determining that employing positive feedback (also known as "regeneration") produced amplification hundreds of times greater than previously attained, with the amplified signals now strong enough so that receivers could use loudspeakers instead of headphones. Further investigation revealed that when the feedback was increased beyond a certain level a vacuum-tube would go into oscillation, thus could also be used as a continuous-wave radio transmitter. Beginning in 1913 Armstrong prepared a series of comprehensive demonstrations and papers that carefully documented his research, and in late 1913 applied for patent protection covering the regenerative circuit**.**

- *K. Madasamy@Yuvaraja,*

Final year EEE.

APTITUDE TRICKS – C PROGRAM

- R.Bavithra (Final EEE)

```
1.#include <stdio.h>
void main()
{
char cnt=0;
for(;cnt++;printf("%d",cnt)) ;
printf("%d",cnt);
}
```

1. **0 1 2 ... infinite times**
2. **0 1 2 ... 127**
3. **0**
4. **1**

Answer

Correct Answer – 4 Before entering into the for loop the **CHECK CONDITION** is "evaluated". Here it evaluates to 0 (false) and comes out of the loop, and i is incremented (note the semicolon after the for loop).

```
2.#include < stdio.h >
int main()
{
   int tally=0;
   for(;;)
   {
      if(tally==10)
         break;
      printf("%d ",++tally);
   }
   return 0;
}
```

1. **0 1 2 3 4 5 6 7 8 9 10**
2. **0 1 2 3 ... infinite times**
3. **1 2 3 4 5 6 7 8 9 10**
4. **1 2 3 4 5 6 7 8 9**

Answer

Correct Answer – 3 - 1 2 3 4 5 6 7 8 9 10
for(; ;) it is possible in c, there is no need to place condition with in the for(), you can place condition with in the body of the loop.

3. What will be the output of following program ?

```
#include <stdio.h>
int main()
```

```
        {
          static int var[5];
          int count=0;

          var[++count]=++count;
          for(count=0;count<5;count++)
            printf("%d ",var[count]);

          return 0;
        }
```

1. **0 1 0 0 0**
2. **0 2 0 0 0**
3. **0 0 2 0 0**
4. **0 0 0 0 0**

Answer

Correct Answer – 3 0 0 2 0 0

4. What will be the output of following program ?

```
        #include <stdio.h>
        int main()
        {   static int array[]={10,20,30,40,50};
          printf("%d...%d",*array,*(array+3)* *array);
          return 0;
        }
```

1. **Error**
2. **10...40**
3. **10...300**
4. **10....400**

Answer

Correct Answer – 410...400 In expression **printf("%d...%d",*array,*(array+3)* *array);**, *array is **10**, *(array+3) is **40**.

5. Which is an incorrect declaration of one dimensional array ?

int x[5];
int x[5]={1,2,3,4,5};
int x[5]={1,2};
int x[];

Answer

Correct Answer - 4

int   x[];
You can ignore value within the subscript [] when you are initialising array with elements, but here no initialisation found.

6. What will be the output of following program ?

```c
#include <stdio.h>
int main()
{
  char X[10]={'A'},i;
  for(i=0; i<10; i++)
     printf("%d ",X[i]);
  return 0;
}
```

1. **A 0 0 0 0 0 0 0 0 0**
2. **A**
3. **A 32 32 32 32 32 32 32 32 32**
4. **ERROR**

   Answer
   Correct Answer – 1 A 0 0 0 0 0 0 0 0 0
   char X[10]={'A'}; 0th index of X is assigned by 'A' and rest of elements is assigned by 0.

7. What will be the output of following program ?

```c
#include <stdio.h>
void main()
{
  int x=22;
  if(x=10)
     printf("TRUE");
  else
     printf("FALSE");
}
```

1. **TRUE**
2. **FALSE**
3. **Error**
4. **None**

   Answer
   Correct Answer – 1 TRUE
   if(x=10)... "=" is an assignment operator, so 10 will be assigned to x and condition will be true due to **if(10)..**

```c
8.#include <stdio.h>
void main()
{
  char val=1;
  if(val--==0)
     printf("TRUE");
  else
     printf("FALSE");
```

}

1. **FALSE**
2. **Error**
3. **TRUE**
4. **None**

Answer
Correct Answer – 3 TRUE

Students Achievements/Activities

Second year

IE – Paper Presentation

S.NO	NAME	TOPIC	DATE
1.	N.Navitha	GAS TURBINE	
2.	B.Uma		
3.	R.Nandhini	3D HOLOGRAPHIC PROJECTION TECHNOLOGY	
4.	P.Sathya Gomathy		
5.	S.Rathna	STREET LIGHT CONTROL BY DETECTING VEHICLE MOVEMENT	
6.	G.Sindhuga		
7.	S.Selva Lakshmi	TOUCH SCREEN TECHNOLOGY	
8.	T.Sreevidhya		
9.	J.Sankari	VEHICLE TO VEHICLE COMMUNICATION	
10.	K.Santhiya Lakshmi		
11.	K.Sethana Devi	LARGE SCALE POWER GENERATION WITH FUEL CELL	
12.	A.Asha		
13.	M.Anitha	AUTOMATIC TEMPERATURE CONTROLL FAN	05-01-2017
14.	R.Pavithra		
15.	S.Arun Kumar	HIFI TECHNOLOGY	
16.	T.Selva Kumar		
17.	M.Gowsalya	BRAIN CONTROLLED CAR USING ARTIFICIAL INTELLIGENCE	
18.	A.Nithya Sree		
19.	D.R.Divya	NANO ROBOTICS	
20.	J.Jebisha Gnanadeepam		
23.	K.Vishnu Priya	ORGANIC LIGHT EMITTING DIODE	
24.	B.Radha		
25.	R.A Ranjitha	WIRELESS POWER TRANSMISSION THROUGH SOLAR POWER SATELITE	
26.	N.Rishika		
27.	M.Rajashree	BRAIN COMPUTER INTERFACE	
28.	T.Sreevidya		

Extra curricular activities

S.NO	NAME	CLUB	DATE
1.	M.Sugasini		
2.	K.N.Sakthi		
3.	B.Radha		
4.	P.Priyadharshini	Rotract Club – Road Safety Awareness Program	09-01-2017
5.	R.Nishanthi		
6.	Maariraj		
7.	T.Kayalvizhi		

FREQUENTLY ASKED QUESTIONS

- *R.Bavithra (Final EEE)*

C program to swap two numbers without using third variable

```c
#include <stdio.h>

int main()
{
  int a,b,t;
  printf(" Enter value of A ?  ");
  scanf("%d",&a);
  printf(" Enter value of B ?  ");
  scanf("%d",&b);
   printf("\n Before swapping : A= %d, B= %d",a,b);
  a=a+b;
  b=a-b;
  a=a-b;
  printf("\n After swapping (second method): A= %d, B= %d\n",a,b);
  return 0;
}
```

2. Program to check whether number is Palindrome or not

```c
#include <stdio.h>

/*function to check Palindrome Number*/
int isPalindrome(int num)
{
  int tempNumber=num;
  int dig,revNumber;

  /*getting reverse number*/
  revNumber=0;
  while(num>0)
  {
    dig=num%10;
    revNumber=(revNumber*10)+dig;
    num/=10;
  }
   if(revNumber==tempNumber)
  return 1;     else
  return 0
}
 int main()
 {
  int number;
```

```c
  printf("Enter an integer number: ");
  scanf("%d", &number);

  if(isPalindrome(number))
    printf("%d is a palindrome.", number);
  else
    printf("%d is not a palindrome.", number);

  return 0;
}
```

3.Program to compare two strings without using strcmp()

```c
#include<stdio.h>

int stringCompare(char[],char[]);
int main(){
  char str1[100],str2[100];
  int compare;
printf("Enter first string: ");
  scanf("%s",str1);
printf("Enter second string: ");
  scanf("%s",str2);
compare = stringCompare(str1,str2);
  if(compare == 1)
    printf("Both strings are equal.");
  else
    printf("Both strings are not equal");
  return 0;
}
int stringCompare(char str1[],char str2[]){
  int i=0,flag=0;
  while(str1[i]!='\0' &&str2[i]!='\0){
    if(str1[i]!=str2[i]){
      flag=1;
      break;
    }
    i++;}
 if(flag==0 && str1[i]=='\0' &&str2[i]=='\0')
    return 1;
else
    return 0;}
```

Please Refer this Website For more Programs:- http://www.includehelp.com/

BASIC ELECTRICAL QUESTIONS

What is the Polarization index value? (Pi value) and simple definition of polarization index?

Its ratio between insulation resistance (IR) i.e meggar values for 0 min to insulation resistance for min. It ranges from 5-7 for new motors & normally for motor to be in good condition it should be Greater than .5.

Why syn. generators are used for the production of electricity?

Synchronous machines have capability to work on different power factor (or say different imaginary power varying the field emf). Hence syn. generators are used for the production of electricity.

1 ton is equal to how many watts?

1 ton = 12000 BTU/hr and to convert BTU/hr to horse power, 12,000 * 0.000929 = 4.715 hp therefore 1 ton = 4.715*.746 = 3.5 KW.

Difference between a four point starter and three point starter?

The shunt connection in four point starter is provided separately from the line where as in three point starter it is connected with line which is the drawback in three point starter.

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Final Year EEE

EDITORIAL BOARD