



**2<sup>nd</sup> International Conference on  
Recent Innovations and Developments in Mechanical Engineering  
(ICRIDME 2024)  
NOVEMBER 14 -16, 2024**



**Detailed Schedule: Day-1 (14<sup>th</sup> November, 2024)**

| Time             | Event        | Venue |
|------------------|--------------|-------|
| 04.00 PM onwards | Registration | Lobby |

**Detailed Schedule: Day-2 (15<sup>th</sup> November, 2024)**

| Time                 | Event   | Venue                 |
|----------------------|---|-----------------------|
| 08.00 AM to 09.00 AM | Registration  | Lobby                 |
|                      | High Tea  | Conference Hall III   |
| 09.00 AM to 09.45 AM | Inaugural Program   | Cultural Hall         |
| 09.45 AM to 10.15 AM | <b>Plenary Lecture I: Prof. Sarit K. Das</b>  |                       |
| 10.15 AM to 11.30 AM | Parallel Oral Presentation Session TS1.1: <i>Renewable Energy</i><br><i>Paper ID: 86, 99, 109, 117, 123, 125</i>          | Cultural Hall         |
|                      | Parallel Oral Presentation Session TS1.2: <i>Vibration and Acoustics</i><br><i>Paper ID: 20, 59, 66, 118, 120</i>         | Conference Hall - I   |
| 11.30 AM to 11.45 AM | Tea Break   |                       |
| 11.45 AM to 01.00 PM | Parallel Oral Presentation Session TS1.3: <i>Materials and Manufacturing</i><br><i>Paper ID: 7, 12, 72, 75, 111, 137</i>  | Cultural Hall         |
|                      | Parallel Oral Presentation Session TS1.4: <i>Thermal Engineering</i><br><i>Paper ID: 13, 22, 23, 24, 35, 80, 129</i>      | Conference Hall - I   |
| 01.00 PM to 02.00 PM | Lunch   | Conference Hall - III |
| 02.00 PM to 02.30 PM | <b>Keynote Lecture I: Prof. Pradip Dutta</b>  | Cultural Hall         |
| 02.30 PM to 03.45 PM | Parallel Oral Presentation Session TS1.5: <i>Materials and Manufacturing</i><br><i>Paper ID: 11, 44, 63, 74, 141, 168</i> | Cultural Hall         |
|                      | Parallel Oral Presentation Session TS1.6: <i>AI/ML in Mechanical Engineering</i><br><i>Paper ID: 5, 34, 54, 126, 153</i>  | Conference Hall - I   |
| 03.45 PM to 04.00 PM | Tea Break   |                       |
| 04.00 PM to 04.30 PM | <b>Plenary Lecture II: Prof. Uday. S. Dixit</b>   | Cultural Hall         |
| 04.30 PM to 05.45 PM | Parallel Oral Presentation Session TS1.7: <i>Renewable Energy</i><br><i>Paper ID: 43, 45, 68, 100, 112, 156, 162</i>      | Cultural Hall         |
|                      | Parallel Oral Presentation Session TS1.8: <i>Thermal Engineering</i><br><i>Paper ID: 29, 67, 90, 95, 97, 98, 146</i>      | Conference Hall - I   |



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|                      |                  |                       |
|----------------------|------------------|-----------------------|
| 05.45 PM to 07.00 PM | Cultural Program | Cultural Hall         |
| 7.00 PM onwards      | Gala Dinner      | Conference Hall - III |

**Detailed Schedule: Day-3 (16<sup>th</sup> November, 2024)**

| Time                 | Event   | Venue                 |
|----------------------|---|-----------------------|
| 08.00 AM to 09.15 AM | High Tea  | Conference Hall III   |
| 09.15 AM to 09.45 AM | <b>Keynote Lecture II: Prof. P.S. Robi</b>  | Cultural Hall         |
| 09.45 AM to 10.15 AM | <b>Keynote Lecture III: Prof. Inderdeep Singh</b>   |                       |
| 10.15 AM to 11.30 AM | Parallel Oral Presentation Session TS2.1: <i>Materials and Manufacturing</i><br><i>Paper ID: 38, 51, 57, 65, 134</i>          | Cultural Hall         |
|                      | Parallel Oral Presentation Session TS2.2: <i>Fluid Mechanics</i><br><i>Paper ID: 8, 25, 78, 92, 136, 144</i>                  | Conference Hall - I   |
| 11.30 AM to 11.45 AM | Tea Break   |                       |
| 11.45 AM to 01.00 PM | Parallel Oral Presentation Session TS2.3: <i>Renewable Energy</i><br><i>Paper ID: 14, 36, 81, 114, 124, 132, 152</i>          | Cultural Hall         |
|                      | Parallel Oral Presentation Session TS2.4: <i>Materials and Manufacturing</i><br><i>Paper ID: 52, 73, 105, 113, 122, 131</i>   | Conference Hall - I   |
| 01.00 PM to 02.00 PM | Lunch   | Conference Hall - III |
| 02.00 PM to 02.30 PM | <b>Keynote Lecture IV: Prof. Santosha K. Dwivedy</b>  | Cultural Hall         |
| 02.30 PM to 03.45 PM | Parallel Oral Presentation Session TS2.5: <i>Vibration and Acoustics</i><br><i>Paper ID: 26, 41, 85, 140, 142, 145</i>        | Cultural Hall         |
|                      | Parallel Oral Presentation Session TS2.6: <i>Materials and Manufacturing</i><br><i>Paper ID: 58, 62, 84, 87, 115, 155</i>     | Conference Hall - I   |
| 03.45 PM to 04.00 PM | Tea Break   |                       |
| 04.00 PM to 05.15 PM | Parallel Oral Presentation Session TS2.7: <i>Materials and Manufacturing</i><br><i>Paper ID: 39, 40, 88, 101, 127, 170</i>    | Cultural Hall         |
|                      | Parallel Oral Presentation Session TS2.8: <i>Materials and Manufacturing</i><br><i>Paper ID: 104, 106, 107, 163, 164, 167</i> | Conference Hall - I   |
| 05.15 PM to 6.00 PM  | Valedictory Function  | Cultural Hall         |



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**Technical Oral Sessions**

**Cultural Hall**

| SN  | ID  | AUTHORS NAME  | PRESENTING AUTHOR  | TITLE OF THE PAPER  | CODE         |
|---|-----|---|--|---|--------------|
| Date: 15/11/2024, Time: 10.15 AM to 11.30 AM (TS1.1: RENEWABLE ENERGY)            |     |   |  |   |              |
| <b>Session Chair: Prof. P. Rajagopalan</b>  |     |   | <b>Session Organizer: Prof. Harish C. Das, NIT Meghalaya</b> |   |              |
| 1   | 86  | Piyush Yadav, Damanbha Marwein, Biplab Kumar Debnath and Rajat Subhra Das | Piyush Yadav   | Prediction and Optimization of Hourly and Cumulative Yield for Solar Still Using ANN-GA and ANN-PSO   | TS1.1: RE-01 |
| 2   | 99  | Krittika Patwari, Ashish B. Khelkar and Rajat Subhra Das                  | Krittika Patwari   | Effect of triangular grooves on the performance of a double-pass solar air heater: A technical study  | TS1.1: RE-02 |
| 3   | 109 | Mukul Banerjee, Sourav Saha and Sukanta Roy                               | Mukul Banerjee   | Challenges and opportunities in the path of the development of floating photovoltaic (FPV) systems with application of Electric Vehicles Charging: A Review | TS1.1: RE-03 |
| 4   | 117 | Satyanarayana Addala, Satya Sai Koppineni and Y. Venkatesh                | Satya Sai Koppineni  | Design and Analysis of ANN-MPPT System in Switching Capacitor Based MLI For Electric Vehicles   | TS1.1: RE-04 |
| 5   | 123 | Amrish Maurya and Aman Kumar  | Amrish Maurya  | Nanoparticles at Condensation Surface of Solar Still  | TS1.1: RE-05 |
| 6   | 125 | Eusebious Theodinosious Chullai, Subhendu Maity and Bikash Kumar Sarkar   | Eusebious Theodinosious Chullai                              | Effects of overlap ratio on the power and aerodynamic coefficients of a newly developed parabolic bladed Savonius rotor                                     | TS1.1: RE-06 |
| Date: 15/11/2024, Time: 11.45 AM to 01.00 PM (TS1.3: MATERIALS AND MANUFACTURING) |     |   |  |   |              |
| <b>Session Chair: Prof. Arvind Kumar</b>  |     |   | <b>Session Organizer: Dr. Maneswar Rahang, NIT Meghalaya</b> |   |              |
| 1   | 7   | U. Mohammed Iqbal and Muralidharan S                                      | U. Mohammed Iqbal  | Enhancement of Mechanical and Microstructure properties of Mg-2%Gd alloy through Multi-Angular Twist Channel Extrusion (MATE) and cryo-Rolling              | TS1.3: MM-01 |
| 2   | 12  | Santhakumar J, Sathish Kannan and U. Mohammed Iqbal                       | Santhakumar J  | Impact of one way and zig-zag tool path orientation on the performance parameters in pocket milling operation   | TS1.3: MM-02 |
| 3   | 72  | Aakash Tyagi, Manas Das and Sajan Kapil                                   | Aakash Tyagi   | Investigation on the impact of textured array of recoater on the powder layer quality for powder bed fusion process   | TS1.3: MM-03 |
| 4   | 75  | Abhishek Das and Manas Das  | Abhishek Das   | A comprehensive review of $\mu$ -ECDM processes for microfabrication on various glass substrate   | TS1.3: MM-04 |
| 5   | 111 | Soumya Ranjan Guru, Kapil Muni Singh and Mihir Sarangi                    | Kapil Muni Singh   | Tribological Characterization of PTFE Polymer: A Comparative Study of Ballon-Disc and Ball-on-Plate Testing Methods   | TS1.3: MM-05 |
| 6   | 137 | Santosh Shekokar and Harshal Chavan                                       | Santosh Shekokar   | A Review on Effect of Input Process Parameter on Output Parameter on Abrasive Water Jet Machining   | TS1.3: MM-06 |



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|---|-----|--|--|--|--------------|
| Date: 15/11/2024, Time: 02.30 PM to 03.45 PM (TS1.5: MATERIALS AND MANUFACTURING) |     |  |  |  |              |
| <b>Session Chair: Dr. Anup Malik</b>  |     |  | <b>Session Organizer: Dr. Kishore Debnath, NIT Meghalaya</b> |  |              |
| 1   | 11  | Vinay Panwar, Mahesh Kumar Gupta   | Vinay Panwar   | Computational Investigation of Monocrystalline Au-Pt Nanowire Subjected to Uniaxial Tensile and Bending Loads                            | TS1.5: MM-01 |
| 2   | 44  | Biswajyoti Das, Sanjib Kr Rajbongshi, Chandan Banikya, Anuj Singha and Splendid Narzary              | Sanjib Kr Rajbongshi   | Process Parameters Optimization during Electrical Discharge Machining of Inconel 718   | TS1.5: MM-02 |
| 3   | 63  | K Durga Prasad, D Sreeramulu, M Uday Kumar and Santhosh Kumar Dubba                                  | K Durga Prasad   | Optimization of Process Parameters in Cusp Magnetic Field Assisted Gas Tungsten Arc Welding Process                                      | TS1.5: MM-03 |
| 4   | 74  | Ravi Prakash, Manas Das and Rishikesh Kulkarni   | Ravi Prakash   | Recent advancements in machine learning-based applications of advanced machining processes: a review                                     | TS1.5: MM-04 |
| 5   | 141 | Vishista Kaushik, Kurra Suresh and Ramesh Babu Adusumalli  | Vishista Kaushik   | Investigating different fiber reinforcement effects on the vibrational characteristics of 3D-printed composites                          | TS1.5: MM-05 |
| 6   | 168 | Ashish Kumar Mishra and Arvind Kumar   | Arvind Kumar   | Evolution of melt pool solidification parameters in metal additive manufacturing process   | TS1.5: MM-06 |
| Date: 15/11/2024, Time: 04.00 PM to 05.45 PM (TS1.7: RENEWABLE ENERGY)            |     |  |  |  |              |
| <b>Session Chair: Dr. Ambrish Maurya</b>  |     |  | <b>Session Organizer: Dr. Nur Alom, NIT Meghalaya</b>        |  |              |
| 1   | 43  | Swapnaneel Sarma, Debarshi Mallick, Himangshu Sekhar Brahma and Nipan Kalita                         | Swapnaneel Sarma   | Pyrolysis study of various biomass feedstock using Thermogravimetric analysis  | TS1.7: RE-01 |
| 2   | 45  | Himangshu Brahma, Debarshi Mallick, Swapnaneel Sarma, Nishanta Kumar Basistha and Ninad Bhattacharya | Himangshu Brahma   | Characterization and Performance Analysis of various biomass feedstocks in a Downdraft Gasifier  | TS1.7: RE-02 |
| 3   | 68  | Subhojit Paul, Nitesh Mondal, Rana Saha and Dipankar Sanyal  | Nitesh Mondal  | Flow and pressure control of wash plate variable displacement pump with load sensing and pressure compensator – An experimental approach | TS1.7: RE-03 |
| 4   | 100 | Gurram Raghavendra Reddy, Veeresh Babu A, P. Ravi Kumar and Murali Mohan Seepana                     | Gurram Raghavendra Reddy                                     | Review of Innovations and Challenges in Anode Materials for Molten Carbonate Fuel Cells  | TS1.7: RE-04 |
| 5   | 112 | Jyoti Devi, Biplab Debnath and Rajat Das   | Jyoti Devi   | Synthesis and Characterization of N <sub>2</sub> -doped K <sub>2</sub> CO <sub>3</sub> -activated biochar for CO <sub>2</sub> adsorption | TS1.7: RE-05 |
| 6   | 156 | Nancy Maurya and Suvanjan Bhattacharyya  | Nancy Maurya   | Thermal Performance and Flow Behavior of CuO/Water Nanofluid in Minichannel Heat Exchanger   | TS1.7: RE-06 |
| 7   | 162 | Santosh Dash   | Santosh Dash   | Production of Biodiesels and Performance Evaluation in   | TS1.7: RE-07 |



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|---|-----|---|--|--|--------------|
| Agricultural Diesel Engine  |     |   |  |  |              |
| Date: 16/11/2024, Time: 10.15 AM to 11.30 AM (TS2.1: MATERIALS AND MANUFACTURING) |     |   |  |  |              |
| <b>Session Chair: Prof. Manas Das</b>   |     |   | <b>Session Organizer: Dr. Sambit Majumder, NIT Meghalaya</b> |  |              |
| 1   | 38  | Anindita Mahanta, Anil Borah and Manash Bhuyan  | Anindita Mahanta   | Microstructure and Property Correlation of Al-4.28Cu-1.60Mg Alloy Micro Alloyed with Zirconium   | TS2.1: MM-01 |
| 2   | 51  | Gaurav Kumar and Neha Gupta   | Neha Gupta   | Ultrasonic Assisted Bottom Pouring Stir Casting of Al <sub>2</sub> O <sub>3</sub> -Al Alloy Composites   | TS2.1: MM-02 |
| 3   | 57  | Ganesh Pagar and Gajanan Shelke   | Ganesh Pagar   | A review of the friction stir welding process for lightweight metal and its alloy from a parametric perspective  | TS2.1: MM-03 |
| 4   | 65  | Asim Kumar Samanta, Kishore Debnath and Arpan Kumar Mondal  | Asim Kumar Samanta   | Importance of Carbon Equivalent in Welding of Structural Steels  | TS2.1: MM-04 |
| 5   | 134 | Firke Pranav G. and Shelke Gajanan N.   | Firke Pranav G.  | A Compressive Study on Evaluation of Surface Characteristics and defects after Laser Cutting of Super Alloy  | TS2.1: MM-05 |
| Date: 16/11/2024, Time: 11.45 AM to 01.00 PM (TS2.3: RENEWABLE ENERGY)            |     |   |  |  |              |
| <b>Session Chair: Dr. Swarup Paul</b>   |     |   | <b>Session Organizer: Dr. Subhendu Maity, NIT Meghalaya</b>  |  |              |
| 1   | 14  | Kumar Gautam and Sudip Ghosh  | Kumar Gautam   | Concentrated Solar Assisted Biomass Gasification & Hydrogen Enrichment System  | TS2.3: RE-01 |
| 2   | 36  | Ankita Nath, Maryom Dabi and Nabam Teyi   | Ankita Nath  | Experimental investigation of a plane air solar air heater   | TS2.3: RE-02 |
| 3   | 81  | Damanbha Marwein, Om Prakash Yadav, Dame Hi Paia Dkhar, Piyush Yadav, Biplab Kumar Debnath and Rajat Subhra Das | Damanbha Marwein   | Impact of Booster Mirror and Cooling Fans on the Performance Improvement of a Double Slope Solar Desalinators with a Provision of Rainwater Harvesting                 | TS2.3: RE-03 |
| 4   | 114 | Almondee Marbaniang, Biplab Debnath, Rajat Das and Shubhankar Majumdar  | Almondee Marbaniang  | Computational Fluid Dynamics Analysis on Solar Dryer of Spices   | TS2.3: RE-04 |
| 5   | 124 | Amos Chumbu Ronrang, Maryom Dabi and NabamTeyi  | Amos Chumbu Ronrang  | Performance Evaluation of Fabricated Conventional Solar Stills in Nirjuli, Arunachal Pradesh   | TS2.3: RE-05 |
| 6   | 132 | Marimuthu Rengasamy and Kamatchi Rajarama   | Marimuthu Rengasamy  | Concrete block/ g-C <sub>3</sub> N <sub>4</sub> coated interfacial solar evaporator for enhanced solar steam generation in water purification and dye water separation | TS2.3: RE-06 |
| 7   | 152 | Ashish Khelkar, Debashish Behera And Rajat Das  | Ashish Khelkar   | Investigation of thermo-hydraulic performance of a solar air heater with elliptical ribs   | TS2.3: RE-07 |



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|---|-----|---|---|---|---------------|
| Date: 16/11/2024, Time: 02.30 PM to 03.45 PM (TS2.5: VIBRATION AND ACOUSTICS)     |     |   |   |   |               |
| <b>Session Chair: Dr. Ujendra Kumar Komal</b>                                     |     |   | <b>Session Organizer: Dr. Rakesh Roy, NIT Meghalaya</b>           |   |               |
| 1   | 26  | Amruth Saroj A, Ankit Kumar Verma, Hemantha Kumar, Ranjeet Kumar Sahu and Debashisha Jena             | Amruth Saroj A  | Computational Fluid Dynamics analysis to evaluate the performance of a variable orifice damper in a McPherson suspension system                   | TS2.5: VA-01  |
| 2   | 41  | Abhishek S Kanaskar, S.N. Sapali, V.K. Haribhakta, SC Sati and Shuchita Vaidya                        | Abhishek S Kanaskar   | Dynamic Modelling and Simulation of Cushioning in High Speed Hydraulic Actuator   | TS2.5: VA-02  |
| 3   | 85  | Mainakh Das, Gloria Biswal and Anil Singh   | Gloria Biswal   | Study on the performance of a porous MEMS cantilever energy harvester   | TS2.5: VA-03  |
| 4   | 140 | Ankit Kumar Verma, Nitish Barnwal, N P Puneet, Hemantha Kumar, Ranjeet Kumar Sahu and Debashisha Jena | Ankit Kumar Verma   | Development and Characterization of an Internal Variable Orifice Damper for Vehicular Application   | TS2.5: VA-04  |
| 5   | 142 | Jasti Anurag, Sandhyarani Biswas and Moumita Tewary   | Jasti Anurag  | Modelling and Ballistic Impact Analysis of Plain Weave Composites using Finite Element Method   | TS2.5: VA-05  |
| 6   | 145 | Vadde Mallikarjuna, Moumita Tewary, Tarapada Roy, Jasti Anurag and Biswajeet Sutar                    | Vadde Mallikarjuna  | Dynamic analysis of circular disc shaped dielectric elastomer   | TS2.5: VA-06  |
| Date: 16/11/2024, Time: 04.00 PM to 05.15 PM (TS2.7: MATERIALS AND MANUFACTURING) |     |   |   |   |               |
| <b>Session Chair: Dr. Rajeev N. Gupta</b>   |     |   | <b>Session Organizer: Dr. Diangarti B. Tariang, NIT Meghalaya</b> |   |               |
| 1   | 39  | Roopsandeep Bammidi, Hymavathi Madivada and Sreeramulu Dowluru  | Roopsandeep Bammidi   | Fabrication of Helical Microbot using Sustainable Composites  | TS 2.7: MM-01 |
| 2   | 40  | Roopsandeep Bammidi, Hymavathi Madivada and Sreeramulu Dowluru  | Roopsandeep Bammidi   | Regulation Dynamics and Pathfinding Techniques for Helical Bio-Inspired Microswimmers   | TS 2.7: MM-02 |
| 3   | 88  | Pavan P, Kishor G, Rahul Kumar, Maneswar Rahang and P M G Bashir Asdaque                              | Maneswar Rahang   | Experimental investigation of corrosion behaviour of zircon sand and molybdenum disulphide reinforced ZA-27 hybrid metal matrix composites        | TS 2.7: MM-03 |
| 4   | 101 | Vikash Kumar Bhagat and Manoj Kumar Singh   | Vikash Kumar Bhagat   | Modification of Design and Development Optimization of Ventilation and Material Selection for High Performance of Disc Brake Analysis Using ANSYS | TS 2.7: MM-04 |
| 5   | 127 | Rupendra Kumar Verma, Pankaj Tiwari and Prasenjit Khanikar  | Rupendra Kumar Verma  | Review: Natural and nature-inspired cellular structure for impact energy-absorbing application  | TS 2.7: MM-05 |
| 6   | 170 | Amir Hamza Siddiqui, Paladugu Rakesh, Ujendra Kumar Komal and Asim Tewari                             | Paladugu Rakesh   | Experimental study on tension fatigue behavior of glass/epoxy cross-ply and quasi-isotropic laminate composites                                   | TS 2.7: MM-06 |



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|---|-----|---|---|--|--------------|
| Date: 15/11/2024, Time: 10.15 AM to 11.30 AM (TS1.2: VIBRATION AND ACOUSTICS) |     |   |   |  |              |
| <b>Session Chair: Dr. Tapas Bajpai</b>  |     |   | <b>Session Organizer: Dr. Bikash K. Sarkar, NIT Meghalaya</b> |  |              |
| 1   | 20  | Simran Jeet Singh, Vivek Kumar and Darsh Mehta  | Simran Jeet Singh   | Analysis of damping effect on sandwich plate with Honeycomb core and FGM face sheets   | TS1.2: VA-01 |
| 2   | 59  | Ankitha Kamath and Supen Kumar Sah  | Ankitha Kamath  | Numerical and Analytical Validation of Frequency Parameter for Functionally Graded Sandwich Plate with Variable Thickness Ratio                        | TS1.2: VA-02 |
| 3   | 66  | Ankit Kumar Verma, Amruth Saroj A, Nitish Barnwal, Hemantha Kumar, Ranjeet Kumar Sahu and Debashisha Jena                     | Nitish Barnwal  | Development and Characterization of a Ball Valve External Variable Orifice Damper  | TS1.2: VA-03 |
| 4   | 118 | Akashjyoti Barman, Radhika Sudha and Sabareesh Rajasekharan   | Akashjyoti Barman   | Enhancing Crystal Oscillator Durability on PCBs subjected to Random Vibration using Numerical Approach   | TS1.2: VA-04 |
| 5   | 120 | Himanshu Shukla, Sachin Chaturvedi, S. N. Das, Brajesh Panigrahi and Sabareesh G R  | Himanshu Shukla   | Comparative Analysis of Cavity Shapes in Base Frames for Enhanced Vibration Attenuation  | TS1.2: VA-05 |
| Date: 15/11/2024, Time: 11.45 AM to 01.00 PM (TS1.4: THERMAL ENGINEERING)     |     |   |   |  |              |
| <b>Session Chair: Dr. Srinivas Padala</b>                                     |     |   | <b>Session Organizer: Dr. Rajat Subhra Das, NIT Meghalaya</b> |  |              |
| 1   | 13  | Babita Singh, A. Gupta and D.K. Behera  | Babita Singh  | Enhancement of Engine and Emission Performance utilizing WCO biodiesel-diesel blends with graphene nanoparticles                                       | TS1.4: TE-01 |
| 2   | 22  | Sushant K. Bawne, Prasun Chakraborti, Paramvir Singh and Sudarshan Kumar  | Sushant K. Bawne  | A Review on Enhancing Performance and Reducing Emissions with Optimising Hydrogen Fuel Injection   | TS1.4: TE-02 |
| 3   | 23  | Akash Paul, Paramvir Singh and Rajsekhar Panua  | Akash Paul  | Advanced Engine Modifications for the Feasibility of Syngas as a Sustainable Fuel for Engines  | TS1.4: TE-03 |
| 4   | 24  | Naveen Sharma   | Naveen Sharma   | Impact of flow structures on heat transfer improvement inside a ribbed passage for gas turbine blade cooling   | TS1.4: TE-04 |
| 5   | 35  | Krushnashree Sushree Sangita Sahoo, Anand Gupta and Prakash Chandra Mishra  | Krushnashree Sushree Sangita Sahoo                            | Fuel properties characterization of higher alcohol octanol -diesel fuel  | TS1.4: TE-05 |
| 6   | 80  | Swarup Paul   | Swarup Paul   | Requirement of Maintenance Strategies of Engine with Alternative Fuels through Fault Detection   | TS1.4: TE-06 |
| 7   | 129 | Aman Hira, Biplob Debnath, Md Nur Alom, Toma Rani Talukdar, Paruvada Dhanunjay Naidu, Simma Kiran and Richard Neldi Khongstid | Aman Hira   | An Investigation of the use of LPG in Presence of EGR as Fuel on Engine Performance, Combustion and Emission in Dual-Fuel Mode of a CRDi Diesel Engine | TS1.4: TE-07 |



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|---|-----|---|--|---|-----------------|
| Date: 15/11/2024, Time: 02.30 PM to 03.45 PM (TS1.6: AI/ML IN MECHANICAL ENGINEERING) |     |   |  |   |                 |
| <b>Session Chair: Prof. U Mohammed Iqbal</b>  |     |   | <b>Session Organizer: Dr. Soumen Maulik, NIT Meghalaya</b> |   |                 |
| 1   | 5   | Ganesh Sahadeo Meshram, Suman Chakraborty, Partha P Chakrabarti                                       | Ganesh Sahadeo Meshram                                     | Enhancing Surface Wettability Classification through Machine Learning: A Comparative Analysis   | TS1.6: AI/ML-01 |
| 2   | 34  | Ankit Dhar Dubey and Kishore Debnath  | Ankit Dhar Dubey   | Comparative Study of Artificial Neural Network-Based Algorithms for Optimization of Tensile Strength of Woven Glass Fiber Reinforced PLA Composites   | TS1.6: AI/ML-02 |
| 3   | 54  | Srimanthula Srikanth, Banoth Srinu, Sri Vidhya Komarina and, Pasam Vamsi Krishna                      | Srimanthula Srikanth                                       | Prediction of Tool-Work Contact Ratio in Vibration Assisted Turning using Decision Tree Algorithm   | TS1.6: AI/ML-03 |
| 4   | 126 | Mrinal Pradhan, Koushik Das and Rajat Subhra Das  | Mrinal Pradhan   | Comparative Analysis of Predictive Models for Regeneration Capability of a Liquid Desiccant Regenerator: Regression Tree vs Artificial Neural Network | TS1.6: AI/ML-04 |
| 5   | 153 | Anupam Kundu, Mrinmay Pal, Dilip Kumar Pratihar, Debalay Chakrabarti and Amit Kumar Das               | Anupam Kundu   | Multi-Objective Optimization of Weld Attributes in Electron Beam Welding using Regression Analysis and Metaheuristic Algorithms                       | TS1.6: AI/ML-05 |
| Date: 15/11/2024, Time: 04.30 PM to 05.45 PM (TS1.8: THERMAL ENGINEERING)             |     |   |  |   |                 |
| <b>Session Chair: Dr. Naveen Sharma</b>   |     |   | <b>Session Organizer: Dr. Koushik Das, NIT Meghalaya</b>   |   |                 |
| 1   | 29  | Vivek R S, Divyamol S, Jayan P, and Aby Joseph  | Vivek R S  | Investigating Copper and Aluminum Heat Sinks Thermal Performance in Power Electronic System   | TS1.8: TE-01    |
| 2   | 67  | Abhijeet Chandra, Aryaman Vaish, Karthik Rohit Kosuru, L Swetha, R. Parameshwaran and V. Vinayaka Ram | R. Parameshwaran   | Phase Transition Microbeads for Thermal Energy Storage Applications   | TS1.8: TE-02    |
| 3   | 90  | Dixita Sonowal and Bidyasagar Kumbhakar   | Dixita Sonowal   | Hall and Ion Slip Effects on Hybrid Nanofluid Flow Between Two Rotating Disks Considering Distinct Shapes of Nanoparticles                            | TS1.8: TE-03    |
| 4   | 95  | Navjot, Pranab Das, Devendra Singh, Nitin Labhasetwar, Wittison Kamei and Srinivas Padala             | Srinivas Padala  | Studies on Diesel Oxidation Catalyst and Partial Flow Filter for Reduction of Particulate Matter from Diesel Generator Sets                           | TS1.8: TE-04    |
| 5   | 97  | Yeswanth Yadav Bondada and G Naga Srinivasulu   | Yeswanth Yadav Bondada                                     | Numerical investigation of developed bio-inspired flow field on PEMFC performance   | TS1.8: TE-05    |
| 6   | 98  | Nageswar Bhukya, G Naga Srinivasulu, Yeswanth Yadav Bondada and Sanjib Kr. Hazra                      | Nageswar Bhukya  | Numerical studies on effect of the channel width in PEM fuel cells with Leaf channel flow-fields  | TS1.8: TE-06    |
| 7   | 146 | Shubhamshree Avishek and Koushik Das  | Shubhamshree Avishek                                       | Performance Enhancement of Flat Heat Pipe using Modified Composite Wick Structures  | TS1.8: TE-07    |





**2<sup>nd</sup> International Conference on  
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NOVEMBER 14 -16, 2024**



**Technical Oral Sessions**

**Conference Hall- I**

| SN   | ID  | AUTHORS NAME  | PRESENTING AUTHOR  | TITLE OF THE PAPER   | CODE         |
|--|-----|---|--|--|--------------|
| Date: 16/11/2024, Time: 10.15 AM to 11.30 AM (TS2.2: FLUID MECHANICS)            |     |   |  |  |              |
| <b>Session Chair: Mr. Abhishek S Kanaskar</b>                                    |     |   | <b>Session Organizer: Dr. Biplab K. Debnath, NIT Meghalaya</b> |  |              |
| 1  | 8   | Vivek Kumar   | Vivek Kumar  | Finite Element based Simulations of Multi-Lobe Journal Bearings Operating with Electro-Rheological Lubricant                                   | TS2.2: FM-01 |
| 2  | 25  | Satyaki Chaudhuri, Binita Nath and Somnath Santra   | Satyaki Chaudhuri  | Unveiling the Aerodynamic Secrets of NACA 23012 airfoils through Computational Analysis  | TS2.2: FM-02 |
| 3  | 78  | Zeyaullah Ansari, Koushik Das and Ramesh Pallekonda | Zeyaullah Ansari   | Performance Analysis of a Non-invasive Drug Delivery System Using CFD Approach   | TS2.2: FM-03 |
| 4  | 92  | Sanchita Pramanik and Timir Karmakar                | Sanchita Pramanik  | An investigation into the flow with variable viscosity in a multi-layered channel partially filled with a homogeneous anisotropic porous layer | TS2.2: FM-04 |
| 5  | 136 | Joy Mandal and Sandip Sarkar                        | Joy Mandal   | Droplet mobilization via Interplay between Capillary and Hydrodynamic forces   | TS2.2: FM-05 |
| 6  | 144 | Vivek Kumar and Aparesh Datta                       | Vivek Kumar  | Flow Dynamics in Microchannel Featuring Cavity and Triangular Rib Structure  | TS2.2: FM-06 |
| Date: 16/11/2024, Time: 11.40 AM to 01.00 PM (TS2.4 MATERIALS AND MANUFACTURING) |     |   |  |  |              |
| <b>Session Chair: Dr. Neha Gupta</b>   |     |   | <b>Session Organizer: Dr. Moumita Tewary, NIT Meghalaya</b>    |  |              |
| 1  | 52  | Rajeev Nayan Gupta and Tej Pratap                   | Rajeev Nayan Gupta   | Role of Fatty Acid Composition of Green Oils on Tribo-performance in Boundary Lubrication: An Experimental Study                               | TS2.4: MM-02 |
| 2  | 73  | Ranajit Mahanti and Manas Das                       | Manas Das  | Advancements in powder-mixed micro-EDM: An in-depth analysis of developed models   | TS2.4: MM-01 |
| 3  | 105 | Satish Chaurasia and Kishore Debnath                | Satish Chaurasia   | Exploring Vegetable Oils as Dielectric Media in Micro-Electric Discharge Milling of Nitinol for Enhanced Bio-compatibility                     | TS2.4: MM-03 |
| 4  | 113 | Kashif Saifi, Pankaj Gupta and Tapas Bajpai         | Tapas Bajpai   | Influence of Reinforcement on Tribo-Mechanical Characteristics in MMC  | TS2.4: MM-04 |
| 5  | 122 | Saumya Mishra and Swati Gangwar                     | Saumya Mishra  | Fatigue Analysis of Polymer matrix composite for Tibial Spacer using ANSYS-23R1 For Total Knee Replacement                                     | TS2.4: MM-05 |
| 6  | 131 | Prasenjit Dutta and Archisman Dasgupta              | Prasenjit Dutta  | Machining of Inconel 800 under varying dielectric fluid discharge rate using WEDM  | TS2.4: MM-06 |



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**Technical Oral Sessions**

**Conference Hall- I**

| SN  | ID  | AUTHORS NAME   | PRESENTING AUTHOR   | TITLE OF THE PAPER  | CODE         |
|---|-----|--|---|---|--------------|
| Date: 16/11/2024, Time: 02.30 PM to 03.45 PM (TS2.6: MATERIALS AND MANUFACTURING) |     |  |   |   |              |
| <b>Session Chair: Dr. Prasenjit Datta</b>   |     |  | <b>Session Organizer: Dr. Deba K. Sarma, NIT Meghalaya</b>        |   |              |
| 1   | 58  | Anup Malik, Shashi Ranjan Pathak and Harlal Singh Mali                                   | Anup Malik  | Parametric study on milling behavior of glass fiber-reinforced textile composite  | TS2.6: MM-01 |
| 2   | 62  | Nathi Ram Chauhan  | Nathi Ram Chauhan   | Combined Influence of Couple Stress Lubricant and Surface Roughness on Hole Entry Journal Bearing   | TS2.6: MM-02 |
| 3   | 84  | Bhargab Madhab Barua and Maneswar Rahang   | Maneswar Rahang   | Electric Discharge Coating of Al-7075 Alloy under Different Dielectric Fluids   | TS2.6: MM-03 |
| 4   | 87  | Pritam Majumder, Gunjan Karmakar and Pritam Baishya                                      | Gunjan Karmakar   | Numerical Structural Analysis of Road Brick Made of Waste Plastic   | TS2.6: MM-04 |
| 5   | 115 | Dheeman Bhuyan, P. Ramesh Babu and Jyoti Prasad Kalita                                   | Dheeman Bhuyan  | 3D Reconstruction of the human Aorta from Computerised Tomography Data and Generation of Compliant Phantom for Ex-Vivo investigation of blood flow phenomena    | TS2.6: MM-05 |
| 6   | 155 | Himangshu Kalita and Pankaj Biswas   | Himangshu Kalita  | Evaluating Fatigue Life in Submarine Pressure Hulls and Welded Joints: A Comprehensive Review of Methodologies and Influencing Factors                          | TS2.6: MM-06 |
| Date: 16/11/2024, Time: 04.00 PM to 05.15 PM (TS2.8: MATERIALS AND MANUFACTURING) |     |  |   |   |              |
| <b>Session Chair: Prof. Nathi Ram Chauhan</b>                                     |     |  | <b>Session Organizer: Dr. Bidyasagar Kumbhakar, NIT Meghalaya</b> |   |              |
| 1   | 104 | Ankit Dhar Dubey and Kishore Debnath   | Ankit Dhar Dubey  | Comparative Evaluation of Fabrication Methods for 3D Printing of Woven Glass Fiber-Reinforced PLA Composite   | TS2.8: MM-01 |
| 2   | 106 | Omkar Raj Aryan and Kishore Debnath  | Omkar Raj Aryan   | Reconstruction and Biomechanical Analysis of Tibial Bone to Predict Suitable Alternative Materials  | TS2.8: MM-02 |
| 3   | 107 | Omkar Raj Aryan and Kishore Debnath  | Omkar Raj Aryan   | Multi-objective Optimization of Biomaterials to Obtain Suitable Material for Orthopedic Implants  | TS2.8: MM-03 |
| 4   | 163 | Satish Chaurasia and Kishore Debnath   | Satish Chaurasia  | Multi-Objective Optimization of the Process Parameters for Improving the Performance of $\mu$ -ECDM Milling Process in Fabricating Micro-Channel in Nitinol SMA | TS2.8: MM-04 |
| 5   | 164 | Lokanadham Dharmana, K Durga Prasad, Siva Shankara Raju Rallabandi 1 and Suman Pandipati | K Durga Prasad  | Enhancement of Mechanical Properties and Geometric Tolerances of Aluminum Hybrid Metal Matrix Composites  | TS2.8: MM-05 |
| 6   | 167 | Akankhya Patro, P.S Robi   | Akankhya Patro  | A Computational Fluid Dynamic Analysis of Different Shape of Submarine  | TS2.8: MM-06 |