



# **TECH HERTZ'23**

**NEWS LETTER**

**SEP 2023 - NOV 2023**



**DEPARTMENT OF  
Electronics and Communication  
Engineering**

# ABOUT



**J.N.N INSTITUTE OF  
ENGINEERING  
AUTONOMOUS**

NAAC 'A' Grade | Approved by AICTE | Affiliated to Anna University

- J.N.N Institute of Engineering has been at the forefront of imparting high-quality technical education in the state of Tamil Nadu. With state-of-the-art infrastructure in all branches of engineering, dedicated and qualified staff, a highly conducive environment for the teaching-learning process, and a lush green campus, J.N.N stands out as a professionally managed institution. The institute has consistently produced outstanding engineers who have excelled in their careers, occupying responsible positions in some of the best-known enterprises in India.
- Promoted by the Alamelu Ammaal Educational Trust, formed in memory of the Chairman's mother, J.N.N Institute of Engineering is located just 25 km away from the city of Chennai. It has well-connected routes frequented by city buses, making it accessible for students, staff members, the community, and visitors who enjoy the aesthetic view of the college with its green color shades.
- The institution provides university-level education through a wider and dynamic network, catering to the demands of both university-level education and the economic development of the region, with wider opportunities. The location and range of academic offerings at both UG and PG levels have lifted the intake capacity regionally and nationally. The infrastructural development also portrays enrollment growth.
- J.N.N strives to impart high patterns of discipline with futuristic techniques through dedicated staff members. It is a place for making students technologically superior and ethically strong. The environmentally friendly place of opportunities enhances skills and personal development. J.N.N has also signed Memorandums of Understanding with top-level industries and training providers to develop new skills and abilities.





## **VISION**

- Cultivating innovative and entrepreneurial Electronics and Communication Engineering graduates to ethically address global challenges through quality teaching and learning practices.

## **MISSION**

- To facilitate a state-of-the-art teaching-learning process, imparting comprehensive knowledge in electronics and communication engineering and related interdisciplinary areas.

- To foster a sense of curiosity, critical thinking and ethical practices in students, preparing them for a continuous learning.

- To instill innovative team work and industry collaboration for enhancing entrepreneurial skills, employability and research capabilities in graduates.

## PROGRAMME OUTCOMES

**PO1: Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

**PO2: 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.

**PO3: 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.

**PO4: 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.

**PO5: Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

**PO6: 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.

**PO7: 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.

**PO8: Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

**PO9: Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

**PO10: 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.

**PO11: 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.

**PO12: 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.

## **PROGRAMME EDUCATIONAL OBJECTIVES (PEO'S)**

**PEO1:** Our graduates will have skills to become successful in academics, industries, or as entrepreneurs.

**PEO2:** Our graduates with a research inclination will be solving various complex social issues using advanced tools and technologies.

**PEO3:** Our graduates will practice engineering with ethics, human values, and environmental consciousness.

## **PROGRAMME SPECIFIC OBJECTIVES (PSO)**

**PSO1:** Analyse and develop solutions in domains like IOT, Embedded, VLSI and other emerging technologies.

**PSO2:** Understand and architect wired and wireless analog and digital communication systems and products.



# LEADERSHIPS

## CHAIRMAN



**Shri. S. Jayachandran B.Sc., B.L**  
Founder & Chairman,  
J.N.N Group of Institution,

We are committed in opening up high quality tertiary education to students and to provide opportunity to acquire, understand and apply disciplinary and inter-disciplinary knowledge as well as related skills and attitudes, to think rationally and to enhance their personal development. Situated in the capital city of Tamil Nadu, our college bridges the education and values in its relationship with business, government, research organizations and universities. I would like to reaffirm my sincere personal commitment to help each of you to succeed your academic endeavours. I would like to reaffirm our sincere personal commitment to help each to succeed in your academic endeavours. I heartily welcome our students and wish them the very best for a successful and glorious future.

## VICE CHAIRMAN



**Mr. Naveen Jayachandran**  
Vice-Chairman,  
J.N.N Group of Institutions.

Our motto, “Learning Today. Leading Tomorrow”, permeates every aspect and activity at J.N.N. Over the past 12 years, J.N.N Institute of Engineering has successfully imbibed several of the proven best practices from the best of engineering institutions around the world, adapted them to make them better suited to the ground realities and introduced many of its own innovations in engineering education. Together, these have ensured that an educational experience at J.N.N Institute of Engineering is truly transformational for thousands of aspiring young J.N N Institute of Engineering. has been very proactive in recognising the global and national trends in shifts in the technical landscape and has been pioneering several innovations in technical education. J.N.N is also embracing the latest technologies, teaching methodologies, well equipped facilities and understands the aspirations of the student community.

# PRINCIPAL



**Dr. K. Ganesan**

At J.N.N Institute of Engineering, we believe in providing the best learning experience through an experiential learning process that has been devised and drawn up by the management, faculty members, and administrators together. We have a common purpose mindset and language that permeates throughout the whole institution, and we are guided by four key principles:

- (i) Assure the best learning outcomes through strategic planning.
- (ii) Create seamless service through engineered operational quality.
- (iii) Build a strong relationship among the stake holders.
- (iv) Delight the stakeholders with personalized care of service quality.

We are delighted to offer our services to prospective students and other stakeholders. The management, faculty members, and staff are committed to contributing significantly to the growth and support of our students to help them reach the zenith of their prospective professional career and personal life. We are always here to address your queries and provide you with the best education possible.

## HEAD OF THE DEPARTMENT



**Dr. D. Joseph Jeyakumar**

**HOD OF ECE DEPT.**

Dear Students, Faculty, and Readers, It is my pleasure to share updates and achievements from the Department of Electronics and Communication Engineering (ECE). Our Department continues to uphold its commitment to academic excellence, innovative research, and fostering a vibrant learning environment. Thank you for your continuous support and enthusiasm together, we can achieve greater heights

**"INNOVATION IS THE ABILITY TO SEE THE CHANGE AS AN OPPORTUNITY – NOT A THREAT"**

**-STEVE JOBS**

# LIST OF FACULTY

S.NO	NAME OF THE FACULTY	QUALIFICATON	DESIGNATION
1.	Dr. D. Joseph Jeyakumar	M.E, Ph.D	Professor
2.	Mr. U. Siddharth Nambi	M.E	Associate Professor
3.	Mrs. R. Nithya	M.E	Assistant Professor
4.	Mr. M. Mariselvam	M.E	Assistant Professor
5.	Mrs. N. Malathy	M.E	Assistant Professor
6.	Mrs. P.B. Smitha	M.E	Assistant Professor
7.	Mr. K.T. Pannerselvam	M.E	Assistant Professor
8.	Mrs. Mullaikodi	M.E	Assistant Professor
9.	Mr. G. Ayyapan	M.E	Assistant Professor
10.	Dr. J. Vijay Anand	M.TECH, Ph.D	Associate Professor
11.	Mr. J. Praveen Kumar	M.E	Assistant Professor
12.	Ms. B. Shanmathi	M.E	Assistant Professor



# **1. Industrial Visit to Hatsun Agro Product Ltd**

***Date: 28th September 2023***

On 28th September 2023, a group of students participated in an industrial visit to Hatsun Agro Product Ltd. The visit provided valuable insights into the dairy manufacturing industry. Students learned about the production processes, quality control standards, and supply chain management within one of India's leading dairy companies.



## **2. Industrial Visit to Ashok Leyland**

***Date: 12th October 2023***

On 12th October 2023, another group of students visited Ashok Leyland, a prominent name in the commercial vehicle manufacturing industry. The industrial visit allowed students to observe vehicle production and the advanced technologies used in vehicle design and manufacturing. They gained valuable exposure to the practices of a leading player in the automotive sector.

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## **3. Importance, Value, and Job Opportunities of Red Hat Certified System Administrator (RHCSA) - EX200 Certification**

***Date: 6th October 2023***

**Presenter:** Dr. Vivek Yogannath, Senior Technical Support Engineer, Openshift Security Specialist, Red Hat India Pvt. Ltd., Bangalore

On 6th October 2023, Dr. Vivek Yogannath, Senior Technical Support Engineer from Red Hat India, conducted an insightful seminar on the Red Hat Certified

System Administrator (RHCSA) certification, focusing on the EX200 exam. Dr. Yogannath discussed the importance of obtaining the RHCSA certification and how it can enhance job prospects in the IT industry. He explained the certification's value for employers and highlighted the career opportunities available for certified professionals in system administration and IT infrastructure management.

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#### **4. Hertz' 2023 Seminar**

***Date: 8th November 2023***

On 8th November 2023, Department of Electronics and Communication Engineering, hosted the Hertz' 2023 seminar, where industry experts shared valuable insights on trends and opportunities in the field. Attendees had the chance to engage with professionals, expand their networks, and explore various career paths in the industry.

These seminars and industrial visits have provided participants with essential knowledge and hands-on experience, contributing to their professional development. J.N.N committed to organizing more such opportunities, empowering students to succeed in their careers.



# **The working functions of DSP processors and ARMA process**

**-Shamuvel .V, 1st YEAR VLSI**

## **INSIDE, WE ALSO TALK ABOUT:**

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Applications of  
DSP Processors.

Understanding  
DSP Processors

Core Functions  
of DSP  
Processors

Exploring the  
ARMA Process

## **INTRODUCTION**

The intersection of advanced signal processing and statistical modeling is integral to today's engineering landscape.

Students exploring these domains gain essential knowledge to tackle real-world challenges in fields ranging from communications and control systems to data science.

This newsletter highlights key concepts and applications of Digital Signal Processing (DSP) processors and the Autoregressive Moving Average (ARMA) process, offering a glimpse into the transformative potential of these technologies.

## Applications of DSP Processors

- **Audio and Speech Processing:** Enhancing sound quality, noise cancellation, and speech recognition in devices like smartphones and hearing aids.
- **Image and Video Processing:** Powering advancements in medical imaging, computer vision, and video compression.
- **Telecommunications:** Enabling efficient modulation, demodulation, and error correction in networks.
- **Industrial Automation:** Controlling machinery and optimizing industrial processes through precise signal analysis.

DSP processors are at the heart of modern electronics, enabling faster and more efficient signal manipulation. Their ability to handle repetitive, computation-intensive tasks with low power consumption makes them ideal for embedded systems and portable devices.

## Understanding DSP Processors

Digital Signal Processing (DSP) processors are specialized microprocessors optimized for handling signal processing tasks efficiently.

Unlike general-purpose processors, DSP processors are designed to perform complex mathematical operations rapidly, making them indispensable in a variety of applications.





## Core Functions of DSP Processors

*Data Sampling and Conversion: DSP processors digitize analog signals, transforming continuous data into discrete values for processing.*

*Filtering and Transformation: They apply algorithms to filter noise, enhance signal clarity, or transform signals using techniques like Fourier or wavelet transforms.*

*Real-Time Processing: DSP processors excel in handling real-time data streams, ensuring minimal latency in applications such as audio processing or communications.*

*Control Systems: They are pivotal in implementing feedback mechanisms in control systems, ensuring stability and accuracy.*



## Exploring the ARMA Process

The Autoregressive Moving Average (ARMA) process is a statistical model widely used in time-series analysis. Combining the strengths of two fundamental approaches—autoregression (AR) and moving average (MA)—the ARMA process provides a powerful framework for modeling and predicting data patterns.

### Key Components of the ARMA Process

1. **Autoregression (AR):** Relies on the relationship between a variable and its previous values. For instance, in weather prediction, today's temperature might depend on the temperatures of preceding days.
2. **Moving Average (MA):** Accounts for dependencies on past forecast errors, smoothing out fluctuations and improving predictions.

### Applications of ARMA Models

- **Economics and Finance:** Modeling stock prices, interest rates, and economic indicators.
- **Control Systems:** Predicting system behavior and designing control strategies.
- **Climate Studies:** Analyzing temperature, rainfall, and other meteorological data.
- **Signal Processing:** Enhancing signal prediction and noise reduction.

### Future Prospects and Opportunities

The knowledge of DSP processors and ARMA processes equips students to innovate in domains such as:

- **Artificial Intelligence and Machine Learning:** Integrating statistical models with signal processing for intelligent systems.
- **Healthcare Technologies:** Developing wearable devices that process and predict vital signs in real time.
- **Sustainable Energy:** Monitoring and optimizing power systems using predictive modeling and signal analysis.

By mastering these tools, students are not only prepared to excel in engineering roles but also poised to contribute meaningfully to cutting-edge research and development. The synergy of DSP processors and ARMA processes exemplifies the convergence of computational power and statistical precision, paving the way for groundbreaking advancements across industries.

# **EDITORIAL BOARD**

## **Editorial Members**

### **Faculty Coordinators:**

Ms. N. Malathy

### **Student's Convenors:**

1. Godson J, 4<sup>TH</sup> year
2. David Abishek. M, 3<sup>rd</sup> year
3. Balavignesh. S, 2<sup>nd</sup> year