EXCEL ENGINEERING COLLEGE

(AUTONOMOUS)

Approved by AICTE New Delhi & Affiliated to Anna University, Chennai
Accredited by NBA (Aero,Mech,CSE and ECE), NAAC (A+ Grade) and Recognized by UGC (2f & 12B)
Komarapalayam-637303

MACHINE WARRIORZ

SHAPING THE FUTURE WITH GEARS, GRIT, AND GENIUS

THE ART & SCIENCE OF MOTION

MECHANICAL DEPARTMENT

MAGAZINE

2023-24

VOLUME 01


Messages

CHAIRMAN'S MESSAGE

DEAR STUDENTS, FACULTY, AND ESTEEMED READERS,
IT IS WITH IMMENSE PRIDE AND ENTHUSIASM THAT I PRESENT THIS EDITION OF OUR MECHANICAL ENGINEERING DEPARTMENT MAGAZINE. AS WE NAVIGATE AN ERA OF RAPID TECHNOLOGICAL ADVANCEMENTS, MECHANICAL ENGINEERING STANDS AT THE FOREFRONT OF INNOVATION—TRANSFORMING IDEAS INTO REALITY, SOLVING COMPLEX CHALLENGES, AND DRIVING SUSTAINABLE PROGRESS.
THIS MAGAZINE IS A TESTAMENT TO THE CREATIVITY, DEDICATION, AND INTELLECTUAL RIGOR OF OUR STUDENTS AND FACULTY. FROM CUTTING-EDGE RESEARCH PROJECTS TO HANDS-ON TECHNICAL INNOVATIONS, EACH PAGE REFLECTS THE SPIRIT OF EXCELLENCE THAT DEFINES OUR DEPARTMENT. WHETHER IT'S ROBOTICS, THERMODYNAMICS, AUTOMOTIVE SYSTEMS, OR RENEWABLE ENERGY, OUR STUDENTS CONTINUE TO PUSH BOUNDARIES AND SET NEW BENCHMARKS.

Dr. A K Natesan
Chairman

VICE-CHAIRMAN'S MESSAGE

IT IS BOTH AN HONOR AND A PLEASURE TO ADDRESS YOU THROUGH THIS EDITION OF OUR MECHANICAL ENGINEERING DEPARTMENT MAGAZINE. AS VICE CHAIRMAN, I AM CONTINUALLY INSPIRED BY THE PASSION, INGENUITY, AND HARD WORK DEMONSTRATED BY OUR STUDENTS AND FACULTY. THIS PUBLICATION SHOWCASES NOT JUST ACADEMIC EXCELLENCE, BUT THE INNOVATIVE SPIRIT THAT DEFINES OUR DEPARTMENT.
MECHANICAL ENGINEERING IS MORE THAN EQUATIONS AND BLUEPRINTS—IT IS ABOUT SOLVING REAL-WORLD PROBLEMS WITH CREATIVITY AND PRECISION. WHETHER THROUGH GROUNDBREAKING RESEARCH, COMPETITIVE PROJECTS, OR SUSTAINABLE DESIGN INITIATIVES, OUR DEPARTMENT REMAINS COMMITTED TO FOSTERING THE NEXT GENERATION OF ENGINEERS WHO WILL LEAD INDUSTRIES AND DRIVE TECHNOLOGICAL PROGRESS.

Dr. N. Mathan Karthik
Vice- Chairman

PRINCIPAL'S MESSAGE

IT GIVES ME IMMENSE PLEASURE TO EXTEND MY HEARTFELT CONGRATULATIONS TO THE MECHANICAL DEPARTMENT ON THE RELEASE OF THEIR ANNUAL MAGAZINE. THIS PUBLICATION STANDS AS A TESTAMENT TO THE CREATIVITY, TECHNICAL PROWESS, AND RELENTLESS DEDICATION OF BOTH STUDENTS AND FACULTY.

THE FIELD OF MECHANICAL ENGINEERING IS THE BACKBONE OF INNOVATION, DRIVING ADVANCEMENTS IN INDUSTRIES RANGING FROM AEROSPACE TO SUSTAINABLE ENERGY. THIS MAGAZINE NOT ONLY HIGHLIGHTS THE ACADEMIC EXCELLENCE AND RESEARCH INITIATIVES OF THE DEPARTMENT BUT ALSO SHOWCASES THE TALENT, PROJECTS, AND ACHIEVEMENTS OF OUR BUDDING ENGINEERS.

K. Bommana Raja
Principal

HEAD OF THE DEPARTMENT'S MESSAGE

Dr.M.Karthiesan
Head of the Department

GREETINGS!

IT IS WITH GREAT PRIDE AND ENTHUSIASM THAT I PRESENT TO YOU THE LATEST EDITION OF OUR DEPARTMENT'S ANNUAL MAGAZINE, "MACHINE WARRIORZ"—A PLATFORM THAT EMBODIES THE RELENTLESS SPIRIT, INNOVATION, AND TECHNICAL BRILLIANCE OF OUR MECHANICAL ENGINEERING COMMUNITY.

THE NAME "MACHINE WARRIORZ" PERFECTLY CAPTURES THE ESSENCE OF WHAT WE STAND FOR: COMBATTING CHALLENGES WITH INGENUITY, FORGING SOLUTIONS WITH PRECISION, AND CONQUERING NEW FRONTIERS IN ENGINEERING. THIS YEAR'S MAGAZINE IS A CELEBRATION OF THE HARD WORK, CREATIVITY, AND ACADEMIC EXCELLENCE DEMONSTRATED BY OUR STUDENTS AND FACULTY. FROM CUTTING-EDGE RESEARCH PAPERS AND PROJECT SHOWCASES TO INSIGHTFUL ARTICLES AND INSPIRING INTERVIEWS, EVERY PAGE REFLECTS THE PASSION THAT DRIVES OUR DEPARTMENT FORWARD.

VISION

MECHANICAL ENGINEERING...

To create competitive man power i the field of Mechanical engineering for the advantage of mankind

MISSION

1.To create a conductive learning environment to make student as competent engineers.
2. To nurture the entrepreneurial ability among students
3. To maintain sustainable development for creative learning to serve the engineering society
4. To inculcate human vaues and sensitivity

PSO - 1

ABILITY TO APPLY THEIR KNOWLEDGE TO DESIGN AND ANALYSE BY USING SOFTWARE TOOLS.

PSO - 2

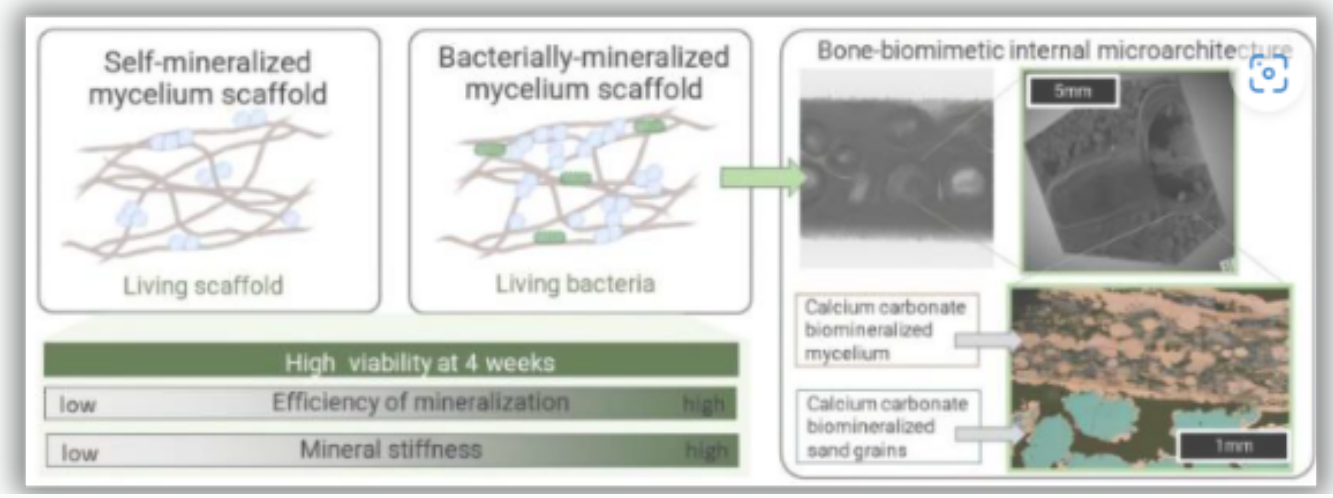
ENGAGE THEM PROFESSIONALLY IN INDUSTRIES OR AS ENTREPRENEURS IN THE FIELD OF MANUFACTURING AND DESIGN

2023-24

YEAR IN REVIEW

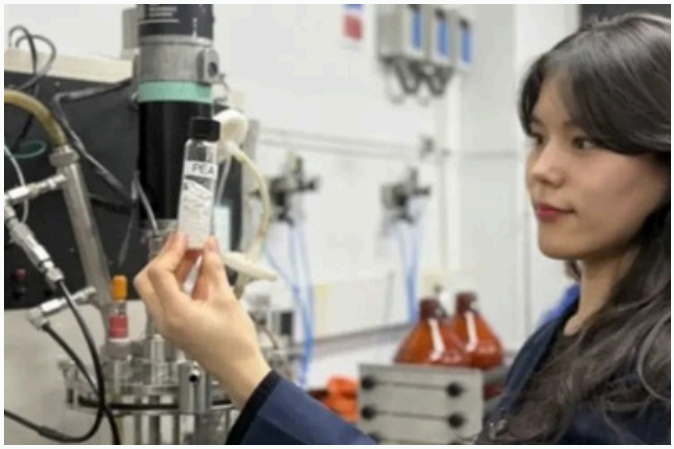
SUSTAINABILITY AND GREEN ENGINEERING

APRIL 17, 2025



Self-repairing fungal material as a sustainable alternative to concrete: Researchers at Montana State University are exploring the use of mycelium (the root-like structure of fungi) as a self-repairing and sustainable construction material.

Time running out for carbon capture success: The urgency for carbon capture technologies is growing as the UK's clean power and net-zero targets approach. However, the implementation of these projects faces delays.

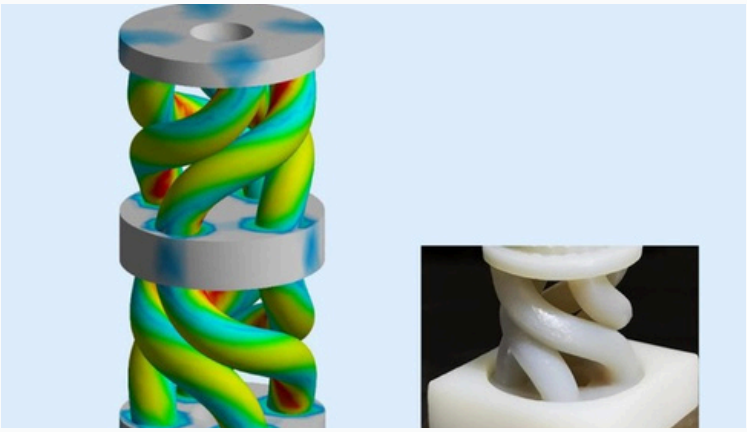


Eco-friendly, nylon-like plastic using microorganisms: Scientists have developed a new process to create a sustainable alternative to nylon using microorganisms.

Nanomaterials for coastal oil spill cleanup: Researchers are exploring the potential of nanomaterials as a powerful tool for cleaning up oil spills in coastal environments.

New developments in renewable energy technologies: Mechanical engineers continue to innovate in the design and optimization of wind turbines, solar panels, and advanced HVAC systems to promote energy efficiency and the adoption of renewable energy sources.

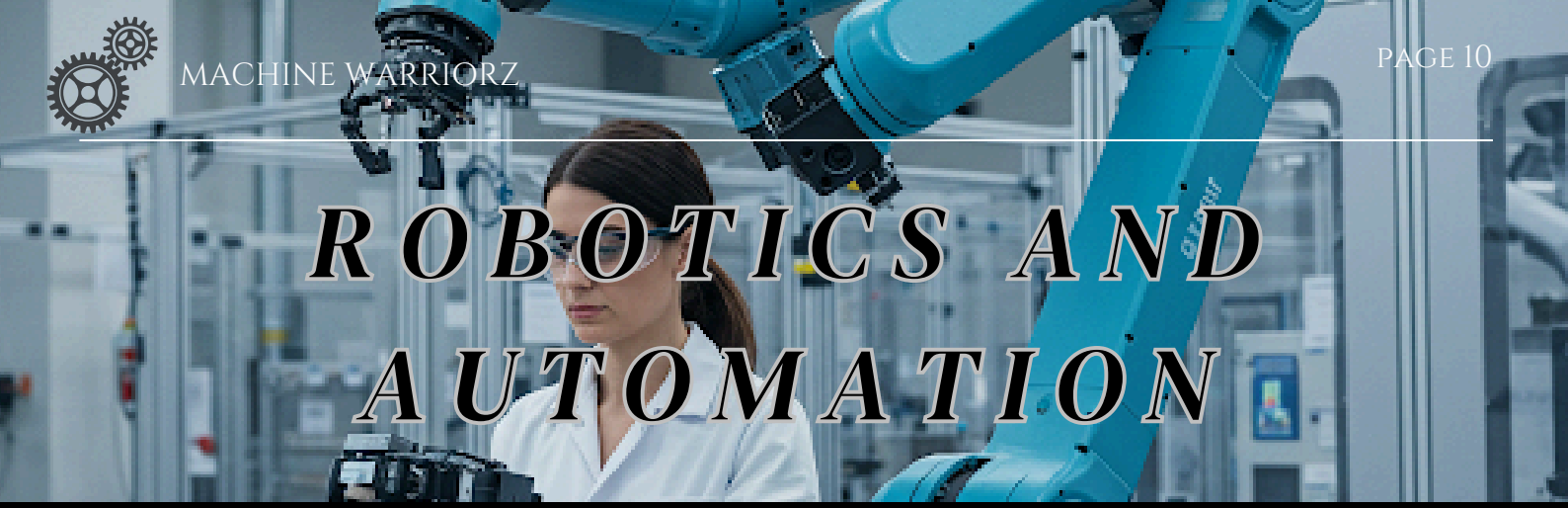
ADVANCED MATERIALS AND MANUFACTURING:



Metamaterials for energy storage: Researchers have developed mechanical metamaterials with highly twisted rods capable of storing large amounts of energy.

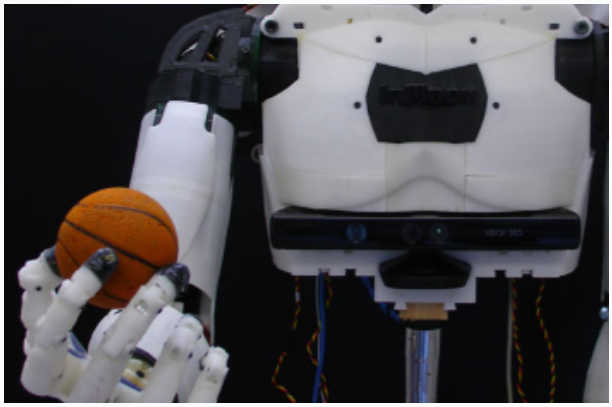
Materials incorporated into quantum qubit platform: New materials are being integrated into quantum computing platforms to enhance their capabilities.

3**D printing advancements**: Additive manufacturing continues to evolve, enabling the creation of intricate parts with greater precision and reduced material waste across industries like aerospace and healthcare.



ROBOTICS AND AUTOMATION

Coffee-making robot breaks new ground for AI machines: A new robot designed to make coffee showcases advancements in artificial intelligence for human-robot interaction. (March 18, 2025, ScienceDaily)



Electronics-free robots that can walk off a 3D printer: Researchers have created robots without electronic components that can be directly 3D-printed and are capable of movement. (March 25, 2025, ScienceDaily)

How to get a robot collective to act like a smart material: Scientists are exploring ways to program groups of robots to behave like a single, intelligent material. (February 21, 2025, ScienceDaily)

AI and exoskeletons for enhanced human performance: Artificial intelligence is being integrated with wearable exoskeletons to improve human movement and capabilities in various applications, including space. (June 15, 2024, SciTechDaily)

Robotics in manufacturing and healthcare: Mechanical engineers are crucial in developing advanced robotic systems for automation in manufacturing, enhancing precision and efficiency, as well as creating innovative solutions in healthcare, such as surgical robots and rehabilitation devices.

MACHINE WARRIORZ

MECHANICAL DEPARTMENT

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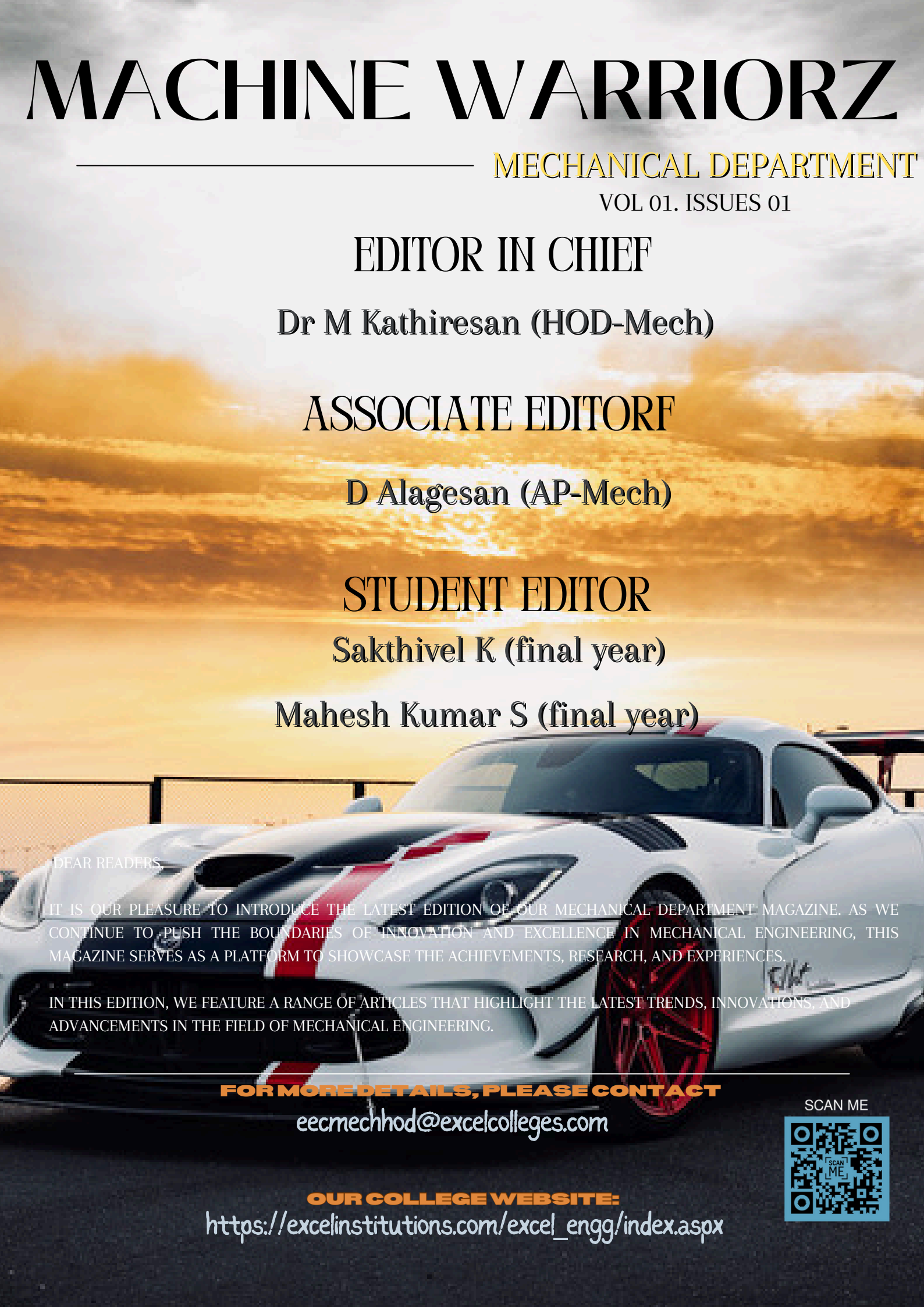

DEAR READERS,

IT IS OUR PLEASURE TO INTRODUCE THE LATEST EDITION OF OUR MECHANICAL DEPARTMENT MAGAZINE. AS WE CONTINUE TO PUSH THE BOUNDARIES OF INNOVATION AND EXCELLENCE IN MECHANICAL ENGINEERING, THIS MAGAZINE SERVES AS A PLATFORM TO SHOWCASE THE ACHIEVEMENTS, RESEARCH, AND EXPERIENCES.

IN THIS EDITION, WE FEATURE A RANGE OF ARTICLES THAT HIGHLIGHT THE LATEST TRENDS, INNOVATIONS, AND ADVANCEMENTS IN THE FIELD OF MECHANICAL ENGINEERING.

FOR MORE DETAILS, PLEASE CONTACT

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