



TECHZIG



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2022

Bhoj Reddy Engineering College for Women



**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 9:30am to 4:30pm. 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)

“Invest in Women's Education Today for a Prosperous and Inclusive Tomorrow”



Ramdev Indoor Auditorium



Digital Library



ECE Staff



Students of IEEE, ISTE IETE & 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

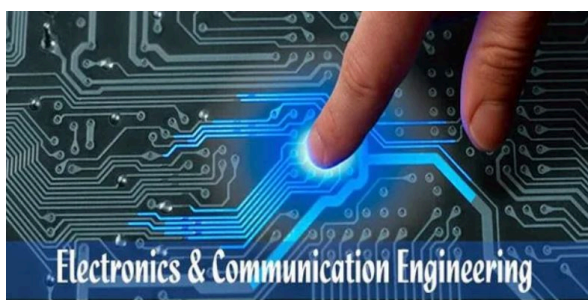
The College has been in the forefront in organising various short-term courses, conferences, symposia, workshops, seminars and special lecturers.

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.

“From Classrooms to Boardrooms: Women's Education Paves the Way for Global Progress”

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, FDPs. He is Editorial/Advisory Board member of some Journals. He is reviewer for some International Conferences. He was a resource person, Keynote Speaker for some workshops and conferences organised by colleges.

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-known 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!

**“Strive for excellence in all that you do, and
success will surely follow”**

Head of Department

Mrs. S. Manjula pursued 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 imbued with critical thinking and problem-solving skills as they accommodate 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!

Our department students have been selected by some of the leading software companies of the country. With the available diversity of expertise of the faculty and with the support of the management, we prepare our girl students to work in 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 LIIC 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 in 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 in 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 is providing 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 Institute 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, 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 Meets 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 on 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.

“Her Education, Our Progress: The Ripple Effect of Educating Women”

Faculty Research Paper Publications



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

Wheat seed classification using neural network pattern recogniser

**International Journal of Materials Today:
Proceedingd, EISSN:2213-7853**

Classification of wheat after harvest is a challenging task. Several techniques are prevalent for measuring the geometrical parameters of the wheat and for scrutinising the wheat seeds. Parameters used for the classifier includes area, perimeter, compactness, length of kernel, width of kernel, asymmetry coefficient, length of kernel groove. Neural network pattern recogniser is used for the classification of the wheat seeds in this paper. The database for the wheat seed is downloaded from the UCI machine learning repository. Confusion matrix and ROC is computed as the performance measure. Results show that neural network pattern recogniser is an apt tool for the classification of wheat seeds with an overall accuracy of 96.7%.



Radhika Rayeekanthi
M.Tech (VLSI SD)

Low latency synchronous design in SRAM based physical unclonable function (PUF)

**Journal name: INT-JECS
ISSN/ISBN no: 1308-5581**

SRAM is developed for memory interface in digital system design. Data stored in SRAM are vulnerable to error due to hardware or software error. Secrete Unknown Ciphers (SUC) is proposed as a means of provisioning of security in data storage. In digital system design digital clone-resistant functions were developed in overcoming the issues with Physically Unclonable Functions (PUF). However, it has an issue with the synchronisation mean for security provisioning. The recent developed approach SRAM-SUC design is proposed using delay monitoring parameter in latency controlling. The proposed approach illustrated a higher power saving using different FPGA devices.

Faculty Contributions

List of Workshops/FDP/Refresher Courses attended by faculty

S Manjula-Associate Professor & HoD

- STTP on "Problem Solving Through C" (January to April 2022)

B Jyothsna-Associate Professor

- FDP on "Optical Wireless Communication – An enabling technology for next generation networks" (01 to 02 February 2022)
- FDP on "Emerging trends in Electronics & Computer Engineering" (27 to 29 October 2022)
- FDP on "Introduction to Internet of Things" (January to April 2022)

G Srilakshmi-Associate Professor

- FDP on "Data Science & its applications" (10 to 19 Jan 2022)

J Stella Mary-Associate Professor

- FDP on "Microprocessors and Microcontrollers" (January to April 2022)
- FDP on "Introduction to Machine Learning" (18 to 22 April 2022)
- FDP on "Recent Trends in Electronics Engineering" (02 to 06 June 2022)

Kazi Nikhat Parvin-Associate Professor

- FDP on "Communication Systems using Machine Learning Algorithms (CSMLA)" (14 to 19 March 2022)
- FDP on "Introduction to Machine Learning" (18 to 22 April 2022)
- FDP on "Recent Trends in Electronics Engineering" (02 to 06 June 2022)
- FDP on "Nano sensors & Devices" (22 to 26 August 2022)
- Training Programme on "From Zero to Chip Design Workshop using OpenPOWER cores" (22 August to 02 September 2022)
- FDP on "Analog and Digital IC design Semiconductor approach" (26 to 30 September 2022)
- FDP on "Machine Learning" (7 to 11 December 2022)
- FDP on "Research Advancements in Intelligent Computing Technologies" (19 to 23 December 2022)

G G Bremiga- Assistant Professor

- FDP on "Control System: Sensor Technology" (11 to 15 January 2022)
- Course on "Human Centered Robotics" (09 to 14 May 2022)

Saba Sultana-Associate Professor

- Course on "Human Centered Robotics" (09 to 14 May 2022)
- FDP on "Control System: Sensor Technology" (11 to 15 January 2022)

G Swapna-Assistant Professor

- FDP on "Emerging Wireless Technologies: Connecting the Future " (19 to 23 March 2022)

SVMG Phani Kumar C-Assistant Professor

- FDP on "Recent Trends in Intelligent Systems" (27 January to 02 February 2022)
- FDP on "Advanced Optimization Techniques and Hands-on with MATLAB/Scilab" (08 to 19 August 2022)

Shafia Tasneem-Assistant Professor

- FDP on "Mentoring for Institutional Social Responsibility and Facilitation for Community Engagement" (07 to 11 March 2022)

R Vyshnavi-Assistant Professor

- FDP on "Advancements in Wireless Communication Technologies, Networking & Applications" (21 to 25 March 2022)
- Workshop on "Design & Modelling of IoT, AI & ML Systems" (01 to 05 August 2022)

N Sony-Assistant Professor

- FDP on "Communication Systems using Machine Learning Algorithms (CSMLA)" (14 to 19 March 2022)

K Virija-Assistant Professor

- FDP on "UHVSIP" (10 to 14 October 2022)
- FDP on "Recent Trends in Wireless Communications" (20 to 22 October 2022)

A Jyothirmayi-Assistant Professor

- FDP on "UHVSIP" (10 to 14 October 2022)



Student Articles



Kotha Akhila
II ECE A

An Introduction to Smart Geysers: Enhancing Efficiency and Convenience

As technology continues to evolve, our homes are becoming smarter and more connected than ever before. One area where this technological revolution is making a significant impact is in household appliances. Among them, the geyser, an essential component of our daily lives, has undergone a remarkable transformation with the advent of smart geyser technology. In this article, we will explore the concept of smart geysers, their features, benefits, and how they are revolutionizing the way we manage hot water in our homes.

A smart geyser is an advanced version of a traditional water heater that utilizes modern technology to provide enhanced functionality and control. Unlike conventional geysers, which typically operate on a fixed schedule, smart geysers are equipped with sensors, connectivity features, and intelligent programming capabilities, enabling them to adapt to our needs and preferences more effectively.



Ayesha Fatima
II ECE C

Emerging Trends in Semiconductor Technology

Semiconductor technology is constantly evolving, driven by advancements in materials, device structures, and manufacturing processes. Here are some of the emerging trends in semiconductor technology:

1. Miniaturization
2. Advanced Materials
3. 3D Integration
4. Beyond CMOS
5. System on Chip (SoC) & Heterogeneous Integration
6. More efficient power management
7. Internet of Things (IoT) & Edge Computing
8. Artificial Intelligence (AI) & Machine Learning (ML)
9. Quantum Computing

These emerging trends in semiconductor technology are shaping the future of electronics, enabling faster, smaller, more powerful, and energy-efficient devices across various industries and applications. These innovations are revolutionizing computing and driving digital transformation across various industries.



Aishwarya
III ECE C

The Rise of Internet of Things (IoT) and its Impact on ECE

The rise of the Internet of Things (IoT) has had a significant impact on the field of Electronics and Communication Engineering (ECE). IoT refers to the interconnection of various physical devices, vehicles, appliances, and other objects embedded with sensors, software, and network connectivity, enabling them to collect and exchange data.

Here are some key impacts of IoT on ECE:

1. Advanced Connectivity
2. Embedded Systems and Sensors
3. Data Management and Analytics
4. Wireless Communication Technologies
5. Security and Privacy
6. Automation and Control Systems
7. Industry Transformation

In conclusion, the rise of IoT has brought significant opportunities and challenges for ECE professionals. It has opened up new avenues for innovation, research, and development in connectivity, embedded systems, data analytics, wireless communication, security, automation, and industry-specific applications. ECE engineers continue to drive advancements in IoT technologies, shaping the way we interact with and benefit from the interconnected world.

As IoT continues to evolve, its integration into everyday life is expected to grow, further transforming industries and enhancing the quality of life.



Firdous Fatima
III ECE B

Emerging Technologies in Power Electronics

Power electronics is a field that deals with the conversion and control of electrical power. It plays a crucial role in various industries, including renewable energy, electric vehicles, industrial automation, and consumer electronics. Several emerging technologies are shaping the future of power electronics. Here are some of them:

1. Wide Bandgap (WBG) Semiconductors
2. Solid-State Power Electronics
3. Silicon Carbide (SiC) and Gallium Nitride (GaN) Power Devices
4. Advanced Packaging
5. Wireless Power Transfer (WPT)
6. Energy Storage Systems
7. Digital Power Electronics
8. Internet of Things (IoT) Integration

These emerging technologies in power electronics are driving innovations, improving efficiency, reducing energy losses, and enabling the widespread adoption of renewable energy sources, electric vehicles, and smart grid systems.

These technologies are revolutionizing power electronics by enhancing efficiency and reducing energy losses. They are facilitating the adoption of renewable energy sources, advancing electric vehicle development, and enabling smart grid systems. Moreover, the integration of IoT is providing smarter, more connected power management solutions.



K Mahalaxmi
IV ECE B

Digital image processing for pedestrians crossing

Digital image processing is revolutionizing pedestrian safety and traffic management at crosswalks. By utilizing advanced algorithms and machine learning techniques, image processing systems can accurately detect and track pedestrians in real-time. These systems employ cameras and sensors to capture visual data, which is then analyzed to identify pedestrians, determine their movement patterns, and predict their crossing intentions.

One of the primary applications of digital image processing in pedestrian crossings is enhancing traffic signal control. By dynamically adjusting traffic light timings based on pedestrian presence and flow, these systems can ensure safer and more efficient crossings. Additionally, they can alert drivers to the presence of pedestrians, especially in low-visibility conditions or high-traffic areas, reducing the risk of accidents.

Furthermore, digital image processing contributes to the development of smart cities by integrating with other technologies such as Internet of Things (IoT) and connected vehicles. This integration allows for a more holistic approach to urban mobility, where data from various sources is combined to optimize traffic flow and enhance pedestrian safety.



A Madhusree
IV ECE A

Very Large Scale Integration (VLSI)

VLSI (Very Large Scale Integration) technology is the process of combining millions of electronic components on a single chip. It is a key technology behind the development of modern electronic devices, including smartphones, tablets, computers, and more. VLSI technology has revolutionized the way electronic devices are designed and manufactured, making it possible to create smaller and more powerful devices. VLSI technology is a critical component of modern electronics. It enables the creation of powerful electronic devices that are smaller and more energy-efficient than ever before.

The impact of VLSI technology extends far beyond miniaturizing devices.

By integrating millions of transistors onto a single chip, VLSI has significantly enhanced computational power & processing speeds, driving advancements in automotive industries, healthcare, telecommunications. It has enabled high-resolution displays, advanced image processing, and efficient power management, contributing to the rise of smart and connected devices. As technology advances, VLSI continues to be crucial in innovations like AI, machine learning, and IoT, transforming our interaction with technology and shaping the future of electronics.



B Ramana Trivedi
I ECE B

3D Integrated Circuit Technology

Three-dimensional integrated circuit (3D IC) technology represents a significant advancement in semiconductor design and manufacturing, promising enhanced performance, reduced footprint, and improved energy efficiency compared to traditional two-dimensional approaches.

Key Concepts and Benefits: 3D ICs stack multiple layers of integrated circuits (ICs) vertically, interconnected through advanced packaging technologies like through-silicon vias (TSVs) and micro-bumps. This vertical integration enables shorter interconnects between layers, reducing signal propagation delays and power consumption. It also allows for heterogeneous integration, where different types of ICs (such as processors, memory, and sensors) can be combined in close proximity, optimizing system performance and functionality.

Applications and Industry Adoption: 3D IC technology finds applications across various sectors, including mobile devices, high-performance telecommunications, computing, and automotive electronics. For example, in mobile devices, 3D ICs enable thinner and lighter designs with improved battery life and performance. High-performance computing benefits from reduced latency and enhanced data bandwidth, critical for tasks such as artificial intelligence, machine learning, and data analytics.



K Anupama Reddy
I ECE A

Plasma Antennas

Plasma antennas represent a cutting-edge technology in the field of telecommunications and antenna design, offering unique advantages over traditional metal antennas. Unlike conventional antennas that use metal conductors to radiate electromagnetic waves, plasma antennas utilize ionized gas (plasma) to generate and control radio frequency signals.

Principle of Operation: Plasma antennas operate by creating a plasma discharge within a confined space, typically using gases like argon or neon. The plasma can be dynamically controlled by adjusting parameters such as gas pressure and electrical power, allowing for real-time reconfiguration of antenna properties such as frequency, radiation pattern, and polarization. This adaptability makes plasma antennas suitable for applications requiring agile and flexible antenna performance.

Advantages: One of the primary advantages of plasma antennas is their ability to electronically steer and shape the radiation pattern without mechanical movement. This capability is particularly advantageous in mobile communication systems, radar systems, and satellite communications, where rapid beam steering and adaptive beam forming are essential. Plasma antennas are also lightweight, compact, and potentially cost-effective due to their simple construction and integration capabilities.

Elective Courses

Embedded System design using ARMLPC 2148

Bhoj Reddy Engineering College for Women, Hyderabad has organized an add on Program on "Embedded System Design using ARMLPC 2148 "from 21/03/2022 to 26/03/2022. Our faculty Ms N.Sony, Assistant Professor, ECE department, extended welcome note for program to the participants. The Resource Person Mr.MD.Javeed, Coign Consults Private Limited took over the session and gives the brief introduction to the Embedded System and ARMLPC.

S.no	Date	Session	Topics
1	21/03/2022	Morning (09:30 to 12:30 PM)	the basics of embedded systems
		Afternoon (01:30 to 04:30 PM)	the selection of processor
2	22/03/2022	Morning (09:30 to 12:30 PM)	memory devices for embedded
		Afternoon (01:30 to 04:30 PM)	ARM processors and their versions
3	23/03/2022	Morning (09:30 to 12:30 PM)	ARM7, ARM9, and ARM11
		Afternoon (01:30 to 04:30 PM)	the programmers model of the ARM processor, the interrupt structure of the LPC2148
4	24/03/2022	Morning (09:30 to 12:30 PM)	EEPROM using I2C.
		Afternoon (01:30 to 04:30 PM)	how to write an embedded C program.
5	25/03/2022	Morning (09:30 to 12:30 PM)	Eventually, utilizing the ARM LPC2148 and IAR Workbench with a C application
		Afternoon (01:30 to 04:30 PM)	students may construct a basic system
6	26/03/2022	Morning (09:30 to 12:30 PM)	Two evaluations (objective examinations) were undertaken to measure the students learning
		Afternoon (01:30 to 04:30 PM)	Examples on Embedded Systems

In this program, the resource person explained about the Basics embedded systems, the selection of processor, memory devices for embedded, ARM processors and their versions, ARM7, ARM9, and ARM11, the programmers model of the ARM processor, the interrupt structure of the LPC2148, EEPROM using I2C, Eventually, utilizing the ARM LPC2148 and IAR Workbench with a C application, Two evaluations (objective examinations) were undertaken to measure the students learning, Examples on Embedded Systems.

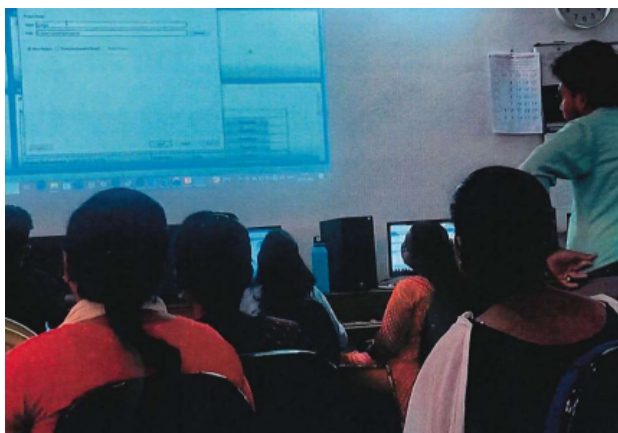
The ARM LPC2148 microcontroller is a popular choice for embedded system design due to its powerful features and versatility. It is based on the ARM7TDMI-S core, offering a good balance between performance and power consumption. With a clock speed of up to 60 MHz, it provides sufficient processing power for a wide range of applications in areas such as industrial control, robotics, and consumer electronics.

One of the key advantages of the LPC2148 is its integrated peripherals, which include UARTs, SPI, I2C, and ADC channels, among others. These peripherals allow for flexible interfacing with external devices and sensors, making it easier to implement complex embedded systems without needing additional components. Additionally, the microcontroller supports various communication protocols, enabling seamless integration into existing systems or networks.

Programming the LPC2148 typically involves using development environments such as Keil μ Vision or GNU-based tools with ARM support. These environments provide comprehensive debugging capabilities and support for efficient code development. The availability of a rich set of libraries and examples further simplifies the task of writing firmware for different applications, reducing development time and effort.

In conclusion, the ARM LPC2148 microcontroller stands out in embedded system design for its robust performance, integrated peripherals, and extensive development support. Whether for prototyping or production, its capabilities make it a preferred choice among developers aiming to create efficient and reliable embedded solutions.

Moreover, the LPC2148 is known for its low power consumption, which is critical for battery-powered or energy-efficient applications. Its architecture is designed to optimize power usage without compromising on performance, making it suitable for applications where power efficiency is paramount. This feature not only extends battery life but also reduces heat dissipation, enhancing the overall reliability and longevity of the embedded systems built around the LPC2148 microcontroller. Combined with its robust feature set and development ecosystem, these characteristics make the LPC2148 a versatile and reliable choice for a wide range of embedded system projects.



This Session helped to clarify the students to help to understand the concepts of Embedded Systems and ARMLPC. The students also participated different hands-on experience of different projects.

All III & IV B Tech ECE students have attended the session and cleared the queries regarding Embedded Systems and ARMLPC. MS. Manjula, ECE HOD expressed his sincere gratitude and appreciation to the Speaker. The whole program is conducted by DEPT of ECE with the prior permission of the principal.

IC Testing Engineering

Bhoj Reddy Engineering College for Women, Hyderabad has organized an add on Program on "IC Test Engineering "from 07/03/2022 to 12/03/2022. Our faculty Mr MD Toufeeq, Assistant Professor, ECE department, extended welcome note for program to the participants. The Resource Person Mr.K.Naresh, Coign Consults Private Limited took over the session and gives the brief introduction to the IC Test.

S.no	Date	Session	Topics
1	07/03/2022	Morning (09:30 to 12:30 PM)	Introduction to micro-system test
		Afternoon (01:30 to 04:30 PM)	Concurrent engineering
2	08/03/2022	Morning (09:30 to 12:30 PM)	data sheets and test plans
		Afternoon (01:30 to 04:30 PM)	Mixed signal ATE tester architectures , DIB Design
3	09/03/2022	Morning (09:30 to 12:30 PM)	Absolute accuracy, resolution and test repeatability
		Afternoon (01:30 to 04:30 PM)	DC measurements: offset, gain, leakage, PSRR, etc
4	10/03/2022	Morning (09:30 to 12:30 PM)	DSP-based testing and AC channel testing
		Afternoon (01:30 to 04:30 PM)	ADCs and DACs test and characterization
5	11/03/2022	Morning (09:30 to 12:30 PM)	RFIC test
		Afternoon (01:30 to 04:30 PM)	Introduction to design for test
6	12/03/2022	Morning (09:30 to 12:30 PM)	Built-in self-test techniques
		Afternoon (01:30 to 04:30 PM)	Lab project preparation and introduction to software and hardware used in the project

In this programme, the resource person explained about the Basics Introduction to micro-system, Concurrent engineering test, Mixed signal ATE tester architectures, DIB Design, Absolute accuracy, resolution and test repeatability, DC measurements: offset, gain, leakage, PSRR, etc, DSP-based testing and AC channel testing, ADCs and DACs test and characterization, RFIC test, Introduction to design for test, Built-in self-test techniques, Lab project preparation and introduction to software and hardware used in the project.

IC (Integrated Circuit) testing engineering involves the specialized field of ensuring the functionality, performance, and reliability of integrated circuits before they are deployed in electronic devices or systems. This process is crucial to detect defects, verify specifications, and ensure that ICs meet quality standards.

IC testing engineers use a variety of techniques and tools to perform these tasks. This includes automated test equipment (ATE) which can apply electrical stimuli to the IC and measure its responses, verifying that it operates correctly under different conditions. They also develop test plans and strategies to cover various aspects of IC functionality, such as functional testing, timing verification, power consumption analysis, and signal integrity testing.

Moreover, IC testing engineers work closely with design teams to understand the IC architecture and functionality, enabling them to create effective test cases and methodologies. They analyze test results, identify issues or failures, and collaborate with design and manufacturing teams to resolve them. Continuous improvement in testing techniques and methodologies is essential to keep pace with the increasing complexity and miniaturization of modern ICs.

Overall, IC testing engineering plays a critical role in ensuring the quality and reliability of integrated circuits, contributing to the successful deployment of electronic devices and systems in various industries including telecommunications, automotive, consumer electronics, and beyond.

IC testing engineering is essential for verifying the functionality, quality, and reliability of integrated circuits (ICs) from design validation to mass production. Engineers develop test plans and programs using automated test equipment (ATE) to apply stimuli and analyze IC responses, ensuring they meet specifications under various conditions. Techniques such as Design for Testability (DFT) are integrated into IC design to enhance testability, while failure analysis and reliability testing identify and address potential issues. Collaboration across teams drives continuous improvement in testing methodologies, ensuring ICs meet rigorous performance and reliability standards required for diverse electronic applications.

In addition to functional testing and reliability assessments, IC testing engineers also play a critical role in ensuring adherence to industry standards and regulations. They validate ICs against specific requirements such as electromagnetic compatibility (EMC) and safety standards, ensuring that devices incorporating these ICs meet regulatory compliance. This comprehensive approach not only verifies the technical performance of ICs but also guarantees their suitability for integration into products that must meet global market standards for quality and safety.



This Session helped to clarify the students to help to understand the concepts of IC Testing. The students also participated different hands-on experience of different projects.

All II & III B Tech ECE students have attended the session and cleared the queries regarding PCB Designing. MS. Manjula, ECEHOD expressed his sincere gratitude and appreciation to the Speaker. The whole program is conducted by DEPT of ECE with the prior permission of the principal.

"Support women's education for a brighter, more equitable future"

'Signal Processing, Communications, Networks for Distributed Systems

Bhoj Reddy Engineering College for Women, Hyderabad has organized an add on Program on "Signal Processing, Communications, Networks for Distributed Systems" from 09/07/2022 to 14/07/2022. Our faculty Mr. Toufeeq, Assistant Professor, ECE department, extended welcome note for program to the participants. The Resource Person Mrs. T Srujana, Coign Consults Private Limited took over the session and gives the brief introduction to the Signal Processing, Communications, Networks for Distributed Systems.

S.no	Date	Session	Topics
1	09/07/2022	Morning (09:30 to 12:30 PM)	Introduction to Signals
		Afternoon (01:30 to 04:30 PM)	Signal Processing
2	10/07/2022	Morning (09:30 to 12:30 PM)	Digital Signal Processing
		Afternoon (01:30 to 04:30 PM)	Fourier Analysis
3	11/07/2022	Morning (09:30 to 12:30 PM)	Fourier Transforms
		Afternoon (01:30 to 04:30 PM)	Communications
4	12/07/2022	Morning (09:30 to 12:30 PM)	Analog Communications
		Afternoon (01:30 to 04:30 PM)	Digital Communications
5	13/07/2022	Morning (09:30 to 12:30 PM)	Networks
		Afternoon (01:30 to 04:30 PM)	Network Model
6	14/07/2022	Morning (09:30 to 12:30 PM)	Distributed Systems
		Afternoon (01:30 to 04:30 PM)	Applications of Distributed Systems

In this programme, the resource person explained about the Introduction to Signals, Signal Processing, Digital Signal Processing, Fourier Analysis, Fourier Transforms, Communications, Analog Communications, Digital Communications, Networks, Network Model, Distributed Systems, Applications of Distributed Systems.

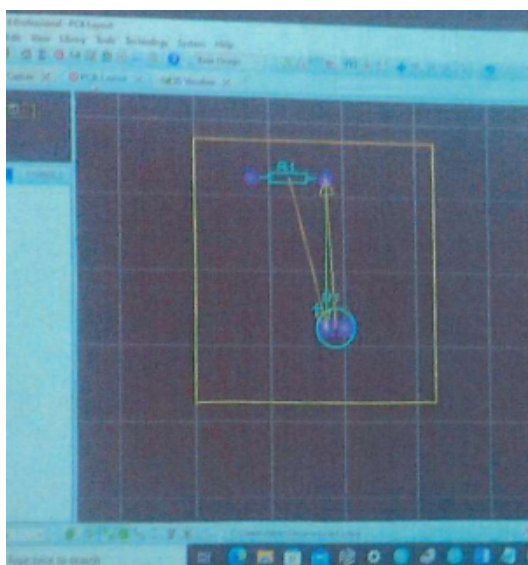
Signal processing, communications, and networks for distributed systems constitute critical components in modern technology landscapes.

Signal Processing: Involves the manipulation, analysis, and transformation of signals (such as audio, video, or data streams) to extract meaningful information or enhance quality. Applications range from speech recognition and image processing to biomedical signal analysis and radar systems. Involves the analysis, modification, and interpretation of signals to extract relevant information or enhance their quality. Digital signal processing (DSP) techniques are used extensively in applications such as audio and video compression, speech recognition, medical imaging, and radar systems. Real-time processing algorithms ensure rapid and accurate data manipulation, crucial for applications requiring immediate response and decision-making.

Communications: Focuses on the transmission and reception of information across various mediums, including wired and wireless networks. It encompasses protocols, modulation techniques, and error correction methods to ensure reliable data transfer and efficient network utilization. Focuses on the efficient transmission and reception of data over communication channels, encompassing both wired and wireless technologies. Communication systems employ modulation techniques, error correction coding, and multiple access schemes to ensure reliable and secure data transfer. From telecommunications networks to wireless sensor networks (WSNs), communications engineering addresses the challenges of bandwidth optimization, interference mitigation, and spectrum efficiency.

Networks for Distributed Systems: Encompasses the architecture, protocols, and algorithms that enable seamless communication and coordination among distributed entities. Distributed systems rely on networks to connect geographically dispersed devices, servers, or sensors, facilitating collaborative processing, data sharing, and resource management. Involve the design, implementation, and management of interconnected systems where computing resources, data, and services are distributed across multiple nodes. These systems can range from local area networks (LANs) to wide area networks (WANs) and the Internet. Network protocols and architectures (such as TCP/IP, Ethernet, and Wi-Fi) facilitate seamless communication and resource sharing among distributed entities. Distributed systems rely on networks to support collaborative computing, data synchronization, load balancing, and fault tolerance, essential for applications like cloud computing, edge computing, and distributed databases.

Together, these disciplines enable advanced functionalities in diverse domains such as telecommunications, Internet of Things (IoT), autonomous systems, and cloud computing. They play a pivotal role in optimizing system performance, enhancing data security, and enabling scalable and resilient distributed applications in today's interconnected world.



In practical terms, these disciplines collaborate to enable innovative technologies such as smart grids, autonomous vehicles, industrial automation, and interconnected IoT ecosystems. They are fundamental in optimizing system performance, ensuring data integrity and security, and supporting scalable and resilient infrastructures that meet the growing demands of today's digital world. Continued advancements in signal processing algorithms, communication technologies, and network protocols drive the evolution and enhancement of distributed systems across various sectors, fostering connectivity and innovation.

This Session helped to clarify the students to help to understand the concepts of Signal Processing, Communications, and Networks for Distributed Systems. The students also participated different hands-on experience of different projects.

All III & IV B Tech ECE students have attended the session and cleared the queries regarding Memory Technologies. MS. S Manjula, ECE HOD expressed his sincere gratitude and appreciation to the Speaker. The whole programme is conducted by DEPT of ECE with the prior permission of the principal.

Placements



The department promotes soft skills development programs & personality development programs by professional trainers to the students to meet the corporate requirements and also promotes awareness programs on emerging technologies.

Around 78 students were placed in product-based companies.

More than 879 selections were from the 2022 graduated class in various companies.

Our Placement Officer is supportive, knowledgeable and guides the students in making it to their dream companies.

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