Edition VII, Volume III, 2023-24

Mechanical Engineering E-Magazine (LBRCE)

(TIER-I)

MECH PULSE

(JAN-MAR 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 VII 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 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 31 faculty members with 11 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.

VISIONOF THE DEPARTMENT

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

MISSIONOF 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

A: Conferences Attended

- **Murahari Kolli**, Adepu Kumar, Kosaraju Satyanarayana, and **Seelam Pichi Reddy** presented a paper titled "Microstructures and Micro Hardness Properties of Laser Cladding W-Ni-Cr Powder Coatings on Ti–6Al–4V" at the International Conference on Additive Manufacturing (ICAM2024) held at NIT Warangal, Telangana, from March 4 to March 6, 2024.
- **Murahari Kolli** and A.V.S. Ram Prasad presented a paper titled "Optimization of WEDM Parameters Using Taguchi and VIKOR's Method for Machining of Ti-6Al-4V Alloy Used in Automotive Applications" at ICICME 2024, conducted at KLEF, Vaddeswaram, Andhra Pradesh, on March 15 and March 16, 2024.
- **Murahari Kolli, Ch. Siva Sankara Babu**, and **V. Sankararao** presented a paper titled "Effect of Minimum Quantity Lubrication on Material Removal Rate and Surface Roughness of PH17-4 Steel Using Taguchi Approach" at ICICME 2024, held at KLEF, Vaddeswaram, Andhra Pradesh, on March 15 and March 16, 2024.
- **Ch. Siva Sankara Babu** presented a paper titled "EDM Input Parameter Optimization for SS-316 Steel Using Fuzzy Logic Technique and an Analysis of the Microstructural Features of the EDM Machining Surface" at ICRAMIE-2024, held at PVPSIT, Vijayawada, Andhra Pradesh, on March 22 and March 23, 2024.
- **B. Kamala Priya, K. Sai Babu, V. Dhana Raju**, and B. Sai Rama Krishna presented a paper titled "Comparative Simulation and CFD Analysis on a Car by Varying Different Angles of Rear Spoiler" at ICRAMIE-2024, held at PVPSIT, Vijayawada, on March 22 and March 23, 2024.

- **K. Sai Babu, V. Dhana Raju**, Devarakonda Vamsi, and Emmanuel Buradagunta presented a paper titled "Investigating the Performance and Emission Characteristics of a Diesel Engine Fuelled with Rice Bran Biodiesel" at ICRAMIE-2024, held at PVPSIT, Vijayawada, Andhra Pradesh, on March 22 and March 23, 2024.
- **P. Mounika, V. Dhana Raju, K. Sai Babu**, and B. Sai Rama Krishna presented a paper titled "Investigation Analysis on Machinability of 15-5PH Stainless Steel (SS15-5PH) by Studying the Various Parameters" at ICRAMIE-2024, held at Prasad V. Potluri Siddhartha Institute of Technology, Vijayawada, Andhra Pradesh, on March 22 and March 23, 2024.

B: Journal Publications

- **Dhanunjay Kumar Ammisetti** and S. S. Harish Kruthiventi published a research paper titled "Experimental Investigation of the Influence of Various Wear Parameters on the Tribological Characteristics of AZ91 Hybrid Composites and their Machine Learning Modelling" *in the* Journal of Tribology-ASME Transactions (ISSN: 1528-8897)inJanuary *2024***.**[DOI: 10.1115/1.4064397]
- **A. Nageswara Rao,** R. Jeyapaula, Sajad Ahmad Najar, and B. Chaitanya published a research paper titled"Driving errors as a function of listening to music and FM radio: A simulator study" *in* Traffic Injury Prevention, published by *Taylor & Francis* on October 10, 2023. [DOI: 10.1080/15389588.2023.2263119]
- **A. Nageswara Rao**, R. Jeyapaul, and B. Chaitanya published a research paper titled "Effect of Visual Distraction on Driving Performance: Driving Simulator Experiment" *in the* International Journal of Vehicle Structures and Systems (IJVSS) *on* December 26, 2023. [DOI: 10.4273/ijvss.15.5.03]
- **Murahari Kolli** and Chendra Sekhar Sunnapu published a research paper titled "Experimental Investigation of Al 5083 Alloy Using Friction Stir Welding Process Through Taguchi Method"in theInternational Journal on Interactive Design and Manufacturing (IJIDeM)on February 20, 2024**.** [DOI: 10.1007/s12008-024-01746-w]
- Chandrasekhar Sunnapu and **Murahari Kolli** published a research paper titled"Assessing the Role of Friction Stir Welding Tool Shoulder Profile and Parameters on Mechanical Performance of Al5083 Weld Joints Pre-and Post-Corrosion Exposure"inEngineering Research Express (ISSN: 2631-8695). [DOI: 10.1088/2631-8695/ad2f89]

- **Dhanunjay Kumar Ammisetti,** S. S. Harish Kruthiventi**, SankararaoVinjavarapu,** Nelakuditi Naresh Babu, Jaya Raju Gandepudi, and **Sudheer Kumar Battula** published a research paper titled "A Review on Reinforcements, Fabrication Methods, and Mechanical and Wear Properties of Titanium Metal Matrix Composites"in theJournal of Engineering and Applied Science (ISSN: 1110-1903). [DOI: 10.1186/s44147-024-00392-z].

BOOKS/BOOK CHAPTERS PUBLISHED

- **P. Ravindra Kumar** and N. Ravi Kumar authored a book chapter titled "Exergy - Theoretical Background and Cases of Study/Exergy Analysis of Thermal Energy Systems" published by Intech Open, London, U.K. (ISBN: 978-0-85466-683-6).
- **Murahari Kolli**, Dasari Sai Naresh, and K. Ravi Prakash Babu published a research paper titled "Experimental Studies on Mechanical Characteristics of Bamboo Leaf Ash Reinforcement with Aluminum 7075 Alloy Using Rotary Stir Casting Technique" in Bentham Science, Singapore (ISBN: 978-981-5136-72-2).
- **P. Ravindra Kumar** and Ch. Srinu published a research paper titled "Shape Optimization of a Heavy-Duty Truck Chassis Frame Using CAE Tools" in IIP Series Publications (ISBN: 978-93-5747-352-1).
- **Pasupuleti Ravindra Kumar** and Nelakuditi Naresh Babu published a research paper titled "Thermal Design, Fabrication and Analysis of Phase Change Material Based Air Cooler" in IIP Series Publications (ISBN: 978-93-5747-742-0).

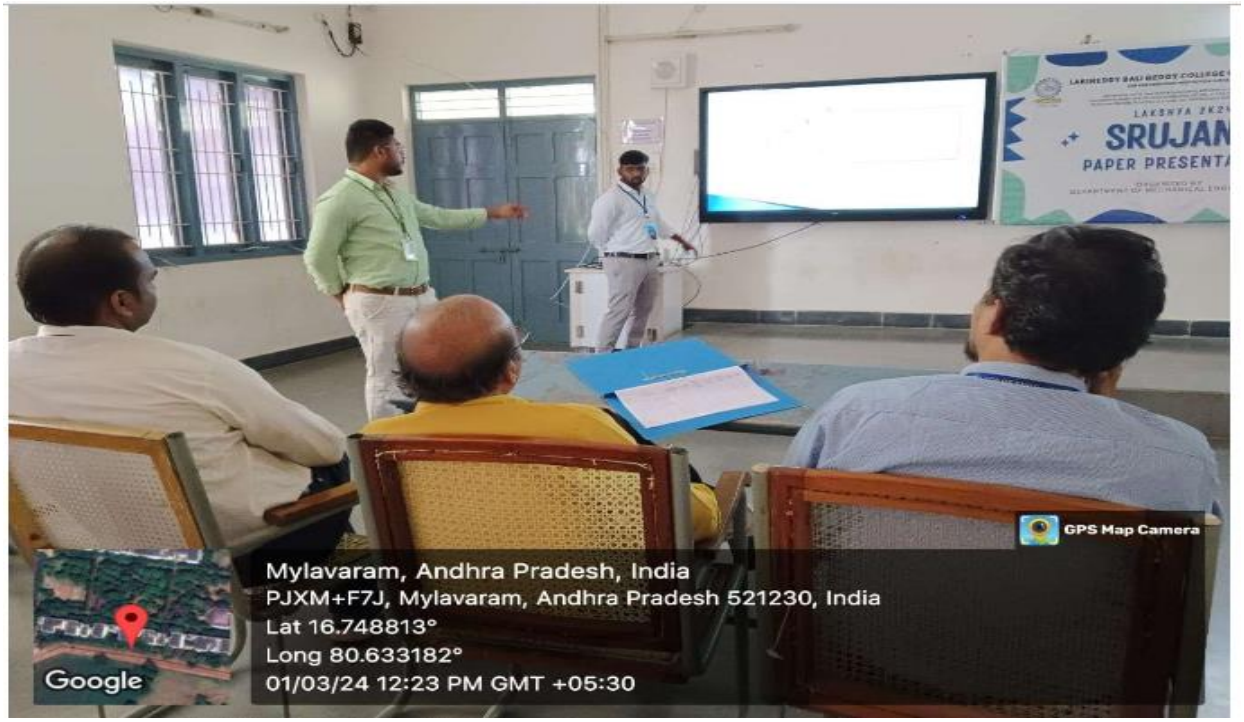
EVENTS ORGANIZED BY THE DEPARTMENT

- The Department of Mechanical Engineering, organized an industrial visit for II & III-year students to “MOHAN SPINTEX INDIA LIMITED, INDUSTRIAL PARK, MALLAVALLI” conducted by ISHRAE student chapter on 09.01.2024. Mr.K.lakshmi Prasad & Mr. S.Uma Maheswara Reddy coordinated the event.

Students observing at weaving section in Mohan Spintex India Ltd, Mallavalli

Group Photo of Students at Mohan Spintex India Ltd, Mallavalli

- The Department of Mechanical Engineering, organized a National level technical symposium Lakshya 2024 on 01.03.2024.



Students participation in paper presentation in Lakshya 2024

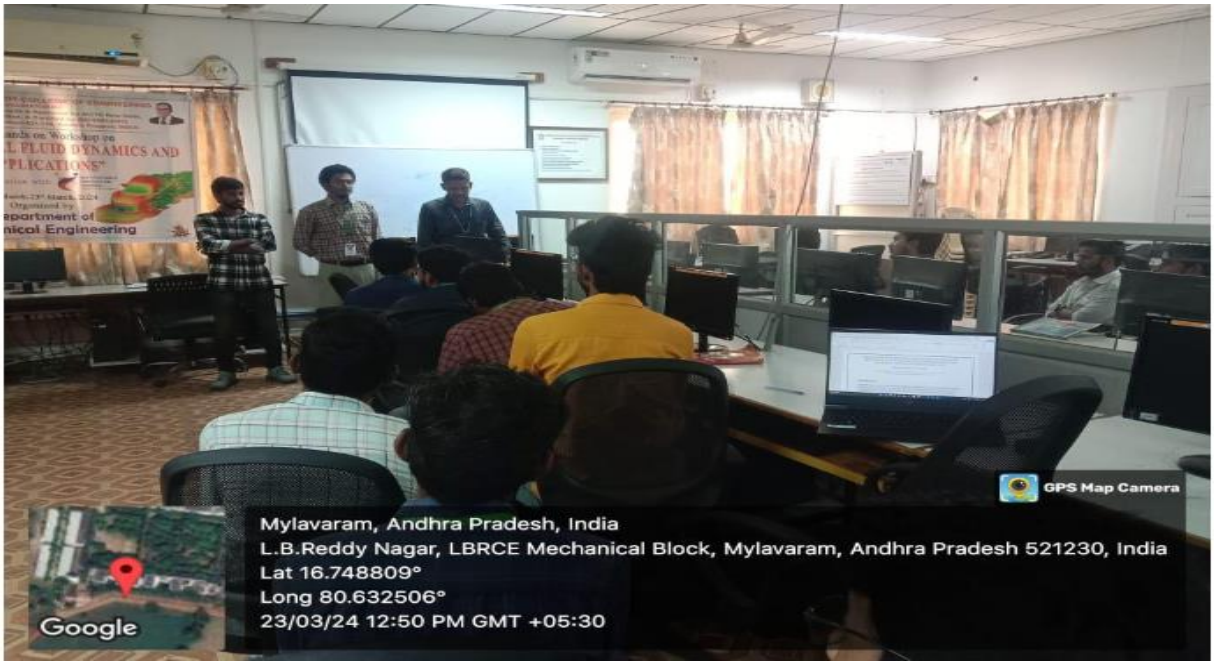
Students participation in poster presentation in Lakshya 2024

- The Department of Mechanical Engineering, organized an industrial visit to the Central Institute of Plastics Engineering and Technology, Surampalli, was conducted under the guidance of Dr. K. Murahari, Mr. K. V. Viswanadh, and Mr. S. Rami Reddy for IV-year students on March 18, 2024, with a total of 77 participants.

Students Observing the Die Sink EDM in CIPET Surampalli

Students Group Photo In Front Of Main Building At M/S CIPET, Surampalli

- The Department of Mechanical Engineering, organized a One Week offline Student Workshop on "Computational Fluid Dynamics and its Applications" by Mr.Muddada Srinivasa Rao, Research Scholar (PMRF), Department of Mechanical Engineering, Indian Institute of Technology, Kharagpur from 18.03.2024 to 23.03.2024. Dr. P.Viaya Kumar, Professor coordinated the event.



Dr.M.B.S.Srekara Reddy, Professor & HoD interaction with students

Students with Dean (R&D), HoD and Resource person

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)

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

1. Mr. J. Subba Reddy Participated in Program On "Recent Trends In Mechanical Engineering And Industry 4.0" Organized By Ats's Sanjay Bhokare Group Of Institutes, Miraj, Maharashtra, From 08-01-2024 To 13-01-2024.
2. Mr. J. Subba Reddy Participated in A Program On "Deep Learning" Organized By IIT Madras, From 01-2024 To 04-2024.
3. Mr. J. Subba Reddy Participated in A Program On "Design Practice" Organized By IIT Madras, From 01-2024 To 03-2024.
4. Mr. J. Subba Reddy Participated in A Program On "Industrial Automation And Control" Organized By IIT Madras, From 01-2024 To 04-2024.
5. Mr. J. Subba Reddy Participated in A Program On "Introduction To Machine Learning" Organized By IIT Madras, From 01-2024 To 04-2024.
6. Mr. J. Subba Reddy Participated In A Program On "Manufacturing Guidelines For Product Design" Organized By IIT Madras, From 01-2024 To 03-2024.
7. Mr. J. Subba Reddy Participated In A Program On "Robotics And Control: Theory And Practice" Organized By IIT Madras, From 01-2024 To 03-2024.
8. Mr. J. Subba Reddy Participated In A Program On "Sensors And Actuators" Organized By IIT Madras, From 01-2024 To 04-2024.
9. Mr. J. Subba Reddy Participated In A Program On "Wheeled Mobile Robots" Organized By IIT Madras, From 01-2024 To 03-2024.
10. Mrs. B. Kamala Priya Participated In A Program On "IoT Solutions For Electric Vehicles" Organized By Pscmrce&T, From 08-01-2024 To 13-01-2024.
11. Mr. K. Sai Babu participated in a program on "Advancing Excellence in Manuscript Drafting and Intellectual Property Rights (IPR)" organized by LBRCE, from 04-01-2024 to 06-01-2024.

12. Ms. P. Mounika participated in a program on "Advancing Excellence in Manuscript Drafting and Intellectual Property Rights (IPR)" organized by LBRCE, from 04-01-2024 to 06-01-2024.
13. Ms. P. Mounika participated in a program on "Effective Engineering Teaching in Practice" organized by IIT Madras, from 01-2024 to 02-2024.
14. Dr. Murahari Kolli participated in a program on "Global Conversations in Mechanical Engineering: Bridging Innovation and Sustainability" organized by Madanapalle Institute of Technology & Science, Andhra Pradesh, from 19-02-2024 to 23-02-2024.
15. Mr.V.Sankararao participated in a program on "Applications of AI & ML in Advanced Material Processing Techniques" organized by NIT Surat, from 02-02-2024 to 08-02-2024.
16. Mr.S.Uma Maheswara Reddy participated in a program on "Emerging Trends and Challenges in Renewable Energy Systems" organized by Gates Institute of Technology, from 05-02-2024 to 09-02-2024.
17. Mr. J. Subba Reddy participated in a program on "Modelling and Simulation of Dynamic Systems" organized by IIT Madras, from 02-2024 to 04-2024.
18. Dr. P. Ravindra Kumar participated in a program on "Electrochemical Technology in Pollution Control" organized by IISc, Bangalore, from 02-2024 to 03-2024 (Online).
19. Mr. V. Sankararao participated in a program on "Research Methodology" organized by IIT Madras, from 02-2024 to 04-2024.
20. Mr. S. Uma Maheswara Reddy participated in a program on "NBA Accreditation and Teaching-Learning in Engineering (NATE)" organized by IIT Madras, from 01-2024 to 04-2024.
21. Jonnala Subba Reddy participated in a program on "Robotics and Control: Theory and Practice" organized by IIT Roorkee, from 01-2024 to 03-2024 (Online).
22. Jonnala Subba Reddy participated in a program on "Manufacturing Guidelines for Product Design" organized by IIT Roorkee, from 01-2024 to 03-2024 (Online).
23. Jonnala Subba Reddy participated in a program on "Wheeled Mobile Robots" organized by IIT Madras and IIT Palakkad, from 01-2024 to 03-2024 (Online).
24. Dr.Murahari Kolli, attended a workshop on "3D Printing & Additive Manufacturing Insights" from March 12-16, 2024, at National Institute of Technology, Mizoram.
25. Dr.Ch.Siva Sankara Babu, attended a workshop on "3D Printing & Additive Manufacturing Insights" from March 12-16, 2024, at National Institute of Technology, Mizoram.

26. Mr.K.Venkateswara Reddy, attended a workshop on "Novel Materials: Processing & Characterization" from 29th Feb-6th March 2024, at S V National Institute of Technology, Surat, Gujarat.

FACULTY COLLOQUIMS

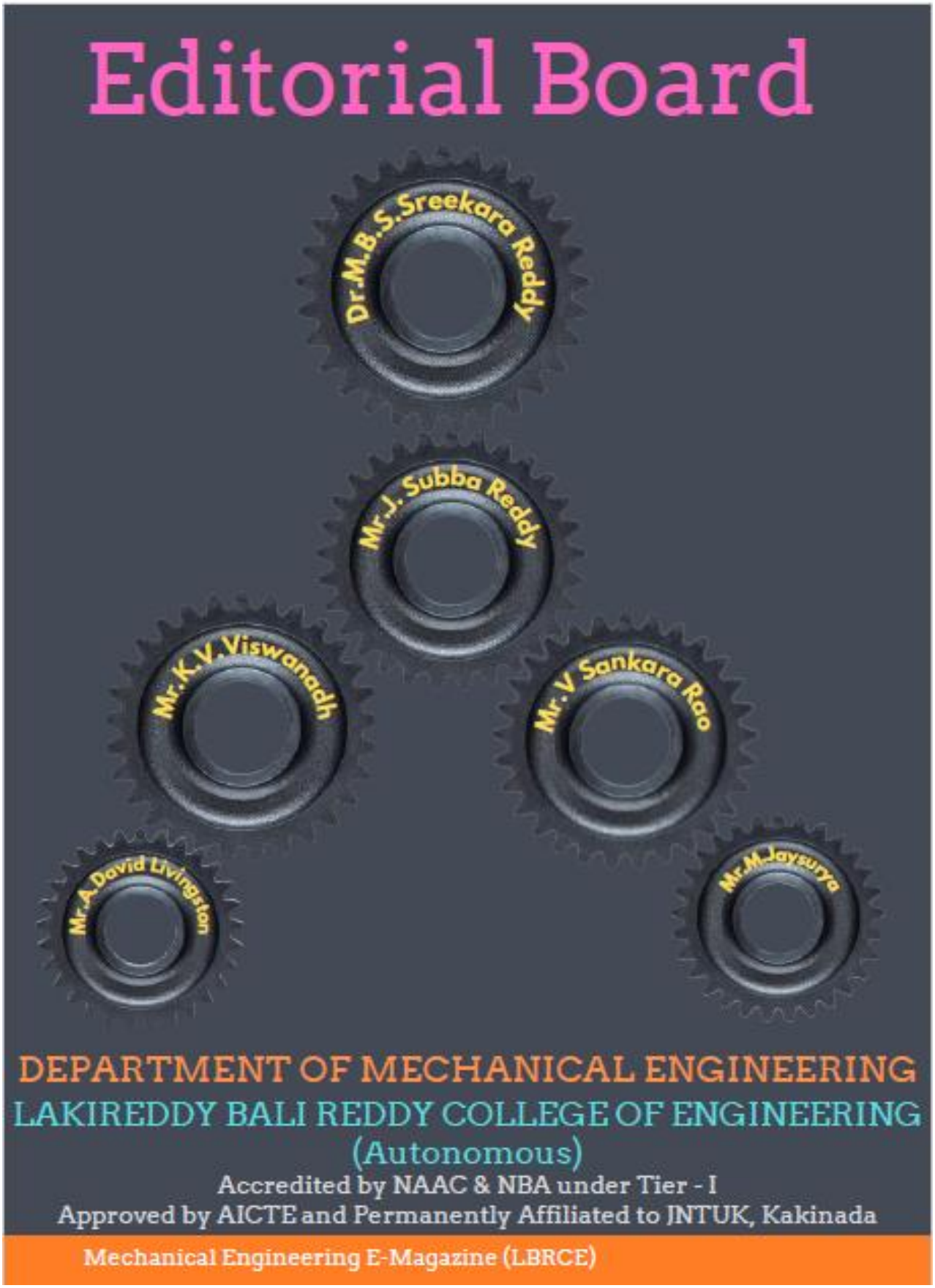
Name of the Faculty	Name of the Topic	Date
Dr.V.Dhana Raju	Design And Fabrication of Hybrid Dryer	19.01.2024
Dr.B.Sudheer Kumar	Design And Fabrication of Automatic Wall Painting Robot	30.01.2024
S.Srinivasa Reddy (Jr)	Fabrication of Refrigeration System Using Liquified Petroleum Gas	08.02.2024
K.V.Viswanadh	Investigation of Mechanical Parameters of 3D Printed Honeycomb Sandwich Panels With Different Orientations	28.02.2024
K.Narayana	Introduction to Computer Integrated mManufacturing	12.03.2024
A.Nageswara Rao	Detecting Distracted Driving Behaviour Using Deep Learning	27.03.2024

NPTEL ONLINE CERTIFICATES

Name of the Faculty	**Title of the course**	**Duration (from-to)**	**Awarding Institute**	**Grade**
Dr.P.Ravindra Kumar	Electrochemical Technology in Pollution Control	Feb to Mar 2024	IISc Bangalore	Successfully Completed
Jonnala Subba Reddy	Robotics and Control Theory and Practice	Jan – Mar 2024	IIT Roorkee	Elite
	Manufacturing Guidelines For Product Design	Jan-Mar 2024	IIT Roorkee	Elite
	Wheeled Mobile Robots	Jan-Mar 2024	IIT Madras	Elite

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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