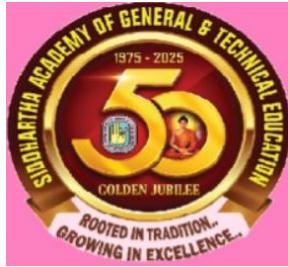


*Golden Jubilee Celebrations of Siddhartha Academy of General & Technical Education
(SAGTE)*

Two-day International Conference on
Recent Advances in Mechanical and
Industrial Engineering 2025
(ICRAMIE – 2025)

8th and 9th May 2025



Sponsored by



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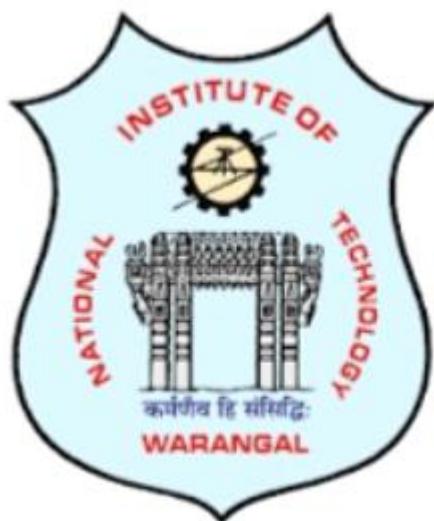
**Two-day International Conference on
Recent Advances in Mechanical and Industrial
Engineering – 2025
(ICRAMIE – 2025)**

8th and 9th May 2025

Organised by



**Department of Mechanical Engineering
P.V.P. Siddhartha Institute of
Technology,
Vijayawada.**



**Department of Mechanical Engineering
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Two-day International Conference on Recent Advances in Mechanical and Industrial Engineering – 2025 (ICRAMIE – 2025)

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Sri M Rajaiah
PRESIDENT, SAGTE
CHIEF PATRON, ICRAMIE – 2025

MESSAGE

I am very happy to make a note that the Department of Mechanical Engineering of Prasad. V. Potluri Siddhartha Institute of Technology, sponsored by Siddhartha Academy of General and Technical education (SAGTE), Vijayawada is organizing Two-day International Conference on Recent Advances in Mechanical and Industrial Engineering (ICRAMIE – 2025) on 8th and 9th May, 2025.

Our aim is to create world class engineers endowed with human values to serve the society. As a part of this, we are encouraging all the departments of college to organize National and International conferences, workshops and seminars for the technical enrichment among the faculty and students.

I appreciate the efforts of Department of Mechanical Engineering in organizing Two-day International Conference on Recent Advances in Mechanical and Industrial Engineering. We always support these kinds of conferences that enable faculty to keep in pace with the latest technology and to contribute their innovative ideas to the research in their interested areas.

I wish the conference a splendid success and aspiration that the participants will find the conference a technically enriching and gives rewarding knowledge.

Date: 8th May, 2025

Place: PVPSIT



Sri P. LAKSHMANA RAO
SCRETARY, SAGTE
CHEIF PATRON, ICRAMIE – 2025

MESSAGE

I sense immense pleasure and conceited to be a part of Two-day International Conference being organized by the Department of Mechanical Engineering, P.V.P. Siddhartha Institute of Technology sponsored by Siddhartha Academy for General and Technical Education, Vijayawada on 8th and 9th May, 2025.

I Congratulate all the concerned for organizing this international conference and bringing out the proceedings. Such conferences are need of the day and helps the academicians get exposed to the various latest developments in the field of Mechanical Engineering. Updating is very significant in the life of an educationist and all such are supported and encouraged at PVPSIT.

Contemporary set of courses should make necessary change in the teaching-learning process. I hope this International Conference organized by the department of ME will fulfill the goals and dreams of younger generation.

On this juncture I take this Opportunity to congratulate all the staff members and students of Mechanical Departments for their efforts and initiative and wish them a very best for success throughout their life.

Date: 8th May, 2025

Place: PVPSIT



Sri. VELLANKI NAGABHUSHANA RAO

CONVENER, PVPSIT

CHIEF PATRON, ICRAMIE – 2025

MESSAGE

I am happy to note that dept. of Mechanical Engineering of P.V.P Siddhartha Institute of Technology is organizing Two-day International Conference on Recent Advances in Mechanical and Industrial Engineering (ICRAMIE – 2025) on 8th and 9th May, 2025, and going to release the proceeding during this occasion.

From the precedent 25 years PVPSIT had been imparting quality service in the meadow of Engineering education by providing excellent infrastructure facilities and the right team of well qualified staff. This makes PVPSIT to march towards confidently in this competitive era.

PVPSIT is playing its responsibility well in training the "Youth" who are the National Asset and Future of India. In the coming years PVPSIT will definitely craft thousands of successful Engineers, Entrepreneurs and citizen to serve the Nation and Society.

I take this opportunity to longing them all the very best in the walks of their profession and also express my whole hearted best wishes on this occasion to all the staff & students of ME department and hope the conference a grand success.

Date: 8th May, 2025

Place: PVPSIT



Dr K. SIVAJI BABU
PRINCIPAL, PVPSIT
CHIEF PATRON,
ICRAMIE – 2025

MESSAGE

I am immensely happy that Mechanical Engineering department of our college is organizing a Two-day International Conference on Recent Advances in Mechanical and Industrial Engineering (ICRAMIE – 2025) on 8th and 9th May, 2025 and is going to present a collection of various technical papers in the proceedings.

Under the capable guidance of our management SAGTE, the Institute continues to march on the way of success with confidence. The sharp, clear-sighted vision and precise decision-making powers of our management has benefited our college to stay competitive.

The dedicated HODs and staff members and disciplined students of PVPSIT are the added features of our college. The role of students in building nation cannot be overlooked and students at PVPSIT are trained in all aspects to become successful engineers and good citizens.

I congratulate HOD, staff members, students of ME departments and participants for their hard work in organizing and participating in this conference and wish the conference all the success.

Date: 8th May, 2025

Place: PVPSIT



Dr. B. RAGHU KUMAR
PROFESSOR & HOD, DEPT OF ME, PVPSIT
Patrons, ICRAPIE – 2025

MESSAGE

It is a great admiration for me to address on this occasion of international conference being organized by our department, Two-day International Conference on Recent Advances in Mechanical and Industrial Engineering (ICRAPIE – 2025) on 8th and 9th May, 2025.

The department is dedicated to add value to intellectual, moral, social and technological capabilities to the students. This Conference is an endeavor in the direction to give an exposure to the academicians on the recent development in Mechanical and Industrial Engineering field. The key goal of the conference is to promote research and developmental activities in Mechanical Engineering.

I am very happy to note that a good number of methodological papers from scholars and students are being presented and discussed in the conference.

I place on records with appreciation the hard work, participation and effort taken by the team of staff and students in organizing this conference and congratulate all the concerned with gratitude and wish the conference a grand success.

Date: 8th May, 2025

Place: PVPSIT



Dr. P.PHANI PRASANTHI
PROFESSOR, DEPT OF ME, PVPSIT
CONVENER, ICRAMIE – 2025

PROLOGUE

I am delighted to state that the department of Mechanical Engineering of Prasad V. Potluri Siddhartha Institute of Technology is organizing Two-day International Conference on Recent Advances in Mechanical and Industrial Engineering (ICRAMIE – 25) on 8th and 9th May, 2025.

The development in the area of Mechanical Engineering and Materials Characterization in the past few years has led to extraordinary increase in the number of people using these technologies and also the interest in research and development.

ICRAME-25 aims to bring together innovative academics, researchers and industrial experts in the field of Mechanical Engineering, for a constructive dialog on theoretical concepts and practical thoughts.

I am extremely indebted to Dr. C. Nageswara Rao garu, President, SAGTE, Sri. P. Laxmana Rao garu, Secretary, SAGTE and Sri. Vellanki Nagabhushana Rao garu, Convener, PVPSIT, Dr. K. Sivaji Babu garu, Principal of PVPSIT for their constant encouragement. I also express my gratitude to Dr. B. Raghu Kumar, HOD, faculty, staff and students of Mechanical Engineering Department, PVPSIT for their involvement and enthusiastic participation in the conference.

Date: 8th May, 2025

Place: PVPSIT

Institute Vision

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

Institute 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)

PO - 1: Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO - 2: Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO - 3: Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO - 4: Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions

PO - 5: Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

PO - 6: The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice

PO-7: Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO - 8: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO - 9: Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO - 10: Communication: Communicate effectively on complex engineering activities with the

engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions

PO - 11: Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO - 12: Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

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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List of Contributed papers

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2	ICRAMIE 25 – D2	Intelligent Wild Bird Deterrence System	Srinivasa Sai Krishna Dasari ¹ , Venkateswara Rao Tadiboin ² , Priyanshu Gautam ³ , Kapil Yadav ⁴	^{1,3,4} VIT Bhopal University, Sehore, M.P., India ² Assistant Professor SCOPE, VIT Bhopal University	2
3	ICRAMIE 25 – D3	The Impact of Artificial Intelligence & Machine Learning on Mechanical Engineering	Shaik Anwar ¹ , Dr. Gujjar NagaMalleswara Rao ² , Shaik Chand Mabhu Subhani ³	¹ Student, Mechanical Engineering Branch, Eswar college of Engineering (Autonomous) ² Professor, ³ Assistat Professor, Dept of Mechanical Engineering, Eswar College of Engineering (Autonomous)	3
4	ICRAMIE 25 – D4	Experimental investigation on diesel engine by using the fuel as custard apple seed oil with graphene nanoparticle additives	Praveen Chapala* ¹ , Challapalli Rushinath ¹ , Saran S ¹ , Deepak Yadav ¹	^{1,3,4,5,6} Lakireddy Bali Reddy College of Engineering, Mylavaram, A. P. -521230 ² DVR & Dr. HS MIC College of Technology, Andhra Pradesh, India	4
5	ICRAMIE 25 – D5	Development of 3d Printed Flexible Finger Gripper for Pick and Place Operation	Avadhoot Rajurkar, Rohit Paikrao	Department of Mechanical Engineering, Vishwakarma Institute of Technology, 666, Upper Indira Nagar, Pune-411037, India	5
6	ICRAMIE 25 – D6	Exploring the Microstructure of Aluminum Welds Achieved Through Microwave Energy Deposition	Shivinder Singh ¹ , Vikas Chaudhary ² , Sunil manani ³ , Ravindra Singh Shekhawat ⁴	¹ Chandigarh Group of Colleges Jhanjeri, Mohali - 140307, Punjab, India, Mechanical Engineering Department, Chandigarh Engineering College ² Dr. B. R. Ambedkar National Institute of Technology Jalandhar, 144011, India ³ Punjab Engineering College, Chandigarh, 160012, India ⁴ Arya College of Engineering, Jaipur, Rajasthan – 302028, India	6
7	ICRAMIE 25 – D7	Detection of ASD Traits in Children through Behavioral Analysis in Computerized Game Environments	Sahil Ajani, Himanshu Chauhan, Prakhar Pandey, Venkateswara Rao Tadiboina*, Jayesh	School of Computing Science and Engineering, VIT Bhopal University, Kothri-Kalan, Sehore, India	7

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9	ICRAMIE 25 – D9	Microstructural Evolution, hardness and wear Behaviour of AZ31 Magnesium Alloy Processed by Friction Stir Processing at Varying Tool Rotational Speeds	Namburi Harsha ¹ , V.S.N. Venkata Ramana ² , Koona Bhavani ³ , K. Sri Ram Vikas ⁴ , R. Rahul ⁵	1Department of Mechanical Engineering, S.R.K.R. Engineering College (A), Bhimavaram, Andhra Pradesh, India. 2,3Department of Mechanical Engineering, GITAM School of Technology, GITAM (Deemed to be University). Visakhapatnam, Andhra Pradesh, India. 4Department of Mechanical Engineering, Gayatri Vidya Parishad College for Degree and PG Courses (A), Visakhapatnam, India. 5Department of Mechanical Engineering, Chaitanya Bharathi Institute of Technology (A), Hyderabad, Telangana, India.	9
10	ICRAMIE 25 – D10	Influence of Powder-Fiber Ratio on the Mechanical Properties of <i>Prunus Dulcis</i> Mixed (Powder and Fiber) Composite	C. Mahesh ^{1*} , B. Thimothi ² , P. Sriram Koushik ² , R. Jai Siva Kumar ² , M. Sai Mahendra ²	^{1*} Department of Mechanical Engineering, Siddhartha Academy of Higher Education, eemed to be University, Vijayawada-520007, India. ² B. Tech Student, Department of Mechanical Engineering, Siddhartha Academy of Higher Education, Deemed to be University, Vijayawada-520007, India	10
11	ICRAMIE 25 – D11	Engineering the Cancer Matrix: AI Integration in Modern Oncology	Nallani Sravya Sri, Dr P V V S Srinivas*, Guduru Sridevi, Meka sai Venkat, Pinnika Vyjayanth Kumar	Computer Science and Information Technology, Koneru Lakshmaiah Education Foundation, Vaddeswaram, Guntur, Andhra Pradesh, India	11

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13	ICRAMIE 25 – D13	Effect of Printing Orientation on the Mechanical Properties of FDM-Printed ABS Components	G Dilli Babu ^{1*} , S. Satya Durga Prasad ² , Y. Yugandhar Hanuman sai ³ , S. Harsha Deva Raj Kumar ⁴ , V. Chandu ⁵ , Y. Sanjay Kumar ⁶	¹ Associate Professor, Department of Mechanical Engineering, V R Siddhartha School of Engineering, SAHE an Deemed to be University, Vijayawada, India ^{2,3,4,5,6} Student, Department of Mechanical Engineering, V R Siddhartha School of Engineering, SAHE an Deemed to be University, Vijayawada, India	13
14	ICRAMIE 25 – D14	Enhancing the structural stability of a beam using constrained layer damping treatment	Ch. Pravarsh, K. Harish Kumar, Ch. Prudhvi, Ch. Nithin, J. Meghan, B. Hemanth	Mechanical Engineering Department, Vignan's Institute of Information Technology(A), Duvvada, Visakhapatnam, India	14
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16	ICRAMIE 25 – D16	Optimization of FDM 3D Printing Parameters for Dimensional Accuracy of 3D-Printed Components using Taguchi DOE Experimental	G Dilli Babu ^{1*} , Md Adnan ² , M Mani Kumar ³ , Md Abdul Malik ⁴ , M Abhishek ⁵	¹ Associate Professor, Department of Mechanical Engineering, V R Siddhartha School of Engineering, SAHE an Deemed to be University, Vijayawada, India ^{2,3,4,5,6} Student, Department of Mechanical Engineering, V R Siddhartha School of Engineering, SAHE an Deemed to be University, Vijayawada, India	16
17	ICRAMIE 25 – D17	Effect of Furnace Slag Filler Addition on Tensile and Flexural Properties of GFRP Composite Laminates	S. Indrasena Reddy ^{1,2} , B. Naga Raju ³ , Gopinadh Chowdary. P ⁴	¹ Assistant Professor, Department of Aerospace Engineering, Lakireddy Bali Reddy College of Engineering (Autonomous), Mylavaram; India ² Research Scholar, Department of Mechanical Engineering, AU college of Engineering, Andhra University, Visakhapatnam, Andhra Pradesh, India ³ Professor, Department of Mechanical Engineering, Anil Neerukonda Institute of Technology and Sciences, Visakhapatnam, Andhra Pradesh, India ⁴ Assistant Professor, Dept. of ME, VR Siddhartha, SAHE (Deemed to be University), Vijayawada, India	17

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19	ICRAMIE 25 – D19	Study of Self - Healing Properties of Bacillus Cereus Concrete Using Basalt Fibers as a Carrier	Manne Anupama Ammulu ^{1*} , Praveen Kumar Vemuri ² , Bhanu Prasad M ³ , Adithi Manikanta ⁴ , Lokesh T ⁵ , Naveen P ⁶	¹ *Department of Civil Engineering, PVP Siddhartha Institute of Technology, Kanuru, Vijayawada, Andhra Pradesh, India ² Department of Biotechnology, KL deemed to be University, Guntur, Andhra Pradesh, India ^{3,4,5,6} Department of Civil Engineering, PVP Siddhartha Institute of Technology, Kanuru, Vijayawada, Andhra Pradesh, India	19
20	ICRAMIE 25 – D20	Early Detection of Autism Spectrum Disorder Through Interactive Digital Games	Jayesh, Venkateswara Rao Tadiboina*, Saurav Khanal, Nareddi Sarath Chandranarayana Rao, Ranjan Kumar	School of Computing Science and Engineering, VIT Bhopal University, Kothri-Kalan, Sehore, India	20
21	ICRAMIE 25 – P1	Deep Learning Architectures for Facial Emotion Recognition: A Critical Review, Challenges, and Emerging Research Directions Towards Hybrid CNN-Transformer Models	Mushika Shylaja ¹ , M Sheshikala ²	¹ Research Scholar, School of CS & AI, SR University, Warangal, India ² Dean, HOD, School of CS & AI, SR University, Warangal, India	21
22	ICRAMIE 25 – P2	Assessment of aluminum oxide and EGR influence on the diverse attributes of compression ignition engine powered with fish biodiesel	Kurra Hari Prasad, Devarapalli Gopi sai*, Billa Chandra Sekha ³ , Garela Manoj Kumar, Goudaperu Pavan Kumar	Department of Mechanical Engineering, Rayapati Venkata Ranga Rao & Jagarlamudi Chandramouli College of Engineering (Autonomous), Guntur - 522019, India	22
23	ICRAMIE 25 – P3	Optimized Adsorption Performance of Functionalized Carbon Nanotubes Synthesized Via Acetylene Pyrolysis for Aqueous Phase Contaminant Removal	T. Preethi Rangamani ^{1*} , V.V. Rama Krishna ²	¹ Freshman Engineering Department, PVP Siddhartha Institute of Technology, Vijayawada, Andhra Pradesh, 520007, India. ² Department of Electronics and Communication Engineering, LakiReddy Bali Reddy College of Engineering, Mylavaram, Andhra Pradesh, 521230, India	23
24	ICRAMIE 25 – P4	Optimization of Laser Surface Texturing Parameters for Pits Formation on Titanium Alloy (Ti6Al4V) With HF Chemical Etching	Avadhoot Rajurkar ¹ , Siddhesh Rithe ² , Atharv Sangale ³ , Mohammed Zaki Sange ⁴ , Kajal Sargar ⁵ , Atharvsinh Sawant ⁶	Department of Mechanical Engineering, Vishwakarma Institute of Technology	24

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26	ICRAMIE 25 – P6	Performance Study of Alumina Ceramic Tool Inserts During Dry Turning of hardened EN36 Steel Samples	Dr. K.I. Vishnu Vandana ¹ *, Dr. M. Rajyalakshmi ¹ , P.B. Suresh Babu ² , Dr. P. Siva Nagasree ³	¹ Assistant Professor, Department of Mechanical Engineering, P.V.P.Siddhartha Institute of Technology, Kanuru, Vijayawada, AP, India. ² UG Student, Department of Mechanical Engineering, P.V.P.Siddhartha Institute of Technology, Kanuru, Vijayawada, AP, India. ³ Assistant Professor, Department of Mechanical Engineering, NRI Institute of Technology, Pothavarappadu, India	26
27	ICRAMIE 25 – P7	Implementation of Digital Twins in Healthcare	Kanaka Durga Devi Nelluri*, Kakani Anil Kumar, Vijaya Lakshmi Marella, Kovida Chanumolu, Yamini Durga Talaparthi, Karumuru Seetha Reddy	KVSR Siddhartha College of Pharmaceutical Sciences, Vijayawada, Andhra Pradesh, India	27
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29	ICRAMIE 25 – P9	Robot-Based Medicine and Deep Plunge Electroencephalogram in Biomedicine	Bhaskar Rao Bollineni, Lakshmi Lalitha. D, Ravitheja Eluru, Jyotchna Devi Bade, Sunjana Nelluri	Great Eastern Medical School and Hospital, Srikakulam-532484, India	29
30	ICRAMIE 25 – P10	Industry 4.0 in Pharmaceutical Manufacturing: Transforming the Future of Smart Pharma	Kanaka Durga Devi Nelluri, Achanti Suneetha, Ramana Gangireddy, Bhavana Alaparthi, Minakshi Kommoju, Padamata Sai Rohith	KVSR Siddhartha College of Pharmaceutical Sciences, Vijayawada, Andhra Pradesh, India	30

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