Edition VIII, Volume I, 2024-25

Mechanical Engineering E-Magazine (LBRCE)

(TIER-I)

MECH PULSE

(JUL-SEP 2024)

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 VIII and volume I. 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 60 students and M.Tech – Thermal Power 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 27 faculty members with 13 Doctoral degrees. Twelve 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.

PUBLICATIONS BY FACULTY

- **Murahari Kolli**, **Siva Sankara Babu Ch, Sankararao V,** K.Satyanarayana, "Experimental Analysis on Turning of Super Duplex UNS 32750 Steel Using Minimum Quantity Lubrication Process", E3S Web of Conferences, published in July 2024 with 2267-1242. https://doi.org/10.1051/e3sconf/202455201076.
- Trivikama Raju, Jakeer Husan S, **Murahari Kolli, "**An effective investigation of chatter predication system on Al 6061 alloy in an end milling process" Journal of Engineering and Applied Science, published in July 2024, with ISSN 2536-9512/1110-1903. https://doi.org/10.1186/s44147-024-00489-5.
- R Kiran Kumar Reddy, **M B S Sreekara Reddy**, Vinod S Bhagat, "Vibration and acoustic characteristics of aluminium-silicon carbide metal matrix composite plate under thermal environment" Noise & Vibration Worldwide published in July 2024 with ISSN 0957-4565. https://journals.sagepub.com/doi/abs/10.1177/09574565241270248.
- K. Lalith Narayan, G. V. Punna Rao, **V. Sankararao**, and S. B. R. Devireddy, "Experimental and numerical investigations on elastic and thermal properties of banana–jute fiber-reinforced hybrid composites" International Journal of Computational Materials Science and Engineering published in Aug 2024 with ISSN 2047-6841 / 2047-685X. https://doi.org/10.1142/S204768412450026X.
- Ravi Prakash BabuKocharla, Raghu Kumar Bandlamudi, Abdul Ahad Mirza, **Murahari Kolli**, Ragavanantham Shanmugam, Muralimohan Cheepu "Investigation on the Mechanical and Thermal Properties of Jute/Carbon Fiber Hybrid Composites with the

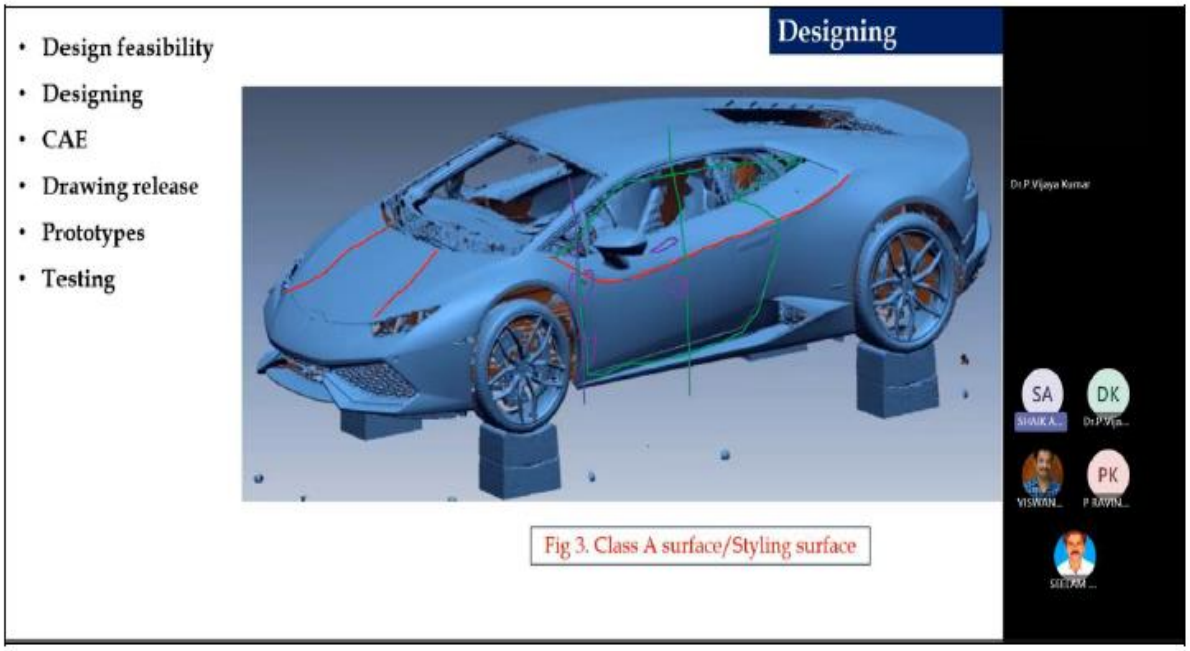
Inclusion of Crab Shell Powder" published in sep 2024 Journal of Composites Science with ISSN 2504-477X. https://doi.org/10.3390/jcs8080296.

- KPV Krishna Varma, NS Naveen, PS Kishore, Satish Pujari, Krishna Jogi, **V Dhana Raju, "**Optimizing the thermal performance of a double-pipe heat exchanger using twisted tapes with variable cuts and Fe3O4 nanofluid" published in sep 2024 Journal of Thermal Engineering with ISSN 2148-7847. DOI: 10.14744/thermal.0000860.
- **Murahari Kolli,** K. Satyanarayana, Mechiri Sandeep Kumar, A. Varun, Solovev S. A., Oleg Igorevich Rozhdestvenskiy, Anil Kumar Saxena "Experimental investigation on agriculture waste residue reinforcement in Al 7075 alloy through rotary stir casting" published in Cogent Engineering Sep 2024 with ISSN 2331-1916. https://doi.org/10.1080/23311916.2024.2410307.

EVENTS ORGANIZED BY THE DEPARTMENT

AUTOMOBILE CLUB ACTIVITY

- The Department of Mechanical Engineering organized a Automobile Club activity on "**Latest developments in Automobile Product Development Cycle**" on 27.07.2024 by Shaik Areef Ahmad, Maruthi Suzuki Pvt Ltd, Noida, Delhi. Dr. P.Ravindra Kumar, Professor, Mr.S.Rami Reddy, Sr. Asst. Professor, Mr. K.V.Viswanadh, Sr. Asst. Professor coordinated the event.



Designing of Car in product development cycle

Final Year students are in Automobile Club Activity

SKILL ADVANCED COURSE

- The Department of Mechanical Engineering organized a Skill Advanced Course on "**Electric & Solar Vehicle-Design & Development**" from 17.09.2024 to 21.09.2024 & 23.09.2024 to 28.09.2024 by Mr.K.P. Reigen, Administrative Officer in AMZ Industries. Mr. Rahul Ranjan, Chief Manager, AMZ Automotive, Jaipur, Mr. A.F. Baggio, Chief Technical Officer at AMZ Automotive. Mr. S. Rami Reddy, Sr. Assistant Professor, coordinated the event.

Students practicing in skill advanced course

Students with prepared live working model

INDUSTRIAL VISITS

- The Department of Mechanical Engineering organized a Industrial visit to "PRAKASA SPECTRO CAST P LIMITED, ENIKEPADU, VIJAYAWADA" for III semester students on 25.09.2024. Dr.K.Murahari & Mr. S.Uma Maheswara Reddy coordinated the event.

Students at the machine shop in the industry

Group photo in front of Prakasa Spectro Castings Pvt. Ltd.

COLLABORATIONS / LINKAGES

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

SUMMARY OF COLLOQUIMS ORGANIZED

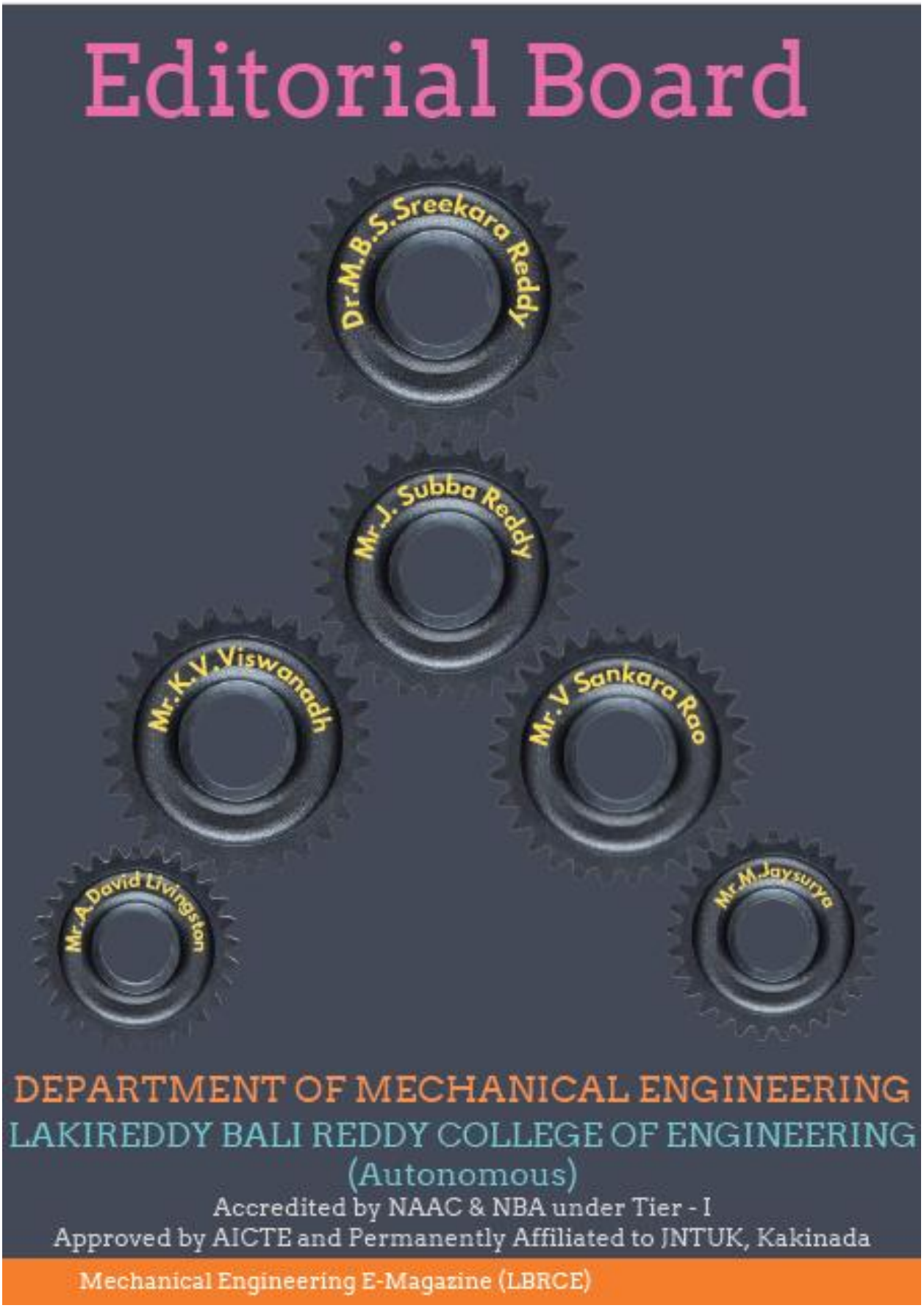
S. No	Name of The Faculty	Name of the Topic	Date
1.	Dr.S.Pichi Reddy	Introduction to material science in 3D printing applications	05.07.2024
2.	Dr.P.V.Chandra Sekhar Rao	Fatigue and fracture analysis of 3D printed components	24.07.2024
3.	Dr.M.B.S.Sreekara Reddy	Engineering Mechanics related to mathematics	13.08.2024
4.	Dr.P.Viaya Kumar	Heat transfer applications in chemical engineering	27.08.2024
5.	Dr.P.Ravindra Kumar	Thermodynamic laws related to various cycles	10.09.2024
6.	Dr.K.Dilip Kumar	Exergy analysis and practical approach	19.09.2024

PATENTS PUBLISHED

Name of the Inventors	Patent Number	Title of the Patent	Agency	Date of Published
Mr. Sankarrao Vinjavarapu, **Dr.MuraharKolli**, **Dr. Siva Sankara Babu Chinka**, **Dr. SeelamPichi Reddy,** Dr. Kondapalli Siva Prasad, Mr. Jaya Raju Gandepudi, Jitendra Gummadi	202441065368 A	Design and Fabrication of Fabrication of Indoor Air Purifier	IPR India	06.09.2024
Dr.Jayasri N Nair **Dr.V.dhanaraju** Spoumya Ranjan Pradhan Dr.Abeda lrzaq Aisqirate	422510-001	Self Adjusting systems for off road vehicles	IPR India	22.08.2024

ACKNOWLEDGEMENTS

The department expresses sincere thanks to all faculty, technical staff and students for contribution towards the technical magazine- mech pulse.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