Mechanical Engineering

PVPSIT

A Half- Yearly

Newsletter

July 2025

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EDITORIAL BOARD

PVP SIDDHARTHA INSTITUTE OF TECHNOLOGY (AUTONOMOUS), KANURU, VIJAYAWADA.

Department of Mechanical Engineering

NEWS LETTER

JULY, 2025

About the Department

The Department of Mechanical Engineering has been in existence ever since the college started in year 1998. Department is affiliated to JNTU since 1998. B. Tech. Program is accredited by NBA-AICTE in May 2007 for 3 years and provisionally accredited for 2 years in June 2012 and is certified by ISO 9001:2015 certification. It is provisionally accredited for 3 years under OBE Tier-II in the year 2016 and Once again for 3 years under OBE Tier -I in 2019 and 2022. The Programme was accredited by NBA thrice in the years 2007, 2012, 2016 under Tier-II subsequently accredited under Tier-I in 2019 and 2022.

The Department is proud to have a vibrant student fraternity who pursue Undergraduate and Post-graduate courses. The annual intake of students is 60 in the undergraduate course and 6 in Post graduate course. Total area of the Department is 4894 sq.mts. The Department has facilities in terms of faculty, infrastructure and equipment. The Department has a team of diversely qualified faculty including 4 Professors, 4 Associate Professors and 20 Assistant Professors, who aims at delivering quality lectures that blends with their rich research experience. The total worth of the equipment available in the Department is Rs. 2, 88, 03, 477.00.

Numerous research papers have been published in National and International Journals and Conferences. The Department arranges guest lectures by eminent professors from India and abroad, scientists from research organisations and experts from industry to bridge the gap between academics and industry. Faculty members are encouraged to improve their academic qualification and to gain experience by attending FDPs, workshops, conferences etc. They are also encouraged to present research papers at workshops and conferences, and to participate in co-curricular and extracurricular activities.

The Department promotes active industry-institute collaboration by organizing workshops and by taking part in sponsored research projects and consultancy services. Visits to the industries for faculty and students are frequently arranged to enhance the practical exposure with the real corporate world. Department also organizes programmes like Alumni interaction sessions with current students and make them familiar with specific market requirements and demands. Two Industry supported Labs were established in associated with APSSDC-DASSAULTS Lab and European Centre for Mechatronics, Germany.

College Vision

To provide rich ambience for Academic and Professional Excellence, Research, Employability skills, Entrepreneurship and Social responsibility.

College Mission

To empower the students with Technical knowledge, Awareness of up-to-date technical trends, Inclination for research in the areas of human needs, Capacity building for Employment / Entrepreneurship, Application of technology for societal needs.

Department Vision

To enhance the capabilities of students and mould them into innovative, employable, entrepreneurial, socially responsible graduates successful in advanced fields of research.

Department Mission

To impart quality education, ethical values, social responsibility, employability, research and entrepreneurial skills.

Programme Outcomes (POs)

PO1: Engineering Knowledge: Apply knowledge of mathematics, natural science, computing, engineering fundamentals and an engineering specialization as specified in WK1 to WK4 respectively to develop to the solution of complex engineering problems.

PO2: Problem Analysis: Identify, formulate, review research literature and analyze complex engineering problems reaching substantiated conclusions with consideration for sustainable development. (WK1 to WK4)

PO3: Design/Development of Solutions: Design creative solutions for complex engineering problems and design/develop systems/components/processes to meet identified needs with consideration for the public health and safety, whole-life cost, net zero carbon, culture, society and environment as required. (WK5)

PO4: Conduct Investigations of Complex Problems: Conduct investigations of complex engineering problems using research-based knowledge including design of experiments, modelling, analysis & interpretation of data to provide valid conclusions. (WK8).

PO5: Engineering Tool Usage: Create, select and apply appropriate techniques, resources and modern engineering & IT tools, including prediction and modelling recognizing their limitations to solve complex engineering problems. (WK2 and WK6)

PO6: The Engineer and The World: Analyze and evaluate societal and environmental aspects while solving complex engineering problems for its impact on sustainability with reference to economy, health, safety, legal framework, culture and environment. (WK1, WK5, and WK7).

PO7: Ethics: Apply ethical principles and commit to professional ethics, human values, diversity and inclusion; adhere to national & international laws. (WK9)

PO8: Individual and Collaborative Team work: Function effectively as an individual, and as a member or leader in diverse/multi-disciplinary teams.

PO9: Communication: Communicate effectively and inclusively within the engineering community and society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations considering cultural, language, and learning differences

PO10: Project Management and Finance: Apply knowledge and understanding of engineering management principles and economic decision-making and apply these to one's own work, as a member and leader in a team, and to manage projects and in multidisciplinary environments.

PO11: Life-Long Learning: Recognize the need for, and have the preparation and ability for i) independent and life-long learning ii) adaptability to new and emerging technologies and iii) critical thinking in the broadest context of technological change. (WK8)

Programme Specific Outcomes (PSOs)

PSO-1: Apply Engineering Principles for design, manufacturing and maintenance of mechanical systems

PSO-2: Execute multi-disciplinary projects and exhibit managerial, leadership and entrepreneurial skills.

Programme Educational Objectives (PEOs)

PEO-I: Progress in wide range of mechanical engineering fields with solid foundation in physical and engineering sciences.

PEO-II: Contribute as members of multi-disciplinary engineering teams, solve mechanical engineering and allied field problems resulting in significant societal development.

PEO-III: Achieve goals by pursuing higher studies / research, become entrepreneurs.

PEO-IV: Become responsible citizens by undertaking active role in their community.

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1. Workshops/Seminars/Guest Lectures/Training Programs/Symposiums organized:

The department of Mechanical Engineering organized

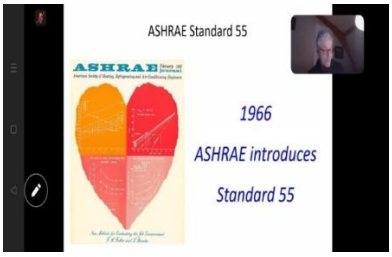
i. A Seminar on **Career Guidance** for II & III-B. Tech. ME students from 09:30 AM to 11:00AM in the Room number 123A on 07.01.2024. Resource Person: Mr. S. Mani Mohan Trinath, Sr. Faculty, ACE Engineering Academy, Vijayawada.

ii. A One day Training on **Entrepreneurship Awareness Program (EAP**) for II -B. Tech. ME and EEE students in the ground floor seminar hall on 09.01.2025 . Resource Person: Mr. S. Venkata Krishna, Deputy Director, MSME tool room, CITD, S. Balasbrahmanyam, Assistant Director, District Industrial centre, Mr. G. Siva Narayana, Trainer, APSSDC, Mr. S. Mahesh, International Labour Organization (ILO), A.P. Food Processing Society trainer and Mr. M. Urukunda, International Labour Organization trainer.

iii. A Seminar and Physical model presentation on "**Mini Solar Air conditioner**" for II -B. Tech. ME students from 11:00 AM to 12:00 Noon in the Room number 123A on 25.01.2025. Resource person: Mr. Kodanda Ramu Kothapalli, Managing Director, Venkata Mahaveer Cooling Systems, Guntur.

iv. A one day Workshop on "**Advances in Inverter Technology and trouble shooting in Air Conditioning sector**" for non-teaching staff from 09:30 AM to 04:00 PM in the Auditorium on 25.01.2025. Resource person: Mr. GP Raju, National Freelance technical trainer, Vijayawada.

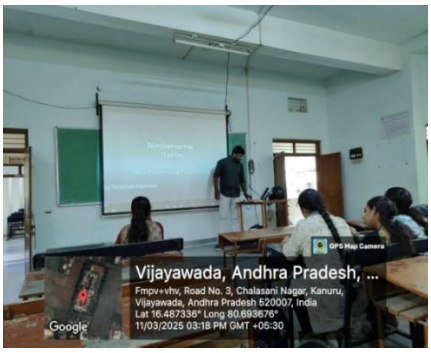
v. A Webinar on "**Fundamentals of ASHRAE Standard 55: Thermal Environmental conditions of human occupancy"** for II & III-B. Tech. ME students and faculty from 07:00 PM to 08:00 PM in the Zoom meeting platform in association with ASHRAE Deccan chapter on 21.02.2025. Resource person: Mr. Robert Bean, Founder, Indoor Climate Consultants Inc., USA.



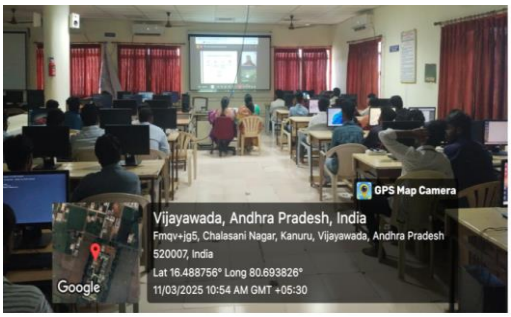
vi. A Career Guidance on **"How to get a job in India and Abroad Industries"** for III-B. Tech. ME students from 01:00 PM to 02:00 PM in the Room number 123 on 28.02.2025. Resource person: Mr. SM Sharief, Corporate Relationship Manager, AP and Telangana.

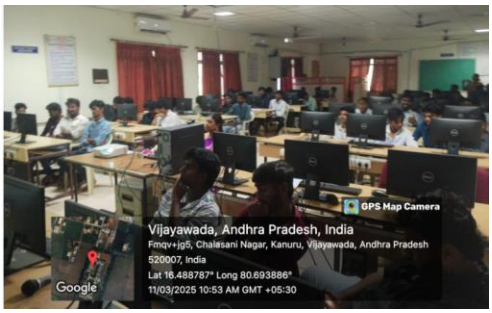
vii. A "**Entrepreneurship Awareness Program**" for III-B. Tech. ME students from 12:00 to 01:00 PM in the Room number 123 on 10.03.2025. Resource person: by Sri. KNS PRAKASH RAO, FIE, Former HOD Mech. Engg., Govt. Polytechnic, Visakhapatnam & Ex Committee Member Mech. Engg. Institution of Engineers (India), AP State Centre

viii. One-week certification course on "Applications of Non-Destructive Testing Methods" is conducted from 10.03.2025 to 17.03.2025 for the registered III B. Tech Mechanical Engineering Students in collaboration with "SYNERGEM Consultancy Pvt. Ltd.", Hyderabad. Resource person: Mr. B. Ravi Teja, Technical Trainer from Synergem handled the training classes for both theory and hands-on practice sessions. Total 34 students gained knowledge from this course.



ix. A Webinar on "**Higher Studies and Career Opportunities in Australia for Engineers"** for II & III-B. Tech. ME students at 10:30 AM in the Google meet platform in association with (National Digital Library Of India) NDLI on 11.03.2025. Resource person: Mrs. Kavya Sree Medandrao, Research Student, Master of Project Management (Complex Systems), The University of Adelaide, Australia.



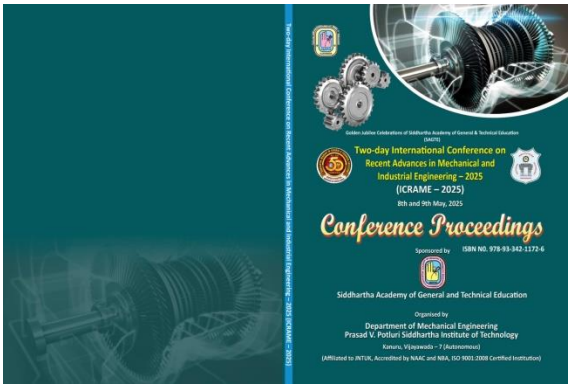


x. A One day Training Program on "**Ultrasonic flaw detector**" for faculty from 02:00 to 05:00 PM in the Room number 123A on 16.04.2025. Resource person: Sri. Anjaneyulu Ambati, Regional sales manager, Electronic & Engineering Company India Pvt. Ltd., Secunderabad, Telangana.

xi. A Guest Lecture on **Testing, Adjusting & Balancing (TAB)-Water Balancing**" for II -B. Tech. ME students and faculty from 10:00 AM in the Ground floor seminar hall on

23.04.2025. Resource person: Dr. Bukke Kiran Naik, Assistant professor (Grade-I), Mechanical Engineering Department, National Institute of Technology, Rourkela, Odisha.

xii. A Two day International Conference on RECENT ADVANCES IN MECHANICAL AND INDUSTRIAL ENGINEERING (ICRAMIE-2025) on 08.05.2024 and 09.05.2025 sponsored by Siddhartha Academy of General and Technical Education, Vijayawada.



2. Papers presented in Seminars/Conferences/Symposiums by the faculty:

i. Ch. Nagalakshmi, B. Sriyutha, K. Yamineswari, M. Sriram, A. T. N. V. Prasad, **P. Phani Prasanthi,** Haritha Akkineni, Integrating ANSYS Simulation and Machine Learning Techniques for Thermo-Mechanical Analysis of PCBs. In: Nanda, U., Tripathy, A.K., Sahoo, J.P., Sarkar, M., Li, KC. (eds) Advances in Distributed Computing and Machine Learning. ICADCML 2024. From 5th to 6th January-2024,organized by VIT-AP, Lecture Notes in Networks and Systems, vol 1015, Print ISBN:978-981-97-3522-8,Springer,Singapore. https://doi.org/10.1007/978-981-97-3523-5_24 **(Scopus Indexed)**

ii. Seenivasan M, **T J Prasanna Kumar,** Gobikrishnan Udhayakumar, S. Rajesh, M. Bhuvaneswari, L. Feroz Ali, "Forecasting the Material Removal Rate of Inconel 718 Alloy in Electrochemical Machining through Machine Learning Approaches," ICIRIAC 2024, organized by Sri Krishna College of Engineering & Technology, Coimbatore, published in SAE Technical Paper-2024-01-5253,ISSN:2688-3627,January2025, https://doi.org/10.4271/2024-01-5253. **(Scopus Indexed)**

iii. **T. J. Prasanna Kumar**; D. Antony Prabu; Gobikrishnan Udhayakumar; S. Rajesh; Shanthi Palaniappan; Aruna Subramanian, "Forecasting the material extraction rate of inconel 625 alloy in micro electrochemical drilling through machine learning approaches", International Conference on Innovations in Robotics, Intelligent Automation and Control (ICIRIAC-2024) *AIP Conf. Proc.* Volume-3204,Issue-1, 040011 (2025), 28-February-2025, https://doi.org/10.1063/5.0246162. **(Scopus Indexed)**

iv. **Kode Srividya**, Surendra Karagana, Rihal Dondapati, Rajesh Cherukuneedi, Shaik Arshad Ali, Design and Fabrication of Total Emissivity Measuring Apparatus, Two-day International Conference on Recent Advances in Mechanical Engineering –(ICRAMIE-2025), Organized by Dept of Mechanical Engineering, PVPSIT, in association with NIT Warangal from 8th to 9th May 2025, Conference Proceedings ISBN: 978-93-342-1172-6

v. Koona Bhavani, V.S.N. Venkata Ramana, **N. Raghu ram**, K. Sri Ram Vikas, Evaluation of Hardness and Wear Characteristics of AA6061-T651 Friction Stir Welded Joints, Two-day International Conference on Recent Advances in Mechanical Engineering –(ICRAMIE-2025), Organized by Dept of Mechanical Engineering, PVPSIT, in association with NIT Warangal from 8th to 9th May 2025, Conference Proceedings ISBN: 978-93-342-1172-6

vi. **K. Srividya**, Gorthi Prudhvi, S.Mani Pradeep Kumar, T.Kanaka Durga Pavan, K. Bhaskar Rao, Daggupati Jyothika, Development and Enhancement of Wear Characteristics in Epoxy-Based Composites through Response Surface Methodology (RSM) and Box-Behnken Experimental Design, Two-day International Conference on Recent Advances in Mechanical Engineering –(ICRAMIE-2025), Organized by Dept of Mechanical Engineering, PVPSIT, in association with NIT Warangal from 8th to 9th May 2025, Conference Proceedings ISBN: 978-93-342-1172-6

vii. **Rajyalakshmi M**, Indira Vishnu Vandana K, Simultaneous Optimization of Machining Factors in Milling using TGRA, Two-day International Conference on Recent Advances in Mechanical Engineering –(ICRAMIE-2025), Organized by Dept of Mechanical Engineering, PVPSIT, in association with NIT Warangal from 8th to 9th May 2025, Conference Proceedings ISBN: 978-93-342-1172-6

viii. **K. I. Vishnu Vandana**, M.Rajyalakshmi, P.B.Suresh Babu, Dr. P. Siva Nagasree, Performance Study of Alumina Ceramic Tool Inserts During Dry Turning of hardened EN36 Steel Samples, Two-day International Conference on Recent Advances in Mechanical Engineering –(ICRAMIE-2025), Organized by Dept of Mechanical Engineering, PVPSIT, in association with NIT Warangal from 8th to 9th May 2025, Conference Proceedings ISBN: 978-93-342-1172-6

ix. **E. Kavitha**, LMN. Pavan kalyan, N. Prabhu prakash, L. Sanyu meghan, M. Vamsi Krishna, Topology Optimization for Prosthetic Foot: Enhancing Performance and Comfort, Two-day International Conference on Recent Advances in Mechanical Engineering –(ICRAMIE-2025), Organized by Dept of Mechanical Engineering, PVPSIT, in association with NIT Warangal from 8th to 9th May 2025, Conference Proceedings ISBN: 978-93-342-1172-6

x. **E. Kavitha**, M. Kavya Sree, Ch.Manikanta, J. Satish Babu, B. Prince Prakash, Modelling and Analysis of Cellular Structure Using 3d Printing, Two-day International Conference on Recent Advances in Mechanical Engineering –(ICRAMIE-2025), Organized by Dept of Mechanical Engineering, PVPSIT, in association with NIT Warangal from 8th to 9th May 2025, Conference Proceedings ISBN: 978-93-342-1172-6

xi. Srinivas Prasad Sanaka, Pulipaka Vanni, **Vemuri Sravani**, Akula Yagna Vijay Kumar, Kakarlamudi Sujin Kumar, Radhik Daram, Experimental Investigation of Temperature Effects on the Performance of PEM Fuel Cells, Two-day International Conference on Recent Advances in Mechanical Engineering –(ICRAMIE-2025), Organized by Dept of Mechanical Engineering, PVPSIT, in association with NIT Warangal from 8th to 9th May 2025, Conference Proceedings ISBN: 978-93-342-1172-6

xii. **Sravani Vemuri**, Srinivas Prasad Sanaka, Sudhakar Mogili, Durga Prasanna Mannava, CFD Investigation of Ship Propeller Noise Using Large Eddy Simulation, Two-day International Conference on Recent Advances in Mechanical Engineering –(ICRAMIE-2025), Organized

by Dept of Mechanical Engineering, PVPSIT, in association with NIT Warangal from 8th to 9th May 2025, Conference Proceedings ISBN: 978-93-342-1172-6

xiii. **P. Anusha**, Sangeeth Meruga, Intelligent Air Conditioning Control Using Real-Time Sensor Data, Two-day International Conference on Recent Advances in Mechanical Engineering –(ICRAMIE-2025), Organized by Dept of Mechanical Engineering, PVPSIT, in association with NIT Warangal from 8th to 9th May 2025, Conference Proceedings ISBN: 978-93-342-1172-6

xiv. **M. Naga Swapna Sri**, P. Anusha, R. Haranath, Evaluation of Carbon Phthalonitrile Composites Made by Resin Transfer Molding, Two-day International Conference on Recent Advances in Mechanical Engineering –(ICRAMIE-2025), Organized by Dept of Mechanical Engineering, PVPSIT, in association with NIT Warangal from 8th to 9th May 2025, Conference Proceedings ISBN: 978-93-342-1172-6

xv. **P. Anusha**, M. Naga Swapna Sri, Review on Elastocaloric Refrigeration, Two-day International Conference on Recent Advances in Mechanical Engineering –(ICRAMIE-2025), Organized by Dept of Mechanical Engineering, PVPSIT, in association with NIT Warangal from 8th to 9th May 2025, Conference Proceedings ISBN: 978-93-342-1172-6

xvi. **K. Venkatarao**, Ch. Lakshmi Kanth, T. J. Prasanna Kumar, G. Pavan Kumar, J. Dhanush, P. Sreenivas, K. Kiran Kumar, A. Manoj Kumar, Heat Transfer Enhancement of an Automobile Engine Radiator Using TiO2/CuO Water Base Nanofluids, Two-day International Conference on Recent Advances in Mechanical Engineering –(ICRAMIE-2025), Organized by Dept of Mechanical Engineering, PVPSIT, in association with NIT Warangal from 8th to 9th May 2025, Conference Proceedings ISBN: 978-93-342-1172-6

xvii. **Ch. Mohan Sumanth**, M. Somaiah Chowdary, T.J. Prasanna Kumar, T. Srinag, N. Raghu Ram, Rajesh.T, Finite Element Analysis (FEA) of Friction Stir Welding (FSW) Using ANSYS, Two-day International Conference on Recent Advances in Mechanical Engineering –(ICRAMIE-2025), Organized by Dept of Mechanical Engineering, PVPSIT, in association with NIT Warangal from 8th to 9th May 2025, Conference Proceedings ISBN: 978-93-342-1172-6

xviii. **T J Prasanna Kumar**, V Kalyan Manohar, I Rohith Sanjay, G Manohar, J Kranthi Kumar, Design Optimization and Fabrication of Two-Wheeler Wind and Rain Shield through Design Thinking Approach, Two-day International Conference on Recent Advances in Mechanical Engineering –(ICRAMIE-2025), Organized by Dept of Mechanical Engineering, PVPSIT, in association with NIT Warangal from 8th to 9th May 2025, Conference Proceedings ISBN: 978-93-342-1172-6

xix. **T J Prasanna Kumar**, K Venkata Rao, Ch Lakshmi kanth, SK Chand Mohiddien, B Kiran, Integrated Manufacturing and Testing with Predictive Analytics Using Machine Learning: A Data-Driven Approach to Process Optimization, Two-day International Conference on Recent Advances in Mechanical Engineering –(ICRAMIE-2025), Organized by Dept of Mechanical Engineering, PVPSIT, in association with NIT Warangal from 8th to 9th May 2025, Conference Proceedings ISBN: 978-93-342-1172-6

3. Workshops/ Seminars/STTP/Conferences/Faculty DevelopmentProgrammes/Awareness programmes attended by the faculty:

a) Seminars/Webinars: Nil

b) Workshops: Nil

c) STTP/STCs:

i. M.Radha Devi has successfully completed a Five Day Womens special Happiness program at PVPSIT from 09.03.2025 to 13.03.2025.

ii. P.Anusha has successfully completed Capacity Building Program on "Natural Resource Management for climate change mitigation and adaptation" conducted by AMRUT centre of urban planning for capacity Building at School of Planning and Architecture, Vijayawada from 10^{th} -14^{th} March , 2025.

iii. E.Kavitha has participated in Five -Day Train the Trainers Program on "Entrepreneurship and Venture Creation" Organized by JNTUK in association with Wadhwani Foundation & PVPSIT at P.V.P.S.I.T, Vijayawada from 16.06.2025 to 20.06.2025.

d) Faculty Development Programmes:

i. Dr.P.Phani Prashanthi, Dr.K.Srividya has attended One week FDP on "High Speed Flow Theory and Measurements in Jet Engines" at IIT Tirupati from 6^{th} -10^{th} Jan, 2025.

ii. Dr.K.Srividya has successfully participated and completed AICTE Training and Learning (ATAL) Academy Faculty Development Program on "Machine Learning and its prospects in Manufacturing & Industry 4.0" at Seshadri Rao Gudlavalleru Engineering College from 10.02.2025 to 15.02.2025.

iii. T.J.Prasanna Kumar has successfully completed the Online FDP on "Electric Vehicle" organized by SkillDzire in collaboration with AICTE from 17^{th} -31^{st} March , 2025.

iv. V.Sravani has participated in Online FDP on "Advancing Outcome Based Education in Curriculum Design, Pedagogy and Assessment Strategies" at VIT-AP University, Amaravathi from 13.05.2025 to 17.05.2025.

v. Ch.Lakshmi Kanth has participated in One Week Faculty Development Program on "Generative AI with RAG" Organized by JNTUK & PVPSIT at P.V.P.S.I.T, Vijayawada from 16.06.2025 to 20.06.2025.

e) Guest Lectures: Nil

f) Awareness programmes/Interaction meet/Quizzes, etc: Nil

g) Conferences: Nil

4. Publications by the faculty (National/International Journals/ Conferences):

a) Scopus indexed journals:

i. Pydi, H. P., **Peyyala, A.,** Naga Swapna Sri, M., Rao, N. S. ., Vijayakumar, S., & Devarajan, D. (2024). Comparative Studies on Micro-Fins Geometry for Fin Efficiency and Effectiveness. Journal of Studies in Science and Engineering, Volume-4 Issue-2, ISSN: 2789-634X, Page:94–104. https://doi.org/10.53898/josse2024425 **(Scopus Indexed)**

ii. T. Venkateswara Rao; Adina Srinivasa Vara Prasad ; **M. Naga Swapna Sri**; P. Anusha; Deepak Gupta ; S. Vijayakumar ; Hari Prasadarao Pydi ; Nageswararao Cheepurupalli, Multi-response optimization of FSW parameters for Al–Mg–Zn alloys using Box–Behnken design and gray relational analysis and comparative study with ANFIS technique, AIP Advances 15, 025209 (2025), ISSN: 2158-3226, Volume-15, Issue-2, February-2025, https://doi.org/10.1063/5.0255376 **(Scopus Indexed)**

iii. Sriram Desikan, SP Kalaiselvan, S. Karthikeyan, R. Ramesh babu, Hari Prasadarao Pydi, P Anusha and M. Naga Swapna Sri, Taguchi and Artificial Neural Network Approaches for Optimization of Wear Behaviour of AA7178/MOS2/TiB2 Hybrid Composites, ISSN:2212-7976, March-2025, DOI: 10.2174/0122127976357232250227111309. **(Scopus Indexed)**

iv. S. Madhankumar, D. Arunkumar, **Ch Mohan Sumanth**, Akhilesh Kumar Singh, M.N.V.S.A. Sivaram Kotha, L. Feroz Ali, Drying kinetics, mathematical modelling and colour analysis of an indirect solar dryer with latent heat storage unit for cucumber drying, Solar Energy, Volume 292, 15 May 2025, 113431, Doi: https://doi.org/10.1016/j.solener.2025.113431**(Scopus Indexed)**

b) SCI/SCIE/ESCI indexed journals:

i. **Prasanna Kumar T J,** Sivajibabu K, Durga Prasad B, Thermo-Elastic Vibration Analysis of Acoustic Liners Using Polymer-Metal Nanocomposites: Prediction and Optimization of Hybrid Deep Neural Network and Cuckoo Search Algorithm. Journal of Vibration Engineering and Technologies 2024; Volume-13, Issue-49 ISSN: 2523-3920, January-2025 https://doi.org/10.1007/s42417-024-01550-6 **(SCIE/Scopus Indexed)**

ii. **Phani Prasanthi,** Haritha Akkineni, U. Koteswara Rao, V. V. Venu Madhav, Kuldeep K Saxena, Rakesh C, Lakshita Sehgal, Mushtaq Ahmad Ansari, Predictive analysis of natural fiber-reinforced composite printed circuit boards using experimental, finite element, and machine learning approaches, Journal of Mechanical Science and Technology, Volume 39, Issue-8, May 2025, ISSN: 1976-3824, http://doi.org/10.1007/s12206-025-04 -y **(SCIE/Scopus Indexed)**

iii. Venugopal Palaniswamy, Anusha Peyyala, Prabhu Paramasivam, Itha Veeranjaneyulu, Performance Analysis Of Electrochemical Micromachining Using Simple Additive Weighting,Criteria Importance Through Inter Criteria Correlation, And Artificial Neural Network Methods, Chemical Industry & Chemical Engineering Quarterly ISSN: 2217-7434, Volume- 2, Pg: 123−130 May-(2025), https://doi.org/10.2298/CICEQ240220020P **(SCIE/Scopus Indexed)**

iv. Parthapratim Barman, Paladugu Rakesh, **Somaiah Chowdary Mallampati**, Ujendra Kumar Komal, Recent advances in lignocellulosic fibers for developing sustainable composites: extraction, surface modification and characterization- A review, International Journal of Biological Macromolecules, Volume 310, Part 3, May-2025, 143360, ISSN 0141-8130, https://doi.org/10.1016/j.ijbiomac.2025.143360 **(SCIE/Scopus Indexed)**

c) IEEE/Springer journals: NIL

d) UGC/other journals:

i. **T J Prasanna Kumar,** R Rama Krishna, Sri Sathish, Vinay Vemuri, V Chakri, Wilson Y, Optimization of Angle of Attack for Maximum Aerodynamic Efficiency on Symmetrical Airfoil, International Journal of Research Publication and Reviews, Vol 6, no 2, pp 642-645 February 2025, ISSN 2582-7421. **(Others)**

ii. **T J Prasanna Kumar**, V.Pradeep , B .Kiran, R.Sanjay, S.Hemanth, R.Benny, Computational Analysis of Material and Structural Component Effects on the Strength of Semi-Monocoque Structured Aircraft Fuselage, International Journal of Multidisciplinary Research in Science Engineering and technology, Volume 8, Issue 2, February 2025, ISSN: 2582-7219, pp: 645-650, DOI: 10.15680/IJMRSET.2025.0802006.**(Others)**

iii. **T J Prasanna Kumar**, SK Gowsi, U Yedukondalu, V Hemanth, T Sriram, T Hari Durga Sri Sai, Computational Study of Airfoil Aerodynamics in Subsonic Flow Using ANSYS Fluent, International Journal of Research Publication and Reviews, Vol 6, no 2, pp 1171-1178 February 2025, ISSN 2582-7421. **(Others)**

iv. **T J Prasanna Kumar,** S. Yogendra, Sk. Meera Shareef Y.Rakesh V. Kalyan Sai Ram, V. Bhanu Nagendra, Finite Element Analysis of Wing Rib Structure under Aerodynamic and Structural Loads, International Journal of Research Publication and Reviews, Vol 6, no 2, pp 1616-1621, February 2025, ISSN 2582-7421. **(Others)**

v. Mukund Ramdas Kharde, **Sayyad Abdul Kalam**, Kalyani Teku, Thumu Srinivas Reddy, Gollapalli Veera Satya Srinivas, Pavani Kollamudi, Shaik Baba Fariddin, Gopinati Pranay Kumar, Design and analysis for robotic arm position for automatic electric vehicle, Indonesian Journal of Electrical Engineering and Computer Science, Vol. 38, No. 3, June 2025, pp. 1517~1526, ISSN: 2502-4752, DOI: 10.11591/ijeecs.v38.i3.pp1517-1526. **(Others)**

e) Conference Proceedings:

i. **Kode Srividya**, Surendra Karagana, Rihal Dondapati, Rajesh Cherukuneedi, Shaik Arshad Ali, Design and Fabrication of Total Emissivity Measuring Apparatus, Two-day International Conference on Recent Advances in Mechanical Engineering –(ICRAMIE-2025), Organized by Dept of Mechanical Engineering, PVPSIT, in association with NIT Warangal from 8th to 9th May 2025, Conference Proceedings ISBN: 978-93-342-1172-6

ii. Koona Bhavani, V.S.N. Venkata Ramana, **N. Raghu ram**, K. Sri Ram Vikas, Evaluation of Hardness and Wear Characteristics of AA6061-T651 Friction Stir Welded Joints, Two-day International Conference on Recent Advances in Mechanical Engineering –(ICRAMIE-2025), Organized by Dept of Mechanical Engineering, PVPSIT, in association with NIT Warangal from 8th to 9th May 2025, Conference Proceedings ISBN: 978-93-342-1172-6

iii. **K. Srividya**, Gorthi Prudhvi, S.Mani Pradeep Kumar, T.Kanaka Durga Pavan, K. Bhaskar Rao, Daggupati Jyothika, Development and Enhancement of Wear Characteristics in Epoxy-Based Composites through Response Surface Methodology (RSM) and Box-Behnken Experimental Design, Two-day International Conference on Recent Advances in Mechanical Engineering –(ICRAMIE-2025), Organized by Dept of Mechanical Engineering, PVPSIT, in association with NIT Warangal from 8th to 9th May 2025, Conference Proceedings ISBN: 978-93-342-1172-6

iv. **Rajyalakshmi M**, Indira Vishnu Vandana K, Simultaneous Optimization of Machining Factors in Milling using TGRA, Two-day International Conference on Recent Advances in Mechanical Engineering –(ICRAMIE-2025), Organized by Dept of Mechanical Engineering, PVPSIT, in association with NIT Warangal from 8th to 9th May 2025, Conference Proceedings ISBN: 978-93-342-1172-6

v. **K. I. Vishnu Vandana**, M.Rajyalakshmi, P.B.Suresh Babu, Dr. P. Siva Nagasree, Performance Study of Alumina Ceramic Tool Inserts During Dry Turning of hardened EN36 Steel Samples, Two-day International Conference on Recent Advances in Mechanical Engineering –(ICRAMIE-2025), Organized by Dept of Mechanical Engineering, PVPSIT, in association with NIT Warangal from 8th to 9th May 2025, Conference Proceedings ISBN: 978-93-342-1172-6

vi. **E. Kavitha**, LMN. Pavan kalyan, N. Prabhu prakash, L. Sanyu meghan, M. Vamsi Krishna, Topology Optimization for Prosthetic Foot: Enhancing Performance and Comfort, Two-day International Conference on Recent Advances in Mechanical Engineering –(ICRAMIE-2025), Organized by Dept of Mechanical Engineering, PVPSIT, in association with NIT Warangal from 8th to 9th May 2025, Conference Proceedings ISBN: 978-93-342-1172-6

vii. **E. Kavitha**, M. Kavya Sree, Ch.Manikanta, J. Satish Babu, B. Prince Prakash, Modelling and Analysis of Cellular Structure Using 3d Printing, Two-day International Conference on Recent Advances in Mechanical Engineering –(ICRAMIE-2025), Organized by Dept of Mechanical

Engineering, PVPSIT, in association with NIT Warangal from 8th to 9th May 2025, Conference Proceedings ISBN: 978-93-342-1172-6

viii. Srinivas Prasad Sanaka, Pulipaka Vanni, **Vemuri Sravani**, Akula Yagna Vijay Kumar, Kakarlamudi Sujin Kumar, Radhik Daram, Experimental Investigation of Temperature Effects on the Performance of PEM Fuel Cells, Two-day International Conference on Recent Advances in Mechanical Engineering –(ICRAMIE-2025), Organized by Dept of Mechanical Engineering, PVPSIT, in association with NIT Warangal from 8th to 9th May 2025, Conference Proceedings ISBN: 978-93-342-1172-6

ix. **Sravani Vemuri**, Srinivas Prasad Sanaka, Sudhakar Mogili, Durga Prasanna Mannava, CFD Investigation of Ship Propeller Noise Using Large Eddy Simulation, Two-day International Conference on Recent Advances in Mechanical Engineering –(ICRAMIE-2025), Organized by Dept of Mechanical Engineering, PVPSIT, in association with NIT Warangal from 8th to 9th May 2025, Conference Proceedings ISBN: 978-93-342-1172-6

x. **P. Anusha**, Sangeeth Meruga, Intelligent Air Conditioning Control Using Real-Time Sensor Data, Two-day International Conference on Recent Advances in Mechanical Engineering –(ICRAMIE-2025), Organized by Dept of Mechanical Engineering, PVPSIT, in association with NIT Warangal from 8th to 9th May 2025, Conference Proceedings ISBN: 978-93-342-1172-6

xi. **M. Naga Swapna Sri**, P. Anusha, R. Haranath, Evaluation of Carbon Phthalonitrile Composites Made by Resin Transfer Molding, Two-day International Conference on Recent Advances in Mechanical Engineering –(ICRAMIE-2025), Organized by Dept of Mechanical Engineering, PVPSIT, in association with NIT Warangal from 8th to 9th May 2025, Conference Proceedings ISBN: 978-93-342-1172-6

xii. **P. Anusha**, M. Naga Swapna Sri, Review on Elastocaloric Refrigeration, Two-day International Conference on Recent Advances in Mechanical Engineering –(ICRAMIE-2025), Organized by Dept of Mechanical Engineering, PVPSIT, in association with NIT Warangal from 8th to 9th May 2025, Conference Proceedings ISBN: 978-93-342-1172-6

xiii. **K. Venkatarao**, Ch. Lakshmi Kanth, T. J. Prasanna Kumar, G. Pavan Kumar, J. Dhanush, P. Sreenivas, K. Kiran Kumar, A. Manoj Kumar, Heat Transfer Enhancement of an Automobile Engine Radiator Using TiO2/CuO Water Base Nanofluids, Two-day International Conference on Recent Advances in Mechanical Engineering –(ICRAMIE-2025), Organized by Dept of Mechanical Engineering, PVPSIT, in association with NIT Warangal from 8th to 9th May 2025, Conference Proceedings ISBN: 978-93-342-1172-6

xiv. **Ch. Mohan Sumanth**, M. Somaiah Chowdary, T.J. Prasanna Kumar, T. Srinag, N. Raghu Ram, Rajesh.T, Finite Element Analysis (FEA) of Friction Stir Welding (FSW) Using ANSYS, Two-day International Conference on Recent Advances in Mechanical Engineering –(ICRAMIE-2025), Organized by Dept of Mechanical Engineering, PVPSIT, in association with NIT Warangal from 8th to 9th May 2025, Conference Proceedings ISBN: 978-93-342-1172-6

xv. **T J Prasanna Kumar**, V Kalyan Manohar, I Rohith Sanjay, G Manohar, J Kranthi Kumar, Design Optimization and Fabrication of Two-Wheeler Wind and Rain Shield through Design Thinking Approach, Two-day International Conference on Recent Advances in Mechanical Engineering –(ICRAMIE-2025), Organized by Dept of Mechanical Engineering, PVPSIT, in association with NIT Warangal from 8th to 9th May 2025, Conference Proceedings ISBN: 978-93-342-1172-6

xvi. **T J Prasanna Kumar**, K Venkata Rao, Ch Lakshmi kanth, SK Chand Mohiddien, B Kiran, Integrated Manufacturing and Testing with Predictive Analytics Using Machine Learning: A Data-Driven Approach to Process Optimization, Two-day International Conference on Recent

Advances in Mechanical Engineering –(ICRAMIE-2025), Organized by Dept of Mechanical Engineering, PVPSIT, in association with NIT Warangal from 8th to 9th May 2025, Conference Proceedings ISBN: 978-93-342-1172-6

f) Book chapters: **NIL**

g) Books: **NIL**

5. Faculty Achievements (Patents, Higher Qualification awarded, guest lectures given, awards and rewards, acted as a Resource person etc.):

a. Patents:

i. Prasad V Potluri Siddhartha Institute of Technology, Mr. Syed Saber Hussain, Mr. Surapaneni Venkata Naga Rajani Satwik, Mr. Muhammed Yaaseen Malik, Mr. Mandhapati Venkat Deepak, Mrs. M. Radha Devi, and Dr. P. Phani Prasanthi have filed a patent titled, *"Autonomous Robot for Medical Application"* with the application number 448343-001, filed on 21/02/2025, for the academic year 2024–25, at Intellectual Property Rights, Government of India.

ii. Prasad V Potluri Siddhartha Institute of Technology, Mr. Indupalli Rohith Sanjay, Mr. Ganta Manohar, Mr. Jogi Kranthi Kumar, Mr. Kayala Sai Chaitanya, Mr. T.J. Prasanna Kumar, and Dr. P. Phani Prasanthi have filed a patent titled, *"Flexible Wind and Rain Protecting Shield"* with the application number 448344-001, filed on 21/02/2025, for the academic year 2024–25, at Intellectual Property Rights, Government of India.

iii. Prasad V Potluri Siddhartha Institute of Technology, Mr. Chappidi Anandavardhan, Mr. Michel Bussa, Mr. Chaduvula Anand Kumar, Mr. Dekka Sai Teja, Dr. M. Naga Swapna Sri, Dr. P. Anusha, and Dr. P. Phani Prasanthi have filed a patent titled, *"Iono Caloric Refrigerator"* with the application number 452453-001, filed on 22/03/2025, for the academic year 2024–25, at Intellectual Property Rights, Government of India.

iv. Prasad V Potluri Siddhartha Institute of Technology, Mr. Kambala Mejar Babu, Mr. Dara Akash, Mr. Gunti Sudhakar, Mr. Bodipudi Hima Leela Prasad, Ms. Ch. Vidya, and Dr. P. Phani Prasanthi have filed a patent titled, *"Electromagnetic Braking System"* with the application number 451168-001, filed on 11/03/2025, for the academic year 2024–25, at Intellectual Property Rights, Government of India.

v. Prasad V Potluri Siddhartha Institute of Technology, Dr. P. Anusha, Dr. M. Naga Swapna Sri, Mr. S. Vijaya Krishna, Mr. P. Nagendra Reddy, Mr. B. Sudheer, Mr. M.A. Venkata Krishna, and Dr. P. Phani Prasanthi have filed a patent titled, *"Cool Humectant Cap"* with the application number 452012-001, filed on 19/03/2025, for the academic year 2024–25, at Intellectual Property Rights, Government of India.

vi. Prasad V Potluri Siddhartha Institute of Technology, Dr. M. S. R. Niranjan Kumar, Mr. Peddaprolu Praveen Kumar, Mr. Maanthi Raviteja, Mr. Edega Likith Kumar, Mr. Pamarthi Yogananda, and Dr. P. Phani Prasanthi have filed a patent titled, *"Valet Parking Robot"* with the application number 452452-001, filed on 22/03/2025, for the academic year 2024–25, at Intellectual Property Rights, Government of India.

vii. Prasad V Potluri Siddhartha Institute of Technology, Mr. R. Sandeep, Mr. K. Yaswanth Kumar, Mr. S. Dangi Vardhan, Mr. V. David Aditya, Mr. K. Naresh, Mr. Abdul Riyaz, Mr. Shaik Kalesha, Mr. J. Surendra, and Dr. P. Phani Prasanthi have filed a patent titled, *"Air*

Cooler with Dehumidifier" with the application number 451822-001, filed on 18/03/2025, for the academic year 2024–25, at Intellectual Property Rights, Government of India.

viii. Prasad V Potluri Siddhartha Institute of Technology, Mr. Viswanadhapalli Chandu, Mr. Medanki Uday Kiran, Mr. Sabbavarapu Hemanth Sai Kiran, Mr. Konaparthi Sai Venkat, Dr. M. Rajyalakshmi, and Dr. P. Phani Prasanthi have filed a patent titled, *"TIG Welding Machine for Conical and Cylindrical Workpieces"* with the application number 451021-001, filed on 10/03/2025, for the academic year 2024–25, at Intellectual Property Rights, Government of India.

ix. Prasad V Potluri Siddhartha Institute of Technology, Ms. Divi Naga Navya, Mr. Cheedella Viswesh, Ms. Kesana Leela Jaya, Mr. Chimmili Srinivas, and Dr. P. Phani Prasanthi have filed a patent titled, *"Air Cooler"* with the application number 450648-001, filed on 06/03/2025, for the academic year 2024–25, at Intellectual Property Rights, Government of India.

x. Prasad V Potluri Siddhartha Institute of Technology, Mr. P.M.B. Subrahmanyam, Mr. T. Sai Venkat, Mr. N. Pavan Sai Teja, Mr. U. Koteswara Rao, and Dr. P. Phani Prasanthi have filed a patent titled, *"A Chemical Sprayer for Agricultural Applications"* with the application number 451212-001, filed on 16/03/2025, for the academic year 2024–25, at Intellectual Property Rights, Government of India.

xi. Prasad V Potluri Siddhartha Institute of Technology, Mr. Munduri Veera Venkata Vinodh, Mr. A. Jaya Krishna, Mr. Bhukya Srihari, Mr. Atkuri Akash, Mr. N. Raghu Ram, and Dr. P. Phani Prasanthi have filed a patent titled, *"Cooling Systems for Indoor Temperature Control"* with the application number 450649-001, filed on 06/03/2025, for the academic year 2024–25, at Intellectual Property Rights, Government of India.

b. Ph.Ds awarded: Nil

c. Guest lectures delivered:

i. Ch.Laksmi Kanth has delivered a Guest lecture on "Innovation" at Sree Vahini Institute of Science and Technology on 11th Feb, 2025.

ii. N.Raghu Ram has delivered a Guest lecture on "Design Thinking" at Sree Vahini Institute of Science and Technology on 11th Feb, 2025.

iii. Dr.P.Phani Prashanthi acted as a resource person and delivered a technical talk on "Basics of Intellectual Property Rights and its importance for Innovators and Entrepreneurs" at Bapatla Engineering College on 8th Nov, 2024.

iv. T.J.Prasanna Kumar has delivered a Guest lecture on "Design Thinking concepts and Process" for MBA Students at P.B.Siddhartha College of Arts and Science on 11th March,2025.

v. T.J.Prasanna Kumar has delivered a Guest lecture on "Design Thinking Applications" for MBA Business Analytic Students at P.B.Siddhartha College of Arts and Science on 13th March,2025.

vi. Dr.P.Anusha has delivered a technical talk on "Caloric Refrigeration Technology" Organized by ISHRAE,Vijayawada Chapter on 11th May,2025.

vii. Dr.P.Anusha has delivered a Technical talk on "Energy efficiency in Refrigeration & Energy management in HVAC Organized by ASHRAE & ISHRAE,Vijayawada Chapter on 11th May,2025.

d. Reviewers of journals: NIL

6. Faculty Participation (as a Judge, Guest, or BOS member, & Chairing a session, etc.): NIL

7. MOOCs courses completed by the faculty:

i. Dr. K I Vishnu Vandana completed the course with Elite+Silver on Fuzzy Logic and Neural Networks through Swayam NPTEL in Jan-April 2025 period

ii. Dr. K I Vishnu Vandana has successfully completed the course on The Joy of Computing using Python through Swayam NPTEL in Jan-April 2025 period

iii. Dr. Anusha Peyyala has successfully completed the course on Centre-State Relations in India through Swayam NPTEL in Jan-April 2025 period

iv. Dr. Anusha Peyyala has successfully completed the course with Elite on Micro sensors, Implantable Devices and Rodent Surgeries for Biomedical Applications through Swayam NPTEL in Jan-April 2025 period

v. Dr. M. Rajyalakshmi has successfully completed the course on Introduction to Machine Learning through Swayam NPTEL in Jan-April 2025 period

vi. Dr. M. Rajyalakshmi has successfully completed the course on Artificial Intelligence: Knowledge Representation And Reasoning through Swayam NPTEL in Jan-April 2025 period

vii. Dr KODE SRIVIDYA has successfully completed the course with Elite on Manufacturing Process Technology I & II through Swayam NPTEL in Jan-April 2025 period

viii. Mr. JOSEPH PRASANNA KUMAR TOKALA has successfully completed the course with Elite on Basics of Mechanical Engineering - 2 through Swayam NPTEL in Jan-April 2025 period.

8. Industrial Training Completed by the faculty:

i. Dr. P Anusha successfully completed Summer Training at Cool Star Refrigeration Works, Arundalpet, Vijayawada-2 from 19/05/2025 to 06/06/2025.

ii. Dr. M Naga Swapna Sri successfully completed Summer Training at Cool Star Refrigeration Works, Arundalpet, Vijayawada-2 from 19/05/2025 to 07/06/2025.

iii. Mr. T J Prasanna Kumar successfully completed industrial training at G.S.R Refrigeration Works, Sambamurthy Road, Vijayawada-3 from 19/05/2025 to 09/06/2025.

iv. Mr. J. Surendra successfully completed industrial training at Cool Star Refrigeration Works, Arundalpet, Vijayawada-2 from 19/05/2025 to 06/06/2025.

v. Dr. P. Phani Prasanthi successfully completed Summer Training at Cool Star Refrigeration Works, Arundalpet, Vijayawada-2 from 20/05/2025 to 31/05/2025.

vi. Dr. K Srividya successfully completed Industrial Training at G.S.R Refrigeration Works, Sambamurthy Road, Vijayawada-3 from 20/05/2025 to 09/06/2025.

vii. Mr. Ch Lakshmikanth successfully completed Industrial Training at G.S.R Refrigeration Works, Sambamurthy Road, Vijayawada-3 from 20/05/2025 to 07/06/2025.

viii. Mr. Mrs. V Sravani successfully completed Industrial Training at Cool Star Refrigeration Works, Arundalpet, Vijayawada-2 from 20/05/2025 to 06/06/2025.

ix. Mr. Dr. K I V Vandana successfully completed Industrial Training at G.S.R Refrigeration Works, Sambamurthy Road, Vijayawada-3 from 22/05/2025 to 07/06/2025.

x. Dr. K Ravi Prakash Babu successfully completed Industrial Training at G.S.R Refrigeration Works, Sambamurthy Road, Vijayawada-3 from 23/05/2025 to 09/06/2025.

9. Industrial Visits:

i. III B.Tech II semester of Mechanical Engineering students visited Kusalava International Limited Telaprolu on 5/3/2025

ii. II B.Tech II semester of Mechanical Engineering students visited Daikin Labs Atkur on 7/4/2025

iii. II B.Tech II semester of Mechanical Engineering students visited Jaquar Labs Atkur on 7/4/2025

10. Students' achievements:

a) Co-curricular Activities:

i. A total of 69 students from II, III & IV B.Tech have participated in the event Cadathon at A National Level Techno- Cultural Fest SITAR 2K25 organized by the department of Mechanical Engineering at P.V.P.S.I.T on 22nd Feb,2024.

ii. A total of 55 students from II, III & IV B.Tech have participated in the event Technical Quiz at A National Level Techno- Cultural Fest SITAR 2K25 organized by the department of Mechanical Engineering at P.V.P.S.I.T on 22nd Feb,2024.

iii. P.Yashwanth Kumar, G.Akhil, K.Srinivas of II &III B.Tech have participated in the event Technical Quiz and **won 1st Prize** at A National Level Techno- Cultural Fest SITAR 2K25 organized by the department of Mechanical Engineering at P.V.P.S.I.T on 22nd Feb,2024.

iv. D.Jyothika, Sk.Meera Shareef, Y.Bhargavi of II &III B.Tech have participated in the event Technical Quiz and **won 2nd Prize** at A National Level Techno- Cultural Fest SITAR 2K25 organized by the department of Mechanical Engineering at P.V.P.S.I.T on 22nd Feb,2024.

v. P.Dhanush, U.Kiran, P.Bhanu Teja of II &III B.Tech have participated in the event Technical Quiz and **won 3rd Prize** at A National Level Techno- Cultural Fest SITAR 2K25 organized by the department of Mechanical Engineering at P.V.P.S.I.T on 22nd Feb,2024.

vi. P.Bhuvan Kumar, T.Sri Ram of II B.Tech have participated in the event Cadathon and **won 1st Prize** at A National Level Techno- Cultural Fest SITAR 2K25 organized by the department of Mechanical Engineering at P.V.P.S.I.T on 22nd Feb,2024.

vii. J.Yaswanth, P.Manoj Kumar of II B.Tech have participated in the event Cadathon and **won 2nd Prize** at A National Level Techno- Cultural Fest SITAR 2K25 organized by the department of Mechanical Engineering at P.V.P.S.I.T on 22nd Feb,2024.

viii. Ch.Rajesh, G.Akhil of III B.Tech have participated in the event Cadathon and **won 3rd Prize** at A National Level Techno- Cultural Fest SITAR 2K25 organized by the department of Mechanical Engineering at P.V.P.S.I.T on 22nd Feb,2024.

ix. G.Akhil, G.V.K.Viswanadh, Ch.Rajesh of III B.Tech has participated in EXPLORERS MEET-2K25 in the event CAD Modelling at SRK Institute of Technology on 24th & 25th Feb, 2025.

x. G.Prudhvi(23505A0307), P.Jagaeesh(23505A0307) of III B.Tech has participated in EXPLORERS MEET-2K25 in the event Paper Presentation and **won 1st Prize** o at SRK Institute of Technology on 24th & 25th Feb, 2025.

xi. G.Prudhvi, Sk.Arshad Ali , G.Akhil, D.Rohit Varma, K.Surendra, G.V.K.Viswanadh, D.Rihal , D.Jyothika of III B.Tech has participated in EXPLORERS MEET-2K25 in the event Technical Quiz at SRK Institute of Technology on 24th & 25th Feb, 2025.

xii. B.Anjali(24505A0301), Ch.Teja(23501A0310) of II B.Tech has actively participated in Project Expo event conducted in TORQUE'25 and **won 1st Prize** at JNTU, Kakinada from 15th – 16th March,2025.

b) Extra-curricular Activities:

Intramurals:

10 students participated in volleyball. 9 students participated in badminton and 8 students participated in kabaddi.

Extramural:

8 students participated in cricket, 9 students participated in kabaddi, 9 students participated in volleyball and 5 students participated in ball badminton.

c) Coursera/NPTEL Details of the students:

i. Mr. Simma Rajesh (Reg. No. 23505A0316) has successfully completed the NPTEL-SWAYAM course titled *'Advances in Additive Manufacturing of Materials: Current Status and Emerging Opportunities'* during the Jan–April 2025 session, earning an *Elite+Silver* certification

ii. Mr. Siraparapu Sathish (Reg. No. 23505A0317) has successfully completed the NPTEL-SWAYAM course titled *'Advances in Additive Manufacturing of Materials: Current Status and Emerging Opportunities'* during the Jan–April 2025 session, earning an *Elite* certification

iii. Mr. Suravarapu Mani Pradeep Kumar (Reg. No. 23505A0318) has successfully completed the NPTEL-SWAYAM course titled *'Advances in Additive Manufacturing of Materials: Current Status and Emerging Opportunities'* during the Jan–April 2025 session, earning an *Elite* certification

iv. Mr. Tamarana Kanaka Durga Pavan (Reg. No. 23505A0319) has successfully completed the NPTEL-SWAYAM course titled *'Advances in Additive Manufacturing of Materials: Current Status and Emerging Opportunities'* during the Jan–April 2025 session, earning an *Elite* certification

v. Mr. Gorthi Prudhvi (Reg. No. 23505A0307) has successfully completed the NPTEL-SWAYAM course titled *'Introduction to Soft Computing'* during the Jan–April 2025 session

vi. Mr. Tamarana Kanaka Durga Pavan (Reg. No. 23505A0319) has successfully completed the NPTEL-SWAYAM course titled *'Introduction to Soft Computing'* during the Jan–April 2025 session.

vii. Mr. Kota Bhaskar Rao (Reg. No. 23505A0310) has successfully completed the NPTEL-SWAYAM course titled *'Introduction to Soft Computing'* during the Jan–April 2025 session

viii. Mr. Kiran Bodasingu (Reg. No. 21501A0312) has successfully completed the NPTEL-SWAYAM course titled *'Basics of Mechanical Engineering – 2'* during the Jan–April 2025 session

ix. Mr. Sk Meera Shareef (Reg. No. 23501A0345) has successfully completed the NPTEL-SWAYAM course titled *'Basics of Mechanical Engineering – 2'* during the Jan–April 2025 session

x. Mr. Vemuri Vinay (Reg. No. 23501A0355) has successfully completed the NPTEL-SWAYAM course titled *'Basics of Mechanical Engineering – 2'* during the Jan–April 2025 session

xi. Ms. Shaik Gowsi (Reg. No. 24505A0311) has successfully completed the NPTEL-SWAYAM course titled *'Basics of Mechanical Engineering – 2'* during the Jan–April 2025 session.

d) Internships:

i. Sixty Three (63) students of II B.Tech (Mechanical Engineering) underwent internship at following Organizations from 21-04-2025 to 17-5-2025
Akshaya Samvridhi PVT Ltd – 1, CITD -8, HVAC & R Industries through ISHRAE – 10, IIT Hyderabad – 2, South Central Railway – 33, Sri Sai Heat Treatment Pvt Ltd – 4, Zeltron Elevators Pvt Ltd, Hyderabad -1.

ii. Sixty Six (66) students of II B.Tech (Mechanical Engineering) underwent internship at following Organizations from 21-04-2025 to 17-5-2025
Akshaya Samvridhi PVT Ltd – 5, CITD -30, GLOBALTECHNICS, HYDERABAD-2, HINDUSTAN SHIPYARD LIMITED-1, HMIES SOLUTIONS PVT LTD-2, KUSALAVA LINERS-3, Lakshmi Chaitanya Tools-4, South Central Railway – 19.

e) Publications:

i. Kode Srividya, Surendra Karagana, Rihal Dondapati, Rajesh Cherukuneedi, Shaik Arshad Ali, Design and Fabrication of Total Emissivity Measuring Apparatus, Two-day International Conference on Recent Advances in Mechanical Engineering –(ICRAMIE-2025), Organized by Dept of Mechanical Engineering, PVPSIT, in association with NIT Warangal from 8th to 9th May 2025, Conference Proceedings ISBN: 978-93-342-1172-6

ii. K. Srividya, Gorthi Prudhvi, S.Mani Pradeep Kumar, T.Kanaka Durga Pavan, K. Bhaskar Rao, Daggupati Jyothika, Development and Enhancement of Wear Characteristics in Epoxy-Based Composites through Response Surface Methodology (RSM) and Box-Behnken Experimental Design, Two-day International Conference on Recent Advances in Mechanical Engineering –(ICRAMIE-2025), Organized by Dept of Mechanical Engineering, PVPSIT, in association with NIT Warangal from 8th to 9th May 2025, Conference Proceedings ISBN: 978-93-342-1172-6

iii. E. Kavitha, LMN. Pavan kalyan, N. Prabhu prakash, L. Sanyu meghan, M. Vamsi Krishna, Topology Optimization for Prosthetic Foot: Enhancing Performance and Comfort, Two-day International Conference on Recent Advances in Mechanical Engineering –(ICRAMIE-2025), Organized by Dept of Mechanical Engineering, PVPSIT, in association with NIT Warangal from 8th to 9th May 2025, Conference Proceedings ISBN: 978-93-342-1172-6

iv. E. Kavitha, M. Kavya Sree, Ch.Manikanta, J. Satish Babu, B. Prince Prakash, Modelling and Analysis of Cellular Structure Using 3d Printing, Two-day International Conference on Recent Advances in Mechanical Engineering –(ICRAMIE-2025), Organized by Dept of Mechanical Engineering, PVPSIT, in association with NIT Warangal from 8th to 9th May 2025, Conference Proceedings ISBN: 978-93-342-1172-6

v. K. Venkatarao, Ch. Lakshmi Kanth, T. J. Prasanna Kumar, G. Pavan Kumar, J. Dhanush, P. Sreenivas, K. Kiran Kumar, A. Manoj Kumar, Heat Transfer Enhancement of an Automobile Engine Radiator Using TiO2/CuO Water Base Nanofluids, Two-day International Conference on Recent Advances in Mechanical Engineering –(ICRAMIE-2025), Organized by Dept of Mechanical Engineering, PVPSIT, in association with NIT Warangal from 8th to 9th May 2025, Conference Proceedings ISBN: 978-93-342-1172-6

vi. T J Prasanna Kumar, V Kalyan Manohar, I Rohith Sanjay, G Manohar, J Kranthi Kumar, Design Optimization and Fabrication of Two-Wheeler Wind and Rain Shield through Design Thinking Approach, Two-day International Conference on Recent Advances in Mechanical Engineering –(ICRAMIE-2025), Organized by Dept of Mechanical Engineering, PVPSIT, in association with NIT Warangal from 8th to 9th May 2025, Conference Proceedings ISBN: 978-93-342-1172-6

vii. T J Prasanna Kumar, K Venkata Rao, Ch Lakshmi kanth, SK Chand Mohiddien, B Kiran, Integrated Manufacturing and Testing with Predictive Analytics Using Machine Learning: A Data-Driven Approach to Process Optimization, Two-day International Conference on Recent Advances in Mechanical Engineering –(ICRAMIE-2025), Organized by Dept of Mechanical Engineering, PVPSIT, in association with NIT Warangal from 8th to 9th May 2025, Conference Proceedings ISBN: 978-93-342-1172-6

11. Higher Education:

i. Tirumala Naga Venkata Prasad A (20501A0303) of 2020-2024 Batch joined Masters Degree in Intelligent manufacturing in 'Internationales Zentrum Clausthal' , T U Clausthal at Germany.

ii. Bandlamudi Dhanush (20501A0307) of 2020-2024 Batch joined Masters Degree in Industrial Engineering and international Management in 'Hochschulen Fresenius Gmbh'at Germany.

iii. Hemanth Kumar G (20501A0322) of 2020-2024 Batch joined Masters Degree in Mechatronic and cyber-physical Systems in 'Technische Hochschule Deggendorf' at Germany.

12. Other Information:

a) Students and Staff membership in professional bodies:-

Faculty memberships:

i. Dr. M. Naga Swapna Sri took membership in Society of Failure Analysis [SFA]

ii. 23 members of faculty took membership in Life Member Indian Society for Technical Education [LMISTE]

iii. Three members of faculty took membership in Institute of Engineers India [IEI]

iv. Four members of faculty took membership in Materials Research Society of India[MRSI]

v. Seven members of faculty took membership in International Association of Engineers [IAENG]

vi. Dr. M. Naga Swapna Sritook membership in Society of Failure Analysis [SFA]

vii. Dr. P. Anusha took membership in Indian Society of Heating, Refrigerating and Air Conditioning Engineers [ISHRAE].

viii. Dr. P. Anusha took membership in American Society of Heating, Refrigerating and Air Conditioning Engineers [ASHRAE].

ix. Dr. P. Anusha took membership in the Association for the Advancement of Artificial Intelligence [AAAI].

x. Dr. P. Anusha took membership in Indian Plumbing Association [IPA]

xi. Dr. P. Anusha, Dr. M. Naga Swapna Sri, Ms. E. Kavitha took membership in Society for Learning Technologies [SOLETE]

xii. Mr.N. Raghu Ram took membership in the Powder Metallurgy Association of India[PMAI].

xiii. Dr.B.Raghu Kumar , Mr.T. Srinag took membership in the Condition Monitoring Society of India [CMSI].

xiv. Mr.J.Surendra took membership in Indian Society of Systems for Science and Engineering [ISSE].

xv. Dr.Ravi Prakash Babu took membership in Institute of Mechanical Engineers [India][IME].

xvi. Dr.P. Phani. Prasanthi took membership in the Society for Indoor Environment [SIE].

Student's memberships:

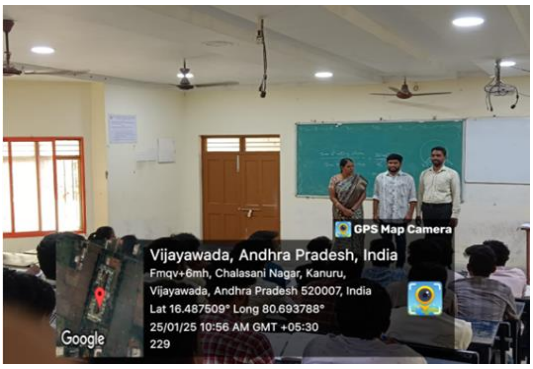
i. 212 students took memberships in Indian Society for Technical Education [ISTE].

ii. 22 students took memberships in Indian Society of Heating, Refrigerating and Air Conditioning Engineers [ISHRAE].

iii. 24 students took memberships in American Society of Heating, Refrigerating and Air Conditioning Engineers [ASHRAE].

b) Alumni Interaction:

i. Alumni Interaction on "Opportunities in Core Industries" by Mr. Satyanarayana, Senior Software Engineer, Tata Consultancy Services Ltd., on 25-01-2025 for II B.Tech I Sem Sec - 1 students.



ii. Alumni Interaction on "Opportunities in the Insurance Industry" by Mr. Shaik Ayub (B.Tech, 2015–2019 batch), Business Analyst, SmartIMS, on 01-02-2025 for II B.Tech I Sem Sec - 1 students.

iii. Alumni Interaction on "Opportunities for Higher Studies in Foreign Universities" by Miss V. Sai Geethika, Alumna (Postgraduate, IIT Hyderabad; Ph.D. Scholar, Australian National University), on 03-03-2025 for III B.Tech II Semester students.

iv. Alumni Interaction on "Career Opportunities in the Banking Sector" by Mr. G. Sri Naga Sai (B.Tech, 2012–2016 batch), Assistant Manager, State Bank of India, Bangalore, on 11-04-2025 for II B.Tech students.

c) Placements:

i. Mr.Bussa Michel,Cheedella Viswesh ,Ms.Divi Naga Navya, Syed Khaja Mohiddin , Thota Mohana Vamsi Krishna Selected As Graduate Engineer Trainee In **Jindal South West Steel** With Annual Package Of 5.5 LPA from Campus Placement conducted during January-2025

ii. Mr. Vathadi Sandeep selected as System analyst in **Capgemini** with Annual Package of 4.25 LPA from Campus Placement conducted in the month of March-2025

iii. Mr. Viswanadhapalli Chandu, Mr. Munduri Veera Venkata Vinodh selected as Graduate Engineer Trainee in **VEM Technologies** with Annual Package of 4 LPA.

iv. Mr. Ahmad Ali Shah,S Vijayakrishna, Shaik Kalesha, Rajavarapu Sandeep, Y Bhavasagar, Ganta Manohar, K.Leela Jayaram , Kamarajugadda Surya Teja , S.D Saber Hussain, Kambala Mejar Babu, Maanthi Ravi Teja selected as Design Engineers in **CADSYS Pvt Ltd**, Hyderabad with Annual Package of 3.3 LPA from campus placements conducted in the month of March 2025.

v. Kamadi Rajesh ,Vathadi Sandeep , Sudagani Dangi Vardhan, Vasimalla.Dhanush Shrinjith, Busi Tarun Sai, Rajavarapu Sandeep, Sayila Priya Vardhan, Gunti Sudhakar, Battu Charan Sai, Anaparthi Jayakrishna, Petta Bhanu Suresh Babu, Saidulu Shaik, Peddaprolu Praveen Kumar Selected As Graduate Engineer Trainee In **Megha Engineering & Infrastructures Limited** With Annual Package Of 3 LPA

d) Equipment Procured: -

i. Ultrasonic Flaw Detector was procured for Basic Workshop lab with cost of Rs. 2, 52, 501.00.

13. Students Corner:

i) "The World May Not Clap for You, But It Moves Because of You"

An Ode to the Unsung Heroes: Mechanical Engineers:

In a world constantly drawn toward the digital — apps, artificial intelligence, cryptocurrency, and cloud computing — the contributions of mechanical engineers are slowly being pushed into the background. The limelight today often favors the coders, the UI designers, and data scientists, while the engineers who build the very bones of civilization remain largely unseen.

But take a moment to look around — at the chair you sit on, the fan rotating above, the vehicle that brought you home, the air conditioner cooling your room, the water heater, the escalator, the washing machine, the pump drawing water to your building, and even the MRI machine at a hospital. **Every single one of these marvels exists because a mechanical engineer dared to imagine, design, and build it.**

A Legacy of Innovation:

Mechanical engineering is arguably one of the oldest and broadest disciplines in the engineering domain. Its legacy spans millennia — from the invention of the wheel and pulleys to the Industrial Revolution, from the Wright brothers' first aircraft to Elon Musk's SpaceX rockets.

This branch of engineering deals not just with machines but with **motion, energy, design, and sustainability**. Mechanical engineers are involved in nearly every industry — automotive, aerospace, energy, manufacturing, healthcare, robotics, and even space exploration.

Yet, for all its significance, the branch is quietly underappreciated in modern discourse. The question arises — **why are mechanical engineers becoming invisible in today's tech-driven society?**

The Invisible Pressure on Core Engineers:

There is an undeniable shift in perception among the younger generation. Today's students, and even recruiters, seem more drawn toward software engineering and IT. Core engineering streams are increasingly seen as 'less glamorous' or offering fewer immediate job opportunities. The job market, influenced by trends and the ever-evolving demands of the global tech ecosystem, has led to a decline in enthusiasm for disciplines like mechanical engineering.

But this view is dangerously short-sighted.

What the world often forgets is that while **software may be the brain of modern systems, mechanical engineering remains the body.** Without the body, the brain has no vessel to function in. The apps that power electric vehicles mean little without the wheels, chassis, battery design, thermal control systems, and structural integrity — all of which are born in the mind of a mechanical engineer.

A Mechanical Engineer's Journey: Before and After the Degree:

Before he becomes a graduate, a mechanical engineer is a curious soul — a child who opens clocks to see what ticks, who sketches odd contraptions in notebooks, and who wonders how an aircraft stays in the air or how turbines spin to light a city.

But during the four years of study, the journey deepens. He learns not just the math behind motion or the physics of heat, but also the **resilience of discipline**. He discovers the pressure of design

failure, the beauty in optimization, and the immense responsibility behind every calculation. It's a journey that builds character as much as it builds capability.

A World Waiting to Be Reimagined:

If a mechanical engineer chooses to focus deeply — not chasing trends, but mastering fundamentals — he becomes more than an employee. He becomes a **visionary**.

He can **design low-cost prosthetics** for amputees in developing countries.

He can build **robots for precision farming**, transforming agriculture.

He can invent **energy-saving engines** that cut emissions and costs.

He can **redefine transportation**, healthcare, and even disaster relief with innovation rooted in physics and empathy.

From nanotechnology to renewable energy, biomechanics to autonomous systems — the future needs mechanical minds with courage and compassion.

Redefining Respect and Recognition:

We must urgently reframe how we perceive mechanical engineering. It is not "old-school" or outdated. It is **the foundation of every modern invention**. As we build smart cities, electric vehicles, high-speed trains, and Mars rovers, we are leaning more than ever on the ingenuity of mechanical engineers.

The need is not just for more mechanical engineers — but for **society to support them, value them, and empower them.**

Educational institutions must invest more in core research. Industry must create spaces for young engineers to innovate. And families must understand that engineering is not just about jobs — it is about **purpose**.

Final Thoughts: A Call to See the Unseen:

To every young mechanical engineer reading this — don’t be disheartened by the lack of applause. Because **true builders rarely get to stand on stage.** They are backstage, turning the gears that make the performance possible.

You are not behind. You are **the backbone**.

And to the world — let us not forget: the engineer who stays late in the lab trying to make a machine 1% more efficient may never go viral online. But he may be saving thousands of lives, millions of rupees, or even the planet.

It’s time we start noticing them.

It’s time we start **celebrating the creators of motion.**

Article by
Vemuluri kalyan sai ram
23501A0353

ii) Nambi Narayanan: A Case Study in Wrongful Accusation and the Fight for Justice

The case of ISRO scientist Nambi Narayanan, falsely accused the 1994 ISRO espionage scandal, stands as a stark reminder of the potential for misuse of power within the legal system and the devastating impact it can have on an individual's life and reputation. His story is a poignant case study in the fight for truth, justice, and the affirmation of fundamental rights.

Background of the case:

Nambi Narayanan, a prominent scientist involved in ISRO's cryogenic project, was arrested in November 1994, along with colleagues and others, based on espionage charges. The allegations, initially investigated by the Kerala police, claimed he had shared sensitive space technology with two Maldivian women allegedly linked to Pakistan. This case received considerable media attention, severely damaging Narayanan's reputation and career.

The fight for justice:

- CBI Investigation and Acquittal: The Central Bureau of Investigation (CBI) took over the case and concluded the allegations were baseless with no evidence of espionage. Their closure report was accepted in 1996.
- Legal Battles for Compensation and Accountability: Following his acquittal, Narayanan pursued legal action for the harm to his reputation and well-being.
- The National Human Rights Commission (NHRC) found the Kerala government responsible for damaging Narayanan's career and ordered them to pay Rs. 1 crore in damages in 1999.
- While the Kerala High Court agreed to Rs. 10 lakh compensation, it was later discovered this amount wasn't paid.
- In 2018, the Supreme Court recognized the injustice Narayanan faced and awarded him Rs. 50 lakh. The Court also formed a committee under Justice D.K. Jain to investigate the police officers involved in the case.
- In April 2021, the Supreme Court directed the CBI to review the Jain committee's findings. Subsequently, the CBI filed cases against five former police officers for their alleged roles in framing Narayanan, including charges of conspiracy, wrongful confinement, fabricating evidence, and assault.

Impact and significance:

The case established a significant precedent that the right to reputation is part of the fundamental right to life and personal liberty under Article 21 of the Indian Constitution. It also highlighted the need for accountability in police investigations and protection against the abuse of authority. The judgment reinforced human rights protection in India by recognizing the severe consequences of wrongful prosecution and the state's obligation to compensate victims.

A lasting legacy:

Despite the legal victories and compensation, the years of false accusations and imprisonment had a profound impact on Narayanan's life, career, and family. He was forced to abandon his pioneering work in cryogenic engine technology. The false charges also caused his wife to suffer from depression and his family to face social isolation.

Narayanan's pursuit of justice, culminating in Supreme Court judgments and the CBI investigation into the officials, serves as a powerful reminder of the importance of due process, accountability, and the protection of individual rights in a democratic society.

Article by
A. Naveen Kumar
24501A0303

iii) Pamban Bridge: India’s Enduring Sea Link

Nestled in the southern reaches of Tamil Nadu, the Pamban Bridge stands as one of India's most iconic and historically significant infrastructural marvels. This vital link connects the revered Rameswaram Island to the mainland town of Mandapam, serving not just as a crucial transportation artery but also as a powerful testament to India's early engineering prowess.

Commissioned as the nation’s first sea bridge, the Pamban Bridge proudly held the title of India's longest sea bridge for decades, a record it maintained until the completion of Mumbai's Bandra-Worli Sea Link.

Historical Roots:

Inaugurated on **February 24, 1914**, during the British Raj, the Pamban Bridge was conceived with a singular, paramount objective: to establish a direct connection between Rameswaram, a sacred Hindu pilgrimage site, and the Indian mainland. For generations, this bridge played an indispensable role, facilitating the seamless flow of trade, pilgrims, and essential goods.

For many years, it remained the sole conduit linking Pamban Island with the rest of India, making it utterly critical to the region's economy and accessibility.

Structure and Design

The Pamban Bridge is ingeniously designed as a **cantilever bridge**, distinguished by its unique **double-leaf bascule**, also known as a Scherzer span. This innovative mechanism allows the central section to lift, providing clear passage for ships and boats below. Spanning an approximate length of **2.06 kilometers (1.28 miles)**, its robust construction utilizes steel and concrete, materials meticulously chosen for their ability to withstand the unforgiving marine environment.

While originally operated manually, the lifting mechanism has since been upgraded to an electrically controlled system, significantly enhancing both efficiency and safety.

Engineering Significance

The task of constructing and maintaining a bridge over the Palk Strait—a region notorious for its powerful tidal currents, corrosive salt winds, and frequent cyclonic weather—represents an extraordinary feat of engineering. The Pamban Bridge has stoically endured countless natural onslaughts, including the catastrophic **1964 cyclone** that devastated the nearby town of Dhanushkodi, yet remarkably left the bridge repairable and restorable.

Ongoing and rigorous maintenance efforts are paramount to preserving the structure's integrity amidst constant exposure to salt-laden air and moisture, truly underscoring the bridge’s remarkable resilience and engineering brilliance.

Recent Developments

An exciting new chapter is unfolding with the **construction of a new Pamban Bridge**, poised to become India's first **vertical-lift railway sea bridge**. Unlike the existing bascule system, this cutting-edge vertical lift design will permit vessels to pass underneath without disrupting rail traffic above.

This modern marvel will accommodate broad-gauge railway lines, replacing the older meter-gauge track, and is anticipated to deliver enhanced safety, increased speed, and long-term sustainability for rail transport across the strait.

Cultural and Tourist Importance

Far more than a mere transportation link, the Pamban Bridge has blossomed into a beloved tourist attraction, offering breathtaking panoramic views of both the Bay of Bengal and the Indian Ocean.

Whether traversing its length by train or admiring it from a distance, visitors are consistently captivated by the unique sensation of gliding over water, with the sea glistening on both sides.

For pilgrims journeying to Rameswaram, it holds profound spiritual significance, often forming an indelible memory of their sacred odyssey.

Conclusion

The Pamban Bridge stands as an enduring emblem of historical and engineering excellence. From its foundational construction during the colonial era to its contemporary upgrades, it has steadfastly withstood the relentless tests of time and nature.

More than a physical structure, it embodies connection—a vital link between land and island, people and faith, history and progress. For engineers, tourists, and devotees alike, the Pamban Bridge continues to inspire and endure, a true bridge of legacy and national pride.

Article By
B. Hanumaditya
24501A0307

iv) Why AI Is Considered More Dangerous Than Nuclear Weapons and How Deeply AI Is Integrated With Humans

Artificial Intelligence (AI) has grown from a futuristic idea into a powerful reality shaping our everyday lives. While many celebrate AI for its incredible benefits, some experts warn that AI could be even more dangerous than nuclear weapons. This report explores why AI poses such risks and how deeply AI has already become part of human society.

Why AI Could Be More Dangerous Than Nuclear Weapons:

Unpredictability and Scale

Nuclear weapons are massively destructive but are controlled by governments and require physical resources to deploy. In contrast, AI can spread instantly across the globe through the internet, influencing billions of people. AI systems learn and evolve, sometimes unpredictably, making it harder to control their behavior.

Autonomy and Decision Making

AI can make decisions on its own without human oversight, especially in advanced systems like autonomous drones or financial trading bots. If these AI systems make errors or get hacked, the consequences could be devastating, causing accidents, economic crashes, or social chaos.

Manipulation and Influence

AI is already used in social media algorithms, personalized ads, and fake news generation, influencing people’s opinions and behaviors subtly but massively. This kind of "information weapon" can destabilize societies and democracies more quietly and gradually than a nuclear strike.

Proliferation and Accessibility

Unlike nuclear weapons, which require rare materials and complex infrastructure, AI software and tools are becoming widely accessible. This means that bad actors — from criminals to rogue states — can misuse AI more easily and quickly than nuclear weapons.

How Far Is AI Integrated with Humans?

Daily Life and Communication

AI powers the voice assistants on our phones, recommends movies and products, helps translate languages, and even moderates online content. We interact with AI countless times every day, often without realizing it.

Healthcare

AI helps doctors diagnose diseases more accurately, predicts patient outcomes, and even assists in developing new medicines. These AI tools improve healthcare quality but also raise privacy and ethical questions.

Work and Industry

Robots and AI software are transforming industries like manufacturing, transportation (self-driving cars), and customer service (chatbots). This integration boosts efficiency but also threatens jobs and requires new skills from workers.

Human Enhancement

Research is underway on AI-powered brain-computer interfaces that could help disabled people regain control over limbs or even allow direct communication between brains and computers. This level of integration blurs the line between human and machine.

Conclusion

AI holds enormous promise but also presents unique risks that could surpass those of nuclear weapons due to its unpredictability, accessibility, and power to influence society quietly yet deeply. As AI continues to integrate into our lives — from the phones we use to the medical treatments we receive — it is crucial to understand these dangers and manage AI responsibly. Our future depends on balancing innovation with safety and ethics.

Article by
K. Prem Kumar
23501A0324

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