

EEE – TECHNICALMAGAZINE

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DEPARTMENTOFELECTRICAL & ELECTRICAL ENGINEERING

Anil Neerukonda Institute of Technology and Sciences Sangivalasa, Visakhapatnam - 530062. ARC – EEE Technical magazine is a platform for EEE students and faculty to express their creativity and showcase their literary skills. ARC is designed to present to its readers the technical developments and technical papers that have been prepared by EEE students.

Editorial

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The EEE Department at ANITS envisages attaining a position of national excellence for graduating students that have experienced implementing theory into practice and are capable of succeeding in higher learning up keeping ethical



To promote learning and research in the field of Electrical & Electronics Engineering and to advance and disseminate technical and professional knowledge in shaping young engineers into future human resource appropriate to the needs of our nation



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PROGRAM OUTCOMES

1	Engineering knowledge: Apply 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	<i>Modern tool usage:</i> 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	<i>Ethics:</i> Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.	
9	<i>Individual and team work:</i> Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary 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.	

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 multidisciplinary environments.
- *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.

PROGRAM SPECIFIC OUTCOMES

	Design modern power system components to meet the
1	identified needs within economical and environmental
	constraints.

Design, simulation, fabrication and testing of power
switching devices, electrical drives and their control for industrial and research applications.

PROGRAM SPECIFIC OUTCOMES

1	To prepare students with a strong foundation in basic sciences, mathematics and electrical engineering for productive engineering careers and enable them to pursue higher studies.
2	To equip the students with good analytical and design capabilities to solve present day electrical engineering problems and to realize the necessity of life-long learning to excel in their professional careers.
3	To produce the students with strong communication skills and to foster the ability to work in multidisciplinary teams with a sense of environmental awareness, professional and ethical values.

Message from HOD's Desk



I feel very elated and at the same time privileged to share a few words as you go through the pages of the magazine "ARC". EEE department endeavors to help students to seek the best from the surroundings. The knowledge thus gained becomes a ladder for them to soar into greater heights. It's often the collective effort that leads to the discovery and fulfillment of aspirations.

I feel proud to be a part of ARC an instrument in moulding the students. We try to shape every sphere of a student's personality in the EEE Department. I take this opportunity to express my sincere thanks to all the members of the faculty and auxiliary staff for their sincere contribution in making this Edition.

> **Dr. G Raja Rao** Professor & HOD

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AEEEA - ARC 2K18

Anits Electrical & Electronics Engineering Association (AEEEA) was started in the year 2006-07. The Executive Committee, whose tenure is for one academic year, headed by the HoD of EEE as its Chairman consists of some faculty of EEE and some student members of final year and pre-final year of BE (EEE). The main aim of the Association is to assist the dept. in identifying the thrust areas and organizing the Workshops/Symposiums etc. It also helps in arranging Expert Lectures/Industrial Tours. It keeps a record of EEE alumni.



ARC2K18 is a national level technical symposium held at ANITS ENGINEERING COLLEGE conducted by the "ANITS ELECTRICAL & ELECTRONICS ENGINEERING ASSOCIATION(AEEEA)", Department of Electrical & Electronics Engineering. The vibrant and energetic title 'ARC' signifies the sparkling efforts of the participants. It provides the ideal platform for all the students to analyze themselves technically and present their skills. Its tagline "Joining elites" represents a special group of multi talented people and we felicitously invite you all to link up with the elite group and get the best out of it.



Paper Presentation:

When you hear... You get to know.... When you see... You remember....

When you explain... You understand better...

This is true for may subjects experts. As a part of e-learning and to bring out the extent of concept realization by the students, a panel of technical support team will assist and scrutinise the Power Point Presentations as per the abstract submitted by the candidates. So, we welcome you to the dice of confidence and technical strength, i.e., Paper Presentations.

Model Presentation:

If you see anything...You wish to test it or represent it on a small scale... A power plant of solar energy portrayed on a bench or table.. Great.....

Bring that scientist with creativity....Concept...Knowledge and a desire of invention to the model presentations in this symposium....



Technical Quiz:

EMF equation of a generator....?? Voltage across a load with high resistance connected to a 230 volts supply...?? Love being technical?? Ready to compete with peers who are also keen in learning

about new things.... Brush up your subject toppers... You can win the technical round... To all those who wish to test their knowledge about electrical and electronics... We provide you the best stage.

Ensemble:

During childhood...

We have different toys to play with...

As we grow up.....

We find a lot of things interesting around us...

Parents and teachers present us with storybooks and puzzles...

One such event is being hosted....A model is shown and materials are supplied....just a memory based event and how skillfully one can use his hands and creativity and solve the puzzle..

Time to assemble the available resources....

And we welcome you to this Event...

Ensemble...Assemble quickly to ensemble...

Trouble Shooting:

"Every action has an equal and opposite reaction"

Newton discovered it regarding natural phenomenon.....

But Power systems engineers say

"After every sequence of action, there will be definitely a proportional consequence"

When power is generated chances of losses and also chances of faults occur...

Engineer chooses techniques to rectify the faults and reset the system back to original operation...

Here a flaw will be embedded in the question and the participants are required to solve these flaws...

For time being let's enjoy as Analysis Engineers...

Welcome to Trouble Shooting.

Code N Code:

In a language, "Certify" is given as "Burgivx"...Now can u guess what "Adjacent" in the same language is written????

This is as simple as finding logic behind the formation of words or something similar...

So a similar task of decoding or encoding a particular detail given as a question completely in sentence format...

So this checks how u can code in technical software...

i.e., CodING and encoding event of this technical Symposium..



ORGANIZING COMMITEEE

STUDENT CO- ORDINATORS:

P Amarnath (4/4 EEE) Naga Srinivas (4/4 EEE) K Yogesh (4/4 EEE) Tumarada Divya(4/4 EEE)

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NON CONVENTIONAL SOURCES IN INDIA

K N N Naveen, K Raghu 2/4 EEE A, ANITS

With increasing demand for energy and with fast depleting conventional sources of energy such as coal, petroleum, natural gas, etc. the non-conventional sources of energy such as energy from wind, biomass, tidal energy, geo-thermal energy and even energy from waste material are gaining importance. This energy is abundant, renewable, pollution free and eco-friendly. It can be more conveniently supplied to urban, rural and even remote areas. Thus it is capable of solving the twin problems of energy supply in a decentralized manner and helping in sustaining cleaner environment. It is the energy of the future. No wonder, non-conventional energy is fast catching the imagination of the people of India.

POWER TECHNIQUES SYSTEM OPTIMIZATION

Tanna chakrapani, Palavalasa Tarangini, Pydah College of Engg And Tech, 3/4 EEE

With the snowballing of power usage, the scenario of electricity is been changed from an engineered product to a commodity, apart due to deregulation and competitiveness in the market, the public and private parties are aiming at supplying the load i.e., satisfying the consumer by operating at full loads i.e. to their thermal stability limits. Increase in demand which impacts on increase of transmission i.e., extension of transmission network, results in increase of cost or may be constricted due to political reasons. Hence, utilizing of the existing network by reducing cost, losses etc. has to be done. It is also requisite of maintaining voltage stability. In order to meet all the objectives in a short period or to have continuous analysis, a human calculations couldn't, hence this lead for the usage of computers for load flow study, short circuit analysis and also many objectives such as reducing losses, economic operation, placement of facts device, distributed generator's etc. Today optimization is playing a vital role in every organization and also in power system operation and control. Today it has advancement from a normal gradient method to stochastic and Meta hereustical methods. Many methods such Gauss, Newton raphson, Descend Gradient are the existing one recently overcoming the defects new Metaheuristical methods such as Genetic Algorithm, Particle swarm and Ant colony are been implemented. This Paper deliberates the existed and the newly invented methods for power system planning.

ADVANCES IN ELECTRICAL MACHINES

J.Gouthami, B.tech 3/4 EEE, M.V.G.R College of engineering, Vizianagaram.

This article deals with the particulars of recent advancements in the field of electrical machines. In this article one of the advancements i.e., brushless D.C motor is briefly explained and an introduction is given on the other brushless motors. The importance of using the brushless motors and their advantages over the conventional motors is briefly explained. An attempt is made to compare the performance of brushless D.C motor to the brushled D.C motor and bring out the importance of employing the brushless motor in various applications is done.

INVELOX

Y.Jahnavi, EEE, T.Sudeepa, MECH, GMRIT, RAJAM

A new concept in wind power harnessing is described which significantly outperforms traditional wind turbines of the same diameter and aerodynamic characteristics under the same wind conditions and it delivers significantly higher output, at reduced cost. Its first innovative feature is the elimination of tower-mounted turbines. These large, mechanically complex turbines, and the enormous towers used to hoist them into the sky, are the hallmark of today's wind power industry. They are also expensive, unwieldy, inefficient, and hazardous to people and wildlife. The second innovative feature of INVELOX is that it captures wind flow through an Omni directional intake and thereby there is no need for a passive or active yaw control. Third, it accelerates the flow within a shrouded Venturisection which is subsequently expanded and released into the ambient environment through a diffuser. In addition, INVELOX provides solutions to all the major problems that have so far undermined the wind industry, such as low turbine reliability, intermittency issues and adverse environmental and radar impact. Simulating the performance of this wind delivery system is quite challenging because of the complexity of the wind delivery system and its interaction with wind at the front end and with a turbine at the back end. The objectives of the present work are to model and understand the flow field inside the INVELOX where the actual wind turbine is located as well the external flow field which not only provides the intake flow but also has to match the exhaust flow of the system. The present computations involved cases with different incoming wind directions and changes in the intake geometry. The results show that it is possible to capture, accelerate and concentrate the wind. Increased wind velocities result in significant improvement in the power output.

WIRELESS ELECTRICITY

Jayadhar Naidu, 3rd Year EEE, Pydah College of Engg & Tech

Witricity or wireless electricity is the method of transmission of electricity without the use of man-made conductors. This is a modern and hi-tech way of transmitting electrical energy. It is mostly used in cases when it is difficult or impossible to transfer electricity using traditional methods. Generally conducting wires are used to transmit electricity over an area. One of the most common ways of achieving <u>wireless</u> transmission of electricity is direct induction and resonant magnetic induction. There are other ways of achieving this too like <u>electrical</u> conduction and electromagnetic radiation. In direct induction, two conductors are coupled such that changes in current in one conductor induce voltage in the other conductor. This happens due to electromagnetic induction. Transformers use this method. In resonant magnetic induction, the energy is transferred between two wires which are tuned at the same frequency. The machine used for this purpose is known as resonance transformer. These two methods done in the given order help in transmission of electricity in wireless fashion. Electromagnetic radiations used are microwaves or lasers. Electromagnetic induction can also be used for wireless transmission. It can be magnetic or <u>capacitive</u> in nature. Capacitive coupling is also known as an electrostatic induction method. With laser or microwave method, power transmission can be made more directional.

ADVANCED CONTROLL SYSTEMS

B.KIRAN KUMAR, POWER ENGINEERING, GMRIT, RAJAM

Frequency fluctuations are a major concern for transmission system operators and power grid companies from the beginning of power system operation due to their adverse effects on modern computer-controlled industrial systems. Because of the huge integration of wind power into the power grid, frequency fluctuations are becoming a serious problem, where randomly varying wind power causes the grid frequency fluctuations of the power system. Therefore, in this paper, the minimization of the frequency fluctuation of a power system, including a wind farm, is proposed using an energy capacitor system (ECS). A scaled-down, multi-machine power system model from Hokkaido prefecture, Japan, is considered for the analysis. A novel adaptive artificial neural network (ANN) controller is considered for controlling the DC-bus connected ECS. The control objective is to standardize the line power of the wind farm, taking into consideration the frequency deviation. The effects of wind power penetration levels, as well as load variations, are also analyzed. The proposed control method is verified by simulation analysis, which is performed with PSCAD/EMTDC using real wind speed data. The adaptive ANN-controlled ECS was found to be an effective means of diminishing the frequency fluctuation of multi-machine power systems with connected wind farms.

OSMOTIC POWER

R Sai Siva Kumar, P Prasad, GMRIT, Rajam

A great quantity of renewable energy can be potentially generated when waters of different salinities are mixed together. The harnessing of this energy for conversion into power can be accomplished by means of Pressure retarded osmosis (PRO). This technique uses semi permeable membrane to separate less concentrated solution, or solvent, (Fresh water) from a more concentrated and pressurized solution, (Sea water) allowing the solvent to pass to the concentrated solution side. The additional volume increases the pressure on this side, which can be depressurized by a hydro turbine to produce power that is osmotic power. Osmotic Power is based on naturally occurring osmosis, triggered by Nature's drive to establish equilibrium between different concentrations in liquids. Osmosis is a process by which solvent molecules pass through a semi-permeable membrane from a dilute solution into a more concentrated to produce power. This paper reviews technical, economical, environmental and other aspects of osmotic power.

DC TO DC CONVERTERS AND MAXIMUM POWER POINT TRACKING USING PERTURB

K.Pallavi, P.Harika, 3rd Year, EEE, M.V.G.R.College Of Engineering, Vizianagaram

This paper deals with the brief explanation of dc to dc converters and their classifications .This paper mainly deals with isolated dc to dc converters and their application in MPMT. Compared to the traditional energy resource photovoltaic (PV) system that uses the solar energy to produce electricity considered as one of renewable energies has a great potential and developing increasingly fast compared to its counterparts of renewable energies. Such system can be either stand-alone or connected to utility grid. While, the disadvantage is that PV generation depended on weather conditions. The major problem

with photovoltaic (PV) systems is the amount of electrical power generated by solar arrays depends up on a number of conditions (i.e. solar irradiance, temperature and angle of incident light etc.). In order to maximize the output of a PV system, continuously tracking the maximum power point (MPP) is necessary. In this thesis there is a implementation of maximum power point tracking (MPPTs) algorithm for a PV system so as to extract maximum power from the solar arrays during unfavorable condition, also the effect on V-I and V-P characteristics of PV array module due to change in irradiance and temperature are delineated. MPPT algorithm plays an important role in increasing the efficiency of system. A proposed MPPT algorithm is implemented in boost converter and compared with various MPPT's Algorithm.

THE EVALUATION OF PHASOR MEASUREMENT UNITS

S. Tejaswini, T Anupama, 2/4 EEE, ANITS

The effective operation of power systems in the present and the future depends to a large extent on how well the emerging challenges are met today. Power systems continue to be stressed as they are operated in many instances at or near their full capacities. In order to keep power systems operating securely and economically, it is necessary to further improve power and control system protection. Synchronized phasor measurements—also known as phasor measurement units (PMUs) are ideal for monitoring and controlling dynamic power system performance and especially during high-stress operating conditions. Synchronized measurements make it possible to directly measure phase angles between corresponding phasors in different locations within the power system. Improved monitoring and remedial action capabilities allow network operators to utilize the existing power system in a more efficient way. Improved information allows fast and reliable emergency actions, which reduces the need for relatively high transmission margins required by potential power system disturbances, design, and development (RD&D) needs in this area.

FOOT STEP POWER GENERATION

LAKKOJU NAGA CHAITANYA ,PALLA BHANOJI RAO, 2/4 EEE B, ANITS

In this presentation, we are learning about the generation of electrical power by using nonconventional method by simply walking or running on the foot step. Non-conventional energy system is very essential at this time to our nation. Non-conventional energy using foot step is converting mechanical energy into electrical energy. Whenever force is applied on Piezo electric crystals, that force is converted to electrical energy which is used to drive DC loads and that minute voltage which is stored in the Lead Acid battery. The battery is connected to the inverter .This inverter is used to convert the 12 volt D.C to the 230 volt A.C. The 230 volt A.C voltage is used to activate the loads .We use conventional battery charging unit also for giving supply to the circuitry.

POWER TRANSMISSION THROUGH HTS POWER CABLES

Mamidi Sravani, Maradana Pratyusha , 2/4 EEE, ANITS

The electrical power transmission companies are facing an ever rising demand for electricity and

the problem to solve large capacity power transmission. For the transmission of electrical power over long distances, one of the efficient and economic emerging technologies in this modern age is the transmission of power using HTS (High Temperature Superconductor) cables. HTS cables provide a compact and low power loss transmission line, in comparison with the conventional aluminium cables (ACSR). The use of HTS tapes facilitates the cable operation with cryogenic cooling techniques like liquid nitrogen (LN₂), liquid helium(LHe) or liquid hydrogen(LH₂) cooling. New HTS cable designs are being developed day by day and are being aimed to operate for a high service interval. These are expected to reduce the cost of HTS cable technology significantly in the short term and in the mid term industry scale production will certainly further reduce the cost of HTS cable.

MAGNETIC LEVIATION

Challa Ajay Dileep, Chelluri Sarat, 3/4 EEE, ANITS

This contribution deals with magnetic levitation. An overview of principles of magnetic levitation is given and some examples are presented. Two principles were selected for a laboratory model of magnetic train and two mode ls are being designed and built. Both models are described in the paper. First model is based on HTS and permanent magnet levitation. The second model is based on electromagnetic suspension. Both models will be used for education and research

MAGNETOHYDRODYNAMIC POWER GENERATION

MOHAMMED PAYAZ, MOHAMMED INAYATH, 2/4 EEE, ANITS

Magneto hydrodynamic (MHD) power generation process is basically based on the physics background of space plasma. The basic principle is the Faradays Law of electromagnetic induction. In this device plasma (Ionized gas) is the working fluid similar to the mechanism that happening in the magnetosphere of our earth's atmosphere. Except here the process is controlled and we increase the fluid density and pressure to get maximum efficiency in the generating power. Most problems come from the low conductivity feature in the gas at high temperature. High temperature gaseous conductor at high velocity is passed through a powerful magnetic field and a current is generated and extracted by placing electrodes at suitable position in the gas stream, and hence the thermal energy of gas is directly converted in to electrical energy. In this paper the process involved in MHD power generation will be discussed in detail along with the simplified analysis of MDH system and recent developments in magneto hydrodynamics and their related issues.

GUIDED MISSILE

Talasu Spandana, Vasamsetti Jayashree , 2/4 EEE, ANITS

In modern usage, a Missile is a self-propelled precision-guided munitions system, as opposed to unguided self-propelled munitions, referred to as a rocket . Missiles have four system components: targeting and/or missile guidance, flight system, engine, and warhead. Missiles come in types adapted for different purposes: surface-to-surface and air-to-surface missiles (ballistic, cruise, anti-ship, anti-tank, etc.), surface-to-air missiles (and anti-ballistic), air-to-air missiles, and anti-satellite weapons. All known existing missiles are designed to be propelled during powered flight by chemical reactions inside

a rocket engine, jet engine, or other type of engine. Non-self-propelled airborne explosive devices are generally referred to as shells and usually have a shorter range than missiles.

WIRELESS POWER TRANSMISSION VIA SOLAR POWER SATELLITE

Challa Haritha, Chandaka Sowjanya, 3/4 EEE, ANITS

This paper reports on the futuristic advances in power transmission through microwaves. Sun is a limitless source of energy. A space power satellite (sps) orbiting round the earth traps solar energy and generates electric power using photovoltaic cells of sizable area. Sps transmits the generated power via a microwave beam to the receiving rectenna site on earth. A rectenna (rectifying antenna) comprises of a mesh of dipoles and diodes for absorbing microwave energy from a transmitter and converts it into electric power. We can in fact directly convert solar energy into electrical energy with the use of solar cells, but this process will be affected by day/night cycles, weather, and seasons. We are aware of the fact that light is an electromagnetic wave. Light rays never diffuse in space & if by any means these rays can be transmitted from space to earth then it will be a perfect solution for our desired need of 24 hrs power supplies. The 21ST century endeavors and approaches for establishing human race in space can come true only if the basic requirement of human beings is satisfied i.e. 24HRS power, which can be efficiently served by rectenna. This paper presents the concept & evolution of satellite power system, sps2000 (a research work by isas) and the impact of microwave power transmission (mpt) on space plasma. In near future conventional power sources cannot meet total power demand, for which sps is a best solution.

ADVANCES IN PROTECTION OF POWER SYSTEMS

BHANU ROHIT RONGALA, BODDEPALLI SRI HARSHA, 3/4 EEE, ANITS

An electric power system is a network of electrical components used to supply, transfer and use electric power. An example of an electric power system is network that supplies region's homes and industry with power- for sizable regions, this power system is known as grid. It can be broadly divided into the generators that supply the power, the transmission system that carries power from generating centres to load centres and distribution system that feeds power to nearby homes and industry. In this article, we present the security, agility and robustness of large scale power delivery infrastructure that faces new threats and unanticipated conditions .By way of background, we present a brief overview of past work on challenges faced and real- time adaptive control and protection of power systems. Many advancements such as combined uninterruptible power supply and dynamic voltage compensator using a fly wheel energy storage system is developed ,protection of large transformers is improved by digital relay, digital protection method for power transformers based on a equivalent circuit composed of inverse inductance and many other advancements are clearly explained.

SOLAR BOTANICS

Manda Tarun Kumar , Potnuru Sanjay , 3/4 EEE, ANITS

This topic mainly emphasis on the reduction of Co_2 in generation of power by power plants. The non-renewable sources are a major threat to emission of Co_2 levels in the atmosphere. So we have moved on to renewable sources to generate power but this energy cannot be utilized readily, that is they are stored in batteries which is a major disadvantage. So this presentation will show us how we can move to renewable sources with a better approach to have instant energy for small homes. In this presentation there is an approach using a tree as a model of machine in generating power by use of three natural sources wind, solar and thermal radiations in generation of power.

NON-CONVENTIONAL ENERGY RESOURCES:

Uppalapati Renuka, Mannam Sravani, 3/4 EEE, ANITS

Non conventional energy resources are those energy resources which are renewable and ecologically safe, such as solar energy, wind energy, biomass energy, ocean energy, geothermal energy, nuclear energy etc...Geothermal energy is thermal energy generated and stored in the earth .thermal energy is the energy that determines the temperature of matter.-Direct use of geothermal energy is absolutely cheaper than other energy sources but the initial investment is high after certain time period, the cost of electricity becomes comparable to other resources of energy. Geothermal provinces are estimated to produce 10600 M.W of power. Geothermal provinces in India are the Himalayas, sohana, west coast, Godavari and Mahanadi, cam bay, son-Narmada-tapi. Geo thermal energy is a good alternative of fossil fuel for producing geothermal electricity. It ensures less use of oil, coal, and gas and also less emission of green house gases and ultimately save us from the danger of global warming. The favorable geothermal energy facts many households are using this source of energy which not only decrease their electric bills but also its eco friendly.

WIND TREE

Vasupalli Gowtham, Tholeti Rahul, 3/4 EEE, ANITS

The wind tree, a 3-meter-tall generator designed for urban environments which makes the most of smaller air currents. Operating in near complete silence, the wind tree consists of 72 micro turbine "aeroleaves" that rotate in the wind, generating an estimated 3.1 kw of power. The wind tree uses tiny blades that are housed in the leaf units. The blades turn inwards, which enables the units to turn in the wind, regardless of wind direction. The current prototype of the tree is steel and the energy made from it goes into the electricity grid and can be used locally. The wind tree uses tiny blades that are housed in the leaf units . The wind tree is steel and the energy made from it goes into the electricity grid and can be used locally. The wind tree uses tiny blades that are housed in the leaf units . The wind tree is small, aesthetically pleasing, silent, and requires very low wind speeds to generate energy. To make the device even more fitting for populated areas, it is designed to look like trees. Although general wind turbines can generate 5-6 kw, their large size means they require strong winds to get moving, meaning they generate power for fewer days a year where as with the artificial leaves serving as micro-turbines spinning on a vertical axis, the wind tree is designed to harness more gentle winds. The developers say this can extend to breezes blowing as slowly as two meters per second, making the turbine useful across more than 280 days of the year.

WIDE AREA MEASUREMENT SYSTEMS (WAMS)

Balivada Ajay, Buddharaju Krishnam Raju, 3/4 EEE, ANITS

In last two decades, power industries have been deregulated, restructured and decentralized in order to increase their efficiency, to reduce their operational cost and to free the consumers from their choices of electricity providers (Eshraghnia et al., 2006). As a result of these changes, in comparison with the traditional power systems, new competitive power industries face specific challenges that are related to their generation, operation and planning. As a consequence of these challenges, new intelligent systems should be introduced and established in the power systems in order to tackle such challenges. Wide Area Measurement Systems (WAMS) is a new term, which has been introduced to power system literatures in late 1980s. Recently, they are commercially available in power systems for purposes of monitoring, operation and control. To be able to monitor, operate and control power systems in wide geographical area, WAMS combines the functions of metering devices (i.e. new and traditional) with the abilities of communication systems (Junce & Zexiang, 2005). The overall capability of this particular combination is that data of the entire system can be obtained at the same time and the same place i.e. the control canter. This data, which are obtained from the entire system, can be used by many WAMS functions, effectively. These facts indicate that nowadays, WAMS has been a great opportunity to overcome power systems' challenges related to the restructuring, deregulation and decentralization.

IE(I) STUDENT CHAPTER

The Institution of Engineers (India) which came into being on the September 13, 1920 is the result of general desire of those engineers in India who are members of the great parent Institution in England — the Institution of Civil Engineers, Mechanical Engineers and Electrical Engineers, to form a corporate body which should protect their interest, provide means of exchange of views on professional engineering matters and medium of expression of authoritative opinions on engineering problems of public interest.

EVENTS:

- 1. An event "Technical quiz", was conducted through IE (I) student on the eve of Engineer's day on September 2nd, 2017. Around 70 students have taken part in the event. Apparna Appu(314126514005) have won the first Prize and Patoju Krishna Tanuja(314126514187) has won the second prize
- 2. An event "Technical Poster Presentation (Traffic Jam in Space/Non Conventional Energy Source)" was conducted through IE(I) student chapter on July 7th,2017. ANITS. Around 25 in 10 groups with 2 or 3 students have participated in the event.

CODING CLUB

Students club *CODING AND DESIGN* was inaugurated by Prof.G. Raja Rao garu on 15-09-2015. College clubs plays an important role for the professional growth of young engineers. Students can make use of this platform to expose their talents and innovative abilities in the field of Electrical & Electronics Engineering (EEE). This club is formed to improve the coding knowledge.

EVENTS

1. Design of logic and electrical circuits in MATLAB software

A design contest is organized in EEE department through CODING AND DESIGN CLUB to develop the design skills in MATLAB software on 15th July, 2017. Around 62 students have participated in the event. The contest aims to develop the design skills in "MATLAB SOFTWARE". First prize is awarded to Sk. Ahamadi (317126514103) and second prize to K. Sai Harini (317126514142).

2. CODE N CODE

A coding contest is organized in ARC event through CODING AND DESIGN CLUB to develop the coding knowledge in students on 6^{th} March, 2018. The contest aims to develop the coding knowledge in the students. Around 15 students have participated in the event. First prize is awarded to B. Bhargava (317126514005) and second prize to B. Usha Rani (317126514123).

GUEST LECTURES

A guest lecture on "Load Scheduling & Power Tariff" was organized for final year EEE students on 8th December 2017. The resource person is Sri A. Ramesh, D.E, APTRANSCO, Hyderabad, who exhibited the importance of Load scheduling and how it is optimized in order to improve the power system efficiency. He also explained in detail the various methods of charging a consumer for consuming power, and various factors on which electricity tariff depends. An interactive session was also conducted that provoked curiosity among the learners.



A guest lecture on "Ethical values" was organized for final year students on 27th January, 2018. The resource Person is Sri A Murali Mohan, AGM, Technical Training Institute, RINL, Visakhapatnam. Establishing a clear link between the purpose of the organization and the ethical values is very important to ensure that ethics becomes part of the culture and guides decision-making at all levels of the organization, promoting the desired behaviors.

An Expert Lecture on "Simple Techniques on Networks Solutions" was organized for final year EEE students on 1st February, 2018. The resource person is Sri. V. Raghu Ram, Executive Engineer, ONGC, Mumbai. He demonstrated the various methods that can be implemented to find the solutions of various networks.



An Expert Lecture on "Restore Electric power supply" was organized for final year EEE students on 6th March, 2018. The resource person is Sri. B. Ramesh Prasad, Executive Director, APEPDCL, Visakhapatnam. His lecture mainly highlighted the process to make power delivery system less vulnerable to attacks, how to restore power faster after an attack and how to make critical services less vulnerable while delivery of electric power has been disrupted.



STUDENT ACHIEVEMENTS AND INDUSTRIAL VISITS

Ch. Harinath, has participated on "Tec-Quiz" in JNTUK, on 24th Feb 2018 and got the second place.

D. Sravan, has participated on "Tec-Quiz" in JNTUK, on 24th Feb 2018 and got the second place.

S. Sankar, has participated in "Poster Presentation" held in VIDYOUTH-18 BHAVA SAGARA, University College of Engineering, Narasaraopet JNTUK on 21st Dec 2018 and got the first place in best presentation.

B. Mohn, has participated in "Poster Presentation" held in VIDYOUTH-18 BHAVA SAGARA, University College of Engineering, Narasaraopet JNTUK on 21st Dec 2018 and got the first place in best presentation.

Vinay. B, is presented the paper on "Motionless Electromagnetic Generator" in STEPCONE-18 GMRIT, during 4th to 6th Jan 2018 and got the second place in best presentation.

G. Ratna Paul, is presented the paper on "Motionless Electromagnetic Generator" in STEPCONE-19 GMRIT, during 4th to 6th Jan 2019and got the second place in best presentation.

PLACEMENTS



RESULT ANALYSIS



NSS CLUB ACTIVITIES

1. Blood donation camp in association with lions blood camp- Aug 2017

The NSS unit of ECE Department, ANITS, Visakhapatnam organized a blood donation camp on National blood donation day in association with Lions club blood bank. The camp began at 10.00 am in ANITS Admin Block room no. A311 with a short inaugural function where Principal ,ANITS expressed his gratitude to the NSS unit of the college. He also stressed on the growing need of blood in the state and commended the young volunteers for their noble act. teaching, non-teaching staff and students came forward to donate blood. At the end all the Blood units given to Lions Club blood bank. The blood donors were given Apple, Biscuits and fruity after donating the blood in order to reenergize themselves. The blood donation camp was co –ordinated by Mr.K.SatyaNarayana and L.Dinesh, N.S.S co-ordinator of the college andN.Srinivas Naidu is department of ECE co-ordinator.



Receiving blood donation certificate by Faculty Uday from Lions club Blood donation camp participation

2. SWATCH SURVEKSHAN- 25-Jan- 2017

The objective of the survey is to encourage large scale citizen participation, ensure sustainability of initiatives taken towards garbage free and open defecation free cities, provide credible outcomes which would be validated by third party certification, institutionalize existing systems through online processes and create awareness amongst all sections of society about the importance of working together towards making towns and cities more habitable and sustainable. Additionally, the survey also intends to foster a spirit of healthy competition amongst towns and cities to improve their service delivery to citizens and move towards creating cleaner cities. The GVMC, Visakhapatnam is conducted "SwachhSurvekshan 2018" in ANITS campus. GVMC people has given clear introduction about Good number of staff and students are participated in this event.



GVMC people are addressing the gathering

3. Swachh ANITS - 08-11-2017

With the motive of creating awareness regarding cleanliness among the people , we conducted an eventnamed SWATCH ANITS in the college premises with the NSS team of CSE.NSS team includes staff and students in the department.NSS volunteers and students actively participated in getting the premises cleanand green.Both Engineering and medical campus premises were cleaned by the NSS.With the motivation from Principal sir, the programme was done effectivey with all the support from staff and students.



Students cleaning the NRI Medical college premises