

PROGRAM SCHEDULE
6th INTERNATIONAL CONFERENCE ON

**Smart and Sustainable Developments in Materials, Manufacturing
and Energy Engineering**

(SME-2025)

Venue: Phalguni Seminar Hall, 2nd Floor, S Ramanujan Block

| Invited Talk 1 | |
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| Date: 06.02.2025 | Time: 11.30AM to 12.30PM |
| TOPIC: Fatigue Testing and Fatigue Life Evaluation under Multiaxial Loading | |
| Prof. Takamoto ITOH, Department of Mechanical Engg. Ritsumeikan University, Japan | |
| Invited Talk 2 | |
| Date: 07.02.2025 | Time: 10.30AM to 11.15AM |
| TOPIC: Structure-Property-Energetics Relationships in Deriving Guidelines for Rational Drug Design and Drug Delivery Vehicles | |
| Prof. Nand Kishore, FNASc Department of Chemistry, and Dean (Administrative Affairs), IIT Bombay, India | |
| Invited Talk 3 | |
| Date: 07.02.2025 | Time: 1.45AM to 2.30PM |
| TOPIC: Challenges of Implementation of Autonomous Passenger vehicles in India | |
| Ms. Radhika Pillai, Senior Director – Sales Strategy RoshAi, Kochi, India | |

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| Date:06.02.2025 | Time:2.00 to 3.30PM (Session 1) |
| Session Chairs: | |
| Venue: Phalguni Hall | Session Coordinator: |
| PAPER ID | Authors and Paper Title (7 papers) |
| SME 1045 | Quantum Enhanced Image Processing for Plant Disease Detection |
| SME 1066 | Using dynamic programming method in passenger flow distribution to optimize the urban infrastructure development in the conditions of sustainable development |
| SME 1093 | Real time monitoring with development of machine learning model for CNC machining productivity |
| SME 2093 | Tensile Property Enhancement of ZnO/CaCO ₃ Reinforced PMMA Composites: A Structural and Mechanical Evaluation |
| SME 3024 | Automated Conveyor based Pallets Assembly System Using Factory IO |
| SME 2038 | Sorting of Materials in CNC Machine with PLC System and Factory I/O |
| SME 2041 | Improving Workstation Efficiency Through Load Balancing in Industrial Automation with Factory I/O and Control I/O |

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| Date:06.02.2025 | | Time:2.00 to 3.30PM (Session 2) | |
| Session Chairs: | | | |
| Venue: LH208 | | Session Coordinator: | |
| PAPER ID | Authors and Paper Title (7 papers) | | |
| SME 1044 | Evaluation of the Characteristics of Next-Generation Sustainable Bricks | | |
| SME 1055 | Green Synthesis and Characterization of CuxO Nanoparticles by Using Spinach Extract for Gas Sensing Application | | |
| SME 1063 | A Comprehensive Review on Aluminium Hybrid Metal Matrix Composites: Reinforcement Strategies and Their Impact on Mechanical and Wear Properties | | |
| SME 1064 | Eco-friendly Reactive Powder Concrete: Exploring Steel Sludge Powder as a Sustainable Fine Aggregate Alternative | | |
| SME 2094 | Numerical Investigation of Non-Standard Fracture Specimens for Pipe Crack Analysis | | |
| SME 3027 | Design and Implementation of Automated Palletizing System for Bricks | | |
| SME 3002 | Design and Optimization of E-Baja ATV H-arm | | |

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| Date:06.02.2025 | | Time:2.00 to 3.30PM (Session 3) | |
| Session Chairs: | | | |
| Venue: METROLOGY LAB | | Session Coordinator: | |
| PAPER ID | Authors and Paper Title (7 papers) | | |
| SME 2020 | Ensemble Framework for Hybrid Music Recommendation Systems: Integrating Collaborative Filtering, GMM Clustering, and Sequential Modeling | | |
| SME 2021 | Coronary Artery Disease Prediction: A Novel Approach Using Principal Component Analysis and Enhanced Support Vector Machine Classifier | | |
| SME 2027 | Voice Based Parkinson's Disease Detection using Supervised Machine Learning Approach | | |
| SME 2028 | Sound Recognition in Music: Leveraging Support Vector Machines and Principal Component Analysis for Instrument Classification | | |
| SME 3009 | Optimizing the Operation and Performance of UR3 Cobot using Advanced Machine Learning and Deep Learning Approaches | | |
| SME 3005 | Automated Package Machine with Defect Detection and Weight-Based Segregation | | |
| SME 2086 | Friction Stir Welding of Commercially Pure Titanium: Tensile Properties and Hardness Evaluation | | |

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| Date:06.02.2025 | | Time: 3.45 to 5.15PM (Session 4) | |
| Session Chairs: | | | |
| Venue: Metrology Lab | | Session Coordinator: | |
| PAPER ID | Authors and Paper Title (7 papers) | | |
| SME 2098 | Emotion-Based Music Classification with Machine Learning | | |
| SME 3003 | Development of Composite Material By Using Agave Fibre and Testing Its Properties | | |
| SME 2099 | Diamond Price Forecast using CNN-XG Boost Blended Ensemble for Predictive Modeling | | |
| SME 3011 | Satellite Trajectory Optimization Using Hybrid Reinforcement Learning Techniques | | |
| SME 1086 | Performance Assessment and Thermodynamic Analysis of Different Organic Rankine Cycle (ORC) Configurations for IC Engine Waste Heat Recovery | | |
| SME 2054 | Optimizing Buffer Conveyor Systems for Material Flow Efficiency | | |
| SME 2069 | Automated color based sorting system: Engineering efficiency through PLC & factory IO | | |

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| Date:06.02.2025 | | Time: 3.45 to 5.15PM (Session 5) | |
| Session Chairs: | | | |
| Venue: Phalguni Hall | | Session Coordinator: | |
| PAPER ID | Authors and Paper Title (7 papers) | | |
| SME 2070 | Optimizing factory efficiency through automated palletizing using plc and factory IO | | |
| SME 3000 | Sustainable Paver Blocks Using Steel Sludge as Partial Fine Aggregate Replacement | | |
| SME 3019 | Generation and Denoising of BPSK Signals Using Kalman Filter with Particle Swarm Optimization and Whale Optimization | | |
| SME 1088 | AI-Powered Skin Cancer Detection and Virtual Dermatology Support System using Pre-Trained CNN Algorithm | | |
| SME 2096 | Sorting PEX Pipes by Color and Condition | | |
| SME 2071 | Automatic Color Sorting And Counting using PLC And Factory I/O | | |
| SME 2057 | Automatic Classifying of Casting Products in Terms of Weight Using Factory I/O | | |

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| Date:06.02.2025 | | Time: 3.45 to 5.15PM (Session 6) | |
| Session Chairs: | | | |
| Venue: LH208 | | Session Coordinator: | |
| PAPER ID | Authors and Paper Title (7 papers) | | |
| SME 2035 | Optimizing Disaster Relief Resource Allocation By Using Branch and Bound Algorithm For Integer Programming Problems | | |
| SME 2047 | Cryogenic and dry machining of magnesium alloy AZ91: Surface roughness prediction using MLPNN and RBFNN | | |
| SME 2087 | Comparative Analysis of SVM and Bayesian Analysis for Heart Disease Prediction | | |
| SME 2090 | Synergistic Optimization of Heart Health: Harnessing Bayesian and Particle Swarm Algorithms for Heart Attack Risk Minimization | | |
| SME 2074 | Design and Simulation of a Flexible Colour Sorting System for Product Customization Using Factory IO and Control IO | | |
| SME 2062 | Integrated Automatic concrete mixer and elevator for Enhanced construction efficiency | | |
| SME 2077 | Experimental and FEA-Based Analysis of Machinability and Cutting Forces for Aluminium 6061-T6 Using Johnson-Cook Model. | | |

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| Date:07.02.2025 | | Time:9.15 to 10.30AM (Session 7) | |
| Session Chairs: | | | |
| Venue: Phalguni Hall | | Session Coordinator: | |
| PAPER ID | Authors and Paper Title (6 papers) | | |
| SME 1054 | Design and Development of a Simple Gear Train Energy Harvester to Generate Green Energy from Sea Waves | | |
| SME 2002 | Design of a composting machine and analysis of compost quality for sustainable waste management | | |
| SME 2009 | Mechanical behavior of 3D Printed parts fabricated by using vat photo-polymerization technique: Effect of orientation of 3D part | | |
| SME 2018 | A Concise Review On 3D Printed Techniques for Super capacitors | | |
| SME 3023 | Strength and Cost Effectiveness of Retrofitted RCC Beams using Artificial Woven Fabrics | | |
| SME 2075 | A Review on Defect Detection Techniques in Polymer Additive Manufacturing | | |

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| Date:07.02.2025 | | Time: 9.15 to 10.30AM (Session 8) | |
| Session Chairs: | | | |
| Venue: LH208 | | Session Coordinator: | |
| PAPER ID | Authors and Paper Title (6 papers) | | |
| SME 1057 | Dimensionless performance of counter cross flow heat exchanger | | |
| SME 1092 | Process Improvement Through Six Sigma Methodology | | |
| SME 2025 | Innovative Strategies for Urban Drainage Management: Addressing Flood Risks in Growing Cities | | |
| SME 3010 | Mechanical Characterization of Filaments Developed from Recycled and Virgin Plastics | | |
| SME 1089 | Impact of wear parameters and heat treatment on the wear rate of Aluminum alloy / Al Nitride Composite: An Experimental approach | | |
| SME 2042 | Design and Simulation of Automated Systems for Sorting, Stamping, Packing and Storage Using Factory I/O | | |

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| Date:07.02.2025 | | Time: 9.15 to 10.30AM (Session 9) | |
| Session Chairs: | | | |
| Venue: METROLOGY LAB | | Session Coordinator: | |
| PAPER ID | Authors and Paper Title (6 papers) | | |
| SME 2058 | Evaluation of surface roughness in milling additive and conventionally manufactured 18Ni300 steel | | |
| SME 2045 | Optimization of Steering System of Electric Tricycle for Disabled Individuals Using Mechatronics Subsystem Design | | |
| SME 2091 | An innovative approach leveraging a Hybrid Chaotic Pattern Search Algorithm to optimize the dimensionality reduction of audio spectrograms using PCA | | |
| SME 1043 | Solar powered Agrobot - Multipurpose robot for sowing, seeding and pesticide spraying | | |
| SME 1027 | AI-Driven Cloud-Based Emotion Recognition and Response System (PO) | | |
| SME 2055 | Automated Solution For Box Stacking On Pallets For Industrial Warehousing Using An XYZ Pick-And-Place System In Factory I/O | | |

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| Date:07.02.2025 | | Time:11.30 to 1.00PM (Session 10) | |
| Session Chairs: | | | |
| Venue: Phalguni Hall | | Session Coordinator: | |
| PAPER ID | Authors and Paper Title (7 papers) | | |
| SME 1095 | Internal Flow Induced Vibration Study of Typical Crude Heater Radiant Tubes | | |
| SME 2015 | Aerodynamic analysis of tapered wing with wingtip for drag reduction | | |
| SME 2095 | Effect of HNT as Secondary Reinforcement on Fracture Toughness of Epoxy- Carbon Fabric Composites | | |
| SME 2023 | Simulation of LOCA from high pressure high temperature flow systems for sustainable design in NPPs | | |
| SME 2016 | Edge-Enabled Decoding of Malayalam Handwriting: A Graph-Based Letter Segmentation Approach | | |
| SME 2044 | Portable Dual Powered Solar and Wind Energy Charging System Using Mechatronics System Design. | | |
| SME 3025 | Battery thermal management system in Electric Vehicles using MatLab Simulation | | |

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| Date:07.02.2025 | | Time: 11.30 to 1.00PM (Session 11) | |
| Session Chairs: | | | |
| Venue: LH208 | | Session Coordinator: | |
| PAPER ID | Authors and Paper Title (7 papers) | | |
| SME 1074 | Optimization of Process Parameters for Vickers Hardness Number of Friction Stir Welded Al-Ce-Si-Mg Aluminium Alloy Plate joints by Taguchi Technique | | |
| SME 2013 | Environmental Influence on moisture absorption of the physical properties of hemp fiber strengthened unsaturated polyester composites | | |
| SME 2026 | Pioneering Advances in Composite and Smart Materials for Modern Engineering Applications | | |
| SME 2032 | Synergistic Flame-Retardant effect of Boron-Coated Expandable Graphite (BEG) and Ammonium Polyphosphate (APP) in Rigid Polyurethane Foam (RPUF) | | |
| SME 1090 | Experimental and statistical approach to the analysis of wear parameters of Chill Casted LM13/Zircon/Carbon hybrid composites | | |
| SME 2046 | A Factory I/O Revolution: Transforming Semi-Automatic Production into Fully Automatic Production | | |
| SME 2048 | Automation of Airport Baggage Handling System Using Factory I/O | | |

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| Date:07.02.2025 | | Time: 11.30 to 12.30PM (Session 12) | |
| Session Chairs: | | | |
| Venue: Metrology Lab /Cad Lab (ON) | | Session Coordinator: | |
| PAPER ID | Authors and Paper Title (3 papers) | | |
| SME 2059 | Batch Adsorption Assessment of Refinery wastewater Pollutants Using Waste Pumice | | |
| SME 2001 | Evaluation Of Mass Transfer Characteristics of Reverse Osmosis Desalination Process Based On The Spiegler-Kedem-Katchalsky Model | | |
| SME 1070 | Vacuum Gas Oils Nano- Added Fuels of Enhanced Physicochemical Properties | | |

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| Date:07.02.2025 | | Time:02.30 to 4.00PM (Session 13) | |
| Session Chairs: | | | |
| Venue: Phalguni Hall | | Session Coordinator: | |
| PAPER ID | Authors and Paper Title (8 papers) | | |
| SME 1091 | Self-Rejuvenation Potential of a River: An Analysis | | |
| SME 2007 | Classification of Vibration Signal Using Wavelet Transform and Support Vector Machine for Rolling Element Bearing Fault diagnosis | | |
| SME 2008 | Recycled Plastic Waste in Low-Carbon Bricks: A Sustainable Solution for Environmental Challenges | | |
| SME 2017 | Innovative technologies in transport and logistics infrastructure | | |
| SME 1003 | Energy Conservation Potential in Educational Institutions of India – Case Study | | |
| SME 2078 | Synthesis, Characterization, and Electromagnetic Interference of PANI- Chromium-doped alumina Nanocomposites | | |
| SME 3013 | Design Analysis of Graphene Nanoplatelets and Hexagonal Boron Nitride Infused Polymer Composite (Compressor Blade) | | |
| SME 1067 | Effect of adhesive on the performance of Laminated Veneer Lumber | | |

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| Date:07.02.2025 | | Time: 2.30 to 4.00PM (Session 14) | |
| Session Chairs: | | | |
| Venue: Metrology Lab | | Session Coordinator: | |
| PAPER ID | Authors and Paper Title (7 papers) | | |
| SME 2034 | SPRAYTECH: A Smart and Sustainable Robotic Solution for Precision Pesticide Application in Agriculture | | |
| SME 1041 | Pole Positioning a DC Motor with Lyapunov stability analysis | | |
| SME 1042 | DC Motor Speed Controller Design and Stability Analysis Using State-Space Approach | | |
| SME 2073 | Automated Warehouse And Sorting Of Packages Based On Height | | |
| SME 3008 | Enhancing Railway safety with a mechatronic track Inspection Bot: A Deep Learning Approach | | |
| SME 2006 | Effect of cryogenic and conventional face milling on the wear performance of Al-Li alloy | | |
| SME 3001 | Electrochemical Investigation on Corrosion Inhibition behavior of Tetraazachloro Schiff base/Cu(II) and Zn(II) materials for mild steel in acidic Environment | | |

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| Date:07.02.2025 | | Time: 2.30 to 4.00PM (Session 15) | |
| Session Chairs: | | | |
| Venue: LH208 | | Session Coordinator: | |
| PAPER ID | Authors and Paper Title (7 papers) | | |
| SME 2052 | A Concise Review on Alloy Type Anodes for Li-Ion Batteries | | |
| SME 2092 | Performance Evaluation of Battery-Operated Three-Wheeler Chassis by Finite Element Analysis | | |
| SME 3016 | Development of green technologies in the multimodal transportation organisation under green economy conditions | | |
| SME 1030 | Optimization And Performance Evaluation Of Ambient Cured Geopolymer Concrete Over Conventional Concrete For Reinforced And Prestressing Applications | | |
| SME 1049 | Evaluation of Quality of Ground Water Spatially and using Machine learning on Basis of Water Quality Index in Tiruchirappalli City | | |
| SME 2097 | Investigating Mechanical properties and Microstructural characteristics of Al-SiC composite during Autogenous Pulsed Current TIG Welding with Active Flux Coating | | |
| SME 1014 | CNC Machine Training through Virtual Reality | | |