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Message from Founder Chairman and Advisor



I am delighted to learn that the Department of Mechanical Engineering at Maharaja Agrasen Institute of Technology is organizing the International Conference on “Green Technology and Sustainability (ICGTS 2024)” scheduled for January 30–31, 2024. Conferences such as this serve as a vital platform for the exchange of ideas and knowledge, and I am confident that this initiative will significantly contribute to advancements in this important field.

The publication of a souvenir to commemorate the conference is a commendable effort, as it helps share the insights and outcomes of the event with a broader audience.

I extend my heartfelt congratulations and best wishes to the department for this initiative and wish the conference great success.

Dr. Nand Kishor Garg
Founder Chairman and Advisor, MATES

Message from Chairman



It is a great pleasure to note that the Department of Mechanical Engineering, MAIT, is organizing its first International Conference on “Green Technology and Sustainability” to be held from January 30-31, 2024.

Academic institutions play a crucial role in identifying and addressing key research challenges, thereby contributing to meaningful discussions that guide the development of future research directions. This international conference is a commendable initiative aimed at bringing together experts from academia, industry, and research organizations working in Mechanical Engineering and related fields.

By providing a collaborative platform for the exchange of ideas and perspectives, the conference seeks to address contemporary issues and explore future challenges in the discipline.

Sh. Vineet Kumar Lohia
Chairman, MATES

Message from Director



I am extremely delighted that the Department of Mechanical Engineering at our Institute is organizing the International Conference on “Green Technology and Sustainability (ICGTS 2024)” from January 30–31, 2024”. I extend a warm welcome to all the delegates who have gathered in MAIT from across the globe for this prestigious event.

MAIT is deeply committed to the creation, dissemination, and preservation of knowledge in science and technology, with the goal of making the world a better place. This Conference marks a significant step in that direction. We are proud to host such an event and are dedicated to ensuring a productive and enjoyable experience for all our guests.

I sincerely congratulate the organizing team for generating such interest within the scientific community.

Prof. (Dr.) Neelam Sharma
Director (MAIT)

Message from Dean



In today's fast-changing global landscape, it is vital for Indian engineers and the domestic industry to keep pace with technological advancements. With access to advanced tools and knowledge platforms, academic and R&D institutions must continuously evolve to meet the growing and dynamic needs of society and industry.

The First International Conference on Green Technology and Sustainability, organized by the Department of Mechanical Engineering at MAIT (January 30–31, 2024), provides a valuable platform for global exchange of ideas, research, innovation, and collaboration in mechanical, production, and industrial engineering.

We extend our sincere thanks to all authors, speakers, organizers, and sponsors for their valuable contributions in making this event a resounding success.

Prof. (Dr.) S. S. Deswal
Dean, MAIT

Preface

The International Conference on Green Technology and Sustainability 2024 was successfully held, bringing together leading experts, researchers, and industry professionals dedicated to advancing sustainable innovations. This event provided a dynamic platform for exchanging knowledge and fostering collaboration in pursuit of a more environmentally responsible future.

Throughout the conference, participants explored key topics such as renewable energy, sustainable materials, waste management, smart cities, and climate resilience. The discussions and presentations showcased groundbreaking research, highlighting new technologies and strategies for mitigating environmental challenges.

Green technology is a driving force behind sustainable development, shaping industries from energy to construction, transportation to manufacturing. The insightful contributions presented at this conference offer valuable perspectives on enhancing efficiency, reducing environmental impact, and promoting eco-friendly solutions.

This collection of research represents the collective wisdom and dedication of scholars, engineers, and policymakers from around the world. We extend our gratitude to all the authors for sharing their pioneering work and to the reviewers for ensuring the quality of this publication.

We anticipate that the knowledge shared here will inspire further advancements, fostering a sustainable and resilient future for generations to come.

In closing, we extend our sincere appreciation to everyone who played a role in making this conference a success, including the dedicated committee members, sponsors and all those who contributed their expertise and efforts.

Prof. (Dr.) V. N. Mathur
Dr. Vaibhav Jain
Convener, ICGTS-2024

Introduction

The 1st International Conference on Green Technology and Sustainability (ICGTS 2024) marked a significant milestone in advancing the global dialogue on sustainable development and the transformative power of green technologies. As environmental challenges become more urgent and complex, the role of innovative solutions to address climate change, resource depletion, and environmental degradation has never been more critical. This book, which compiles the peer-reviewed research papers presented at the conference, serves as a valuable resource for researchers, industry professionals, policymakers, and students striving to make a meaningful impact on the path to a sustainable future.

The conference provided a platform for thought leaders, scholars, and practitioners from around the world to exchange knowledge, explore cutting-edge developments, and share practical insights into the integration of green technologies and sustainable practices across various sectors. From renewable energy and waste management to sustainable agriculture and green manufacturing, the papers presented at ICGTS 2024 cover a broad spectrum of topics, all rooted in the vision of creating a sustainable, eco-friendly future.

The work presented here is a testament to the tireless efforts of researchers dedicated to solving some of the most pressing environmental issues of our time. Their contributions are designed to inspire further research, development, and practical applications of sustainable technologies, offering a roadmap for industries and governments aiming to embrace sustainability in every aspect of their operations. As the world continues to grapple with the environmental crises that threaten our planet's future, the insights contained within these pages offer hope and a vision for a green, sustainable world.

This collection of papers and posters not only celebrates the achievements made at the ICGTS 2024 but also serves as a springboard for the ongoing pursuit of knowledge, collaboration, and innovation in the field of green technology and sustainability. It is our hope that this book will inspire and inform future generations of researchers and practitioners working towards a more sustainable and equitable global community.

Keynote Session 1

Dr. Sanjay Sen Gupta

National Institute for Science Communication & Information Resources, CSIR

Keynote Session Summary

Advances and Challenges in Water Treatment Technologies

The keynote session on Water Treatment: Innovations for a Sustainable Future highlighted the growing importance of efficient water management in response to global water scarcity, pollution, and increasing industrial demand. Delivered by a leading expert in environmental engineering, the session addressed both current practices and future directions in water treatment technologies.

The session began with an overview of the global water crisis, emphasizing the urgent need for sustainable water purification systems. It underscored that, while access to clean water is a fundamental human right, billions of people still face water-related challenges, particularly in developing countries. Rapid urbanization, industrialization, and climate change have further strained water resources, making effective treatment solutions more critical than ever.

The speaker detailed various water treatment methods, including conventional techniques such as coagulation, sedimentation, filtration, and chlorination, as well as modern advancements like membrane filtration, UV disinfection, and advanced oxidation processes (AOPs). Special focus was given to the role of nanotechnology, biotechnology, and smart monitoring systems in enhancing purification efficiency and reducing operational costs.

Case studies on decentralized treatment units, zero-liquid discharge (ZLD) systems, and wastewater reuse in agriculture and industry demonstrated how technology can be scaled for both local and large-scale applications. Challenges discussed included high energy consumption, the treatment of emerging contaminants such as pharmaceuticals and microplastics, and the need for supportive policies and greater public awareness.

In conclusion, the keynote speaker emphasized that achieving water sustainability requires a multidisciplinary approach involving innovation, policy, and community engagement. The speaker called for stronger collaboration between academia, industry, and government to advance research and implement affordable, scalable solutions for safe water access worldwide.

Keynote Session 2

Prof. David NV

Associate Professor, College of Engineering, UiTM
Shah Alam, Malaysia

Keynote Session Summary

Life Cycle Assessment (LCA) of Multicomponent Polymeric Systems

The keynote session on Life Cycle Assessment (LCA) of Multicomponent Polymeric Systems provided valuable insights into the environmental impact and sustainability challenges associated with the use of complex polymeric materials. Delivered by a distinguished expert in materials science and environmental engineering, the session emphasized the importance of assessing the entire life cycle of polymer-based products—from raw material extraction to manufacturing, usage, and end-of-life disposal.

Multicomponent polymeric systems, which often involve blends or composites of different polymers and additives, are widely used across various industries for their enhanced mechanical, thermal, and chemical properties. However, their complex structure poses significant challenges in recycling and environmental management. The keynote addressed how LCA serves as a critical tool to quantify the environmental footprint of these materials and identify stages with the highest impact.

The speaker discussed various LCA methodologies, including attributional and consequential approaches, and highlighted the importance of accurate data collection and system boundary definitions. Specific case studies demonstrated the application of LCA in evaluating the trade-offs between performance benefits and environmental costs in packaging, automotive, and electronics sectors.

Emerging strategies such as the use of bio-based polymers, design for recyclability, and modular material selection were explored as potential solutions to reduce the life cycle impacts of multicomponent systems. The session also stressed the need for collaboration between material scientists, manufacturers, and policy-makers to promote sustainable material choices.

In conclusion, the speaker reinforced that LCA is not merely an academic exercise but a practical decision-making tool that can guide innovation toward sustainability. By integrating LCA into early design and development stages, engineers and researchers can make informed choices that balance performance, cost, and environmental responsibility.

Keynote Session 3

Prof. Dario Colorado Garrido

Professor, University of Veracruz, Mexico

Keynote Session Summary

Research in Refrigeration and Air Conditioning

The keynote session on Research in Refrigeration and Air Conditioning focused on recent advancements, sustainability challenges, and future directions in the field. Delivered by a renowned expert in thermal sciences, the session emphasized the critical role of refrigeration and air conditioning (RAC) systems in modern life—from residential and commercial applications to industrial and healthcare sectors.

The speaker began by outlining the historical evolution of RAC technologies and their growing significance in global energy consumption and environmental impact. With increasing concerns over greenhouse gas emissions and climate change, the need for energy-efficient and eco-friendly cooling solutions has become more pressing than ever.

Key research areas discussed included the development of alternative low-global warming potential (GWP) refrigerants, improvements in compressor and heat exchanger design, and advancements in thermoelectric and magnetic cooling technologies. The session also highlighted the role of smart systems, IoT integration, and adaptive control mechanisms in enhancing the performance and reliability of modern air conditioning systems.

Special attention was given to the challenges of retrofitting existing systems with sustainable refrigerants, lifecycle cost analysis, and the need for global policy alignment under protocols such as the Kigali Amendment to the Montreal Protocol. The speaker also touched upon emerging cooling needs in developing countries and the importance of designing systems that are both cost-effective and environmentally responsible.

In conclusion, the keynote speaker emphasized that continued research and innovation in refrigeration and air conditioning are vital for achieving energy sustainability and climate goals. Collaboration between academia, industry, and government bodies will be essential to drive the next generation of efficient, safe, and sustainable cooling technologies.

Selected Abstracts of
Research Articles
ICGTS 2024

Performance analysis of Vapor Compression refrigeration System with Integrated Mechanical Subcooling using R404a, R448a, R449a and R452a

Dheeraj Joshi, Kunal Singh, Diptanshu Chowdhury

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This study compares the performance of a vapor compression refrigeration system (VCRS) with an integrated mechanical subcooled vapor compression refrigeration system (IMS-VCRS) in commercial freezers. Specifically, it uses four different refrigerants R404a, R448a, R449a, and R452a. A mathematical model of an IMS-VCRS is provided to determine the performance parameters at a fixed cooling capacity of 17.3 kW. The result shows that the energy consumption of an IMS-VCRS is reduced by 15.04% for R404a, 10.61% for R448a, 11.41% for R449a, and 14.17% for R452a and the coefficient of performance (COP) is increased by 17.76% for R404a, 11.84% for R448a, 12.87% for R449a and 16.52% for R452a. In addition, exergy analysis is also used to determine the system's second-law efficiencies, which in this case are improved by 17.56%, 12.06%, 13.02%, and 16.38% for R404a, R448a, R449a, and R452a respectively. Furthermore, parametric analyses were performed to investigate the effects of various system parameters such as evaporator and condenser temperatures. The results suggest that R448a and R449a can be potential replacements for R404a.

Designing of a steering system for an All Terrain Vehicle

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The steering system is a crucial component of an All-Terrain Vehicle (ATV), ensuring precise control, stability, and maneuverability across rough terrains. This study focuses on designing an efficient and responsive steering system tailored for BAJA SAEINDIA competition. Key considerations include steering geometry, Ackermann principle, steering ratio, and ergonomics to optimize driver comfort and performance. The system is designed using CAD tools and analyzed for steering effort, turning radius, and mechanical reliability. Through material selection and fabrication techniques, the final design aims to achieve lightweight construction while ensuring durability. This project enhances ATV handling, safety, and overall performance in off-road conditions

Wear in Erosion Corrosion Testing Machine

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In an erosion-corrosion testing machine, wear typically occurs at the interface between the test material and the abrasive or corrosive environment. These machines are designed to simulate the combined effects of mechanical wear and electrochemical corrosion on materials under controlled conditions. The wear components, such as rotating discs or abrasive jets, generate friction and impact, while the corrosive agents, like acids or salts, accelerate material degradation. The machine allows for precise control of parameters such as speed, pressure, and temperature, providing valuable data on the performance and lifespan of materials used in industries like aerospace, automotive, and marine.

Mitigation and investigation of wear in mechanical gears

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Wear in mechanical gears is a critical issue affecting the performance, efficiency, and longevity of machinery across various industries. This study focuses on the mitigation and investigation of gear wear, combining theoretical analysis, experimental evaluation, and advanced diagnostic techniques. Wear mechanisms such as abrasive, adhesive, and fatigue wear are explored in detail to understand their origins and progression under varying operational conditions, including load, speed, lubrication, and environmental factors. The investigation employs tools such as surface profilometry, scanning electron microscopy (SEM), and vibration analysis to monitor wear patterns and detect early signs of damage. Mitigation strategies emphasize the use of optimized materials, surface treatments, and advanced lubricants to enhance wear resistance. Innovations such as gear coatings, additive manufacturing, and real-time condition monitoring systems are also discussed for their effectiveness in extending gear life and reducing maintenance costs. The study highlights the role of computational modeling, including finite element analysis (FEA), in predicting wear behavior and guiding the design of more durable gear systems. By integrating experimental insights with modern engineering practices, this work provides a comprehensive framework to address gear wear challenges, ensuring improved reliability and efficiency in mechanical systems.

Performance Evaluation of Vapor Compression Refrigeration System with Dedicated Mechanical Sub-cooling

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In this study, the energy analysis of a dedicated mechanical subcooling system (DMS) is compared to a vapor compression refrigeration system (VCRS) in centrifugal chiller, using three different refrigerants: R134a, R1234yf, and R600a. This mathematical model of the DMS system aims to assess performance parameters for a cooling capacity of 3TR. The observation indicate a significant reduction in power consumption for the DMS system—specifically, by 16.32% for R134a, 19.24% for R1234yf, and 16.40% for R513a. The coefficient of performance (COP) for the DMS system also shows improvement, increasing from 3.07 to 3.41 for R134a, 2.95 to 3.38 for R1234yf, and 3.15 to 3.49 for R513a due to its lower power requirements.

Autonomous mobile robot simulation using Ros and Gazebo

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This research paper presents an in-depth exploration of the integration of Robotics Operating System (ROS) and Gazebo for AMR(autonomous mobile robot) simulation. The study focuses on the creation of a simulated world in Gazebo and the development of a robot model in URDF format using Fusion 360. The ROS navigation stack is seamlessly integrated with the URDF model, showcasing the process of generating a functional autonomous navigation demo within a simulated environment. The paper discusses the intricacies of this integration, highlighting the effectiveness of the combined framework and testing the autonomy of mobile robots. The presented methodology offers valuable insights for researchers and practitioners seeking to leverage ROS and Gazebo for the development and validation of autonomous navigation systems in a simulated context.

3D FILAMENT FROM PET BOTTLE

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Recycling PET bottles into 3D printer filament offers a sustainable solution to plastic waste. This process involves cleaning, shredding, and extruding PET to create a cost-effective and eco-friendly alternative to conventional filaments. PET's durability and recyclability make it suitable for various 3D printing applications while promoting a circular economy. Challenges like moisture absorption and extrusion consistency are addressed to enhance print quality. This approach reduces environmental impact and supports sustainable manufacturing.

Hybrid Tree

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Renewable Energy is a way for achieving the demand for the energy in future as petroleum prices are rising day by day in the world. Therefore, we need a clean & new type of power generation & energy source which we can rely & helps us generate energy from renewable resources. For this same purpose Solar Panels, Wind Mills were introduced & became hit for quite a long time & are still in use but are not able to cope with the requirements. So, a concept was introduced about Aero-Leaf. In this a turbine is made in shape similar to a tree leaf in aerodynamic shape which can withstand strong force of air rotate converting the force of air to mechanical power which in turns generate electricity. For this project we are going to combine an Aero-leaf Tree also known as wind tree & a solar tree having solar panels making & naming it a Hybrid Tree which will generate electricity from both Solar & wind energies. These Aero-Leaves have two types of turbines Vertical Axis Wind Turbine & Horizontal Axis Wind Turbine. In this we will be using the Vertical Axis Wind Turbine (VAWT).

We are making this in a similar shape of tree as it will reduce the space consumed by solar panel system & will generate a comparatively more electricity than only from solar panels. Therefore, the project concludes that the power generated from a hybrid tree is eco-friendly, reduces noise of power generation & can be installed in smaller spaces at different parts of the country. Generated energy then further can be used in different areas of work like for pumps in farms, sprinkler systems in societies, colleges, schools & open grounds etc.

Design, Analysis and Fabrication of ATV Roll-cage

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The roll cage is a critical structural component of an All-Terrain Vehicle (ATV), ensuring driver safety while withstanding extreme off-road conditions. This study focuses on the design, analysis, and fabrication of a lightweight yet durable roll cage for BAJA SAEINDIA. Using CAD modeling and Finite Element Analysis (FEA), the roll cage is optimized for strength, impact resistance, and weight reduction while complying with BAJA SAE regulations. The fabrication process involves material selection, precision welding, and quality testing to ensure structural integrity. This project aims to enhance safety, performance, and manufacturability, contributing to innovative and competitive ATV development.

Production of biodiesel from waste vegetable oil

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In the present project Technological and Economical aspects of biodiesel was studied, in first part of project bio diesel was synthesized from Waste vegetable Oil (WVO) by three-step method and regressive analyzes of the process was done. The raw oil was collected from local restaurant of Barcelona city in Spain. In the three-step method, the first step is saponification of the oil followed by acidification to produce FFA and finally esterification of FFA to produce biodiesel. In the saponification reaction, various reaction parameters such as oil to sodium hydroxide molar ratio and reaction time were optimized and the oil to NaOH molar ratio was 1:2, In the esterification reaction, the reaction parameters such as methanol to FFA molar ratio, catalyst concentration and reaction temperature were optimized Finally HHV of biodiesel was measured and compared with biodiesel and petro-diesel standard. It was found almost equal to petro diesel produced by National Refinery of Pakistan i.e. 40000 KJ/Kg. In second part detailed market survey was done in restaurants in order to check the supply of raw material and need of the targeted market and then detailed economical analysis was also done in order to check the feasibility of the project in the target market in Pakistan. The market is not saturated and there is a need of the product but initial capital investment found is higher and investors will have to wait for the revenues.

Predictive analysis of price on engine parameters and functions

Chetan vidiyar

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Predictive analysis has emerged as a crucial tool in optimizing engine performance, reliability, and cost efficiency. This study explores the relationship between engine parameters and pricing by leveraging data-driven methodologies, including statistical modeling and machine learning techniques. Key engine functions such as fuel consumption, emissions, thermal efficiency, and durability are analyzed to identify patterns influencing market pricing. By integrating historical pricing trends with operational metrics, this research develops predictive models to estimate future price variations based on changes in engine design, performance, and external economic factors. The findings aim to assist manufacturers, suppliers, and consumers in making informed decisions regarding engine selection, cost estimation, and performance trade-offs. This study highlights the significance of predictive analytics in enhancing cost-effectiveness and competitiveness within the automotive and mechanical engineering industries.

DIY Dremel CNC

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Due to the rapid growth of technology the usage & utilization of CNC machine in industries are increased. The fabrication of low-cost CNC machine is used to reduce cost and complexity of machine. This paper deals with the design of automatic mini- DIY DREMEL CNC machine for drilling, turning, facing by the students of mechanical and automation engineering from maharaja Agrasen institute of technology. The Idea behind our project is to design a low-cost CNC system the lower cost is achieved by incorporating features of PC with ATMEGA 328 controller in an Arduino. We have used an G code for whole system operation G code is nothing but a language in which people tell computerized machine tools “How to make something”. The How is defined by instructions on where to move & how fast to move.

Experimental Analysis of Free Piston Stirling Cooling System for Low Temperature Refrigerating Applications

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This paper presents an experimental investigation on the implementation of free piston Stirling system for low temperature refrigeration applications. An experimental test facility for the free piston Stirling cooling system has been designed and developed. The experiments were done for the cold head temperature of -40°C to -70°C , however the present test rig can reach upto -90°C and from the experiments it has been found that as the cold head temperature decreases from -40°C to -70°C , the power consumption increases from 75.54 W to 83.17 W, while the refrigeration capacity decreases from 153.69 W to 12.69 W. As expected, the COP of the system decreases from 2.03 to 0.15 with reducing refrigeration temperature. Present result shows that Implementing Stirling techniques-based cooling system can lead to enhanced energy efficiency and overall performance, contributing to the development of more sustainable cooling solutions.

To study the FMEA Tool to Enhance Quality and Efficiency of the Automobile

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Paper examines the effectiveness of Failure Mode and Effect Analysis (FMEA) in various industries, including manufacturing, wind turbine systems, and supply chain risk management. The study aims to identify and eliminate potential problems before they occur using FMEA. The manufacturing industry study shows that FMEA can identify factors that affect fuel consumption, resulting in a 16.40% decrease. The wind turbine systems study compares FMEA quantitative results with reliability field data to establish useful design relationships. The study also proposes a hybrid cost-FMEA by integrating cost factors to assess criticality. In supply chain risk management, the study reveals that FMEA is a powerful tool for proactive risk management. Overall, the study emphasizes the importance of using FMEA correctly with the correct team, parts, timeframe, and procedure to achieve effective results.

Design and Development of three stage vapor compression system for ultra-low temperature

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Present paper explores a novel three stage cascade refrigeration system designed for diverse temperature applications. The system is configured with three distinct circuits using different refrigerants: R290 in the Low-temperature circuit (LTC), R600a in the Medium-temperature circuit (MTC), and R32 in the High-temperature circuit (HTC). Each circuit is tailored to cover specific temperature ranges, from ambient conditions down to an ultra-low temperature of -55°C . The high-temperature circuit uses a reciprocating compressor for elevated temperature conditions, while the medium-temperature circuit uses another reciprocating compressor for the transition from -10°C to -30°C . The low-temperature circuit relies on a rotary compressor for the final stretch from -30°C to -55°C . The project introduces a unique approach by replacing conventional expansion valves with dual capillary tubes, improving control over refrigerant flow and enhancing system efficiency. An elaborate system thermocouples and pressure transducers is integrated to enable precise temperature and pressure measurements at critical points within each circuit. The research outcomes contribute to the broader field of refrigeration technology, emphasizing the potential for optimized cooling solutions across a wide spectrum of temperature requirements.

In conclusion, proposed system provides valuable insights into the efficiency, reliability, and adaptability of the three-stage cascade refrigeration system, contributing to the broader field of refrigeration technology with the calculation of cycle and experimental COP which comes out 0.55 and 0.232, respectively in the first Case, which is the highest COP in among all cases considered. Present result shows that implementing three stage cascade refrigeration system can lead to enhanced energy efficiency and overall performance, contributing to the development of more sustainable cooling solutions.

Studies to reduce friction and wear

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This study aims to utilize the graphite powder in the lubricating oil to enhance the tribological properties of the lubricating oil. The fine graphite powder was mixed in the SAE 15W40 lubricating oil using a magnetic stirrer and ultrasonicator. Three samples with varying concentration of the graphite were prepared and evaluated for the friction and wear properties using a linear tribometer. The experimental setup includes a pin-on-plate tribometer, where the pin specimen slides against a plate specimen under controlled conditions of load, sliding velocity, and temperature. Tests are conducted under different operating conditions to evaluate the effectiveness of the graphite-modified oil compared to the base 15W40 oil. The coefficient of friction between the pin and plate specimens in the presence of graphite mixed lubrication were analyzed to understand the influence of graphite on friction reduction and wear protection. These findings may contribute to the development of more efficient and durable lubricants for automotive applications, ultimately leading to reduced energy consumption and environmental impact

DUAL REDUCTION GEARBOX OF ALL TERRAIN VEHICLE

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A dual reduction gearbox plays a vital role in optimizing power transmission and torque delivery in an All-Terrain Vehicle (ATV), ensuring superior performance across challenging terrains. This study focuses on the design, analysis, and implementation of a compact and efficient dual reduction gearbox for BAJA SAEINDIA. The system utilizes primary and secondary gear reductions to enhance torque multiplication, improve traction, and maintain optimal speed ratios. Through CAD modeling and Finite Element Analysis (FEA), the gearbox is optimized for durability, efficiency, and minimal power losses. The final design enhances ATV drivability, ensuring a balance between speed and torque for off-road applications.

Vertical axis wind turbine

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A vertical axis wind turbine (VAWT) is a type of wind energy converter where the main rotor shaft is oriented vertically, as opposed to the more common horizontal axis wind turbines (HAWTs). This design offers several advantages, including the ability to capture wind from any direction without needing to be reoriented. VAWTs typically feature either a Darrieus or Savonius rotor, each with distinct aerodynamic properties. The Darrieus model is known for its high efficiency and is often used for large-scale applications, while the Savonius model, with its simpler, less efficient design, is typically used in low-power, small-scale setups. VAWTs are particularly suited for urban environments and areas with turbulent wind patterns, where the wind direction may shift frequently. Their compact and omnidirectional nature makes them easier to integrate into diverse landscapes. Additionally, the vertical orientation of the rotor allows for easier maintenance and repair, as the gearbox and generator are located closer to the ground. However, VAWTs face challenges, including lower efficiency compared to HAWTs, especially in optimal wind conditions. Ongoing research is focused on improving their aerodynamic performance, durability, and scalability. With advancements in design and materials, VAWTs hold promise for contributing to the global shift toward renewable energy sources, particularly in urban and offshore environments.

Study on Wear of Piston Rings

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The wear of piston rings is a critical factor influencing the performance, efficiency, and durability of internal combustion engines. This study investigates the mechanisms, contributing factors, and mitigation strategies associated with piston ring wear. Key wear mechanisms, including adhesive wear, abrasive wear, and corrosive wear, are analyzed in the context of dynamic engine conditions such as high temperatures, variable loads, and fluctuating lubrication regimes. The interplay between materials, surface finishes, and lubrication properties is explored to identify factors that accelerate wear.

Cutting brakes

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Cutting brakes improve an ATV's maneuverability by allowing independent braking of rear wheels, enabling sharper turns on rough terrain. This system selectively applies brake force to one wheel, reducing steering effort and enhancing control. Designed for BAJA SAEINDIA, the system is optimized for durability, responsiveness, and efficient integration with the drivetrain, improving overall vehicle handling in off-road conditions.

Enhancing National Logistics Policy using Radio Frequency Identification (RFID)

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This research explores the integration of Radio Frequency Identification (RFID) technology into National Logistics Policy, aiming to enhance supply chain efficiency. The study assesses RFID's impact on inventory management, transportation, and overall visibility in the logistics network. Real-world case studies and simulations are used to gauge effectiveness, while addressing challenges such as cost, and interoperability. The paper offers practical strategies for overcoming these hurdles, providing insights for policymakers and logistics stakeholders. The adoption of RFID promises to significantly improve traceability, reduce operational costs, and elevate national competitiveness in the global market. This research serves as a foundational guide for policymakers seeking to modernize logistics policies through RFID integration, offering a pathway to a more resilient and technologically advanced national logistics infrastructure. This study creates a new supply chain procedure utilizing RFID after thoroughly examining the variations in supply chain operations without RFID. The result creates a new supply chain procedure utilizing RFID after thoroughly examining the variations in supply chain operations without RFID.

Comparative Analysis of Low-Voltage High-Efficiency (LVHE) Heat Exchangers on Various Refrigerants in Simple Vapour Compression Refrigeration Systems: A Comprehensive Exergy and Energy Evaluation using EES Software

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The impact of using Low-Voltage High-Efficiency (LVHE) heat exchangers in straightforward vapour compression refrigeration (VCR) systems is thoroughly investigated in this study work, taking various refrigerants into account. Utilising the robust Energy Environment System (EES) software, the study's objective is to evaluate the energy and efficiency performance of the VCR system using LVHE. The research includes theoretical modelling, computer studies, and actual measurements, allowing for a thorough examination of the system's effectiveness and its effects on various refrigerants. The findings of this study will be helpful in boosting the energy performance and energy efficiency of VCR systems, which will help in the creation of more sustainable and effective refrigeration technologies.

Pneumatic sheet metal cutting machine

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Sheet metal is simply a metal formed into thin and flat pieces. It is one of the fundamental forms used in metal working and can be cut and bent into a variety of different shapes. Countless everyday objects are constructed of the material. Thicknesses can vary significantly, although extremely thin thicknesses are considered foil or leaf, and pieces thicker than 6 mm (0.25 in) are considered plate. Sheet metal is available in flat pieces or as a coiled strip. The coils are formed by running a continuous sheet of metal through a roll slitter. The thickness of the sheet metal is called its gauge. Commonly used steel sheet metal ranges from 30 gauge to about 8 gauge. The larger the gauge number, the thinner the metal. Gauge is measured in ferrous (iron based) metals while nonferrous metals such as aluminum or copper are designated differently; i.e., Copper is measured in thickness by ounce.

Experimental Performance Evaluation of Ice Slurry Refrigeration System using PG & EG Depressants

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The use of certain types of depressants is one of the primary contributors to global warming and ozone depletion, the demand for effective and sustainable cooling systems has increased the use of ice slurry as a promising substitute in a variety of applications. But there is still much work to be done to produce ice slurry effectively. To improve the formation of ice crystals, the process, and overall system effectiveness, this study report presents an experimental examination of a mechanical scraper ice slurry generator using ethylene glycol, and propylene glycol as depressants at three different percentages, namely 10%, 18%, and 25%. The study comprises the measurement of several parameters at various state points, such as mass flow rate, pressure, temperature, and enthalpy, as well as the computation of performance parameters, the link between slurry temperature and time, and a comparison of the system's coefficient of performance (COP) at various concentrations. In this study, a -14.8°C temperature was attained for a 25% volume-by-volume aqueous solution of ethylene glycol, representing the lowest temperature recorded on our system.

A Comprehensive Analysis Of Organic Rankine Cycle Using Different Organic Working Fluids

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The research provides an in-depth analysis of the Rankine Cycle and Organic Working Fluids, with a focus on the Organic Rankine Cycle (ORC) as a type of thermodynamic cycle in thermal engineering. The research explores the use of organic, high-molecular-mass fluids, allowing heat recovery from lower-temperature sources for conversion into useful work and electricity. The research also provides detailed information on different types of organic working fluids and their COP under various working conditions, presented with the aid of charts, tables, and numeric data. The findings of this research provide valuable insights for future applications of ORC technology in the context of sustainable energy generation and heat recovery.

Numerical study of flow behavior under varying Reynolds number for NACA 2412 airfoil

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The population of the world is growing every day. This is contributing to an increase in automobile use day by day. The rate of traffic accidents is likewise increasing. Numerous factors, such as brake failure, driving while intoxicated, applying the brakes late etc., which result in thousands of people dying every year. To reduce these dangers, an ultrasonic braking system has been developed. The ultrasonic transducer, ultrasonic receiver, Arduino UNOR3 board with microcontroller, DC motor, Relay, Transformer, Bridge Rectifier, Hydraulic Pump, Neodymium Magnets, Pulse Width Modulator, Reed Switch, Actuating Cylinder, Solenoid Valve and magnetic braking mechanism has been considered to make up the automatic braking system. In this technology, the front area of the car has an ultrasonic wave emitter that generates ultrasonic waves. Additionally, a receiver for ultrasonic waves that are reflected off the front of the car is positioned there. The microcontroller uses the detected pulse and send the signal to the solenoid valve which then actuate the magnetic brake using the hydraulic cylinder for safety purpose. This mechatronic system has been found well to reduce an accident. By this system, more accidents can be avoided, and more lives can be saved.

Lithium-ion Battery and its Second Life

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The era of Electric Vehicles (EV) has dawned. High-performance, low-cost automotive batteries are a key technology for successful electric vehicles. Lithium-ion batteries have increased energy density and improved battery performance. With the swift escalation in number of EVs, the world will soon face a threat from the potential waste of EV batteries if such batteries are not considered for secondary use before being discarded it can be a huge setback for the smoother transition toward electric vehicles.

DESIGN AND FABRICATION OF MAGNETIC BRAKING SYSTEM USING ARTIFICIAL INTELLIGENCE

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The population of the world is growing every day. This is contributing to an increase in automobile use day by day. The rate of traffic accidents is likewise increasing. Numerous factors, such as brake failure, driving while intoxicated, applying the brakes late etc., which result in thousands of people dying every year. To reduce these dangers, an ultrasonic braking system has been developed. The ultrasonic transducer, ultrasonic receiver, Arduino UNOR3 band with microcontroller, DC motor, Relay, Transformer, Bridge Rectifier, Hydraulic Pump, Neodymium Magnets, Pulse Width Modulator, Reed Switch, Actuating Cylinder, Solenoid Valve and magnetic braking mechanism has been considered to make up the automatic braking system. In this technology, the front area of the car has an ultrasonic wave emitter that generates ultrasonic waves. Additionally, a receiver for ultrasonic waves that are reflected off the front of the car is positioned there. The microcontroller uses the detected pulse and send the signal to the solenoid valve which then actuate the magnetic brake using the hydraulic cylinder for safety purpose. This mechatronic system has been found well to reduce an accident. By this system, more accidents can be avoided, and more lives can be saved.

Performance evaluation of vapour compression refrigeration system in heating and cooling mode assisted with IoT technology

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Heating and cooling strategy for vapour compression refrigeration cycle, has been encountered characterized by temperature and pressure limits. The theoretical model was established to analyse the performance indicators viz. Coefficient of performance (COP), exergy loss, exergy analysis, second law efficiencies also catering to different sets of refrigerants present in the market, these days. Also, with the advancement in the field of science and research, the search for the better is the growth, so taking all the different refrigerants and comparing on the basis of performance indicators too. Internet of things has been incorporated to make the controls easier and user friendly.

Manufacturing, Designing and Analysis of Custom Open Differential with Manual Locking Mechanism for all Terrain Vehicle

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In this research paper, we present the design and development of a custom open differential with a manual locking mechanism for an all-terrain vehicle (ATV). The differential is a critical component of an ATV that enables it to navigate through uneven terrains by distributing power to the wheels with traction. Our custom open differential is designed to provide improved off-road capabilities and enhanced handling while maintaining on-road drivability.

We begin by discussing the theory behind the operation of differentials and the need for a custom differential for an ATV. We then present the design considerations and the manufacturing process for the differential. We also describe the locking mechanism, which enables the differential to switch between an open and locked state, thus allowing the vehicle to negotiate challenging terrains.

Enablers of Sustainable Supply Chain Management: (Literature Review)

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Organisations are currently transitioning towards sustainable supply chains management (SSCM), thinking beyond economic benefit objectives, to solve the socioeconomic and environmental difficulties that their organisation is experiencing as a result of globalisation. More companies are devoted to the cause of sustainability in their supply chain due to restrictions from external sources and understanding of the potential rewards. Although difficult, there are important enablers that facilitate the transition to a sustainable supply chain. This study aims to identify and categorize the enablers that promote sustainable supply chain management.

Energy and Exergy analysis of R134A, R290 and R32 in vapour compression refrigeration system with liquid vapour

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This study presents an energy and exergy analysis of R134A, R290, and R32 refrigerants in a vapor compression cycle to assess their environmental impact and system performance. Parameters such as coefficient of performance(COP), exergy destruction, exergetic efficiency, and efficiency defects in the system are considered. The analysis compares the refrigerants' ozone depletion potential(ODP) and global warming potential(GWP), aiming to provide a comprehensive understanding of their performance. The study finds R290 to be a more suitable alternative to R134A than R32, showing higher exergetic efficiency and lower efficiency defects at condenser temperatures between 40°C and 55°C. The mathematical model used in the analysis is developed using Engineering Equation Solver(EES) software. This study offers an accurate assessment of the refrigerants' environmental impact while considering their effect on system performance.

Design and Fabrication of Automatic Screen Printing Machine

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Screen printing is a technique of applying pressure of a certain quantity of coloring agent into a specified surface to form a text and a lot of development is taken place. Screen printing has applications in commercial printing, fabric printing, advertisement & lot more. A lot of innovation has been done to automate screen printing machines, we have introduced an automatic screen printing machine for small and medium-scale industries, which uses stepper motors controlled by Arduino board. The screen printing is done automatically by moving the squeegee to and fro with the help of rack and pinion gears. The main objective is to create a machine that is portable, cost-effective, and automatic.

DIY Dremel CNC

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Due to the rapid growth of technology the usage & utilization of CNC machine in industries are increased. The fabrication of low-cost CNC machine is used to reduce cost and complexity of machine. This paper deals with the design of automatic mini- DIY DREMEL CNC machine for drilling, turning, facing by the students of mechanical and automation engineering from maharaja Agrasen institute of technology. The Idea behind our project is to design a low-cost CNC system the lower cost is achieved by incorporating features of PC with ATMEGA 328 controller in an Arduino. We have used an G code for whole system operation G code is nothing but a language in which people tell computerized machine tools “How to make something”. The How is defined by instructions on where to move & how fast to move.

Optimization of Machining during Turning Operation of Inconel 718 and Inconel 800 Using Textured tool

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In recent times Texturing of cutting tools has gained attention as an effective way to enhance various machining parameters and several other characteristics. However, the efficiency and effectiveness of these tools not only solely relies on the cutting regime but also the textured pattern or geometry employed. In the current research we aim to explore how different micro-textured patterns on the rake face of the cutting tool can influence the hard turning of selected Inconel 800 and Inconel 718 material. In total sixteen experiments were conducted involving different combinations of cutting speed, feed, and depth of cut as the primary factors with each having two levels. Further, Crater and Flank wear was analyzed for measuring and optimizing the machine performance. The above experimentation was then validated by taking SEM (Scanning Electron Microscopy) images which revealed a significant impact of texture in improving the microstructure and wear behavior of the tools compared to the plain tool bits, indicating the potential benefits of texturing to enhance the machining processes.

Designing of suspension of an All-terrain Vehicle while keeping the driver comfort in mind

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The assignment presented below aims to understand the fundamentals of suspension design for a Baja trophy truck or an all-terrain vehicle. The essential parameters were identified to model the suspension system, both front and rear of a Baja Buggy. The designing was performed using a multi-body dynamics software, MSC. ADAMS. The interrogations were made almost equivalent to real-time situations, which would enable the designer to benchmark. This will nurture the designer to redesign to meet the accuracy of the vehicles behavior to actual response of the vehicle while performing off road negotiations, which would result in enhanced performance.

Comparison and Selection of Steering Geometry for 4-Wheel Efficycle

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Steering geometries play a critical role in determining the handling, stability, and performance of a vehicle. Over the years, researchers and engineers have explored various steering geometries to optimize vehicle dynamics and improve driver control and safety. This paper provides an overview of steering geometries, including their history, evolution, and current state of research. We explore the various types of steering geometries, including Ackermann steering, Davis steering, anti-Ackermann steering, and their advantages and disadvantages. We discuss the underlying principles that govern steering geometry behavior, including kinematics, dynamics, and tire characteristics. Additionally, we examine the challenges and opportunities for research in steering geometries, including the integration of active steering systems, the optimization of geometries for specific vehicle types and applications, and the impact of emerging technologies on steering geometry design. The paper concludes with a discussion of the importance of steering geometries in improving vehicle handling and highlights the need for continued research in this area.

Design and Manufacturing of QUADCOPTER

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This research paper investigates the concept of Unmanned Aerial Vehicles (UAVs), commonly referred to as drones, providing a comprehensive exploration of their definition and substantial significance within diverse industries. The paper thoroughly examines the categorization of UAVs, encompassing fixed-wing, rotary-wing, and hybrid designs, elucidating their distinctive attributes and versatile applications. Furthermore, it critically analyzes the future prospects for UAVs, accentuating emergent trends and prospective technological advancements. The primary objective of this research is to augment the comprehension of UAVs and their potential transformative impact on industries, fostering an avenue for future research and development endeavours in this dynamic field.

Time series and sentiment analysis using machine learning powered algorithms and natural language processing

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The research uses financial news articles, social media data, and other textual sources to extract sentiment and relevant information using NLP techniques. These extracted sentiment and textual features are then included as inputs into the prediction models, improving their accuracy and predictive capabilities. The performance of each model is assessed using historical stock price data obtained from Yahoo Finance. The experimental results clearly show the effectiveness of sentiment analysis in forecasting stock price movements. Furthermore, the study conducts a comparison of various time series analysis models and deep learning architectures, highlighting their respective strengths and weaknesses in capturing temporal dependencies and patterns in stock price data. The insights gained from this research offer valuable guidance on combining sentiment analysis, time series analysis, and NLP for stock price prediction. The proposed methodologies and algorithms hold significant potential for assisting investors, traders, and financial analysts in making well-informed investment decisions and managing risks in the dynamic and volatile stock market.

3-D Printed Bionic Arm using Arduino & Electromyography

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The usage of bionic prosthetic arm has become highly prevalent in the recent times due to their increased functionality, cost- effectiveness and durability, compared to the traditional prosthetic arms. The involvement and contribution of additive manufacturing has proven to be of high significance in the sense that it has provided a way to achieve patient- specific precision in design. Also, high precision is being achieved in the functionality also using electromyography (EMG sensors) and Arduino-based control system interface, along with cost-effectiveness and considerable durability depending on the material. This research paper consists of the literature review highlighting the important factors involved in the bionic-arm, working and simulation, design and code and final conclusion of the entire research. As the research in this field continues, it is highly expected to improve and advance in technology and application, proving to be an apt solution for the amputated individuals.

CAE Analysis and Material Selection for Chassis of 4-Wheel Efficycle

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This research paper presents a comprehensive CAE (Computer-Aided Engineering) analysis of the chassis of a four-wheel hybrid vehicle. The objective of the study is to evaluate the structural performance and integrity of the chassis under various loading conditions. The chassis is a critical component that provides the necessary strength, stiffness, and durability to support the vehicle's weight and withstand external forces. The research findings have essential implications for the automotive industry in terms of enhancing the terms of vehicle safety.

Modelling and Analysis of a Twin Turbo V6 Engine

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Conventional materials like A2618 were widely used to make forged pistons in Autosport industry for a long time due to higher ductility, better fatigue life and excellent high temperature strength but was heavier and in turn noisier (when cold) than alternatives like A4032. This reason caused A2618 to be replaced by A4032 for making forged pistons for regular vehicles. A7075 also serves as an alternative to make forged connecting rods. In recent time AL-GHS have been seen as a future material for making forged high strength pistons, connecting rods and other components under high pressure and temperature.

Design and Optimization of Chassis and Drivetrain of Formula Student Vehicle

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This research paper aims to produce a clear idea about the types of Design and analysis to be run on a student formula chassis with the amount of load or G forces to be applied to it using Solid works software, to make sure that the driver is safe inside the cockpit. The overall scope of this project can be broken down into two objectives. The first objective of this report was to design, manufacture, and test a Formula SAE race car chassis; several factors will be taken into Account, including vehicle dynamics, chassis rigidity, component packaging, and overall manufacturing and performance. Design and optimize the chassis system considering aesthetics, ergonomics and giving utmost priority to the driver's safety. For the design procedure, we have taken references for various SAE research papers. The CAD file is entirely developed on Solid works 2020-21. Also, we have tried to use Ansys 2021 2D structural analysis. The fabrication is done in house using Jigs & Fixture tables. We have used the TIG and Arc welding machine for welding purposes. The material used in overall frame design is AISI 4130 chromium, molybdenum steel alloy for maximum strength to weight ratio. And in addition to that, it has great weldability.

Review of Dynamic wireless charging of electric vehicles

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Electric vehicles are seen as an alternative to resource scarcity. A practical and reliable way to charge electric vehicle batteries is very important to increase the use of electric vehicles in everyday life. Therefore, wireless power transfer (WPT) is being considered as a solution for charging batteries. In this project, a prototype wireless charging system with an operating frequency of 60 kHz has been designed and implemented. Plug-in electric vehicles (PEVs) are burdened with the need for cables and plug-in chargers, the galvanic isolation of on-board electronics, the space and cost of those chargers, and the large energy storage system (ESS) packages required. I am indebted. However, it uses the wireless charging feature of the wireless charging system. It offers customer comfort, inherent electrical isolation, line-side regulation, and reduced automotive ESS size with on-road dynamic charging. The main goal of our project is to design and develop a vehicle-grade antenna system that uses resonant magnetic coupling wireless power transfer technology for electric vehicle charging systems. Using WPT in electric vehicles ensures clean, convenient and safe driving. The heart of the WPT system is the primary and secondary coils.

Design and Manufacturing of Suspension and Steering System of a F3 Vehicle

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In this Project, we are designing a complete Suspension and steering system for a F3 vehicle which is a formula student vehicle which participates under various events such as SAE Supra, formula Imperial and so on. In this, use of software such as Solidworks, Lotus and Ansys is done for a complete cad designing force analysis and simulation of the system. Formula student rulebook [3] is used to stick to some basics and get a design idea. Design of suspension and steering system promotes a good quality ride for the driver, and for reference research paper [4] of IJMET was considered.. The objective of this paper is to conceive, design and fabricate a suspension and steering system using double wishbone suspension geometry and Ackerman steering geometry for better speed handling and cornering

Selection and CAE Analysis of Suspension System For 4-Wheel Efficycle

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This research paper aims to investigate the selection and computer-aided engineering (CAE) analysis of a suspension system for a vehicle. The suspension system is vital for the stability and handling of the vehicle, and its design and analysis are critical for obtaining peak performance. The study begins with an overview of suspension systems and their purposes, then moves on to a discussion of various suspension types and their applicability for four-wheeled efficycles. The study then focuses on the suspension system selection process, which takes into account aspects such as vehicle weight, driving conditions, and cost. The chosen suspension system is CAE-analyzed using Ansys software, with the goal of testing its performance under various loading and driving circumstances. CAE analysis covers static and dynamic assessments, as well as a durability study.

Manufacturing of Vertical Takeoff Landing Drone

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Based on VTOL DRONE UAV technology, this project. Although UAVs are mostly utilized for military activities, they also have qualities that make them useful to regular people. This project contains new aerodynamically designed vehicle parts for the wing, fuselage, driving system, advances in take-off and landing, ease of use, operating range, and study of parts affected by wind disturbance, altitude, and power needs. to maximize the use of torque for lift generation and reduce wind disturbance loss by optimizing the angle of attack of the wings and the tilt angle of the propeller. Calculations take into account factors such as the amount of thrust needed to provide the required lift force, how much power is lost as a result of drag and weight, the type of drive system needed, and the maximum flying time per charge. Software utilized for both design and analysis is CAD (Solid Works) and CAE (Ansys). The major goals of the project are to shorten the runway, make it simple for UAVs to take off and land on any surface, and maximize the use of torque. VTOL DRONE, UAV, Autocad, Ansys, Solidworks, Airfoil, Flow analysis are some of the keywords.

Theoretical Evaluation of Vapor compression refrigeration cycle with integrated mechanical subcooling

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In this paper, the vapor compression refrigeration system with integrated mechanical subcooling is analyzed. With the increasing power demand of VCRS cycle the need for its cop improvement has increased. To reduce its power requirement the subcooling is studied theoretically. The theoretical analysis is done on Engineering equation solver software. Different variations are plotted using the software and reasons are stated for different variations. Different optimization techniques are used for optimizing the system variables. The variables optimized include evaporator temperature, condenser temperature, subcooling temperature and overlap temperature. The cop is found to increase by 3.5%. The optimization algorithm used is gradient search method. The results will be used for industry to improve the refrigeration systems.

Design and Development of Vapor compression refrigeration system with Dedicated mechanical subcooling

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As the report have the benefits and drawbacks of the system. It is known that in countries like India, the demand for the high-grade energy is growing continuously. the cost of the electricity is also going up with its demand[3] Many researchers have proved that the mechanically sub-cooling of vapor compression refrigeration (VCR) cycle improves its performance. Zubair et al [4] et al have investigated a dedicated and an integrated mechanical sub-cooling system from the thermodynamic standpoint. In these studies, it was found that the system performance improved when operating in situations where the difference between the condensing and evaporating temperatures is large. The improvement of 6-8% in the coefficient of performance (COP) and 20- 170% in the capacity over simple cycle. using the sub-cooling, the second-law efficiency of the cycle increased by 21% and this percentage is directly proportional to the ambient temperature.

Design and Analysis of Arduino based Solar Tracking System for PV

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The importance of natural energy sources as an alternative to conventional energy sources has grown significantly as a result of rising energy demand and environmental concerns. With the enormous potential it offers environmentally and economically, the renewable energy sector is quickly gaining ground as a new growth area for many nations. Particularly for rural areas, solar energy is crucial as a key source of energy.

The main purpose of this research is to develop and evaluate a solar tracking system which able to maximize the power output of the solar panel. The design of the solar tracking system consists of some electronic components such as an Arduino Uno R3 microcontroller, four light-dependent resistors (LDRs), two servo motors, and one solar panel. A light-dependent resistor is used as a light sensor to detect sunlight, the Arduino microcontroller serves as the system's primary controller, and the servo motor rotates the solar panel so that it faces the sun. The solar tracking system prototype was constructed and put to the test. The data results are collated, and a graphical method is used to compare the performance of a static solar panel with a solar tracking system. As a result, tracking solar panels are able to produce greater current, voltage, and power than stationary solar panels. After the tracking system was put in place, the solar panel's total efficiency rose.

Study of design issues in MTO and MTS systems in Automobile sector

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Today's manufacturing companies must be able to react swiftly to the needs of their clients in order to succeed in the age of fierce competition, particularly in the automotive industry. These consumer demands must be met with the least amount of money spent on manufacturing, the shortest possible lead time for product launch, and superior performance compared to current market competitors. This study aims to identify design issues that an automobile company can encounter while adopting Make To Stock (MTS) or Make To Order (MTO) strategies. The review identified factors like Base Stock Level, Inventory and production policy, Inventory cost, admission control decisions, scheduling, sequencing decisions and lead times. Careful planning and execution of these problems enables the producer to focus on implementing either MTS or MTO in automobile sector.

Development of IoT based Air Conditioning Trainer Assisted with Four Way Reverse Valve

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With the cost of gas increasing day by day and the switch to renewable sources of electricity becoming more viable, the need for a system which works as an air conditioner round the year is needed. Therefore, the solution to this problem is to design a single unit which works as an air conditioner in summers and as a heater in winters, while being energy efficient. Electric resistance heaters are expensive as well as consume more power, increasing operational costs. To overcome this problem a single unit is designed which performs round a year and is cost effective. This device is suitable for its functionality as per the climate of India. The major component which helps in gathering the data for predictive maintenance and remote control through smartphones is Internet of Things (IOT). By establishing a connection between the air conditioner to the internet and web servers, it is possible to remotely control and monitor the device, as well as automate certain functions.

Fabrication of Micro Textures using Aluminium and Copper tool Electrode by EDM

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There is a growing demand for industrial products not only with an increased number of functions but also with reduced dimensions. Since the miniaturization of industrial products had been the trend of technological development, micro-machining is expected to play an increasingly important role in today's manufacturing technology. Micro-machining based on lithography has many disadvantages unlike tool-based micro-machining technology such as micro-turning, micro-grinding, micro-EDM and micro-ECM have many advantages in productivity, efficiency, flexibility and cost-effectiveness. Micro-machining is the most basic technology to produce such miniaturized parts and Micro-textures. In the current study an attempt has been made to develop tool electrode using Aluminium and copper material and check the feasibility of using them for creating micro textures on surface using EDM process.

Tribological Study of 3D Printed Materials

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This research paper presents an original investigation into the fabrication of 3D-printed pins using three different materials: PLA, TPU, and PETG. The study encompasses the manipulation of various parameters, including temperature, speed, and infill geometry, to fabricate the pins. Subsequently, the pins underwent a comprehensive roughness test to assess their surface characteristics. Additionally, a wear test using a pin-on-disk setup was conducted to compare the wearing behavior of the materials manufactured under different parameters, and a toughness test to compare the stress-bearing capacity of the materials.

Multiple sets of pins were produced, varying the printing parameters such as temperature, speed, and infill geometry. Following the fabrication, the pins were subjected to a rigorous roughness test to quantitatively analyze their surface roughness. This examination aimed to evaluate the suitability of the fabricated pins for applications that require precise surface finishes.

Future Green Vehicle

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A green vehicle or clean vehicle or eco-friendly vehicle or road motor vehicle that produces less harmful impacts to the environment than comparable conventional internal combustion engine vehicles running on gasoline or diesel, or one that uses certain alternative fuels. Green vehicles can be powered by alternative fuels and advanced vehicle technologies and include hybrid electric vehicles, plug-in hybrid electric vehicles, battery electric vehicles, compressed – air vehicles, hydrogen and fuel cell vehicles. The trend is now shifting towards introducing renewable energy sources in cars, including sound, solar, and wind energy. The energy from the sun can be captured via photovoltaic panels to charge the vehicle's battery, while the wind can turn a turbine to power the car. The sound energy through the use of piezoelectric materials, and pneumatic pressure can recharge the battery while the car is in motion. Owing to the growing concern for preserving the environment, it is necessary to have vehicles that do not require fossil fuel. Thus, developing a vehicle that can utilize several renewable energy sources to charge the battery is the way forward

Analysis of Interdependencies of the Factors Affecting the Service Performance of An Organization

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The growth of the service sector is often driven by factors such as technological advancements, changing consumer preferences, globalization, and the increasing importance of knowledge-based and information-intensive activities in the modern economy. Service providers strive to deliver high-quality services, build customer relationships, and innovate to remain competitive in today's dynamic business environment. The service sector also faces challenges such as the need to adapt to changing technologies, changing regulatory environments, and addressing issues related to labor and human resources.

FEA of Stress Distribution for Second Molar Dental Crown

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There is a growing demand in the dental implant sector which aims to recreate the exact function and appearance of natural teeth, including strength, textures, and seamless blending with nearby teeth. Therefore, choosing the best crown material is a vital and challenging decision. To address this challenge, current study employs a comprehensive approach using Finite Element Analysis (FEA) on a 3-D CAD model. The stress analysis was carried out on three different crown materials - commercially pure Titanium (cp Ti), Zirconia (ZR), and Lithium Disilicate (LD) and compared their performance with that of human tooth material. The computational analysis results reveal that the pure Titanium (cp Ti) crown has shown the least deformation while the LD crown has showed the highest deformation under same loading conditions. When maximum stress is compared, Titanium showed the highest value, followed by Zirconia, whereas Lithium Disilicate (LD) demonstrated stress and deformation levels comparable to those of natural teeth.

Overview and Research Application of Nanozymes in the Environmental and Medical Field

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Nanozymes are just nanomaterials with enzyme-like properties and are considered as next generation artificial enzymes. They possess various activities like peroxidase-like activities, oxidase-like activities, catalase-like activities, superoxide dismutase-like activities, hydrolase-like activities, and multi-enzyme-mimicking activities. The development of nanozymes and their various important uses and applications is a hot and evolving topic in recent years. Emerging applications of nanozymes in environmental analysis have been reviewed. Emphasis has been put on the nanozyme-based strategies for typical pollutant sensing. Modern trends for nanozymes in future environmental monitoring have been discussed. Since they can show both the catalytic characteristics of enzymes and the features of nanoscale materials, nanozymes are evolving rapidly. As compared with natural enzymes, nanozymes have better stability and can be mass-produced conveniently and at a lower cost. In addition, and more importantly, their properties can be easily designed and tailored for various demands. Due to these advantages and merits, they have found extensive applications in sensing, biomedicine, and environmental treatment. We have presented a comprehensive summary of the emerging use of nanozymes in environmental analysis with emphasis and focus on the nanozyme-based principles and strategies explored for the sensing of toxic ions, pesticides, phenolic pollutants, antibiotic residues, and pathogens. The wide applications of nanozymes in curing diseases, biosensing, and bioimaging are discussed. Their potential and trends in future environmental monitoring have also been discussed. They should be useful to the researchers and designing engineers engaged in this rapidly evolving field to choose the subtopic of their research and for developing the devices using nanozymes.

Tribological analysis of a *Prunus armeniaca* biolubricant under various temperature conditions and its performance in the field of Journal Bearing.

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Mineral oil-based lubricants have increased concerns regarding environmental damage, creating an increasing trend of promoting biolubricants based on either vegetable oil or animal oil. The presented work used Apricot kernel oil (*Prunus armeniaca*) as a base oil to synthesize biolubricant through a chemical process named Transesterification. The presented work has two parts: Tribological analysis of blends of Biolubricant and 15W40 oil on a High Temperature Tribometer with Ball-on-Disc configuration under different Temperature conditions; and performance analysis of prepared biolubricant in the field of Journal Bearing. Also, the Fourier Transform Infrared (FTIR) Spectroscopy was conducted to determine the organic components present in the prepared biolubricant. The performance of biolubricant is compared with the commercially available 15W40 oil. From the experimental results of tribometer, it is found that an optimal blend of both the lubricants provides better tribological performance compared to individual content of the blend. Also, from the results of Journal bearing test rig, it is observed that the maximum pressure and load carrying capacity of prepared biolubricant increases with the increase in journal speed.

Effect of Hybrid Nano Additives on Assessment of Biofuel in Diesel Engine

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Humanity has been compelled to contemplate numerous alternative fuels due to the increasing demand and cost of petroleum based products. Numerous experimental studies on alternative fuels in diesel engines have shown that biodiesel, a popular alternative fuel, can significantly reduce emissions and improve performance. The addition of nano-additives to diesel-biodiesel fuel mixtures has also shown significant results, enhancing the biofuel's properties and decreasing emissions. This study examines the effects of nano additives on the performance and emissions of CI engines. This study looks at how the performance and emissions of CI engines are affected by hybrid nano additives, particularly Al₂O₃-TiO₂ and Al₂O₃-Graphene. D70B20But10 + Al₂O₃-TiO₂ (1:1), D70B20But10 + Al₂O₃-TiO₂ (2:1), D70B20But10 + Al₂O₃-G (1:1), and D70B20But10 + Al₂O₃-G (2:2) were the four blends that were tested. The mixes of Al₂O₃-TiO₂ (1:2) and Al₂O₃-Graphene (1:1) gave the greatest results in terms of braking thermal efficiency and specific fuel consumption. These hybrid nano additives decreased NO_x, CO, and hydrocarbon emissions. With variations of 2.22 percent and 3.25%, respectively, the blends D70B20But10+Al₂O₃-Graphene (1:1) and D70B20But10+Al₂O₃-TiO₂ (1:1) exhibited the greatest BTE values when compared to diesel. CO emissions were 15% lower with both mixes. The mix D70B20But10+Al₂O₃-TiO₂ (1:2) had the lowest HC emission decrease at all loads (20%).

Study on the Tribological and Physiochemical properties of Algae oil as a sustainable green lubricant

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Lubricants are substances that minimize wear and friction for optimal performance and lower the likelihood of malfunctions. Over 95% of lubricants used today are made of non-renewable petroleum, which is being depleted and emitting emissions that are bad for the environment and people's health. The greatest substitutes are biolubricants, whose primary sources include edible and inedible oils that are generated from lipids and carbohydrates found in various animals, plants, and microbe sources, with the exception of Algae. An eco-friendly and sustainable resource for green lubricants, microalgae oil is vital to the lubricant business. Microalgae are photoautotrophs, meaning they grow quickly and can be grown multiple times a year with less energy needed. Because microalgae do not require agricultural land or climatic conditions to develop, they may also be produced in wastewater and saltwater. As a result, their production costs are also lower. Microalgae has exceptional chemical compositions, including significant levels of lipids, hydrocarbons, polysaccharides, and gelling properties. Microalgae are suitable for lubrication because they contain high amounts of saturated, mono-unsaturated, and polyunsaturated fatty acids, which give algae their good tribological, physiochemical, and rheological qualities and minimize friction.

Lessons learned from COVID-19 Pandemic and its Devastating Effects on the Hospitality/Service industry: Qualitative Data Analysis from Indian Viewpoint

Sankalp Mathura, Anshika Goyala, Achintya Bansala, Ansh Chawlaa, Sonal Khuranaa, Vanita Bhardwaja, Lakshika Chutania

VIPS-TC, Delhi

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Physical health illness has become the topic of discussion in every home but the issue of mental health illness is not given that much importance. Therefore, the present research aims to discuss the mental health illness caused due to the pandemic taking into account the hospitality/service industry of India. This research has coined five major themes by performing Qualitative Data Analysis (QDA) using NVIVO 12 software based on which a conceptual model is proposed. The model discusses the challenges and the solutions to deal with the twin problem of COVID-19 and mental health to alleviate the pain of people. The present research can become the basis for providing recommendations to governmental policy-makers, managers and society as a whole to support people in distress and to ensure that care is provided to people suffering from mental illness because failure in considering mental wellbeing seriously would lead to long term social and economic costs to the society.

Review of Applications and Challenges in adoption of Industry 4.0 in Agriculture sector

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The technological improvement of agricultural equipment and tools is a continuous process. The past three industrial revolutions have changed the agriculture sector from conventional farming to technology-based farming. In the digital era, the fourth agriculture revolution is expected to transform the Indian agriculture industry with the efficient use of digital technology and applications. This paper presents a analysis of the current situation of Indian agriculture and the agricultural revolution that has taken place recently. A review of Industry 4.0 was conducted for deep understanding of the context and provide an account of industry 4.0 applications in agriculture sector and challenges pertaining to adoption of industry 4.0 with opportunities and challenges for research in this area

Comprehensive analysis of clean mobility technologies, sustainability evaluation, pathways, and policies for transitioning energy markets for sustainable development

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Sustainable development in underprivileged zones is still a “global challenge” owing to “trade-offs” between improvement and preservation. Sustainability is crucial for creating a sustainable environment that can support future generations. This paper provides an in-depth review of the concept and explores strategies to achieve sustainability. It emphasizes the importance of adopting multidisciplinary research approaches and highlights vital areas. This paper introduces the importance of sustainable practices to create a better future for our planet. The present study highlights clean mobility technologies, sustainability evaluation, and pathways and policies for transitioning energy markets that show how we can maintain and improve the environment by adopting sustainable practices.

Determination of Minimum Energy Consumption of an Industrial Reverse Osmosis (RO) Desalination System

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**2School of Technology, Pandit Deendayal Energy University,
Gandhinagar, India**

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In this work, minimum energy consumption is found for industrial RO desalination system using Cerci and Gibbs free energy approaches. The plant uses groundwater of salinities, 800-1000 ppm and produces purified water, having zero salinity. The properties of incoming water are modelled as ideal solution of salt and water. For Cerci approach, input parameters are, salinities of incoming, outgoing water, recovery ratio. A mathematical model is developed in Engineering Equation Solver (EES), dataset reported in literature is used and model is validated with published results. Minimum separation work is found for incoming water, salinities, 800-1000 ppm, recovery ratios from 0.2-0.95. In Gibbs free energy approach, input parameters are, salinity, density, molarity and temperature. A mathematical model is developed in EES, dataset reported in literature is used and model is validated with published results. In Gibbs free energy approach, minimum energy consumption is found using input parameters collected from plant, also with temperature variation, 15-55°C. The results indicate that minimum energy consumption increases with increase in salinity of incoming water, decrease in salinity of outgoing water, increase in recovery ratio and increases with increase in temperature of incoming water. Hence, temperature of incoming water may be kept low to save energy.

Driving Towards the Future: A Comprehensive Analysis of Plasma Thruster Developments

Ansh Chawla, Achintya Bansal, Anshika Goyal, Sankalp Mathur, Sonal Khurana, Lakshika Chautani, Vanita Bhardwaj
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Ion thrusters have established themselves as a reliable and effective replacement for traditional propulsion systems. Even though they create a significantly less thrust than chemical propulsion systems, ion thrusters may readily compete because of their extremely high specific impulse output and very low fuel consumption. The system is applicable to a wide range of mission requirements, including multi-goal missions, orbit and attitude controlling, and orbit station keeping for geostationary satellites. Even though chemical propulsion is a poor choice for deep space missions, ion thrusters are enabling missions to travel ten times farther into deep space. The aim of this paper is to provide a concise overview of electric propulsion technologies, concentrating on the development and functionality of the Ion Thruster.

Some Glimpses of ICGTS 2024



ICGTS 2024





ICGTS 2024





Maharaja Agrasen Institute of Technology

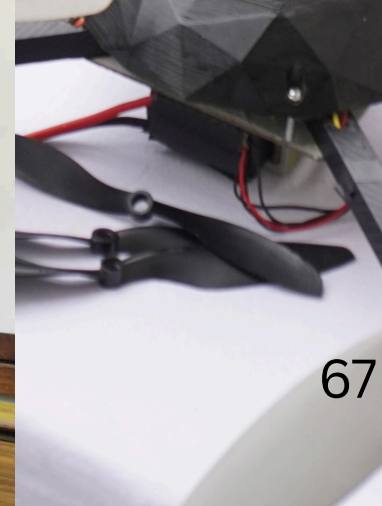
1st International Conference on Green Technology and Sustainability 2024 (ICGTS-2024)
30th - 31st January 2024

Organised by
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MAHARAJA AGRASEN INSTITUTE OF TECHNOLOGY ORGANIZED 1ST INTERNATIONAL CONFERENCE ON GREEN TECHNOLOGY AND SUSTAINABILITY



New Delhi . Maharaja Agrasen Institute of Technology (MAIT), in collaboration with NIT Delhi, University of Veracruz Mexico, and IGDТУW Delhi inaugurated the 1st International Conference on Green Technology and

Faridabad; Dr. Leeladhar Nagdev from NIT Delhi, and Dr. Amit Sharma from DCRUST Murthal were also present. The conference received proud sponsorship from DRDO, India, underscoring the significance and heading for efforts



pertinent issues related to green technologies and sustainability. Notable speakers included Prof. Prem Vrat, Dr. Sanjay Sengupta from CSIR Delhi, Prof. David NV from UiTM Malaysia, Ms.

pressing environmental challenges. In recognition of outstanding contributions, 4 best papers and 3 best poster presentations were awarded during the conference, highlighting exemplary

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2018

बुलंद आटाज सच्चाई के साथ

कृषा पृष्ठ 4

अनन्य, लक्ष्यक और उद्योग से ताकतिक प्रकृति

इंस्टीट्यूट ऑफ टेक्नोलॉजी (एमएआईटी) दिल्ली में टेनेबिलिटी पर प्रथम अन्तर्राष्ट्रीय कांफ्रेंस का आयोजन

पक और मुख्य (र. मेट्स), ई. आर. के. वाईस चेयरमैन, मेट्स), नीश गुप्ता (सेक्रेटरी, प्रो. नीलम शर्मा (एमएआईटी), प्रो. एस. देसवाल (डीन कस, एमएआईटी), प्रो. गुप्ता (डीन रिसर्च एंड न, एमएआईटी), र एस. के. कक्कड़ (सीडीसी, ईटी) और अन्य प्रतिष्ठित ने सम्मेलन का उद्घाटन इस अवसर पर प्रतिष्ठित के उल्लेखनीय प्रतिनिधि टीवू दिल्ली से प्रो. राजीव प्रो. रंगनाथ एम. सिंघारी डॉ. अनिल कुमार; डी. वी. वेंकटरु दिल्ली से प्रो. र. चोहान, प्रो. ओ. के.

सिंह और प्रो. मनोज सोनी; डीएसटी से डॉ. गौरव अग्रवाल; डीएसटीवू दिल्ली से डॉ. अनुराग दीक्षित और डॉ. रिशू शर्मा; जेसीबीवूएसटी फरीदाबाद से प्रो. अरविंद गुप्ता; एनआईटी दिल्ली से डॉ. लीलाधर नागदेव और डीसीआरवूएसटी से डॉ. अमित शर्मा भी उपस्थित थे। सम्मेलन को डीआरडीओ, भारत से गौरवपूर्ण प्रायोजन प्राप्त हुआ, जो ग्रीन टेक्नोलॉजी एंड सस्टेनेबिलिटी में प्रगति को बढ़ावा देने के प्रयासों के महत्व और समर्थन को रेखांकित करता है। डॉ. एन. के. गर्ग ने मैकेनिकल इंजीनियरिंग शाखा के महत्व पर प्रकाश डालते हुए भविष्य के लिए सतत प्रौद्योगिकियों को आकार देने में इसकी महत्वपूर्ण भूमिका पर जोर देते हुए सभी को संबोधित

किया। उन्होंने उपस्थित लोगों से आग्रह किया कि रसकारात्मक परिवर्तनों के लिए उत्प्रेरक बनें। सकारात्मक परिवर्तनों के लिए सोशल मीडिया का उपयोग शिक्षाविदों द्वारा सक्रिय रूप से किया जाना चाहिए। कांफ्रेंस को पर्याप्त प्रतिक्रिया मिली, जिसमें कुल 151 पेपर विचारार्थ प्रस्तुत किये गये। गहन चयन प्रक्रिया के बाद, तकनीकी सत्रों के लिए 63 पेपर चुने गए और पोस्टर सत्र के लिए 38 पेपर चुने गए, जो ग्रीन टेक्नोलॉजी एंड सस्टेनेबिलिटी के क्षेत्र में अनुसंधान की उच्च गुणवत्ता और प्रासंगिकता को दर्शाते हैं। आईसीजीटीएस 2024 के संयोजक डॉ. वैभव जैन ने सम्मेलन के महत्व और संचालित लाभों पर प्रकाश डालते हुए एक

व्यावहारिक भाषण दिया। सम्मेलन में चार पूर्ण सत्र आयोजित। गए, जहां प्रसिद्ध सम्मानित राष्ट्रीय और अंतर्राष्ट्रीय वक्ताओं ने ग्रीन टेक्नोलॉजीज सस्टेनेबिलिटी से संबंधित प्रासंगिक मुद्दों पर अविशेषज्ञता और अंतर्दृष्टि की। उल्लेखनीय वक्ताओं में प्रेम व्रत, सीएसआईआर दिल्ली डॉ. संजय सेनगुप्ता, यूआईटी मलेशिया से प्रो. डेविड एन शेरविन विलियम्स से सुश्री रो बर्नास्कोनी और वेराक्रुज मेक्सिको विश्वविद्यालय प्रोफेसर डारियो कोलोराडो में शामिल थे। इसके अतिरिक्त, तकनीकी सत्र और एक पोस्टर ने अकादमिक और उद्योग शोधकर्ताओं को अपने अनुसंधान प्रयासों को प्रद

दिल्ली टॉक्स

हिन्दी साप्ताहिक

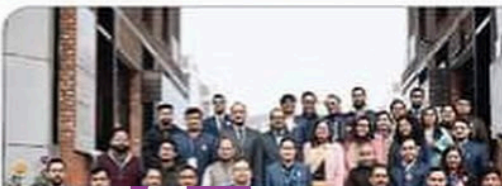
महाराजा अग्रसेन इंस्टीट्यूट ऑफ टेक्नोलॉजी में ग्रीन टेक्नोलॉजी एंड सस्टेनेबिलिटी पर पहली अन्तर्राष्ट्रीय सम्मेलन



प्रक्रिया के बाद, तकनीकी गण, और पोस्टर सत्र के दौरान टेक्नोलॉजी एंड सस्टेनेबिलिटी पर पहली अन्तर्राष्ट्रीय सम्मेलन का आयोजन किया गया। सम्मेलन में शामिल हुए, जहाँ प्रसिद्ध संगठनों अन्तर्राष्ट्रीय वक्ताओं ने सस्टेनेबिलिटी से संबंधित विशेषज्ञता और अंतर्दृष्टि वक्ताओं में प्रो. प्रेम व्रत, डॉ. संजय सेनगुप्ता, यू. डेविड एन सी, शेरविन। बर्नास्कोनी और बेराकोज से प्रोफेसर डारियो को इसके अतिरिक्त, छह पोस्टर सत्र ने अक शोधकर्ताओं को अ प्रयासों को प्रदर्शित चुनौतियों पर विचारों:

महाराजा अग्रसेन इंस्टीट्यूट एनआईटी दिल्ली, वेराक्रुज (मैक्सिको) और आईजीटीयूडीयू डिल्ली (भारत) के बीच 10 जनवरी को ग्रीन टेक्नोलॉजी एंड सस्टेनेबिलिटी-2024 पर अंतर्राष्ट्रीय कॉन्फ्रेंस का आयोजन किया। एमएआईटी

रिजू शर्मा, प्रो. अरविंद गुप्ता, डॉ. लीलाधर नागदेव, डॉ. अमित शर्मा उपस्थित थे। सम्मेलन को डीआरडीओ, भारत से गौरवपूर्ण प्रायोजन प्राप्त हुआ, जो ग्रीन



International Peace Time

Daily Hindi/English Newspaper

Issue : 23 04 to 10 February, 2024 Pages : 12 Delhi (Editor : Dr. Ramesh Kumar Passi)

Maharaja Agrasen Institute of Technology NIT Delhi

MAIT), in collaboration with NIT Delhi, of Veracruz Mexico, and IGDТУW Delhi the 1st International Conference on Green and Sustainability-2024 (ICGS 2024) on Feb 10, 2024. The two-day event, held at the institute, witnessed the enthusiastic participation of scholars and professionals from various institutions across the world. Distinguished speakers including Emeritus Prof. Prem Vrat (IIT Delhi), Dr. N K Garg (Founder and Chief Advisor,

DESU Delhi; Prof. Arvind Gupta from JCBUST Faridabad; Dr. Leeladhar Nagdeve from NIT Delhi, and Dr. Amit Sharma from DCRUST Murthal were also present. The conference received proud sponsorship from DRDO, India, underscoring the significance and backing for efforts promoting progress in green technologies and sustainability. Dr. N K Garg addressed the gathering by highlighting the importance of the mechanical engineering branch, emphasizing its pivotal role in shaping sustainable technologies for the future. He urged attendees to "Be a catalyst to the positive

distinguished national and international speakers from renowned organizations shared their expertise and insights on pertinent issues related to green technologies and sustainability. Distinguished speakers included Prof. Prem Vrat, Dr. Sanja from CSIR Delhi, Prof. David NV from IITM, Ms. Roberta Bernasconi from Sherwin Wilton, Prof. Dario Colorado Garrido from the University of Veracruz Mexico. Additionally, six technical sessions and a poster session provided a platform for researchers from academia and industries to



R.K. Gupta (Vice Chairman, MATES), Sh. Neelam (Secretary, MATES), Prof. Neelam (Secretary, MAIT), Prof. S S Deswal (Dean MAIT), Prof. Sachin Gupta (Dean Research MAIT), Brig. S K Kakar (Director CDC, MAIT), other esteemed figures inaugurated the

changes. Use of social media for positive changes must be actively undertaken by educationalists. The conference received substantial response, with a total of 151 papers submitted for consideration. After an intensive selection procedure, 63 papers were chosen for technical sessions, and 38 papers were selected for

their innovative research endeavours and ideas on pressing environmental challenges. The conference also provided recognition of outstanding contributions, with 41 and 3 best poster presentations were awarded during the conference, highlighting exemplary research and innovation in the domain. The conference co

महाराजा अग्रसेन इंस्टीट्यूट ऑफ टेक्नोलॉजी (एमएआईटी) दिल्ली में ग्रीन टेक्नोलॉजी एंड सस्टेनेबिलिटी पर प्रथम अन्तर्राष्ट्रीय कांफ्रेंस का आयोजन हुआ



संवाददाता
नई दिल्ली। महाराजा अग्रसेन इंस्टीट्यूट ऑफ टेक्नोलॉजी (एमएआईटी) एनआईटी दिल्ली, वेराक्रुज मेक्सिको एश्वविद्यालय और आईजीडीटीयूडब्ल्यूएल्ली के सहयोग से 30 जनवरी, 2024 में ग्रीन टेक्नोलॉजी एंड सस्टेनेबिलिटी-2024 (आईसीजीटीएस 2024) पर अंतर्राष्ट्रीय कांफ्रेंस का आयोजन किया। एमएआईटी के विभिन्न प्रतिष्ठित शिक्षक विद्वानों और प्रमुख गीदारी देखी गई। एमरिटस प्रो. प्रेम (ल्ली), डॉ. एन. के. खय सलाहकार, मेडस वार्डस चेयरमैन, मेडस सेक्रेटरी, मेडस),

(डायरेक्टर, एमएआईटी), प्रो. एस. एस. देसवाल (डीन एकेडेमिक्स, एमएआईटी), प्रो. सचिन गुप्ता (डीन रिसर्च एंड इनोवेशन, एमएआईटी), ब्रिगडियर एस. के. कक्कड़ (डायरेक्टर सीडीसी, एमएआईटी) और अन्य प्रतिष्ठित व्यक्तियों ने सम्मेलन का उद्घाटन किया। इस अवसर पर प्रतिष्ठित संस्थानों के उल्लेखनीय प्रतिनिधि जैसे

भारत से गौरवपूर्ण प्रायोजन प्राप्त हुआ, जो ग्रीन टेक्नोलॉजी एंड सस्टेनेबिलिटी में प्रगति को बढ़ावा देने के प्रयासों के महत्व और समर्थन को रेखांकित करता है। डॉ. एन. के. गर्ग ने मैकेनिकल इंजीनियरिंग शाखा के महत्व पर प्रकाश डालते हुए भविष्य के लिए सतत प्रौद्योगिकियों को आकार देने में इसकी

जो ग्रीन टेक्नोलॉजी एंड सस्टेनेबिलिटी के क्षेत्र में अनुसंधान की उच्च गुणवत्ता और प्रासंगिकता को दर्शाते हैं। आईसीजीटीएस 2024 के संयोजक डॉ. वैभव जैन ने सम्मेलन के महत्व और संभावित लाभों पर प्रकाश डालते हुए एक व्यावहारिक भाषण दिया। सम्मेलन में चार पूर्ण सत्र आयोजित किए गए, जहाँ प्रसिद्ध संगठनों के सम्मानित

एक पोस्टर सत्र ने अकादमिक और उद्योग के शोधकर्ताओं को अपने अभिन-अनुसंधान प्रयासों को प्रदर्शित करने के पर्यावरणीय चुनौतियों पर विचारों का आदान-प्रदान करने के लिए एक मंच प्रदान किया। उल्लेख योगदान की मान्यता सम्मेलन के दौरान 4 सर्वश्रेष्ठ पेपर और

विद्वानों को सम्मानित किया गया। अंतर्राष्ट्रीय अनुसंधान का प्रकाश डालते हैं। 2024 के संयोजक ने धन्यवाद प्रस्ताव दिए। 2024 को प्रदान करने में अमूल्य योगदान प्रतिभागियों, वक्ताओं और आयोजकों के प्रति आभार व्यक्त करके सम्मेलन सकारात्मक लक्ष

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day program organized at MAIT can



conference. It featured four p where distinguisht international sp from renowned shared their insights on p related to gree and sustainab speakers includ Vrat, Dr. Sanjay CSIR Delhi, Prof. UiTM Malaysia, Bernasconi fr Williams, and Colorado Garri University of V Additionally, sessions and a provided a researchers from industries to s innovative resea and exchange id environmental recognition of contributions, 4 | 3 best poster pre awarded during highlighting exe and innovati domain. The concluded on i with Prof. Ve Convener of delivering the vo expressing gra participants, spe and organizer invaluable cor making ICGTS 20 success.



Academics, MAIT), Prof. Sachin Gupta (Dean Research & Innovation, MAIT), Brig. S K Kakar (Director CDC, MAIT), and other esteemed figures inaugurated the conference. Notable representatives from renowned institutions such as Prof. Rajiv Chaudhary, Prof. Ranganath M Singari, and Dr. Anil Kumar from DTU Delhi; Prof. N R Chauhan, Prof. O K Singh, and Prof. Manoj Soni from IGDТУW Delhi; Dr. Gaurav Aggarwal from DST; Dr. Anurag Dixit and Dr. Rishu Sharma from DSEU Delhi; Prof. Arvind Gupta from JCBUST Faridabad; Dr. Leeladhar Nagdeve from NIT Delhi, and Dr. Amit Sharma from DCRUST Murthal were also present. The conference received proud sponsorship from DRDO, India, underscoring the significance and backing for efforts promoting progress in green technologies and sustainability.

200 scholars and professionals from various prestigious institutions across the world. Distinguished personalities including Emeritus Prof. Prem Vrat (IIT Delhi), Dr. N K Garg (Founder and Chief Advisor, MATES), Er. R.K. Gupta (Vice Chairman, MATES), Sh. Rajnish Gupta (Secretary, MATES), Prof. Neelam Sharma (Director, MAIT), Prof. S S Deswal (Dean

Vision

To be a global leader in Mechanical Engineering education, research & innovation with ethics and values.

Mission

M1: To deliver industry relevant and skill oriented education in Mechanical Engineering, encompassing production, design, thermal, and emerging areas to address diverse global challenges.

M2: To foster ethical values with professional skills for the benefit of industry and society.

M3: To enhance the teaching-learning process through modern pedagogical tools.

M4: To promote research, innovation and entrepreneurship using sustainable technologies and continuous learning.

M5: To strengthen engagement with alumni, industry and other stakeholders for collaborative growth and capacity building.

Program Educational Objectives (PEOs)

The objectives of the department of Mechanical Engineering are to produce graduates who will have:

PEO1: Employability, entrepreneurship, leadership skills, and the ability to pursue higher education for the enhancement of knowledge.

PEO2: Ability to lead through research and innovation in the field of Mechanical Engineering.

PEO3: Engineering competence with good communication skills, professionalism, moral values as well as foundation for lifelong learning.

PEO4: Technical capabilities pertinent to Mechanical and allied engineering and to provide innovative and sustainable solutions for industrial and societal problems.

Department of Mechanical Engineering

Maharaja Agrasen Institute of Technology



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