August 2017 Vol. 2 Issue 8

ece news SYNCOM

A Voice Of Electronics And Communication Engineering

KKR&KSR INSTITUTE OF TECHNOLOGY & SCIENCES | ECE DEPARTMENT | 2017

IITBombayX

71st Independence Day

The 71st Independence Day was celebrated in the college on 15th August 2016 to pay tributes and remember all the freedom fighters who had contributed a lot and fought for the Independence of India.

Continuing with the proud tradition of the college, senior students and newcomers of the college mingled with each other at the fresher's welcome party held on 24th August 2017 in the college Seminar hall . The program started with a prayer song followed by delivering a few soothing messages by the Chairman, Principal, HOD and their class teachers..Lamp Lighting Ceremony was done by the Chairman, Principal & all HOD's.

It was a fun filled event at which the fresher's got an opportunity not only to showcase their talents and but also to interact with the seniors. Soon after the inauguration, the program kick-started with several rounds involving singing, dancing, talent display, fashion walk traditional walk and the like, which wove the magic of fun and joy in to the event. Principal wished good luck to the I year students for their future. He also expressed his hope that students will continue holding best positions in upcoming university exams. Students of B.tech 2nd year presented very entertaining group dance, solo dance and solo song performances.

The program concluded with the vote of thanks and finally with the national anthem, all the fresher's including the senior's rocked the show and enjoyed the celebrations and all the Fresher's thanked the principal, staff and seniors students for hosting such a nice program that they could cherish lifelong.

Token of love and appreciation was given to the students by their seniors in "**Momento distribution ceremony**".

PCB Design and Fabrication

The ECE department association "SPACE" conducted a two day work shop on **21st , 22nd and 28th, 29th August 2017** in ECAD LAB. The resource person for this work shop is **Mr. M. Praveen Kumar, Manager, Surya Embedded Learning Center, Guntur**. The topic of work shop is "**PCB Design and Fabrication**". This work shop is conducted to bring the awareness about PCB design among the students.

Few works were carried out in the work shop such as:

- Software Circuit Wizard and Protis Software
- Designing of circuit wizard
- Designing of Half wave and Full wave rectifiers
- Designing of logic gates with Diodes
- Designing of Common Emitter Amplifier
- Designing of PCB in www.easyeda.com
- Designing of Automatic Street light
- Designing of fire alarm.

The students have actively participated in work shop by expressing their doubts and got them clarified.

At the end of the session Mr. M. Praveen Kumar explained how easy to design a PCB. By 3.00 PM valedictory function is completed and closing remarks are shared by Dr. Siva Ganga Prasad, HOD ECE. After the feedback by participants, certificates are distributed to all the participants

Faculty Activities:

Dr. Siva Ganga Prasad, HOD ECE

A Research paper on "Investigation on Octagonal shape complimented Microstrip antenna for low frequency operations using CSA-Algorithm" is accepted in International Journal of Scientific & Engineering Research, Volume 8, Issue 1, August-2017 ISSN 2229-5518.

FDP101x-Foundation Program in ICT for Education, by IIT Bombay

This course will help to develop awareness towards various ICT devices and their ethical and effective use for teaching-learning.

After successful completion of this course participants will be able to:

- Identify various ICT devices and applications useful in teaching-learning
- Develop awareness towards ethical practices for use of ICT in education.
- Make use of best practices for information dissemination using ICT

Mr.G.Malyadri, Mr.A.Sarat, Mr. K.Mallikarjuna Rao and Ms. T.Revathi participated in the faculty development program FDP101x on 19th and 20th of August 2017.




Mrs. P.Sarala published a paper on "Reducing of PAPR for MIMO OFDM System" with a paper code SKR-IEEE-ECDS-0470 in international Conference on Energy, Communication, Data Analytics & Soft Computing(ICECDS-2017) organized by SKR engineering college .

With her interest she attended for a Two day National Workshop on "Advances Electronics and Communication Engineering (AECE-2017)" on 26th and 27th August 2017, Organized by JNTUK.

Student Activities:

All IV ECE students actively participated in Group Discussion held in college organized by **Dr. N. Aravind, Professor**. They discussed on four topics

- What is GD?
- Why a GD.
- Do's in GD.
- Don'ts in GD.

In the Discussion the following points are drawn, As the name itself indicates Group Discussions (GDs), is a group activity carried out in a group by participating

individuals. Actually, it is an exchange of ideas among the participants /individuals of a group on a specific topic.

Nowadays Group Discussion is being extensively used along with personal interviews for the final selection of candidates. It plays a main role in selecting the best among the best. Having scored high marks, students who get selected for a higher/another course or employment are placed on a par - on equal footing - based on their age, qualification and experience. It becomes necessary to conduct further screening for choosing a few among many. It is here, the Group Discussion plays an important part. It helps in choosing the socially suitable candidate among the academically superior achievers. Rightly speaking, Group Discussion is more a technique than a conventional test.

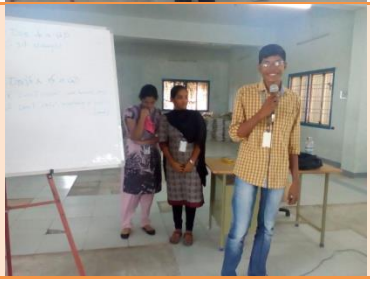
Do's in Group Discussion:

- Listen to the subject carefully
- Put down your thoughts on a paper
- Initiate the discussion if you know the subject well
- Listen to others if you don't know the subject
- Speak politely and pleasantly. Respect contribution from other members.
- Disagree politely and agree with what is right.
- Summarize the discussion if the group has not reached a conclusion.

Don'ts in Group Discussion:

- Initiate the discussion if you do not have sufficient knowledge about the given topic.
- Over speak, intervene and snatch other's chance to speak.
- Argue and shout during the GD
- Look at the evaluators or a particular group member
- Talk irrelevant things and distract the discussion
- Pose negative body gestures like touching the nose, leaning back on the chair, knocking the table with a pen etc.
- Display low self confidence with shaky voice and trembling hands.
- Try to dominate the discussion






Article:
High Efficient Superconducting Antennas

The recent discovery of high-temperature superconductivity at liquid nitrogen temperatures (77 Kelvin's) brings us a giant step closer to the vision of early scientists. Applications currently being pursued are mostly extensions of current technology used with the low-temperature superconductors such as powerful magnets used in MRI scanners. Additional applications include magnetic shielding devices, extremely sensitive medical imaging systems, infrared sensors, analog signal devices, and microwave communication devices, and waveguides. As our knowledge of the properties of high-temperature superconducting materials increase, more efficient power transmission lines, smaller and more efficient generators, energy storage devices, particle accelerators, and levitating trains will become more practical. The ability of superconductors to conduct electricity with zero resistance can be exploited in the use of many electronic applications. The telecommunications industry already uses high-temperature superconducting films to coat the inside of their microwave waveguides to reduce losses in their system. Furthermore, as superconducting transistors are developed, perhaps longer lasting and smaller "finals" could be developed for transceivers.

A more immediate application could perhaps be in the antenna system. Theoretically, superconductors could be employed to reduce the resistive losses in an antenna. Although less likely at shorter wavelengths used by many worldwide broadcast stations, dramatic improvements are more likely at very long wavelengths because of the severe space limitations of the antenna. It is well known that an antenna needs to be a minimum of 1/8 wavelength in length to be reasonably efficient. Unlike the short wave frequencies employed in most worldwide communications, this constraint is not severe. Due to salt water penetrating ability, submarines utilize 40 km wavelengths; therefore, an efficient antenna needs to be several miles long in order to have a reasonable efficiency. These long wires do pose obvious difficulties in the operation of submarines; it will be shown below how superconductivity could provide significant reductions in the antenna length while keeping nearly a 100% radiation efficiency.

Antenna efficiency E(%) is calculated by the equation $\mathbf{E(\%) = 100\% \times R_r / (R_r + R_g + R_c \cos^2 h)}$, where R_r = radiation resistance, R_g = ground-loss resistance (approx. 0 in horiz. dipoles), R_c = loading coil resistance (~0 in superconducting coils assuming the superconducting ac-losses are negligible), and h = distance between the loading coil and the feed point in fractions of wavelength expressed in degrees. For example, if the loading coil placement is 1/8 wave from the feedpoint, h = 360 degrees/8 or 45 degrees. To perform this calculation, the radiation resistance must be known. From electromagnetic theory (given in many physics texts), the radiation resistance (Rr) of a center-fed dipole is given by $\mathbf{R_r = 197\ D^2 / L^2}$, where D = antenna length and L = wavelength. From this equation, it can be seen that a half-wave antenna has a radiation resistance of approximately 50 ohms. Most important, we see that as

an antenna becomes short compared to the wave length, the coil resistance exceeds the radiation resistance thereby dissipating the power in the form of heat. Superconductivity will eliminate this coil loss while allowing the desired 100% radiation efficiencies in extremely short antenna systems.

In the spring of 1995, the Fusion Energy Division of the Oak Ridge National Laboratory built a 2m VHF BSCCO antenna. Using a Hewlett-Packard 8753A Network Analyzer, the principle investigators, E.C. Jones and D.O. Sparks, discovered that the resonance frequency dropped by approximately 5% as the superconducting tape was cooled below the superconducting transition temperature. In addition, the Q-factor increased only slightly as already discussed above. The change in resonance frequency was believed to be the result of the rf current redistributing from the silver matrix in the normal state to the superconducting filaments as the tapes were cooled to their superconducting state with liquid nitrogen. Since these tapes had twisted filaments, the current had a 5% longer conduction path, i.e., "longer effective wavelength", at these superconducting temperatures. To the best of our knowledge, this was the first VHF antenna of its kind to have ever been built and to my disappointment, the Oak Ridge National Laboratory (who owned my superconductor patent rights) and the Department of Energy decided not to pursue this line of work or file any patents. In 1997, on my personal time, I built a 2 foot tall 160m superconducting antenna for use near 1.86 MHz. I found that as the antenna was cooled with liquid nitrogen, the signal strength meter of the transceiver used to test the antenna increased from an S1 to S9 indicating the clear feasibility of these materials for long-wavelength communications. Also, to the best of my knowledge, I am unaware of anyone else who has ever built a superconducting antenna for long-wave communications. In contrary, other research groups have used superconducting antennas to reduce the ac-losses found in the higher microwave frequencies. The first microwave superconducting antenna is credited to the Electronic Materials and Devices Research Group at the University of Birmingham (United Kingdom) and this group was recently presented with the International IEE Premium Award for their work.

It is hoped that this bulletin will raise the awareness of the developments in this new field; it is likely that superconductivity will change the communications industry in some now unimaginable ways. Imagine holding a superconducting rubber ducky capable of working the recently publicized 1.750 km band without the need of stringing up an outdoor antenna! Better yet, imagine a short rubber ducky antenna capable of working wavelengths longer than 40 km - wavelengths well known for their ocean and/or underground cave penetrating capabilities!

by
Md. Zia Ur Rahman, Ph.D, SMIEEE

Upcoming event:

INTERNATIONAL SYMPOSIUM ON INTELLIGENT SENSING SYSTEMS-2017

14th-16th, November, 2017

organized by

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

KKR & KSR INSTITUTE OF TECHNOLOGY AND SCIENCES

(ACCREDITED BY NAAC WITH 'A' GRADE)

About the Symposium:

The International Symposium on Intelligent Sensing Systems 2017 (ISISS 2017) will take place during14-16, November, 2017 in KKR&KSR Institute of Technology and Sciences (KITS), Guntur, A.P., India. The theme of the ISISS 2017 symposium is "Sensors Serve for Humanity", reflecting the ever growing interests in research, development and applications in the dynamic and exciting area of sensors, such as aerospace, biomedical, communications, defense, genomics, heath care, nano technology, signal processing, and allied applications. The ISISS 2017 promises to be a great event for researchers and scholars in signal processing and robotics communication areas, with attractive technical and social programs.

KITS

KKR & KSR Institute of Technology & Sciences

(Approved by AICTE New Delhi, Affiliated to JNTU Kakinada, Accredited by NAAC with "A" Grade)

Department of Electronics And Communication Engineering