THIAGARAJAR COLLEGE OF ENGINEERING
(A Govt. Aided Autonomous Institution Affiliated to Anna University)

68 YEARS
1957-2025
Celebrating Academic Excellence

MACHINE MAIL

Amazingly Mechanical

VOLUME 1

A MAGAZINE BY MECHANICAL ENGINEERING ASSOCIATION

FOUNDER

KALAITHANTHAI KARUMUTTU THIAGARAJAN CHETTIAR (1893-1974)

Kalaithanthai Karumuttu Thiagarajan Chettiar was a visionary, nationalist, and industrialist who dedicated his life to serving society through education. A transformative educationalist and social savant, he left a lasting impact. With a passion for Tamil, he was a generous philanthropist whose righteous deeds continue to inspire. His holistic personality, spiritual aura, and selfless service have cemented his legacy, keeping him alive in the hearts of many.

FORMER CHAIRMAN

KARUMUTTU T. KANNAN
(1953 – 2023)

As we remember our respected Chairman and Correspondent, Shri. Karumuttu T. Kannan, we think about his lasting impact on our institution. His strong leadership and dedication continue to motivate our community.

-TCE Faculty members and Staff

CHAIRMAN & CORRESPONDENT

Mr. K. HARI THIAGARAJAN

He began his professional journey after graduating from the University of Warwick, UK, with a degree in Engineering Management. Leveraging his academic background and leadership acumen, he took on the role of Managing Director at Thiagarajar Mills (P) Ltd., Madurai. His career continued to ascend as he assumed the position of Chairman & Managing Director at VTM Limited, Virudhunagar. Deeply committed to education, he serves as the Secretary of Thiagarajar College (Arts & Science), Madurai, and as the Chairman & Correspondent of Thiagarajar College of Engineering, Madurai. His influence extends beyond industry and education through his past role as Chairman of the Confederation of Indian Industry (CII), Tamil Nadu State Council. He is also a Member of the Entrepreneurs' Organization, Chennai Chapter, and serves on the Executive Committee of the Southern India Mills' Association (SIMA), Coimbatore, actively contributing to the growth and development of the textile industry

PRINCIPAL

Dr. L. ASHOK KUMAR

Principal's Message

It gives me immense pleasure to appreciate the efforts of the Mechanical Engineuering students for successfully bringing out the latest edition of Machine Mail—a reflection of their dedication, creativity, and technical acumen.

This magazine serves as a platform to spread knowledge, showcase students' talents and achievements, and document the various departmental activities undertaken during the academic period. It is heartening to see our students embracing innovation and teamwork, demonstrating their commitment to excellence in both academics and extracurricular pursuits.

I commend the editorial team and contributors for their hard work in curating insightful articles, research findings, and success stories. May Machine Mail continue to inspire and encourage students to push the boundaries of learning and technical exploration.

Wishing all the students and faculty continued success in their endeavors!

LETTER FROM THE EDITOR

Dear Readers,

This year, Machine Mail returns with the latest edition of Volume 1. Readers will pass through vivid and diverse articles under the banner “Futuristic Mechanics”. The write - ups showcased in this magazine solely represent the interests and knowledge of students in different spheres related to the banner. In addition to it, the magazine is given a strong aroma of success stories of department’s performers. As a new effort, the team has extended the display of artworks contributed by the students in this time. These traits could prove as an impetus for the emerging potentials to relate themselves with the departmental forum. Hope the readers relish the content through the variety of ideologies presented and find them purposive when needed.

Also, Machine mail would be happy to receive feedback of appreciation and improvements to render an enhanced reading and learning experience in upcoming years.

Thank you.

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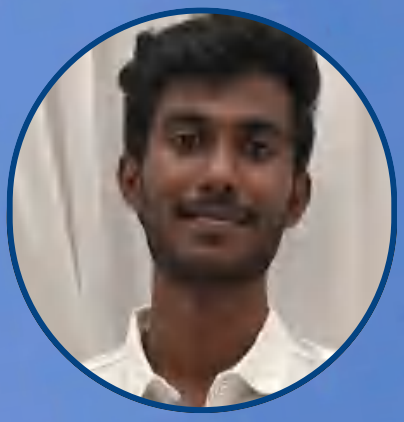

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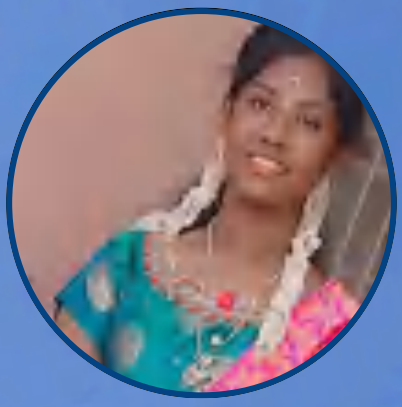

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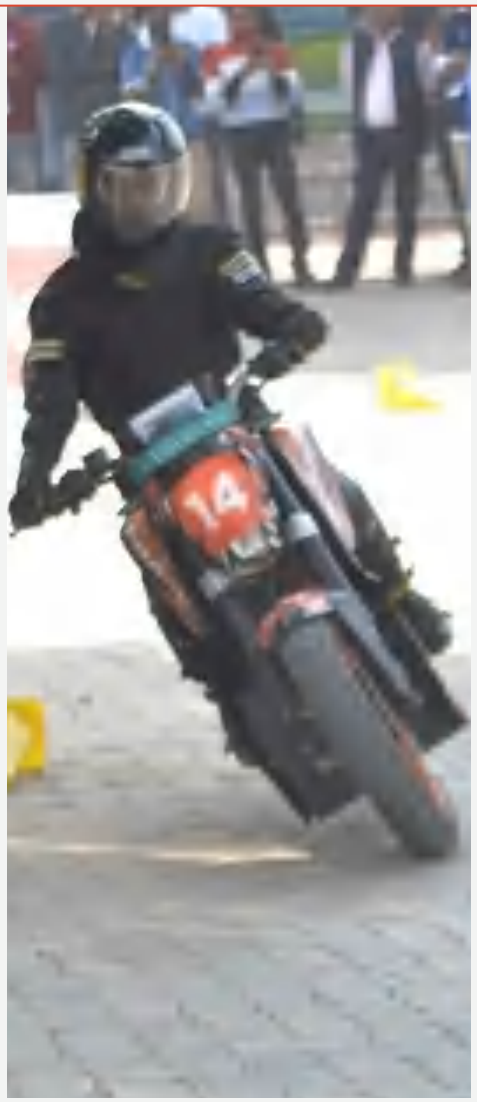

#Tce Motorsports

VISION & MISSION OF TCE

Vision:

World class quality technical education with strong ethical values.

Mission:

We at TCE shall strive continuously,

- Academic excellence in Science, Engineering and Technology through dedication to duty, commitment to research, innovation in learning and faith in human values.
- Enable the students to develop into outstanding professionals with high ethical standards capable of creating, developing and managing globing engineering enterprises.
- Fulfill expectations of the society and industry by equipping students with state of art technology resources for developing sustainable solutions.
- Achieve these through team efforts making Thiagarajar College of Engineering the socially diligent trend setter in Technical education.

Vision & Mission of Mechanical Engineering department

Vision:

"Be a globally renowned school of engineering in mechanical sciences"

Mission:

As a department, we are committed to

- Develop ethical and competent engineers by synergizing world class teaching, learning and research
- Establish state-of-art laboratories and to provide consultancy services to fulfill the expectations of industry and needs of the society
- Inculcate entrepreneurial qualities for creating, developing and managing global engineering ventures
- Motivate the students to pursue higher studies and research

PROGRAMME OBJECTIVE (POs) of B.E. (MECHANICAL ENGINEERING)

Graduating students of B.E. Mechanical Engineering will have

PO1: **Engineering Knowledge:** Apply knowledge of mathematics, natural science, computing, engineering fundamentals and an engineering specialization as specified in WK1 to WK4 respectively to develop to the solution of complex engineering problems.

PO2: **Problem Analysis:** Identify, formulate, review research literature and analyze complex engineering problems reaching substantiated conclusions with consideration for sustainable development. (WK1 to WK4)

PO3: **Design/Development of Solutions:** Design creative solutions for complex engineering problems and design/develop systems/components/processes to meet identified needs with consideration for the public health and safety, whole-life cost, net zero carbon, culture, society and environment as required. (WK5)

PO4: **Conduct Investigations of Complex Problems: Conduct** investigations of complex engineering problems using research-based knowledge including design of experiments, modelling, analysis & interpretation of data to provide valid conclusions. (WK8)

PO5: **Engineering Tool Usage:** Create, select and apply appropriate techniques, resources and modern engineering & IT tools, including prediction and modelling recognizing their limitations to solve complex engineering problems. (WK2 and WK6)

PO6: **The Engineer and The World:** Analyze and evaluate societal and environmental aspects while solving complex engineering problems for its impact on sustainability with reference to economy, health, safety, legal framework, culture and environment. (WK1, WK5, and WK7).

PO7: **Ethics:** Apply ethical principles and commit to professional ethics, human values, diversity and inclusion; adhere to national & international laws. (WK9)

PO8: **Individual and Collaborative Team work:** Function effectively as an individual, and as a member or leader in diverse/multi-disciplinary teams.

PO9: **Communication:** Communicate effectively and inclusively within the engineering community and society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations considering cultural, language, and learning differences

PO10: **Project Management and Finance:** Apply knowledge and understanding of engineering management principles and economic decision-making and apply these to one's own work, as a member and leader in a team, and to manage projects and in multidisciplinary environments.

PO11: **Life-Long Learning:** Recognize the need for, and have the preparation and ability for i) independent and life-long learning ii) adaptability to new and emerging technologies and iii) critical thinking in the broadest context of technological change. (WK8)

PROGRAMME SPECIFIC OUTCOMES OBJECTIVE (PSOs) for B.E. MECHANICAL ENGINEERING

Graduating students of B.E. Mechanical Engineering Programme will be able to

PSO1: Design mechanical components/subsystem(s), prepare production drawings using CAD tools and select suitable manufacturing processes.

PSO2: Formulate and analyze energy and mass flow in thermal devices.

PSO3: Design, analyze, optimize and realize mechanical processes/systems to meet industrial competitiveness.

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Lab Technician

Mr.R.Ashwin Kumar
Lab Technician

Mr.K.Sundara Rajan
Lab Technician

Fig: Officers Bearers of MEA

ADVANCEMENT IN THERMAL SCIENCES

ECO FRIENDLY COOLING SYSTEMS

Recent advancements in eco-friendly cooling devices have revolutionized the refrigeration industry. Researchers have developed a new type of refrigeration device that significantly enhances cooling performance while being environmentally friendly. This device utilizes advanced materials and innovative design to achieve over 48% improvement in efficiency compared to traditional systems. By reducing energy consumption, this technology not only lowers operational costs but also minimizes the environmental impact, making it a crucial development in the fight against climate change. Industries that rely heavily on cooling, such as food storage and pharmaceuticals, stand to benefit immensely from this breakthrough.

FIG : Eco friendly cooling

LIQUID METAL EVAPORATORS IN FUSION REACTERS

Nuclear fusion research has made significant strides with the introduction of liquid metal evaporators in fusion reactors. Simulations have pinpointed the optimal location for a 'cave' filled with flowing liquid lithium inside a tokamak,a type of fusion reactor.This setup helps manage the extreme heat generatedby fusion plasma, enhancing the reactor's efficiency and stability. The use of liquid metal evaporators is a promisingdevelopment in the quest for sustainable and clean energy through nuclear fusion. By effectively quenching the intense heat, this technology brings us closer to achieving practical and reliable fusion power.

FIG: Liquid Metal Evaporator

PHASE CHANGE MATERIALSFOR THERMAL ENERGYSTORAGE

Phase change materials (PCMs) are at the forefront of thermal energy storage technology. Thesematerials have the unique ability to store and releaselarge amounts of energy during phase transitions, such as melting and solidifying. PCMs are being developed for use in renewable energy systems, where they can store excess energy generated during peak production timesand release it when demand is high. This capability makes PCMs ideal for balancing energy supply and demand, improving the efficiency and reliability of renewable energy sources. The ongoing research in this field aims to enhance the performance and cost-effectiveness of PCMs, makingthem a viable solution for large-scale energy storage.

FIG: Phase Change Materials

INTELLINGENT SELF ROBOT CLOTHING

Innovations in wearable technology have led to the development of intelligent soft robotic clothingthat can regulate body temperature. This clothing incorporates advanced materials and sensors to monitor and adjust thermal comfort in real-time. By responding to changes in the wearer's environment and activity level, the clothing can provide personalized heating or cooling, enhancing comfort and reducing energy consumption. This technology has potential applications in various fields, including healthcare, sports, and outdoor activities. The development of intelligent soft robotic clothingrepresents a significant step forward in wearable technology, offering a practical solution for maintaining thermal comfort in diverseconditions.

FIG: Self Robot Clothing

COOLING FABRICS

Cooling fabrics are designed to reflect the sun's rays and wick heat away from the body, providing a cooling effect. These fabrics are particularly useful in hot climates and for outdoor activities, where maintaining comfort is essential. Researchers have developed new cooling fabrics that incorporate advanced materials and innovative designs to enhance their cooling performance. Thesefabrics can be used in clothing, accessories, and even outdoor gear, offeringa practical solutionfor staying cool in high temperatures. The use of AI in thermal property predictions accelerates the research and development process, leading to faster innovationand application of new materials. Now, the development of cooling fabrics is an important advancement in textile technology, providing a sustainable and effective way to manage heat and improve comfort.

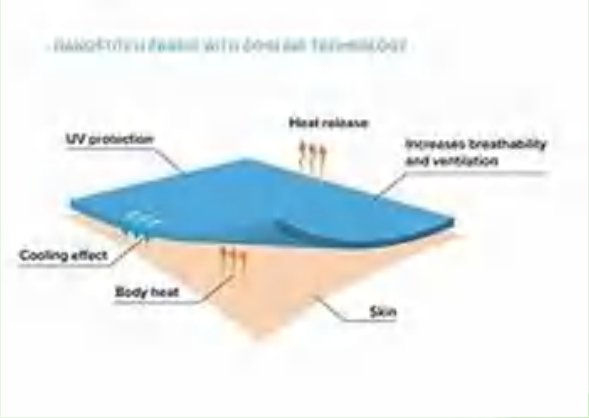

FIG: Cooling Fabric

AI IN THERMAL PROPERTY PREDICTION

Artificial intelligence (AI) is transforming the field of material science by enabling faster and more accurate predictions of thermal properties. A new machine-learning frameworkhas been developed to predict the thermal properties of materials up to 1,000 times faster than traditional methods. This advancement allows researchers to quickly identify and develop new materials with desired thermal characteristics. This technology has the potential to significantly impact various industries, including electronics, energy, and manufacturing, by providing better materials for thermal management.

FIG: AI in Thermal property prediction

BY
PRAGATHESHWARAN K S (917722G066)
THIRD YEAR
MECHANICAL ENGINEERING

CAR TUNING

Car tuning is the modification of a car to optimise it for a different set of performance requirements from those it was originally designed to meet. Most commonly this is higher engine performance and dynamic handling characteristic but cars may also be altered to provide better fuel economy or smoother response. The goal when tuning is the improvement of a vehicle's overall performance in response to the user's needs. Often, tuning is done at the expense of emissions performance, component reliability and occupant comfort.

ORIGIN

Since their invention, cars have always been subject to modification. Most of the earliest cars were made individually by hand and not by a factory, and as such there was little meaningful distinction yet between factory, custom and aftermarket changes to a car. However, as mass production of cars began to rise, this distinction emerged. Some of the earliest examples of cars modified from their original specifications for improved performance were cars modified for racing or off-roading. In the early 1900s, some of the most popular cars to modify for racing were Ford Model Ts and Model As, often modified to race on dirt tracks and dry lake beds. Some of the earliest dedicated offroad vehicles were made using the Kégresse track system, starting in the late 1910s, which affixed tracks to an ordinary car in place of the rear wheels for improved off-road traction.

Fig.Tuned car

ENGINE TUNING

Engine tuning involves modifying an engine's performance by adjusting mechanical and electronic components. Modern engines use an engine control unit (ECU). Tuning can involve reprogramming the ECU (chip tuning) or using plug-in hardware. Mechanical upgrades, like adding turbochargers or superchargers, can improve power but may strain the engine. Improper tuning or ignoring critical parameters, such as air-fuel ratios, can cause severe damage, including warped parts, engine detonation, or total failure, leading to costly repairs and safety risks.

Fig. Air filter

SUSPENSION TUNING

Suspension tuning modifies springs, shocks, and anti-roll bars to improve handling. Stiffer components reduce body roll and improve cornering but can cause traction loss if too rigid. Off-road vehicles prioritize longer suspension travel and larger tires for better ground clearance, while lowriders use hydraulics for adjustable height and unique movements.

Suspension adjustments, like widening the wheel track or lowering the car, can improve handling, though improper methods (e.g., cutting springs) may result in poor ride quality. In competition cars, lightweight or plastic windows replace heavy auto glass, though they are prone to scratches .

Fig. Suspension setup

BODY TUNING

Body tuning involves modifying a car's body to enhance aesthetics, performance, or both. Common changes include adding aerodynamic components for improved downforce and cornering but often increasing drag. Lightweight materials like carbon fiber replace heavier parts to reduce weight.

Aesthetic modifications, such as scoops or body kits, are usually non-functional and can reduce performance by adding weight and drag. Techniques like chopping and channeling, popular since the 1940s, alter aerodynamics and styling.

Fig. Body tuned car

BY
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THIRD YEAR
MECHANICAL ENGINEERING

ADVANCEMENTS IN MACHINING PROCESSES:

THE PIVOTAL ROLE OF EDM IN MODERN MANUFACTURING

The evolution of machining processes is essential in addressing the increasing demands for precision, efficiency, and material versatility in modern manufacturing. Electrical Discharge Machining (EDM) has emerged as a critical technology due to its unique capabilities in fabricating complex geometries and machining hard materials. This article comprehensively overviews recent advancements in EDM technology, its technical attributes, and its essential role in contemporary and future manufacturing paradigms.

Introduction

As industries like aerospace, medicine, and electronics evolve, there is an increasing demand for machining processes that can handle complex designs, tight tolerances, and advanced materials. Non-traditional techniques like Electrical Discharge Machining (EDM) are becoming more popular since traditional subtractive procedures like milling and turning frequently have limitations in these areas. Because of its special capacity to manufacture electrically conductive materials without making physical touch, EDM is a vital component of high-precision manufacturing processes. Intricate designs, high precision, and advanced materials. As manufacturing continues to progress, the adoption of EDM will become essential in addressing the challenges posed by modern industries.

FIG: Electrical Discharge Machining

ADVANCES IN MACHINING TECHNOLOGIES

Additive Manufacturing (AM) has revolutionized the landscape of manufacturing by enabling the construction of complex parts layer by layer. Despite its transformative capabilities, AM faces limitations regarding surface finish and dimensional accuracy, which often necessitate post-processing using precision methods such as Electrical Discharge Machining (EDM). This highlights EDM's role as a critical complement to AM, ensuring the final product meets the stringent standards required in high-precision applications.

In recent years, hybrid machining has gained traction, integrating traditional and non-traditional techniques, such as EDM combined with milling. This approach enhances material removal rates and precision.

Ultrasonic and laser-assisted machining also offers improved performance when working with hard materials. These techniques can be effectively paired with EDM to enhance accuracy in the machining of challenging materials and geometries. By utilizing ultrasonic vibrations or laser energy, these processes improve cutting efficiency and precision, making them valuable tools in modern manufacturing.

EDM AS THE FUTURE OF PRECISION MACHINING

As the future of precision machining unfolds, EDM stands out for its unique capabilities. Distinguished by its non-contact nature, EDM reduces the risk of deformation or tool wear, making it ideal for delicate, thin, or hard materials such as titanium and tungsten carbide. This ability to machine without direct mechanical contact is particularly advantageous in applications requiring high precision and minimal thermal impact.

The advent of nano-EDM and micro-EDM technologies further amplifies EDM's role in precision machining. These advanced processes are critical in industries such as medical devices, electronics, and aerospace.

Looking ahead, the integration of automation and artificial intelligence (AI) into EDM represents a significant advancement. Smart EDM systems equipped with AI can optimize machining parameters in real-time, significantly enhancing both productivity and precision. Automation facilitates high-volume production with minimal operator intervention, allowing manufacturers to meet increasing demands efficiently.

FIG: EDM in Precision Manufacturing

Sustainability is another crucial aspect shaping the future of EDM. Recent innovations have led to the development of eco-friendly dielectric fluids that reduce environmental impact while maintaining machining efficiency.

EDM'S FUTURE IN KEY INDUSTRIES

EDM's future looks particularly promising in key industries and The future of Electronic Document Management Systems (EDMS) is poised to be driven by advanced automation, artificial intelligence (AI), and enhanced integration capabilities.

In aerospace and defense, EDM is essential for machining complex turbine blades and heat-resistant superalloys. Its ability to meet stringent precision and performance requirements ensures its continued use in these sectors. similarly, in the medical device industry, micro-EDM plays a critical role in manufacturing intricate components, such as stents and Surgical instruments, where precision is paramount.

In the electronics and semiconductor sectors, EDM's ability to produce micro-scale features is indispensable. The high precision required for creating integrated circuits and microchips further underscores the relevance of EDM in modern electronic manufacturing.Cloud-based EDMS will gain dominance, offering greater scalability, remote accessibility, and seamless collaboration across global teams.

FIG: EDM in Aerospace manufacturing

CLOSURE

As manufacturing demands grow in complexity and precision, EDM will play an increasingly important role. Its non-contact nature, ability to machine hard materials, and capacity for high-precision micro-machining make it a cornerstone of future manufacturing technologies. With advancements in automation, AI, and sustainable practices, EDM is well-positioned to meet the evolving needs of industries such as aerospace, medical, and electronics, solidifying its place as a leading machining technology.

FIG: EDM for precision manufacturing

BY

RAJKUMAR R (917722G072)

THIRD YEAR

MECHANICAL ENGINEERING

AI AND MACHINE LEARNING IN AGRICULTURE A NEW FRONTIER FOR GLOBAL FOOD SECURITY

As technology races forward, artificial intelligence (AI) and machine learning (ML) are dramatically changing how we live, work, and even how we grow our food. Agriculture, an industry as old as human civilization itself, is undergoing a transformation unlike anything seen before. With global challenges like climate change, rising populations, and the need for sustainability, AI and ML are emerging as powerful tools that promise to reshape farming.

In this article, we'll dive into the exciting ways AI and ML are transforming agriculture and why these advancements are vital for creating a more sustainable, productive, and resilient global food system.

Precision Farming: Farming Smarter

Imagine a world where every seed is planted at exactly the right depth, watered at the precise moment, and fertilized just when it needs an extra boost. It came to reality with the help of AI-powered precision farming. Instead of treating entire fields, AI sensors and algorithms are used to analyze soil conditions, crop health, and weather data to guide farmers in real time.

These insights allow them to apply water, fertilizers, and pesticides with pinpoint accuracy.Precision farming minimizes waste, reduces harmful runoff, and lowers costs for farmers. Fields are treated like individual ecosystems, ensuring that every resource is used efficiently. For farmers, this means higher yields with fewer inputs, and for the environment, it means less pollution and a smaller carbon footprint.

The Big Picture: Sustainability at Its Core

By making every drop of water and every granule of fertilizer count, precision farming helps protect natural resources. It's a critical step toward feeding a growing population while preserving the planet's health a win-win for both farmers and the environment.

Predictive Analytics: StayingAhead of the Game

Imagine knowing that a pest infestation is about to strike your crops days before it happens. Or being able to predict which section of your field might suffer from drought next month. With AI-driven predictive analytics, farmers can do just that.

FIG: Functions of AI in Agriculture

AI models analyzedata from past growing seasons,soil sensors, and satellite imagery to forecast potential threats like pests, diseases, and weather extremes. Armed with these predictions, farmers can take proactive steps to protect theircrops, whether by applying treatments early or adjusting irrigation systems.

Automation and Robotics: The Future of Farming Is Hands-Free

One of the most exciting developments in agriculture is the rise of AI- powered robots. These machines, capable of tasks ranging from planting and weedingto harvesting and sorting, are revolutionizing the way farming is done. Using machine learning and computer vision, these robots can identify crops, weed out unwanted plants, and asses the ripeness of fruits and vegetables with greater precision than human workers.

AI-Powered Soil and Water Management: Conservation Made Easy

Water is one of the most precious resourceson Earth, and in agriculture, it's often wasted. That's where AI comes in. By analyzing real-time data on soil moisture, nutrient levels, and weather patterns, AI systems can recommend the exact amount of water and fertilizers needed for each crop. This reduces overwatering and prevents soil degradation caused by excessive chemical use.Smart irrigation systems can even be automated to water crops only when they need it, ensuring that every drop counts.

Reducing Food Waste with AI: From Farm to Table

The food supply chain is one of agriculture's biggest challenges with up to 30% of food produced being lost or wasted before it even reaches consumers. AI is helping to tackle this issue by optimizing supply chains, predicting market demand, and improving logistics.

For example, AI can analyze crop yields, market trends, and weather forecasts to help farmers and distributors better manage storage and transportation. This ensures that food gets to the right place at the right time, minimizing spoilage and waste.

Drones in the Sky: A Bird's-Eye View of Farming

Equipped with high-tech sensors and cameras, drones can scan entire fields, collecting valuable data on crop health, soil conditions, and even water levels. AI then processes this data, providing farmers with real-time insights.

Drones can spot problems that would be difficult to detect from the ground, such as early signs of disease or pest infestations. With these aerial insights, farmers can take immediate action, preventing small issues from turning into big problems.

Concluding thoughts

AI and machine learning are ushering in a new era of agriculture that is smarter, more efficient, and sustainable. From precision farming to autonomous robots and predictive analytics, these technologies are changing the way we grow food. But beyond the innovations themselves, AI's impact on society is profound. By making farming more productive and sustainable, AI is helping to ensure that we can feed a growing global population while protecting the planet.

In a world facing unprecedented challenges like climate change, resource depletion, and food security, AI offers hope for a brighter, more resilient future. Agriculture is no longer just about growing crops—it's about growing smarter, and AI is leading the way.

FIG: AI-ML in Agriculture

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THIRD YEAR
MECHANICAL ENGINEERING

SOFT ROBOTICS

REVOLUTIONIZING HEALTHCARE, MANUFACTURE AND BEYOND WITH FLEXIBLE INNOVATION

INTRODUCTION:

Robotics has made incredible strides over the years, transforming how we work, live, and interact with technology. Among the latest developments is the fascinating field of "soft robotics." Unlike traditional robots, which tend to be rigid and mechanical, soft robots are made from flexible and pliable materials that let them adapt and Mold to their surroundings. This shift isn't just about technology improving; it opens doors to more natural and empathetic interactions between humans and robots. In this discussion, we'll explore the numerous advantages of soft robotics and delve into how they're making waves in areas like healthcare and education, while also considering some important ethical questions that come up along the way.

THE PROMISE OF SOFT ROBOTICS:

One of the coolest things about soft robotics is how it enhances safety in human-robot interactions. Imagine a robot that can help you without the fear of getting hurt; this is what soft robots bring to the table. For instance,in healthcare settings, soft robots are increasingly used to assist with rehabilitation.

These robots are designed to support patients gently, making the recovery process feel less intimidating. Unlike hard, clunky robots that can feel cold and unyielding, soft robots move more like humans, providing a sense of comfort and trust. This can make a big difference, especially for patients who might already be feeling vulnerable during their recovery.But the benefits of soft robotics go beyond just safety. Because these robots are flexible, they can adapt to perform a variety of tasks

Fig.1 Symbolising intersection of Robots and Humanity

TRANSFORMING HEALTHCARE:

When it comes to healthcare, soft robots are making a real difference. Take rehabilitation, for example. Soft robotic devices can provide a level of support tailored to each patient's individual needs, using real-time data to adjust assistance. This personalization helps people recover more effectively and comfortably.

Fig.2 Romeo-An Intelligent French Robot to Help Elderly

Soft robots also play a crucial role in providing care for the elderly. They can remind seniors about medications or help them with mobility. This not only aids in their physical well-being but also combats loneliness—something many older adults face. By integrating soft robots into their routine, seniors can maintain independence while having access to support when they need it most. It's all about enhancing the quality of life and ensuring that these technologies serve as companions, rather than mere tools

Fig.3 Dinsow Elderly care robot in Japan

ADAPTABILITY AND FUNCTIONALITY IN OTHER INDUSTRIES:

Soft robotics isn't limited to healthcare; it's carving out a place in various industries. For instance, in agriculture, soft robots can delicately pick fruits, ensuring they're harvested without damage. This is critical for farmers who want to maintain the highest quality for their produce and minimize waste. Think about it: a robot that understands when a fruit is ripe and can gently pluck it from the branch is a game-changer for the agricultural sectors.

Fig.4 An Australian autonomous fruit-picking robot to harvest apples

Moreover, during search and rescue missions, soft robots can navigate through rubble and tricky terrains—places that would be dangerous for human rescuers. They can adjust their shape to squeeze into tight spots, potentially saving lives in emergencies.

MECHANICAL ENGINEERING:

Soft robotics represents a significant advancement in manufacturing and robotic technology. By utilizing materials that mimic the flexibility and adaptability of biological organisms, soft robots can gently handle fragile objects, making them ideal for delicate assembly tasks and operations in constrained environments where rigid robots may struggle.Their inherent compliance allows soft robots to perform intricate movements with precision, making them suitable for applications in fields like medical surgery, agricultural harvesting, and electronics assembly.

Fig.5 ABB introduced robots designed to assemble small parts

Additionally, soft robotics plays a critical role in exploration missions—be it underwater or in space—where the ability to navigate unpredictable terrains and adapt to various challenges is essential.

CONCLUSION:

In summary, soft robotics represents an exciting new frontier in technology that enriches our interactions with machines and each other. By focusing on safety, adaptability, and empathetic design, soft robots are poised to significantly improve sectors like healthcare, education, and beyond. As we explore all the fascinating applications of this technology, we must also navigate the accompanying ethical considerations to ensure that these advancements genuinely benefit humanity. As we look to the future, the vision of harmonious coexistence with robots is becoming increasingly attainable, promising to reshape our daily lives and redefine our understanding of collaboration between humans and machines.

Fig.6 Robotic arms for continuous assembly of mechanical parts

BY

N. ABHIJITH SIVA GANESH (917722G003)

THIRD YEAR

MECHANICAL ENGINEERING

QUANTUM COMPUTING

Quantum mechanics, which emerged in the early 1900s to explain atomic-scale phenomena, led to major advancements like transistors and lasers. The idea of combining quantum mechanics with information theory surfaced in the 1970s but gained little traction until 1982, when physicist Richard Feynman suggested that classical computing couldn't efficiently model quantum systems. He proposed that quantum-based computing could simulate such systems without facing the same limitations, laying the foundation for quantum simulation. Interest surged in 1994 when mathematician Peter Shor developed a quantum algorithm capable of efficiently factoring large numbers, a breakthrough that posed a significant challenge to the RSA cryptosystem .

Quantum and classical computers both aim to solve problems, but they differ fundamentally in how they handle data. Quantum computers rely on two key principles:superposition and entanglement. Superposition allows quantum objects, like electrons, to exist in multiple states simultaneously. In quantum computing, this property enables qubits, the basic units of information, to hold more information than classical bits, which are either 0 or 1.

Entanglement links quantum entities in such a way that their states cannot be described independently, even across large distances. Quantum computers leverage superposition and entanglement to perform complex operations, enhancing the probability of correct answers while reducing the likelihood of incorrect ones. This unique use of probabilities and quantum phenomena sets them apart from classical computing.

Fig.1 Quantum computer

The development of a quantum computer capable of running Shor's algorithm for large numbers has been a major driving force in quantum computation. However, quantum computers are expected to offer significant speed-ups only for specific types of problems. Researchers are focusing on identifying these problems and developing algorithms to solve them, particularly in optimization, which has applications in areas like defense and financial trading.

Quantum computers operate similarly to classical computers but use qubits instead of bits. Qubits are unique systems, often based on subatomic particles, superconducting circuits, or other mechanisms, that represent data as a combination of amplitudes applied to both 0 and 1 simultaneously, rather than just one state or the other. This concept is known as superposition.

Quantum computers excel at solving certain complex problems with the potential to speed up the processing of large-scale data sets. From the development of new drugs and performing machine learning in a new way to supply-chain optimization and climate change challenges, quantum computing might hold the key to breakthroughs in a number of critical industries.Quantum computers capable of simulating molecular behavior and biochemical reactions could massively speed up the research and development of life-saving new drugs and medical treatments.Quantum computers could revolutionize efforts to reduce harmful chemical byproducts by discovering new solutions. They may help develop better catalysts for petrochemical alternatives and more efficient processes for carbon breakdown, aiding in the fight against climate change.

Fig.2 Quantum computing in pharmaceuticals industry

As investment in AI and machine learning grows, researchers are pushing these technologies to their limits, leading to increased demands on hardware and energy.

Fig.3 Quantum computing chemical industry

Fig.4 Quantum computing in ML

Quantum computers have the potential to solve problems that are currently intractable for classical computers. Although fully capable quantum computers are not yet available, progress is being made with non-error-corrected systems featuring dozens of qubits, some accessible via the cloud. Quantum simulators are advancing research in various fields, and a growing focus on near-term applications may yield benefits and insights from quantum computing before achieving large-scale, error-corrected systems.

BY

KAMALESH B

(917722G042)

THIRD YEAR

MECHANICAL ENGINEERING

EXPLORING THE INTERSECTION OF MECHANICAL ENGINEERING AND INDUSTRIAL OPERATIONS: MY INTERNSHIP EXPERIENCE AT RAMCO CEMENT, RR NAGAR

INTRODUCTION

In the rapidly evolving field of mechanical engineering, real-world experience is an invaluable asset. My 7-day internship [18/06/2024 - 24/06/2024]at RAMCO Cement's RR Nagar plant provided a transformative opportunity to immerse myself in the intricacies of large-scale industrial operations. The experience offered a first-hand understanding of the cement manufacturing process, hands-on exposure to critical machinery such as the ball mill, silo, and hopper, and a deeper appreciation for the essential role of mechanical systems in maintaining efficient production .

During this short but intensive period, I took on tasks related to basic production, maintenance, and inventory management, all of which allowed me to apply my academic knowledge in a practical setting. My role as a data collector in the manufacturing plant brought me face-to-face with the sheer scale of industrial processes and revealed the significance of precision and consistency in engineering work.

This internship not only enhanced my technical proficiency but also kindled an interest in supply chain management, an area of critical importance in the cement industry. Through hands-on experience and guided observation, I gained insights into both the operational and logistical aspects of cement production, which I believe will have a lasting impact on my career development.

Fig – LINEAR STACK RECLAIMER

Fig -THE RAMCO CEMENT Ltd

A COMPREHENSIVE OVERVIEW OF THE CEMENT MANUFACTURING PROCESS

The RR Nagar plant is a bustling hub of activity, where raw materials are transformed into cement through a series of complex mechanical and chemical processes. Being present in the plant allowed me to witness and participate in the crucial steps that take place before the final product is ready for dispatch. The following key stages in cement production formed the core of my learning.

This hands-on interaction with conveyors highlighted the importance of efficiency in material handling and allowed me to see how seemingly simple systems play a critical role in large-scale production. The seamless operation of these systems directly impacts the plant's output, underscoring the need for well-maintained mechanical components.

RAW MATERIAL HANDLING AND CONVEYANCE

One of the first systems I observed was the network of conveyors and belt drives, which serve as the lifeblood of the plant. These mechanical systems move raw materials such as limestone and clay from the quarry to various processing stages. I observed different types of conveyors, including belt conveyors and screw conveyors, and learned about their design principles, load capacities, and maintenance requirements. Which was used in collecting limestone from vertical stack reclaimer.

BALL MILLING OPERATIONS

Ball Mill Operations Perhaps the most captivating machinery I encountered was the ball mill. This massive cylindrical device is responsible for grinding the raw mix—comprising clinker, gypsum, and other additives—into fine powder. The ball mill operates by rotating, using mechanical force to break down the materials into the desired consistency.

I had the privilege of not only observing the ball mill in action but also participating in its operational monitoring. I was tasked with recording readings such as motor power consumption, material feed rate, and temperature fluctuations. These readings are essential for maintaining optimal grinding conditions. Through this, I learned that small variations in the mill's parameters can have a significant impact on both energy consumption and product quality.

ENGAGING IN BASIC MAINTENANCE AND INVENTORY MANAGEMENT

Beyond understanding production, my internship also provided practical experience in maintenance tasks and the principles of inventory management, both of which are critical for ensuring the plant runs efficiently.

MAINTENANCE TASKS

Working with the maintenance team allowed me to gain insights into the daily upkeep of industrial machinery. I was responsible for assisting in the preventive maintenance of equipment like conveyors, the ball mill, and the silo systems. I learned how to identify wear and tear, check for alignment issues, and ensure that moving parts were adequately lubricated.

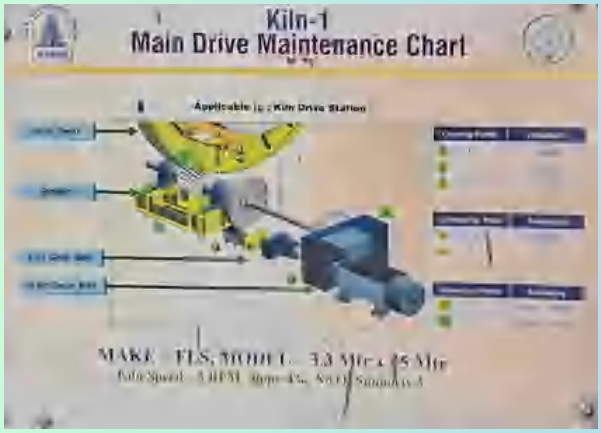

Fig – KILIN CHART

Fig – RAW MILL

INVENTORY MANAGEMENT

The RR Nagar plant operates on a strict timeline, where downtime is costly and needs to be minimized. To ensure this, a well-organized inventory system is crucial. My involvement in basic inventory management activities made me aware of how spare parts, raw materials, and other consumables are tracked. I observed how the plant maintains detailed logs to ensure that essential parts are available when needed. This experience demonstrated the importance of having an efficient supply chain and inventory system in place to avoid production delays.

Fig – BALL MILL

HANDS - ON LEARNING OUTCOMES

UNDERSTANDING CEMENT MANUFACTURING

I gained a comprehensive understanding of the steps involved in transforming raw materials into cement.

This holistic view of the production process, from raw material conveyance to the final product, gave me a newfound appreciation for the complexity of industrial operations.

Mechanical Systems My experience with belt drives, conveyors, ball mills, and silo systems provided practical knowledge of how mechanical systems work in tandem to support industrial production. I developed a deeper understanding of how these systems are maintained, monitored, and optimized for peak efficiency

CHALLENGES FACED

Despite the learning opportunities, the internship was not without challenges. The most significant hurdle I faced was the limited time available to delve deeper into some of the more advanced technologies and inspection software used at the plant. RAMCO uses sophisticated tools for monitoring machinery health and quality control, but the short duration of my internship meant that I could not fully explore these systems. This limitation, however, has motivated me to further my knowledge in industrial software systems in the future

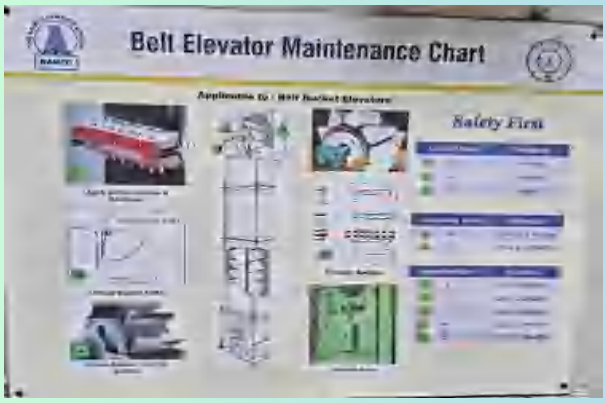

Fig – BELT ELEVATOR CHART

IMPACT ON CARRER DEVELOPMENT

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CONCLUSION

In summary, my 7-day internship at RAMCO Cement, RR Nagar, provided an immersive and highly educational experience. It allowed me to witness the inner workings of a large-scale industrial plant and offered hands-on exposure to key mechanical systems such as conveyors, the ball mill, silos, and hoppers. Although the time was short, the skills and knowledge I gained during this period will undoubtedly serve as a strong foundation for my future career in mechanical engineering. As I continue on my academic journey, I look forward to applying these experiences and building on them to become a more proficient and well rounded engineer.

BY

THAPESHVAR S (917722G110)

THIRD YEAR

MECHANICAL ENGINEERING

DIGITAL TWINS IN THE AUTOMOTIVE INDUSTRY: REVOLUTIONIZING DESIGN AND MANUFACTURING

The automotive industry has always been at the forefront of adopting cutting-edge technologies, and digital twin technology is no exception. This advanced virtual technology is fundamentally transforming how vehicles are designed, manufactured, and maintained, offering a competitive edge in terms of innovation, operational efficiency, and product quality.

Digital twins, virtual replicas of physical objects and systems, provide real-time insights and simulation capabilities that help streamline processes throughout the vehicle lifecycle, from the initial concept to production and beyond. This article delves into the key areas where digital twins are revolutionizing the automotive industry.

Fig – AIRCRAFT DIGITAL TWIN

ACCELERATING VEHICLE DESIGN AND PROTOTYPING

Vehicle design traditionally required building physical prototypes for testing, which was both time-intensive and costly.

With digital twin technology, manufacturers can now create virtual replicas of cars and their components. These models simulate real-world conditions, enabling global collaboration among design teams. Engineers can rapidly explore multiple configurations, test various design options, and make necessary improvements—all in a virtual environment.

This approach significantly reduces development time and costs, while improving vehicle performance, safety, and fuel efficiency. By identifying potential issues early in the design phase, digital twins allow manufacturers to ensure that new models meet high standards before they ever reach physical production.

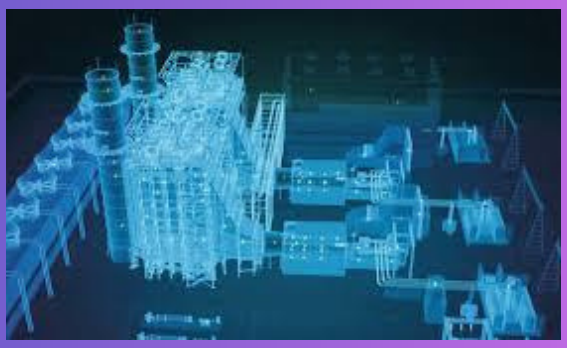

Fig – FACTORY DIGITAL TWIN

OPTIMIZING MANUFACTURING WITH REAL-TIME DATA

In the manufacturing phase, digital twins create virtual representations of production lines and factories. IoT sensors embedded in machines feed real-time data into the digital twin, enabling manufacturers to monitor equipment health, production efficiency, and workflow bottlenecks.

With these manufacturers can simulate and optimize production processes, reducing downtime and improving overall efficiency. For example, digital twins can predict equipment failures by analyzing wear patterns, allowing for predictive maintenance that prevents costly breakdowns. This also leads to smarter, more flexible manufacturing operations.

Fig – HUMAN AND MACHINE IINTERACTION

ENHANCING PREDICTIVE MAINTENANCE FOR GREATER RELIABILITY

One of the standout applications of digital twins in the automotive industry is predictive maintenance. By continuously monitoring a vehicle's key components, such as the engine, brakes, and electrical systems, digital twins can predict when these systems are likely to fail. This proactive approach allows manufacturers and owners to perform maintenance before a breakdown occurs, increasing vehicle reliability and extending its lifespan.

SHAPING THE FUTURE OF AUTONOMOUS VEHICLES

As the automotive industry moves toward connected and autonomous vehicles, digital twins are increasingly important in testing and validation.

The complexity of autonomous systems requires continuous refinement, and digital twins provide a virtual environment to simulate millions of driving scenarios, from regular traffic to extreme weather conditions. These simulations help developers improve self-driving algorithms and safety protocols long before these vehicles hit the road, significantly reducing the cost and time associated with physical testing.

Fig – DIGITAL TWIN REVOLUTION IN AUTOMOTIVE

THE ROAD AHEAD FOR DIGITAL TWINS IN THE AUTOMOTIVE INDUSTRY

The future of the automotive industry is closely tied to the evolution of digital twin technology. As vehicles become more connected and autonomous, digital twins will continue to drive advancements in design, manufacturing, and maintenance. However, challenges such as data privacy, system interoperability, and scalability need to be addressed to unlock the full potential of this technology. In conclusion, digital twins are set to be a cornerstone of Industry 4.0, revolutionizing the automotive industry by enabling greater efficiency, resilience, and innovation. As companies continue to embrace this technology, they will lead the way in shaping the future of transportation.

BY
SHREYAA VP (917722G097)
THIRD YEAR
MECHANICAL ENGINEERING

Smart Materials and Nanotechnology: Revolutionizing the Future of Mechanical Engineering

Introduction

In the ever-evolving field of mechanical engineering, smart materials and nanotechnology are emerging as game-changers. These innovations are not only redefining the boundaries of material science but also enabling engineers to design systems that are more efficient, durable, and adaptable.

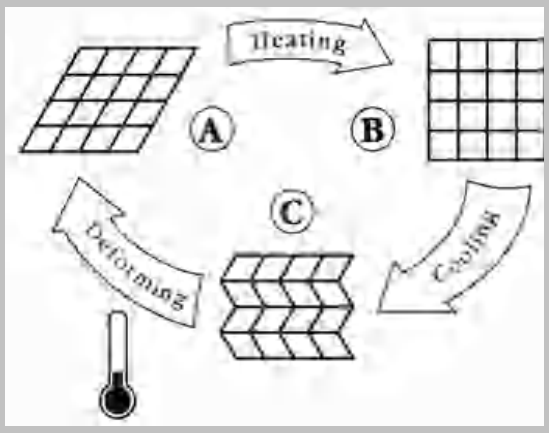

Fig - Shape Memory Alloys (SMAs) in Smart Materials and Nanotechnology

From self-healing polymers to nanoscale sensors, the integration of smart materials and nanotechnology is paving.The way for groundbreaking applications across industries.

Fig - Self-Healing Polymers in Smart Materials and Nanotechnology

What are smart materials ?

Smart materials, also known as responsive or intelligent materials, are designed to respond to external stimuli such as temperature, pressure, light, or magnetic fields. These materials can change their properties—such as shape, stiffness, or conductivity—in a controlled manner, making them ideal for applications that require adaptability and precision.

1.Shape Memory Alloys (SMAs): These materials can "remember" their original shape and return to it when heated. SMAs are widely

used in medical devices like stents and in aerospace applications for deployable structures.

2.Piezoelectric Materials: These generate an electric charge in response to mechanical stress and vice versa. They are used in sensors, actuators, and energy-harvesting devices.

The Role of Nanotechnology:

Nanotechnology involves manipulating matter at the atomic and molecular scale (typically less than 100 nanometers) to create materials with enhanced properties. When combined with smart materials, nanotechnology unlocks unprecedented possibilities, such as ultra-lightweight composites, super- strong coatings, and highly efficient energy systems.

Key Applications of Nanotechnology in Mechanical Engineering:

Nanocomposites: By embedding nanoparticles into traditional materials, engineers can create composites with superior strength, thermal stability, and electrical conductivity. For example, carbon nanotube-reinforced polymers are used in aerospace and automotive industries to reduce weight while maintaining structural integrity.

Nanocoatings: These ultra-thin coatings provide exceptional resistance to wear, corrosion, and UV radiation. They are applied to everything from medical instruments to wind turbine blades.

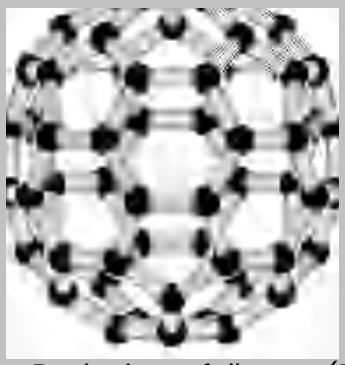

Fig - Buckminsterfullerene (Buckyball) in Nanotechnology

Nanosensors: These tiny sensors can detect minute changes in pressure, temperature, or chemical composition, enabling real-time monitoring in harsh environments like oil pipelines or industrial machinery.

Real-World Applications:

Aerospace and Defense: Smart materials and nanotechnology are revolutionizing aerospace engineering. For instance, shape

memory alloys are used in morphing wings that adapt to flight conditions, while nanocoatings protect aircraft from extreme temperatures and corrosion.

Healthcare: In the medical field, nanotechnology-enabled smart materials are used in drug delivery systems, where nanoparticles can target specific cells or tissues. Additionally, piezoelectric materials are being integrated into wearable devices to monitor vital signs.

Energy: Nanotechnology is enhancing energy storage and conversion systems. For example, nanostructured electrodes in batteries improve energy density and charging speed, while smart materials like thermoelectrics convert waste heat into electricity.

Challenges and Future Directions:

Despite their immense potential, smart materials and nanotechnology face several challenges. High production costs, scalability issues, and concerns about the environmental impact of nanomaterials are significant hurdles. Additionally, the long-term behavior of these materials under real-world conditions is still being studied. However, ongoing research and interdisciplinary collaboration are addressing these challenges. For instance, scientists are exploring bio-based nanomaterials that are sustainable and biodegradable. Furthermore, advancements in computational modeling are accelerating the discovery of new materials with tailored properties.

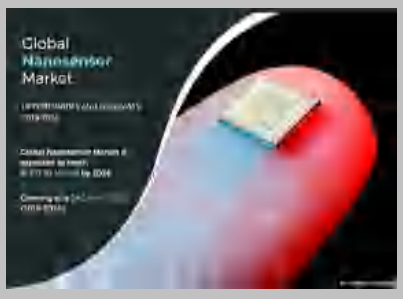

Fig - Nanosensors: Transforming Industries with Smart Nanotechnology

Conclusion:

Smart materials and nanotechnology are transforming the landscape of mechanical engineering, enabling the creation of systems that are smarter, stronger, and more sustainable. As these technologies continue to evolve, they will play a pivotal role in addressing global challenges, from climate change to healthcare. For mechanical engineers, embracing these innovations is not just an opportunity—it's a responsibility to shape a better future.

BY
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SECOND YEAR
MECHANICAL ENGINEERING

Revolutionizing Mechanical Engineering with Industry 4.0

Mechanical engineering has conventionally been the backbone of any form of industrial development. However, with the advent of emerging technologies in Industry 4.0, it is now metamorphosing into an era of revolution.

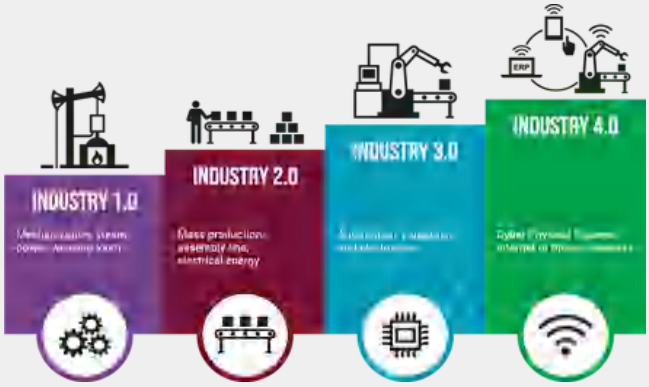


Fig - Revolutionizing Mechanical Engineering with Industry 4.0

The Rise of Smart Manufacturing

Industry 4.0 is the originator of such smart manufacturing systems, embedding AI-driven decision-making, robotics, and enhanced sensors into the manufacturing process.Whereas traditionally, the job of a Mechanical Engineer was to analyze and perform the required maintenance of a machine, in smart manufacturing, the self-monitoring machine automatically adjusts in real time for better performance. This greatly enhances productivity, with machines spending less downtime, thanks to technologies such as predictive maintenance. Mechanical engineers, by using gathered data, are able to realize impending troubles and quickly take measures that assure their nonoccurrence as causes of failure, an activity that reduces costs and enhances reliability.

Digital Twins: Bridging the Virtual and Physical Worlds

The digital twin concept is one of the most innovative technologies in Industry 4.0.In simple terms, it may be termed as a virtual model of a physical system, asset, or process; it is continuously updated in real time by means of data from sensors interfaced with the actual system. costs and enhances reliability.

With this tool, the mechanical engineer can perform tests for new designs, simulate machine behavior, or predict performance outcomes without the need for using gathered data, are able to realize impending troubles and quickly take measures that assure their nonoccurrence as causes of failure, an activity that reduces

Fig - Bridging of real world and digital world

Additive Manufacturing: Expanding Design Frontiers

Additive manufacturing, also called 3D printing, is a completely new dimension in mechanical design. Instead of cutting away material, additive manufacturing builds objects layer by layer. Thus, this technology enables the making of more complex shapes and stronger and lighter components. This technology is being utilized to revolutionize product development by mechanical engineers, particularly in industries where highly precise and personalized products are dealt with, such as healthcare and aerospace.

IoT-Driven Real-Time Monitoring

IoT is one of the basic constituents of Industry 4.0, and it really changes how machines communicate with each other to work cooperatively.Enabling machines to capture and share information about themselves and their operating environment in real time within an IoT creates a multidimensional interface for the mechanical engineer on optimize the processes and reduce energy consumption, resolving problems in real time before they grow out of proportion.IoT drives efficiency in addition to unleashing more environmentally sustainable engineering practices.

Automation and Robotics

With Industry 4.0, automation and robotics have deeply grown in Mechanical Engineering.

The AI robots now can perform complex tasks with hardly any need for interventional support by humans, with increased precision and reduced errors. Manufacturing engineers call these machines "cobots," designed to operate alongside human operators to create safer and more efficient workspaces. In turn, the enterprise will be expected to design systems so these robots can easily work with other humans, improving productivity without making compromises in safety.

Fig – Automation and Robotics

Sustainable Engineering Practices

Therefore, in the rapidly growing phase of climate change and resource scarcity, these mechanical engineers should come forward with developing sustainable solutions. Industry 4.0 allows designing machines and systems that produce minimum material waste while consuming less energy.

With digital twins and advanced simulations, engineers can test sustainable options for design from the very beginning, while real-time monitoring assures energy efficiency over time. From electric cars to renewable energy systems, mechanical engineers are playing a vital role in making things greener.

Conclusion

Industry 4.0 represents a shift in mechanical engineering, offering new opportunities for innovation, sustainability, and efficiency. By incorporating technologies like AI, IoT, additive manufacturing, and digital twins, engineers can unlock new possibilities to advance industries. This revolution not only enhances productivity but also promotes a more connected and sustainable world. Adopting Industry 4.0 ensures industries become more efficient, offering a future that is both technologically advanced and environmentally responsible.

BY
PRANAV P (917722G067)
THIRD YEAR
MECHANICAL ENGINEERING

TEAM PROMETHEANS

For nearly a decade, Team Prometheans, a student organization hailing from the Thiagarajar College of Engineering (TCE), has been a prominent force in the arena of off-road racing in India. Established in 2015, the team, comprised of a diverse group of engineering students, has strived to design, fabricate, and optimize high-performance buggies for competition. The team's genesis can be traced back to the unveiling of their first creation, the 'Genesis' buggy, in 2015. Since then, their journey has been marked by continuous innovation, culminating in their latest marvel, the Mark IX buggy, christened Helios. Driven by the motto "Crank Chase Conquer," Team Prometheans has relentlessly pursued excellence in off-road racing.

The team comprises students from various disciplines within TCE, including Mechanical, Mechatronics, and Electrical and Electronics Engineering (EEE), fostering a collaborative environment that leverages a collective pool of knowledge and expertise. Their debut in the BAJA SAE India event with their inaugural buggy, Adroit, marked a pivotal moment for TCE, signifying their entry into the national competitive arena.

Team Prometheans has since consistently impressed with their on-track skill, steadily climbing the ranks and leaving an indelible mark on the Indian off-road racing circuit.

One particularly noteworthy chapter in Team Prometheans' illustrious history is the saga of their buggy - HELIOS. The journey of this buggy, from conception to execution, was fraught with challenges. However, the team persevered through consistent resolve and exceptional teamwork, transforming their vision into a formidable machine that left its mark on the racing circuit.

FIG : HELIOS IN ENDURANCE

FIG : HELIOS IN ARMAGEDDON

ACHIVEMENTS

Team Prometheans has made history at MEGA ATV 2024, securing the coveted Overall Rank of AIR 1, along with AIR 2 in Armageddon and AIR 3 in Endurance. This achievement stands as a testament to their engineering brilliance, resilience, and unwavering pursuit of excellence. Through innovation, grit, and relentless dedication, they have redefined the standards of performance, proving their dominance in the competition. Their success is not just a victory but a statement of technical expertise, teamwork, and perseverance, setting a benchmark for future contenders in the field of automotive engineering and motorsports.

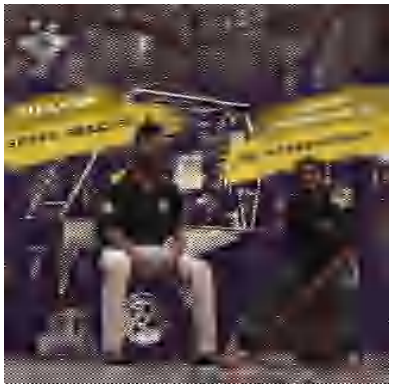
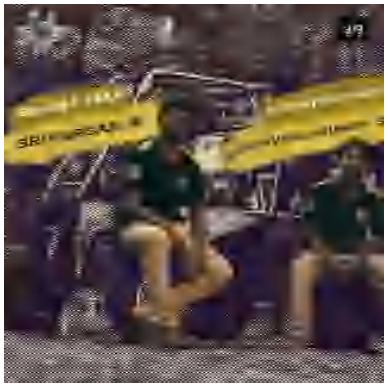
FIG : MEMBERS OF TEAM PROMETHEANS

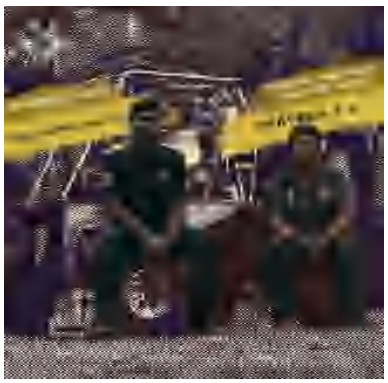
FACULTY ADVISOR:

Dr. C. Vignesh
Assistant Professor

Dr. R. Maniarasu
Assistant Professor

TEAM LEADS




Beyond accolades, Team Prometheans stands as a premier off-road racing team in South India, setting benchmarks in design and performance while representing South Tamil Nadu. For the 2025 season, they are set to unveil their Mark X ATV, pushing innovation to new heights. With relentless passion and cutting-edge engineering, they are ready to make a powerful statement and leave their mark this year.

CRANK!! CHASE!! CONQUER!!

ABOUT US

#THEBROTHERHOOD

Team Yukta Racing is a group of dedicated undergraduate engineers from Thiagarajar College of Engineering in Madurai. Founded in 2018, they initially focused on Go-Karting, quickly gaining expertise in design and manufacturing. Their efforts led to notable success in competitions, including the GKDC 2020.

Motivated by a passion for elevating Indian motorsports and nurturing aspiring engineers, the team transitioned to Formula Student. They embraced the intricate engineering challenges of designing and building high-performance race cars. With a core philosophy centered on innovation, teamwork, perseverance, and excellence, Team Yukta Racing consistently seeks to push boundaries. They have achieved impressive results in competitions like Formula Bharat and SAE SUPRA, showcasing their ability to compete at the highest levels.

The team's mission goes beyond just competing; they aim to promote motorsports engineering in India and inspire future generations. Through their efforts, they are solidifying their position as a leading force in collegiate motorsports and contributing to the growth of the Indian automotive industry.

The Genesis of Grit

TEAM YUKTA RACING'S KARTING CRUCIBLE

In the bustling workshops of Thiagarajar College of Engineering, Madurai, a spark ignited in 2018. A collective of 40 passionate undergraduate students, hailing from the realms of Mechanical, Mechatronics, and Electrical Engineering, coalesced under the banner of "Team Yukta Racing." this nascent motorsport contingent embarked on a journey that would redefine their academic experience and leave an indelible mark on the Indian collegiate racing scene.

Their initial foray into competitive racing was the Bharath Formula Karting event, organized by CAD Technologies in Coimbatore. Facing seasoned teams from Tamil Nadu, Maharashtra, Kerala, and Andhra Pradesh, Yukta Racing encountered the rigorous two-stage competition, comprising a virtual "Design Validation Stage" and a physical "Racing Stage" encompassing static, dynamic, and endurance tests. While their 14th position in the virtual round hinted at their potential, the overall 45th position revealed the steep learning curve ahead. The initial challenges, particularly the struggle with brake tests, were not setbacks but rather catalysts for growth.

The team's unwavering spirit and commitment to improvement became their defining characteristics. They understood that every setback was an opportunity to learn, analyze, and refine their approach. This mindset, rooted in resilience and a thirst for knowledge, laid the foundation for their future successes.

The early days were a crucible, forging the team's character and instilling a deep understanding of the intricacies of motorsport engineering. They learned the importance of meticulous design, precise manufacturing, and rigorous testing. More importantly, they grasped the essence of teamwork, communication, and problem-solving under pressure. The camaraderie forged in those early days would become the bedrock of their future achievements.

FROM KARTING CHAMPIONS TO FORMULA PIONEERS: YUKTA'S ASCENDANCE

The year 2020 marked a pivotal moment in Team Yukta Racing's trajectory. Armed with the lessons learned from their previous experiences, they approached the Go-Kart Design Challenge (GKDC) with renewed vigor and a refined strategy. Their meticulous amendments to previous Go-Kart versions, coupled with a deep understanding of design principles, yielded remarkable results.

They secured second runner-up in Disassembly and Design Presentation events, runner-up in Endurance tests, and ultimately, the coveted AIR 1 position in the 125cc category.

Following this success, Yukta Racing set their sights on the Indian Karting Championship 2023. This event, held after the COVID-stricken period, presented new challenges and opportunities. The team showcased their 5th generation Go-Kart, demonstrating their continuous innovation and commitment to pushing the boundaries of karting technology. Despite encountering adverse weather conditions and technical hurdles, they achieved AIR 2 in the design presentation round and AIR 6 in the overall off-road events, proving their adaptability and resilience.

Recognizing the crucial role of mentorship and support, the team expressed heartfelt gratitude to their management, faculty, and alumni. This acknowledgment highlighted the importance of a strong support system in nurturing talent and fostering innovation.

With a strong foundation in Go-Karting, Team Yukta Racing embarked on a new chapter: Formula Student. Recognizing the lack of opportunities for aspiring motorsport engineers in India, they aimed to bridge this gap by designing and manufacturing Formula Student vehicles, the pinnacle of collegiate motorsport engineering. Their transition from Go-Karting to Formula Student marked a significant leap in their ambition and technical expertise.

FORGING A FORMULA FUTURE: YUKTA'S PURSUIT OF PODIUM GLORY

Their debut in Formula Bharat 2024, with a newly crafted F4 vehicle, was a testament to their dedication and perseverance. The complex endeavor, demanding extensive research and the integration of intricate subsystems like suspension and aerodynamics, showcased their engineering prowess. Achieving an overall AIR 19 in their first Formula Bharat competition was a remarkable feat, validating their transition and setting the stage for future success.

Team Yukta Racing's journey is a testament to the power of passion, perseverance, and teamwork. From their humble beginnings in Go-Karting to their current pursuit of podium glory in Formula Student, they have consistently pushed the boundaries of innovation and engineering excellence. Their unwavering commitment to learning, their ability to overcome challenges, and their dedication to nurturing the next generation of motorsport engineers have made them a beacon of inspiration for aspiring engineers across India.

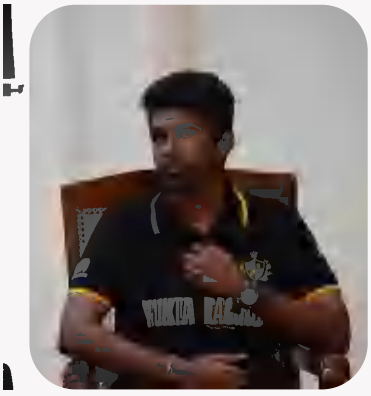
Always, Team Yukta Racing remains committed to their core values: "We talk, We plan, We create, We collaborate even we fail but we have never surrendered the spirit to conquer the paramount of success." With their unwavering determination and their relentless pursuit of excellence, they are poised to leave an indelible mark on the Indian motorsport landscape.

FACULTY ADVISORS:

Dr. S. Umar Sherif
Assistant Professor

Dr. R. Maniarasu
Assistant Professor

TEAM LEADS



CAPTAIN &
DYNAMICS LEAD
PRAVEEN KUMAR.S
9177216076

VICE CAPTAIN &
MANUFACTURING LEAD
PAUL ALAN. S
9177216067

MANAGER
SIDDHAARTH. R
917721E101

POWERTRAIN LEAD
SAI SIDDHARTH. S
9177216083

CHASSIS LEAD
JAYARAM. M
9177216039

ELECTRICAL LEAD
JEYA SURIYA. S. K
917721E041

TECHNICAL LEAD
ASHWIN. K
9177216012

BRAKES LEAD
SHAKTHI PA
9177216090

TEAM EUREKA

In the realm of mechanical engineering, Team Eureka stands as a beacon of innovation and excellence. Established in 2019 as part of the TCE Motorsports Club, under the guidance of the SAE Collegiate Club, the team is dedicated to advancing mobility solutions. For the academic year 2024–25, the team is led by Captain Anbarasan, Vice-Captain Abhinesh, and Manager Praveen, along with faculty mentors Assistant Professors Dr. S. Arun Kumar, and Mr. Maniarasu, Team Eureka comprises 47 skilled individuals from diverse academic backgrounds at TCE.

Vision:

To drive the future of sustainable mobility through innovation, efficiency, and zero-emission vehicle solutions.

With a focus on research, technology, and sustainability, Team Eureka continues to lead the evolution of electric mobility.

FIG: Team Eureka's Electra

ACHIEVEMENTS:

In July 2023, Team Eureka gained national recognition from the All India Council for Technical Education (AICTE) for their ground-breaking electric vehicle design, ELECTRA. Competing against 638 entries in the BHARATH CYCLE DESIGN COMPETITION, the team secured a top 16 position, demonstrating their engineering expertise and innovative approach to EV design. Though an award eluded them, the experience reinforced their dedication to research and development in sustainable mobility.

Building on this momentum, the team participated in the SIEP E-Bike Challenge 2024 at IES University, Bhopal, in January 2024. Under the leadership of Captain Kathiravan and Vice-Captain Tharun Kumar, they unveiled ALPHA-X, a high-performance retrofitted electric bike based on the iconic KTM Duke 390. Their impressive performance in multiple dynamic events secured top rankings, solidifying their expertise in electric vehicle innovation and adaptation.

- AIR 1 in Rulebook Test
- Air 2 in Cost and Business Plan Presentation
- AIR 4 in Engineering Design
- AIR 7 in Hill Climbing
- AIR 8 in Off-road
- AIR 9 in Acceleration
- AIR 13 overall category.

FIG: Team Eureka receiving the Shield for Air 2 in Cost and Business Plan Presentation at IES University, Bhopal

In February 2024, Team Eureka excelled at the 5th National Level Bicycle Design Competition (BDC). Led by Captain Rahul Sabari, they introduced MILES, a high-performance full-suspension mountain bike, earning the Overall Championship - Second Prize. This achievement underscores their expertise in precision engineering and sustainable mobility. With every milestone, Team Eureka continues to innovate, integrating advanced technology and eco-friendly solutions to redefine urban transportation and drive the future of sustainable mobility solutions.

FIG: Team Eureka's 'Miles' at BDC 2024

FUTURE OF TEAM:

A new era of innovation begins for Team Eureka! Embodying the spirit of "Frame the Future," the team is set to achieve its most ambitious milestone yet—designing and manufacturing its own electric vehicle from the ground up for the SIEP E-Bike Challenge 2025.

This ground-breaking leap into self-manufacturing marks a defining moment in their journey toward engineering excellence. With relentless passion, cutting-edge technology, and an unyielding drive for innovation, Team Eureka is ready to set new benchmarks in sustainable mobility. Their pursuit of trailblazing advancements continues to inspire the next generation of engineers and mobility pioneers.

FIG: Team Eureka's 'STARK' at SIEP-2025

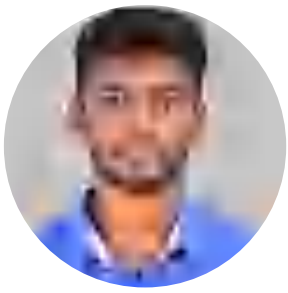
FACULTY ADVISORS:

Dr. S. Arunkumar
Assistant Professor

Dr. R. Maniarasu
Assistant Professor

OFFICE BEARERS 2024-25

CAPTAIN
ANBARASAN
917721G006



VICE CAPTAIN
ABHINESH
917721G001

MANAGER
PRAVEEN
917721G073

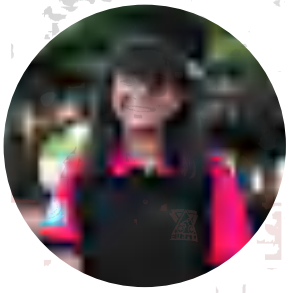
MANAGER ACCOUNTS
PRATHIKSHA
917721F033

MANAGER ELECTRICALS
LALITH
917721E056

BRAKES AND WHEELS
MANOJ KUMAR
917721G054

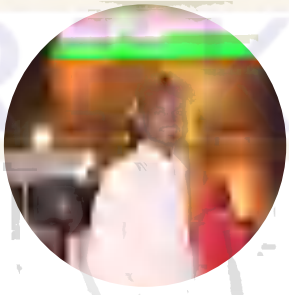
SUSPENSION LEAD
SETHU SURYA
917721G089

DRIVETRAIN LEAD
DEEPAK
917721G015



STEERING LEAD
HARSHA
917721G032

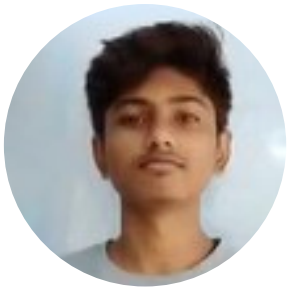
MANUFACTURING LEAD
SHEYAM
917721G134



CHASSIS LEAD
SATHISH KUMAR
917721F045

ELECTRICALS LEAD
SRI ROOPIKA
917721F050

TECHNICAL LEAD
NANDHINI GANDHI
917721E065



DESIGN LEAD
KARTHIK RAJA
917721G130

DESIGN LEAD
SWETHA
917721G103

INDIAN SOCIETY OF HEATING, REFRIGERATING AND AIR CONDITIONING ENGINEERS (ISHRAE)

ISHRAE is an official technical society to give insight into Heating, Ventilation Refrigeration, and Air conditioning. It conducts various competitions like the National Student Design competition, and offers technical talks on diverse topics. The student chapter of ISHRAE shows multiple events in both technical and non-technical categories. K12 event is a highlighted one where our students go to various schools and inculcate multiple topics in more straightforward means to the school students. TCE – ISHRAE student chapter has more than 25 members

Faculty Coordinator:

1. **Dr. K. Srithar**
2. **Dr.M.S.Govardhanan**

NAME	REGISTER NO.	POSITION
HARISH KANNAN M	917721G128	PRESIDENT
PRAVEEN B	917721G072	K12 CHAIR
RAGUL D	917721G131	PROGRAM CHAIR
KARTHIKRAJA A	917721G130	ADVERTISING MEMBER

Indian Society of Heating, Refrigerating and Air Conditioning Engineers

RAJESH KUMAR B	917721G077	CWC MEMBERS
VIJAYAKUMAR P	917721G116	
ESAKKI BABU K	917721G017	
SHIVSURYA N	917721G091	
LATHA SUPRIYA M	917721G048	
SIVA PRIYA V	917721G093	
JANANI S	917721G036	

INSTITUTION OF ENGINEERS (INDIA)

The Institution of Engineers (India) [IEI] is the largest multi-disciplinary professional body of engineers, established in 1920. The Institution has been serving the engineering fraternity for over a century. The State Centres of IEI spread across the country do organise technical activities and provide platform to the engineering students, technical performers, technocrats and others to share their expertise to benefit the engineering fraternity.

Faculty Coordinator: Dr.P.Maran

NAME		POSITION
NAVEEN VINAYAK J	917722G059	STUDENT CONVENER
PRAGATHESHWARAN K S	917722G066	EXECUTIVE MEMBER
SIVA GANESH M	2303917711421095	EXECUTIVE MEMBER
JITHESH KUMAR B	2303917711421038	EXECUTIVE MEMBER

SOCIETY OF AUTOMOTIVE ENGINEERS (SAE)

The SAE Collegiate Club at Thiagarajar College of Engineering (TCE), Madurai, affiliated with Anna University, is dedicated to fostering innovation and technical expertise in automotive and mechanical engineering. For the academic year 2024-2025, the club has planned a range of activities, including CAD workshops, business plan competitions, auto quizzes, welding, sheet metal work, biomimicry challenges, and Python programming sessions, along with seminars by industry experts. The club also organizes multi-tier competitions, starting with intra-college (Tier 1) events, progressing to inter-college (Tier 2) contests, and culminating in SAE Southern Section (Tier 3) events. A structured month-wise action plan ensures students receive a balanced mix of technical training, industry exposure, and practical learning experiences. Special sessions will be held to introduce new members to the club's activities and objectives. With a focus on hands-on learning, problem-solving, and industry readiness, the SAE Club at TCE provides a platform for students to develop essential engineering and leadership skills.

Faculty Coordinator: Dr.B.Karthikeyan

NAME	REGISTER NO.	POSITION
PRAVEEN S R	917721G074	CHAIRMAN
SIVAPRIYA V	917721G093	VICE CHAIRMAN
GOKUL A R	917721G126	SECRETARY
JAYARAM M	917721G039	TREASURER
MONISH PRAVEEN	917722G139	PROGRAM CHAIR
AARTHI	917722G002	MEMBER CHAIR
SUNDARA GANESAN S	917722G104	RECEPTION CHAIR
SANJAY	917722G081	PUBLICITY CHAIR

CULTURALS

The Cultural Associations of TCE is responsible for all the cultural events in the Institute around the year. Shrishti cultural association strives to bring out the hidden talent of the students of the college. It is the place where students can showcase what they have got. It helps to discover their talent. The competitive academic environment and co-curricular activities on campus keep the students on their toes.

Students of Mechanical department have selected to be an leader for various clubs of Shrishti Cultural Association where they exhibit their leadership skills and improve their managerial skill amidst the academic activities.

ANEESUR RAHMAN C (917721G007)	**GENERAL SECRETRY-QUIZZARDS**
NAVEEN A (917721G061)	**GENERAL SECRETRY-WRITER'S SOCIETY**
HARISH KANNAN M (917721G128)	**GENERAL SECRETRY-VARNA**
PERIYAKARUPPA DEVAR R (917721G068)	**GENERAL SECRETRY-TAMIL MANDRAM**
SRETHAN V P (917721G096)	**GENERAL SECRETRY-QUIZZARDS**
HARSHA R (917721G032)	**MEMBER-PHOTONS**
ARUL KARTHIKEYAN N (917721G010)	**MEMBER-ENGLISH CLUB, WRITER'S SOCIETY**
PRANAV P (917722G067)	**JOINT SECRETRY-ENGLISH SOCIETY**

IUCEE-EWB

The Student chapter of "Engineers Without Borders"-India was established at our Thiagarajar college of Engineering by on July, 2020. The objective of the TCE-EWB Student Chapter of "Engineers without Borders" India is to implement sustainable development Projects for the benefits of People, while training its members to become Project Mentors and Leaders with the motto of "Leadership through Service". Basic objective is to create Global Humanitarian Engineers and Global Leaders with Social and Moral values. In the pursuit of the objectives, the chapter will operate in accordance with the Constitution and bye-laws of EWB-India.

NAME	REGISTER NO.	POSITION
SRIRAM P	917721G098	PRESIDENT
DEEPAK R	917721G015	VICE PRESIDENT (INTERNAL AFFAIRS)
SURYAPRAKASH P	917721G102	SECRETARY
CHARAN R	917721G123	CHIEF RESEARCH AND DEVELOPMENT OFFICER
MILAN JOSE V	917721G056	EVENT MARKETING MANAGER

E-CELL

E-Cell ICE, formerly or otherwise known as Entrepreneurship Development Cell, is a Student body that is aimed at inculcating, developing and fostering the culture and spirit of entrepreneurship within the TCE student population and beyond, It serves as a bridge between the students of TCE and the outside world of business and technology.

Faculty Coordinator: Dr.R.Kamalakannan

HIGHLIGHTS FROM THE NATIONAL ENTREPRENEURIAL NETWORK EXPANSION

NAME	REGISTER NO.	POSITION
SAI SIDDHARTH S	917721G083	PRESIDENT
SRETHAN V P	917721G096	CHIEF MARKETING OFFICER

SPORTS

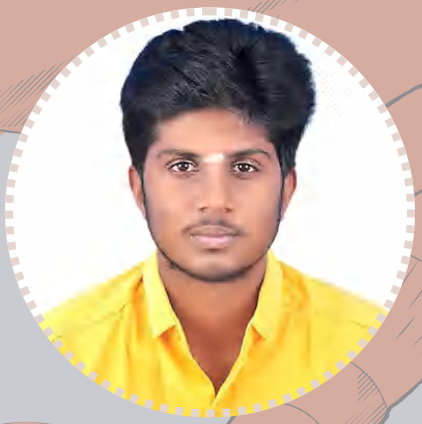
NEVER ENDING PASSION...EVER LASTING ZEAL

AKASH KANNA C K
(917721G003)
BADMINTON
CAPTAIN

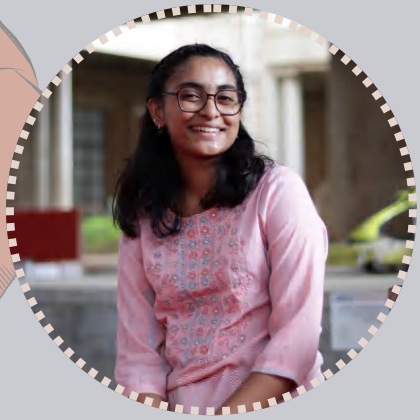
GEORGE MICHAEL JENISH V
(917721G020)
CHESS
CAPTAIN

GUNAL A
(917721G024)
HOCKEY
CAPTAIN

MANOJKUMAR S
(917721G054)
ATHLETICS
VICE CAPTAIN



NAVEEN KUMAR G
(917721G062)
HOCKEY
VICE CAPTAIN

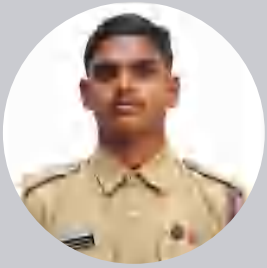


R HARSHA
(917721G032)
BASKETBALL
VICE CAPTAIN

NATIONAL CADET CORPS

"NCC: DISCIPLINE, LEADERSHIP, AND SERVICE – SHAPING THE YOUTH, STRENGTHENING THE NATION."

MECHANICAL DEPARTMENT IN NATIONAL CADET CORPS

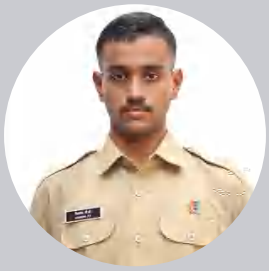


LCPL

PERIYAKARUPPA DEVAR R
917721G068

CDT

VIGNESH P V
917721G111



CDT

GURUPRASATH M
917721G026

Students in the NCC at TCE undergo rigorous training that helps them build physical fitness, mental toughness, and teamwork. The unit actively participates in community service projects, environmental awareness programs, and disaster management activities.

Being part of the NCC enhances students' leadership skills and gives them a sense of pride and purpose. It also encourages cadets to serve the nation and contribute to social causes. The NCC experience at TCE is valuable for those interested in defense services or for any student looking to develop their overall personality.

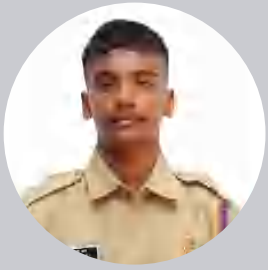
NATIONAL CADET CORPS, TCE

The National Cadet Corps (NCC) at Thiagarajar College of Engineering (TCE), Madurai, provides students with an opportunity to engage in various leadership and military training activities. The NCC unit at TCE focuses on developing qualities like discipline, responsibility, and patriotism through drills, parades, and participation in national and state-level camps.

NATIONAL CADET CORPS

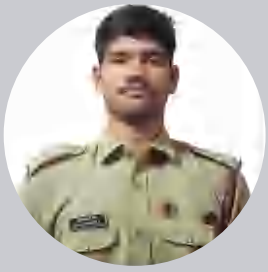
"NCC: DISCIPLINE, LEADERSHIP, AND SERVICE – SHAPING THE YOUTH, STRENGTHENING THE NATION."

MECHANICAL DEPARTMENT IN NATIONAL CADET CORPS



CQMS
RAJKUMAR R
917722G072

SGT
VASANTHA KUMAR SK
917722G112



SGT
SURYA PRAKASH S
917722G106

CPL
FAHEEMUL HASAN A
917722G020

LCPL
NAVANEETHA KRISHNAN S
917722G058

LCPL
JAI SRI RAM A
917722G039

NATIONAL CADET CORPS

"NCC: DISCIPLINE, LEADERSHIP, AND SERVICE – SHAPING THE YOUTH, STRENGTHENING THE NATION."

MECHANICAL DEPARTMENT IN NATIONAL CADET CORPS

NAME	REGISTER NO	RANK
GURUDEEP R	2303917711421027	CADET
HARI J	2303917711421029	CADET
NAVANITHA MUTHU RAJ S G	2303917711421061	CADET
SHRIRAM G K	2303917711421092	CADET
SIDDHARTHAN BARANIDHARAN	2303917711421094	CADET
VIGNESH R B	2303917711421115	CADET
VAIRAMUTHU M	2403917711421089	CADET
BHUVANESHKUMAR M	2303917711421309	CADET
VENUGOPAL G	2403917711421092	CADET
SAI THARUN P	2403917711421068	CADET
HARIHARANPANDIAN	2403917711421022	CADET
PANDIDURAI.P	2403917711421052	CADET

NATIONAL SERVICE SCHEME

"NSS: SELFLESS SERVICE FOR A BETTER TOMORROW."

MECHANICAL DEPARTMENT IN NATIONAL SERVICE SCHEME

The National Service Scheme (NSS) is a government-sponsored program aimed at developing student volunteers' personality and character through community service. The NSS aims to develop empathy and understanding of social issues, foster community engagement and social responsibility, and enhance leadership and teamwork skills. The scheme undertakes various activities, including 7-day camps in rural villages, which promote education, health, and sanitation through on field work and raising awareness.

Blood donation camps are also organized, with notable success in collecting units of blood and raising awareness about its importance. Furthermore, awareness rallies are conducted on social issues like education, health, and environment, effectively reaching out to a large number of people and promoting social responsibility and community engagement. Through such activities, the NSS provides valuable experience and fosters a deeper understanding of social issues and community service.

NAME	REGISTER NO
MANOJKUMAR S	917721G054
BARATHWAJ	917722G011
KAMLESH	2303917711421041
SUBESAN	2303917711421100
SUNDARALINGA PANDI	2303917711421102
SUGANTH R P	2403917711421084
MANOJKUMAR M	2403917711421041
CHARUMITHRA T	2403917711422110

YOUTH RED CROSS

"YRC: SPREADING COMPASSION THROUGH SERVICE AND HUMANITY."

MECHANICAL DEPARTMENT IN YOUTH RED CROSS

OFFICE BEARER
SHAKTHI PA
917721G090

OFFICE BEARER
MILAN JOSE
917721G056

OFFICE BEARER
PRANAV P
917722G067

YOUTH RED CROSS , TCE

The Youth Red Cross (YRC) is the student wing of the Indian Red Cross Society (IRCS), committed to promoting humanitarian values, health awareness, and social service among young individuals. It operates on three core principles: health and hygiene, service, and friendship, encouraging students to actively participate in community welfare and emergency response initiatives.

YRC organizes various programs such as food safety programs, fire safety programs, blood donation camps, and eye camps, along with first aid training, health awareness campaigns, disaster relief efforts, and environmental initiatives. These activities help students develop leadership, teamwork, and problem-solving skills while fostering a strong sense of social responsibility.

By engaging in YRC initiatives, young volunteers contribute to building a safer and healthier society. The organization provides a platform for students to participate in meaningful service, enhance their preparedness for emergencies, and make a positive impact on the community through humanitarian aid and public health initiatives.

YOUTH RED CROSS

"YRC: SPREADING COMPASSION THROUGH SERVICE AND HUMANITY."

MECHANICAL DEPARTMENT IN YOUTH RED CROSS

NAME	REGISTER NO	POSITION
PRAGATHESHWARAN K S	917722G066	DOCUMENTATION LEAD
NAREN KARTHICK S	917722G056	MEMBER
VIGNESH S MAYOR	917722G113	MEMBER
HEMANATH S	917722G038	MEMBER
NITHISHKRISHNA G	917722G063	MEMBER
ABISHEIK G	917722G004	MEMBER
SANKAR RAM N	917722G082	MEMBER
GOWTHAM R	2303917711421025	MEMBER
BALA ADITYA M	2303917711421306	MEMBER
SWEATHA M	2303917711422103	MEMBER
YUVARAJAN S	2303917711421120	MEMBER
MOHAN RAJ A	2303917711421050	MEMBER
DEEPAK RANJITH KUMAR	2303917711421014	MEMBER
TARUN P	2303917711421106	MEMBER
MARUTHUPANDIAN N	2303917711421047	MEMBER
BHARTHWAJ K	2303917711421011	MEMBER

MEA EVENTS

1) The **MEA inauguration** was held at K S Auditorium, with Mr. R. Sundara Ganesh, Head of Manufacturing - Medical Devices at AUROLAB, gracing the event as the Chief Guest.

FIG. Chief Guest along with Principal and HOD

FIG. MEA Office Bearers

2) **"Pixel Brain"** was conducted for second-year students, where participants decoded hidden mechanical terms by analyzing a series of seemingly unrelated images.

FIG. Quiz answering session

FIG.Tie breaker round

3) The **first-year orientation** was conducted for new students and featured engaging activities like Treasure Hunt, Bingo, and Dice Play.

4) The **"Quality Quest"** event was conducted for third-year students, focusing on testing their knowledge and application of quality control tools in real-world problems.

5) **"Design Nexus"** is a project expo conducted to showcase innovative solutions to real-world problems.

FIG. Design Nexus

6) The **"Career Scope Talk"** is an event aimed at enriching the experience of Mechanical Engineering students by offering valuable insights into career opportunities and industry expectations.

FIG. Speech by Mr. Surya Prakash P on Caterpillar placement process

FIG. Speech by Mr. Vejes Maheas Raajhaa M U on Trimble placement process

7) **"Knowledge Knockout"** is an interactive and competitive quiz event specifically designed for first-year students, promoting enthusiasm for learning through engaging challenges

FIG.Rules explaining session

FIG. Feed back about the event

8) The **Lateral Entry Orientation Program** equipped second-year students with the knowledge and confidence needed to successfully navigate their academic journey.

FIG. Speech by Mr. Gokul A R and Mr. Rahul T R

FIG. Speech by Mr. Shyam T and Mr. Charan R

9) "**Stracture Challenge"** is an Non technical MEA activity specifically for first year students to develop their knowledge on Strength of materials Domain.

10) **"Wal-e-Mote"** is an Non technical MEA activity open to all year students to design posters for the upcoming National Level symposium of Mechanical Department **"Mobius2k25"**

STUDENT ACHIEVEMENTS

THANVEER AHAMED S (917721G104) of final year has Completed the internship in Summer Research Fellowship Programme (SRFP - 2024). and also completed the Internship at Indian Institute of Astrophysics.

BARATHWAJ T (917722G011) of third year has selected as a representative of Tamilnadu for Yuva sangam program by Government of India.

SURYA PRAKASH P (917721G102) of final year awarded as SAE Southern Section Student Volunteer Appreciation award 2024

THAPESHVAR S (917722G110) of third year has completed an online course in Introduction to Digital Transformation with Google Cloud

SURYA PRAKASH P (917721G0102) of final year has Participated in Design Impact Movement (DIM) by Titan.

RAJKUMAR R (917722G072) of third year has Participated in Workshop on Computational Fluid Dynamics conducted by Shaastra, IIT Madras

Team Astralis and Team Delta from the Mechanical Department for being shortlisted in the semifinals top 30 among 1500 teams in Aakurthi 2024, organised by dassault systems.

Members of Team Delta

Sakthi Mahindran (917721G084)
Jayram M(917721G039)
Srivarshan (917721G099)
Manojkumar S(917721G054)

Members of Team Astralis

Deepak R(917721GO15)
Abinesh V (917721G001)

ATHIYAMAAN T (2403917711422109) & ALLEN REBECCA M (2403917711422107) of first year won State level 1st Runner Up at RBI90 Quiz with cash prize of Rs.1.5Lakhs. RBI90 Quiz is a nationwide quiz for undergraduate students being conducted as part of commemoration of the 90th year of the bank.

First runners-up from Thiagarajar College of Engineering, Madurai

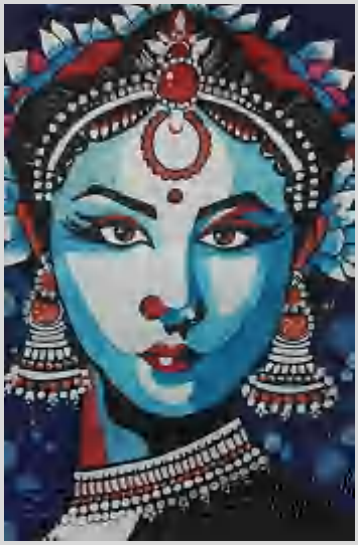
ART CORNER

SHRI SHIVANI S (2403917711422120) of first year has participated in Indian Art Fest Contest

ALLEN REBECCA M (2403917711422107) first year has expressed the talent in drawing

NAGASIVANATHAN S N (2303917711421060) of second year has expressed the talent in drawing

SWETHA S (917721G103) of final year has expressed the talent in drawing



GIRIJA SRI M (917721G021) of final year has expressed the talent in drawing

MEA OFFICE BEARERS

FINAL YEARS

REG NUMBER	NAME	DESIGNATION
917721G054	Mr. MANOJKUMAR S	General Secretary
917721G090	Ms. SHAKTHI PA	General Secretary
917721G098	Mr. SRIRAM P	General Treasurer
917721G066	Ms. PASUMPON KARTHIGA M	General Treasurer
917721G008	Ms. ANTO MAJELLA A	General Public Relations Chair
917721G111	Mr. VIGNESH P V	General Public Relations Chair
917721G103	Ms. SWETHA S	General Event Manager
917721G082	Ms. SAI PRIYADHARSHINI K	General Event Manager
917721G053	Mr. MANOJ KUMAAR S	General Human Resource Manager
917721G036	Ms. JANANI S	General Human Resource Manager

MEA OFFICE BEARERS

THIRD YEARS

REG NUMBER	NAME	DESIGNATION
917722G067	Mr. PRANAV P	Joint Secretary
917722G114	Ms. VIJAYA PARKAVI L	Joint Secretary
917722G112	Mr. VASANTHA KUMAR S K	Assistant Secretary
917722G097	Ms. SHREYAA V P	Assistant Secretary
917722G002	Ms. AARTHI R	Joint Treasurer
917722G082	Mr. SANKAR RAM N	Joint Treasurer
917722G106	Mr. SURYA PRAKASH S	Assistant Treasurer
917722G110	Mr. THAPESHVAR S	Assistant Treasurer
917722G066	Mr. PRAGATHESHWARAN K S	Joint Public Relations Chair
917722G042	Mr. KAMALESH B	Joint Public Relations Chair
917722G072	Mr. RAJKUMAR R	Joint Public Relations Chair
917722G043	Ms. KANMANI INDIRA A	Joint Public Relations Chair
917722G071	Mr. RAJESH V	Joint Public Relations Chair
917722G035	Mr. HARISH SUSHVANTH M	Joint Public Relations Chair

MEA OFFICE BEARERS

THIRD YEARS

REG NUMBER	NAME	DESIGNATION
917722G020	Mr. FAHEEMUL HASAN A	Joint Event Manager
917722G054	Mr. MUTHUKUMARA SURYA S G	Joint Event Manager
917722G019	Mr. EMAYAVARAMAN M	Joint Event Manager
917722G116	Mr. ABISHEK P G S	Joint Human Resource Manager
917722G079	Ms. SANDHIYA B M	Joint Human Resource Manager
917722G098	Ms. SHRI JEYA DHARANI D	Joint Human Resource Manager
917722G138	Mr. VIMAL RAJ C	Joint Human Resource Manager
917722G126	Mr. MADHAN KUMAR S	Joint Human Resource Manager
917722G136	Mr. THARUN P	Joint Human Resource Manager

MEA OFFICE BEARERS

MEA TEAM LEADS

Mr. PERIYAKARUPPA DEVAR R(917721G068) - CAPTAIN
Ms. DEEPIKA J M(917722G016) - VICE CAPTAIN

Mr. ASHWIN K(917721G012) - CAPTAIN
Mr. AROKIA JAI INFANT S(917722G006) - VICE CAPTAIN

Ms. SADHANA SAKKTHI C J(917721G081) - CAPTAIN
Mr. SHIRISH KUMAR M R(917722G094) - VICE CAPTAIN

Ms. JOVAN VENNILA M(917721G042) - CAPTAIN
Mr. HAARISH T(917722G123) - VICE CAPTAIN

MACHINE MAIL'24

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