Excel ENGINEERING COLLEGE (AUTONOMOUS)

Department of Electronics and Communication Engineering

MAGAZINE

TECHMAG 2024

TECHMAG 2024

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II ECE-A

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III ECE-A

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

VISION OF THE DEPARTMENT

To impart quality technical education in the field of Electronics and Communication Engineering in the young minds for serving the Society and Industry in a globally challenging environment

MISSION OF THE DEPARTMENT

To achieve the vision, the department will

•Impart quality education through state-of-the-art curriculum to meet global needs in Electronics and Communication Engineering field.

•Establish a conducive learning environment for continuous improvement to face the challenges in overall professional development.

•Instill competencies for working in interdisciplinary work culture

•Create desire for undertaking lifelong learning and entrepreneurship initiatives

Programme Educational Objectives (PEOs)

Programme Educational Objectives (PEOs) are established through a consultation process. PEOs are broad statements that describe the career and professional accomplishments that the graduates should achieve three to five years after graduation. The Electronics and Communication Engineering programme graduates will

PEO 1: Pursue their professional careers in Electronics and Communication Engineering and related fields by engaging in a global competitive landscape.

PEO 2: Seek advanced education and actively enhance their professional skills.

PEO 3: Effectively convey ideas and exhibit professionalism when collaborating within diverse teams.

PEO 4: Exhibit good inter-personal skills and demonstrate concern for society and environment

Programme Specific Outcomes (PSOs)

On completion of the B.E (ECE) degree the Electronics and Communication graduates will be able to

PSO 1: Analyze and Design Electronic Systems for Signal Processing and Communication Applications.

PSO 2: Identify and Apply Engineering Tools for Design, Analysis, Synthesis and Validation of VLSI and Communication Systems.

PSO 3: Demonstrate the Conceptual Knowledge with Respect to Architecture, Design, Analysis and Deployment in Embedded Systems and Computer Networking.

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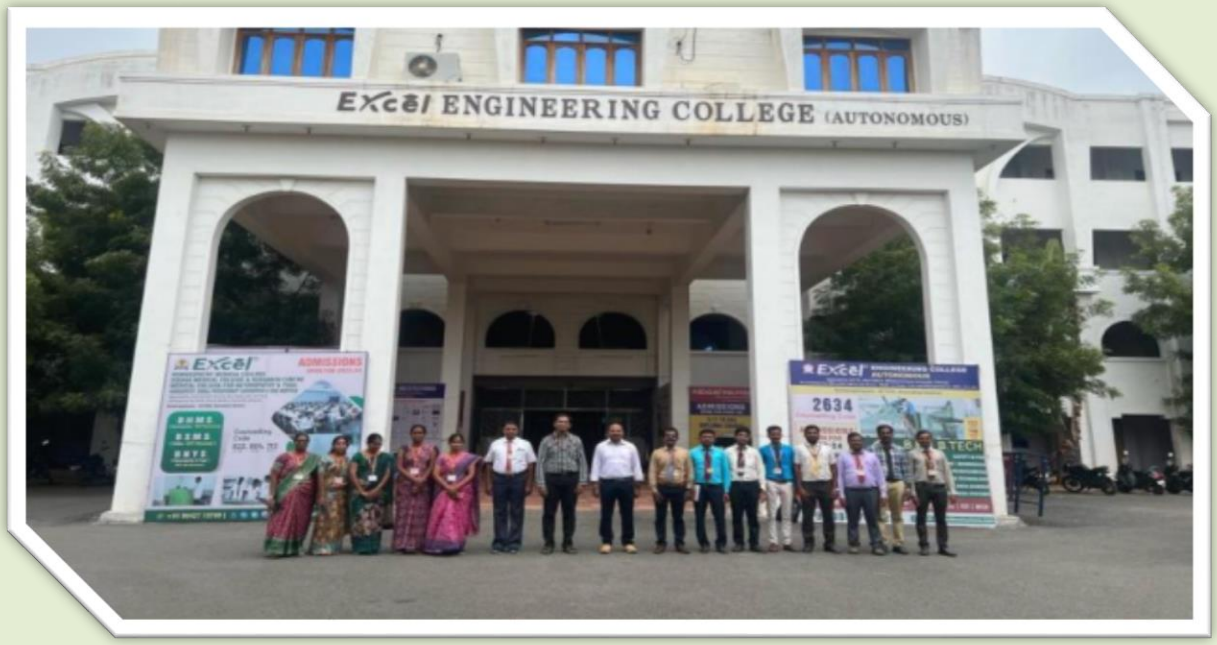
Board of Studies

The Fifth Board of Studies meeting (EEC/ECE/BoS/05) of the Department of Electronics and Communication Engineering, Excel Engineering College (Autonomous), was held on 13.12.2023 at 10:00 AM in Kandasamy A/C Hall under the chairmanship of Dr. S. Anbu Karuppusamy, HoD. The members present included Dr. M. Dhinakaran (University Nominee), Dr. J. Aravinth (Academic Experts), Mr. Arun Kumar Perumal (Industry Expert), and Mr. Prem Kumar R (Alumnus). The Board discussed and approved the VIII Semester B.E. ECE syllabus for students admitted from 2020–21 (Regulation 2020), II Semester B.E. ECE syllabus for students admitted from 2023–24 (Regulation 2023), IV Semester M.E. Applied Electronics syllabus for students admitted from 2022–23 (Regulation 2022), and the curriculum and syllabi for the Minor Degree programme "Embedded Systems and IoT" for students admitted from 2021–22 (Regulation 2020/V2). No other matters were raised, and the meeting concluded with the approval of the Chairman.



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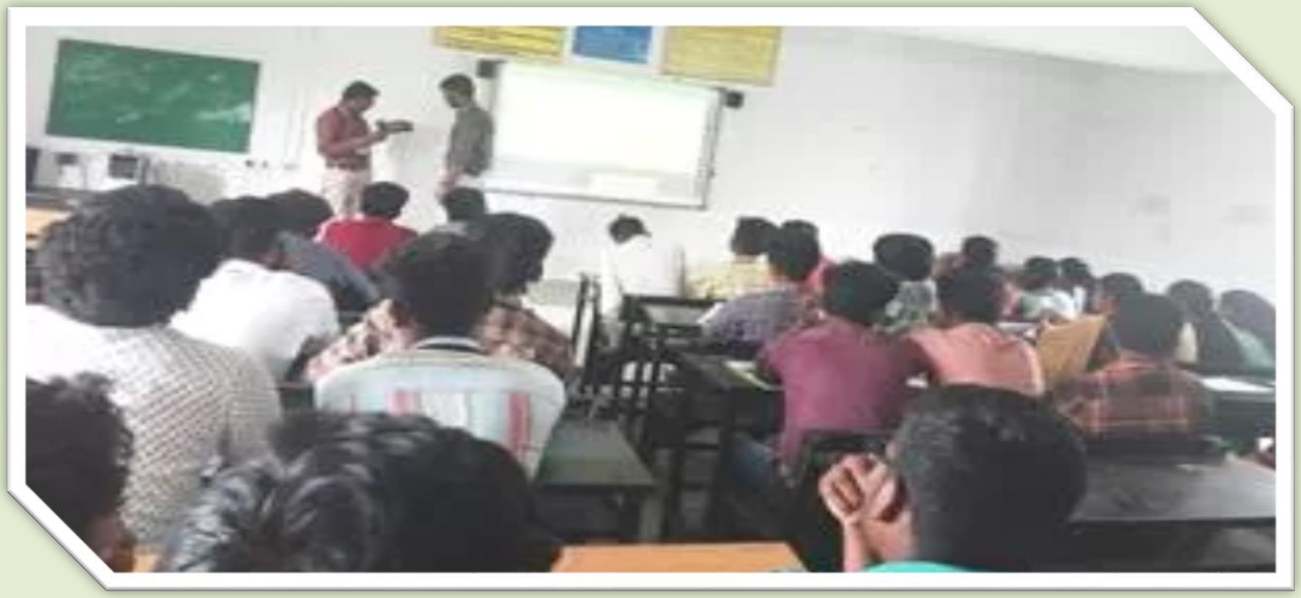
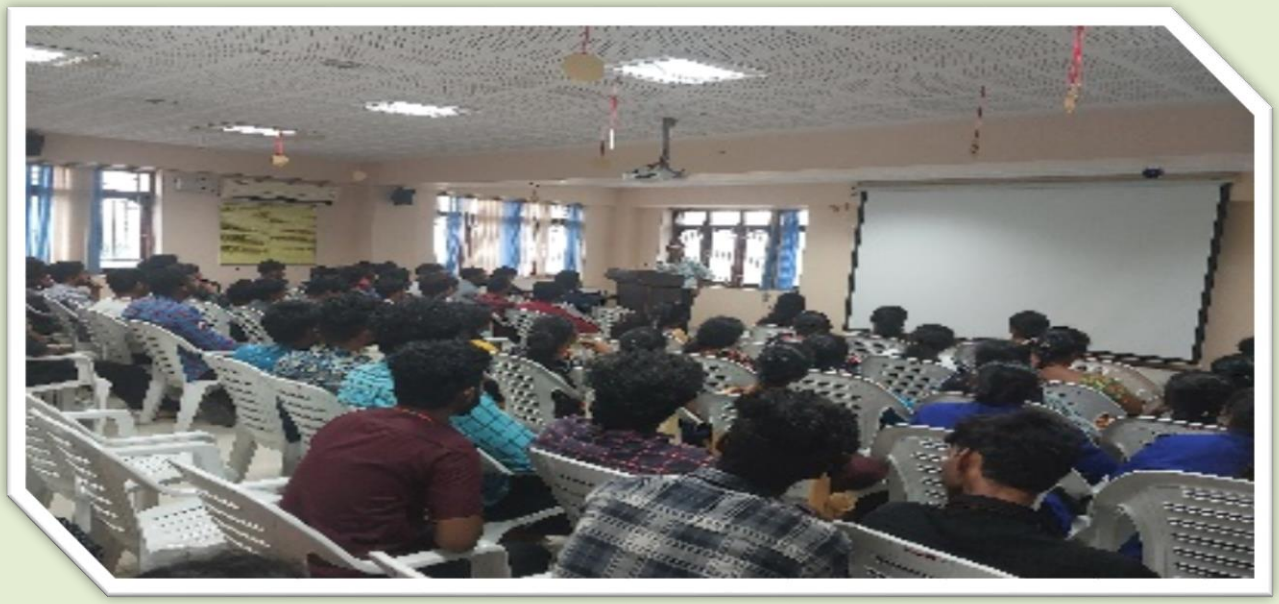
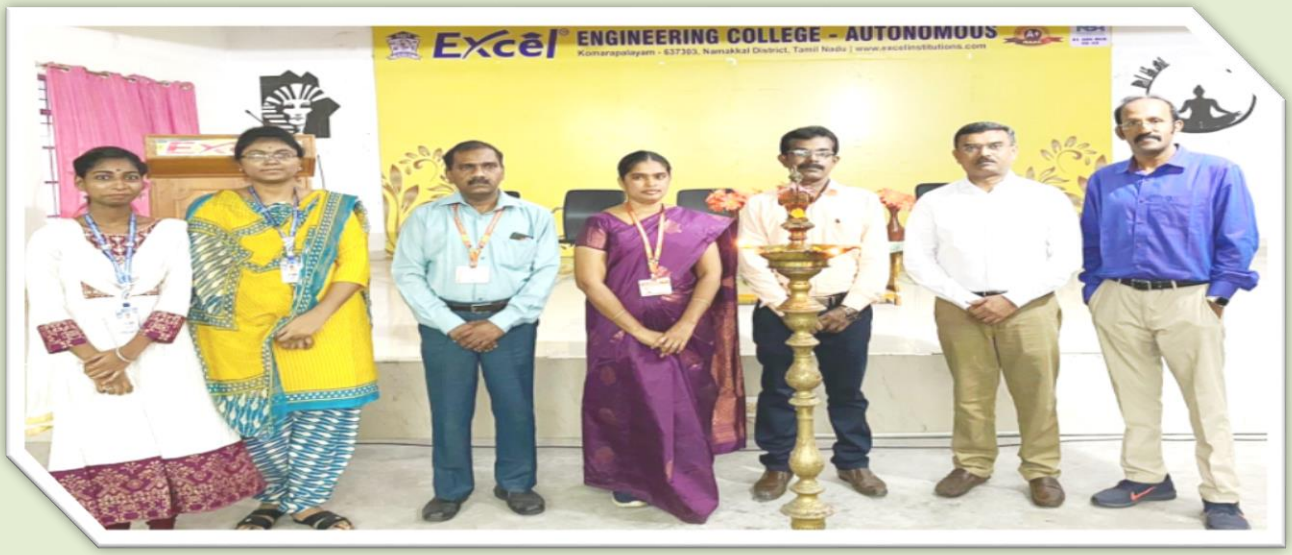
Academic Activities



Workshop on Arduino and its Applications was conducted on **08.07.2023**, facilitated by **Mr. N. Rajagopalakrishnan** and **Ms. S. Theivanayaki**, Assistant Professors from the **ECE Department**. The session provided hands-on experience and insights into various Arduino-based projects. It enhanced participants' practical skills and fostered innovation in embedded system design.



A **Webinar on Opportunities after Engineering through GATE/ESE/PSUs** was organized on **22.07.2023**, led by **Dr. A. Vasantharaj**, Associate Professor, **ECE Department**. The session provided valuable guidance on career prospects and preparation strategies. It motivated students to explore competitive exams for advancing their professional careers.



A **Seminar on "Introduction to Intellectual Property Rights (IPR) and its Importance in the Modern Global Economic Environment"** and **"Unlocking the Potential: Converting Innovative Projects into Patents"** was conducted on **28.07.2023**. The session was delivered by **Dr. Saravanan Sethuraman**, Principal Engineer and Memory System Architect at **Intel, USA**. It provided deep insights into the significance of IPR and strategies for transforming innovations into valuable patent

A **Seminar on "Internet of Things (IoT) in Smart Cities"** was conducted on **05.08.2023**, facilitated by **Ms. K. Kodeeswari** and **Ms. S. Theivanayaki**, Assistant Professors from the **ECE Department**. The session focused on the role of IoT technologies in developing smart city solutions and enhancing urban living. It provided students with practical insights into emerging trends and applications of IoT

A **Value Added Course on "SoC in Embedded Systems"** was organized on **05.08.2023**, **12.08.2023**, and **19.08.2023**. The sessions were handled by **Mr. V. Sakthivel** and **Mr. N. Sakthivel**, Assistant Professors, **ECE Department**. The course provided in-depth knowledge of System-on-Chip design and its applications, enhancing students' skills in embedded system development.

A **Skill Development Program** for non-teaching faculty members on **"Operating Systems and Basic Software Installation"** was conducted on **29.08.2023**. The session was facilitated by **Mrs. A. Anitharani** and **Ms. S. Theivanayaki**, Assistant Professors from the **ECE Department**. It aimed to enhance technical skills and improve efficiency in managing system software installation

An **Alumni Guest Lecture** on "**Emerging Applications of IoT**" was conducted on **23.09.2023**. The session was delivered by **Mr. Fazil Mohammed S**, Manager, Remote Monitoring, **Schneider Electric ITBU Pvt. Ltd.** He shared valuable insights on the latest IoT trends and their real-world industrial applications, inspiring students to explore innovative solutions in the IoT domain.

An **EDC Seminar** on "**Product Development through Design Thinking**" was organized on **23.09.2023**. The session was delivered by **Mr. M. Gowrisankar**, Assistant Professor, **MBA Department**, **Excel Engineering College**. It provided students with insights into innovative problem-solving techniques and strategies for developing user-centered products.

The Department of Electronics and Communication Engineering signed an **MoU** and organized an **Industrial Guest Lecture** on "Emerging Technologies in ECE – A Road Map for the Next Generation" on **03.10.2023**. The session was delivered by **Mr. M. Parthiban**, Additional Director, **Caliber Embedded Technologies India Pvt. Ltd.**, providing valuable insights into future trends in the ECE domain.

The Department of Electronics and Communication Engineering organized an **Academic Guest Lecture** on "The Future of Embedded Technology: AI, IoT, and Beyond" on **28.10.2023**. The session was delivered by **Dr. D. Sivaraj**, Associate Professor/ECE, **PSG College of Technology**, providing valuable insights into emerging trends in embedded systems.

The Department of Electronics and Communication Engineering organized an **Academic Guest Lecture** on "Process Control in Industries" on **18.11.2023**. The session was delivered by **Dr. K. S. Vairavel**, Associate Professor & Head of EIE, **Bannari Amman Institute of Technology**, focusing on advanced industrial control techniques and applications.

A Value-Added Course on **"Electronics System Design Using PSpice"** was conducted, coordinated by Mr. V. Sakthivel, AP/ECE, and Mrs. A. Anitha Rani, AP/ECE. The sessions were held on **09.02.2024, 17.02.2024, 02.03.2024, and 16.03.2024**, offering hands-on experience in circuit simulation and design to enhance students' technical skills.

An **Academic Guest Lecture** on "Future Trends and Innovation in AIoT" was conducted on **29.02.2024**. The session was delivered by **Dr. Dinesh Ganesan**, Assistant Professor, Government College of Engineering, Salem, providing insights into the latest advancements and innovative approaches in AIoT technologies.

An **Industry Guest Lecture** on "Introduction to Anti-Counterfeiting and Importance of Anti-Counterfeiting in the Modern Global Economic Environment & Anti-Counterfeiting Challenges and Opportunities in Engineering" was conducted on **16.02.2024**. The session was delivered by **Dr. Suresh Kumar G. S.**, Senior Project Associate, CSIR-National Institute for Interdisciplinary Science and Technology, focusing on the significance of anti-counterfeiting measures and emerging challenges in the field

An Academic Guest Lecture on "Spectral Imaging: Unveiling the Invisible with Remote Sensing" was delivered by **Dr. Aravinth, Associate Professor, Amirtha Vishwa Vidyapeetham University, Coimbatore**, on **16/04/2024**.

An Industry Guest Lecture on "Data Warehouse Project Management and Division in Indian IT Industry" was delivered by **Mr. S. Balamurugan, Project Manager, TCS, Coimbatore**, on **08/04/2024**.

An Industry Guest Lecture on "Crafting the Future: IoT Ideation and Startup Ecosystem Dynamics" was delivered by **Mrs. Sathya Raja, Product Development Specialist and Founder & CEO of Protowiz Private Limited**, on **02/04/2024**.

An Alumni Guest Lecture on "Electronic Control Unit in Car" was delivered by **R. Karthikeyan, System Engineer, BOSCH Global Software Technology, Coimbatore**, on **12/04/2024**.

An Alumni Guest Lecture on "Graphic Designing of Electronic Components Using DesignSpark" was delivered by **Kaviyanayagan J, Senior Graphic Designer, Outsource Info Tech**, on **15/04/2024**.

A Workshop on "Powering IoT Using Arduino and Raspberry Pi" was organized on **15/04/2024 and 16/04/2024**, coordinated by **Dr. G. Prakash, Professor/BME**, **Mr. N. Rajagopalakrishnan, AP/ECE**, and **Mr. V. Sakthivel, AP/ECE**.

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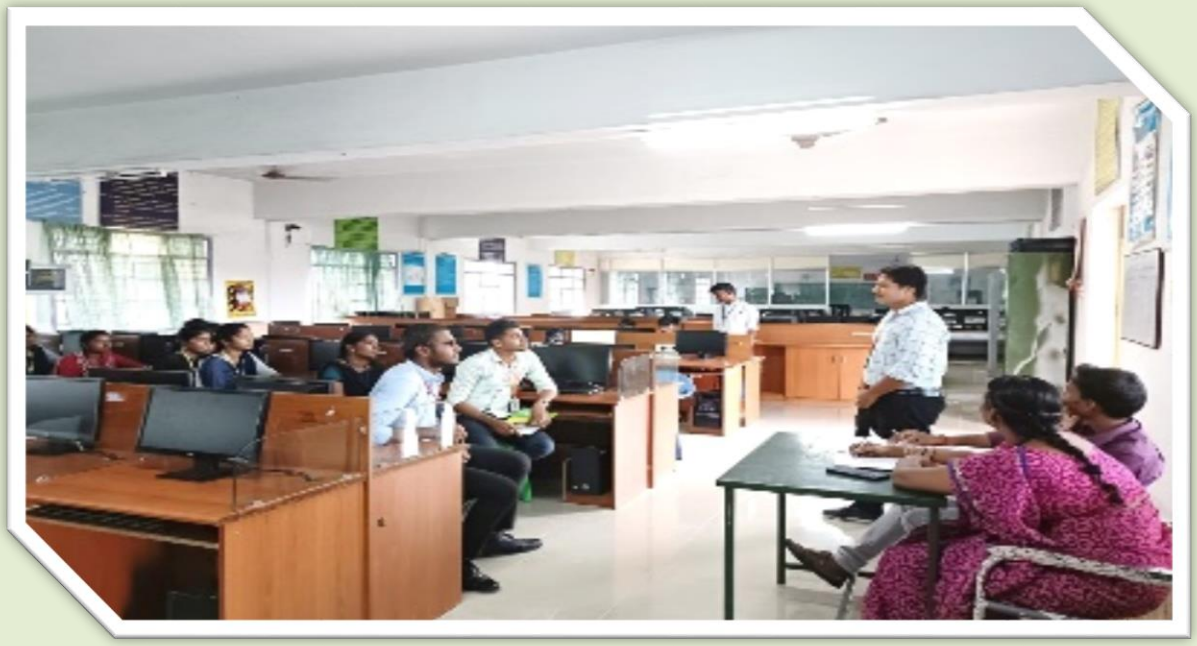
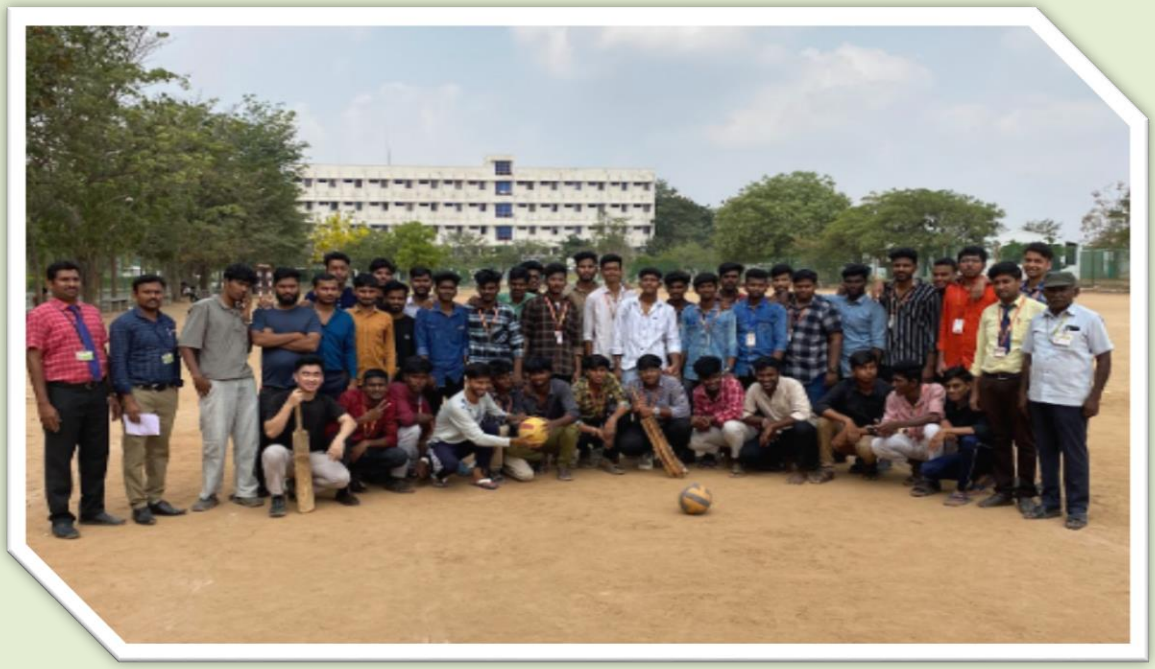
Non-Academic Activities



A **Non-Academic Event** on "**Universal Challenges and Gender Equality in Education**" was organized on **02.09.2023**. The event featured **Speech, Poster, and Essay Competitions** focused on creating awareness about **gender discrimination**. It was coordinated by **Mrs. A. Anitharani** and **Mr. N. Siva**, Assistant Professors, **ECE Department**.

A **Non-Academic Event** on "**Awareness Program on Save Trees and Ecosystems**" was conducted on **02.09.2023**. The program aimed to promote environmental conservation and sustainability. It was coordinated by **Mr. N. Rajagopalakrishnan** and **Ms. K. Kodeeswari**, Assistant Professors, **ECE Department**

Engineers Day was celebrated on **21.09.2023** with an **Idea Presentation** event on the theme "**Engineering for a Sustainable Future**", focusing on **Sustainability, Health Security, and Joy of Living**. The event was coordinated by **Ms. S. Theivanayaki**, Assistant Professor, **ECE Department**, to encourage innovative thinking and solutions for a better future.



Sports Day was celebrated on **18.11.2023**, organized by the **Department of Electronics and Communication Engineering**. The event was coordinated by **Mrs. N. Nithya, AP/ECE**, and **Mr. N. Siva, AP/ECE**, to promote fitness, teamwork, and sportsmanship among students

World Television Day was celebrated on **21.11.2023** with a special program highlighting the impact of television on communication and society. The event was coordinated by **Mr. V. Sakthivel** and **Mr. D. S. Mydheeshwaran**, Assistant Professors, **ECE Department**, to create awareness about the role of television in shaping global perspectives.

A **Non-Academic Event** on National Puzzle Day was organized on **29.01.2024**, coordinated by **Mr. V. Sakthivel**, AP/ECE, and **Mr. N. Siva**, AP/ECE, to promote problem-solving skills, logical thinking, and creativity among students.

Non-Academic Event on *International Day of Women and Girls in Science* was organized on **13.02.2024**, coordinated by **Mrs. T. Nathiya**, AP/ECE, and **Mrs. Anitha Rani**, AP/ECE, to inspire and encourage the participation of women and girls in the field of science and technology.

A **Non-Academic Event** on Awareness Program on Global Recycling Day was organized on **18.03.2024**, coordinated by **Mr. P. Loganathan**, AP/ECE, and **Mr. S. Satheesh Kumar**, AP/ECE, to promote the importance of recycling and sustainable environmental practices.

A Sports Activities event was organized on **16/03/2024**, coordinated by **Mr. D. S. Mydheeshwaran, AP/ECE**, and **Mr. N. Sakthivel, AP/ECE**, to encourage student participation and promote physical fitness.

An IQAC event on World Radio Day was organized on **13/02/2024**, coordinated by **Mr. V. Sakthivel, AP/ECE**, and **Mr. N. Siva, AP/ECE**, to celebrate the significance of radio in communication and media.

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Faculty Achievements

- **Dr. R. Dinesh**, "**Semantic Segmentation and Content-Based Retrieval in Multimedia Image Databases**," published in **ICTACT Journal on Image and Video Processing**, **UGC approved**

  Dr. R. Dinesh published a research paper titled *"Enhancing Data Transmission Reliability in Cluttered Environment Using Adaptive Wireless Sensor"* in IEEE Xplorer (SCOPUS Indexed).

- **Books Co-Authored:**
  1. ***VLSI and Chip Design* – Published by Charulatha Publications, ISBN-13: 978-93-5577-767-6.**
  2. ***CHAT GPT Prompt for Beginners* – Published by Scientific International Publishing House, ISBN: 978-93-5132-275-4.**

Mr.V. Arun Antony, co-authored a book titled VLSI and Chip Design, published by **Charulatha Publications**, with **ISBN-13: 978-93-5577-767-6**.

Mr. V. Arun Antony filed a patent titled Device to Predict Cardiovascular Attack with application number **397144001**, which was **published on 09.10.2023**.

Mr. P. Saravanaprasad published a research paper titled "Advanced Lung Tumour Diagnosis Using a 3D Deep Neural Network-Based CAD System" in the journal **Biomedical Processing and Control (SCI)**.

Dr. S. Anbukaruppusamy published a research paper titled "Efficient Security Framework Against Sybil Attack in Mobile Adhoc Network Using EE-OLSR Protocol Scheme" in the journal **Wireless Networks (SCI)**.He also published another paper titled "Optimal Fuzzy-C-Means Clustering Algorithm for Reversible Mammogram Image Hiding Based on Computer Vision" in the journal **Environmental Protection and Ecology (SCOPUS)**.

Dr. C. Karthikeyini published a research paper titled "Comparative Analysis of Deep Learning in Detecting Cognitive Impairment Associated with Alzheimer's Disease" in the **International Journal of Intelligent Systems and Applications in Engineering (IJISAE), SCOPUS**.

Dr. Mohammed Yaseen published a paper titled "VLSI Design of Low-Power Edge AI Processors for IoT Devices" in the **ICTACT Journal on Microelectronics (SCOPUS)**.

Mr. Rajagopalakrishnan, "**Machine Learning Based Smart Water Vending Machine for Convenient and Sustainable Hydration Solution**," published in **International Journal of Scientific Research in Engineering and Management**.

Ms. Anitharani, "**Neural Greenery: Advancements in Plant Leaf Disease Recognition Using Deep Learning**," published in **International Journal of Scientific Research in Engineering and Management**.

Mr. Karthik Prabhu (202441026998), "**Intelligent Inspection System for Industrial Goods Utilizing ML Algorithm**."**Status:** Published.

Mrs. Pushpavathi, "**IoT-Based Smart Band for Doctor and Patient Communication Using Body Sensor**," published in **International Journal of Innovative Research in Computer and Communication Engineering**.

Dr. K. Tamilarasi, "**Water Data Communication IoT for Flood Management and Smart Alert to Rescue Team**," published in **Aegaeum Journal, Vol. 12, No. 4, pp. 23-30, June 2024**.

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Student Achievements




Shri Prakash Baitha, **Ujjwal Prakash**, **K. Visruth**, and **Shivpujan Kumar** of **II year** won **First Prize** in a **Symposium** held on **16.06.2023** at **P.A. College of Engineering and Technology**.

P. Raguram of **III year** won **Second Prize** in a **Symposium** held on **11.09.2023** at **SNS College of Technology**.

Shivpujan Kumar, II year, won **First Prize** in a **Symposium** held on **07.10.2023** at **Vellar College of Engineering and Technology**

Shivpujan Kumar of **II year** won **First Prize** in a **Symposium** held on **16.06.2023** at **P.A. College of Engineering and Technology**.

ShivPujan Kumar (II Year) won **I Prize** in a **Hackathon** held on **12/03/2024** at **K. Ramakrishnan College of Technology.**

Visruth K, II year, won **First Prize** in a **Symposium** held on **07.10.2023** at **Vellar College of Engineering and Technology**.

K. Visruth (II Year) won **I Prize** in a **Hackathon** held on **12/03/2024** at **K. Ramakrishnan College of Technology**

B. S. Sekaran (II Year) won **II Prize** in a **Symposium** held on **06/03/2024** at **Knowledge Institute of Technology**

B. S. Sekaran (II Year) won **II Prize** in a **Symposium** held on **06/03/2024** at **Knowledge Institute of Technology**

B. S. Sekaran (II Year) won **III Prize** in a **Symposium** held on **13/03/2024** at **Government College of Engineering**.

M. Ananth (II Year) won **III Prize** in a **Symposium** held on **01/03/2024** at **K. Ramakrishnan College of Technology**.

M. Ananth (II Year) won **II Prize** in a **Symposium** held on **06/03/2024** at **Knowledge Institute of Technology**.

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K. Poongundran (II Year) won **II Prize** in a **Symposium** held on **06/03/2024** at **Knowledge Institute of Technology**

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Ragul Kumar (II Year) won **I Prize** in a **Hackathon** held on **12/03/2024** at **K. Ramakrishnan College of Technology**.

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Rajaguptha (II Year) won **I Prize** in a **Hackathon** held on **12/03/2024** at **K. Ramakrishnan College of Technology**.

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M. Sanjeevan (II Year) won **III Prize** in a **Symposium** held on **13/03/2024** at **Government College of Engineering**.

ARCHANAA M

- Won **I Prize** in a **Symposium** on **12/04/2024** at **Sri Shanmugha College of Engineering**.
- Won **I Prize** and **II Prize** in a **Symposium** on **22-23/04/2024** at **Erode Sengunthar Engineering College**.
- Won **I Prize** in a **Symposium** on **22-23/04/2024** at **Erode Sengunthar Engineering College**.

A. S. SUBHAPRATHA Won **II Prize** in a **Symposium** on **22-23/04/2024** at **Erode Sengunthar Engineering College**.

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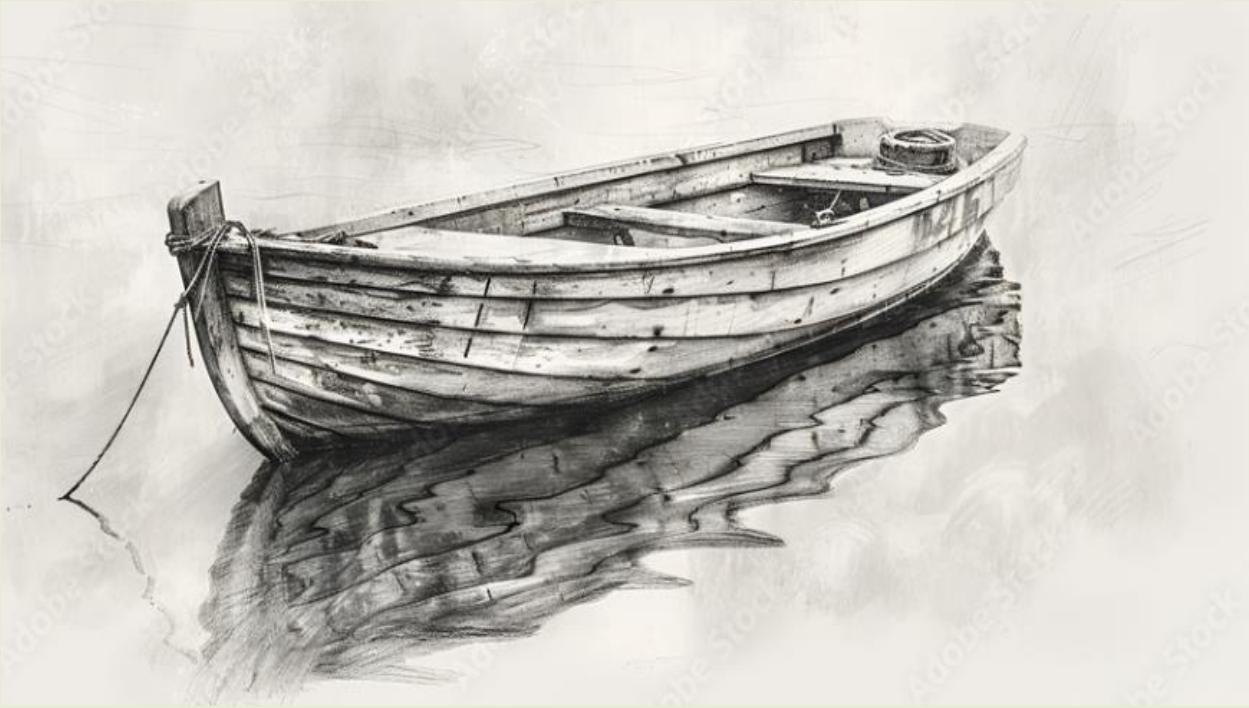
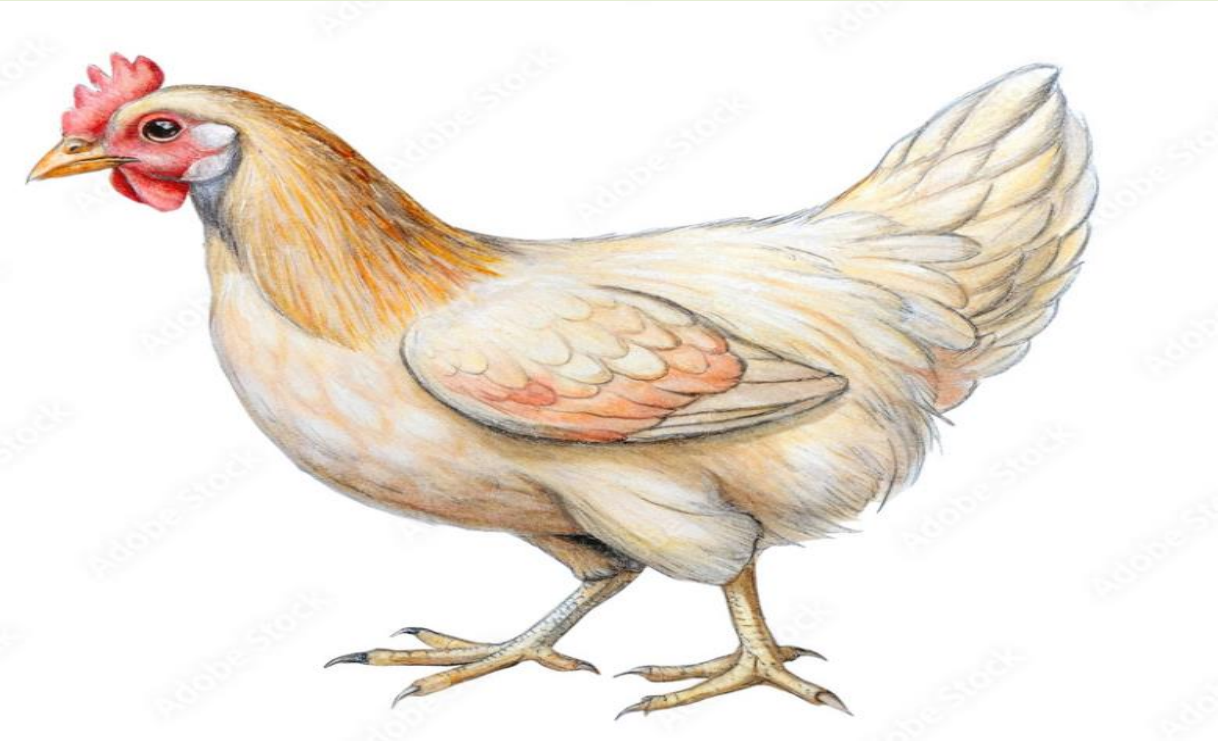
Student Corners

DRAWING

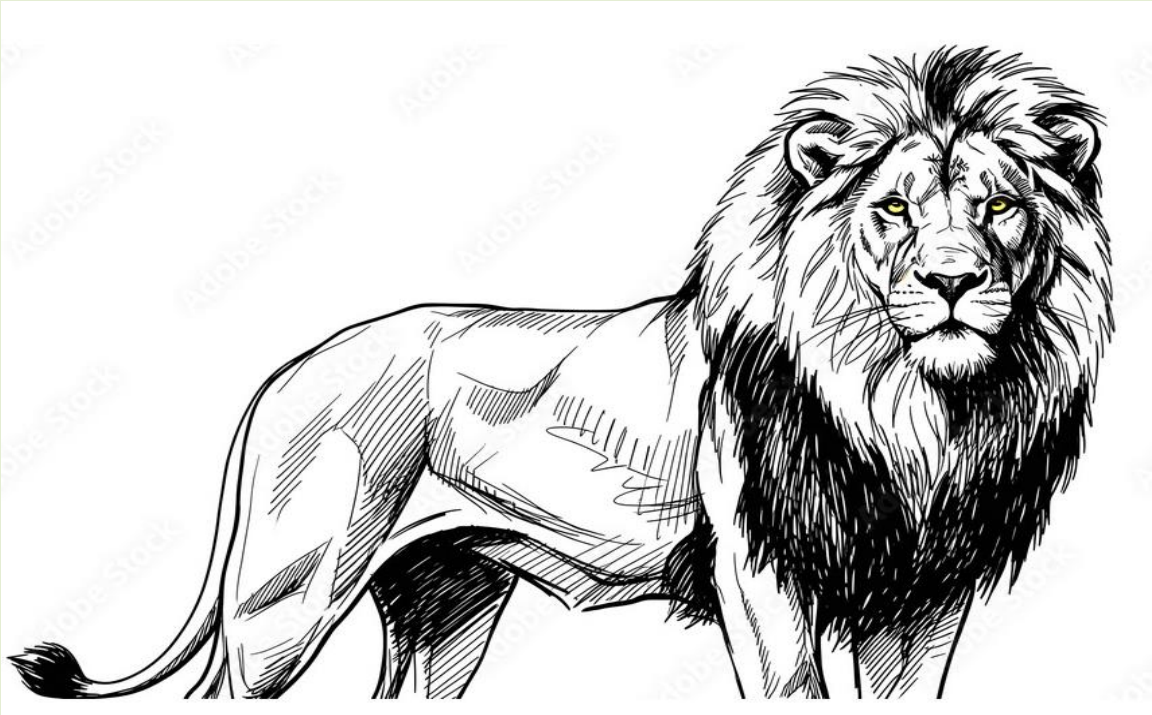


22EC075 RAJA GUPTA

22EC107 SUHAS.G.V

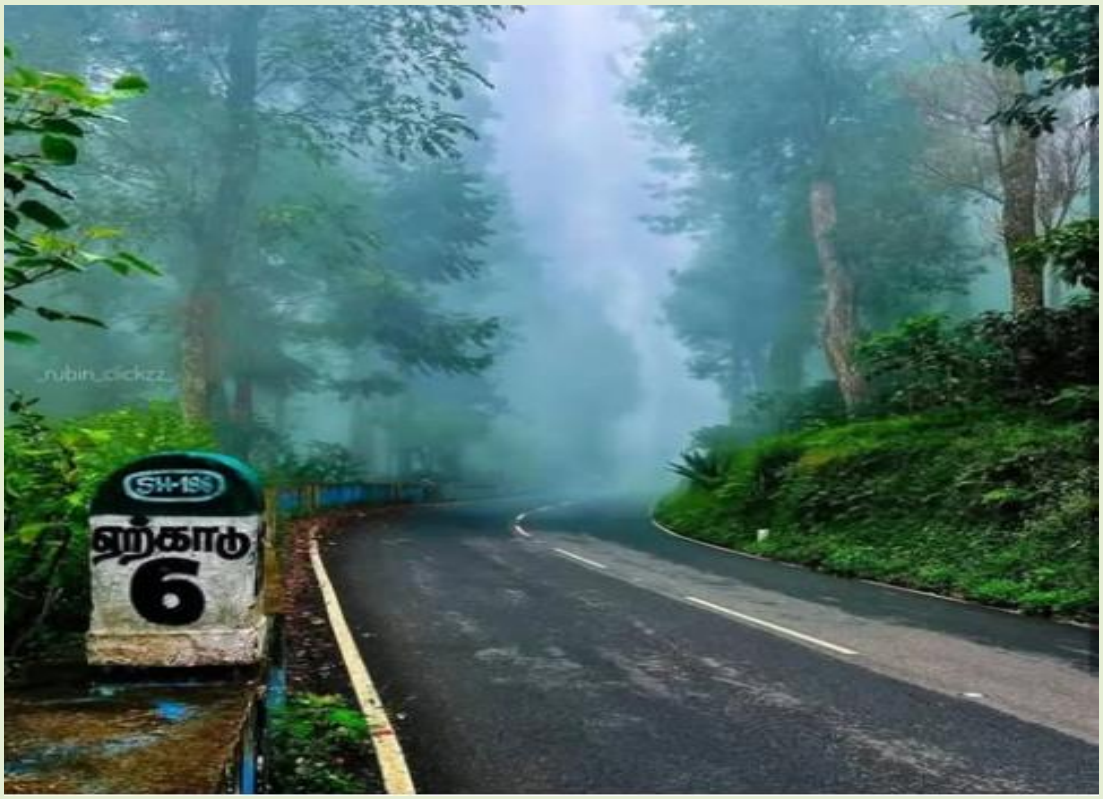


21EC021 DEVIKA S

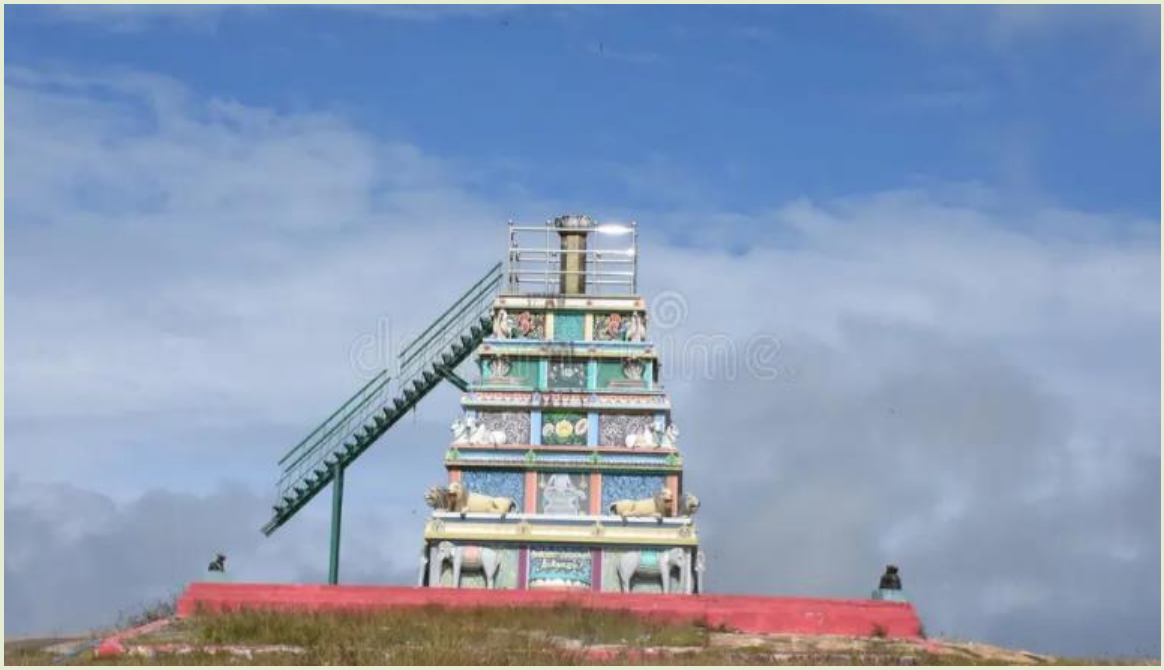


21EC027 DHIVYA A

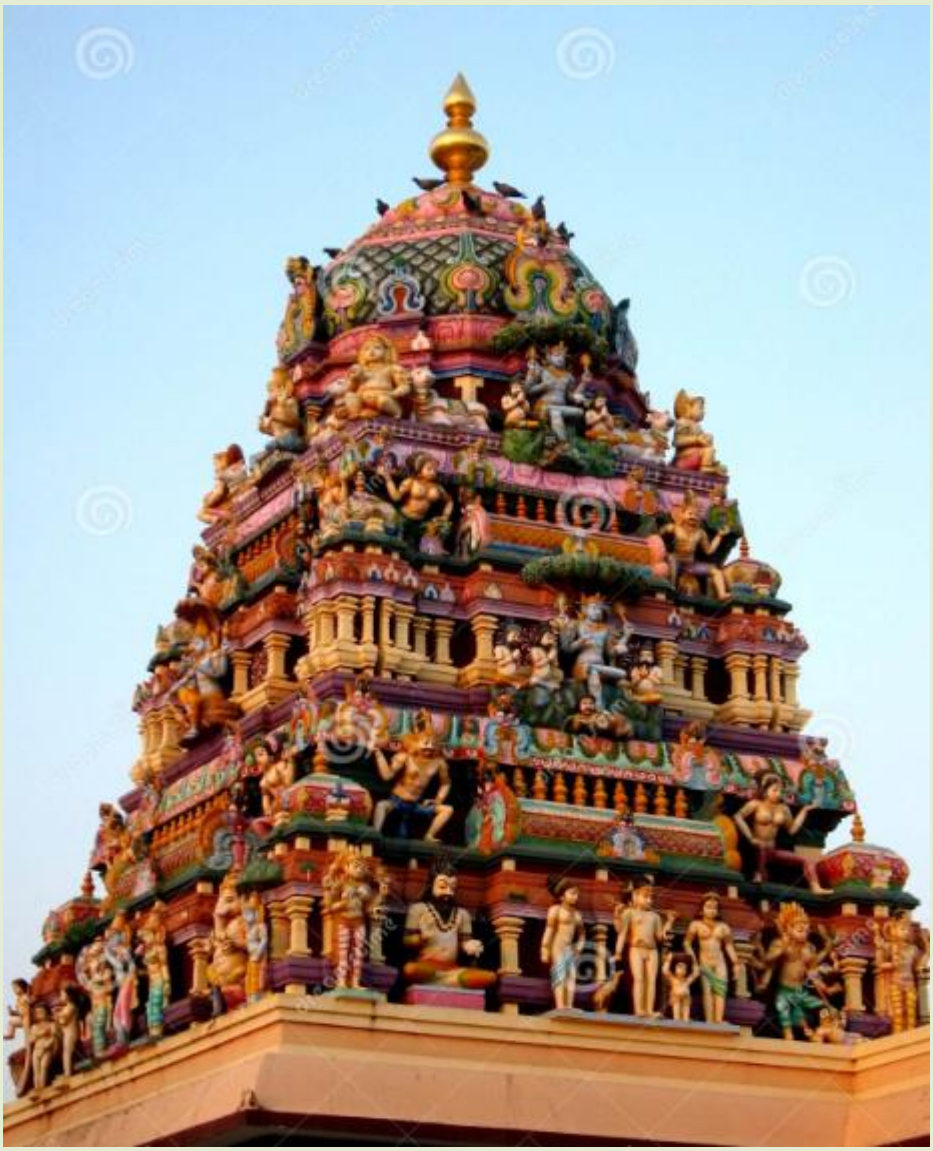
PHOTOGRAPHY



21EC061 MANISH KUMAR M



22LEC131 SUBASRI P



21EC028 DHIVYA PRAKASH S

TAMIL POEM

கடவுள் ❀

அருள் நிறைந்த அந்தணனே,

அண்டம் முழுதும் நீயே காண்பதோர் கண்களே.

மலர் மலர்க்கும் முன்பே நீர் பிறந்தாய்,

மனம் விழிக்கும் முன்பே ஆசை தந்தாய்.

மழை துளியாய் விழுந்து நதியாய் ஓடினாய்,

மரத்தின் நிழலாய் வந்து உயிர் காத்தாய்.

பசுமை பூமியில் பாசம் விதைத்தாய்,

பக்தி இதயத்தில் நம்பிக்கை வளர்த்தாய்.

துயரத்தில் தள்ளாடும் உயிரின் தோளாய்,

சந்தோஷம் சிதறிடும் நேரின் சிரிப்பாய்.

காணாது காணும் கண்களுக்கும் நீயே,

காணப்படும் உலகிற்கும் ஆதாரமே நீயே.

அன்பும் அமைதியும் நீரே பரிமாற,

ஆத்மாவின் குரலில் ஓசை நீரே கேட்க.

கடவுள் எங்கே என தேடும் மனமே,

உன் உள்ளத்தின் ஆழத்தில் அவரே இருக்கின்றார். ❀

21EC006 AMUTHA S

TECHNICAL ARTICLE

The Rise of Generative AI: Transforming Technology in 2024

22EC091-SEKARAN B S

The year **2024** has marked a major technological revolution with the rapid growth of **Generative Artificial Intelligence (AI)**, which is transforming industries worldwide. From **chatbots** like ChatGPT to **AI-driven design, robotics, and automation**, generative AI is enabling machines to create content, design products, and solve complex problems with minimal human intervention. In healthcare, AI is being used for **early disease detection** and personalized treatments, while in education, **AI-powered learning platforms** are enhancing student engagement. Technologies like **5G and the emerging 6G**, combined with **blockchain** and **IoT**, are driving innovations in **smart cities**, **autonomous vehicles**, and **sustainable energy solutions**. With growing focus on **cybersecurity** and **green technology**, 2024 stands as a landmark year, setting the foundation for a future driven by **automation, connectivity, and digital intelligence**.

Quantum Computing: Shaping the Future of Technology

22EC063 -POONGUNDRAN K

In **2024**, **quantum computing** has emerged as one of the most disruptive technologies, revolutionizing problem-solving capabilities beyond the limits of classical computers. By harnessing the power of **qubits** and quantum mechanics, this technology enables ultra-fast computations for complex tasks like **drug discovery**, **cryptography**, **financial modeling**, and **climate simulations**. Tech giants and startups are investing heavily in building scalable quantum processors, while industries are exploring **quantum cloud services** to accelerate research and innovation. With the integration of **AI**, **blockchain**, and **quantum algorithms**, breakthroughs in **cybersecurity** and **data encryption** are becoming a reality, promising highly secure digital environments. Though still in its early stages, quantum computing in 2024 is paving the way for a future where tasks that once took years to solve can now be completed in mere seconds, marking a historic leap in technological advancement.