



AICTE sponsored VAANI-2025-26 National Conference on

**Digital Makeover in Engineering Applications:
Innovation, Technology and Sustainability”**

Manufacturing & Industry 4.0

On 16th -17th December 2025



CALL FOR PAPERS

DMEAITS-2025: The National Conference on “DIGITAL MAKEOVER IN ENGINEERING APPLICATIONS: INNOVATION, TECHNOLOGY AND SUSTAINABILITY,” conducted by the Department of Mechanical Engineering at Government Polytechnic, Visakhapatnam aims to provide a platform for researchers to explore emerging trends in core engineering fields. It emphasizes the transformative impact of digital technologies such as AI, IoT, digital twins, and big data analytics. The conference promotes innovation in design, automation, and real-time monitoring, while highlighting sustainability through energy-efficient and eco-friendly practices.

Themes:

1. Advanced Manufacturing Technologies

- Additive and Hybrid Manufacturing
- Micro- and Nano-Manufacturing
- Industry 4.0 and Cyber-Physical Production Systems
- Surface Engineering and Coating Technologies

2. Innovations in Materials Science

- High-Entropy Alloys and Advanced Composites
- Nanomaterials and Functional Materials
- Smart and Self-Healing Materials
- Bio-inspired and Green Materials

3. Thermal Engineering and Heat Transfer

- Advanced Cooling Technologies for Electronics
- Energy Storage and Thermal Management
- Computational Heat Transfer
- Multiphase Flow and Boiling/Condensation Phenomena

4. Automation and Robotics

- Autonomous Systems and AI Integration
- Human-Robot Collaboration (Cobots)
- Industrial Robotics and Smart Factories
- Medical and Surgical Robotics
- Swarm Robotics and Mobile Robots

5. Computational Mechanics and Simulation

- Finite Element Modeling (FEM) and Analysis
- Computational Fluid Dynamics (CFD) Applications
- Simulation for Manufacturing and Product Design
- AI/ML in Computational Mechanics

6. Biomechanical Engineering

- Orthopedic Implants and Biomaterials
- Biomechanics of Human Motion and Sports
- Computational Modeling in Biomechanics
- Assistive Devices and Rehabilitation Engineering

7. Sustainable Transportation Systems

- Electric and Hybrid Vehicle Technologies
- Hydrogen and Alternative Fuels
- Lightweight Materials for Vehicle Efficiency
- Policy and Infrastructure for Green Mobility

8. Mechanical Engineering Education and Skilling

- Experiential Learning and Project-Based Pedagogy
- Virtual and Remote Laboratories
- Industry-Academia Collaboration Models
- Skilling for Industry 4.0 and Beyond
- Curriculum Innovations for Future Engineers

9. Innovations for Environmental Sustainability

- Waste-to-Energy Technologies
- Carbon Capture, Utilization, and Storage (CCUS)
- Circular Economy and Sustainable Manufacturing
- Green Buildings and Eco-Design

10. Digital Applications in Soil Mechanics and Foundation Engineering

- AI/ML Applications in Geotechnical Engineering
- Digital Twins for Foundation Systems
- Remote Sensing and GIS in Soil Mechanics
- Predictive Modeling of Soil-Structure Interaction
- Smart Sensors for Ground Monitoring

11. Innovations in Structural Design

- Earthquake-Resistant Structural Systems
- Smart and Adaptive Structures

- Lightweight and Modular Construction
- Sustainable and Recyclable Construction Materials
- Performance-Based Structural Design

12. Smart Transportation Systems

- Vehicle-to-Vehicle (V2V) and Vehicle-to-Infrastructure (V2I) Communication
- Connected and Autonomous Vehicles
- Mobility as a Service (MaaS)
- Data Analytics for Smart Mobility

13. Integration of Renewable Energy with Smart Grids

- Solar, Wind, and Hybrid Integration Techniques
- Energy Storage for Grid Stability
- Forecasting and Demand-Side Management
- Distributed Generation and Microgrids

14. Power Electronics for Sustainable Energy Systems

- High-Efficiency Converters and Inverters
- Wide Bandgap (SiC, GaN) Power Devices
- Grid-Connected Power Electronics Systems
- Reliability and Thermal Management in Power Devices

15. Smart Grid Technologies and Energy Management Systems

- Advanced Metering Infrastructure (AMI)
- AI-Enabled Energy Management Systems
- Cybersecurity in Smart Grids
- Blockchain for Energy Trading

Mode of Presentation : Offline

Who can attend : Postgraduate students, Research scholars, and professionals from various educational Institutions, R&D centres, Government and professional organizations, and industries are invited to contribute papers and participate in the conference.

Venue : Government Polytechnic, Visakhapatnam

Registration fee : There is no registration fee and "Participants are required to register through the AICTE-ATAL web portal to attend the conference."

Submit paper to : drrajuchitla@gmail.com, marojubharani83@gmail.com

Publication:

Accepted papers of the registered candidates will be published in the conference proceedings with an ISBN.

DATES TO REMEMBER:

Abstract Submission last date: 30.10.2025
 Paper Submission last date : 08.11.2025
 Registration Deadline : 15.11.2025
 Conference date : 16.12.2025
 to
 18.12.2025