National Engineering College
(An Autonomous Institution)
K.R. Nagar , Kovilpatti-628503

ESTD : 1984

EEE NEWSLETTER

Feb 2014

Vol 1 Issue

On behalf of Head of Department, faculty and students of Electrical and Electronics Engineering Department, we heartily congratulate our beloved Director Dr.Kn.K.S.K.Chockalingam who is the dynamic personality, inspired leader of our institution for being honoured with Lifetime Achievement Award on 23.01.2014 by Indian Society for Technical Education (ISTE), TamilNadu and Pondicherry state (TN & P) Section. The same was awarded by Dr.M.Rajaram, Vice Chancellor of Anna University, Mr.R.Murugesan, Head of ISTE, NewDelhi and Mr.A.K.Natesan, Head of TamilNadu and Pondicherry Section was held at Adhiyamaan College of Engineering, Hosur.

In this connection, a felicitation session was arranged by ISTE and Staff club of our institution at college Assembly hall on 01.03.2014 by 3.00 PM.

CONTENTS

VISION & MISSION OF THE DEPARTMENT

VISION:

Promoting active learning, critical thinking coupled with ethical values to meet the global challenges.

MISSION:

1. To instill state-of-the-art technical knowledge and research capability that will prepare our graduates for professionalism and life-long learning.
2. To update knowledge to meet industrial and real world challenges.
3. To inculcate social and ethical values.

PROGRAMME EDUCATIONAL OBJECTIVES (PEO):

The main objective of the B.E., Programme in Electrical and Electronics Engineering is to prepare students for either one or more of the following:

1. Excel in industrial or graduate work in Electrical Engineering and allied fields.
2. Practice their profession conforming to ethical values and active participation in the affairs of the profession.
3. Adapt to evolving technologies and stay current with their profession.

NEWLY CREATED FACILITIES:

During the academic year of 2013-2014, Department of Electrical and Electronics Engineering exclusively introduced a Smart Classroom (IQ Board) for both UG and PG programme.

STAFF ACHIEVEMENTS

PAPER PUBLICATION:

R.V.Maheswari, Dr.P. Subburaj, B.Vigneshwaran, Dr.M.Willjuice Iruthayarajan, paper titled on "Partial Discharge Signal Denoising Using Adaptive Translation Invariant Wavelet Transform-Online Measurement", *J Electr Eng Technol,* Vol.9, No.2: 695-706, 2014.

R.V.Maheswari, Dr.P. Subburaj, B.Vigneshwaran, G.Sharmila, paper titled on "Extraction of wave parameter for classification of partial discharge using Pearson's correlation method", *Australian Journal of Electrical & Electronics Engineering*, Vol. 11, No. 1, March 2014.

M. Bakrutheen, A, Raymon, PS Pakianathan, M.P.E. Rajamani and R. Karthik, paper titled on "Enhancement of critical characteristics of aged transformer oil using regenerative additives", *Australian Journal of Electrical & Electronics Engineering*, Vol. 11, No. 1, March 2014.

WORKSHOP/SEMINAR ATTENDED:

Venue	Staff Name	Title	Role/ Workshop/ Seminar	Date
St, Mary's College	Dr.M.Willjuice Iruthayarajan, Prof/Head	Institutional Quality Improvement Role of Information and Communication Technology	Seminar	31st Jan & 1st Feb, 2014
Apple Tree, Tirunelveli	Dr.M.Willjuice Iruthayarajan, Prof/Head & Dr.L.Kalaivani, Asso. Prof	MATLAb and Simulation for Engineers Education	Seminar	7th Jan, 2014
KSR Tirucheng-ode	Mr.N.B.Prakash (Asso. Prof)	Nano Material synthesis and Characteristics	Seminar	25th and 26th Feb, 2014
NIT, Trichy	Ms. J.R.Deepeeha (AP)	Data based analysis & synthesis of Linear Systems	Workshop	31.12.2013
IIT, Chennai	Mr.S.Senthil Kumar (AP), Mr.R.Madavan (AP), Mr.P.Samuel Pakianathan (AP), Mr.M.Bakrutheen (AP), Mr.B.Vigneshwaran (AP), Ms.S.Divya (AP).	Research Themes of High Voltage Technology	Workshop	08.02.2014
MIT, Chennai	Mr.S.Senthil Kumar (AP)	Emerging Trends in Nano Engineering (ETNEA)	Workshop	21st & 22nd Feb
PSG, Coimbatore	Mr.S.Saravana Karthi (Asst. Profeesor)	Recent Trends on Solid State AC drives using MATLAB software	Workshop	15th & 16th Feb

Mr.M. Bakrutheen, Assistant Professor/EEE was awarded the first rank in the Master of Engineering in High Voltage Engineering programme under the faculty of Electrical Engineering on 16.02.2014.

` RANK HOLDERS

The following PG Scholars are got their top two positions in End semester Examination M.E., - HIGH VOLTAGE ENGINEERING.

M.E – II Year

S.No	Name	CGPA
1.	Ms. P.Rajeswari	9.20
2.	Ms. G.Shunmuga Lakshmi	8.80

M.E – I Year

S.No	Name	CGPA
1.	Ms. B. Revathi	8.63
2.	Mr.K. Kumar	8.45

CAT SCORERS - FINAL YEAR STUDENTS

S.No	Name	Percentage
1.	Mr. N. Karthick Maharajan	80
2.	Mr. M.Venkadesh	60
3.	Ms. T.Thangalakshmi	25

ONE DAY WORKSHOP ON PLC

A workshop on 'Programmable Logic Controllers' was conducted by our EEE Association during 31st January 2014 and 1st February 2014 solely to increase the scope of our students for getting placed in core industries. It was hosted by the e-careerpluz institute and its coordinator Mr. V. Sam Stephen (Alumni of our Department) and his co-worker Mr. Sathish Kumar beheaded the workshop. The main objective of the workshop is to making all the participants to handle the PLC kit. Following the inauguration, Initially Mr. Sathish Kumar explained the hardware structure of PLC. He put into words the basic hardware structure of PLC and its associated components. He also showed a model and began his detailed lecture about how wiring has to be done, the number of inputs and outputs available in the commercially available PLCs in market. He also mentioned the PLC types that are currently available in the market. After making those ideas clearly, he spelled out the inevitable use of ladder diagram in programming the PLC's. He illustrated the use of ladder diagram in an OMRON PLC using ZEN software, then he demonstrated many programs like implementation of gates, star-delta starter, DOL starter, forward and reverse motor, the use of timers and counters. He inculcated the ideas in the minds of the students by speaking about its real time use in different fields of industries. The students also clarified their doubts with him.

In the afternoon session, students were guided by the trainer to practically implement the program that they learnt in the class using ZEN software in OMRON PLC. Followed by the practical class, the trainer gave some ideas about project implementation. He decoded to the students how to view a project, splitting them into different modules. The students also discussed about their final year project works with him. In the second day of PLC workshop, the students were exposed to a new type of PLC called SIEMENS using LOGO software. The trainer practically explained how ladder diagram has to be implemented in this software with a demo. The real time implementation was done by using a weekly timer. He elucidated the stepwise procedure starting with construction of ladder diagram, use of weekly and delay timers, feeding the program into the PLC and finally how to stop and run the device. Some of the students gave their participation in implementing it. In the afternoon class, a basic concepts behind the embedded technologies was delivered by the trainer. The students participated with great interest and got benefitted by the workshop. The objective of the workshop was clearly met and the software's were easily accessible by the students. Finally feedbacks were obtained from the students and certificates were distributed by Head of the Department and staff coordinator in the closing ceremony.

INSTITUTE OF ENGINEERS (INDIA)

The Institution of Engineers (India) Student chapter of Electrical and Electronics Engineering department has organized many events in this even semester of academic year 2013-2014.

PAPER PRESENTATION

The IE (India) has conducted a Technical Paper presentation on 5th February 2014. For that it has received 30 papers from II year and III year EEE students from various fields such as power electronics, power system and renewable energy sources etc., Among these 11 papers were selected for presentation. The paper presentation session was held at 05-02-2014 at EEE department seminar hall. The presentation winners are Ms.M.Muthulakshmi, Ms. A.Shenbagalakshmi of III year won the **first prize**, Mr.P.Shunmugam, Mr.M.Subbiah of II year won the **second prize**, Ms.G.Sridevi, Ms.Saradadevi and Mr.Sarathkumar, Mr.K.Muthukumaravel of III year has got the **third prize**.

TECHNICAL QUIZ EVENT

The IE (India) has organized a technical event on 06/02/2014. For the same it has been conducted a prelims for II year and III year students on 04/02/2014 at department elective halls. From that 13 batches were selected for main level quiz competition. It has been held at EEE department seminar hall on 06.02.2014. Ms. Aswini, Ms.B.Mahiba Cathline of III year has got **first** prize, Mr.Sarathkumar, Mr.K.Muthukumaravel of III year has got the **second** prize and Ms.G.K.Archana Dharshini, Ms.Bhuvaneshwari of II year has got the **third** prize.

GUEST LECTURE

The IE(India) has arranged the Guest Lecture for the II year students who are willing to go for technical paper presentation on the topic of " ***How to present the paper in Technical Symposium***". Mr.T.Karkuvelraja of Final EEE has explained the issues of symposiums and ideas to present the paper.

TECHNO-TALK

The Techno-Talk event was organized by IE (India) on 07/02/2014 for the III year students who got the technical awareness from the event. The student was given with the technical topic and asked them to give the speech about the topic for 5 minutes. Ms.S.M.K.Ahjita Shry, Ms.Deiva Vadivu Vishnu Priya, Ms.Dhanapriya of III year students have secured the first, second and third places respectively.

GENERAL KNOWLEDGE FORUM

To improve the General Knowledge among the students, the IE(India) of EEE department has conducted the GK test for II year & III year students on every week of Monday and Wednesday at 5.10 PM in the EEE department Elective halls. Students are actively participated in this event every week.

SPOKEN ENGLISH FORUM

To enhance the communication skills among the students the IE (India) has arranged the spoken English forum for the students (especially who learned tamil medium in schooling) on all working days during lunch and evening 5.10 PM at the elective halls of our EEE department. The students from II year and III year are actively participated in this forum.

ARM PROCESSOR TRAINING PROGRAM

The IE (India) and SIG (Embedded System) of EEE department has conducted one day hands on training program on "ARM PROCESSOR" at 15/02/2014 in EEE department computer center. Mr.T.Devakumar AP (SG)/ECE & Mr.N.Arumugam Asso.Prof/ECE was the resource person who handle the session. The program was conducted for final year and pre final year students those who are willing to do the research work in the field of applied electronics. Mr. T.Devakumar has explained the basic concepts of processor and its role in the real time applications. In the afternoon session they have explained the concepts with real time modules and processor kit with the help

Of PG students from ECE department. Our department students gained wide knowledge in the above field.

SELF MOTIVATION PROGRAM

The IE (India) of EEE department has conducted a self motivation program for III year and IV year students on 25/02/2014 at 3.30PM in the EEE department Elective Hall. Mr.T.Ram Prakash AP/ECE was the resource person of this program and he motivated the students by his inspired speech and real time examples.

SPECIAL INTEREST GROUP

INTELLIGENT CONTROLLERS & SOFT COMPUTING TECHNIQUES

The first Special Interest Group (SIG) meeting on **INTELLIGENT CONTROLLERS & SOFT COMPUTING TECHNIQUES** was held on 14/02/2014 for this semester. First session was handled by **Mr.J. Sivadasan AP(SG)/EEE**, he brushed up all the basic concepts and purpose of computing technique, used in most of the industries.

In the second session **Dr.M. Willjuice Iruthayarajan Prof & HOD/EEE,** spoken about the introduction of Genetic Algorithm and also advised the final year students to actively participate and guide the third year students in the upcoming sessions. He also explained the basic working of PID controller with GA using MATLAB tool box and kindled the interest among all the students.

The second Special Interest Group meeting was held on 21/02/2014. **Mr.R. Ramkumar Final year/EEE** gave an detailed explanation about the GENETIC ALGORITHM. He also added in explaining the codings of PID controller with GA using MATLAB tool box. The session was continued by **Dr.L.Kalaivani Asso. Prof/EEE**, gave an explanations about GA with many examples. She took the discussion in the next level of interest, and encouraged all the students to have a better knowledge about Genetic Algorithm.

MODELING AND ANALYSIS OF PARTIAL DISCHARGE

The first Special Interest Group (SIG) meeting on **MODELING AND ANALYSIS OF PARTIAL DISCHARGE** was held on 07.02.2014. The session was handled by Mr.P.Bala Gurusamy PG scholar, discussed about "Introduction of Nano Technology and Analysis their Electric Field using COMSOL Software". Mr.B.Vigneshwaran Asst.Prof/EEE and Mr.M.Bakrutheen Asst.Prof/EEE handled their session on 14.02.2014, they explained about Introduction of Partial Discharge and Properties of Transformer Oil.

On 21.02.2014 SIG class was handled by Mr.S.Muthukumar PG scholar, gave Introduction about modeling of Insulator Using the software's like Auto CAD, ANSYS and COMSOL Multiphysics. The session on 28.02.2014 was handled by Ms.S.Divya Asst.Prof/EEE, delivered Methodology of Food Preservation using Pulse Electric Field.

ENERGY ENGINEERING

Mr. M.Ravindran Asso.Prof/EEE has given the brief introduction about the power system concept and the vital role of energy engineering in power system on 07/02/2014. He encouraged the students to do more research activities in the energy field. He initiates the student community to save the energy for the betterment of tomorrow lives.

Mr.S.Arun Sankar Asst.Prof/EEE has started the energy class on 14.02.2014 with brief introduction about Renewable energy resources. And he validated the role of renewable energy in environmental aspects.

Mr.M.Gengaraj Asst.Prof/EEE has created the awareness of Energy conservation and the importance of energy saving in our day today life. Also he briefly explained the energy audit concept and asked the energy group students to submit the energy audit report taken in their houses to validated the energy conservation concepts on 21.02.2014

EMBEDDED SYSTEM

The Embedded SIG conducted an informative session for the members in 14/02/2014. The session started with Ms.K.Gowthami (AP/EEE), giving a lecture on VHDL coding language. A number of students actively participated and gained knowledge about VHDL from the lecture. After the lecture, the students tried coding using VHDL with the guidance of Ms.K.Gowthami (AP/EEE). The students felt that this segment was so informative. This was followed by two students from third year 'B' section, who've undergone a workshop in MIT, sharing their experiences and the knowledge gained with other members of the SIG. By this, the students got exposed to the topics of "LED Delay, LCD display, Motor control". The students also demonstrated the working of the above devices.
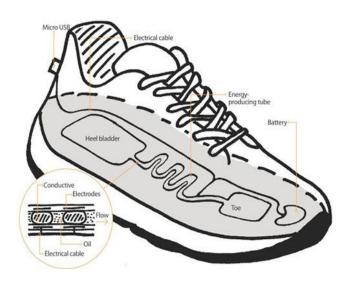
The Head of the SIG, Mr.N.B.Prakash, then came for a discussion with the students about conducting a workshop on "PIC Controller", and concluded that the workshop may be arranged by the end of May, if all circumstances favor it. Thus the overall session ranging from 3.45 P.M to 5.15 P.M was so informative and useful to the students.

The second SIG session was held at 21.02.2014 at 3.30 P.M. The class was taken by Ms.K.Gowthami AP/EEE. It was about working with the KEIL software. Initially the class was about theory. The second half of the class was Hands on Training about KEIL software. Students were splitted into batches consisting of 5 members. Students also learnt how to flash a program in KEIL software and how to download a program into the chip. Around 5:00 P.M our class was over. She provided with the Manual at the end and her guidance was very useful. This class was very useful for project. Last 10 minutes we students had interaction with our SIG head Mr.N.B.Prakash Associate Professor/ EEE. We reviewed about the class and he encouraged us to do many projects in the embedded systems and its applications.

POWER SYSTEM

The first Special Interest Group (SIG) was held at 07.02.2014. The session was handled by Mr.G.Kannayeram, AP(SG), he brushed up the Introduction of Power Plant, Smart Grid and Micro Grid. The second meeting was held at 14.02.2014, Ms.S.Jayanthi, AP was handle the session on Importance's of Power System Stability, Load Shedding. The third meeting was held at 28.02.2014, SIG Head discusses about the Grid Connected photovoltaic system and Hybrid Renewable Energy

TECHNICAL ARTICLES

HUMAN BATTERY

The average human, at rest, produces around 100 watts of power. This equates to around 2000 kcal of food energy, which is why your recommended daily intake of calories is around 2000 kcal. Over periods of a few minutes (or a few hours in the case of trained athletes), we can comfortably sustain 300-400 watts — and in the case of very short bursts of energy, such as sprinting, some humans can output up to 2,000 watts.

The bulk of this energy is required for important tasks, such as pumping your heart and flexing your muscles, but a lot of it is wasted — primarily as heat, but also through other physical inefficiencies. Almost all of this wasted energy could be captured and turned into electricity, which could then augment or completely replace our reliance on chemical batteries.

The only reason such energy harvesting techniques aren't widely used is down to the relative immaturity of the tech. In the case of piezoelectric generators, they produce minuscule amounts of electricity that struggle to power a computer, let alone a sensor. While it's easy to capture body heat on a grand scale, such as in Sweden, there's still no easy way to harvest large amounts of waste heat on a local, wearable scale. There is even one research group at the University of Southampton that is using the human heart itself — the flow of blood passing through a turbine — as a power source for a pacemaker. Even there, though, their technique can only capture 17% of the power required (and a pacemaker requires very little power).

Submitted by,
A.Jenifer
II EEE.

WI-FI SIGNAL TO TRACK MOVING HUMANS-EVEN BEHIND WALLS

The comic-book hero Superman uses his X-ray vision to spot bad guys lurking behind walls and other objects. Now we could all have X-ray vision, thanks to researchers at MIT's Computer Science and Artificial Intelligence Laboratory.Researchers have long attempted to build a device capable of seeing people through walls. However, previous efforts to develop such a system have involved the use of expensive and bulky radar technology that uses a part of the electromagnetic spectrum only available to the military. Now a system being developed by Dina Katabi, a professor in MIT's Department of Electrical Engineering and Computer Science, and her graduate student Fadel Adib, could give all of us the ability to spot people in different rooms using low-cost Wi-Fi technology.The system, called "Wi-Vi," is based on a concept similar to radar and sonar imaging. But in contrast to radar and sonar, it transmits a low-power Wi-Fi signal and uses its reflections to track moving humans. It can do so even if the humans are in closed rooms or hiding behind a wall. As a Wi-Fi signal is transmitted at a wall, a portion of the signal penetrates through it, reflecting off any humans on the other side. However, only a tiny fraction of the signal makes it through to the other room, with the rest being reflected by the wall, or by other objects. "So we had to come up with a technology that could cancel out all these other reflections, and keep only those from the moving human body".

Submitted by,
A.Rashmi Silvania
II EEE.

KNOW ABOUT OUR ALUMNI

SIVANANTHAM.S - BATCH (1995 - 1998)
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Mr.S.Sivanantham working as a Technical director in FALCON SQUARE from April 2013. He has 9+ years of experience in Design and Development of Embedded Systems for Industrial Applications using 8 bit Micro controllers, Communication Protocols like I2C, SPI, RS232, RS485, CAN, Interfacing for EEPROM, RTC, LED Display Systems and Parallel Interface LCD Driver, Interfacing of Peripherals like ADC, DAC, and UART with Micro controllers and firmware Development using C. He has 4+ years of experience in Integration of PLC, MMI & Ac Drives for Industrial Machines, Communication Protocol MODBUS and Development of SCADA.

EDUCATION

1995 -1998   Bachelor of Engineering (Electrical & Electronics Engineering) at National Engineering College affiliated to Manonmaniam Sundaranar University, Tamilnadu, India.

1992 -1995   Diploma in Electronics & Communication Engineering (DECE) at Nachimuthu Polytechnic, Pollachi, Tamilnadu, India.

EXPERIENCE

- Worked as a Project Manager in STEPS Knowledge services, Coimbatore from Mar 2012 to Mar 2013
- Worked as a Senior Engineer in Vashist Technologies, Coimbatore from Jan 2009 to Mar 2012.
- Worked as a Design Engineer in On Chip Solutions, Chennai from Mar 2005 to Jan 2009.
- Worked as an Asst. Electrical Engineer in Super Electricals, Coimbatore from July 1999 to Nov 2004.

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Mr. Senthilnathan Shanmuganathan currently working in IT lead CIMB Bank Berhad from November 2012 – Present (1 year 5 months). He completed his Bachelor of Engineering (Electrical and Electronics Engineering in National Engineering College, Kovilpatti – 1998 Batch) and Masters of Science (Information Technology in Business) in University Of Lincoln, UK (Kolej Damansara Utama, Malaysia.

Service Request Management

- Proven skills in managing the business users and the vendors from addressing the requirement raised by users until the deployment of the projects as an IT Lead.
- Involved in projects with responsibilities include service request plan development, scope planning, service request communications, managing effort hours, identifying potential usability issues, managing scope, time management, risk identification and management, managing changes in scope, quality assurance, configuration management, performance reporting and in development of the project.
- Effectively managed service request communication, including status reporting, risk management, escalation, and proven track record of service request delivery on schedule, within scope.
- Competently multi-tasked corporate management with Service Request /Client Management and have managed Total delivery of Service requests.
- Leading and managing requirements gathering, business analysis as well as effort hours management. Was able to see through the SDLC(Software Development Life Cycle) phase with effective reporting of change requests and bugs, if any.

Domain and Solution Strength

- Extensive experience in financial sector (banks) with strong understanding of various business and technical perspectives.
- Proven ability to implement technology based solution for business problems.

Professional Accomplishments

Proven success in managing multiple service requests & change requests and coordinating with other teams for maximum effectiveness. Worked with dispersed development teams like third party vendor, client IT section and internal independent system development.

ARTICLES BY STAFF

OPPORTUNITIES AND CHALLENGES OF INTEGRATING RENEWABLE ENERGY IN SMART GRID SYSTEM

An electricity grid is not a single entity but an aggregate of multiple networks and power generation companies with multiple operators employing varying levels of communication and coordination, most of which is manually controlled. A **smart grid** delivers electricity from suppliers to consumers using digital technology to save energy, reduce cost and increase reliability. Smart grid is referred to by other names including Smart Electric Grid, Smart Power Grid, Intelligent Grid, Intelligrid, and FutureGrid. A smart grid is an umbrella term that covers modernization of both the transmission and distribution grids with enhanced modern real time communication capabilities. The modernization is directed at a set of goals including facilitating greater competition between providers, enabling greater use of variable energy sources, establishing the automation and monitoring capabilities needed for bulk transmission at cross continent distances, and enabling the use of market forces to drive energy conservation.

Smart grids increase the connectivity, automation and coordination between suppliers, consumers and networks that perform either long distance transmission or local distribution tasks. Transmission networks move electricity in bulk over medium to long distances, are actively managed, and generally operate from 400kV to 800kV over AC and DC lines. Local networks traditionally move power in one direction, distributing the bulk power to consumers and businesses via lines operating at 110kV and lower. This paradigm is changing as businesses and homes begin generating more wind and solar electricity, enabling them to sell surplus energy back to their utilities. Modernization is necessary for energy consumption efficiency, real time management of power flows and to provide the bi-directional metering needed to compensate local producers of power.

Smart grid provides quality power that meet 21st century demand which cooperative generation and storage options that fulfills needs considering the changes and the challenges. The key goal of smart grid is to promote active customer participation and decision making as well as to create the operation environment in which both utilities and electricity users influence each other. In smart grids, users can influence utilities by adding distributed generation sources such as photovoltaic (PV) modules or energy storage at the point of use, and reacting pricing signals. Utilities can improve reliability through the demand response programs, adding distributed generation or energy storage at substations, and providing automated control to the grid.

In recent years, utilization of renewable energy resources in smart grid system has been increasing. A significant number of programs have been implemented in various parts of the world most of them are in the developed and developing countries. Some studies show that these technologies can provide reliable and comparatively low cost electricity service. To feed the energy appetite of the world, renewable energy offer alternative options that enable consideration of the impact on the environment and other social and economic factors.

Renewable energy technologies (RETs); hydropower, biomass, wind and solar photovoltaic have been successfully demonstrated over the years. Currently, the total shares of all renewable for electricity production make up for about 19%, a vast majority (83%) of it being from hydroelectric power. Power generation through the use of biomass offers a viable and long-term solution to grid electrification; however it is inefficient use, biomass resources presently supply only about 20% of what they could if converted by modern, more efficient, available technologies. Nature of wind energy makes it particularly attractive to grid electrification. Solar PV uses and applications have been justified and strongly recommended for grid electrification. The current cost of PV devices, though lower than a decade ago, is still too high to provide power to compete the conventional electric supply.

Smart grid is defined as the electricity networks that intelligently integrate generators and consumers to efficiently deliver electricity which is sufficient capacity and coverage area accessible, safe, economic, reliable, efficient, and sustainable. Smart grid development tends to be driven by one of the two principal visions for enhancing electric power interactions for both utilities and customers. The growing installations of renewable energy resources require a coordinated effort from the planning stage all the way down to the electronic devices used for power generation, distribution, storage and consumption.

Smart grid delivers electricity from suppliers to consumers using digital technology through control automation, continuous monitoring and optimization of distribution system, in order to save energy, reduce consumer cost and improve reliability .smart grid technology can provide the flexibility needed to integrate variable generation that is a characteristic of renewable resource such as wind or PV.

The implementation of the smart grid concept and the deployment of smart grid technologies on power distribution systems are leading to the emergence of challenges to the way distribution systems are planned and operated. This trend is providing planners with abundant data at feeder, distribution transformer and customer level. The new methodologies and computation tools are required to make efficient use of the available data and allow for integrated resource planning and multi-objective optimization.

The power system operators and planners still face the challenge of integrating renewable energy sources into power system grids. Renewable energy system is an innovative option for electricity generation, especially the solar PV system as it is a clean energy resource. Recognizing the advantages of PV system, many such systems have been installed worldwide in recent years. To achieve the commercialization and widespread use, a number of issues need to be addressed. These issues are related to the design and sizing of the system, the suitable and effective model that includes technical and financial aspects of PV smart grid to supply electricity, and the balance electricity price for integrating PV in a smart grid system. Earlier studies showed that the balance electricity price for integrating PV in a smart grid system dealing with the reality of using PV smart grid systems are limited. Therefore, there is a need to develop a PV smart grid system model that incorporates technical and financial aspects. This would be useful to evaluate the balance electricity price for integrating PV in a smart grid system

- **Mr.G.Kannayeram, Assistant Professor (S.G)**
- **Department of EEE/NEC**

PAPER PUBLISHED BY OUR STUDENTS

IEEE INTERNATIONAL CONFERENCES

Noorul Islam University, Nagerkovil

- R.T.Arun Ram Prasath, Dr.R.Karthik and Dr.M.Willjiuce Iruthayarajan, "Enhancement Of Critical Properties Of Pure And Aged Transformer Oil Using Nanocomposites".
- P.Balagurusamy, R.V.Maheswari, B.Vigneshwaran, Dr.M.Willjuice Iruthayarajan, "Modeling and Behaviour of Partial Discharge In Nano Composite Materials".
- G. Chandini and Dr.R.Karthik, "Investigation of Nano Solid Dielectrics For The Optimized Function Of Power Transformer".
- S.Gowthama Kannan, Dr.L.Kalaivani, Dr.M.Willjuice Iruthayarajan and M.Bakrutheen, "Investigations on Critical Properties of Blended Edible Natural Esters based Insulating Oil".
- T.Hariharasudhan, S.Sankarakumar, "Ageing Analysis Of Insulating Oil Under Various Atmospheric Conditions.
- S.Muthu kumar and Dr.L.Kalaivani, "Electric Field Distribtion Analysis Of 110kv Composite Insulator Using Finite Element Modeling".
- R.V.Radhika, Dr.M.Willjuice Iruthayarajan, and P.Samuel Pakianathan, "Investigation of critical parameters of mixed insulating fluids".
- R.Rajesh Kanna and M.Ravindran, "Investigating the Performance of Transformer Using Insulating Fluids".
- P.Rajeswari, R.V.Maheswari And Dr.M.Willjuice Iruthayarajan, "A Numerical Analysis Of Electric Field Distribution Under Extra High Voltage AC (EHVAC) Transmission Line".
- G.Shunmugalakshmi, Dr.M.Willjuice Iruthayarajan, R.V.Maheswari and B.Vigneshwaran, S.Divya, "Mathematical Morphology Filters For Denoising Partial Discharge Signals"
- M Sivaraman, and J.Sivadasan, "Comparison of Pollution Flashover Performance of Various Insulators".
- G.Murugesan and M.P.E.Rajamani, "Investigation of Three Phase Squirrel Cage Induction Motor Coated with ZrO_2 Nano Composite".

Velammal College of Engineering & Technology, Madurai

- K.Koperun Devi, N.B.Prakash, R.Madavan and G.Kannayeram, "Investigation of pollution performance of Bushing using Sphere – Sphere electrode configuration".
- R.Kaleeswari, N.B.Prakash, R.Madavan and G.Kannayeram, "Investigtion of Flashover performance on various types of insulators with non-uniform pollution".

Vellore Institute of Technology, Vellore

- P.Krishna Kumar, S.Senthil Kumar and M.Ravindran, "Investigation on mixed insulating fluids with nanofluids and Antioxidants".

SRM University, Chennai

- B.Sundar ,G.Kannayeram, N.B.Prakash and V.Vinoth Kumar "CPSO based selection of optimal polyurethane & Silicone blend".
V.Vinoth Kumar, G.Kannayeram, N.B.Prakash and B.Sundar, "PSO based selection of optimal natural & synthetic polymeric blend".

NATIONAL CONFERENCE

- B.Sundar and G.Kannayeram, "CPSO based selection of optimal polyurethane & Silicone blend".
- V.Vinoth Kumar and G.Kannayeram, "PSO based selection of optimal natural & synthetic polymeric blend".
- P.Krishna Kumar, M.Ravindran and S.Senthil Kumar, "Experimental Investigation on insulating fluids for power transformer with mixed fluids combination".
- P.Balagurusamy, R.V.Maheswari, B.Vigneshwaran, Dr.M.Willjuice Iruthayarajan, "Modeling of Nano Composite Polymer Dielectrics under Electrical Stress".

INDUSTRIAL PROFILE

BHEL

BHEL was founded in 1950s. Bharat Heavy Electricals Limited-BHEL has today emerged as the largest engineering and manufacturing enterprise of its kind in India and ranks amongst the top ten power generation equipment manufacturers in the world.

BHEL is one of the largest exporters of engineering products & services from India. BHEL has established its references in around 60 countries of the world, ranging from the United States in the West to New Zealand in the Far East. Its export range include: individual products to complete power stations, turnkey contracts for power plants, EPC contracts, HV/EHV Sub-stations, O&M services for familiar technologies, specialized after-market services like Residual Life Assessment (RLA) studies and retrofitting, refurbishing & overhauling, and supplies to manufacturers & EPC contractors.

Latest News about BHEL.BO

Government sells 4.66 percent stake in BHEL to LIC

Reuters Market Eye - Life Insurance Corporation of India (LIC) on Monday bought a 4.66 percent stake in Bharat Heavy Electricals Ltd from the government of India in a block deal totaling 18.89 billion rupees, BSE Ltd data shows.

MARKET EYE -India government sells 4.66 pct stake in BHEL to LIC

Life Insurance Corporation of India (LIC) on Monday bought a 4.66 percent stake in Bharat Heavy Electricals Ltd from the government of India in a block deal totaling 18.89 billion rupees, BSE Ltd data shows. LIC bought 114.1 million shares of BHEL at 165.55 rupees each. With the block deal, the government's stake in the capital goods maker has come down to 63.05 percent.

Headquarters Delhi Area, India
Website: www.bhel.com
Industry: electrical \ electronics manufacturing
Type : govertment sector
Company size: 43636 -50000 employees
Turn over: 21401 million
Products: Steam turbine
                 Gas turbine
                 Turbo generators
                 Switch gear

CRACK GATE....

1. A transmission line is distortion less if
a) RL= (1/GC)   b) RL=GC   c) LG=RC   d) RG=LC

2. The skin depth at 10 MHz for a conductor is 1 cm. The phase velocity of an electromagnetic wave in the conductor at 1000 MHz is about
a) 6×10^6 m/sec   b) 6×10^7 m/sec   c) 3×10^8 m/sec   d) 6×10^8 m/sec

3. In a twin wire transmission line in air, the adjacent voltage maxima are at 12.5 cm and 27.5 cm. The operating frequency is
a) 300 MHz   b) 1 GHz   c) 2 GHz   d) 6.28 GHz

4. An excitation is applied to a system at t = T and it response is zero for $-\infty < t < T$. Such a system is
a) non-causal system b) stable system c) causal system d) unstable system

5. A 3 phase, 4 pole squirrel cage induction motor has 36 stator and 28 rotor slots. The number of phases in the rotor is
a) 3   b) 9   c) 7   d) 8

6. A 1.8º step, 4 phase stepper motor has a total of 40 teeth on 8 poles of stator. The number of rotor teeth for this motor will be
a) 40   b) 50   c) 100   d) 80

7. A power system network with a capacity of 100 MVA has source impedance of 10% at a point. The fault level at that point is
a) 10 MVA   b) 30 MVA   c) 3000 MVA   d) 1000 MVA

8. The insulation of modern EHV lines is designed based on
a) the lightning voltage   b) corona   c) radio interference   d) switching voltage

9. The transfer function of a tachometer is of the form of
a) KS   b) K/s   c) K/(s+1)   d) K/[s(s+1)]

10. A differentiator has transfer function whose
a) phase increases linearly with frequency   b) amplitude remains constant
c) amplitude increases linearly with frequency   d) amplitude decreases linearly with frequency

11. A variable reluctance type tachometer has 150 teeth on the rotor. The counter records 13500 pulses per second. The rotation speed is
a) 4800 rpm   b) 5400 rpm   c) 6000 rpm   d) 7200 rpm

12. Insertion of a dielectric material in between the plates of an air capacitor.

a) increases the capacitance   b) decreases the capacitance
c) has an effect whatsoever   d) increases the breakdown

13. The reflection coefficient of short-circuit line is
a) -1   b) +1   c) 0.5   d) zero

14. One of the applications of current mirror is
a) output current limiting   b) obtaining a very high current gain
c) current feedback   d) temperature stabilized biasing

15. The noise margin of a TTL gate is about
a) 0.2 V   b) 0.4 V   c) 0.6 V   d) 0.8 V

16. In the 8085 microprocessor, the RST6 instruction transfers the program execution to the following location
a) 30 H   b) 24 H   c) 48 H   d) 60 H

17. The MOSFET switch in its on-state may be considered
a) resistor   b) inductor   c) capacitor   d) battery

18. The TRIAC can be used only in
a) inverter   b) rectifier   c) multi-quadrant chopper   d) cycloconverter

19. Resonant converters are basically used to
a) generate large peaky voltage   b) reduce the switching losses
c) eliminate harmonics   d) convert a square wave into a sine wave

20. A single phase voltage source square wave inverter feeds pure inductive load. The waveform of the load current will be
a) sinusoidal   b) rectangular   c) trapezoidal   d) triangular

Solutions:

1) (c)

2) (a)

Soln:

Skin depth $\delta = \sqrt{[2/(\mu\omega\sigma)}$

$$=\sqrt{\frac{1}{\pi \times 10^7 \mu\sigma}}= 1\times 10^{-2}$$

Phase velocity $= (\omega/\delta) = \sqrt{(2\omega/\sigma\mu)}$

7) (d)

Soln:

Impedence is 0.1 pu, the current in the event of 10 pu. The fault level at the fault point

$= 100\times 10 = 1000$ MVA

8) (d)

9) (a)

10) (c)

$$= \frac{2 \times 2\pi \times 10^9}{1/(\pi \times 10^{-7} \times 10^{-4})}$$

$$= 2\pi \times 10^6 = 6 \times 10^6 \text{ m/s}$$

3) (b)

Soln:

$$\text{Maxima}(\lambda/2) = 27.5 - 12.5 = 15 \ cm$$

$$f = (c/\lambda) = \left(3 \times \frac{10^8}{0.3}\right) = 10^9 = 1 \text{ GHz}$$

4) (c)

Soln:

Causality sequence is defined as

x(t) = 0 for t < 0

5) (a)

Soln:

Number of rotor phases is same as motor

phases

6) (b)

11) (b)

Soln:

Rotational speed $= \frac{13500}{150} = 90 \ rps$

$$= 90 \times 60 \text{ rpm} = 5400 \text{ rpm}$$

12) (a)

13) (b)

14) (d)

Soln:

Current mirror application is in temperature stabilized biasing

15) (b)

16) (a)

Soln:

6× 8 = 48 = 30H

17) (c)

18) (c)

19) (b)

20) (d)

RECENT OTHER COLLEGE EVENTS – IN NEAR FUTURE

COLLEGE NAME	EVENT NAME	DATE	DEPT	LINK
Madras Institute of Technology, Chennai	PRAYATNA14 (Technical, Management, Workshop, Conference, Seminar, Online)	15th-Mar-2014	EEE	www.prayatna.org.in
Sastra University, Kumbakonam	THETA 2K14 Technical, Management, Literary, Workshop	28th-Mar-2014	EEE	www.theta2k14.org
Institute of Road and Transport Technology	SSEPS-14	19th-Mar-2014	EEE	http://www.indcareer.com/event/solar-energy-and-photovoltaic-systems-institute-road-and-transport-technology-erode
Anna University Regional Centre, Tirunelveli	A National level Embedded systems Conference NEC '14	27th & 28th, March, 2014	EEE	http://www.technicalsymposium.com/technicalsymposium2014_feb_NEC.html#.UxSg0OOSy-0
St Josephs Institute of Technology, Chennai	NCRTET 2014	5th-Apr-2014	EEE	http://www.knowafest.com/2014/03/ncrtet-2014-st-josephs-institute-technology-national-conference-chennai.html
Adithya Institute of Technology, Coimbatore	NCCSPID 14	28th-29th March 2014	EEE	http://www.knowafest.com/2014/03/nccspid-14-adithya-institute-technology-national-conference-coimbatore.html
Anna university, BIT-campus	Aveesha14	18th&19th March	EEE	http://www.technicalsymposium.com/technicalsymposium2014_feb_Aveshaa.html#.UxScEOSy
Sakthi Engineering College, Thiruninravur,	FANATIX14	15th-Mar-2014	ECE	http://www.technicalsymposium.com/technicalsymposium2014_feb_FANATIX.html#.UxSdpe
Gojan School of Business and Technology, Chennai	PROJECT FEST 2014	28th-Mar-2014	EEE	http://www.knowafest.com/2014/01/project-fest-2014-gojan-school-business-technology-technical-symposium.html
Saveetha School of Engineering, Chennai,	Emerging Trends in Nano, Embedded and Telecommunication Technologies 2014	4th-Apr-2014	EEE	http://www.knowafest.com/2014/02/emerging-trends-nano-embedded-telecommunication-technologies-2014-saveetha-school-engineering-conference-chennai.html

STUDENTS ACTIVITIES

NCC – THAI POOSAM BANDHOBASTH:

NAME	PLACE	ORGANISED BY	DATE
G.Besil Bal Chandru, P.Sathyananthan, P.Shanmugam and M.S.Pranava Kartikeyan (II - Year)	Thirupadaimarudhur	NEC – NCC Troop	17-02-2014

NCC – RALLY (WATER CONSERVATION AND TOBACCO AWARNESS):

NAME	PLACE	ORGANISED BY	DATE
G.Besil Bal Chandru, P.Sathyananthan and P.Shanmugam (II - Year)	Kovilpatti	NEC – NCC Troop	04-02-14

NSS-CAMP:

NAME	PLACE	ORGANISED BY	DATE
M.Satyanarayanan (II - Year)	Sinthalakarai	National Engineering College, Kovilpatti	18-01-2014

STUDENTS ACHIEVEMENTS

FINAL YEAR STUDENT

NAME	PLACE	ORGANISED BY
T. Karkuvel Raja (IV - Year)	Arivu Thulir Award – IV Prize	National Engineering College, Kovilpatti

PAPER PRESENTATION:

NAME	PAPER TITLE	COLLEGE	DATE	PRIZE/ PARTICIPATION
II - YEAR 'B'				
M.S.Pranava Kartikeyan & A.Praveen Balaji	PIC Microcontrollers-IE(I) CLUB	National Engineering College, Kovilpatti	05-02-2014	Participation
R.Uma Maheshwaran & R.Vignesh	Electronics And Modern Agriculture - IE(I) CLUB	National Engineering College, Kovilpatti	05-02-2014	Participation
P.Shanmugam & M.Subbiah	Micro And Mini Plants Of Renewable Energy In Remote Area Using Microgrid - IE(I) CLUB	National Engineering College, Kovilpatti	05-02-2014	2nd Prize
P.Suresh kumar & V.Vignesh Kumar	NanoTechnolgy (Mechmaze)	National Engineering College, Kovilpatti	20-02-2014	Participation
III - YEAR 'B'`				
K.Sivaranjani & M.Revathi	Nano Technology	KCET, Virudhunagar	21-02-2014	Participation
G.Sridevi & B.Rizwana Raseena	Bionic Eye	St. Mother Therasa Engg. College.	22-02-2014	Participation
M.Veera Senthil	Analog Circuit Design for Power Converters	National Institute of Technology, Trichy	14.2.2014-15.2.2014	Participation
P.Lakshmipriya, S.Chitra Devi	Advanced power Electronics	Kalasalingam University, Srivilliputhur	21-02-2014	Participation

WORKSHOP:

NAME	TOPIC	COLLEGE	DATE
II - YEAR 'B'			
V.Vignesh Kumar, P.Sathyananthan, G.Besil Bal Chandru, M.Naveen Lingam, N.Sheik Moiden	PCB Design And Multisim	National Engineering College, Kovilpatti	02-03-2014
Reddy.S.Vijay & N.Sheik Moiden	Field Programmable Gate Array	National Institute of Technology, Trichy	14-2-2014 to 15-2-2014
R.Uma Maheshwaran & R.Vignesh	Gesture Recognition Based Robotics	National Institute of Technology, Trichy	15-2-2014
P.Shanmugam	Science Writing/ Journalism	National Engineering College, Kovilpatti	17-2-2014
II - YEAR 'A'			
S.Mohmed Suhail, T.Aravindmari, A.Balachandar, A.Antosharan prakash, V.Logeshraja & S.Ebenezer	Field Programmable Gate Array	National Institute of Technology, Trichy	14-2-2014 to 15-2-2014
P.Amarnath,	Gesture Recognition Based Robotics	National Institute of Technology, Trichy	15-2-2014
G.K.Archana Dharsini, N.Bhuvaneswari, R.Muthu Karthick, A.Arun, S.Ebenezer, R.Muneeswaran, M.Manogari & S.Divyalakshmi	Institute of Engineers (INDIA) - Quiz	National Engineering College, Kovilpatti	06-2-2014
III - YEAR ' A'			
K.S. Fathima Irfana, M.Anuja, M.S.Archana, S.M.K. Ajitha Shry	BI - PED	PSG Technology, Coimbatore	28-02-2014 & 01-03-2014
III - YEAR 'B'			
T.Suriya, C.Jeyarani, K.Vinothini,	Embedded Robotics	MIT, Chennai	25-01-2014 and 26-01-2014

SPORTS:

NAME	SPORT	COLLEGE	DATE
II - YEAR 'B'			
K.Narayanan, M.Naveen Lingam	Hockey	Kongu Nadu Engineering College, Trichy	14-02-14 TO 18-02-14
Sam Maxwell	Football	Kongu Nadu Engineering College, Trichy	19-02-14
II - YEAR 'A'			
K.Arunkumar	Hockey	Kongu Nadu Engineering College, Trichy	14-02-14 TO 18-02-14
R.Latchiya Bharathi	Football	Kongu Nadu Engineering College, Trichy	19-02-14

PG SCHOLARS - I YEAR

WORKSHOP/SEMINAR/ATTENDED

NAME	TOPIC	VENUE	DATE
D.Jasper, D. Vigneshwaran, G. Jegatheesh, M. Rajkumar, R. Vinoth Kumar, A. Robinson & M. Karthick	Research themes of High Voltage Technology	IIT Madras, Chennai	08-02-2014
D.Jasper, K. Kumar, G. Jegatheesh, D.Vigneshwaran, M. Rajkumar, K. Sivaneshwaran, M. Karthick, R. Vinoth Kumar, A. Robinson, A M. Diffni Gomez, V. Leelavathy, B. Revathi, B. Rajalakshmi & M. Kiruthika	Nano Material synthesis and Characteristics	KSR College of Technology, Tiruchengode	25th and 26th Feb, 2014

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3. Mr. B.Vigneshwaran, Assistant Professor

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