



**K. RAMAKRISHNAN
COLLEGE OF ENGINEERING**

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DEPARTMENT OF

MECHANICAL ENGINEERING

KRCExpress

PERSISTENCE TOWARDS PASSION



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QUALITY
EDUCATION



RESEARCH &
INNOVATION



INDUSTRY
COLLABORATION



STUDENT
EXCELLENCE



Together We Engineer The Future



LEADERSHIP MESSAGES



CHAIRMAN MESSAGE

The Department of Mechanical Engineering at K Ramakrishnan College of Engineering is dedicated to shaping innovative and skilled engineers through quality education, practical exposure, and research excellence. The department strives to empower students with technical knowledge, professional ethics, and leadership skills to meet global industrial challenges and contribute effectively to society.



DR. K. RAMAKRISHNAN

CHAIRMAN – KR Group



EXECUTIVE DIRECTOR'S MESSAGE

The Department of Mechanical Engineering at K. Ramakrishnan College of Engineering is committed to academic excellence, innovation, and industry-oriented learning. With advanced laboratories, experienced faculty, and a strong research culture, the department prepares students to become competent mechanical engineers with technical expertise, ethical values, and leadership skills to excel in their careers and serve society.



DR. S. KUPPUSAMY

EXECUTIVE DIRECTOR –
KR GROUP

★ LEADERSHIP MESSAGES ★



PRINCIPAL'S MESSAGE

The Department of Mechanical Engineering at K. Ramakrishnan College of Engineering plays a vital role in shaping technically proficient and innovative engineers. The department focuses on delivering quality education through modern laboratories, experienced faculty, and research-driven learning. It strives to equip students with technical knowledge, practical skills, and ethical values to meet industrial challenges and emerge as successful professionals who contribute meaningfully to society.



Dr. D. SRINIVASAN
PRINCIPAL - KRCE



Dr. M. MEIGNANAMOORTHY
HoD / MECHANICAL

HOD'S MESSAGE



Welcome to the Department of Mechanical Engineering. Our mission is to bridge the gap between academic excellence and industrial requirement. Through our state-of-the-art laboratories and robust industry partnerships, we ensure our students gain the technical proficiency and practical experience necessary for a successful career. We take pride in our commitment to developing disciplined, competent, and ethical professionals who contribute meaningfully to the engineering community and society at large.



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A magazine is a reflection of the department's achievements, innovations, and aspirations. Through this publication, we celebrate academic excellence, research contributions, student accomplishments, and the collective efforts of our Mechanical Engineering family.

TECHNICAL REPORT

THERMAL POWER STATION

A thermal power plant is a power-generating station that converts the heat energy of fuel into electrical energy. Most thermal power plants use coal, while some use natural gas, oil, or biomass. The generated heat converts water into high-pressure steam, which drives a turbine connected to an electrical generator.

FORMATIVE - 1

THERMAL POWER PLANT & SURVEYING

Thermal power plant :-

Thermal power plant is a collective term which includes fossil fuels, geothermal, solar and nuclear power plants as well as fissionation plants.

Mechanism of Thermal power plant :-

The basic mechanism is that produce heat energy by any means fossil fuels, geothermal or solar and nuclear power plant. Use the heat energy to boil water, producing steam.

Basic principle of thermal power plant :-

The burning of fuels such as oil, coal and LNH (Liqued Natural Gas) gives a boiler to generate high temperature, high pressure steam. This steam is used to drive a steam turbine & generator attached to the steam turbine generated electricity.

Advantages of thermal power plant **Disadvantages of thermal power plant**

- * The fuel used in thermal power plant such as coal is quite cheap
- * It is easy to make energy less space is needed
- * Compared to other power plants, the thermal power station has lower power generation costs
- * The produce smoke & other pollutants
- * Thermal power plant requires high maintenance costs
- * A large amount of water source is required by thermal plants in water steam conversion.

Factors that are used to determine location of thermal power plant :-

Availability of Water :- The existence of steam turbine requires a significant vol. of water, which must be converted into steam, so thermal power plant situated along a riverbank.	Transportation facilities :- For the transfer of equipment and material, thermal power plant should have an appropriate road and rail network.	Neat to load center :- The power station should be close to the load centre to reduce the cost of electrical energy transmission.
Availability of raw materials & supplies :- The accessibility to vendors & supplies of raw materials, tools and equipment is important. Therefore thermal power plant should be constructed close to availability of raw materials & supplies.	Availability of Land :- The usual amount of land needed is 4 hectares for each megawatt of power. The price of the land contributes to the entire cost of power plant, so it should be used extensively.	Coal Availability :- Coal based power plants are disadvantageous for producing electricity majority of India, despite the storage of coal, India is still contributing towards the high production of thermal power plant.

Thermal Power Plant

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A thermal power plant is a power station that generates electricity by converting the heat energy of fuels such as coal, natural gas, or oil into electrical energy. In this process, fuel is burned in a boiler to produce high-pressure steam, which rotates a steam turbine connected to a generator. The exhausted steam is condensed into water and reused in a continuous cycle. Thermal power plants provide a reliable supply of electricity for industries,

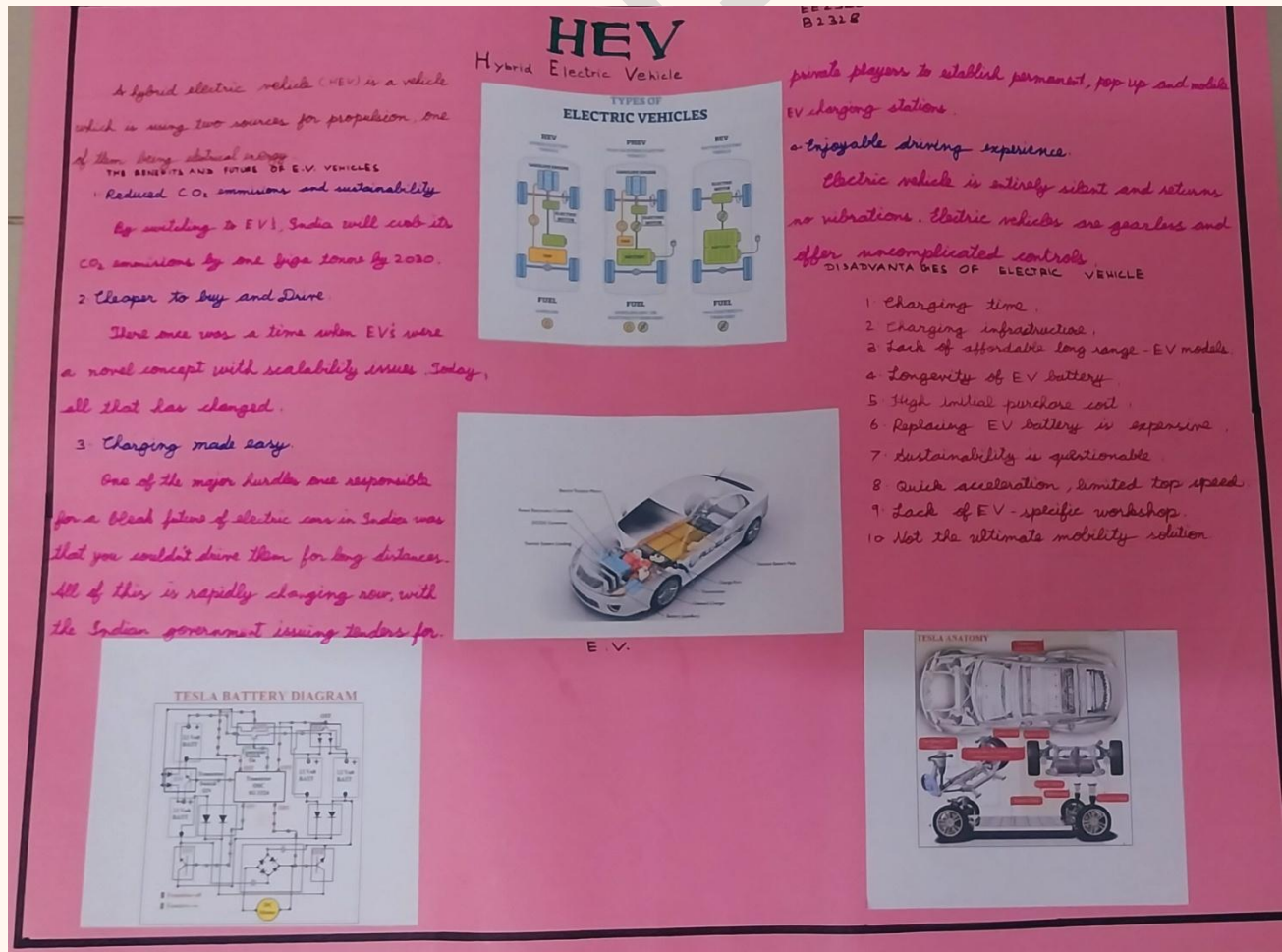
commercial establishments, and households, although they also produce emissions that require effective pollution control measures.

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III YEAR / MECHANICAL

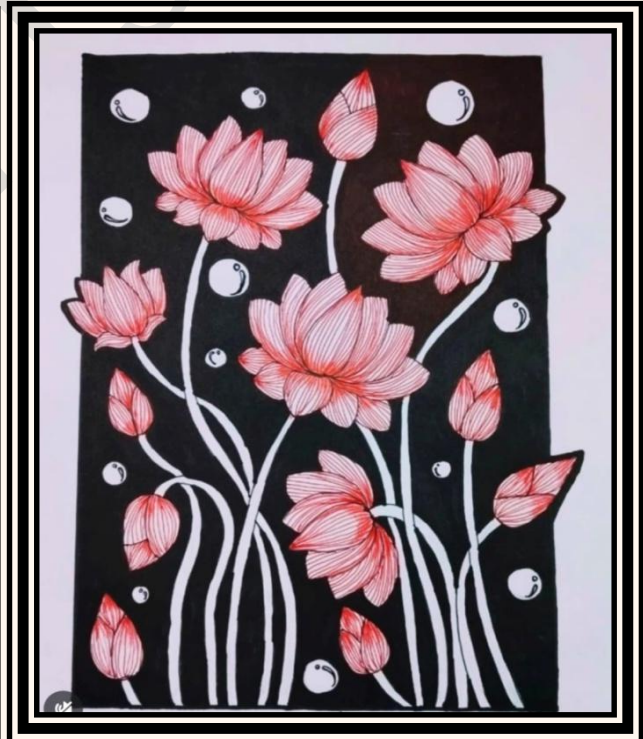
HYBRID ELECTRIC VEHICLE

This poster provides a concise overview of Hybrid Electric Vehicles (HEVs) and Electric Vehicles (EVs). It explains the different types of electric vehicles and illustrates their internal components with labeled diagrams. The poster highlights the advantages of EVs, including reduced carbon emissions, lower operating costs, quiet operation, and eco-friendly transportation. It also discusses challenges such as charging time, limited charging infrastructure, battery lifespan, and replacement costs. Battery circuit diagrams and vehicle anatomy enhance the technical understanding of EV technology. Overall, the presentation effectively showcases the importance of electric vehicles in achieving sustainable and environmentally friendly transportation.



ART WORK

The Department of Mechanical Engineering proudly recognizes the artistic talent and creativity of Mr. Kabashraj, First Year Mechanical Engineering, who has demonstrated exceptional skills in drawing, painting, and visual arts. Through a collection of impressive artworks, he has showcased his imagination, attention to detail, and passion for creative expression beyond the field of engineering. His artworks feature vibrant paintings, intricate illustrations, creative sketches, and personalized artistic designs that reflect originality and aesthetic excellence. The ability to balance technical education with artistic pursuits highlights the multidisciplinary talents of Mechanical Engineering students and their commitment to holistic personal development.



Mr. Kabashraj's creative achievements serve as an inspiration to fellow students, encouraging them to explore their talents and interests while pursuing academic excellence. His contributions exemplify the importance of creativity, innovation, and self-expression in shaping well-rounded professionals.



During the COVID-19 pandemic, Dr. D. Srinivasan, Principal, K. Ramakrishnan College of Engineering, addressed the students and issued important safety awareness instructions to ensure the health and well-being of the campus community. He emphasized that every student should strictly adhere to COVID-19 safety protocols by wearing face masks properly, maintaining social distancing, using hand sanitizers regularly, and following good

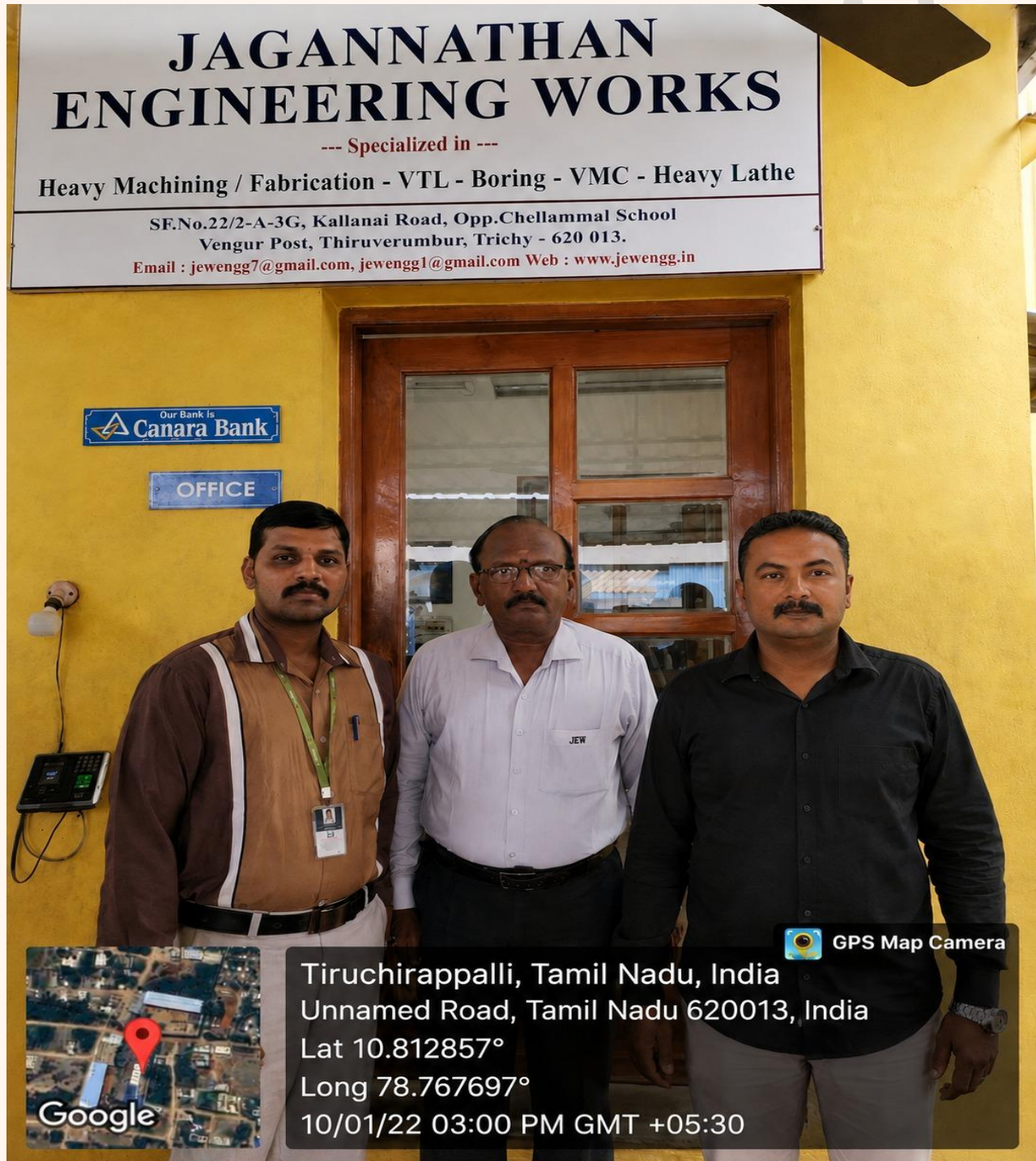
personal hygiene practices. He advised students to avoid unnecessary gatherings, report any symptoms immediately, and cooperate with the guidelines issued by the Government and health authorities. The Principal also encouraged students to get vaccinated, maintain a healthy lifestyle, and support one another in creating a safe and responsible learning environment. His timely instructions reinforced the institution's commitment to safeguarding the health of students, faculty, and staff while ensuring uninterrupted academic activities.

FACULTY INDUSTRIAL VISIT TO JAGANATHAN ENGINEERING WORKS

The Department of Mechanical Engineering, K. Ramakrishnan College of Engineering, organized a Faculty Industrial Visit to Jaganathan Engineering Works with the objective of strengthening industry-academia collaboration and enhancing faculty exposure to modern manufacturing practices. During the visit, the faculty members interacted with industry experts and observed various manufacturing operations, including machining, fabrication, assembly, quality inspection, and production planning. They gained valuable insights into advanced manufacturing techniques, industrial safety practices, quality management systems, and the latest technological developments adopted in the industry.

The visit also included discussions on student internships, in-plant training, industrial visits, live projects, skill development programmes, and placement opportunities, aimed at improving students' practical knowledge and employability. The industrial interaction enabled the faculty members to understand current industry expectations and identify ways to incorporate

real-time industrial practices into classroom teaching and laboratory activities. The Department expresses its sincere gratitude to the management of Jaganathan Engineering Works for their hospitality and valuable technical insights, making the visit highly beneficial for strengthening industry-institution partnerships.



INTERNSHIP AT AANAMALAI TOYOTA

The Department of Mechanical Engineering, K. Ramakrishnan College of Engineering, is pleased to announce that the II Year Mechanical Engineering students successfully underwent an internship at Aanamalai Toyota, Tiruchirappalli. The internship was organized to provide students with practical exposure to the automotive industry and bridge the gap between classroom learning and industrial practice.



During the internship, students gained hands-on experience in automotive service operations, vehicle diagnostics, engine systems, transmission, suspension, braking systems, preventive maintenance, and quality control procedures. They also observed modern workshop practices, customer service management, safety protocols, and the use of advanced diagnostic equipment in automobile servicing.

The internship enhanced the students' technical knowledge, practical skills, and understanding of current automotive technologies while improving their problem-solving abilities and professional competencies. The Department expresses its sincere gratitude to the management and technical team of Aanamalai Toyota, Tiruchirappalli, for providing this valuable learning opportunity and supporting students in developing industry-ready skills for their future careers.

FAREWELL FUNCTION – BATCH 2018–2022

The Department of Mechanical Engineering, K. Ramakrishnan College of Engineering, organized a memorable Farewell Function for the outgoing 2018–2022 batch. The event celebrated the students' successful academic journey and the cherished memories created during their four years of study. Faculty members, staff, and junior students gathered to extend their heartfelt wishes to the graduating students. The programme featured inspiring speeches, student reflections, and cultural performances, creating a joyful and nostalgic atmosphere. The occasion also recognized the students' valuable contributions to academics, technical activities, sports, and cultural events. The farewell concluded with the presentation of mementos, a group

photograph, and best wishes for a bright and successful future in their professional and personal endeavors.

