



***Modern Education Society's
Wadia College of Engineering,
Pune.***

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Accredited by NBA & NAAC with
“A ++” Grade*

***Department of Mechanical
Engineering***

***“MechVision”
Technical Magazine***

***Academic Year
2024-25***

Dear Readers,

It is with great pleasure that I welcome you to this edition of **MechVision**, the official technical magazine of the **Department of Mechanical Engineering**. This platform continues to serve as a vibrant canvas for the creativity, curiosity, and technical acumen of our students, faculty, and alumni.

Mechanical Engineering, long regarded as the backbone of innovation, is evolving rapidly. From robotics and additive manufacturing to sustainable energy systems and computational mechanics, the field is expanding in both depth and scope. This magazine aims to reflect that dynamism by showcasing the groundbreaking work and fresh ideas emerging from our department.

In this issue, you will find a blend of research articles, project highlights, technical case studies, and opinion pieces. We feature cutting-edge developments such as the integration of AI in predictive maintenance, experimental fluid dynamics studies, and the use of simulation tools in thermal system design. Our student contributors have also explored real-world applications through industry internships and interdisciplinary projects.

Beyond technical content, MechVision also celebrates the human side of engineering—interviews with inspiring alumni, faculty achievements, student milestones, and department initiatives that foster innovation and collaboration.

As we continue to push boundaries in mechanical engineering, this magazine stands as a testament to our department's commitment to excellence, learning, and progress. I extend my sincere thanks to all contributors, reviewers, and the editorial team whose dedication has brought this publication to life.

We hope this edition informs, inspires, and invites you to be part of the ever-evolving story of mechanical engineering.

Warm regards,

Dr.V.N.Raibhole

Head

Department of Mechanical Engineering

Dr.S.H.Gawande

Assoc.Professor

Department of Mechanical Engineering

Mr.Sushant S.Jadhav

Asst.Professor

Department of Mechanical Engineering

Mr.P.V.Bute

Asst..Professor

Department of Mechanical Engineering

M. E. S. College of Engineering, Pune. Department of Mechanical Engineering Number of papers published per teacher in the Journals notified on UGC website during the last five years										
Academic Year	Title of paper	Name of the author/s	Department of the teacher	Name of journal	Year of publication	ISSN number	Link to the recognition in UGC enlistment of the Journal /Digital Object Identifier (doi) number			
							Link to website of the Journal	Link to article/paper/abstract of the article	Is it listed in UGC Care list/Scopus/Web of Science/other	Citations
Dr. Vikas Chougule										
2024-25	Validation of effect of composite additive on optimized combustion characteristics of CI engine using AHP and GRA method	Kareem AboRas Amit R. Patil, S.A. Patil, Rupali Patil, A.M. Pawar, V.N. Chougule	Mechanical	Heliyon (https://doi.org/10.1016/j.heliyon.2024.e34216)	2024-25	ISSN 2405-8440 (online)	https://www.cell.com/heliyon/home	https://doi.org/10.1016/j.heliyon.2024.e34216	Scopus	2
Dr. Vajjanath Raibhole										
2024-25	Performance of heat pump air conditioning with R1234ze (HFO) as a refrigerant	Subhash Kumar, Vajjanath N Raibhole, Himadri Majumder	Mechanical	Journal of Optimization	2024-25	print ISSN of 2356-752X	https://onlinelibrary.wiley.com/journal/17179	https://doi.org/10.1155/2024/9101945	Google Scholar	
2024-25	An extensive review on use of CFD simulation technique for assessment of performance of various rib geometries and arrangements in heated fluid ducts	Harshad N Deshpande, Vajjanath N Raibhole	Mechanical	International Journal of Engineering Systems Modelling and Simulation	2024-25	ISSN:17559758, 17559766	https://www.sciengine.com/journalsearch.php?q=21100198227&ip=sd	https://doi.org/10.1504/IJESMS.2024.141867	WoS (ESCI), Scopus	8
2024-25	Experimental and numerical analysis of effect of combined drop-shape pin fins and plate fins type heat sink under natural convection	Ram Deshmukh, Vajjanath Raibhole	Mechanical	Numerical Heat Transfer, Part A: Applications	2024-25	ISSN 1521-0634 (Online)	https://www.tandfonline.com/journals/unh29	https://doi.org/10.1080/10407792.2023.2195128	WoS (SCE), Scopus	
2024-25	Computational and experimental performance assessment of rectangular-sectioned solar air heater duct provided with new curved ribs	Harshad Deshpande, Vajjanath Raibhole	Mechanical	Heat Transfer	2024-25	Print ISSN:2688-4534	https://onlinelibrary.wiley.com/doi/10.1002/hjt.23014	https://doi.org/10.1002/hjt.23014	WoS (ESCI), Scopus	2
2024-25	Numerical and Performance Analysis of R290 Heat Pump Driven Air Conditioning System for Heating and Cooling	Subhash Kumar, Vajjanath N Raibhole, Premendra J Bansod, Akhya Kumar Behera, Suhas Balasaheb Bhalake	Mechanical	Journal of Mines, Metals and Fuels	2024-25	Print ISSN: 0002-2755	https://informaticajournals.co.in/index.php/jmmf	https://doi.org/10.20944/preprints202407.1885.v1	Scopus	
2024-25	Heat Transfer and Lifetime Estimation of High-Power Light Emitting Diodes (HPLED) Using Drop Shape Pin Fin Heat Sink Under Natural Convection	Ram Zampat Deshmukh, VN Raibhole	Mechanical	Journal of the Brazilian Society of Mechanical Sciences and Engineering	2024-25	Print ISSN 1678-5878	https://link.springer.com/journal/450430	https://doi.org/10.1007/s40430-025-05493-1	WoS (SCE), Scopus	
Dr. SH Gawande										
2024-25	Performance Assessment of Petrol Engines with Hydrogen as an Alternative Fuel	KONKALA Balashowry, MVR DURGA Prasad, V Rathinam, BAPURAO G Marlapalle, SACHIN P Kumbale, Ja S Gawande, Baban K Suryatal, SH H Gawande	Mechanical	International Journal of Energy Production and Management, 2024, Vol. 9, Iss. 2	2024-25	Print ISSN: 2056-3272	http://ieta.org/journals/ijepm	https://doi.org/10.18280/ijepm.090201	Scopus	1
2024-25	Sustainable machining of EN19 steel: Efficacy of eco-friendly cooling fluids and hybrid optimization techniques	RSN Sahai, PK Jadhav, S Solanke, SH Gawande	Mechanical	Precis. Mech. Digit. Fabr	2024-25	ISSN (print): 3006-9734	https://www.acadlore.com/journals/PMDF	https://doi.org/10.56573/pmddf.010105	Google Scholar	
2024-25	Customer churn prediction in telecom sector using machine learning techniques	Sharmila K Wagh, Ashwarya A Andhale, Kishor S Wagh, Jayshree R Pansare, Smita P Ambadekar, SH Gawande	Mechanical	Results in Control and Optimization	2024-25	Online ISSN: 2666-7207	https://www.sciencedirect.com/journal/results-in-control-and-optimization	https://doi.org/10.1016/j.rico.2023.100342	WoS (ESCI), Scopus	50
2024-25	Autonomous drones and their influence on standardization of rules and regulations for operating-A brief overview	GR Bhat, MA Duthedia, RA Panchal, YS Shirke, NR Angane, SR Khonde, SP Khedkar, JR Pansare, SS Bere, RM Wahul, SH Gawande	Mechanical	Results in Control and Optimization	2024-25	Online ISSN: 2666-7207	https://www.sciencedirect.com/journal/results-in-control-and-optimization	https://doi.org/10.1016/j.rico.2024.100401	WoS (ESCI), Scopus	12
2024-25	Reversible Logic Gates and Applications-A Low Power Solution to VLSI Chips.	Kanchan S Tiwari, Rekha S Kadam, Manisha A Duthedia, Jayshree R Pansare, Shipa P Khedkar, Shrawan H Gawande	Mechanical	Mathematical Modelling of Engineering Problems	2024-25	ISSN 2369-0739	https://www.iieta.org/Journals/MMEP	https://doi.org/10.18280/mmp.110315	Scopus	4
2024-25	Battery Health Management-a perspective of design, optimization, manufacturing, fault detection, and recycling	Pavai M Roy, Harsh H Sawant, Pratik P Sheelar, Prashil U Sarode, SH Gawande	Mechanical	Energy Storage and Saving	2024-25	ISSN: 2772-6835	www.keapublishing.com/en/journals/energy-storage-and-saving/	https://doi.org/10.1016/j.ens.2024.04.001	Scopus	12
2024-25	Deflection Prediction of an Anti-vibration Mount by Finite Element Analysis.	Baban K Suryatal, Prashant K Ambadekar, Jagannath S Gawande, Kuldeep A Mahajan, Vijaykumar K Javanjal, Mahesh M Sonekar, Rahul N Yerrawar, Shrawan H Gawande	Mechanical	Mathematical Modelling of Engineering Problems	2024-25	ISSN 2369-0739	https://www.iieta.org/Journals/MMEP	https://doi.org/10.18280/mmp.110606	Scopus	
2024-25	Sentiment Analysis and Stock Data Prediction Using Financial News Headlines Approach	Shradha R Khonde, Shyamal S Vinodkar, Sangita B Nemade, Manisha A Duthedia, Bhavna Kanawade, Shrawan H Gawande	Mechanical	Revue d'Intelligence Artificielle	2024-25	ISSN:0992-499X	https://ieta.org/journals/ria	https://doi.org/10.18280/ria.380325	Scopus	
2024-25	Optimization of hybrid Al alloy machining with integration of temperature sensor and dynamometer	AJ Pawar, CD Kulkarni, MJ Sable, SH Gawande, KA Mahajan	Mechanical	JMST Advances	2024-25	Print ISSN 2524-7905	https://link.springer.com/journal/42791	https://doi.org/10.1007/s42791-024-00081-1	Google Scholar	
2024-25	Real-time road testing and analysis of adjustable passive suspension system with variable spring stiffness	CD Kulkarni, PP Sait, AV Kalaskar, AC Mitra, SH Gawande	Mechanical	JMST Advances	2024-25	Print ISSN 2524-7905	https://link.springer.com/journal/42791	https://doi.org/10.1007/s42791-024-00082-0	Google Scholar	1
2024-25	Multi-objective optimization of EN19 steel milling parameters using Taguchi, ANOVA, and TOPSIS approaches	Pankaj Krishnath Jadhav, RSN Sahai, Sachin Solanke, SH Gawande	Mechanical	Journal of Alloys and Metallurgical Systems	2024-25	Online ISSN: 2949-9178	https://www.sciencedirect.com/journal/journal-of-alloys-and-metallurgical-systems	https://doi.org/10.1016/j.jalms.2024.100102	Scopus	5
2024-25	Optimization of CNC Turning Operation Parameters for H-13 Tool Steel Towards Sustainable Manufacturing	BG Marlapalle, PK Ambadekar, JS Gawande, BK Suryatal, MJ Sable, KA Mahajan, SH Gawande	Mechanical	Revue des Composites et des Matériaux Avancés	2024-25	Print ISSN: 1169-7954	https://www.sciencedirect.com/journal/revue-des-composites-et-des-mat%C3%A9riaux-avanc%C3%A9s-I-IIETA	https://doi.org/10.18280/rcoma.340502	WoS (ESCI), Scopus	
2024-25	Estimation of contact stresses in EN31 rolling contact bearings for screw compressor using Gauss quadrature & statistical analysis	SH Gawande, K Balashowry, KA Raykar, KH Munde	Mechanical	Australian Journal of Mechanical Engineering	2024-25	Print ISSN: 1448-4846	https://www.tandfonline.com/doi/issue/202402	https://doi.org/10.1080/14484846.2023.2195028	WoS (ESCI), Scopus	1
2024-25	An improved approach on ball bearing characteristic frequencies	KH Munde, Harsh H Sawant, MJ Sable, Kalpak J Kamble, RN Yerrawar, KA Mahajan, PD Darade, SH Gawande	Mechanical	Progress in Engineering Science	2024-25	Online ISSN: 2950-4252	https://www.sciencedirect.com/journal/progress-in-engineering-science	https://doi.org/10.1016/j.pes.2024.100030	Scopus	
2024-25	Artificial intelligence and its relevance in mechanical engineering from Industry 4.0 perspective	Prashant K Ambadekar, Smita Ambadekar, CM Choudhri, Satish A Patil, SH Gawande	Mechanical	Australian Journal of Mechanical Engineering	2024-25	Print ISSN: 1448-4846	https://www.tandfonline.com/doi/issue/202402	https://doi.org/10.1080/14484846.2023.2249144	WoS (ESCI), Scopus	10
2024-25	Comparative Analysis of Reinforcement Learning Agents for Optimizing Airfoil Shapes	Harsh H Sawant, Rahul Gujar, Neeta Mandhare, MJ Sable, Prashant K Ambadekar, SH Gawande	Mechanical	International Journal for Numerical Methods in Fluids	2024-25	Print ISSN: 0271-2091	https://onlinelibrary.wiley.com/journal/10970363	https://doi.org/10.1002/rid.5395	WoS (SCE), Scopus	
2024-25	Design and Implementation of Low Power Generic Reversible Binary-Coded Decimal Adder on Artix-7 FPGA.	Kanchan S Tiwari, Revati M Wahul, Sagor D Shinde, Manisha A Duthedia, Varsha P Galikwad, Pranav Bhalerao, Simrit Kaur Gill, Neeraj Chhajed, Christy Daniel, Shrawan H Gawande	Mechanical	Mathematical Modelling of Engineering Problems	2024-25	ISSN 2369-0739	https://www.iieta.org/Journals/MMEP	https://doi.org/10.18280/mmp.120235	Scopus	
2024-25	Optimization of Fin Arrangements in Latent Heat Storage Systems.	Rushikesh Jadhav, Mahendra J Sable, Vishal Bhalia, Pankaj K Jadhav, Harsh H Sawant, Balashowry Konkola, Bapurao G Marlapalle, Shrawan H Gawande	Mechanical	Mathematical Modelling of Engineering Problems	2024-25	ISSN 2369-0739	https://www.iieta.org/Journals/MMEP	https://doi.org/10.18280/mmp.120223	Scopus	
Dr. A. R. Patil										
2024-25	Experimental investigation of multi-additive fuel blend and its optimization for CI engine performance and emissions by the hybrid Taguchi-TOPSIS technique	Amit R Patil, Dipankar Kakati, Bharat Singh, Marc A Rosen, Rupali Patil, Vijaykumar Javanjal, Chandrakant Sonawane, Hitesh Panchal, Abhinav Kumar, Md Irfanul Haque Siddiqui, Kishor Kumar Sadasivuni	Mechanical	Case Studies in Thermal Engineering	2024-25	Online ISSN: 2214-157X	http://sciencedirect.com/journal/case-studies-in-thermal-engineering	https://doi.org/10.1016/j.csite.2023.103703	WoS (SCE), Scopus	5
2024-25	Design and Analysis of Automated Solar Panel Cleaning System	Satish A Patil, Amit R Patil, VN Chougule, ST Sanandikar	Mechanical	Current World Environment An International Research Journal of Environmental Science	2024-25	ISSN:0973-4929	http://www.cwajournal.org/	http://dx.doi.org/10.12944/CWE.18.3.11	UGC-CARE Journal	2
2024-25	Investigating the influence of varying split injection profiles on stability of diesel engine operated under partially premixed mode with methanol	Dipankar Kakati, Amit R Patil, Nitin Ambhore, Kamal Sharma, Marc A Rosen, Dan Dobrotă, Sonawane Chandrakant, Hitesh Panchal, Md Irfanul Haque Siddiqui, Rahul Banerjee	Mechanical	Alexandria Engineering Journal	2024-25	Print ISSN: 1110-0168	https://www.sciencedirect.com/journal/alexandria-engineering-journal	https://doi.org/10.1016/j.aej.2024.01.001	WoS (SCE), Scopus	3
2024-25	Hydrogen energy systems: Technologies, trends, and future prospects	Abdellatif M Sadeq, Raad Z Homod, Ahmed Kadhim Hussein, Hussein Togari, Amin Mahmoudi, Haytham F Ilesan, Amit R Patil, Amin Hedayati Moghaddam	Mechanical	Science of The Total Environment	2024-25	Online ISSN: 1879-1026	https://www.sciencedirect.com/journal/science-of-the-total-environment	https://doi.org/10.1016/j.scitotenv.2024.173622	WoS (SCE), Scopus	79
2024-25	Validation of effect of composite additive on optimized combustion characteristics of CI engine using AHP and GRA method	Amit R Patil, SA Patil, Rupali Patil, AM Pawar, VN Chougule, Kareem AboRas	Mechanical	Heliyon (https://doi.org/10.1016/j.heliyon.2024.e34216)	2024-25	ISSN 2405-8440 (online)	https://www.cell.com/heliyon/home	https://doi.org/10.1016/j.heliyon.2024.e34216	WoS (SCE), Scopus	2
2024-25	Predictive modeling and optimization of dry turning of hardened steel	Nitin Ambhore, Mahendra Galikwad, Amit Patil, Yogita Sharma, Akshay Manikjode	Mechanical	International Journal on Interactive Design and Manufacturing (IJIDeM)	2024-25	Print ISSN: 1955-2513	https://link.springer.com/journal/12008	https://doi.org/10.1007/s12008-023-01616-y	Scopus	3
Dr. K.A.Mahajan										
2024-25	Machine learning optimization and prediction of waste glass used as partial replacement of coarse aggregate in concrete	KA Mahajan, BPRVS Priyatham, Saraswati Chand Dhanirwal, J Prakash Anil Jose, G Mallikarjuna Rao, G Nakkeeran, G Prem Kumar	Mechanical	Asian Journal of Civil Engineering	2024-25	Print ISSN 1563-0854	https://link.springer.com/journal/42107	https://doi.org/10.1007/s42107-023-00826-9	Scopus	2
2024-25	Deflection Prediction of an Anti-vibration Mount by Finite Element Analysis.	Baban K Suryatal, Prashant K Ambadekar, Jagannath S Gawande, Kuldeep A Mahajan, Vijaykumar K Javanjal, Mahesh M Sonekar, Rahul N Yerrawar, Shrawan H Gawande	Mechanical	Mathematical Modelling of Engineering Problems	2024-25	ISSN 2369-0739	https://www.iieta.org/Journals/MMEP	https://doi.org/10.18280/mmp.110606	Scopus	
2024-25	Optimization of CNC Turning Operation Parameters for H-13 Tool Steel Towards Sustainable Manufacturing	BG Marlapalle, PK Ambadekar, JS Gawande, BK Suryatal, MJ Sable, KA Mahajan, SH Gawande	Mechanical	Revue des Composites et des Matériaux Avancés	2024-25	Print ISSN: 1169-7954	https://www.sciencedirect.com/journal/revue-des-composites-et-des-mat%C3%A9riaux-avanc%C3%A9s-I-IIETA	https://doi.org/10.18280/rcoma.340502	WoS (ESCI), Scopus	
2024-25	Optimization of hybrid Al alloy machining with integration of temperature sensor and dynamometer	AJ Pawar, CD Kulkarni, MJ Sable, SH Gawande, KA Mahajan	Mechanical	JMST Advances	2024-25	Print ISSN 2524-7905	https://link.springer.com/journal/42791	https://doi.org/10.1007/s42791-024-00081-1	Google Scholar	
2024-25	An improved approach on ball bearing characteristic frequencies	KH Munde, Harsh H Sawant, MJ Sable, Kalpak J Kamble, RN Yerrawar, KA Mahajan, PD Darade, SH Gawande	Mechanical	Progress in Engineering Science	2024-25	Online ISSN: 2950-4252	https://www.sciencedirect.com/journal/progress-in-engineering-science	https://doi.org/10.1016/j.pes.2024.100030	Scopus	
2024-25	Examining the role of nano-sized additives in boosting air conditioner efficiency	Vijaykumar Kisan JAVANJAL, Lalit N PATIL, Kuldeep A MAHAJAN, Abi A PATIL	Mechanical	Sigma	2024-25	ISSN: 1304-7191	https://sigma.yildiz.edu.tr/	https://doi.org/10.14744/sigma.2025.00009	Scopus	
2024-25	Dimensional and Surface Roughness Analysis of 3D Printed Impeller Pattern for Investment Casting	Marg Shah, Dhiren Patel, Sarang Pande, Mustafa Haider Abidi, Fahad Alasim, Kuldeep A Mahajan	Mechanical	Preprints	2024-25			https://doi.org/10.20944/preprints202502.1152.v1	Google Scholar	

Dr.Rahul N. Yerrawar										
2024-25	Deflection Prediction of an Anti-vibration Mount by Finite Element Analysis.	Babian K Suryatal, Prashant K Ambadekar, Jagannath S Gawande, Kuldeep A Mahajan, Vijaykumar K Javanjal, Mahesh M Sonelkar, Rahul N Yerrawar, Shrawan H Gawande	Mechanical	Mathematical Modelling of Engineering Problems	2024-25	ISSN 2369-0739	https://www.ieta.org/Journals/MMEP	https://doi.org/10.18280/mme.110606	Scopus	
2024-25	An improved approach on ball bearing characteristic frequencies	KH Munde, Harsh H Sawant, MJ Sable, Kalpak J Kamble, RN Yerrawar, KA Mahajan, PD Darade, SH Gawande	Mechanical	Progress in Engineering Science	2024-25	Online ISSN: 2950-4252	https://www.sciencedirect.com/journal/progress-in-engineering-science	https://doi.org/10.1016/j.pes.2024.100030	Scopus	
Dr. Dinesh R. Salunke										
2024-25	Development of hBN/natural fibres reinforced polymer composites using gntxv relation grade analysis for thermal and electrical applications	Ramraj Kirubakaran, Dinesh Ramesh Salunke, Shenbaga Velu Pitchumani, Venkatachalam Gopalan, Aravindh Sampath	Mechanical	Functional Composites and Structures	2024-25	ISSN: 2631-6331	https://opscience.iop.org/journal/2631-6331	https://doi.org/10.1088/2631-6331/ad3eddd	WoS (SCIE), Scopus	7
2024-25	Investigation of nano-hBN/natural fibers reinforced epoxy composites for thermal and electrical applications using GRA and ANFIS optimization methods	Ramraj Kirubakaran, Dinesh Ramesh Salunke, Shenbaga Velu Pitchumani, Venkatachalam Gopalan, Aravindh Sampath	Mechanical	Polymer Testing	2024-25	Print ISSN: 0142-9418	https://www.sciencedirect.com/journal/polymer-testing	https://doi.org/10.1016/j.polymeresting.2024.108561	WoS (SCIE), Scopus	8
2024-25	Condition Monitoring of Automotive Gearbox: Vibration Signal Analysis Using PCA and Random Forest Algorithm	Sangeeta S Munda, Kruika O Pandya, Janhavi G Thikekar, Dinesh R Salunke, Anand K Bewoor	Mechanical	2025 1st International Conference on AIML- Applications for Engineering & Technology (ICAET)	2024-25	ISBN 979-8-3503-5562-8	https://ieeexplore.ieee.org/xpl/conhome/10931855/proceeding	https://doi.org/10.1109/ICAET63349.2025.10932186	Scopus	
2024-25	Diagnosing Anomalous Events Leading To Cutting Tool Faults Through Vibration Signals Trained on SMO-SVM	Revasi M Wahul, Vaishali H Kamble, Dinesh Salunke	Mechanical	Journal of Vibration Engineering & Technologies	2024-25	Print ISSN 2523-3920	https://link.springer.com/journal/42417	https://doi.org/10.1007/s42417-025-01810-z	WoS (SCIE), Scopus	
Dr. Vinod P. Sakhare										
2024-25	A study and experimental analysis of coconut husk extracting tool using generative design and topology optimization technique	Vinod Prabhakar Sakhare, Pankaj Mishra, P Sekhar Babu, M Venkateswar Reddy	Mechanical	International Journal on Interactive Design and Manufacturing (IJIDeM)	2024-25	Print ISSN 1955-2513	https://link.springer.com/journal/12008	https://doi.org/10.1007/s12008-023-01240-9	Scopus	3