Edition VII, Volume II, 2023-24

Mechanical Engineering E-Magazine (LBRCE)

(TIER-I)

MECH PULSE

(OCT-DEC 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 VII and volume II. 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 **Dassault 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 prese ntations, 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.

RESEARCH PROJECTS APPLIED

S.No.	Name of the Faculty	Title of the Project	Funding Agency	Amount
1.	Dr.V.Dhana Raju, Dr. K.Apparao	Application of LSTM-based machine learning algorithm and DIESEL-RK software in studying diverse attributes of diesel engine with different piston bowl geometries	SERB-SURE	26,44,000/-
2.	Dr.Seelam Pichi Reddy	Multi utility Wheel Chair For Crawling People	DST	39,95,000/-

PUBLICATIONS BY FACULTY

A: Conferences Attended

- Dakshina Murthy, P. Lova Raju, and **P. Ravindra Kumar** presented their work titled "Effect of Truncation and Axial Location of Plug Geometry on the Performance of Aerospike Nozzle" at the Fluid Mechanics and Fluid Power Engineering (FMFP 2023) conference held at IIT Jodhpur, Rajasthan, from 20th December 2023 to 22nd December 2023.

B: Journal Publications

- **Seelam Pichi Reddy**, Jagan Mohan Reddy Danda, **Murahari Kolli**, and Anusha Yaramala, "Artificial Neural Network Modelling of Aluminium/Al2O3/Fly Ash Hybrid Composites Prepared by Powder Metallurgy," published in the International Journal on Interactive Design and Manufacturing (IJIDeM), October 2023. https://doi.org/10.1007/s12008-023-01574-4.

- **V. Dhana Raju**, "Comprehensive Analysis of Compression Ratio, EGR, and Pilot Fuel Injection in a Diesel Engine Fueled with Tamarind Biodiesel," published in Sustainability, October 2023. https://doi.org/10.3390/su152115222.
- Md. K. M. Farokhi, P. V. Chalapathi, N. R. Medikondu, **Dr. P. Vijaya Kumar**, A. Sai Harsha, and B. V. Dharmendra, "Artificial Intelligence Technique for Industry 4.0," published in AIP Conference Proceedings, 21-11-2023. https://doi.org/10.1063/5.0158465.
- N. R. Medikondu, N. Madhu Bindu, **Dr. P. Vijaya Kumar**, KareemullaShaik, A. Sai Harsha, and B. V. Dharmendra, "Implementation of Beam Search Algorithm for Expert System," published in AIP Conference Proceedings, 21-11-2023. https://doi.org/10.1063/5.0158466.
- Sai Harsha, **Dr. P. Vijaya Kumar**, Arumalla Nagaraju, K. Prakash Babu, N. R. Medikondu, and B. V. Dharmendra, "Mining Knowledge for NP-Complete Scheduling Problems," published in AIP Conference Proceedings, 21-11-2023. https://doi.org/10.1063/5.0158474.
- Md. K. M. Farokhi, N. R. Medikondu, P. V. Chalapathi, A. Sai Harsha, **Dr. P. Vijaya Kumar**, and B. V. Dharmendra, "Soft Computing Techniques for Task Scheduling," published in AIP Conference Proceedings, 21-11-2023. https://doi.org/10.1063/5.0158463.
- **Dr. V. Dhana Raju, K. V. Viswanadh, D. Mallikharjuna Rao, and K. Sai Babu**, "The Experimental Research on Diesel Engine Characteristics with Annona Squamosa Biodiesel," published in AIP Conference Proceedings, 21-11-2023. https://doi.org/10.1063/5.0158593.
- Sri Harsha, Mohammad Arshad, **V. Sankara Rao**, K. Prakash Babu, N. R. Medikondu, and B. V. Dharmendra, "Data Mining Application in Task Scheduling System," published in AIP Conference Proceedings, 21-11-2023. https://doi.org/10.1063/5.0158472.
- N. R. Medikondu, **V. Sankara Rao**, Jaya Raju Gandepudi, K. Prakash Babu, A. Sri Harsha, and B. V. Dharmendra, "Improve the Performance of Complex System Through Artificial Intelligence," published in AIP Conference Proceedings, 21-11-2023. https://doi.org/10.1063/5.0158471.
- **K. Srinivasa Rao, K. V. Viswanadh, M. Oliva, A. Dhanujay Kumar, A. Pratyush**, and N. R. Medikondu, "MATLAB Coding and Experimental Analysis of Spiral Plate Heat Exchanger," published in AIP Conference Proceedings, 21-11-2023. https://doi.org/10.1063/5.0169441.
- N. R. Medikondu, Kona Ram Prasad, **Olive Meduri**, K. Prakash Babu, A. Sri Harsha, and B. V. Dharmendra, "Data Mining-Based Prediction for Operational Completion Time and Mean Flow Time," published in AIP Conference Proceedings, 21-11-2023. https://doi.org/10.1063/5.0158476.

EVENTS ORGANIZED BY DEPARTMENT

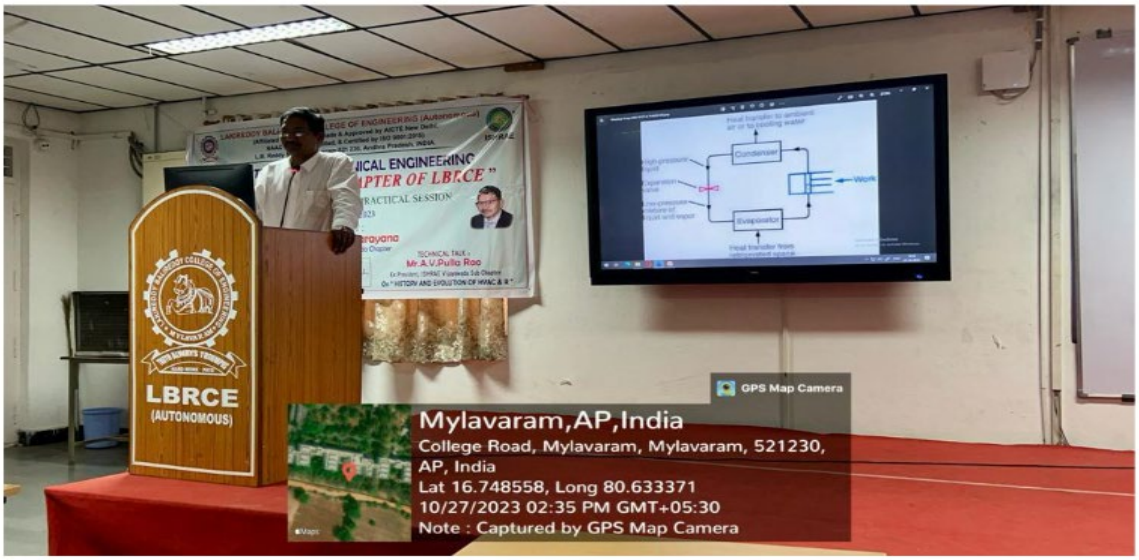
- The Department of Mechanical Engineering organized an Industrial Visit to Prakasa Spectro Cast Pvt. Limited, Enikepadu, Vijayawada, on 15-11-2023. The visit was facilitated by Mr. T. Pardhasaradhi, MD of Prakasa Spectro Cast, and Mr. K. Sambasiva Rao, Engineer, with a total of 57 participants.

B.Tech III Semester A & B section students are in front of Industry

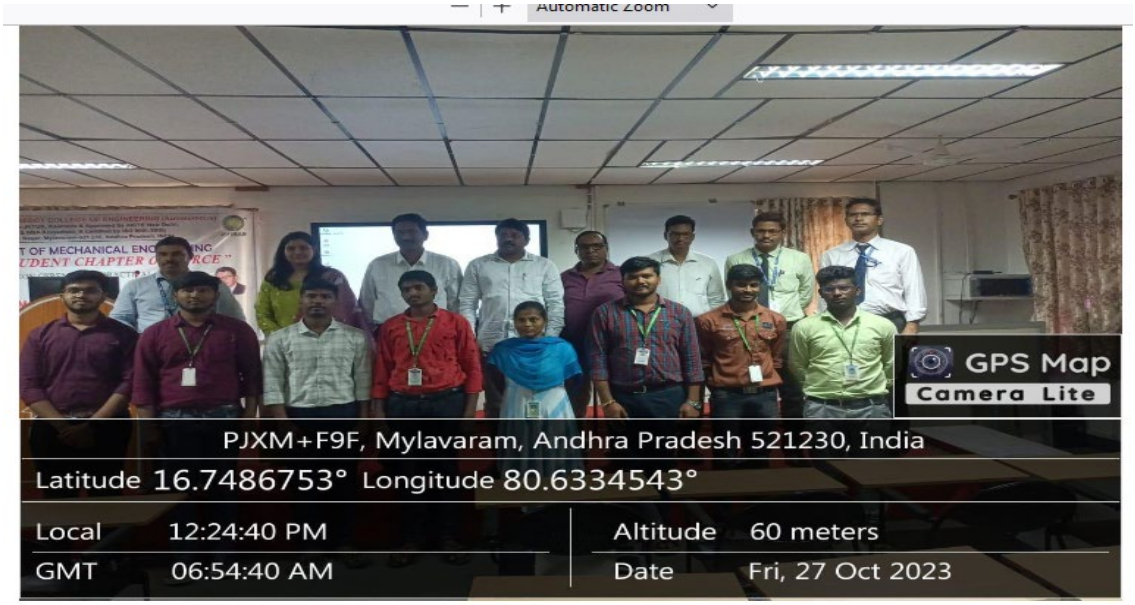
B.Tech III Semester A & B section students at Machine shop

GUEST LECTURES

- The Department of Mechanical Engineering organized **a guest lecture and demonstration on the "Window Air-Conditioner Unit"** on 27/10/2023 from 10 AM to 4 PM. The event featured distinguished speakers, including Mr. A.V. Pulla Rao, Past President of ISHARE Vijayawada Sub-Chapter; Mr. U. Siva Satyanarayana, President of ISHRAE Vijayawada Chapter; and Ms. Saandeepani Vajje, Immediate Past President of ISHARE Vijayawada Chapter, who also acted as the Chapter Installation Officer. The event was coordinated by the department, with 148 participants in attendance.



Mr.A.V.Pulla Rao, Past President ISHRAE Vijayawada Sub-Chapter delivering the Guest Lecture on " History and Evolution of HVAC & R"



After the Oath taking ceremony done by Ms.V.Saandeepani, Imm Past President, ISHRAE Vijayawada Chapter the newly constitutem studnt chapter office bearers Left to right Mr.K.Praveen , President, Mr.G.Chaitanya Naveen, President Elect, and CWC members taking photograph with ISHRAE Vijayawada Chpter Team Members

STUDENT CERTIFICATION PROGRAM

- The Department of Mechanical Engineering organized a Student Certification Program on "Modeling & Simulation Using Unigraphics NX" in collaboration with CANTER CADD Pvt Ltd, Vijayawada, from 04-12-2023 to 09-12-2023, with a total of 105 participants.

Students participating in certification program

Students participating in certification program

COLLABORATIONS / LINKAGES

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

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

1. Dr. B. Sudheer Kumar has participated in a program on "Design Thinking: A Primer" organized by IIT Madras, Chennai, during July-August 2023.
2. K. Lakshmi Prasad has participated in a program on "Design Thinking: A Primer" organized by IIT Madras, Chennai, during July-August 2023.
3. V. Sankararao has participated in a program on "Design Thinking: A Primer" organized by IIT Madras, Chennai, during July-August 2023.
4. B. Kamala Priya has participated in a program on "Patent Drafting for Beginners" organized by IIT Madras, Chennai, during July-August 2023.
5. K. Venkateswara Reddy has participated in a program on "Design Thinking: A Primer" organized by IIT Madras, Chennai, during July-August 2023.
6. Dr. S. Pichi Reddy has participated in a one-week International Short-Term Training Program (Online) on "Recent Advances in Fuel Cell and Hydrogen Storage" organized by Anurag University, Venkatapur (V), Ghatkesar (M), Telangana, India, from 9th to 13th October 2023.
7. B. Kamala Priya has participated in a program on "Sustainable Energy Systems and Applications" organized by VRSEC, Kanuru, Vijayawada, from 11-12-2023 to 16-12-2023.
8. K. Sai Babu has participated in a one-week online Faculty Development Program on "Quantum Signal Processing" organized by Lakireddy Bali Reddy College of Engineering, Mylavaram, NTR District, from 14-12-2023 to 20-12-2023.
9. P. Mounika has participated in an online Faculty Development Program on "Inculcating Universal Human Values in Technical Education" organized by AICTE, New Delhi, from 18-12-2023 to 22-12-2023.

STAFF COLLOQUIUMS

Name of the Faculty	Name of the Topic	Date
Dr.K.Dilip Kumar	Lecture on Design and fabrications of off road vehicles	04.10.2023
S.Srinivasa Reddy	Lecture about experimental analysis of mechanical properties of aluminium metal matrix composite	30.10.2023
Dr.V.Dhana Raju	Lecture about Maxwell relations	10.11.2023
Dr.B.Sudheer Kumar	Fabrication of Arecanut Tree climbing Robot	22.11.2023
Dr.Ch.SivaSankaraBabu	Fabrication and Testing of Various Hybrid Composites Using Jute, Pineapple And Sisal Fiber	12.12.2023
J.Subba Reddy	Design and fabrication of solar and wind power generation	27.12.2023

FACULTY ACHIEVEMENTS

GUEST LECTURES GIVEN BY FACULTY

Name of the faculty	Name of the Topic	Duration	Organizing Institute & Place
Dr.P.Ravindra Kumar	Computational comparison and experimental performance analysis of heat pipes using concentrating solar parabolic trough collector	30.10.2023 to 04.11.2023	Swarnandhra College of Engineering and Technology, Narsapuram

PATENTS PUBLISHED

Name of the Inventors	Patent Number	Title of the Patent	Agency
Srinivasa Rao Kamana, G. Bala Murali Krishna, Siva SankaraBabuChinka	202341063961 A	Coconut Coir Fiber Reinforced Epoxy Composite With Cement Filler	IP INDIA
B.SUDHEER KUMAR	202341062471	Mono Wheel Bicycle With Enhanced Stability and Maneuverability	IP INDIA
K. Sai Babu, S.Uma Maheswara Reddy	202341082074	Effect Of Fuel Injection Pressure On Performance And Emission Characteristics Of DI - CI Engine With Shea Olein Biodiesel	IP INDIA

NPTEL ONLINE CERTIFICATIONS

- The following are the details of faculty completed the NPTEL online courses during Oct-Dec 2023.
- Dr. P Ravindra Kumar secured **Top 5%** in "Physics of Renewable Energy" course with Elite + Silver grade.
- Dr. P Ravindra Kumar secured **Top 5%** in "Power Plant Engineering" course with Elite + Silver grade.
- Dr. P Ravindra Kumar received **NPTEL Domain Scholars** and **NPTEL Believers** awards from IIT Madras during Oct-Dec 2023.

S. No	Name of the Faculty	Name of the Course	% of Marks	Grade
1.	Dr. P Ravindra Kumar	Physics Of Renewable Energy Systems	81	Elite + Silver
2.	Dr. P Ravindra Kumar	Power Plant Engineering	69	Elite
3.	Dr. P Ravindra Kumar	Ecology And Environment	70	Elite
4.	Dr P.Vijaya Kumar	Stress Management	57	Successfully completed
5.	Mr Siva Sankara Babu Chinka	Problem Solving Through Programming In C	42	Successfully completed
6.	Dr.Siva Sankara Babu Chinka	Design Thinking - A Primer	52	Successfully completed
7.	Mr.A. Nageswara Rao	Design Thinking - A Primer	62	Elite
8.	Mr Sankararao Vinjavarapu	Design Thinking - A Primer	52	Successfully completed
9.	Mr Mallikarjuna Rao Dandu	Refrigeration And Air-Conditioning	61	Elite
10.	Mr.K. Venkateswarareddy	Design Thinking - A Primer	62	Elite
11.	Mr Dhanunjay Kumar Ammisetti	Programming, Data Structures and Algorithms Using Python	56	Successfully completed

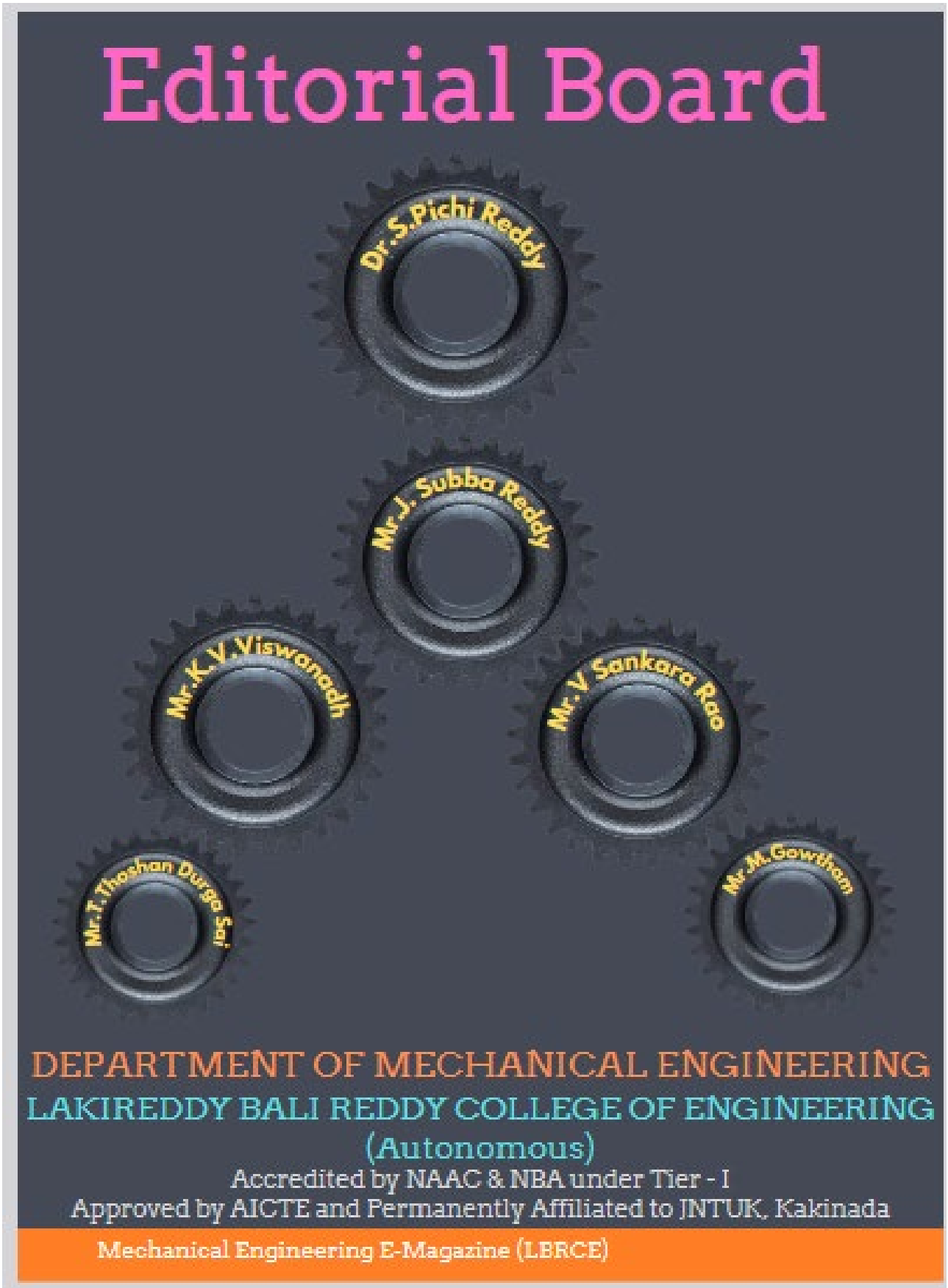
STUDENT ACHIVEMENTS

- The following are the details of students completed the NPTEL online courses during Oct-Dec 2023.

S. No	Name of the Student	Name of the Course	Marks	Grade
1.	Narra Mohan Vamsi	Introduction To Industrial 4.0 And Industrial Internet Of Things	79	Elite + Silver
2.	Oggu L K M K Pavan Kumar Reddy	Introduction To Industrial 4.0 And Industrial Internet Of Things	78	Elite + Silver
3.	KalasaniUpendra	Introduction To Industrial 4.0 And Industrial Internet Of Things	72	Elite
4.	Dola Sai Akhileshwar Manne	Introduction To Industrial 4.0 And Industrial Internet Of Things	69	Elite
5.	Gowrisetti Chaitanya Naveen	Introduction To Industrial 4.0 And Industrial Internet Of Things	68	Elite
6.	OgiralaManjunadh	Introduction To Industrial 4.0 And Industrial Internet Of Things	67	Elite
7.	GopisettiHarivenkat	Introduction To Internet Of Things	67	Elite
8.	Narra Mohan Vamsi	Introduction To Industrial 4.0 And Industrial Internet Of Things	64	Elite
9.	BathinaKusalkumar	Introduction To Industrial 4.0 And Industrial Internet Of Things	63	Elite
10.	TarunChatla	Introduction To Industrial 4.0 And Industrial Internet Of Things	63	Elite
11.	NaredlaNavya	Introduction To Industrial 4.0 And Industrial Internet Of Things	56	Successfully completed
12.	Bethapudi Vijay Varma	Ethical Hacking	52	Successfully completed

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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