



# TECHZIG

## 2024

VOLUME-6

## Bhoj Reddy Engineering College for Women



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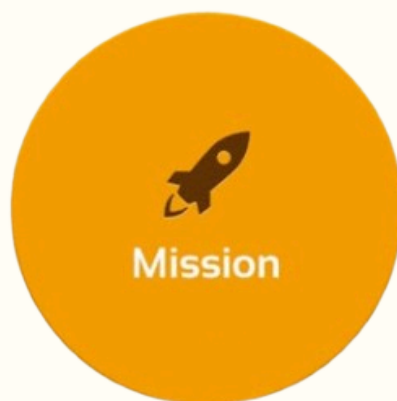
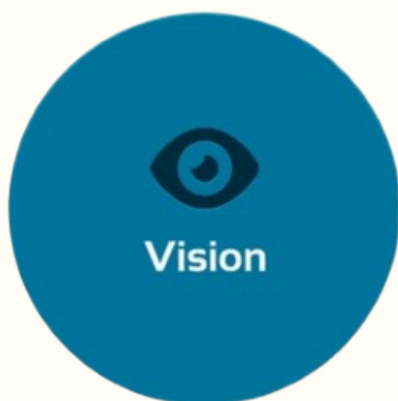


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Department of Electronics  
& Communication  
Engineering

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## VISION

ECE department envisions developing technically competent and meritorious women engineers with a keen sense of social responsibility.

## MISSION

- To provide a challenging and value-based education, enriching knowledge of young engineers in the field of Electronics and Communication Engineering.
- To strive for the intellectual and personal development of young women to build a healthy society by improving the quality of life through the application of Electronics.
- To inculcate self-confidence, teamwork, leadership, and entrepreneurship in students through curricular, co-curricular and extracurricular activities.
- To develop adaptable thinking and the ability to apply the techniques of communication innovatively in a realistic environment for the current and future technological requirements.

# About College

Bhoj Reddy Engineering College for Women is run by Sangam Laxmibai Vidyapeet, a registered voluntary social action group working since 1952 for empowerment of women and girls through education. The Vidyapeet has more than 60 years of experience in the field of education.



Founders of BRECW



College Campus

Sangam Laxmibai Vidyapeet is a voluntary social action group working for empowerment of women and girls. Registered under the Andhra Pradesh Societies Registration Act, It is a not-for-profit organization working in the field of education since 1952.

The Management of the Vidyapeet makes every effort to fulfill the vision of its founders KV Ranga Reddy, Sangam Laxmibai, M Bhoj Reddy, Bojjam Narsimhulu, Pasham Papaiah, A Shyamala Devi, P Lalitha Devi, B Ramdev, MH Guptha who are no more with us.

The College was established in 1997. It is managed by an executive committee consisting of persons with along experience in the field of education. Within a short period, it has emerged as one of the premier engineering colleges in the state.

The College campus has the unique advantage of being located in the heart of the city and yet free from noise and dust pollution. With considerable open space and greenery spread over 6.5 acers of land, the campus provides an ideal ambience for the engineering education of girls.

The academic performance of our students has been consistently outstanding with a pass percentage of 85 to 90.

The College Timings are 9:30 am to 4:30 pm. There will be 6 periods of 60 minutes duration in a day, with a lunch break of 60 minutes. The College attaches great importance to attendance and rewards students having good attendance. The college is firmly convinced that good attendance helps the students to perform well in their curricular, co-curricular and extra-curricular activities.

The College is offering the following undergraduate courses:

1. Computer Science & Engineering (CSE)
2. Computer Science & Engineering (AI & ML)
3. Electronics & Communication Engineering (ECE)
4. Electrical & Electronics Engineering (EEE)
5. Information Technology (IT)





Ramdev Indoor Auditorium



Digital Library



ECE Staff



Students of IEEE, ISTE IETE &amp; ISOI

## Infrastructure

All classrooms are equipped with LCD facilities for conducting lectures and presentations effectively. Tutorials are conducted regularly and, for this purpose, separate tutorial rooms are provided in each department. An open air theatre to accommodate more than 1200 is also available in the college campus. A full fledged 'Ramdev Indoor Auditorium' with a capacity of 300 will be ready for conducting curricular, co-curricular and extra-curricular activities.

## Faculty

The college has able and committed faculty. The development of faculty is pursued vigorously on a continuous basis. The selection of faculty members is made every year by the JNTU selection committee through an open advertisement in the leading newspapers. The College encourages the faculty members to pursue higher studies and research by extending special facilities.

## Academic Activities

The college has been in the forefront for organising various short-term courses, conferences, symposia, workshops, seminars and special lecturers.

## Student Chapters

Presently, the college has students chapters, namely:

1. Institution of Electrical & Electronics Engineers (IEEE)
2. Indian Society for Technical Education (ISTE)
3. Institution of Electronics & Telecommunication Engineers (IETE)
4. Instrument Society of India (ISOI)

# About Electronics & Communication Engineering



Electronics and Communication Engineering (ECE) is concerned with design, development, test and supervision of manufacturing of electronic equipment. Electronics has changed the entire world with its power of communication and micro-miniaturisation of devices like transistors, diodes, resistors.

ECE is a swiftly advancing field, with new ideas emerging every other minute. From mobile phones to fiber optics to remote sensing, there are exciting avenues to explore and create even better ideas. With technology becoming all pervasive in everyday life, opportunities for electronics and communications engineers are endless. The department has well-established labs as per the norms of JNTUH.

The scope of Electronics and Communication Engineering extends beyond traditional domains, encompassing cutting-edge technologies such as the Internet of Things (IoT), Artificial Intelligence (AI), and Quantum Computing. IoT has revolutionized the way devices communicate with each other, enabling smarter homes, cities, and industries. AI is transforming everything from healthcare to autonomous vehicles, making processes more efficient and intelligent. Quantum computing promises to solve complex problems at unprecedented speeds. ECE graduates are at the forefront of these technological advancements, driving innovation and pushing the boundaries of what is possible.

Furthermore, the interdisciplinary nature of ECE opens up numerous career opportunities in diverse fields. Graduates can find themselves working in telecommunications, aerospace, automotive, and healthcare industries, among others. They are also well-equipped to pursue research and development roles, contributing to groundbreaking discoveries and advancements. The demand for skilled electronics and communication engineers continues to grow, driven by the constant evolution of technology and the increasing reliance on electronic systems in all aspects of life. With a strong foundation in both theoretical knowledge and practical skills, ECE professionals are well-prepared to tackle the challenges of the future and contribute to the advancement of society.

As the digital era progresses, ECE professionals will play a crucial role in shaping the future of technology and innovation. Their expertise will be instrumental in developing sustainable solutions to global challenges, ensuring a better and more connected world for future generations.

## **Programme Outcomes of ECE**

**PO 1- Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

**PO 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.

**PO 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.

**PO 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.

**PO 5- Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.

**PO 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.

**PO 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.

**PO 8- Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

**PO 9- Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

**PO 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.

**PO 11- 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.

**PO 12- 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 Education Objectives of ECE**

**PEO 1:** Solve complex problems by using their expertise in analyzing and developing potential models using modern scientific tools.

**PEO 2:** Prioritize their professional development through interpersonal, leadership, and social skills, catering to the needs of society with ethics and integrity.

**PEO 3:** Exhibit sustained learning adapting to changing professional needs.

## **Program Specific Outcomes of ECE**

**PSO 1:** Able to design, develop and analyse systems in the field of Electronics, Communications & Networking, Signal & Image processing, VLSI technology and Embedded systems.

**PSO 2:** Demonstrate expertise in the use of software and hardware required in real-life applications.



# Principal



**Dr J Madhavan M.E, Ph.D.,  
MISTE., Principal**

Dr J Madhavan, an enthusiastic teacher and an administrator, has more than 20 years of experience in teaching, research, and institutional development. He has a vast research experience in Content Based Image Retrieval, Computer Vision and Pattern Recognition. He is specialized in Digital Image Processing, Digital Signal Processing, Microwave Engineering, Internet of Things etc. He has published more than 25 Research papers in refereed international journals and presented several papers in both national and international conferences. He has guided over 50 MTech students and 150 BTech students in the successful completion of their projects. He has given many guest lectures, seminars and organized many workshops, conferences, guest lectures and FDPs. He has been Editorial/Advisory Board member of Journals. He has also been a reviewer for some international conferences. He has served as a resource person, keynote speaker for some workshops and conferences.

## **Principal Message**

Dear Students,

Today the country is in great need of technically sound graduates having a strong aptitude to work with zeal and fervour. Our college focuses on offering the best of the technical education for the overall development of the students. When you walk out of the campus, you can be competent enough in carrying out all your personal as well as social responsibilities.

Thanks to the Training and Placement Cell of our college which intends students be aware of the various job opportunities, imparts the necessary training and skills, and conducts campus interviews to recruit themselves in the final year of their graduation. It plays a crucial role in helping students to kick-start their career in their respective fields.

I am pleased that the students are well aware about all curricular, co-curricular and extra-curricular activities along with substantial emphasis on sports and cultural activities.

I wholeheartedly congratulate all the contributors and faculty members of the Magazine Committee on the successful publication of this magazine!

# Head of Department

Ms. S Manjula completed her graduation from the Institute of Engineers, India, and her post-graduation from Osmania University, Hyderabad. She has been associated with technical education for the past 24 years. She started her career in BRECW as a lecturer in 1998 and was later promoted to the position of Associate Professor and HoD. Her areas of interest include Signal Processing and Communication Systems.



**Ms. S Manjula**  
**HoD, ECE**

## HoD Message

Dear Students and Parents,

Thank you for showing your interest in Department of Electronics and Communication Engineering.

I welcome you all to the Department of Electronics and Communication Engineering (ECE) at Bhoj Reddy Engineering College for Women. The Department of Electronics and Communication Engineering was established in the year 1997 with BTech (ECE) with an intake of 120 girl students. This discipline extends to every aspect of modern society and continues to be the cornerstone of rapid technological advancements that improve the quality of life in this millennium. It also strives to be at the forefront of engineering education to equip our girl students to be engineering leaders in industry, research, and entrepreneurship.

Electronics and communication engineering is a dynamic and exciting area that provides excellent career opportunities in various areas of technology. The department faculty are committed to teach our girl students the fundamental concepts and the latest trends via effective & impactful teaching and learning process. The students are also imbibed with critical thinking and problem-solving skills as they step into their future with confidence. In addition to classroom teaching, the students are guided and motivated to practically implement the principles learnt in classrooms through experimentations in the laboratories.

The department conducts seminars, workshops, expert talks and additional training programs on recent trends in Electronics and Communication Engineering in collaboration with industries for the benefit of students.

I welcome all the aspirants to be a part of ECE family and wish them a bright future ahead!

Students from our department have been selected by some of the leading software companies in the country. With the diverse expertise of our faculty and the support of the management, we prepare our girl students to work in a global, multidisciplinary environment.



# Facilities

## Library

The Library and Information Centre (LIC), a gateway to knowledge resources, is making use of the latest advancements in the Information and Communication Technologies (ICT) to offer quality facilities to the students and staff of this college.

The LIC is fully automated through VTLS VIRTUA Integrated Library System Software with Sun Solaris Server from Sun Micro System, USA. All circulation activities are done through Bar Coding System.

It is exclusively housed on three floors with an area of 1800 sqm. Internet Section, Digital Library, Circulation Counter, Periodical Sections are housed in one floor. The Reading Halls, Loan Section, Competitive Exams Cell and Reference Sections are housed on two floors. The reading halls accommodate more than 150 students and provide peaceful and friendly atmosphere for absorbing the knowledge available through books, journals, e-sources, etc.

It is institutional member of British Library to provide international standard services of IELTS, TOEFL, GRE examinations, communication skills, placements, etc. in UK to students.

Apart from this, it provides Current Awareness Services, Selective Dissemination of Information, News Paper Clipping Service and Reprographic Service. The College also provides fiction and nonfiction books to inculcate reading habits among the students.

**Timings:** 9:30 am to 5:00 pm

**Internet Centre:** Our Institution is one of the few institutes to possess 10Mbps leased line from BSNL for Internet connectivity with 67 desktops. Each department, sectional library is connected with Internet. The students and staff of the college have free access to Internet.

**Website:** The college maintains a website, [www.brecw.ac.in](http://www.brecw.ac.in), which provides up to date information about the management, departments, faculty and laboratories. Parents can visit the website for the latest information about the college, student attendance and performance.



Library

## **Sports & Games**

The Outdoor games facilities include a 200 mts track with Basket Ball, Volley Ball, Throw Ball, Tennikoit and Shuttle badminton courts, while the indoor games facilities include Table Tennis, Carroms and Chess.

Inter Engineering Games Meet for Women students are conducted every year.

Our students bring laurels to the college in JNTUH Inter Engineering Collegiate Tournament every year.

Many students represented JNTUH in All India Inter University Championships held in various colleges platforms across the country.

The Management of the college encourages the students by giving cash awards for the university players as well as the winners in JNTUH Inter Engineering Collegiate Tournaments.



Sports Ground

## **Other Facilities**

- All the classrooms are facilitated with DLP projectors, Thin Clients and Green Glass Board.
- All Computer Labs are facilitated with Computers, White board, DLP Projector and Internet.
- Central Library and Digital Library.
- Well-equipped and state-of the art laboratories as per the norms specified by JNTUH and AICTE.
- Ramdev Convention Centre.
- Open Air Auditorium.
- Seminar Hall.
- 100 Kwp Solar power plant and Generator.
- Lift and Water purifiers.
- Individual Locker Facility for Students.
- Sports & Games.
- Separate Parking for 2-wheeler and 4-wheeler.
- Canteen and Stationery.
- Banking facility is available within the campus for convenience of students and staff.
- Sponsoring educational society is a non-profit organization.
- Wheel Chair for Physically Challenged.

# Faculty Achievements



**Name:** Dr Ashok Kumar Konduru

**Ph D Topic:** A comprehensive study of Emotion recognition using machine learning from speech signals: Digital feature Optimization and diversity measure fusion for improved Accuracy and Robustness.

**Domain:** Signal Processing

**Name of the University:** Veltech Rangarajan Dr Sagunthala R&D Institute of Science and Technology, Chennai.

**Date of Awarded:** 15 July 2024

Our esteemed faculty member has achieved a significant milestone by earning a PhD in Emotion Recognition using Machine Learning from Speech Signals. This groundbreaking research focuses on optimizing digital features and employing diversity measure fusion techniques to enhance the accuracy and robustness of emotion detection systems. By leveraging advanced machine learning models and innovative data fusion strategies, this study addresses key challenges like noise interference and variability in speech patterns. The findings pave the way for transformative applications in mental health, human-computer interaction, and beyond, highlighting our institution's commitment to cutting-edge research and technological excellence.



This research stands as a testament to the transformative power of machine learning in addressing complex real-world problems. By meticulously analyzing speech signals and exploring diverse emotional cues, the study has unlocked new possibilities for creating adaptive and intelligent systems. The incorporation of advanced algorithms ensures these systems are not only accurate but also robust under diverse conditions, such as varying accents, languages, and noise levels. These advancements open avenues for deploying emotion recognition technology in areas like personalized learning, virtual reality, and healthcare diagnostics. The achievement exemplifies our institution's role in nurturing innovation and contributing to technological progress on a global scale.



# Faculty Contributions

## List of Workshops/FDP/Refresher Courses attended by faculty.

### **S Manjula-Associate Professor & HoD**

- 6 days FDP on “Gen AI - Novice to Master” at Sri Sai Ranganathan Engineering College, Coimbatore (09 to 14 December 2024)

### **B Jyothsna-Associate Professor**

- 5 days FDP on “Hands on 5G implementation on Matlab Annant Gyan Knowledge and skills private limited” (28 February to 03 March 2024)
- 6 days FDP on “User development in RF technologies in 5G and beyond” by Rajalakshmi Engineering college, Chennai (30 July to 06 August 2024)
- 6 days online FDP on “Industrial applications of Embedded systems and IOT” by Rajalakshmi Engineering college, Chennai (22 to 28 August 2024)
- National level Faculty development program on “Tools for Research in VLSI and Communications” by CBIT, Hyderabad (17 to 23 September 2024)
- Webinar on “Role of AI in IOT and Semiconductor technologies” by VPM’s Maharshi Parshuram College of Engineering, Velneshwar (24 September 2024)

### **G Srilakshmi-Associate Professor**

- 1 week online FDP on "Outcome Based Education" by Department of EIE, CVR College of Engineering, Hyderabad (29 January to 02 February 2024)
- FDP on "Foundations of Wavelets and Multirate Digital Signal Processing" by NPTEL (January to February 2024)
- FDP on "Signal Processing Techniques and its Applications" by NPTEL (January to April 2024)
- FDP on "Digital Signal Processing and its Applications" by NPTEL (January to April 2024)
- FDP on "Computer Vision & Image Processing - Fundamentals and Applications" by NPTEL (January to April 2024)
- 5 days online FDP on "Latest Trends in 5G/6G wireless communication" by Department of ECE, Holy Mary Institute of Technology & Science, Kondapur and Department of ECE, National Institute of Technology, Warangal in association with the Centre for Training and Learning (20 to 24 May 2024)

### **Kazi Nikhat Parvin-Associate Professor**

- 1 week online FDP on “Recent Trends in VLSI circuit design for IoT and Advance Communication Applications” by Baderia Global Institute of Engineering and Management, Jabalpur (05 to 10 February 2024)
- 1 week online FDP on “Innovation in VLSI Architectures, SOC Design & Verification” by CVR College of Engineering, Hyderabad (April to May 2024)
- 1 week online FDP on “SoC Designing and Python Productivity using PYNQ-Z2 Technical Webinar” by AMDXilinx (02 May 2024)
- 1 week online FDP on “AI & Machine Learning using Python” by Bhoj Reddy Engineering College for Women, Hyderabad (29 January to 03 February 2024)



**Radhika Rayeekanti-Associate Professor**

- 1 week online FDP on “AI & Machine Learning using Python” by Bhoj Reddy Engineering College for Women, Hyderabad (29 January to 03 February 2024)

**Dr K Ashok Kumar-Associate Professor**

- 1 week FDP on "Design & Innovation on Wireless Communication with Advanced Technology" by Department of ECE, Gates Institute of Technology, Ananthapuramu (17 to 22 January 2024)
- 1 week online FDP on “Cognitive computing for Smart Applications” by Department of AI&DS, Vishwakarma Institute of Technology, Pune (18 to 22 March 2024)
- 1 week online FDP on “Visual Intelligence: Image Processing and Computer vision” by CVR College of Engineering, Hyderabad (26 to 30 March 2024)
- 1 week online FDP on “Innovations in VLSI Architectures, Soc Design & Verification” by Department of ECE, CVR College of Engineering, Hyderabad (30 April to 04 May 2024)

**P Suresh Kumar-Associate Professor**

- 1 week FDP on "Design & Innovation on Wireless Communication with Advanced Technology" by Department of ECE, Gates Institute of Technology, Ananthapuramu (17 to 22 January 2024)
- FDP on “Internet of Thing” by NPTEL (January to April 2024)
- 1 week online FDP on “Visual Intelligence: Image Processing and Computer vision” by CVR College of Engineering, Hyderabad (26 to 30 March 2024)
- 2 weeks online FDP on “Recent Advancements in Deep Learning for Computer Vision Applications” by Department of ECE, CVR College of Engineering, Hyderabad (01 to 12 April 2024)
- 1 week online FDP on “Innovations in VLSI Architectures, Soc Design & Verification” by Department of ECE, CVR College of Engineering, Hyderabad (30 April to 04 May 2024)
- 2 days online Workshop on “Design of RF & Microwave Circuits and Applications” (04 to 05 May 2024)
- 1 week online FDP on “Generative AI Models and Applications in Machine Learning” by Shri Vishnu Engineering College for Women, Bhimavaram (21 to 25 May 2024)

**K Srinidhi Reddy-Assistant Professor**

- 1 week online FDP on "Research Methodologies - quantitative & qualitative research" by CVR College of Engineering, Hyderabad (05 to 09 February 2024)
- 1 week online FDP on “Recent Trends in VLSI circuit design for IoT and Advance Communication Applications” by Baderia Global Institute of Engineering and Management, Jabalpur (05 to 10 February 2024)

**S Surekha-Assistant Professor**

- 1 week online FDP on “Cognitive computing for Smart Applications” by Department of AI&DS, Vishwakarma Institute of Technology, Pune (18 to 22 March 2024)

**B Eleena-Assistant Professor**

- 1 week online FDP on “AI & Machine Learning using Python” by Bhoj Reddy Engineering College for Women, Hyderabad (29 January to 03 February 2024)

**SVMG Phani Kumar C-Assistant Professor**

- 1 week online FDP on “AI & Machine Learning using Python” by Bhoj Reddy Engineering College for Women, Hyderabad (29 January to 03 February 2024)

**G Ranjitha-Assistant Professor**

- 1 week online FDP on “AI & Machine Learning using Python” by Bhoj Reddy Engineering College for Women, Hyderabad (29 January to 03 February 2024)

**Mariyam-Assistant Professor**

- 1 week online FDP on “AI & Machine Learning using Python” by Bhoj Reddy Engineering College for Women, Hyderabad (29 January to 03 February 2024)

**R Vyshnavi-Assistant Professor**

- 1 week online FDP on "Research Methodologies - quantitative & qualitative research" by CVR College of Engineering, Hyderabad (05 to 09 February 2024)

**N Sony-Assistant Professor**

- 1 week online FDP on "Research Methodologies - quantitative & qualitative research" by CVR College of Engineering, Hyderabad (05 to 09 February 2024)

**K Virija-Assistant Professor**

- 1 week online FDP on “AI & Machine Learning using Python” by Bhoj Reddy Engineering College for Women, Hyderabad (29 January to 03 February 2024)

**Radhika Ravikrindi-Assistant Professor**

- FDP on “Block Chain Technology” by Ramrao Adik Institute of Technology, Navi Mumbai and SR University, Warangal in collaboration with EXCELR EDtech Pvt Ltd (08 to 12 January 2024)
- 1 week online FDP on "Outcome Based Education" by Department of EIE, CVR College of Engineering, Hyderabad (29 January to 02 February 2024)
- FDP on “Business Analytics” by AISSMS College of Engineering, Pune, SJC Institute of Technology, Kothanoor and Matrusri Engineering College, Hyderabad in collaboration with EXCELR EDtech Pvt Ltd (05 to 09 February 2024)
- FDP on “Generative AI in Education” by ACE Engineering College, Hyderabad (05 to 10 February 2024)

**Believe in yourself, take the leap, and soar**

# The Interview Chronicles

## My Journey of Triumph

Hello Everyone, My name is Esha Jain, IV ECE A

I have been placed at HONEYWELL Company as Embedded Engineer. My interview experience at Honeywell for the Embedded Engineer role was both challenging and rewarding. Typically, the process involves 2 rounds: Online test and then directly technical interview. They delved deeply into my understanding of microcontrollers, RTOS concepts, debugging methods, various communication protocols. Their main focus was on how well I had grip on the projects that I did. They also presented a few real-world scenarios and asked how I would solve specific problems, focusing on my analytical and problem-solving skills. In addition to the technical assessment, Honeywell's interviewers also evaluated my communication skills, particularly how I articulated complex technical concepts. Throughout the process, the interviewers were professional and supportive. Although the interview was rigorous, it left me feeling enthusiastic about the potential to work with a team that values technical expertise and innovation in embedded systems. Being an ECE student the subjects in my course helped me a lot and I was able to answer the questions confidently. In the preparation, I have gone through all the basics and important concepts of my subjects which are included in my course.

### Questions asked in the interview were:

- Why do you prefer core side when there is software side available?
- Tell me about your project in detail.
- Overview of Microprocessors and Microcontrollers?
- What is meant by protocol and their types in detail?
- What are your favourite subjects in B. Tech? Why? Further questions regarding it.
- Many questions related to projects.
- Problems faced with your teammates in project? How did you overcome it?
- Tell about Exceptional Handling Polymorphism, Call by Value and Reference?
- 2-3 questions related to Digital Signal Processing
- Do you have any idea on Operating systems?
- Do you have any queries?

Every interview is an opportunity for growth and learning, regardless of the outcome. On the day of interview, I was determined to answer whatever I knew as confidently as possible which played a major role in my opinion. The day results were out I felt delighted. I would like to suggest that everyone should focus on building their knowledge about projects, core subjects, job requirements and communications skills in their placement preparation, it helps us a lot like being confident and gives strength to overcome the nervousness during the interview. Last but not the least, I'm thankful and grateful for the opportunity provided by BRECW Placement Cell.

This is a gist about my Interview experience.

Thank you!

**She Believed She Could,  
So She Did**



Esha Jain  
IV ECE A

## My Victory

Hello Everyone, I'm Dandu Adrija Varma , IV ECE A

I have been placed at FLIPKART Company as Assistant Manager. My interview experience was positive and engaging, marked by thoughtful questions, a welcoming atmosphere, and a clear focus on aligning with the company's values and goals. Typically, the process involves 2 rounds: Online test and then directly interview which was totally based on SCM in my case. My interview experience with the company for a supply chain management (SCM) role was insightful and well-structured. The interviewers focused on both technical knowledge and problem-solving abilities, and they emphasized real-world applications of SCM principles. The discussion also highlighted the company's commitment to efficiency, collaboration, and continuous improvement in their supply chain processes. As it was my first interview I was nervous but my preparation made me to perform well. During preparation, I went through fundamentals of supply chain, prepared about some case studies and recapped about my projects present in my resume.

### Questions asked in the interview were:

- Self introduction.
- Tell me about your project and why did you choose this domain?
- What role did you play in preparing your project?
- Explain the key components of a supply chain. How do they apply to e-commerce?
- Customers are reporting dissatisfaction with delivery delays and communication issues during the order tracking process. How would you enhance the logistics and tracking system to improve customer experience?
- How would you measure improvements in customer satisfaction from these changes?
- Problems faced with your teammates in project? How did you overcome it?
- Rate your self and why would you give yourself this rating?
- Why are you opting for Flipkart?
- If you encounter any kind of problems how do solve them and what is your thought process during that time?
- Do you have any queries?

Every interview is a chance to learn and grow, regardless of the outcome. On the day of interview I was so nervous because it was my first ever interview, but after the interview I felt positive as I answered confidently, whatever I knew for the questions that has been asked. Finally the day when results were out, I was so surprised and also felt very happy. Finally, I can say everyone should focus on their communications skills in their placement preparation, it helps us a lot in being confident and gives strength to overcome the nervousness during the interview. I'm thankful to the opportunity provided by BRECW Placement Cell.

That's all about my Interview experience.

Thank you!



D Adrija Varma  
IV ECE A

**Empowered Women,  
Empower Women**



## My Achievement

Hello Everyone, I'm Bakka Kusuma, IV ECE A

I have been placed at HONEYWELL Company as Embedded Engineer. My experience with the company was one of kind, anything like never experienced before. Typically, the process involves 2 rounds: Online test and then directly interview which was totally technical based in my case. In the interview, I was asked a wide range of questions related to my branch which have covered most of my core subjects. Honeywell was my dream company, I always thought of working at a core related organization and finally got the opportunity. As it was my first interview I was nervous but my preparation made me to perform well. Being an ECE student, the subjects in my course helped me a lot and I was able to answer the questions confidently. In the preparation I have gone through all the basics and important concepts of my subjects which are included in my course, on the other hand I also have prepared the programming languages.

### Questions asked in the interview were:

- Self introduction.
- Tell me about your project and why did you choose this domain?
- Overview of Antenna & Propagation?
- What is meant by Embedded programming?
- What are your favourite subjects in B. Tech and also at School level? Why?
- Few questions related to Microprocessor and Microcontroller?
- Problems faced with your teammates in project? How did you overcome it?
- Rate your self in Digital Electronics?
- Tell about Exceptional Handling.
- 2-3 questions related to Digital Signal Processing
- Do you have any idea on Mobile Communication?
- Do you have any queries?

Every interview is an opportunity for growth and learning, regardless of the outcome. On the day of interview I was so nervous because it was my first ever interview, but after the interview I felt positive as I answered confidently, whatever I knew for the questions that has been asked. Finally the day when results were out, I was so surprised and also felt very happy. Finally, I can say everyone should focus on their communications skills in their placement preparation, it helps us a lot like being confident and gives strength to overcome the nervousness during the interview. I'm thankful to the opportunity provided by BRECW Placement Cell.

That's all about my Interview experience.  
Thank you!



**Empowering Girls,  
Empowering Communities**

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# Student Articles

## Nanotechnology in Electronics: Smaller, Faster, Smarter Devices

Nanotechnology has become a game-changer in the electronics industry, enabling devices to become smaller, faster, and more efficient. By harnessing the unique properties of materials at the nanoscale (1-100 nanometers), this revolutionary field is driving advancements in computing, memory, displays, and beyond.

One of the most impactful applications of nanotechnology is in transistor miniaturization. As traditional silicon-based transistors approach their physical limits, researchers are turning to materials like carbon nanotubes (CNTs) and graphene.

These materials offer remarkable electrical conductivity and mechanical strength, enabling faster and more energy-efficient processors. Such advancements are critical for next-generation computing and artificial intelligence applications.

In memory storage, nanotechnology is addressing scaling challenges with innovations like resistive RAM (ReRAM) and memristors. These nanoscale technologies provide higher storage densities, faster read/write speeds, and lower energy consumption compared to conventional flash memory. They are ideal for portable devices and edge computing applications.

Nanotechnology also plays a crucial role in display technology. Quantum dots, which are nanoscale semiconductor particles, enhance brightness and color accuracy in devices like smartphones and televisions. Meanwhile, flexible electronics, made possible by materials like graphene and silver nanowires, are enabling the creation of foldable devices and advanced wearables.

Beyond performance improvements, nanotechnology promotes sustainability. By reducing material waste during manufacturing and introducing self-healing circuits, it increases device longevity and reduces electronic waste. Furthermore, nanoelectronics are finding applications in healthcare, where ultra-small sensors can monitor vital signs, deliver targeted treatments, or support precision medicine.

In summary, nanotechnology is revolutionizing the electronics industry by enabling smaller, faster, and smarter devices. It is not only advancing performance but also contributing to sustainability and opening new opportunities in fields like healthcare and wearable technology. This transformative field continues to push the boundaries of what is possible, shaping the future of electronics and innovation.

As nanotechnology continues to advance, we can expect even more innovative applications. For instance, nanoscale 3D printing will enable the creation of complex structures with unprecedented precision. Additionally, nanotechnology will play a crucial role in the development of the Internet of Things (IoT), enabling the creation of smaller, smarter, and more energy-efficient devices. With its vast potential, nanotechnology is poised to transform various industries, from healthcare and energy to transportation and consumer electronics, and shape the future of innovation.



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## Smart Cities: Integrating IoT and Communication Networks

Smart cities are revolutionizing urban environments by integrating the Internet of Things (IoT) and advanced communication networks to create more efficient, sustainable and livable spaces. These technologies work together to collect, analyze and utilize data, transforming how cities manage infrastructure, resources and services.

At the core of smart cities is IoT, which connects sensors, devices, and systems to gather real-time data. These IoT devices monitor various aspects of urban life, such as traffic flow, air quality, energy usage, and waste levels.

For example, smart traffic management systems use IoT-enabled sensors to detect congestion and adjust traffic signals accordingly, reducing delays and fuel consumption. In waste management, smart bins equipped with sensors notify authorities when they are full, optimizing collection schedules and maintaining cleanliness.

To ensure these IoT devices work seamlessly, communication networks play a vital role. Technologies like 5G, LoRaWAN, and Wi-Fi provide the infrastructure needed for high-speed, reliable data transmission. These networks enable real-time interactions between systems, such as integrating public transportation schedules with live traffic updates to provide commuters with accurate and efficient travel options.

Energy management is another critical application of IoT in smart cities. Smart grids equipped with IoT devices monitor electricity distribution and usage, balancing supply and demand effectively. Residents can utilize smart meters to track and optimize their energy consumption, reducing costs and promoting sustainability. Renewable energy sources like solar and wind can also be integrated into these grids, helping cities achieve environmental goals.

Smart cities also prioritize public safety through AI-powered surveillance systems and IoT-enabled emergency response networks. Cameras with real-time analytics detect unusual activities, and automated systems alert law enforcement instantly. During emergencies, communication networks provide rapid data sharing among authorities, ensuring swift responses and potentially saving lives.

However, the implementation of smart cities is not without challenges. Issues like data privacy, cybersecurity, and the high cost of infrastructure upgrades need to be addressed to ensure widespread adoption and effectiveness.

In conclusion, the integration of IoT and communication networks is transforming cities into smarter, more sustainable ecosystems. By optimizing resources, improving services, and enhancing quality of life, smart cities represent a forward-looking approach to urban living, where technology and humanity work hand in hand for a brighter future.

The future of smart cities holds immense potential, with emerging technologies like blockchain, AI, and 5G poised to further enhance urban living. For instance, blockchain can secure data sharing and transactions, while AI can optimize city operations and services. Additionally, 5G networks will enable faster data transmission, supporting applications like smart transportation and public safety. As smart cities continue to evolve, they will serve as models for sustainable, efficient, and livable urban development, improving the lives of citizens worldwide.



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## Exploring MATLAB for Signal and Image Processing

MATLAB (Matrix Laboratory) is a high-level programming language and environment widely used for numerical computing, data analysis, and algorithm development. It provides a comprehensive set of tools for signal and image processing, making it an indispensable tool for engineers and researchers working in these fields. MATLAB's versatile capabilities allow users to process, analyze, and visualize both signals and images with ease, enhancing the quality and efficiency of various applications.



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In signal processing, MATLAB offers an extensive collection of built-in functions and toolboxes that simplify tasks such as filtering, Fourier analysis, and spectral analysis. With the Signal Processing Toolbox, users can manipulate signals in both the time and frequency domains. For example, MATLAB can be used to filter noise from a signal, perform convolution operations, or design custom filters like low-pass, high-pass, and band-pass filters. Its FFT (Fast Fourier Transform) function is invaluable for transforming signals between time and frequency domains, making it an essential tool for analyzing periodic signals and system responses. These capabilities are widely applied in fields like communications, audio processing, biomedical signal analysis, and control systems.

MATLAB's Image Processing Toolbox provides an array of functions designed to process and analyze images. These tools allow users to perform tasks such as image enhancement, segmentation, and object recognition. With functions like edge detection, histogram equalization, and morphological operations, MATLAB helps in improving the quality of images by removing noise, enhancing contrast, and highlighting important features. Additionally, it offers powerful algorithms for image segmentation, which is crucial for identifying regions of interest in medical imaging, satellite imagery, and computer vision applications. The ability to manipulate and process images efficiently makes MATLAB a top choice for researchers working in fields like medical imaging, machine vision, and robotics.

Moreover, MATLAB provides an intuitive environment with interactive visualization tools that allow users to plot signals and images, making it easier to interpret results and present findings. Its ability to handle large datasets and complex mathematical operations makes it suitable for both simple tasks and more advanced applications in signal and image processing.

In conclusion, MATLAB is an indispensable tool for signal and image processing, offering powerful libraries, functions, and an intuitive interface. It empowers researchers and engineers to tackle complex problems with ease, making it a critical tool in fields ranging from telecommunications to medical imaging and beyond.

MATLAB's impact extends beyond signal and image processing, with applications in various fields, including finance, aerospace, and automotive. Its versatility and ease of use make it an ideal platform for rapid prototyping, testing, and deployment of algorithms. Furthermore, MATLAB's extensive community and resources, including toolboxes, tutorials, and forums, facilitate collaboration and knowledge sharing among users. As a result, MATLAB has become an industry standard, widely adopted in academia, research, and industry, driving innovation and advancements in numerous fields.



## Mastering PCB Design for High-Speed Applications

Printed Circuit Boards (PCBs) are the foundation of modern electronic devices, providing the physical connections between various components. In high-speed applications, such as telecommunications, data processing, and advanced computing, designing PCBs becomes more complex due to the need to handle high-frequency signals while ensuring signal integrity, reducing electromagnetic interference (EMI), and minimizing power loss. Mastering high-speed PCB design is essential to meet the stringent performance requirements of these systems.



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One of the most critical aspects of high-speed PCB design is signal integrity. As signal frequencies increase, the potential for signal degradation also rises, which can result in errors and data loss. To maintain signal integrity, designers must focus on impedance matching of the traces. This ensures that the impedance of the PCB traces matches the source and load impedances, preventing signal reflection or loss. Techniques such as differential pair routing, where two complementary signals are carried by paired traces, are often employed to reduce noise and cross-talk.

Reducing electromagnetic interference (EMI) is another vital challenge in high-speed PCB design. High-frequency signals generate electromagnetic fields that can interfere with adjacent components and systems. Designers can minimize EMI by employing ground planes to provide a low-resistance return path for currents and using shielding techniques to protect sensitive areas. Additionally, carefully routing high-speed traces and keeping them as short and direct as possible reduces the potential for EMI.

Power distribution is also crucial for high-speed PCBs. Power supply noise can degrade signal quality, so ensuring a clean, stable power source is essential. Designers use decoupling capacitors near power pins to filter out high-frequency noise, ensuring that components receive clean, stable power. Power planes are designed to provide consistent voltage throughout the PCB, helping to minimize power noise and improve overall performance.

Lastly, simulation and testing play a key role in the design process. Tools such as signal integrity simulators and electromagnetic field solvers are used to simulate and identify potential issues before the physical PCB is manufactured. This helps ensure that the design will function as intended in high-speed applications.

In conclusion, mastering PCB design for high-speed applications requires a thorough understanding of signal integrity, impedance control, EMI reduction, power distribution, and simulation. With careful attention to these factors, designers can create PCBs that perform efficiently and reliably in the fast-paced world of high-speed electronics.

As the demand for high-speed electronics continues to grow, PCB designers must stay ahead of the curve. Advancements in materials, such as high-frequency laminates and embedded capacitance, are enabling faster and more efficient designs. Additionally, the use of artificial intelligence (AI) and machine learning (ML) in PCB design is becoming increasingly prevalent, allowing for optimized routing, placement, and signal integrity analysis. By embracing these emerging trends and technologies, designers can create high-performance PCBs that meet the needs of next-generation electronic devices.

## The Role of Electrical Engineering in Electronics Systems

Electrical engineering and electronics engineering are two interdependent fields that together drive much of modern technology. Electrical engineering focuses on power generation, transmission, and distribution, while electronics engineering deals with the design and operation of electronic circuits and devices. Although distinct, both fields rely on each other to create functioning systems that power everything from smartphones to industrial automation.

One of the primary roles of electrical engineering in electronics is the design of power supplies.

Electronics devices, such as computers, smartphones, and televisions, require low and stable voltage levels to function. Electrical engineers convert the high-voltage electricity from power grids to lower, safer levels suitable for electronics. This is achieved through components like transformers, rectifiers, and inverters, which help regulate and distribute power efficiently. Without this infrastructure, electronics would not be able to operate reliably. Electrical engineers also focus on improving energy efficiency in these systems, ensuring minimal energy loss in the conversion process.

Electrical engineers also play a crucial role in signal processing, a key aspect of many electronics systems. For example, in communication systems, analog signals need to be converted to digital signals for processing. Electrical engineers ensure that these signals are amplified, conditioned, and transmitted clearly by designing and optimizing amplifiers, filters, and converters. They ensure that signals are free from noise or distortion, which is essential for the proper functioning of electronic devices like radios, televisions, and smartphones.

Another significant area where electrical engineering supports electronics is in circuit protection. Electronics are highly susceptible to damage from power surges, overloads, and short circuits. Electrical engineers design protective measures, such as fuses, circuit breakers, and surge protectors, to safeguard sensitive electronic components. These protective systems prevent overheating and help prolong the lifespan of electronic devices.

In conclusion, electrical engineering provides the power infrastructure, signal conditioning, and protection systems that enable electronics to function effectively. While electronics engineering focuses on the design of components like microchips and integrated circuits, electrical engineering ensures that these components receive the proper power and protection to operate safely. Together, these two fields contribute to the development and advancement of technology, making possible the devices and systems that shape our daily lives.

As technology continues to advance, the intersection of electrical engineering and electronics engineering will play a vital role in shaping the future. Emerging fields like the Internet of Things (IoT), artificial intelligence (AI), and quantum computing will rely heavily on the expertise of both electrical and electronics engineers. By working together, these engineers will create innovative solutions that transform industries and improve lives. The synergy between electrical and electronics engineering will continue to drive technological progress, enabling new discoveries and applications.



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## The Evolution of Semiconductor Technology

The evolution of semiconductor technology has profoundly shaped modern society, driving advancements in computing, communication, and electronics. From the bulky vacuum tubes of the early 20th century to today's nanoscale transistors, this journey showcases humanity's quest for innovation and efficiency.

In the early 1900s, vacuum tubes were the foundation of electronic devices. These glass tubes controlled the flow of electricity, enabling amplification and switching in radios, televisions and early computers. However, they were large, fragile and inefficient, consuming significant power and generating excessive heat.

The limitations of vacuum tubes highlighted the need for more reliable and compact alternatives.

The invention of the transistor in 1947 by John Bardeen, Walter Brattain, and William Shockley marked a pivotal moment in electronics. Made from germanium and later silicon, transistors were smaller, more energy-efficient, and more reliable than vacuum tubes. This breakthrough laid the foundation for modern semiconductor technology, leading to smaller and more powerful electronic devices.

The 1960s saw the emergence of silicon-based transistors, revolutionizing the semiconductor industry. Silicon's abundance, stability, and excellent electrical properties made it the preferred material for semiconductor manufacturing. The invention of the Integrated Circuit (IC) further advanced the field by integrating multiple transistors and components onto a single chip. This innovation enabled the creation of compact and complex electronic systems.

In 1965, Gordon Moore predicted that the number of transistors on a chip would double approximately every two years, a trend famously known as Moore's Law. This principle drove rapid advancements in semiconductor technology, enabling exponential increases in processing power and performance. Microprocessors, memory chips, and digital devices became more powerful, affordable, and accessible.

The late 20th century heralded the era of nanotechnology, where transistor sizes shrank to the atomic scale. Today, transistors as small as 3 nanometers power cutting-edge technologies, such as smartphones, artificial intelligence, and cloud computing. Materials like gallium nitride (GaN) and silicon carbide (SiC) are being explored to enhance performance in power electronics and high-frequency applications.


As we move into the age of quantum computing and advanced materials like graphene, the evolution of semiconductor technology continues to push boundaries. From enabling space exploration to powering everyday gadgets, semiconductors remain the cornerstone of technological progress, promising a future of limitless possibilities.

The future of semiconductor technology holds tremendous promise, with potential breakthroughs in areas like quantum computing, neuromorphic processing, and advanced materials. As transistors approach the size of individual atoms, researchers are exploring new architectures and technologies to continue Moore's Law. The development of 3D stacked processors, graphene-based transistors, and other innovative designs will enable even faster, more efficient, and more powerful electronic devices. These advancements will have far-reaching impacts on fields like healthcare, finance, and education, transforming the way we live and work.



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