



K.RAMAKRISHNAN COLLEGE OF ENGINEERING

An Autonomous Institution

Permanently Affiliated to Anna University Chennai, Approved by AICTE New Delhi,
ISO 9001:2015, 14001:2015 certified institution, Accredited by NBA and with A grade by NAAC

Samayapuram, Tiruchirappalli – 621 112, Tamilnadu, India.



**"Develop a passion for
learning. If you do, you will
never cease to grow."**

2024 - 2025

**JULY -DEC
ISSUE -1**



Krce.ac.in



Dr. K. Ramakrishnan

CHAIRMAN

Dr. K. Ramakrishnan, the esteemed Chairman of our institution, is a visionary leader whose dedication, discipline, and dynamic outlook serve as a constant source of inspiration for the students of the Electronics and Communication Engineering (ECE) Department. A proud alumnus of Annamalai University with a B.E. in Production Engineering, he has devoted his efforts to transforming this rural region into a center of technological and educational excellence. His commitment to hard work, innovation, and leadership motivates ECE students to strive for excellence in their academic and professional pursuits, inspiring them to become creative thinkers, responsible engineers, and future leaders who contribute meaningfully to society.

Dr.S.Kuppusamy



EXECUTIVE DIRECTOR

Dr. S. Kuppusamy, the Executive Director of our institution, is a passionate academician whose dedication and commitment to excellence have shaped his career in education. He holds a B.Sc. in Electronics from Erode Arts College, an MBA from Kongu Engineering College, and a Ph.D. in Management from Bharathiar University, Coimbatore. His blend of technical knowledge and leadership inspires the Electronics and Communication Engineering (ECE) students to pursue innovation, discipline, and success in their academic and professional paths.



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Dr.D.SRINIVASAN

PRINCIPAL

Dr.D.Srinivasan, The Principal of K.Ramakrishnan College of Engineering, Tiruchirappalli, is a vibrant leader with his ground-breaking approach and proven administrative process produces many young engineering professionals to this society. He received his Ph.D. and Post-Graduation in Manufacturing Technology from the nation's top grade institution NIT, Trichy. Education is not just a process of giving knowledge for a future job but a lifelong process which builds an understanding of moral and ethical values to guide one's life in a right path. KRCE not only focuses on the academic front, but also helps in the development of a student's personality, extra-curricular activities and over all perspective. Everything that makes a good institution - well equipped R&D Cells, Lab facilities for all the departments, Wi-Fi enabled campus, well stacked library with digital facility, career guidance, unique teaching methods, training for competitive examinations, liberty to think and express themselves all are available to mould them to face the challenges confidently

Dr.M.MAHESWARI



HEAD OF THE DEPARTMENT

I am deeply thankful to the Board of management, Director Principal, and the Heads of various departments. Faculty members for their consistent support and active involvement in motivational activities of our department. I extend my heart full thanks to the editorial committee members and students for their tireless effort towards releasing this magazine. Choosing electronics field as profession needs challenging creative and extraordinary mind it gives me pleasure to lead such innovative students, who are the future experts of India



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DEPARTMENT OF ECE VISION

VISION

To be distinguished as a prominent program for Electronics and Communication Engineering Studies by preparing students for Industrial Competitiveness and Societal Challenges.

MISSION

M1: To equip the students with latest technical, analytical and practical knowledge.

M2: To provide vibrant academic environment and Innovative Research culture.

M3: To provide opportunities for students to get Industrial Skills and internships to meet out the challenges of the society.

The PEOs of the programme are,

PEO1: Graduates will be competent enough to design, develop and integrate complex industrial products for modern electronics and communication systems.

PEO2: Graduates will be able to propose research oriented, industry relevant design solutions in state-of-the-art electronics and communication domains.

PEO3: Graduates will be able to engage in start-up and entrepreneurial activities developing innovative prototypes for the challenging needs of the society.

PROGRAM SPECIFIC OUTCOMES (PSOs)

PSO1: Students will qualify in National level Competitive Examinations for Employment and Higher studies.

PSO2: Students will have expertise in the design and development of Hardware and Software tools to solve complex Electronics and Communication Engineering problems in the domains like analog and digital electronics, embedded and communication systems.



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Ph.D degree Completed in ECE Department



Mrs. Sheeba

TITLE: Person Fall Detection Using Machine Learning Techniques Based on Real Time Videos

SUPERVISOR: DR. M. MAHESWARI

DEPT: ECE

SUBJECT: Information and Communication Engineering

Awarded Year/ Viva date: 19.08.2024



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Ph.D degree Completed in ECE Department



Ms.Radha.N

TITLE:Error correction codes for 5G

SUPERVISOR:DR.M.MAHESWARI

DEPT:ECE

**SUBJECT:Information and Communication
Engineering**

Awarded Year/ Viva date: 30.4.2025



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Ph.D degree Completed in ECE Department



Mrs.J.Aruna

TITLE:Person Fall Detection Using Machine Learning Techniques Based on Real Time Videos

SUPERVISOR:DR.C.JEYALAKSHMI

DEPT:ECE

SUBJECT:Information and Communication Engineering

Awarded Year/ Viva date: 15.11.24



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EVENTS



The Department of Electronics and Communication Engineering, K. Ramakrishnan College of Engineering, Trichy, organized a Poster Design Competition on 31st July 2024. The event was aimed at encouraging creativity, innovation, and technical presentation skills among students. The competition was graced by Mr. Radhakrishnan, Founder of VERTAX, Trichy, and Dr. D. Srinivasan, Principal, KRCE, who served as the chief guests. They appreciated the efforts of the students and highlighted the importance of visual communication and design in presenting technical concepts effectively.



The Department of ECE, K. Ramakrishnan college of Engineering, Trichy has organized a ECE Department Association (Electro Ethnarch '24) Inauguration on 09.08.24(Friday). The chief guest called for this function Mr. M. Saravanakumar Murugesan, Senior Software Engineer, Team Lead, Cape Gemini Engineering called for this inaugural function who is an Alumni (2011 – 2015) of ECE department. Dr. D. Srinivasan, Principal of K. Ramakrishnan College of Engineering presided over the function. The welcome address was presented by Dr M. Maheswari, HOD/ECE, KRCE



EVENTS



The Department of Electronics and Communication Engineering (ECE) at K. Ramakrishnan College of Engineering, Trichy, successfully organized the ELECTRO ETHINARCH program on 29th August 2024 at 9:30 AM in the Third Floor Conference Hall. The program was part of the Industry Readiness Program, aimed at equipping students with industry-specific skills and knowledge.

The event was graced by Mr. A. Radhakrishnan, Founder of VERTCAX, Trichy, who served as the chief guest. Mr. Radhakrishnan delivered an insightful keynote address

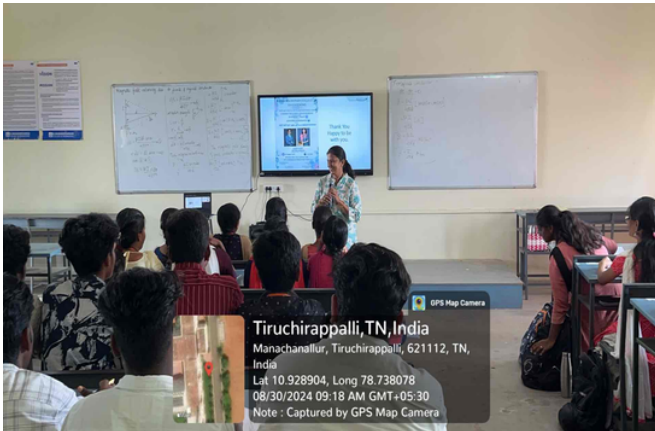
IEI Students' Chapter-ECE, K. Ramakrishnan College of Engineering, Trichy has organized a event titled Orientation on PCB Design on 22/8/24. The program aims to make eye opening on the importance of PCB design in electronics industry. Totally 77 IEI students' members were participated and gained knowledge on the design and fabrication process involved in printed circuit board (PCB).

Dr.D.Srinivasan, Principal, K. Ramakrishnan College of Engineering felicitated the event. Dr.M.Maheswari, Professor & Head, Department of Electronics and Communication Engineering, K. Ramakrishnan College of Engineering explained the use of PCB Design.

Mr. R. Samuel Felix/Managing Partner/ Matz PCB Design Service/ Trichy was the resource person and elaborated the design steps, assembling of circuit components and fabrication process involved to make PCB.



EVENTS



The Department of Electronics and Communication Engineering (ECE) at K. Ramakrishnan College of Engineering, Trichy, successfully organized the “GET SET GO...TAKE OFF TO A GREAT FUTURE...” program on 30th August 2024 at 9:00 AM in the Third Floor Conference Hall.

The event was graced by Mr.Sivakumar and Mrs.Savithri Sivakumar, Founder/CEO of Trichy Plus, as the resource persons. They delivered an insightful keynote address, focusing on post graduate programmes, the importance of tertiary education, and the opportunities in overseas for higher education. In this event, second year and third year students of our department were attended and gained the sufficient knowledge about the objective of this program.

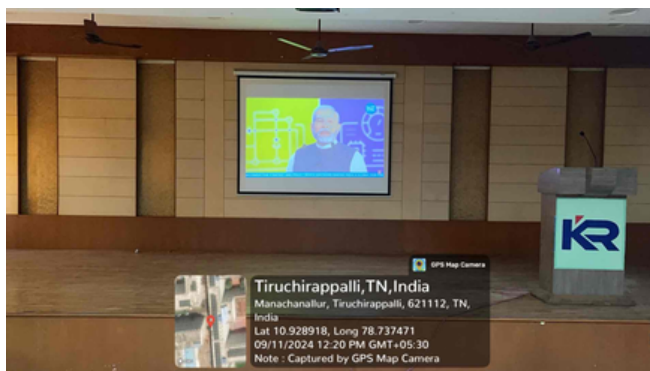


The ELECTRO ETHNARCH Association, Department of ECE in association with IEEE Students Chapter and ISRO Propulsion Complex, Tirunelveli organized One Day Seminar on SPACE & CLIMATE CHANGE at K. Ramakrishnan College of Engineering, Trichy, Tamil Nadu on 04.09.2024.

The program has been organized as a part of World Space Week 2024. Lecture with visual aids has been delivered by ISRO Scientist Dr.R.Kalimuthu. Dr.D.Srinivasan, Principal, K. Ramakrishnan College of Engineering felicitated the event. Dr.M.Maheswari, Professor & Head, Department of Electronics and Communication Engineering, K. Ramakrishnan College of Engineering explained the career opportunities in ISRO.



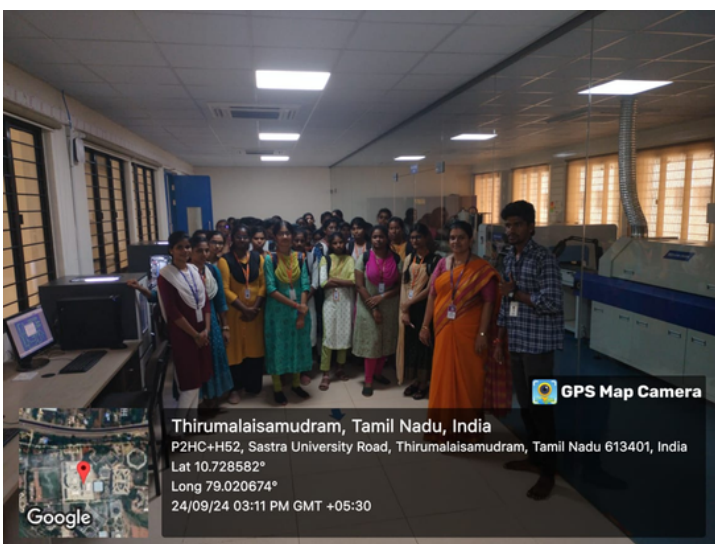
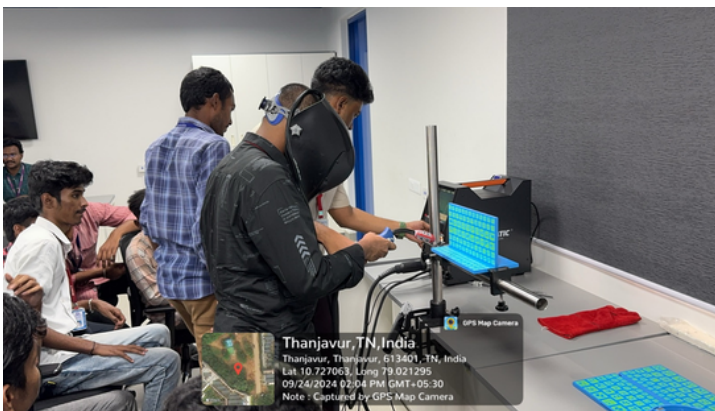
EVENTS



The Department of Electronics and Communication Engineering, K. Ramakrishnan College of Engineering, Trichy, attended and witnessed the importance of Semiconductor through the Webinar on Semiconductor at SEMICON India 2024 on 11th September 2024. The event was arranged to provide students with exposure to the latest developments and national initiatives in the semiconductor industry.

The webinar featured distinguished leaders, including Shri Narendra Modi, Hon'ble Prime Minister of India, and Shri Ashwini Vaishnaw, Union Minister, who addressed the gathering and emphasized the strategic importance of the semiconductor sector in India's technological growth.

EVENTS



The Institution of Engineers India (IEI) Students Chapter-ECE Branch at K. Ramakrishnan College of Engineering, Trichy, Tamil Nadu is recognized as an authorized Students' Chapter. The Institution of Engineers (India), Kolkata, approves it. IEI Students' Chapter-ECE, K. Ramakrishnan College of Engineering, Trichy has planned to visit Incubation Centre and Bajaj Engineering Skills Training (BEST) Centre at SASTRA University, Tanjore on 24/9/24. The visit aims to make awareness on research and industry readiness program and course carried out in TBI and BEST centre at SASTRA University. Totally 91 IEI students' members were visited and gained knowledge on PLC, Automation, Drilling, Welding, Semiconductor Manufacturing, Fabrication and Assembling of components. The design and implementation of Robotics and Drone also visited. Students got awareness about industry-related courses available in BEST Centre and also got exposure on working principle of all automation machines available in BEST Centre. Dr. Padmanaban- Head BEST Centre and Dr. Martin/ Head Admin-BEST Centre/ SASTRA explained about the course plan and helped to visit the 17 labs exist in BEST Centre. Dr. G. Kalpanadevi, Faculty Advisor, IEI Students' Chapter- ECE Branch and Prof. N. Srividhya -coordinator jointly organized the visit.

EVENTS



The Department of Electronics and Communication Engineering, K. Ramakrishnan College of Engineering, Trichy, organized an event titled “Crafting Your Path: Building a Purposeful Career and a Fulfilled Life” on 9th October 2024. The program was designed to inspire and guide students toward aligning their academic journey with a meaningful career and a fulfilling life.

The event was graced by Dr. M. Maheswari, Head of the Department of ECE, KRCE, Trichy, who served as the chief guest. Dr. Maheswari delivered an inspiring address highlighting the importance of goal setting, self-awareness, and skill development in shaping a purposeful career. She also emphasized the significance of balancing professional aspirations with personal fulfilment. A total of 48 participants actively took part in the program



Department of Electronics and Communication Engineering along with IEI and Research & development cell organized a seminar on “Artificial Intelligence in Health care” on 15.11.2024 at TLC. In this seminar, Dr. Ram Bilas Pachori, Professor, IIT Indore, delivered a detailed presentation about the Artificial Intelligence applications in health care. A detailed explanation was given related to feature extraction of Multichannel EEG signal classification

EVENTS



The Department of Electronics & Communication Engineering at K. Ramakrishnan College of Engineering successfully organized the National Level Workshop & Technical Symposium INTERPRONIX-2K25 on March 6 and 7, 2025. The event, conducted in association with the IEI Students Branch and Electro Ethnarch, brought together students from various institutions to showcase their technical expertise, innovation, and problem-solving skills. The stage was graced by the presence of the Principal, Dr. D. Srinivasan, Assistant Head of the Department, Dr. T. Muruganatham, and the symposium conveners Mr. A. Balakumar and Mrs. J. Roselin Suganthi. INTERPRONIX-2K25

The Institution of Engineers India (IEI) Students Chapter-ECE Branch at K. Ramakrishnan College of Engineering, Trichy, Tamil Nadu is recognized as an authorized Students' Chapter. The Institution of Engineers (India), Kolkata, approves it. A two-day workshop on Robotics and IoT was successfully conducted from 7/2/25 to 8/2/25 at K. Ramakrishnan College of Engineering, Trichy in association with IEI Students' Chapter-ECE Branch. The workshop was organized by IEI Students' Chapter-ECE, K. Ramakrishnan College of Engineering, Trichy

K. RAMAKRISHNAN COLLEGE OF ENGINEERING
(Autonomous)
ISO 9001:2015 Certified Institution
Samayapuram, Trichy-621112

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING
(NBA ACCREDITED)
IN ASSOCIATION WITH IEI STUDENTS' BRANCH AND ELECTRO ETHNARCH

PRESENTS
NATIONAL LEVEL WORKSHOP & TECHNICAL SYMPOSIUM
INTERPRONIX-2K25

WORKSHOP (DAY 1)
• ANTENNA DESIGN
• EMBEDDED SYSTEMS & IOT
• VLSI DESIGN

TECHNICAL EVENTS (DAY 2)
1. Paper Presentation (4 per team)
2. Technical Quiz (2 per team)
3. Code Hunt (2 per team)
4. Logo Design (Solo)

REGISTRATION FEES
2 days - ₹400/head
1 day - ₹250/head
Only Events - ₹250/head

REGISTRATION LAST DATE: 01.03.2025 (Workshop Only 180 Seats)

APPLICABLE COLLEGES
Engineering Colleges
&
Arts Colleges (Electronics Background)
Day 1, Day 2

E-CERTIFICATE FOR PARTICIPATION IN ALL EVENTS

STAFF CO-ORDINATORS
Mrs. J. Roselin Suganthi M.E(Ph.D)
(9785723226)
Mr. A. Balakumar M.Tech(Ph.D)
(9944058823)

STUDENT CO-ORDINATORS
• N. Shanmugan (9843828640)
• S. Kaosiki (9072999595)
• N. Arun (9360657988)

NON-TECHNICAL EVENTS (DAY 2)
1. Key Crack (2 per team)
2. Non-Technical Connection

MOBILE EVENTS (DAY 2)
1. Battleground
2. Free Fire
*Mobile Event - ₹100/Team

CASH PRIZE

QR CODE

Registration G-Pay: 9003969885

FOOD IS PROVIDED FOR ALL PARTICIPANTS. ACCOMMODATION IS AVAILABLE UPON REQUEST WITH AN ADDITIONAL FEE.

Scan to Register!
Registration Link: <https://forms.gle/wGua4V7M03aAUCa>
Email for Paper Submission: interpronix.ecce.krce@gmail.com

Dr.M.MAHESWARI
HOD-ECE

Dr.D.SRINIVASAN
PRINCIPAL

Dr.S.KUPPUSAMY
EXECUTIVE DIRECTOR

Dr.K.RAMAKRISHNAN
CHAIRMAN

EVENTS



The Department of Electronics and Communication Engineering, K. Ramakrishnan College of Engineering, Trichy, in association with The Institution of Engineers (India) [IEI], organized an event on “Industry Initiatives on Green Electronics” on 8th May 2025. The program aimed to create awareness among students about sustainable practices and eco-friendly innovations in the electronics industry. The event was graced by two eminent chief guests: Mr. V. Ramachandran, Senior General Manager, Kothari Sugars and Chemicals, and Dr. S. Ravimaran, Chairman, IEI – Trichy Local Centre.

The Department of Electronics and Communication Engineering, K. Ramakrishnan College of Engineering, Trichy, organized an Industrial Visit to All India Radio (AIR) – Prasar Bharati, Trichy, on 8th April 2025. The visit was arranged to provide students with practical exposure to broadcasting technologies and real-time industry practices. The session was graced by Mrs. S. Senthilnayagi, Assistant Deputy Director General (E), and Mr. S. N. Selvakumar, Assistant Engineer, who interacted with the students and shared their valuable expertise. They explained the functioning of broadcasting systems, signal transmission, modulation techniques, and the role of emerging technologies in radio communication.



EVENTS



Department of Electronics & communication Engineering & The Institution Innovation Council of K. Ramakrishnan College of Engineering jointly organized “EINSTACTOMIA-2K25” (Intra college Project contest) on 09.05.2025. The event was coordinated by Mr. R. Balamurugan, AP/ECE, and Mr. N. R. Nagarajan, AP/ECE. The event was inaugurated by Dr. D. Srinivasan, Principal/KRCE & President IIC, and a welcome address was given by Dr. M. Maheswari HOD/ECE.

SOLID STATE BATTERIES - THE FUTURE OF ENERGY STORAGE

AUTHOURS: ECA2315-DENI SEBASTIA & ECA2349-KIRISHA

The year 2024 marked a significant milestone in battery technology with the advancement of solid state batteries. These next generation power storage devices are set to revolutionize electric vehicles and renewable energy systems

WHAT ARE SOLID STATE BATTERIES?

Traditional lithium ion batteries use liquid electrolytes to transport ions between electrodes. Solid state batteries replace this flammable liquid with solid materials, making them safer and more efficient. The solid electrolyte can be made from three main types of materials: sulfides, polymers, or oxides.

RECENT BREAKTHROUGHS

In early 2025, Mercedes Benz successfully integrated a lithium metal solid state battery into a production vehicle, the EQS model. This marked the first time a solid state battery powered car hit the road for testing. The company partnered with Factorial Energy to achieve this milestone. BMW also tested solid state batteries in their i7 vehicle using sulfide based solid electrolytes. Meanwhile, research teams at the University of Texas at Dallas discovered that mixing small particles between two solid electrolytes creates unique channels for ion transport, potentially solving one of the biggest challenges in this technology.

Advantages Over Conventional Batteries

Energy Density: Solid state batteries can store 300 to 900 Wh per kg compared to 150 to 300 Wh per kg for lithium ion batteries.

Safety: Non flammable operation eliminates fire risks associated with liquid electrolytes

CHARGING SPEED:

Potential charging times of 3 to 15 minutes versus 30 to 60 minutes for current batteries.

Lifespan: Expected to last 10,000 to 100,000 charge cycles compared to 1,000 to 3,000 cycles.

Temperature Range: Can operate from negative 50 degrees Celsius to 125 degrees Celsius.

CURRENT CHALLENGES

The main obstacle is cost. Solid state batteries currently cost between 400 to 800 dollars per kWh, while lithium ion batteries dropped to 115 dollars per kWh in 2024. Manufacturing these batteries at scale requires new production techniques and equipment. Another challenge is interfacial resistance, which occurs at the boundary between solid materials. Poor physical contact between electrodes and electrolytes creates resistance that limits performance.

TIMELINE FOR COMMERCIAL AVAILABILITY

Industry experts predict the following timeline: 2025 to 2027: Initial integration into premium and specialized electric vehicles with improved safety features. 2027 to 2028: Toyota and Samsung plan commercial deployment with initial production facilities. 2028 to 2030: Full scale manufacturing begins, leading to cost reduction and mainstream adoption. Chinese company WeLion New Energy reported achieving 824 Wh per kg in laboratory tests and aims to break the 1,000 Wh per kg barrier. They plan mass production around 2027.

APPLICATIONS BEYOND ELECTRIC VEHICLES

While electric vehicles receive the most attention, solid state batteries will also transform: Consumer electronics with longer lasting devices Renewable energy storage systems for solar and wind power Medical devices requiring safe, reliable power Aerospace applications where weight and safety are critical

CONCLUSION

Solid state battery technology represents one of the most exciting developments in electrical engineering. As manufacturing techniques improve and costs decrease, these batteries will enable electric vehicles with over 600 miles of range and charging times comparable to filling a gas tank. For engineering students, this field offers tremendous opportunities for research and career development in materials science, electrochemistry, and power systems.

Dr.K.RAMAKRISHNAN

CHAIRMAN

Dr.S.KUPPUSAMY

EXECUTIVE DIRECTOR

Dr.D.SRINIVASAN

PRINCIPAL

Dr.M.MAHESWARI

HEAD OF THE DEPARTMENT

SUBHASRI K (IV YEAR ECE 'C' SECTION)

AARTHIKA P (IV YEAR ECE 'A' SECTION)

DIWAKAR G (IV YEAR ECE 'B' SECTION)

ABBAS S (III YEAR 'B' SECTION)

RAKSHITHA T (III YEAR 'A' SECTION)

KEERTHANA G (III YEAR 'B' SECTION)

DENI SEBASTIA – II YEAR ECE 'A' SECTION

KIRISHA – II YEAR ECE 'A' SECTION

INFANT STAFFAN – II YEAR ECE 'A' SECTION

PRIYADHARSHINI R – II YEAR ECE 'B' SECTION

SANTHOSH KUMAR S – II YEAR ECE 'B' SECTION

6UMA DEVI S – II YEAR ECE 'B' SECTION

STUDENT COORDINATORS

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Mr.INFANT STAFFAN

EDITOR

