Edition VI, Volume III, 2022-23

Mechanical Engineering E-Magazine (LBRCE)

(TIER-I)

MECH PULSE

(JAN-MAR 2023)

DEPARTMENT OF MECHANICAL ENGINEERING

LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING

(Autonomous)

Accredited by NAAC & NBA under Tier - I

Approved by AICTE and Permanently Affiliated to JNTUK, Kakinada

Mechanical Engineering E-Magazine (LBRCE)

MESSAGE FROM HEAD OF THE DEPARTMENT

I am very happy to inform you that the department of mechanical engineering is bringing **MECH PULSE-an e-magazine** its edition VI and volume III. The department of mechanical engineering is Accredited by **National Board of Accreditation (NBA) under Tier-I** and is started in the year 1998 with an intake of 60 students. At present the department is offering B.Tech Mechanical Engineering with an intake of 120 students and M.Tech – Thermal Engineering with an intake of 6 students. The department has thirteen state of art laboratories worth of 2.8 crores, with advanced computing facilities, software and research equipment. Advanced **Research Laboratories** in the area of **Cognitive Science, Material Testing, Tribology and Thermal Engineering** are available. Sophisticated **ANSYS Skill Development Centre** with 110 users of ANSYS 18.1 and **Dassult 3D Experience centre** (in association with APSSDC) is available. The department has 31 faculty members with 10 Doctoral degrees. Thirteen faculty are actively pursuing for their Ph.D in various universities and nine research scholars are working for their doctoral under the department faculty. The department faculty constantly upgrade their knowledge in the area of their domain by attending various Faculty Development Programs, workshops, seminars etc. The faculty are actively engaged in their research work and are active in publishing papers in journals and conferences.

VISION OF THE DEPARTMENT

- To impart knowledge in Mechanical Engineering with global perspectives for the graduates to serve the society and industry.

MISSION OF THE DEPARTMENT

- To enable the graduates technically sound with the state- of- the –art curriculum and innovative teaching methods
- To provide training programs that bridge the gap between academia and industry
- To create a conducive environment and facilities to improve overall personality development of the graduates
- To make the graduates aware of role and responsibilities of an engineer in society.

PROGRAMME EDUCATIONAL OBJECTIVES (PEOs)

PEO1: To build a professional career and pursue higher studies with sound knowledge in Mathematics, Science and Mechanical Engineering.

PEO2: To inculcate strong ethical values and leadership qualities for graduates to become successful in multidisciplinary activities.

PEO3: To develop inquisitiveness towards good communication and lifelong learning.

PROGRAM OUTCOMES (POs)

Engineering Graduates will be able to:

Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.

The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PROGRAM SPECIFIC OUTCOMES (PSOs)

PSO1: To apply the principles of thermal sciences to design and develop various thermal systems.

PSO2: To apply the principles of manufacturing technology, scientific management towards improvement of quality and optimization of engineering systems in the design, analysis and manufacturability of products.

PSO3: To apply the basic principles of mechanical engineering design for evaluation of performance of various systems relating to transmission of motion and power, conservation of energy and other process equipment.

ONGOING RESEARCH PROJECTS

S.No.	Name of the Faculty	Title of the Project	Funding Agency	Amount Sanctioned	Sanctioned Year
1.	Dr.N.Sunil Naik	Evaluation of engine parameters affecting the performance of enzymatic transesterification process using test fuel blends	DST/SERB/EEQ	22,81,000	2019

GRANTS RECEIVED

S.No.	Name of the Faculty	Title of the Project	Funding Agency	Amount Sanctioned	Sanctioned Year
1.	J.Subba Reddy	Robotics & Artificial Intelligence	AICTE ATAL	93,000	2022

PUBLICATIONS BY FACULTY

A: Conferences Attended

- **A NAGESWARA RAO, "**The effect of Visual Distraction on Driving Performance: Driving Simulator Experiment" in GTMTS 2023 National Conference at Sethu Institute of Technology, Madhurai from 23-24 FEB 2023.
- **B KAMALA PRIYA,** "Experimental Investigation of Solar Water Heating System" in ICRAMIE 2023 at PVPSIT Kanuru, Vijayawada from 24-25th March 2023.

B: Journal Publications

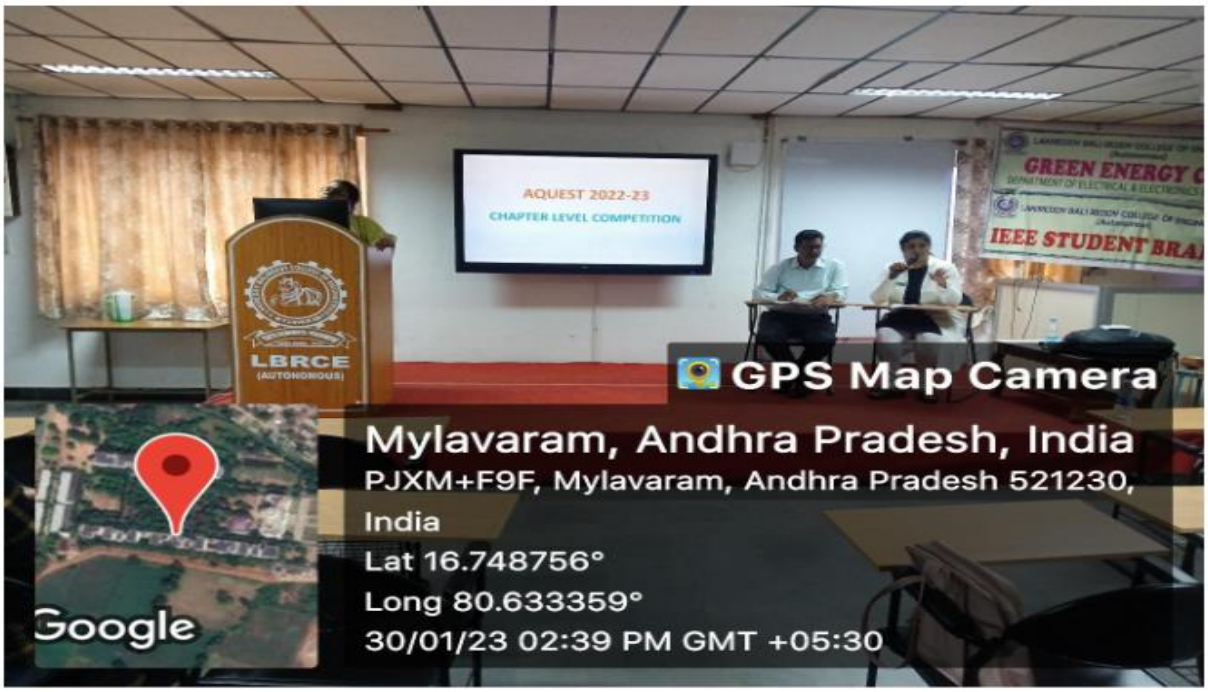
- P. Karthikeyan, K. Kalaiselvi, M. Pachamuthu, Kanulla Karthik, and A. Johnson Santhosh, "An Optimisation Method of Construction for Warping Copper Plates and Engines Using Complete Block Designs with Some Special Types of Graphs" published in Advances in Materials Science and Engineering (Hindawi), ISSN: 1687-8442 in 31 January 2023.
- **Murahari Kolli**, Satyanarayana Kosaraju, Devaraju Aruri, Nageswararao Medikondu, "Influence of Rotary Assisted Electrical Discharge Machining of 17-4PH Stainless Steel Taguchi Technique" published in Indian Journal of Engineering & Materials Sciences, ISSN: 0971-4588 in January 2023.
- P.Venkataramana, **P.Vijaya Kumar,** B.Balakrishna, "Thermal and flow performance in a CLPHP with Al2O3/copper nano fluids: Application in microelectronics and power generation" published in Materials Today proceedings (Elsevier), ISSN: 2214-7853 in March 2023.

BOOKS/CHAPTERS PUBLISHED

- **Dr. V. Dhana Raju,** Harish Venu, Jayashri N Nair, **M.B.S. Sreekar Reddy and J. Subba Reddy** "Nanotechnology for Advanced Biofuels: Fundamentals and Applications, A Volume in Micro and Nano Technology" published in CNTs based nano-fuels: Performance, combustion and emission characteristics, Elsevier Science Direct, ISBN: 978-0-323-91759-9 in March 2023.
- Jayashri N. Nair, Y.V.V. Satyanarayana Murthy, **Dr. V. Dhana Raju** and V. Sivaramakrishna "Nanotechnology for Advanced Biofuels: Fundamentals and Applications, A Volume in Micro and Nano Technology" published in Ultrasonic dispersion of algae oil blends on diesel engine, Walter de Gruyter GmbH & Co KG, Germany, ISBN: 978-0-323-91759-9 in March 2023.

EVENTS ORGANIZED BY THE DEPARTMENT

- The Department of Mechanical Engineering organized a Quiz competition ACREX-2023 by ISHRAE Student Chapter on 30.01.2023 organized by Dr.P.Vijaya Kumar, Professor.



Students listening to the instructions, rules and guidelines of ACREX event by Ms.Saandeepani, President, ISHRAE Vijayawada Chapter

The ISHRAE student member participants and the ACREX event Convener Ms.V.Saandeepani, President, ISHRAE Vijayawada Chapter CWC members group photo after the results are announced

- Department of Mechanical Engineering organizes "UNACADEMY INTERACTIVE SESSION" for VI Semester students on 25.01.2023.

Unacademy expert interaction to VI Semester students

Students participatition in interaction of GATE, IES exams

INDUSTRIAL VISITS

- The department of Mechanical Engineering organized Industrial visit to APSRTC Zonal workshop in Vijayawada on 03.02.2023 for VI semester students. Mr.S.Rami Reddy, Sr. Asst. Professor & Mr.V.Sankara Rao, Sr. Asst. Professor coordinated the event.

Students observing bearings in APSRTC Zonal workshop

Group photo of VI Semester students in front of APSRTC zonal workshop

STUDENT CERTIFICATION PROGRAMS

- The department of Mechanical Engineering organized a One Week Student Certification Program on "Practical Finite Element Analysis using HYPERMESH and LS DYNA" for VII Semester students BY Mr. B R Muni Venkata Krishna, CEO-Mayinkrish Ventures Pvt Ltd Hyderabad FROM 30.01.2023 TO 03.02.2023. Mr. A.Nageswara Rao, Sr. Asst. Professor Mr. V.Sankararao, Sr. Asst. Professor coordinated the event.

Resource person interaction with students

Validectory by Dr.S.Pichi Reddy Professor & HoD

STUDENT WORKSHOP

- The department of Mechanical Engineering organized a Two-day Student workshop on "Robotics and Arduino Programming" by Robotics Club by Dr. B.K.C Ganesh, CEO & Founder, Print 3D Technologies, Tirupathi. from 06.03.2023 to 07.03.2023. Dr.Ch.Siva Sankara Babu, Sr.Assistant Professor Mr. K.Venkateswara Reddy, Assistant Professor Mr. A.Pratyush , Assistant Professor acted as coordinators.

VI semester Students in Robotics workshops

Felicitation to resource person by Dr.S.Pichi Reddy, Professor & HoD

COLLABORATIONS / LINKAGES

Name of the Faculty	Name of the Researcher	Name of the Institut	Duration
Dr.K.Murahari	Dr. K. Krishna Kishore	SVNIT Surat	4 Years (upto June 2025)

SUMMARY OF COLLOQUIMS ORGANIZED

S. No	Name of The Faculty	Name of the Topic	Date
1.	Dr.Ch.Siva Sankara Babu	Effect of Fuel Additives on Combustion, Performance and Emission Characteristics of Diesel Engine Fueled with Sapota Biodiesel	10.01.2023
2.	K.V.Viswanadh	Design, Fe Analysis and Fabrication of Cellular Core Sandwich Panels Using Different Infill Core Patterns in Additive Manufacturing	27.01.2023
3.	K.Narayana	Fabrication and Experimental Investigation of Solar Wireless Electrical Vehicle Charging System	13.02.2023
4.	A.Nageswara Rao	Vehicle Security and Motor Control System Using RFID and IOT	24.02.2023
5.	S.Rami Reddy	Experimental Investigation of Olive Kernel Bio Fuel in Diesel Engine	16.03.2023
6.	K.Lakshmi Prasad	Fabrication of Aqua Oxidizer	28.03.2023

FDP's/STTP's/STC's/WORKSHOP's ATTENDED BY FACULTY

1. Dr. Murahari Kolli, has participated in a faculty development program on "Lightweight materials for automotive applications: Fundamentals, recent developments and challenges in manufacturing" organized by SVNIT Surat, Gujarat from 9th to 13th January 2023.
2. Mr. K.Venkateswara Reddy, has participated in a faculty development program on "Lightweight materials for automotive applications: Fundamentals, recent developments and challenges in manufacturing" organized by SVNIT Surat, Gujarat from 9th to 13th January 2023.
3. Mr. K.Sai Babu, has participated in a faculty development program on "Distinguished lectures on Energy Efficient HVAC systems" organized by ISHRAE Vijayawada chapter, Vijayawada from 23rd to 28th January 2023.

4. Mr. K.Lakshmi Prasad has participated in a faculty development program on "Blooms Taxonomy in Teaching and Learning" organized by San Snows Nobel Professional Foundation, on 16th February 2023.
5. Mr. B.Sudheer Kumar, has participated in a faculty development program on "Applications of Artificial Intelligence & Machine Learning as Mechanical Engineering" organized by Seshadri Rao Gudlavalleru Engineering College, Gudlavalleru from 6th to10th March 2023.
6. Dr. Ch.Siva Sankara Babu, has participated in a faculty development program on "Applications of Artificial Intelligence & Machine Learning as Mechanical Engineering" organized by Seshadri Rao Gudlavalleru Engineering College, Gudlavalleru from 6th to 10th March 2023.
7. Mr. A.Nageswara Rao, has participated in a faculty development program on "Data Analytics and Simulation for Healthcare Supply Chain Management" organized by National Institute of Technology, Tiruchirappalli, Tamil Nadu from February 20th to 3rd March 2023.
8. Mr. S.Rami Reddy, has participated in a faculty development program on "Recent Advances in Composite Materials" organized by National Institute of Technology, Puducherry, Puducherry from February 27th to 31st March 2023.
9. Mr. K.Sai Babu, has participated in a faculty development program on "Applications of Artificial Intelligence & Machine Learning as Mechanical Engineering" organized by Seshadri Rao Gudlavalleru Engineering College, Gudlavalleru from 6th to10th March 2023.
10. Mr. A.Pratyush, has participated in a faculty development program on "Applications of Artificial Intelligence & Machine Learning as Mechanical Engineering" organized by Seshadri Rao Gudlavalleru Engineering College, Gudlavalleru from 6th to10th March 2023.
11. Mr. M.Oliva, has participated in a faculty development program on "Applications of Artificial Intelligence & Machine Learning as Mechanical Engineering" organized by Seshadri Rao Gudlavalleru Engineering College, Gudlavalleru from 6th to10th March 2023.

WEBINARS ATTENDED BY FACULTY

1. Mrs. **B.Kamala Priya**, has participated in a webinar on "Ansys Solution for fracture mechanics" organized by ARK Info Solutions Pvt. Ltd**,** Hyderabad on 14th March 2023.

FACULTY ACHIEVEMENTS

1. **Mr. A.Nageswararao, Sr. Asst. Professor** received best paper award in 8th National Conference GTMTS-2023 during 23-24 February 2023 at Sethu Institute of Technology, Pullor, Tamilnadu, India.

Best paper award received by A.Nageswara Rao

Best paper award momento

PATENTS PUBLISHED

Name of the Inventors	Patent Number	Title of the Patent	Agency	Date of Published
Kamala Priya. B **Dr.Dilip kumar.K** Mounika.p L.Bindu **B.Sudheer kumar** **B.Udaya lakshmi** **A.Dhanunjay kumar** Kiran sai gorle C.Trishit	202341011370	Design and Fabrication of Multi-Functional Air Conditioning System	IPR India	24-03-2023
Ch. Leela Naga Deepika Dr. Katta Subba Rao Seelam Rami Reddy Dr. Reema Mathew A. Dr. H. Parthasarathi Patra Dr. Punyaban Patel	202341020183 A	Smart and Compact Foldable Storage System	IPR India	31.03.2023
Dr. M. Nageswara Rao **V. Sankara Rao** Dr. Md. Khaja Moinuddin Farokhi Dr. V. Venkata Kamesh S. Varakumari	361415-001	Flexible wrench	IPR India	24.03.2023

STUDENTS ACHIEVEMENTS

A: Placements

Name of the Organization	Name of the Students	Roll Number	Gender	Package
Accenture	Timmasarthy Rohith Vijay Sai	20765A0313	Male	4.5 LPA
CTS	Galam Krupa Sagar	19761A0311	Male	4 LPA
	Kuppireddy Venkateswara Reddy	19761A0323	Male	
	Alamuri Naga Sai Shyam Sundar	19761A0349	Male	
	Ch.Raviteja	20765A0302	Male	
	Divvela Gowtham	20765A0303	Male	
	Kanithi Sri Sathya Siva Krishna Bhima Raju	20765A0304	Male	
	Nalliboyina Venu	20765A0309	Male	

	Vipparla Maneesh	20765A0315	Male	
	Kesana Trinadh	20765A0319	Male	
	Shaik Hameed	20765A0326	Male	
	Ravi Krishna Chaitanya Reddy	20765A0341	Male	
CTS GEN C (IT PAT)	Abdul Chan Basha	20765A0316	Male	4 LPA
	Thati Venkatesh	20765A0312	Male	
TCS NINJA	Maneesh Vipparla	20765A0315	Male	3.36 LPA
	Sunil Karuturi	19761A0318	Male	
	Hardhik Kamatham	19761A03B6	Male	
	Lohinadh Kola	20765A0306	Male	
	Hameed Shaik	20765A0326	Male	
	Pagadala Teja	19761A03D1	Male	
	Chan Basha Abdul	20765A0316	Male	
Kodnest	Timmasarthy Rohith Vijay Sai	20765A0313	Male	4 LPA

STUDENTS PROJECTS



Title of the Project: CHARECTERIZATION OF HYBRID FIBER REINFORCED COMPOSITES

Project Members:

Vipparla Maneesh	**20765A0315**
Chennu Raviteja	**20765A0302**
Putti Murari	**19761A0335**

Project Supervisor: Dr. S. Pichi Reddy

Abstract:

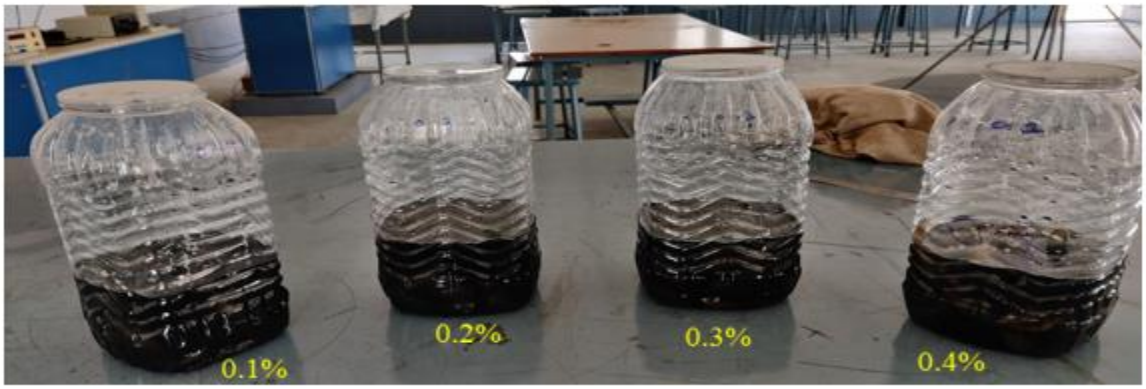
Growing demand for various engineering applications encourages the advancement of new materials. The fields of application for functional materials made from plant fiber are expanding as a result of rising energy and environmental consciousness, as well as technological advancements. In addition to being durable and light, natural fibers are also relatively inexpensive, biodegradable, and strong.

In the present experimental investigation hybrid fiber-reinforced laminated composites by hand layup processes are developed and are tested for their mechanical properties. Two natural fibers Ramie and bamboo fiber are chosen as the reinforcement materials. Epoxy resin (LY556) with hardener (HY951) is used as the matrix material. The experiments are designed and conducted based on Taguchi's design of experiments and the analysis of the out responses by ANOVA. Ansys 18.0 software is used for calculating the stress distribution along the length and cross-section of the composites.

DIAGRAMETIC REPRESENTATION:

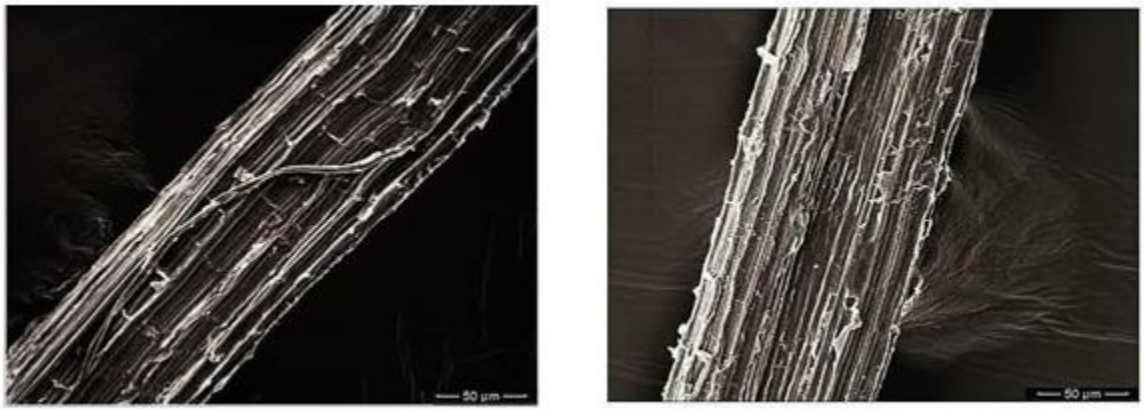
The following figures shows the fabrication of Hybrid fiber reinforced natural composite.

Fiber Extraction by Mechanical Extraction procedure

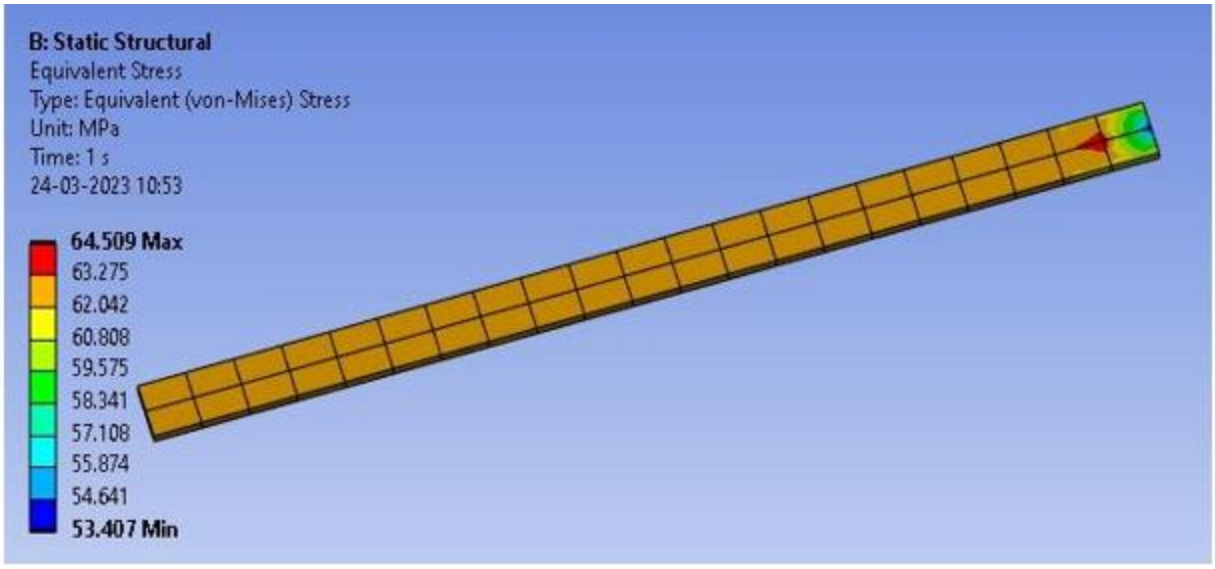


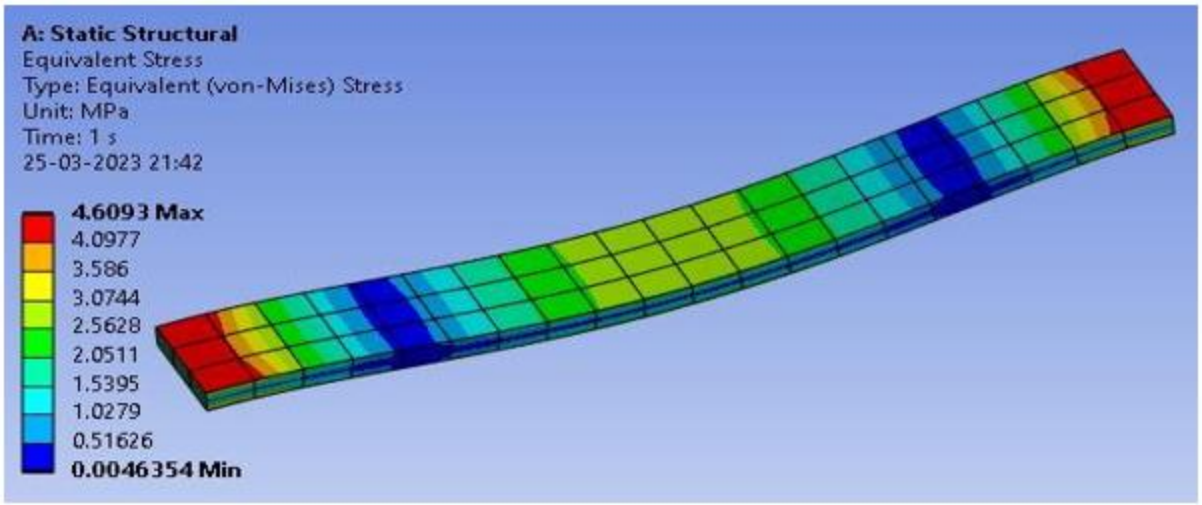
Graphene dipping of the fibers

Composites made using hand layup procedure



Microstructure of Non-coated and graphene coated composites





Tensile and Flexural analysis results



TITLE OF PROJECT: MICROSTRUCTURAL AND MECHANICAL CHARACTERIZATION OF LASER CLADDED TITANIUM ALLOY, EN-36C AND NIMONIC 706

Project Members:

THATI VENKATESH 20765A0312

PILAPAKA RATNA MAHIM 20765A0311

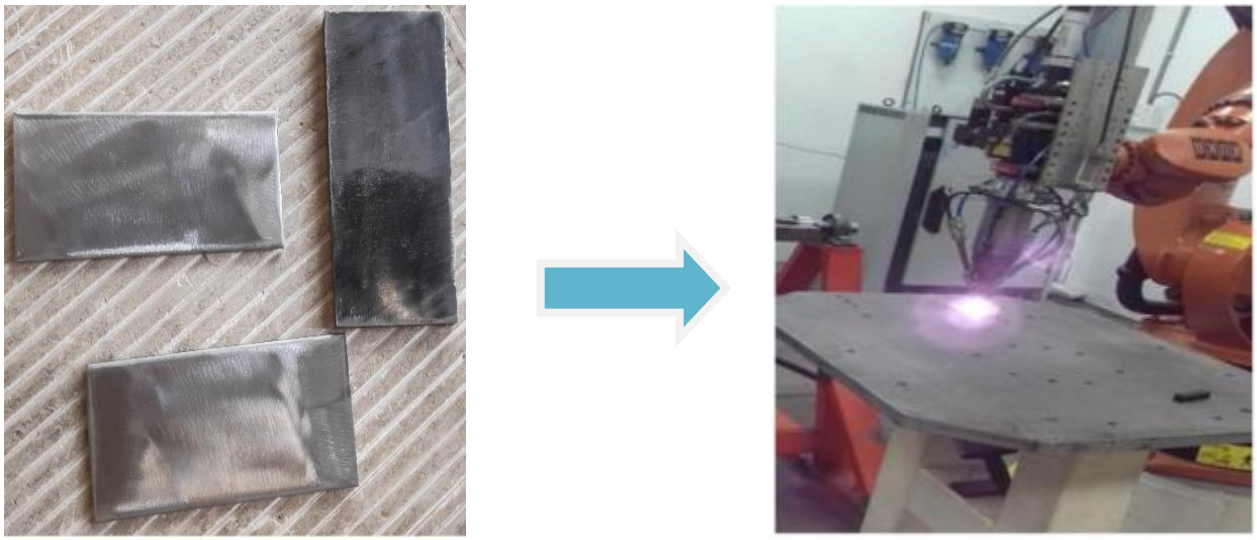
KELLA SURENDRA 19765A1319

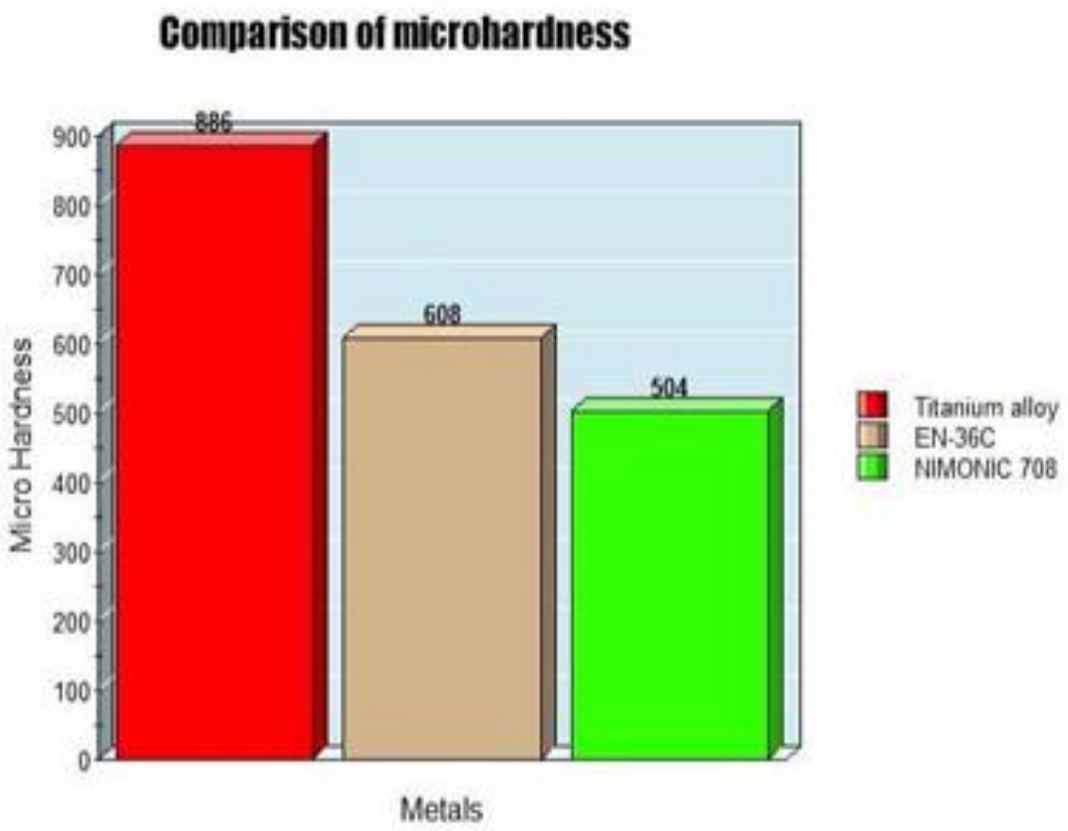
Project Supervisor: DR.K. MURAHARI

ABSTRACT:

Laser cladding is a process where a laser beam is used to fuse a powder material onto a substrate, providing a highly efficient way to enhance surface properties and repair damaged components. It has applications in industries such as aerospace, automotive, and medical devices. Initially Investigating titanium alloy by one – Factor at a time approach varying laser power, scan speed and powder feed rate and Powder composition. Examined the micro hardness, micro structure and EDS and dye penetration test results. Optimized the titanium laser cladding deposition condition further cladded the EN-36C and Nimonic 706 metals then compared them with the titanium alloy. The results validated titanium alloy has improved its properties more than En-36c and Nimonic 706 and also clearly observed microstructures, SEM, EDS, Dye penetration test results.

GRAPHICAL ABSTRACT:





MICRO- HARDNESS RESULTS

Title of the Project: ENHANCING THE PERFORMANCE OF AUTOMOBILE RADIATOR BY USING Al_2O_3 & CuO NANOFLUID AS COOLANT

Project Members: NALLIBOYINA VENU 20765A0309
SHAIK RIYAZ 19761A0338
PADALA BHANU PRAKASH 19761A0327
Project Supervisor: Dr. P.V. CHANDRA SEKHAR RAO (Professor)

Abstract:

A nanofluid is a fluid that contains nanoparticles, which are particles smaller than one nanometre. The convection heat transfer rate of a radiator is observed experimentally and analysed the data using the nanoparticles Al2O3 & CuO. By mixing high thermal conductivity nanoparticles to automobile radiator coolant, one may increase the liquid's actual thermal conductivity, which improves cooling system performance. The Concentration of the Nanoparticles in the water and ethylene glycol is varied as 0.1%, 0.2%, 0.3% and this change in the concentration effects the change in the mass flow rate of the fluid(coolant).

In automobile radiators, the use of nanoparticles improves heat transfer, allow radiator size to be reduced. The Experimental data is compared to the analysis data from the CFD(Fluent) software Ansys19. Collecting the properties and the numerical data from the journals and the experimentation the analysis was done. During this comparative analysis it is observed that the heat transfer rate is high in the 0.3% concentration of the Al2O3 & CuO nanoparticles in the coolant.

Key Words: Nanoparticles, Surfactant, Automobile Radiator, Engine Cooling, CFD (Fluent Flow)

GRAPHICAL ABSTRACT:

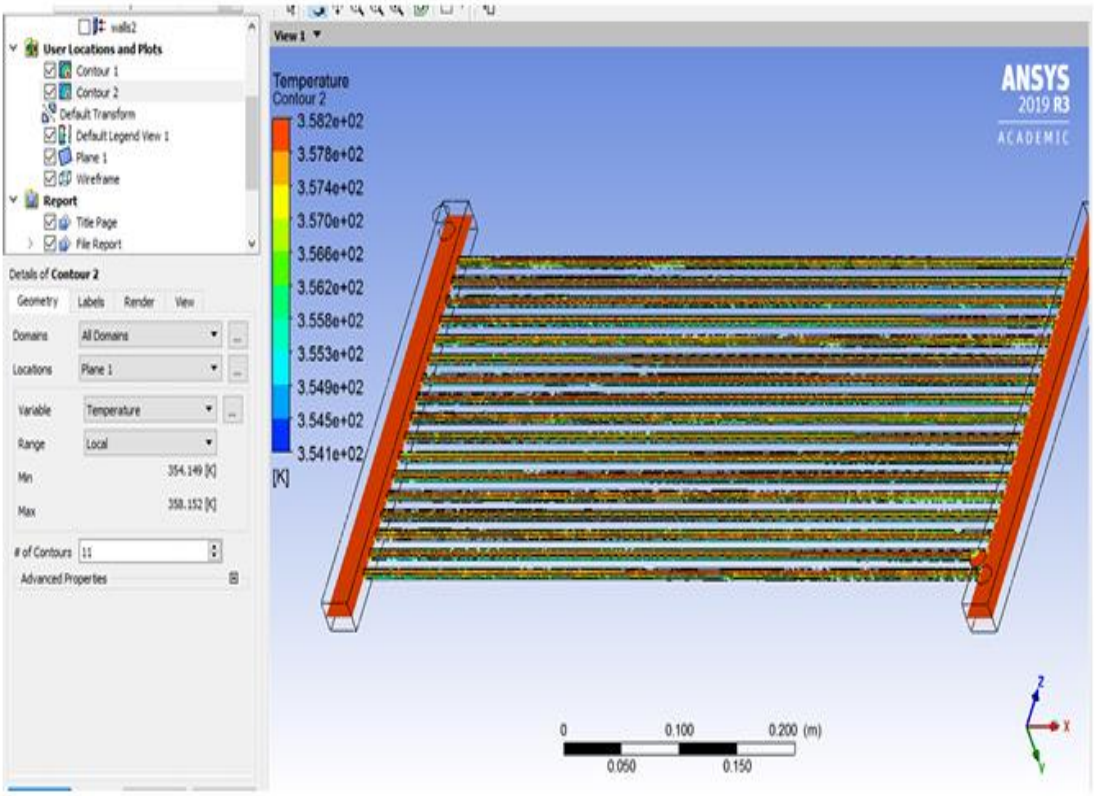
The following figures shows the Experimental setup for the investigation of the Performance of the automobile Radiator using the various types of Coolants in Different Concentrations:

Al_2O_3

CuO

Experimental Setup

Practical Results



CFD Results

"THERMAL PERFORMACE OF ORGANIC PCM FOR COOLING OF BUILDINGS"

Submitted by

K. PRAVEEN	20765A0305
SK. IMRAN	19761A0337
K. BHAGAVAN VARMA	19761A0321

Under the Guidance of

P. VIJAYA KUMAR

(PROFESSOR)

ABSTRACT

It is true that sensible heat storage systems have been used for centuries to provide thermal comfort in buildings, but with the increasing concerns about energy consumption and pollution, researchers have turned to latent heat storage using Phase Change Materials (PCMs). PCMs have high storage density and latent heat properties, which makes them attractive for use in building envelopes to maintain thermal comfort temperatures for longer periods of time, reducing the need for power-consuming heating and air conditioning equipment. The study described in this work aimed to experimentally investigate the performance of PCM in buildings by incorporating them into the building envelope for energy conservation. The study used two experimental test rooms of size 1m x 1m x 1m, and modelling was done in CATIA V5 R21, while simulations were conducted using ANSYS 2023 WORKBENCH for the period of January to March 2023 in Mylavaram. The experimental results were validated with the simulation results of ANSYS, which showed promising results. This study demonstrates the potential of PCM as a thermal energy storage device in building envelopes for energy conservation, which could have significant environmental and economic benefits.

Keywords: Phase Change Materials (PCM), Thermal energy storage, Building cooling, Thermal conductivity, Latent heat, Melting/solidification

Material used: Lauric Acid, GI Sheet, concrete, bricks

DIAGRAMATIC REPRESENTATION:

The following figures shows the experimentation setup of Room without PCM and Room with PCM.

Thermocouples are fixed in their positions

PCM in aluminium packets

ROOM WITH PCM ROOM WITHOUT PCM

Experimental setup



Title of the Project: EFFECT OF FUEL ADDITIVES ON COMBUSTION, PERFORMANCE AND EMISSION CHARACTERISTICS OF DIESEL ENGINE FUELED WITH SAPOTA BIODIESEL

Project Members:

D.GOWTHAM	**20765A0303**
P. JAYA SURYA PRAKESH	**19761A0331**
V. NITHEESH	**19761A0343**

Project Supervisor: Dr. CH. SIVA SANKARA BABU

Abstract:

The search for alternative sources of fuel to fossil fuels due to their limited availability and environmental impact has led to the development of biodiesel as a potential eco-friendly replacement for traditional diesel fuel. Sapota seed oil is one such promising source of biodiesel that has a higher oxygen content than diesel, resulting in better combustion and lower emissions. Although sapota seed oil has limitations such as higher viscosity and lower heating value than diesel, these limitations can be overcome through the transesterification process, which converts the oil into sapota seed methyl ester that has similar properties to pure diesel. This project aims to evaluate the properties of sapota seed methyl ester and test various blends of biodiesel to determine the optimum blend and add an ignition improver, such as n-hexanol and 1-butanol, to enhance the ignition process. The fuel additives are added in 5% and 10% concentrations of volume to biodiesel blend to improve engine performance and reduce emissions. The experimental investigation revealed that adding 10% of n-hexanol and 1-butanol to SSME20 increased brake thermal efficiency (BTE) by 3.15% compared to diesel, and the heat release rate (HRR) by 11.66% and 19.89% respectively. Also, emission parameters like CO, HC, and Smoke opacity are reduced compared to diesel. The results indicate that sapota seed methyl ester can potentially replace diesel fuel in the automotive industry without the need for engine modifications, thereby reducing our dependence on fossil fuels and mitigating the harmful effects of diesel emissions on the environment.

GRAPHICAL ABSTRACT: The following figures shows the oil extraction process from the sapota seeds and converting them into a sapota methyl ester and then used in the diesel engine.

Sapota tree

Collection of seeds and drying

Hydraulic oil extraction machine

STUDENTS JOINED IN HIGHER STUDIES

S.No	Roll. No	Name of the student	Name of the institute joined	Name of the program admitted	Year of admission in higher studies program
1.	18765A0308	Kollu Lalith Dattu	NYC (TANDON SCHOOL OF ENGINEERING)	MS	2023
2.	18761A0331	Pavan Kumar Mareedu	WNE (WESTERN NEW ENGLAND UNIVERSITY)	MS	2023
3.	18761A03D9	Charan Kumar Morempudi	ASU (ARIZONA STATE UNIVERSITY)	MS	2023
4.	18761A0382	Venkata Krishna Reddy Marella	Sheffield Hallam University	MS	2023
5.	18761A0318	Vishnu Vardhan Kaitepalli	UNIVERSITY OF NORTH TEXAS	MS	2023
6.	20765A0316	Abdul Chan Basha	MISSOURI UNIVERSITY OF SCIENCE AND TECHNOLOGY	MS	2023
7.	20765A0323	Mangamuri Bhanu Sankar	MISSOURI UNIVERSITY OF SCIENCE AND TECHNOLOGY	MS	2023
8.	20765A0315	Vipparla Maneesh	McMaster University	MS	2023
9.	16761A0359	Naveen Kumar Athi	Rowman University	MS	July 2023
10.	20765A0305	Praveen Kilaru	Arizona University	MS	Aug 2023
11.	20765A0344	Venkata Vamsi Parvatha	University of Houston	MS	Aug 2023

12.	20765A0339	Harsha Krishna Malliseety	University of Texas at Arlington	MS	Aug 2023
13.	17765A0316	Venkatesh Kokkera	University of New Haven	MS	Aug 2023
14.	16761A03B1	Hariprasad Reddy Yalamareddy	Cleveland State University	MS	April 2023
15.	18761A03C7	Mahesh Babu Jillepalli	PACE University	MS	2023
16.	17761A0347	Alekhya Siriyala	Hochschule Harz (Harz University of Applied Science)	MS	2023
17.	17761A0319	Gurava Reddy Jakkireddy	Saint Peter's University	MS	2023
18.	15761A0302	Yaswanth Ala	Wichita State University	MS	2023
19.	14761A0386	Kosaraju Gopinadh	Central Michigan University	MS	2023
18.	15761A0348	Sai Teja Ravulapalli	IUPUI (Indiana University)	MS	2023
19.	18761A0399	Sai Harsha Sathuluri	Wright State University	MS	2023
20.	19761A0389	Purna satya Sai Tarun Tataram	University of New Heaven	MS	2023
21.	19761A0324	Venga Ahok Manam	GANNON University	MS	2023
22.	18761A0345	Rakesh Kumar Sunkara	Sheffield Hallam University	MS	2023
23.	17761A0304	Pavan Kumar Bezawada	River University	MS	2023
24	18761A0380	Thirumala Sai Malluri	Bradley University	MS	Aug 2023
25	18761A0384	Venkata Sai Krishna Reddy Matta	Roosevelt University	MS	Aug 2023

NSS

- The following are the list of students participated as volunteers for the occasion on Republic 26/01/2023.

S.No.	Student Name	Roll No.
1	AKUTIYA GOPICHAND	2076140361
2	DIMITI SHANKAR KUMAR	2076140324
3	KOPULU ISHORE KUMAR REDDY	2076140363
4	KARRA MOHAN VASISHTHA	2076140365
6	LAKSHAN UPENDER	2076140362
7	MADDIREDDY NALASHEKAR REDDY	2076140366
8	MALLODI RAMESH	2076140326
9	NALLA RAMESHI	2076140364
10	PULURI RAJDEESH	2076140237

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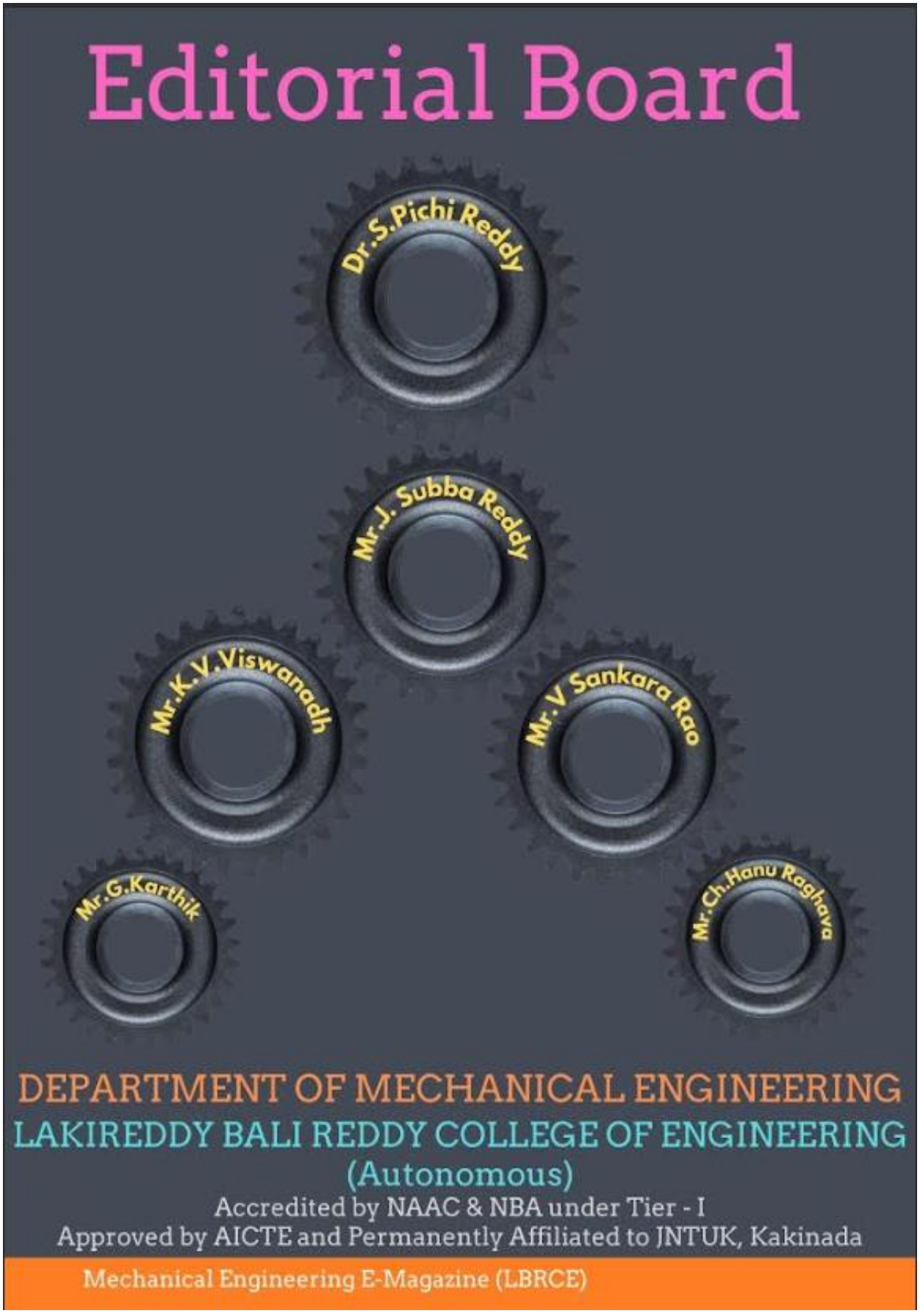
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