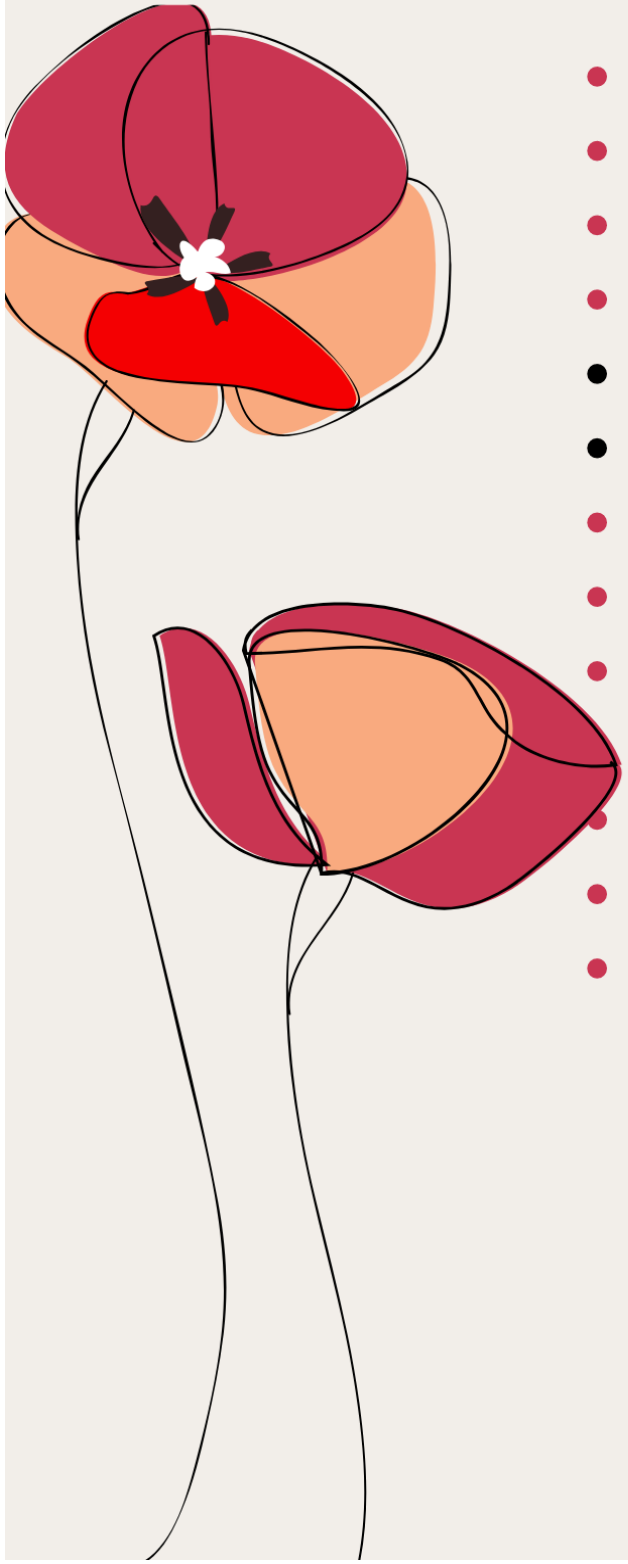

ELECTRO
SANCHAR-2019
The Electrons around you...

Whats Inside



ABES ENGINEERING COLLEGE

Estd.2000

1st in AKTU

ELECTRO SANCHAR 2019

Department of Electronics & Communication Engineering, established in the year July 2000 has been accredited by "National Board of Accreditation (NBA)" up to 2022 . ECE Department offers under graduate level programme with the annual intake of 180 students and Post graduate Programme with annual intake of 18 students in "Electronics & Communication Engineering". Department has seen remarkable growth in terms of quality of students intake, inclusion of post graduate programme. Department has well equipped Labs with necessary hardware and software to meet the curriculum requirements at undergraduate and post graduate level, they not only meet the academic curriculum but also industry requirements.

VISION

To contribute to India and the world through excellence in education and research in the field of Electronics & Communication Engineering and to serve as valuable resource for the industry and the society at large.

MISSION

To create an environment which shall encourage the development of innovation professionals and researchers in the cutting edge technologies of Electronics & Communication Engineering in line with industry requirements and to impart professional ethics with positive attitude.

TEAM MEMBERS

Sh. Neeraj Goel (Chief Patron)

Sh. Sachin Goel (Patron)

Dr. A.V. Atawale (Patron)

Dr. Sanjay Kr. Singh(Editor-in-chief)

Faculty Members

Ms. Ranjeeta Yadav (Editor)
Dr. Raman Kapoor
Ms. Geetanjali Raj
Mr. Rakesh Kumar
Ms. Tania Gupta

Student Members

Ms. Tanisha Agarwal
Ms. Shruti Singh

From The Desk of Editor-in-Chief

Dear Readers,

"Education is not preparation for life. Education is life itself" It is my pleasure & great privilege to present to you the information bulletin cum magazine of the ECE department. For both individuals and nation, technical education is vital for technology development, either as a way of developing human capacity that would aid in industrialization and environment protection or personnel empowerment. A common belief is that education's purpose is to replace an empty mind with an open one. Let's go a little beyond and find out what exactly education meant in the past and how, over the decades it has fundamentally altered the present education in our country. In this bulletin, one can find all the information about ECE department as well as the recent activity of ECE department in academic and research.

Sincerely,
Prof. (Dr.) Sanjay Kr. Singh
HOD-ECE

From The Desk of Editor

Dear Readers,

We are presenting you a magazine cum information bulletin called "Electro Sanchar". It is a matter of honor that our department is publishing this bulletin. The idea of updating the faculty and students with the current happenings in the department is creditable. It is glad to see the teacher-student community of our department strive to reach greater attitude. The Electronics & Communication Engineering department, ABES Engineering College, Ghaziabad takes its faculty & students through the journey of some of north India's leading educational institute/colleges through this bulletin. I hope this issue of departmental e-magazine will encourage the students, future students, staff and faculty.

Sincerely,
Ms. Ranjeeta Yadav
Sr. Assistant Professor-ECE

A Note from HOD (ECE)

Dear Readers,

A warm and affectionate welcome from the Department of Electronics & Communication Engineering of ABES Engineering College. Electronics Engineering is a dynamically changing and widening branch of the engineering profession, having applications in every discipline of engineering. It is the driving force behind rapid development in latest technological growth. Electronics and communication engineering provides excellent career opportunities in various sectors of Industries. The department has a fine blend of qualified and experienced faculty and staff members. We are continuously striving hard to improve upon the quality of education and maintain its position of leadership in engineering and technology. The Department is equipped with state of the art Laboratories to provide adequate opportunities for the students to learn and innovate new skills and ideas.

The Industry Academia relationship helps in developing a powerful engine for innovation and economic growth. This relationship helps in modernizing teaching and learning methods by fostering an exchange of ideas and skills. Is also developing people with the skills and competencies required for new innovations which transform world-wide markets and industries?

The main goal of the department is to develop innovative professionals and researchers in line with the requirement of industry and research organizations. At ABES we are committed to create an environment for the students where they can develop critical thinking and problem-solving skills. I am confident enough that our students will prove to be an invaluable asset for any organization.

Highlights of ECE Department (NBA Accredited up to 2022)

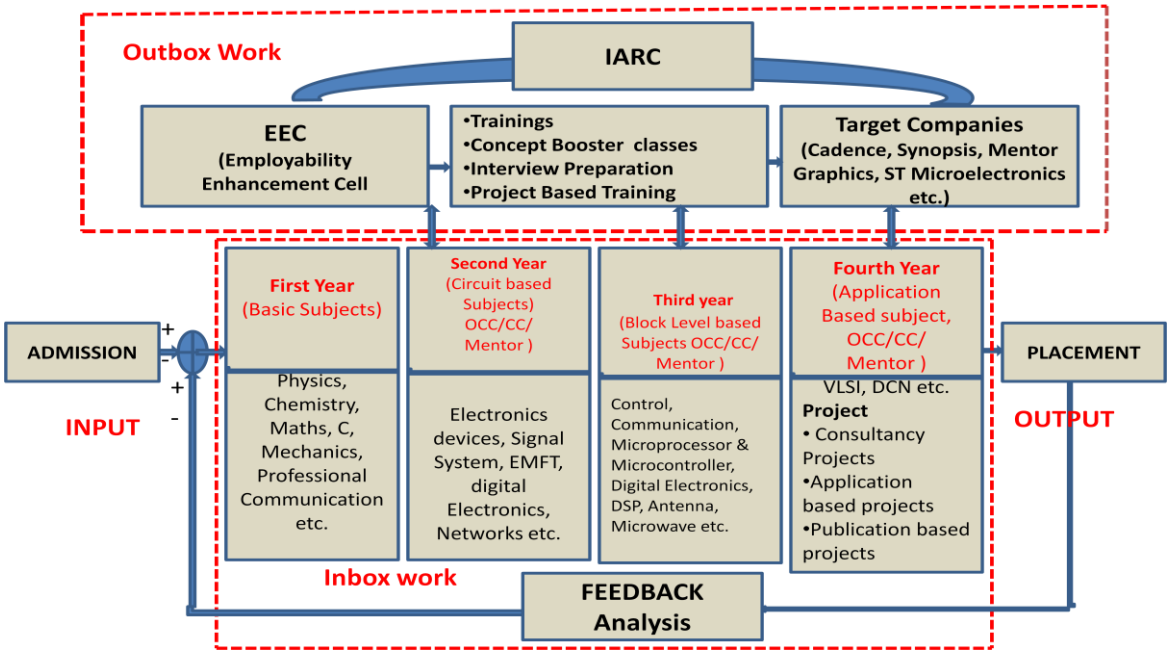
4 YEARS B.TECH. (ECE) | 2 YEARS M.TECH. (ECE)

Electronics Engineering Department stands tall amongst other branches of engineering disciplines. Established in the year July 2000 and offer under graduate level programme in Electronics and Communication Engineering, the Department has seen remarkable growth in terms of quality of students intake, inclusion of post-graduate programme 'Electronics and Communication Engineering' .

The Department is headed by Prof. (Dr.) Sanjay Kr. Singh. He is assisted by a team of dynamic, competent and energetic faculty members and equally accomplished and qualified technical staff.

- In second year, we have achieved results of 88.36% in 4th semester and 91.62% in third semester. The aggregate result of 3rd and 4th semester was 88.46 and we are ranked at first position among the topmost institutes.
- In third year, we have achieved a result of 88.45 % in sixth semester and 95.22% in fifth semester. The aggregate percentage of results of 5th and 6th semester was 93.03% and we are ranked at first position among the topmost institutes.
- In fourth year, we have achieved a result of 97.03% in 7th semester and 94.56% in 8th semester. The aggregate results of final year was 95.8%.In seventh semester, we are ranked at second position among the topmost institutes.

FUNCTIONALITIES OF ECE DEPARTMENT



- In terms of placements we have achieved a level of 89.61% which is the highest in the entire ABES EC. Out Of the total 304 job offers, 49.34% were from core field and remaining from non-core field.

Strengths

- EEC (Employability Enhancement Cell)
- IARC (Industry Academia Relationship Cell)
- Electronic ICU
- In house Trainings : 05
- FDP : 06
- Guest Lectures : 07
- Industrial Visit : 04
- MoUs signed : 05
- Patents : 07
- Consultancy Projects : 18
- Faculty Publications : 48
- Student Publications : 55

Placement

Total Placement from ECE: 292+

Prominent Recruiters:

- Capgemini : 22
- Wipro : 21
- TCS : 23
- NTT data : 14
- Truechip Sol. Pvt. Ltd. : 19
- Holitech technology : 34
- AERIS Communication : 03
- Torrent power : 04
- Others : 152+

Department Achievements

The Department actively promotes research and provides high-quality research projects, and sponsored projects.

To minimize the gap between industry and academia, department has organized various Guest lecturers for the students where the various eminent persons from the industry shared their views on the recent trends in the industry. The department also provides in-house trainings in the field of PLC, Embedded systems, LABVIEW, VLSI, MATLAB, Robotics etc.

The Department has organized various Seminars, Short-term Courses and Faculty Development Programs.

EEC (Employability Enhancement Cell)

The Purposes and Outcomes of EEC are:

- EEC members counsel students one by one, discuss their interests and assign them domain.
- To explore new opportunities and technologies.
- To enhance the confidence level of students
- To understand and fulfill the requirements of industry
- Students are more confident and groomed for placement drives

IARC (Industry Academia Relationship Cell)

The Purposes & Outcomes of IARC are:

To build the gap between Industry and academia with the help of following fields:-

- To prepare projects that are as per recent trends and technology
- To meet the requirements of industry(Placement Support)
- MoUs with core companies

- Consultancy Projects
- To encourage towards new Start-ups and Entrepreneurships

Electronics ICU

Electronic ICU (For the consultancy projects, provided by different companies and for R&D purpose)

PURPOSE

- To cater to the servicing requirements of electronic equipments of various labs running in ABES EC.
- Troubleshooting and component level fault diagnosis of electronic equipments
- Execution of funded projects obtained from various Governments. and Non-Government agencies.
- Development of prototypes of various suggested solutions for different agencies.

OUTCOMES

- All the job of repairing any equipment is to be done in electronic ICU

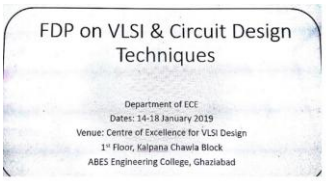
In House Trainings

Continuous technical training is crucial for any institution to improve the technical competence of its students. Professionally trained employees can assist the management and propose new ways to develop their companies operation at a lesser cost or provide new and more competitive services. To achieve that the EEC team of ECE Dept. along with Center of Building Skills and Employability (CBSE) conducted in-house training programs frequently to bridge the gap between theory and practical scenarios. Technical Training through ECE Dept. and CBSE helps organization to hire pre-trained resources from ABES Engineering College.

- PC BASED AUTOMATION USING SIGNAL PROSESSING & Lab VIEW PLATFORM
- INDUSTRIAL AUTOMATION
- PROJECT BASED EMBEDDED SYSTEMS- BASIC AVR TRAINING PROGRAM
- VLSI FRONT END TRAINING
- VLSI BACK END TRAINING

FDPs

- Short Term course on Self Configured Wireless Sensor Network, sponsored by NITTTR, Chandigarh.
- FDP on Recent Advances in Linear Integrated Circuits, AKTU, TEQIP sponsored
- FDP on Recent Advances in Mobile and Wireless Communication, AKTU, TEQIP sponsored.
- Short Term course on Embedded Systems, sponsored by NITTTR, Chandigarh
- FDP on Wireless and Mobile communication, NITTTR Chandigarh
- FDP on VLSI Design, NITTTR Chandigarh



Guest Lectures

- Camouflage and Stealth Technology by Dr. T.C. Shami, Former Scientist 'G'
- SWAYAM by Dr. Manpreet Singh Manna (Former Director, SWAYAM, AICTE)
- Optical Communication and Networks by Dr. Manisha Bharti (Assistant Professor, NIT Delhi)
- Genetic Algorithm by Mr. Dilip Kumar Dubey (SDE, BSNL, New Delhi)
- Digital circuit implementation on FPGA by Dr. D. Vaithiyanathan (A.P. and HOD ECE NIT, Delhi)
- Latest trends in UHF and VHF communication by Mr. R. S. Verma
- Artificial Intelligence & Automation by Mr. Manjeet Singh

MoUs

A Memorandum of Understanding between two companies for starting a new business is a legal binding agreement that is on paper. It is essentially a handshake on paper that displays each parties intent to agree or do business with one another. We are always seeking to establish an official partnership with the industries and research organizations. That helps our students in terms of industrial exposure and placements.

- Intex Tech. Ltd., Gurugram
- The Tag Factory, Noida
- System Infra Pvt Ltd. New Delhi
- RSA Power Pvt. Ltd., Ghaziabad
- NRR Power

Industrial Visit

As a part of university curriculum and exposure towards industry, students regularly visit various industries. Industrial visit focuses on preparing the students to learn about the day-to-day workings of a particular industry and understand its operational issues. The visit also helps the students to keep update regarding the current management practices followed by the organizations and acquire traits that the industry demands from them.

- IETF-2019 organized by Confederation of Indian Industries (CII) at Pragati Maidan, New Delhi, on 5th February, 2019
- Sofcon India Pvt. Ltd., Noida, on 31 January, 2019
- Sofcon India Pvt. Ltd., Noida, on 30 January, 2019
- Automation Engineer Pvt. Ltd, Noida, on 27th Sep., 2018

- To get the concept based knowledge of electronics components, students were taken to Automation Engineers Pvt. Ltd. Knowledge about Transducers, Selection and sizing different types of sensor were introduced to students.

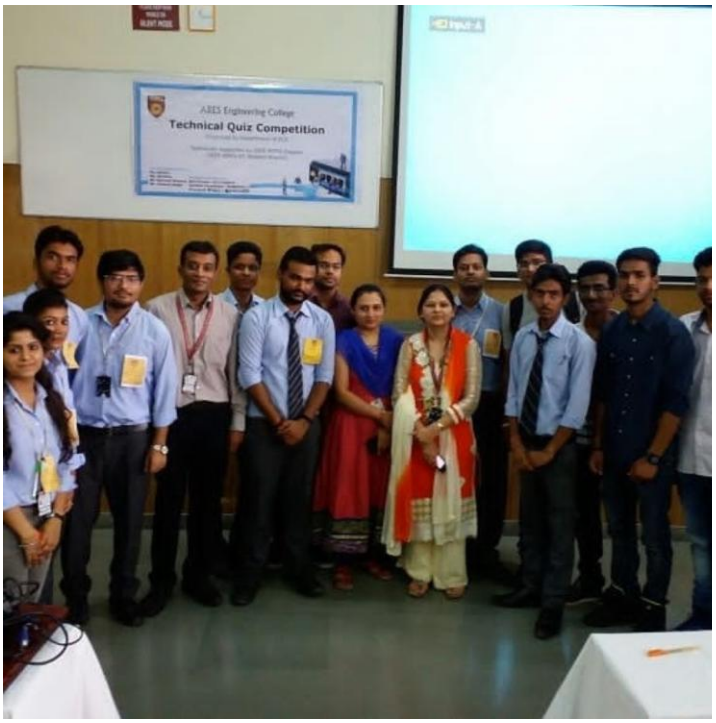
- In order to give exposure about industrial and field automation students were taken to the company Sofcon India Pvt. Ltd, Noida. The Students came to know about PLC, SCADA and technologies like temperature sensors, electric actuators and more.

- Students also visited IETF-2019 organized by Confederation of Indian Industries (CII) at Pragati Maidan, New Delhi, to get an exposure of a technical expo which is regarded as an innovative and competitive technological hub where they get knowledge about India Industrial Automation & Robotics, Real Estate & amp; Building Technology, Artificial Intelligence.

Student Achievements

- Vidushi Singh and Swati Khantwal stood 1st position in poster making competition in AKTU Art & Cultural fest at IMSEC,held on 22nd & 23rd February,2019
- Sarthak jain and shreya Dewan along with his college band stood 3rd position in AKTU Art & Cultural fest at IMSEC,held on 22nd & 23rd February,2019
- Riya Chaudhary, Yash verma and Utkarsh Tyagi stood 2nd position in Robowar event in AKTU ZONAL & STATE LEVEL ACTIVITIES at AKGEC, held on 30 & 31 Jaunary, 2019
- Mr. Uddeshya Agarwal stood 2nd position in Business plan event in AKTU ZONAL & STATE LEVEL ACTIVITIES at AKGEC, held on 30 & 31 Jaunary, 2019

REQUIZA CLUB



It is the official technical club of Electronics and Communication Department, ABESEC. The club started its journey two years ago, in the year 2017.This is the best platform where students can learn and showcase their talent and technical innovations. This is the place where you can build your personality and present it in front of the audience. When you get bored of daily hectic college lectures, this is the place where they can relax their mind by learning new skills according to your interest.

The various events organized for this session are:-

1. Workshop-"EMBEDDED SYSTEM" under IEI Society on 24th of September, 2019.

This was a workshop conducted in collaboration with CETPA about the present scenario of Embedded in Placements. The topics covered included the basics of Embedded Systems, Introduction to Microcontrollers and uses and advantages of Embedded Systems. The workshop was followed by a Questionnaire session. The Winner of the event is Harshit Nandan & Vishal Gupta.

2. Technical Event-"BRAINATHON" on 05th - 6th of September, 2019.

This was a two round event out of which first was an online event which revolved around the basic Electronics knowledge and quantitative and qualitative reasoning. The event helped students check their analytical skills and electrical and electronics concepts. The second round was a group discussion round which was based on knowledgeable and trending topics. The Winner of the event is Rushil Khare, Anshika & Aruneet Roy Chaudhary.

3. Technical Event—"I SPY SCIENCE" on 13th - 16th of July, 2019.

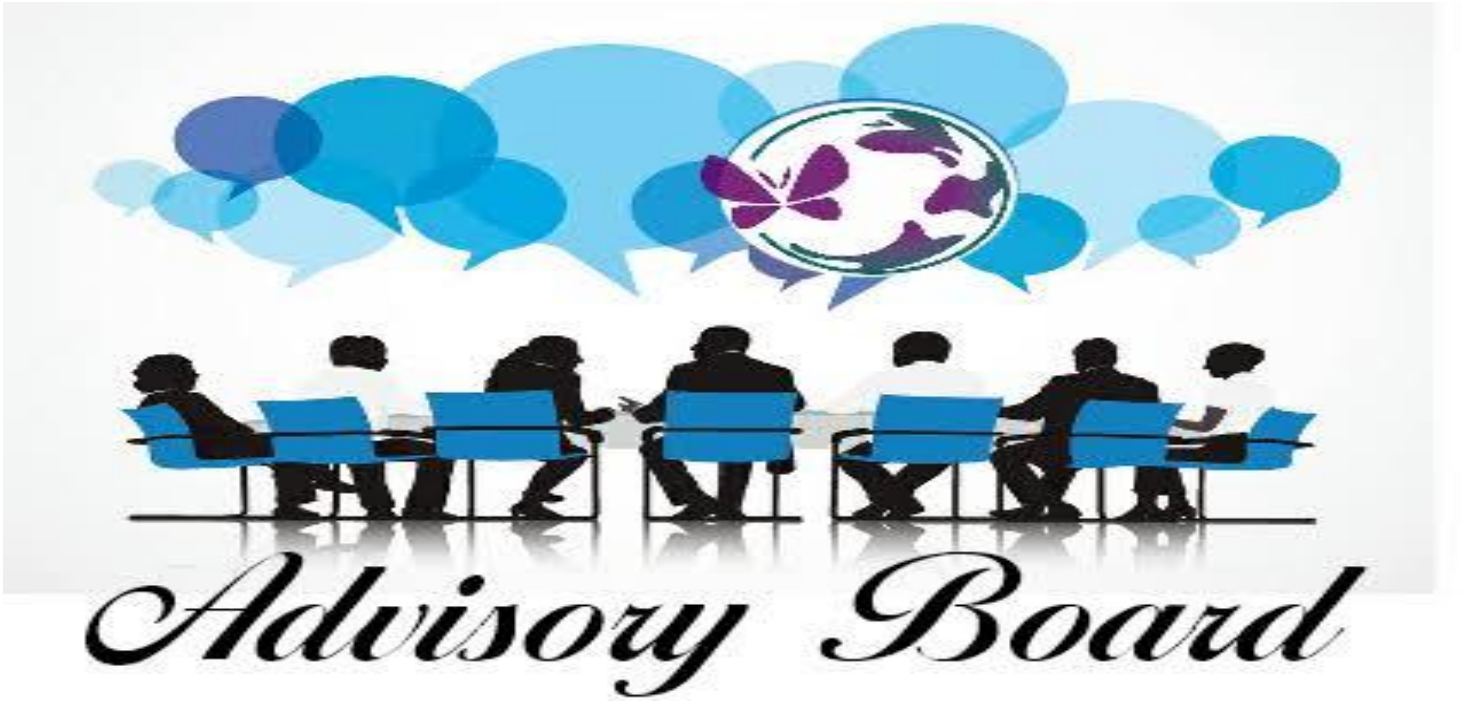
It was an online event on the society's Instagram page @requiza.abesec in the beginning of session 2019-20.This event was an entertaining and Innovative for the participants they got to know about various innovations of some great scientists. The winner student name was Hardik Rajvanshi.

4. Technical Event-"CIRCUITRON" under ISTE Society on 30th of October, 2018.

It was an event mainly focusing on technical skills related to circuit analysis and designing. Basic circuits were to be designed using various electronics components. This would enhance creativity and innovation .This events helped the students in applying their basic knowledge or theory lectures and by implementing it practically. The winner students are Bhanvi goel and Apoorva Agarwal.

5. Technical Event-"QUIZ BEE" under ISTE Society on 27th September, 2018.

Quiz bee was an online event. The event aimed at quantitative aptitude, reasoning ability and the knowledge of latest technologies. Navneet kushwaha was the winner of the event.



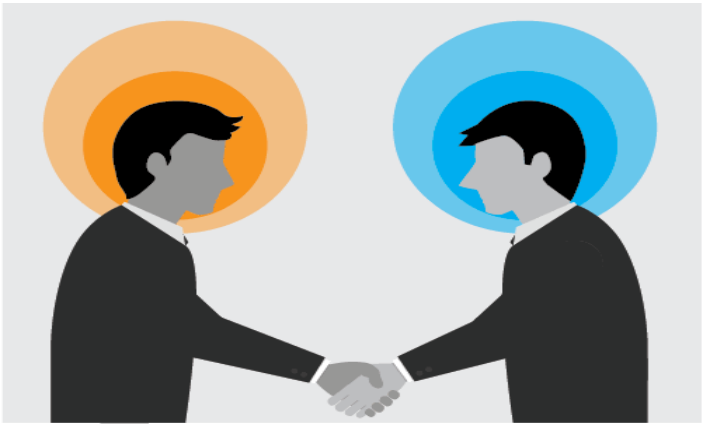
The Advisory Board is an informal group of experts who are consulted on various matters to do with Open Knowledge activities, strategy & operations but hold no legal responsibility for the organization. The concept of the Departmental Advisory Board (DAB) is based on a belief in the importance and value of shared leadership. Management, administration, Faculty members, parents & students work together to share advice and suggestions regarding departmental policies in accordance with the mission and vision of the department. The primary function of the advisory board is to provide advice & assistance to achieve the same.

Members of the Advisory Board

Prof. (Dr.) Gajendra Singh (Director, ABES EC)
Prof. (Dr.) S. K Singh(HOD, ECE)
Prof. (Dr.) D.S Chauhan(Vice Chancellor, GLA University, Mathura)
Dr. Arti Noor (Director, CDAC Noida)
Prof. Sampat Kumar V (Assocoate Dean, AKTU)
Prof.(Dr.) B.K Kaushik (Associate Professor, IIT Roorkee)
Prof.(Dr.) D. Vaithiyanathan (HOD (ECE), NIT Delhi)
Prof.(Dr.) Sajai Vir Singh (Associate Professor, JIIT Noida)
Mr. Navneet Kumar (System Application Engineer, Synopsis, Noida)
Mr. Dushant Kumar (Director, System Infra Solution PvtLtd)
Mr. Hemant Vats (Researcher, IMEC, Belgium, Neuven)

Academic Collaboration

Collaboration always pays off to learn and experience new technologies for both the partners. Academic and research collaboration is a very valuable tool that not only accelerates the progress but also enhances the quality of the work and extends the repertoire of the partners. Academic collaboration is beneficial to the faculty and students in learning new teaching tools and to increase the breadth of their knowledge and learning different approaches to solving a problem. The Department of ECE at ABES Engineering College always strives for academic collaborations with renowned universities and research centers across the country. The faculty members of the Dept. have been working together with the well reputed academicians from the leading universities/institutes/research organizations for their research:



Industrial Collaboration

Collaboration between universities and industries is critical for skills development (education and training), the generation, acquisition and adoption of knowledge (innovation and technology transfer) and the promotion of entrepreneurship (start-ups and spin-offs). Academic-industry collaboration can also expand the relevance of research carried out in public institutions and foster the commercialization of public R&D outcomes. The benefits of Academia-industry collaboration are also evident in developing countries. ABES EC plays an active role in bridging the gap between industry and academia. Dept. of ECE believes collaboration with industries as an important and strategic mission Collaboration ensures that classroom and textbook knowledge is being disseminated to the society. Industrial collaboration is a key access for ECE students to practice research and innovation agenda in the business community. In the recent past Dept. of ECE has tied up with the following companies and list is going on.-

T.R.E.E.S.

TheTagFactory ENGINEERING RFID SOLUTIONS

INTEX

System Infra Solutions Pvt. Ltd. Solutions for life time...

RSA POWER PRIVATE LIMITED

Words from Alumni

1) The minute I stepped on the campus I felt I belonged. There are so many ways to get involved and everyone is so open to new people. Beyond its excellent academic program, ABES offers an environment where one can actively participate in a variety of activities on campus.

- Niyoti Saxena, 2016; System Engineer, TCS

2) Dreams comes true. ABES is the place where I realized my dream. The faculty of ABES help me to nurture this dream and help me in achieving the position where I am today. I realize the importance of being part of a team and workingtogether.

- Priyank Keshri, 2016
Soꞇware Developer, Iconcept

3) ABES certainly helps me to expand my knowledge horizon & I would always be grateful to ABES for giving me a multidimensional learning by providing the mix of academics, Industry exposure, attitude and leadership. ABES has helped me in improving my skills & potential by giving exposure to the fullest. I am thankful to the faculty members and the administrative management who have helped me to mound myself into a better individual.

- Shubham Aggarwal,2016
MBA(Pur) from LPU

Interview

Ms. Shruti Singh
B.Tech Final Year

Q-1 In which companies are you placed and what is the domain of your job?

I am placed in four companies as follows:

1) Capgemini
   Profile: Analyst
2) Tata Consultancy Services
   Profile: Ninja via Codevita Contest
3) Byju's- The Learning App
   Profile: Product Specialist
4) Centilytics
   Profile: Business Development Associate

Q-2 How did the college help you with the placements?

The pre-placement preparation classes organized by the college during summer break were a boon for the preparation of aptitude and technical rounds of various companies. There is also a series of mock interviews which proved to be highly beneficial for the preparation of technical and HR interviews and also how to present oneself in an actual interview session.

Q-3 What was your preparation mechanism for an interview?

Well, for the technical companies (IT industry) I mastered 2-3 things namely C, JAVA and Data Structures. Being from ECE background, I had the ideology that one doesn't need to know all the CSE subjects to crack an interview. Even if you know few things, you need to have an in-depth knowledge of the same. Run for quality and not quantity. It proved to be good for me in all the interviews.

I used to religiously refer to geeks for geeks and javatpoint before an interview besides college notes of Data Structures. I used to code on Hacker Earth and it helped me crack TCS Codevita. Besides these points, a good research about the company, excellent communication skills and a positive personality always helps!

For the non-technical profiles, I use to keep myself updated about trending topics because usually those topics were allotted during GD. Rest depends on your ability to convince the interviewer that you are fit for the role.

Q-4 What kind of questions were you asked during the interviews and how did you answer them?

The interviewers are mostly friendly and they understand that you are nervous! So, they break the ice by a "Tell me about you" question. For technical profiles, this question is followed by different technical questions from your resume or as per company's requirements. For non technical profiles, they can pretty much ask you anything to check your presence of mind and the ability to think on your feet.
The key to crack technical rounds is to not rush! Take your time, relax and answer the questions. If you don't know an answer there is no need to panic; the interviewer simply checks whether you have the attitude to learn things or not.

Q-5 Did you face any difficulties during the placement drive?

Well, for a girl from an ECE background wanting to make it big in the IT sector, the number of IT companies that you will get to sit in is lesser than a person from CSE/IT background. To tackle this, my advice is to take AMCAT and Cocubes exams very seriously because there are lot of amazing off-campus opportunities for you, provided you land a good score!

I also used to get nervous during interviews and I have definitely seen rejections. The mantra to success is Eat. Hustle. Meditate. Hustle. Sleep. REPEAT.
Don't take stress or give up at any cost!

Q-6 What message would you like to give your juniors to achieve their goals?

This is my favourite part and I will give you all realistic tips.
1) Success comes at the different paces and time for everyone. Do not compare yourself to anyone. You will get placed. You will crack your higher studies entrance exam. Have patience!
2) There is no shortcut for hard work. You have to put in those hours to sharpen your aptitude, your coding, your core branch knowledge and your communication skills.
3) Focus on your academics and try to maintain your percentage above 70% at all costs. It will you in placements and higher studies.
4) Participate in co curricular and extra curricular activities to remove hesitation, develop interests and maybe discover a new talent.
5) Be punctual, dress smart and improve your team-playing and managerial skills.
6) It's okay to face rejections in companies or general life. The ones who fail and bounce back shine the brightest.

Articles by Faculty Members & Students

IoT Based Home Automation Using Android App, Google Assistant and Local Sensors

Dr. Himani Garg

IoT is licensed through advances in innovations, including sensors, radio frequency identification (RFID) and communications advances. The most important introduction to Internet objects is the interface of devices and sensors without human intervention. The smart home computing framework is the result of customer access and work from anywhere in the world via the web. This system provides remote device control and provides security when the customer is away. In this document, we have introduced a system that enables automation of electrical and electronic devices for daily use through wireless access and local sensors. The algorithm plays some similar core capabilities. Here, for example, lamps, fans, irrigation systems for plants and doors. In the published system, Arduino is connected using MCU Node to control many home appliances and can be controlled from anywhere on the Internet. The goal of the frame is to provide minimal effort and responsiveness to the home information frame using Internet objects.

Analysis of 8th Generation Intel Processors

Ms. Ranjeeta Yadav

Abstract: - This survey presents an overview of the recently launched 8th generation of Intel Core Processors based on (14++) nm node manufacturing process codenamed as Coffee Lake and how they compare to the previous generation that is Kaby Lake. Main emphasis is done on core i5's and i7's and how does the increase in core and thread count by 50% affect performance. This paper summarizes the question "Does more cores mean better performance?"

Characterization of Microstripline using DGS

Ms. Manidipa Roy

Abstract: - DMS and DGS structures, are suitable for the design of microwave and milliwave (miniature) filters with certain stop bands frequency responses in coplanar waveguide (CPW), strip line, and MMIC applications. Also the equivalent circuit parameters for DMS and DGS which consist of parallel RLC resonant circuits were extracted using circuit approaches and then the performance of these circuits were compared by important parameters. A DMS structure is of great advantage to design, due to reduction of size and EMI noise immunity, and has higher effective inductance compared to DGS. DMS circuits provide for easier control of cutoff frequency and stop band characteristics and are also easy to integrate with other components. The simulation was done using HFSS v13. The results were tested under the following parameters: with respect to frequency S11 (dB) Return Loss plot, VSWR and also current distribution at4.8-5 GHz. These results of a simple Micropstripline are compared with that of DGS/DMS structure. The magnitude of power radiated by simple microstripline is plotted in the graph against frequency. The result shows that maximum radiation is between 4.8GHz to 8GHz, it is about -42.76 dB with a 3dB bandwidth of 89 MHz at 4.82GHz. The magnitude of power radiated microstripline with DGS shows that maximum radiation is between 4.8GHzto 8GHz, it is about -43.5 dB with a bandwidth of 130 MHz at 4.90GHz.

Metrology Challenges Associated with Novel Devices of Extended and Beyond CMOS Technologies

Dr. Raman Kapoor

Abstract: - Downscaling of semiconducting devices for performance enhancement is fast becoming obsolete due to the fundamental physical limitations. Hence, to further continue the performance improvements, modern electronic devices need to incorporate novel materials and device architectures for emerging applications such as Internet of Things (IoT), Big Data, Cloud computing, Automation, Green Energy, etc. Such non-conventional devices bring with them various challenges related to their characterization. This review presents the current state of technology and describes the role of microscopy in establishing the viability amongst a wide range of materials and devices being currently explored. Electron microscopy, scanning probe microscopy are some of the techniques discussed in this review. Also explained is the importance of defect detection and characterization for extended and beyond CMOS devices.

Microcontroller Driven GPS Clock

Ms. Geetanjali Raj and Ms. Upasana Sharma

Abstract: - GPS satellites (and now GNSS also) generally include more than three (or four) atomic clocks which are monitored and controlled for being highly synchronized and traceable to coordinated universal time as national and international standards. Thus for synchronization of time, the GPS signal is first received, then processed with help of a “local master clock”, time server, or primary reference, and passed on to "slaves" or other devices such that their "local clocks" are properly synchronized to coordinated universal time The accuracy ranges from better than 1 microsecond to a few milliseconds depending on the protocol used for synchronization. Synchronization is the process of GPS that provides atomic clock complete accuracy without using a local atomic clock. Local atomic clocks are sometimes further desired as a solution for long-term back-up in case of loss -of –GPS information, GPS interference, weather-related outage, or other scenarios. Synchronization of GPS clock removes the necessity of physical clock setting which was an error-prone method, to provide traceability to UTC, a national and international standard so that various events can be correlated even if they are time-stamped by different clocks. This includes numerous benefits such as: legally validated time stamps, secure networking, regulatory compliance, and operational efficiency.

IoT based Moving Message Changer

Ms. Arpita Johri and Mr. Mudit Saxena

Abstract: - IoT (Internet of Things) is a network of physical objects or devices, vehicles, buildings which are embedded with electronic circuits software, sensors and network connectivity. This enables these objects to collect and share data. IoT empower items to be sensed and controlled remotely via wireless communication. IoT Internet involves the use of standard Internet Protocols for the human-to-thing or thing-to-thing communication in embedded networks. The objective is to create a virtual footprint of all the devices and people connected to it. In the proposed paper, the approach is to design and develop a wireless notice board. Voice is converted to data from the user's android application device. Remote operation is achieved by a smart phone or tablet with Android OS and a GUI (Graphical user interface) based touch screen operation. Micro-controllers, android applications, blue-tooth devices and wireless communication concepts have been used.

An Insight into Various FinFET Structures, their Design Techniques and the Challenges Encountered

Mr. Manish Zadoo

Abstract: - This paper presents a comprehensive review of the various FinFet structures highlighting their significance over planar FETs. It draws an insight into the various technologies involved in the design and development of FinFET structures, their applications and the challenges posed while implementing newer designs with these components. It also addresses the process challenges for FinFET future such as fin patterning, gate patterning, conformal doping and mobility enhancement. FinFET is the most suitable device for implementing CMOS logic and memory applications that make use of 22 nm technology and further. It is due to its inherent characteristics such as its high short channel effect (SCE) controllability and less degree of variation. FinFET applications are a result of the development of Scaled Static RAM and analog circuit and some demonstrations for them are already reported. FinFET production encounters a number of design challenges due to the difficulty of patterning associated with Fin/gate in a three dimensional structure. These problems can be addressed by optimization of the patterning stack ant the etching chemistry involved. Furthermore, by adopting alternative doping techniques, the performance of the FinFET can be enhanced. Additionally, issues such as high access resistance can be reduced by employing optimization of the junction coupled with strain booster technique.

Metro Train Prototype Using Microcontroller ATMEGA16

Ms. Khushbu Bansal

Abstract: - This paper describes the technology used in now a day's driverless metro train and the prototype that has been developed to demonstrate the same using microcontroller ATMEGA16. Train is equipped with CPU and is programmed for specific path. Every station is defined and distance between stations is predefined.
This project controls the train without any driver and is fully automatic. It is very useful in developing countries and has a bright future as it is being used in countries like Germany, France and Japan. This project will lead to increase in technological trends and will help people in many ways.

Sinusoidal oscillator using current controlled current conveyor trans-conductance amplifier

Mr. Shailendra Bisariya

Abstract: - This work presents a sinusoidal oscillator design using only one single current controlled current conveyor transconductance amplifier (CCCCTA) as the active building block, and three passive components. The proposed design provides the advantage features of independent electronic control of oscillation condition and oscillation frequency, and also the use of all grounded passive components. PSPICE simulation using 0.35 µm CMOS process parameters is performed to confirm the performance of the proposed oscillator circuit.

Low Power VLSI Design of Arithmetic and Logical circuits using Multiple Threshold CMOS Technique

Prachi, Anuwarti Rai, Aanchal Singh and Ashwin Anand

Abstract: - Exponential increase in the transistor density on a single substrate in an integrated circuit has paved the way for tremendous growth in the semiconductor industry. Very Large Scale Integration (VLSI) of these transistors on a single substrate boosts performance but also causes multiple issues related to delay and power consumption. It is important to boost performance but keep the trade-offs related to delay and power to a minimum. This has resulted in researchers moving towards low power design techniques. Such techniques are different from conventional design techniques in such a way that power is consumed as and when needed. This helps in minimizing the total power consumed by any circuit. The aim of the work presented in this paper is to present the capability of multiple threshold complementary metal oxide semiconductor (MTCMOS) technique to achieve low power consumption with approximately same delay time in a single circuit. Standard arithmetic and logical circuits have been simulated at the 45 nm technology node and critical parameters namely power and delay have been calculated using the MTCMOS technique and compared with conventional CMOS design. It is

shown that by using transistors of different threshold (as in MTCMOS technique) power consumption is significantly reduced.

Arduino Based Smart Dustbin for Efficient Waste Segregation and Disposal

Pragati Gupta, Akanksha Raj, Akshita Katiyar and Dr. Raman Kapoor

Abstract: - There are multiple necessities of human life which are indispensable. These are critical as well essential to the daily routines and also end up in generating large amount of waste. It is commonly known as urbanization leads to increase in generation and pileup of waste. Solid waste which is largely classified as dry and wet requires efficient segregation and disposal. Wet waste is generally biodegradable while dry waste is categorized as non-biodegradable. Hence wet solid waste can be used to produce manure via plants which is essential for soul nourishment. However, the major challenge is to segregate solid waste because solid waste is a mixture of dry and wet waste. Also presence of hazardous material like glass and plastic is also a cause of concern. Therefore, it is essential to segregate waste at the point of generation and if this can be done with minimal human intervention it will expedite the entire process of waste management. This is particularly useful because every smart city will require smart ways of waste management.

Arduino Based Traffic Light Control System Using NRF Module

Dishant Bhardwaj, Ajay Yadav, Ashwani Yadav and Pradeep Singh

Abstract: - Traffic congestion is a major problem for any major contemporary city. Transportation systems are heavily burdened due to traffic congestion. A major impact of slow moving traffic is the danger posed to critical vehicles like an ambulance as it can cause loss of human capital to any country. A possible solution is to automate the traffic signal controlling mechanism by allowing real time monitoring. Such an approach is expected to decongest traffic as and when needed. In this work a system is proposed which will include a control system which will monitor traffic on a real time basis and take decisions accordingly with minimal human intervention. This system is applicable in urban areas and is also a cost effective alternative. The transmitter on the priority vehicle (e.g. ambulance) communicates with the traffic signal equipped with a receiver. This communication is processed through a control mechanism which regulates the traffic in such a way that the priority vehicle gets easy passage.

Smart Irrigation System using IoT

Akash Tomer, Anshuman Singh and Pulkit Gupta

Abstract: - Horticulture is one of the most widely practiced phenomenons in any country. However, due to the constant movement of concerned personnel is a major issue in the success of agrarian business. at this point because of relocation of individuals from provincial to urban there is obstacle in agribusiness. So to beat this issue we go for keen agribusiness methods

utilizing IoT. This venture incorporates various modern features such as Wi-Fi based checking of remote locations, dampness detecting, security, moisture in leaves and legitimate water system offices. It utilizes remote sensor systems for watching the properties of the soil and various other naturally occurring factors. Different sensor hubs are extending at various areas in the homestead. The information which is gathered by various sensors is transmitted via a collection of remotely operated instruments and micro controlled Wi-Fi systems.

Attendance Monitoring System Using GSM

Vaibhav, Tushar and Saurabh

Abstract: - RFID stands for Radio Frequency Identification. It is an identification verification method which is gaining recognition over the years due to its flexible design and cost effectiveness. It is used for various operations like attendance monitoring, inventory control, library management etc. This technology is also used for Bank security. It is used in locker to provide access to authentic user only This technique is secure, faster and easy to use with lower overheads in contrast with the other techniques such as bar code, biometrics etc. RFID system has two components i.e. RFID Tag and Reader. RFID reader gathers information from RFID Tag, which sends using antenna. RFID Tag are of two types, Active tag and Passive tags. Active RFID tags are battery operated while passive tag uses EM field to charge the capacitor for short duration and send information. This review paper presents a design of an Attendance Monitoring System for both students and professor with enabled notification sent via GSM. This project is to simplify attendance monitoring system by using RFID. This paper reviews this attendance monitoring systems and provides information about various components involved in this.

Advanced Wheelchair with RF remote controller

Abhishek Tiwari, Chandan Pradhan, Hemant Singh and Shivam Shukla

Abstract: - This paper is about the designing of an advanced, electric wheelchair using the embedded system. Proposed design represents the Switch-controlled system for the wheelchair bound person where the switch is used to control the movement and direction of the wheelchair. In addition to it the wheelchair features a wireless communication system which is used to control the home appliances as well as to convey the emergency needs of the user. The wireless communication is accomplished through radio frequency communication. The user will control various indoor appliances via remote by using Radio Frequency (RF) transmitter and receiver in the wheelchair system. This automation is achieved with the help of Arduino microcontroller. So, it could be of greater boon to people who feels difficult to move. During emergency condition, the physically challenged person can just press the button in the remote to send signal to get assistance. Infrared sensors are also used in the wheelchair design. It helps in the detection of the obstacles and collision avoidance, which can obstruct its movement.

Performance Analysis of E- shape and 5G Microstrip Patch Antennas

Divya Upadhyay, Keert Singh, Harsh Khare and Kishan Kumar

Abstract: - This paper presents analysis of two patch antennas- an E-shape patch antenna and a patch antenna in the 5G frequency spectrum or better still in the mm wave frequency band. The mm wave antenna is best suited for the modern mobile communication which requires data transfer at an extremely high data speed. The first design is an E- shape patch antenna proposed with a return loss of -15 decibels at a frequency of 2.5 GHz. The VSWR below 2 for the entire band of frequency. The second design which is proposed is a rectangular patch with microstrip line feed. The return loss is approximately - 15 decibels at a frequency of 26.5 GHz. The second antenna design is suitable antenna for use in 5G technology for mobile communication.

Vehicle Theft Intimation System Using GPS

Sharad Sharma, Saurabh Sharma and Shivam Rai

Abstract: - This paper is all about designing and developing a vehicle theft intimation system that is basically used for the prevention and control of theft of user vehicle. In today's modern era, mobile phone is easily available and affordable to everyone. With help of this, the proposed system not only make calls but also access it for protecting and preventing theft of the vehicle by modifying and interfacing it with Global Positioning System (GPS) module and Global System for Mobile Communications (GSM) module. This whole embedded system is linked to the vehicle e.g. - Bike, Car etc. when an unauthorized user tries to switch on the vehicle, a signal (current) is generated by the sensing circuit interfaced with the ignition system of the vehicle. This signal is taken as an input by the controller unit which then sends the message to the owner about the real time location of the vehicle. This location can be further provided to the local police for tracking process in case of theft. Nowadays, Vehicle Company are charging a lot of additional charges for these tracking and monitoring related services. The proposed design is quite simple and of low cost solution for the said problem, hence it can be economically affordable by everyone. The main aim of our project is that with the help mobile communication and embedded system we can provide security to our vehicle.

GSM Based Gas Leakage Detection and Prevention System

Akshansh Laldhar, Janardan Pandey and Rishabh Chauhan

Abstract: - Nowadays, a major problem with various industrial sectors is gag leakage. This problem poses a potential threat to residential buildings and vehicles powered by gases such as Compressed Natural Gas and Liquefied Petroleum Gas. In order to address this problem, one of the most suitable methods is to depute a gas leakage detection and prevention system at the vulnerable sites. This paper presents a design and the developed hardware that can automatically detect and stop gas leakage in the event of an emergency situation. Its strength is particular a gas sensor which has exhibits higher sensitivity for both propane(C3H8) and butane (C4H10). The system primarily comprises of a Gas leakage detection system that incorporates a GSM module, that detects and alerts the consumer or the concerned authority about the gas leakage.

Solar Piezo Hybrid Power Charging System

Gunjan Singh, Hardik Rawat, Prashant Singh and Himanshu Rawat

Abstract: - In this world the major crisis and the most valued things are our conventional energy resources which are finite in quantity and is depleting day by day. Energy Resources are the backbone of a country's economy. Therefore, it is inevitable to harness the energy for our daily usage via Non-Conventional energy resources. Though the passage of time we humans now crave for modernization in every aspect so that our lives become easy to live with minimum efforts. This aspect is achieved at the cost of overusing limited finite energy resources Conventional energy resources include Coal, Petroleum and natural gas. Whereas non-conventional energy resources include Solar energy, Wind energy, Hydro energy, etc. This review paper is thereby an attempt which tries to find a viable solution for this problem. It throws light onto the possible techniques and discusses a project based on electronics which to certain extent tries to overcome this problem for our future. It exclusively focuses on Energy Generation Via solar energy and the mechanical energy i.e. pressure energy(piezo-energy) of humans when they walk. Thus this review paper presents a device which produces energy and also utilizes energy which otherwise would have gone waste.