# Department/ ~~Centre~~: MECHANICAL ENGINEERING

**Year of Establishment of the Department /~~Centre~~:** 1995

**Academic Programmes Offered:**

Bachelor of Technology (BTech) in
i. Mechanical Engineering
Master of Technology (MTech) in
(1) Machine Design,
(2) Fluid and Thermal Engineering,
(3) Manufacturing Science and Engineering,
(4) Computational Mechanics,
(5) Aerodynamics and Propulsion
Doctor of Philosophy (PhD)

**LABORATORY FACILITIES:**
**No. of Laboratories with brief introduction:**

*Department Labs: Brief Description of each*

- Advanced Manufacturing Laboratory: Equipped with advanced equipments for manufacturing including micro-fabrication facility using CO2 Laser cutting technology.
- Strength of Materials Laboratory: Basically dedicated for doing all kinds of testing including tensile testing, fatigue testing, compressive testing, torsion testing, hardness testing, impact testing etc.
- Materials Science Laboratory: Dedicated for carrying out metallographic studies using highly precise microscope, XRD etc.
- Fluid Mechanics Laboratory: This lab has basic fluid mechanics set-up. The lab is equipped with different flow measuring set-ups such as venturimeter, orifice-plate, pitot tube, rotometer etc., where students can visualize the basic theory of working of the flow meter.
- Thermal Science Laboratory: This lab consists of heat exchangers, equipments for conducting experiments on conduction, convection and radiation, refrigeration systems etc. All these equipments facilitate learning of basic Thermodynamics and Thermal Engineering at undergraduate level.
- Turbo-machinery Laboratory: This lab has different tabletop model of pumps and turbines where students can study the performance characteristics of those machines. Students can strengthen their basic understandings of working and applications of these machines.
- IC Engine Laboratory: This lab is for both undergraduates and graduate students. Some of the experiments which are performed by under-graduate students are performance studies of both C.I. and S.I. engines, etc. Moreover studies on the calorific values, exhaust gas characteristics, extensive studies of bio-diesel with both engines are done by post-graduate students in their respective project works.
- Vibrations and Acoustics Laboratory: This lab demonstrates basic vibrational instruments to students at undergraduate level. Also provides facilities for measurement of frequency signals, rpm etc, and facilities for data-acquisition which are very much beneficial for research activities in the domain of vibrational analysis.
- Instrumentation and Control Laboratory: This lab performs calibration of pressure transducer/ gauge and other mechatronics apparatus, provides strain-gauge measurement facilities etc.
- Theory of Machines Laboratory: This lab consists of all basic equipments for understanding mechanisms, apparatus etc. at undergraduate level such as gyroscope, governor, jib-crane, screw jack, worm-wheel apparatus etc.
- Tribology Laboratory: Provides facilities for carrying out wear test of specimens of diff erent materials under the condition of with lubrication/without lubrication.
- CAD/CAM Laboratory: Specialized in extending computer-assisted software tools needed for design and analysis such as ABAQUS, ANSYS, Master CAM, Pro/E, ADAMS etc.

- 3D Printer Laboratory: Provides facilities for 3D printing.

*Department Research Labs: 19 Research Labs*

- Dynamics and Vibration Lab
- AnuPravaha CFD Lab
- Biomedical Devices and Biomaterials laboratory
- Biomimetics and Artificial Intelligence Laboratory
- CFD Lab
- Composite Structures and Fracture Mechanics Lab: Caters to the development of composite laminates and enables NDT through ultrasonic scanning of the composite structures.
- Computational Mechanics and Optimization Lab
- Electromechanics and Microsystems Lab
- Gas Dynamics Lab
- Materials and Design in Mechanical Systems & Science and Technology in Traditional Systems
- Mechatronics and Robotics Laboratory: The Mechatronics and Robotics lab is equipped with various facilities to educate the students at the undergraduate and postgraduate levels. Most of the robotics activities are facilitated to students by this lab.
- Micro-machining Lab
- Microfluidics and Microscale Transport Processes Laboratory
- Miniature Thermal Systems Research Laboratory
- Precision Manufacturing Lab
- Smart Materials and Structures Lab
- Thermal Hydraulics and Gasification Lab
- Welding Lab
- Wind Tunnel Laboratory: Provides facilities for carrying out wind tunnel related experiments.

**MAJOR AREAS OF RESEARCH AND DEVELOPMENT:**

**Groupwise Research Areas are**

**Fluids and Thermal Engineering**

- Computational Methods for Incompressible Flows
- DNS and LES of Turbulence
- Energy management and conservation
- High speed aerodynamics
- Interfacial heat and mass transport
- Metal hydride based thermal machines
- Micro and nano-scale thermal/fluid transport
- Micro-fuel cells
- Thermal aspects of biological systems
- Thermal radiation

**Machine Design Engineering**

- Acoustics
- Active Materials
- Composites
- Dynamics and Vibrations
- Finite Element Method and Analysis
- Fracture Mechanics and Design
- Mechatronics
- Robotics and Control
- Micromechanics
- Nanocomposites
- Rolling Element Bearings Design and Analysis
- Smart Structures
- Tribology

**Manufacturing Engineering**

- Bio-MEMS
- Casting
- CAD/CAM/CIM
- Coating
- Composites
- Computer Application in Metal Forming
- Design and Manufacturing
- Electromagnetic pulse processing
- FEM, Neural Network
- Fuzzy Set Application
- Genetic Algorithms and Fuzzy logic in manufacturing
- Mechatronics
- Metal Forming
- Unconventional machining processes
- Welding of light weight metals
- Welding Process Monitoring and Control

**A list of research projects for which grants have been obtained by ME faculty is as below.**

| Sr. No. | Principal Investigator | Name of Project | Sponsoring Agency | Amount Sanctioned (Rs) | Start-Date | End-Date |
|---|---|---|---|---|---|---|
| 1. | R K Mittal | "Low-Cost Scalable Manufacturing of High-Aspect | SERB DST | 33 Lakhs | Nov 2022 | Oct 2024 |
| 2. | R K Mittal | Ratio Microneedles for Minimally Invasive Transdermal Drug Delivery Applications" | IITG-TIDF | 10 Lakhs+ JRF | Jan 2023 | Dec 2024 |
| 3. | Poonam Kumari | "Development of Vibration Monitoring and Diagnostic | IITG-TIDF | 23 lakh +JRF | Jan 2023 | Dec 2024 |
| 4. | Niranjan Sahoo | System for Electrical Submersible Pumps" | IITG-TIDF | 12 lakh +JRF | March 2022 | March 2024 |
| 5. | Amaresh Dalal | "Validation and optimization of a solid-state aluminum-ion battery for | MATRICS-SERB | 6 Lakhs | Dec 2022 | Dec 2025 |
| 6. | Sachin Singh Gautam | its electrochemical performance, mechanical stability, and thermal efficiency | SERB DST | 31 Lakhs | Feb 2023 | Jan 2026 |
| 7. | S Kanagaraj | at a range of temperatures relevant to underwater devices" | Tata steel | Rs 47.88 lakh | June 2022 | November 2023 |
| 8. | S Kanagaraj | Design and in-house fabrication of an underwater compressed air storage system | GESCO Healthcare Pvt Ltd | 3,07,838 | Dec 2022 | June 2023 |
| 9. | S Kanagaraj | Hybrid cooling system design for Li-ion battery pack systems | DBT | 2,99,11,106 | March 2023 | Feb'2026 |
| 10 | Pranab Kumar Mondal | "Three Dimensional LArge Deformation Isogeometric Impact and Self Contact Using | DBT | 36,19,840 | 2022 | 2024 |
| 11 | Pranab Kumar Mondal | Varying-Order NURBS Discretization Approach" | SERB | 75,00,000 | 2023 | 2026 |
| 12 | Swarup Bag | Origami inspired three - phase auxetic metamaterial composite for developing orthotic insole and performance studies using gait and motion analysis | SUPRA - SERB | 49,61,260 | 2022 | 2025 |
| 13 | Prasenjit Khanikar | Design of a cervical bone fixture and testing of an atlantoaxial joint and its research aspects | SERB DST | 45 Lakhs | March 2023 | March 2026 |
| 14 | B Sandeep Reddy | School of Innovations in Biomedical Devices and Systems and Inter-institutional Biodesign Center (SIBDS-IIBC) | NEWGEN IEDC | 2.5 Lakhs | December 2022 | December 2023 |
| 15 | Deepak Sharma | Establishing Efficient Platform for Genetic Engineering in Indian Tea | IITG-TIDF | 10 Lakhs+ JRF | Jan 2023 | Dec 2024 |
| 16 | Sajan Kapil | Development and leveraging small-scale fluidic Platform towards understanding the plant root system: A Convergence of Engineering and Biology | Bombay Ortho | 5 Lakhs | Aug 2022 | March 2023 |

**A list of research publications in prestigious journals can be found as below**

| *Sl. No.* | *Authors* | *Paper Title* | *Journal Name* | *Year* | *Volume* | *Issue Number (If any)* | *Starting Page* | *Ending Page* |
|---|---|---|---|---|---|---|---|---|
| 1. | A. K. Das, K. Acharyya, S. Sarma, and U. K. Saha | Hybrid double-divergent nozzle as a novel alternative for future rocket engines | AIAA Journal of Spacecraft and Rockets | 2022 | 59 | 3 | 761 | 772 |
| 2. | A. Sarkar and U. K. Saha | Experimental probe into a biogas run dual fuel diesel engine using oxygenated ternary blends at the optimum equivalence ratio and under the effect of intake charge preheating | ASME Journal of Engineering for Gas Turbines and Power | 2022 | 144 | 6 | 061010-1 | 061010-13 |
| 3. | O. Siram, R. Kumar, U. K. Saha and N. Sahoo | A comprehensive review on analytical formulations of wind turbine wake models and future scope in the development of wind farms of assorted configurations | ASME Journal of Energy Resources Technology | 2022 | 144 | 11 | 110801-1 | 110801-19 |
| 4. | S. M. More, J. Kakati, S. Pal, and U. K. Saha | Implementation of soft computing techniques in predicting and optimizing the operating parameters of compression ignition diesel engines: State-of-the-art review, challenges and future outlook | ASME Journal of Computing and Information Science in Engineering | 2022 | 22 | 5 | 050801-1 | 050801-28 |
| 5. | O. Siram, N. Kesharwani, N. Sahoo, and U. K. Saha | Aerodynamic design and wind tunnel tests of small-scale horizontal-axis wind turbines for low tip speed ratio applications | ASME Journal of Solar Energy Engineering | 2022 | 144 | 4 | 041009-1 | 041009-20 |
| 6. | U. H. Rathod, V. Kulkarni, and U. K. Saha | On the application of machine learning in Savonius wind turbine technology: an estimation of turbine performance using artificial neural network and genetic expression programming | ASME Journal of Energy Resources Technology | 2022 | 144 | 6 | 061301-1 | 061301-16 |
| 7. | A. Bhowmick, S. Saharia, and S.M.Hazarika | Non-parametric scene parsing: Label transfer methods and dataset | Computer Vision and Image Understanding | 2022 | 219 | | | |
| 8. | M. Shaik and S M Hazarika | Aerodynamic investigation of Passer domesticus inspired biomimetic wing at low Reynolds number | Proceedings of the Institution of Mechanical Engineers, Part C: Journal of Mechanical Engineering Science | 2022 | 236 | 14 | 7690 | 7704 |

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| 9. | M. Shaik and S M Hazarika | Numerical Investigation of Flow Over Oscillating Cambered Foil at Low Reynolds Number | ASME Journal of Fluids Engineering | 2022 | 144 | 7 | | |
| 10. | L Gohain, K Sarma, A J Kalita, N M Kakoty, S M Hazarika | EMG controlled adaptive multi-grasp prosthetic hand with an android interface | International Journal of Intelligent Robotics and Applications | 2022 | 6 | | 791 | 803 |
| 11. | H Basumatary, S M Hazarika | Design optimization of an underactuated tendon-driven anthropomorphic hand based on grasp quality measures | Robotica | 2022 | 40 | 11 | 4056 | 4075 |
| 12. | M. Shaik and S M Hazarika | Unsteady aerodynamics of plunging cambered foil at low Reynolds number | Proceedings of the Institution of Mechanical Engineers, Part G: Journal of Aerospace Engineering | 2023 | 237 | 2 | 374 | 386 |
| 13. | Rituraj Bhattacharjee, Susmita Datta, Ahmed Hammad and Pankaj Biswas | Prediction of various defects and material flow behavior during dissimilar FSW of DH36 shipbuilding steel and marine grade AA5083 using FE-based CEL approach | Modelling and Simulation in Materials Science and Engineering | 2023 | 31 | 3 | 035004-01 | 035004-29 |
| 14. | Rituraj Bhattacharjee; Susmita Datta; Pankaj Biswas | Thermomechanical and Material Flow Analysis during Friction Stir Welding of Marine Grade Aluminum Alloy 5083 | Journal of ship production and design | 2023 | 39 | 1 | 1 | 24 |
| 15. | Susmita Datta, Rituraj Bhattacharjee & Pankaj Biswas | Present status and future trend of friction stir-based fabrication of NiTinol: a review | Welding in the World | 2022 | 67 | | 269 | 307 |
| 16. | Ranamay Saha and Biswas Pankaj | Thermomechanical Analysis of Induction Assisted Friction Stir Welding of Inconel 718 Alloy: A Finite Element Approach | International Journal of Pressure Vessels and Piping | 2022 | 199 | 1 | 104731-1 | 104731-19 |
| 17. | Pardeep Pankaj, Avinish Tiwari, Lakshmi Narayan Dhara, Tanmoy Medhi, Pankaj Biswas | Dissimilar Friction Stir Joining of Aluminum Alloy and Stainless Steel: A Study on the Intermetallic Compound Formation, Microstructure and Mechanical Properties of the Joints | Journal of Testing and Evaluation | 2022 | 51 | 2 | 588 | 619 |
| 18. | Pardeep Pankaj, Avinish Tiwari, Tanmoy Medhi, and Pankaj Biswas | Multi-Species transport CFD simulation and experimental verification for material flow properties in dissimilar friction stir welding | Materials Today Communications | 2022 | 33 | | 104959 | |

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| 19. | Pardeep Pankaj, Avinish Tiwari, Lakshmi Narayan Dhara, and Pankaj Biswas | Multiphase CFD simulation and experimental investigation of friction stir welded high strength shipbuilding steel and aluminum alloy | CIRP Journal of Manufacturing Science and Technology | 2022 | 39 | | 37 | 69 |
| 20. | Pardeep Pankaj, Avinish Tiwari, and Pankaj Biswas, | Impact of varying tool position on the intermetallic compound formation, metallographic/mechanical characteristics of dissimilar DH36 steel, and aluminum alloy friction stir welds | Welding in the World | 2022 | 66 | 2 | 239 | 271 |
| 21. | Pardeep Pankaj, Avinish Tiwari, Lakshmi Narayan Dhara, Sanjay Raj and Pankaj Biswas | Investigations on the effect of sheets positioning in advancing & retreating side for dissimilar FSW of DH36 steel and aluminum alloy 6061 | . Journal of The Institution of Engineers (India): Series C | 2022 | 103 | 1 | 5 | 20 |
| 22. | Sanjay Raj, Pankaj Biswas | Mechanical and microstructural characterizations of friction stir welded dissimilar butt joints of Inconel 718 and AISI 204Cu austenitic stainless steel | Materials Characterizatio n | 2022 | 185 | | 111763 | |
| 23. | Sanjay Raj, Pankaj Biswas | Effect of induction preheating on microstructure and mechanical properties of friction stir welded dissimilar material joints of Inconel 718 and SS316L | CIRP Journal of Manufacturing Science and Technology | 2022 | 41 | | 160 | 179 |
| 24. | Tanmoy Medhi, Ankan Das, Pardeep Pankaj, Sajan Kapil and Pankaj Biswas | Multipass FSW lap welding of AA6061-T6: Implication of tool pin overlapping on microstructures and mechanical properties of joints | Soldagem & Inspeção | 2022 | | | | |
| 25. | Abhishek Kumar, Pardeep Pankaj, Pankaj Biswas, A. G. Rao | Finite Element Analysis and Experimental Investigation on Effect of Process Parameters in Plasma-Assisted Friction Stir Welding of Low Carbon Steel | Transactions of the Indian Institute of Metals | 2022 | | | | |
| 26. | Anil Kumar Deepati, Waleed Alhazmi, Waleed Zakri, Essam Shaban, Pankaj Biswas | Parametric Analysis on the Progression of Mechanical Properties on FSW of Aluminum-Copper Plates | Advances in Science and Technology Research Journal (ASTRJ) | 2022 | 16 | 2 | 168 | 178 |
| 27. | Sabana Azim, Soumya Gangopadhyay , | Performance evaluation of CrAlN and TiAlN coatings deposited by HiPIMS in micro | Surface and Coatings Technology | 2022 | 449 | | 128980 | |

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| | Siba Sankar Mahapatra, Rinku K. Mittal | drilling of a Ni-based superalloy | | | | | | |
| 28. | Bhopale, N., Mastud, S. and Mittal, R. K., | Metallurgical and Machining Performance Aspects of Cryotreated Tungsten Carbide Micro-End Mill Cutters | Proceedings of the Institution of Mechanical Engineers, Part B: Journal of Engineering Manufacture | 2022 | 237 | 3 | 492 | 502 |
| 29. | Bhopale, N., Mastud, S. and Mittal, R. K., | Performance Analysis of Uncoated, TiN Coated and Cryotreated Micro Tungsten Carbide Tools while Micromilling of Ti-6Al-4V | International Journal of Machining and Machinability of Materials | 2022 | 24 | 1-2 | 110 | 131 |
| 30. | Dhirendra Kumar Verma, Poonam Kumari, Subramani Kanagaraj | Engineering Aspects of Incidence, Prevalence, and Management of Osteoarthritis: A Review. | Annals of Biomedical Engineering | 2022 | 50 | 3 | 237 | 252 |
| 31. | Dhirendra Kumar Verma, Mirsaidin Hussain, Poonam Kumari, Subramani Kanagaraj | In-house development of contact microphone-based wearable device for knee joint health assessment using vibroarthrography. | Journal of Intelligent Systems with Applications | 2022 | 50 | 1 | 59 | 65 |
| 32. | Debtanay Das, Swarup Bag, Sukhomay Pal and M Ruhul Amin | A finite element model for the prediction of chip formation and surface morphology in friction stir welding process | ASME Journal of Manufacturing Science and Engineering | 2022 | 144 | 4 | 041015-1 | 041015-11 |
| 33. | Dipankar Saha, Sukhomay Pal | Study on the microstructural variation and fatigue performance of microplasma arc welded thin 316L sheet | Proceedings of the I.MechE, Part L: Journal of Materials: Design and Applications | 2022 | 236 | 4 | 880 | 890 |
| 34. | Srikant Prasad, Sukhomay Pal and P S Robi | Effect of post welding heat treatment on the weld quality of micro plasma arc welded SS-316L thin sheet | Journal of Soldagem & Inspeção | 2022 | 27 | | 1 | 15 |
| 35. | Shubham M More, Jyotirmoy Kakati, Sukhomay Pal and Ujjwal K. Saha | Implementation of Soft Computing Techniques in Predicting and Optimizing the Operating Parameters of Compression Ignition Diesel Engines: State-of-the-art Review, Challenges and Future Outlook | ASME Journal of Computing and Information Science in Engineering | 2022 | 22 | 5 | 050801-1 | 050801-28 |

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| 36. | Vivekananda Haldar, Sunil Kumar Biswal and Sukhomay Pal | Formability study of micro-plasma arc-welded AISI 316L stainless steel thin sheet joint | Journal of the Brazilian Society of Mechanical Sciences and Engineering | 2022 | 44 | 11 | 564-1 | 564-16 |
| 37. | Debtanay Das, Swarup Bag, Sukhomay Pal, Abhay Sharma | Material Defects in Friction Stir Welding through Thermo-Mechanical Simulation: Dissimilar Materials with Tool Wear Consideration | Materials | 2023 | 16 | 1 | | |
| 38. | Nikhil Dilip Kulkarni, and Poonam Kumari | Development of highly flexible PVDF-TiO2 nanocomposites for piezoelectric nanogenerator applications | Materials Research Bulletin | 2023 | 157 | | 112039-1 | 112039-13 |
| 39. | Nikhil Dilip Kulkarni, and Poonam Kumari | Role of rGO on mechanical, thermal, and piezoelectric behaviour of PVDF-BTO nanocomposites for energy harvesting applications | Journal of Polymer Research | 2023 | 30 | 2 | 79-1 | 79-17 |
| 40. | S. Mohan and A. Banerjee | Particle filter based self sensing shape memory alloy wire actuator under external cooling | Mechanical Systems and Signal Processing | 2023 | 185 | https://doi.org/10.1016/j.ymssp.2022.109779 | 109779 | |
| 41. | G. Tejdeep and A. Banerjee | Simulation of shape memory alloy based curved structures using isogeometric analysis | Proceedings of the Institution of Mechanical Engineers, Part C: Journal of Mechanical Engineering Science | 2023 | | https://doi.org/10.1177/0954406223115827 | 0 | |
| 42. | Abir Saha, Poonam Kumari | Functional fibers from Bambusa tulda (Northeast Indian species) and their potential for reinforcing biocomposites | Materials Today Communications | 2022 | 31 | | 103800 | |
| 43. | Abir Saha, Poonam Kumari | Effect of alkaline treatment on physical, structural, mechanical and thermal properties of Bambusa tulda (Northeast Indian species) based sustainable green composites | Polymer composites | 2023 | | https://doi.org/10.1002/pc.27256 | | |
| 44. | Bharti, S., & Selvaraj, S. | Performance of selective laser sintered polyamide spur gear under dry and lubricated conditions. | "Proceedings of the Institution of Mechanical | 2023 | 237 | 2 | 404 | 414 |
| 45. | Bharti, S., & Selvaraj, S. | Sliding contact performance of injection moulded and | Engineers, Part J: Journal of | 2023 | 75 | 1 | 126 | 132 |

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| | | selective laser sintered polyamide under dry and lubricated conditions. | Engineering Tribology" | | | | | |
| 46. | Bharti, S., & Senthilvelan, S | Performance of elastomeric spur gear under dry and oil-lubricated conditions. | "Industrial Industrial | 2023 | 55 | 1 | 134 | 154 |
| 47. | Soundhar Arumugam, G: Senthilvelan selvaraj Pugazhenthi | Investigations on mechanical properties of processed banana leaves for sustainable food packaging applications | Lubrication and Tribology" | | | | | |
| 48. | Mukesh Kumar, and Poonam Kumari | Design and fabrication of self-powered flexible P (VDF-TrFE)/ZnO/TiO2 fiber mats as nanogenerator for wearable applications | Journal of Elastomers & Plastics | 2023 | 160 | | 107429 | |
| 49. | Viwek Kumar and Poonam Kumari | Fabrication and Characterization of Cu/SiC-Based Axially Functionally Graded Beam | | 2022 | 24 | 5 | 2101239 | |
| 50. | Viwek Kumar and Poonam Kumari | 2D closed form solution for bending of edge bonded dissimilar beams: an application of EKM | Materials Science in Semiconductor Processing | 2022 | 289 | | 115420 | |
| 51. | Viwek Kumar and Poonam Kumari | 2-D Analytical solutions for the multisegmented panel subjected to arbitrary boundary condition | Advanced Engineering Materials | 2022 | 103 | 2 | e202200291 | |
| 52. | Mridusmita Bora, Poonam Kumari and Niranjan Sahoo | Mechanical properties of Assam's bamboo-epoxy composite laminates – An experimental investigation | Composite Structures | 2022 | 188 | https://doi.org/10.1016/j.indcrop.2022.115556 | 115556 | |
| 53. | Mridusmita Bora, Poonam Kumari and Niranjan Sahoo | Mechanical properties of Assam's bamboo-epoxy composite laminates – An experimental investigation | ZAMM - Zeitschrift für Angewandte Mathematik und Mechanik/Journal of Applied Mathematics and Mechanics | 2022 | 188 | https://doi.org/10.1016/j.indcrop.2022.115556 | 115556 | |
| 54. | Hari Narayan Singh Yadav, Alok kumar Das and Manas Das | Synthesis of Tungsten carbide nanoparticles in different dielectric through µ-EDM | Industrial Crops and Products | 2022 | | https://doi.org/10.1080/2374068X.2022.2091189 | 1 | 9 |
| 55. | Hari Narayan Singh Yadav, Enni Krishna, | Investigation of MRR and surface characterization using plasma process | Industrial Crops and Products | 2023 | | https://doi.org/10.1080 | 1 | 13 |

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| | Sreelakshmy Kombath, D Sam Dayala Dev, and Manas Das | | | | | /10426914.2023.2176873 | | |
| 56. | Atul Singh Rajput, Ambrish Singh, Manas Das, and Sajan Kapil | Investigations on the Toolpath Strategies for CNC Magnetorheological Fluid Assisted Finishing (MFAF) Process | Advances in Materials and Processing Technologies | 2022 | 121 | https://doi.org/10.1007/s00170-022-09307-9 | 949 | 966 |
| 57. | S. Devi, N. Sahoo and P. Muthukumar | Comparative performance evaluation of a porous radiant burner with conventional burner: Biogas combustion | Materials and Manufacturing Processes | 2023 | 218 | | 119338 (1-13) | |
| 58. | A. K. Singh, K. Singh, D. Singh and N. Sahoo | Experimental and numerical analysis of film cooling performance of a corrugated surface | Journal of Advanced Manufacturing and Technology | 2022 | DOI: 10.1080/08916152.2022.2126031 | | | |
| 59. | A. K. Rout, S. R. Nanda, N. Sahoo, P. Kalita and V. Kulkarni | Soft computing – A way ahead to recover heat flux for short duration experiments | Applied Thermal Engineering | 2022 | 14 | 3 | 031008 (1-11) | |
| 60. | A. K. Rout, S. R. Nanda, N. Sahoo, P. Kalita and V. Kulkarni | Implementation of soft computing technique for recovery of impulsive heat loads | Experimental Heat Transfer | 2022 | 36 | 1 | 108 | 117 |
| 61. | S. R. Nanda, S. Desai, V. Kulkarni and N. Sahoo | Amalgamation of stress wave force balance with artificial intelligence: An alternative way of drag force measurement in supersonic flows | ASME Journal of Thermal Science and Engineering Applications | 2022 | 123 | | 107481 (1-13) | |
| 62. | S. L. N. Desikan, S. Pandian, P. P. Simha and N. Sahoo | Experiments on flow past cavity and the application of modal decomposition techniques | AIAA Journal of Thermophysics and Heat Transfer | 2022 | 94 | | 293 | 298 |
| 63. | O. Siram, U. K. Saha and N. Sahoo | Blade design consideration of small wind turbines: From classical to bio-inspired shapes/profiles | Aerospace Science and Technology | 2022 | 14 | DOI: https://doi.org/10.1063/5.0096402 | 042701 (1-31) | |
| 64. | O. Siram and N. Sahoo | Performance assessment of straight and linearly tapered rotors through wind tunnel investigation for off-grid applications | European Journal of Mechanics / B Fluids | 2022 | 46 | 4 | 1 | 20 |
| 65. | O. Siram, N. Sahoo, and U. K. Saha | Wind tunnel tests of a model small-scale horizontal-axis wind turbine developed from | AIP Journal of Renewable and Sustainable | 2022 | 144 | 6 | 064502 (1-10) | |

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| | | blade element momentum theory | Energy | | | | | |
| 66. | O. Siram, K. Ravi, U. K. Saha and N. Sahoo | Wind tunnel probe into an array of small-scale horizontal-axis wind turbines operating at low tip speed ratio conditions | Wind Engineering | 2022 | 144 | 9 | 091303 (1-13) | |
| 67. | O. Siram, N. Sahoo and U. K. Saha, and N. Sahoo | Changing landscape in India's renewable energy and the contribution of wind energy | ASME Journal of Energy Resources Technology | 2022 | 8 | DOI: https://doi.org/10.1016/j.clet.2022.100506 | 100506 (1-20) | |
| 68. | S. K. Barik, R. G. Narayanan and N. Sahoo | Assessment of stress-strain constitutive models and failure models on the shock tube based impact forming of AA 5052-H32 sheet | ASME Journal of Energy Resources Technology | 2022 | 74 | | 573 | 591 |
| 69. | S. K. Barik, R. G. Narayanan and N. Sahoo | Formability and failure response of AA5052-H32 thin sheets with friction stir spot welds during shock tube based impact forming | Cleaner Engineering Technology | 2022 | 119 | | 7921 | 7945 |
| 70. | S. K. Barik, R. G. Narayanan and N. Sahoo | Impact forming of AA5052-H32 sheets with friction stir spot welds using a shock tube and failure assessment | Journal of Manufacturing Processes | 2022 | 144 | | 031007 (1-13) | |
| 71. | S. Devi, N. Sahoo and P. Muthukumar | Effect of combustion zone material on the thermal performance of biogas-fuelled porous media burner: Experimental Studies | International Journal of Advanced Manufacturing Technology | 2022 | 12 | | 1555 | 1536 |
| 72. | Atul Singh Rajput, Manas Das, and Sajan Kapil | Characterization of Wear Resistance and Corrosion during Magnetorheological Fluid Assisted Finishing (MFAF) of Ti-6Al-4V and Duplex Stainless Steel for enhanced biocompatibility | ASME Journal of Engineering Materials and Technology | 2022 | | https://doi.org/10.1177/09544089221107990 | | |
| 73. | Atul Singh Rajput, Manas Das, and Sajan Kapil | Investigations on a Hybrid Chemo-Magnetorheological Finishing process for the freeform surface quality enhancement | Biomass Conversion and Biorefinery | 2022 | 81 | https://doi.org/10.1016/j.jmapro.2022.07.015 | 522 | 536 |
| 74. | Atul Singh Rajput, Manas Das, and Sajan Kapil | A comprehensive review of the magnetorheological assisted finishing process | Part E: Journal of Process Mechanical Engineering | 2022 | 26 | https://doi.org/10.1080/10910344.2022.2129982 | 339 | 376 |

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| 75. | Atul Singh Rajput, Sajan Kapil, and Manas Das | Investigation on Biotribology of Post Processed Additively Manufactured Biomaterial through Magnetorheological Fluid Assisted Finishing process | Journal of Manufacturing Processes | 2023 | | https://doi.org/10.1016/j.wear.2023.204684 | | |
| 76. | Atul Singh Rajput, Manas Das, and Sajan Kapil | Computer-Aided Process Planning (CAPP) System for Super Finishing of Flat Surfaces with Pockets through Magnetorheological Finishing (MRF) process | Machining Science and Technology | 2023 | | https://doi.org/10.1080/095119 2X.2023.2189313 | 1 | 17 |
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**CONFERENCES/WORKSHOPS/SYMPOSIA ATTENDED: NATIONAL/ INTERNATIONAL (1 APRIL 2022– 31 MARCH 2023)**

**Total No. of papers published in Conference Proceedings: 141 No.s**

| Sl. No. | Name of Faculty | Paper Title | Name of Conf./Workshop | Place and Date |
|---|---|---|---|---|
| **1.** | J. Kakati J, S. M. More, S. Pal, and U. K. Saha | Analyzing the operating parameters of a compression ignition diesel engine using artificial neural network | ASME 2022 Power Conference, July 2-3, Pittsburgh, PA, USA. | 2022 |
| **2.** | S Bordoloi, P Saikia, C N Gupta, S M Hazarika | Neural Correlates of Motor Imagery during Action Observation in Affordance-based Actions: Preliminary Results | 44th Annual International Conference of the IEEE Engineering in Medicine & Biology Society (EMBC) | 2022 |
| **3.** | Pardeep Pankaj, Tanmoy Medhi, and Pankaj Biswas, | Intermetallic compound formation and metallographic examination in dissimilar FSW of aluminum and steel alloys | North-East Research Conclave (NERC 2022), IIT Guwahati, India | 2022 |
| **4.** | Sanjay Raj, Pankaj Biswas | Microstructure and mechanical characterizations of friction stir butt-welded Inconel 718 alloy by | North-East Research Conclave, Sustainable Science and Technology (NERC-2022), | 2022 |

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| **6.** | Ankan Das, Himanshu Kalita, Sajan Kapil, Pankaj Biswas | Feasibility Study for Fabricating Smart Structures Using Hybrid Additive Manufacturing Based on Friction Stir Welding | 8th Asian Conference on Mechanics of Functional Materials and Structures (ACMFMS2022) | 2022 |
| **7.** | Ankan Das, Himanshu Kalita, Sajan Kapil, Pankaj Biswas | Utilization of Friction Stir Welding to Fabricate 3D Objects in Metal Additive Manufacturing | North-East Research Conclave (NERC 2022), IIT Guwahati, India | 2022 |
| **8.** | Rituraj Bhattacharjee, Susmita Datta, Himangshu Kalita, Suleiman Ali, Pankaj Biswas | Microstructural and Mechanical Characterization of Underwater FSWed Marine Grade AA5083 | 8th Asian Conference on Mechanics of Functional Materials and Structures (ACMFMS2022) | 2022 |
| **9.** | Susmita Datta, Rituraj Bhattacharjee, Himangshu Kalita, Pankaj Biswas | Corrosion Characteristics of Laser Welded NiTinol in Marine Environment | 8th Asian Conference on Mechanics of Functional Materials and Structures (ACMFMS2022) | 2022 |
| **10.** | Subhashis Majumder, Sajan Kapil,Pankaj Biswas,Nisith Ranjan Mandal | Experimental Investigation on Underwater Gas Metal Arc Welding System | COPEN 12 | 2022 |
| **11.** | Subhashis Majumder, Sajan Kapil,Pankaj Biswas,Nisith Ranjan Mandal | Design and Development of GMAW Nozzle for Underwater Dry Welding using Compressed Air | Asian Conference on Mechanics of Functional materials and Structures (ACMFMS 2022) | 2022 |
| **12.** | Rockey Kumar, P S Robi, Pankaj Biswas | Design and Development of Tourist Submarine | 8th Asian Conference on Mechanics of Functional Materials and Structures (ACMFMS2022) | 2022 |
| **13.** | Rajput, A.S., Sharma, R., Mittal, R. K. and Kapil, S. | Investigation of Chatter Vibration on Wire Arc Additive Manufactured Products During the Milling Operation | 17th International Conference on Vibration Engineering and Technology of Machinery, VETOMAC, 2022 | 2022 |
| **14.** | Sahoo, P., Kumar, S., Mittal, R.K., Singh, R.K. and Barshilia, H.C | Influence of Hydrogen-Free DLC Coated Micro Ball Endmills on Machining Response and Tool Wear in High-Speed Micromilling of Ti6Al4V | 5th World Congress on Micro and Nano Manufacturing (WCMNM), 2022 | 2022 |
| **15.** | Chadaram, A. Gururaja, S, Mittal, R. K., and Singh, K.K | Tribological Performance Analysis of Textured Cutting Insert Created Via High Speed Micromilling Process | 5th World Congress on Micro and Nano Manufacturing (WCMNM), 2022 | 2022 |
| **16.** | Hashemitaheri, M., Mittal, R. K., Cherukuri, H. and Singh, R. | Extracting the In-Process Structural Dynamics Parameters in Micro-Milling Operations | International Manufacturing Science and Engineering Conference, MSEC 2022 | 2022 |
| **17.** | Dhirendra Kumar | Fabrication, and Performance | North East Research conclave; | 2022 |

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| | Verma, Mirsaidin Hussain, Poonam Kumari, Subramani Kanagaraj | Validation of A Piezoelectric Sensor and Arduino-Based Wearable Device for Knee Joint Health Assessment, | Sustainable Science and Technology, IIT Guwahati | |
| **18.** | Dhirendra Kumar Verma, Mirsaidin Hussain, Poonam Kumari, Subramani Kanagaraj | In-House Development of Contact Microphone-Based Wearable Device for Knee Joint Health Assessment Using Vibroarthrography | 5th international conference on Medical Devices, ICMD-2022, Gaziantep Turkey | 2022 |
| **19.** | Dhirendra Kumar Verma, Sneha Patwari, Poonam Kumari, Subramani Kanagaraj | Detection of osteoarthritis using piezoelectric sensor-based acoustic emission system | International Conference on Biomaterials, Regenerative Medicine and Devices, Bio-Remedi-2022, IIT Guwahati | 2022 |
| **20.** | Jyotirmoy Kakati, Shubham M. More, Sukhomay Pal and Ujjwal K. Saha | Analyzing the operating parameters of a compression ignition diesel engine using artificial neural network | ASME 2022 Power Conference, July 2-3, Pittsburgh, PA, USA. | 2022 |
| **21.** | Nikhil Dilip Kulkarni, Mukesh Kumar and Poonam Kumari | PVDF/RGO based piezoelectric nanocomposite films for enhanced mechanical and dielectric properties | International Conference on Advances in Chemical and Materials Sciences, ACMS 2022, India | 2022 |
| **22.** | Viwek Kumar and Poonam Kumari | Fabrication and Characterization of Axially Functionally Graded Beam | 7th Asian Conference on Mechanics of Functional Materials and Structures (ACMFMS 2020+1) | 2021 |
| **23.** | Poonam Kumari and Viwek Kumar | 2D analytical solution for multi-segmented Auminium-steel-composite panel-An Aerospace Application | WCCM-APCOM 2022 | 2022 |
| **24.** | Viwek Kumar and Poonam Kumari | Processing and Characterization of Cu-SiC based functionally graded materials (FGMs) | 8th Asian Conference on Mechanics of Functional Materials and Structures (ACMFMS-22) | 2022 |
| **25.** | Mridusmita Bora, Poonam Kumari and Niranjan Sahoo | Investigation of the mechanical behavior of the treated and untreatedbamboo fiber reinforced epoxy composites- Assam's Bamboo | ICCS24 - 24th International Conference on Composite Structures | 2021 |
| **26.** | Mridusmita Bora, Poonam Kumari and Niranjan Sahoo | Mechanical strength evaluation of bamboo composites for its use in low to medium scale structural components | North East Research conclave; Sustainable Science and Technology, IIT Guwahati | 2022 |
| **27.** | Mridusmita Bora, Poonam Kumari and Niranjan Sahoo | Study on strength evaluation of Bamboo-composite laminates for its use in low to medium scale structural components | ISTAM – 67th Congress of the Indian Society of Theoretical and Applied Mechanics | 2022 |
| **28.** | Anand Mohan Pandey, Sajan Kapil & Manas Das | Metal Based μ-Additive Manufacturing by Localized Electrochemical deposition | 12th International conference on precision, micro, meso and nano engineering (COPEN-12), IIT Kanpur, India | 2022 |
| **29.** | Hari Narayan Singh Yadav & Manas Das | Investigation of plasma process for finishing of fused silica and its characterization | 12th International conference on precision, micro, meso and nano engineering (COPEN-12), IIT Kanpur, India | 2022 |
| **30.** | Hari Narayan Singh Yadav & Manas Das | SURFACE CHARACTERISTICS OF FUSED SILICA IN MEDIUM PRESSURE PLASMA PROCESS | 7th International Conference Dr B R Ambedkar National Institue of Technology Jalandhar, India on Production & Industrial | 2023 |

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| | | | Engineering (CPIE – 2023) | |
| **31.** | Hari Narayan Singh Yadav & Manas Das | ADVANCED PLASMA POLISHING PROCESSES: PRINCIPLES, RECENT APPLICATIONS, CHALLENGES AND FUTURE SCOPE | 7th International Conference Dr B R Ambedkar National Institue of Technology Jalandhar, India on Production & Industrial Engineering (CPIE – 2023) | 2023 |
| **32.** | Ranajit Mahanti & Manas Das | Development of cost-effective micro-EDM process for micro-holes drilling | 12th International conference on precision, micro, meso and nano engineering (COPEN-12), IIT Kanpur, India | 2022 |
| **33.** | K. Naik and N. Sahoo | Aerodynamic performance improvements of the Darrieus type straight-bladed vertical axis wind turbine with gurney flaps | 67th Congress of Indian Society of Theoretical and Applied Mechanics (ISTAM-2022), 14-16 December, IIT Mandi | 2022 |
| **34.** | S. C. Barhate O. Siram and N. Sahoo | Wake modelling of horizontal axis wind turbine using sparse identification of non-linear dynamics (SINDy) | 67th Congress of Indian Society of Theoretical and Applied Mechanics (ISTAM-2022), 14-16 December, IIT Mandi | 2022 |
| **35.** | O. Siram, S. C. Barhate and N. Sahoo | Spiral polar plot analogy to dictate the two-dimensional depiction of helical vortex lines (HLVs) | 67th Congress of Indian Society of Theoretical and Applied Mechanics (ISTAM-2022), 14-16 December, IIT Mandi | 2022 |
| **36.** | S. Nayak, N. Sahoo and K. Masaharu | Fabrication and thermal characterization of a coaxial thermal probe | 67th Congress of Indian Society of Theoretical and Applied Mechanics (ISTAM-2022), 14-16 December, IIT Mandi | 2022 |
| **37.** | S. Nayak and N. Sahoo | Recovery of Impulsive forces: A comparative assessment between conventional and soft computing technique | North-East Research Conclave (NERC 2022), 20-22 May, Indian Institute of Technology, Guwahati | 2022 |
| **38.** | K. Naik and N. Sahoo | Numerical study of the effect of gurney flaps on the aerodynamic performance augmentation of the H-type Darrieus wind rotors | North-East Research Conclave (NERC 2022), 20-22 May, Indian Institute of Technology, Guwahati | 2022 |
| **39.** | A. K. Singh, K. Singh, D. Singh and N. Sahoo | Film cooling analysis of ammonia-based aviation fuels in jet engines | Indo-German International Conference on Metrology for the Deployment of Green Hydrogen and Renewable Fuels in India, 04-06 April (Virtual mode; PTB & IMEKO-TC20, Germany) | 2022 |
| **40.** | K. Naik and N. Sahoo | On the use of cavity for the power augmentation of straight-bladed Darrieus vertical axis wind turbines | Indo-German International Conference on Metrology for the Deployment of Green Hydrogen and Renewable Fuels in India, 04-06 April (Virtual mode; PTB & IMEKO-TC20, Germany) | 2022 |
| **41.** | A. K. Rout, N. Sahoo and P. Kalita | Design and development of a thermal probe for internal combustion engine measurement | Indo-German International Conference on Metrology for the Deployment of Green Hydrogen and Renewable Fuels in India, 04-06 April (Virtual mode; PTB & IMEKO-TC20, Germany) | 2022 |
| **42.** | Md. S. M. Khan and N. Sahoo | Effect of Al2O3 nanoparticles blended biodiesel on performance and emission characteristics of diesel engines | Indo-German International Conference on Metrology for the Deployment of Green Hydrogen and Renewable Fuels in India, 04- | 2022 |

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| | | | 06 April (Virtual mode; PTB & IMEKO-TC20, Germany) | |
| **43.** | M. A. Assegie, P. Kalita and N. Sahoo | Hybrid mode compressed air energy storage system for renewable energy sector | Indo-German International Conference on Metrology for the Deployment of Green Hydrogen and Renewable Fuels in India, 04-06 April (Virtual mode; PTB & IMEKO-TC20, Germany) | 2022 |
| **44.** | O. Siram and N. Sahoo | A statistical approach to determine and discretize the turbulent flow signature acquired using hot-wire anemometry | Indo-German International Conference on Metrology for the Deployment of Green Hydrogen and Renewable Fuels in India, 04-06 April (Virtual mode; PTB & IMEKO-TC20, Germany) | 2022 |
| **45.** | S. Naik and N. Sahoo | Fabrication of a coaxial thermal probe for transient temperature and heat flux measurement | Indo-German International Conference on Metrology for the Deployment of Green Hydrogen and Renewable Fuels in India, 04-06 April (Virtual mode; PTB & IMEKO-TC20, Germany) | 2022 |
| **46.** | S. C. Barhate and N. Sahoo | Ammonia route in green hydrogen blending for domestic applications | Indo-German International Conference on Metrology for the Deployment of Green Hydrogen and Renewable Fuels in India, 04-06 April (Virtual mode; PTB & IMEKO-TC20, Germany) | 2022 |
| **47.** | S. Nayak and N. Sahoo | Dynamic calibration of a stress-wave force balance using hybrid soft computing approach | International Conference on Nonlinear Dynamics and Applications (ICNDA 2022), Virtual mode (Paper ID: 154), 09-11 March, Sikkim Manipal Institute of Technology, Sikkim | 2022 |
| **48.** | A. K. Rout, N. Sahoo and P. Kalita and V, Kulkarni | Response behavior of a coaxial thermal probe towards dynamic thermal loading | International Conference on Nonlinear Dynamics and Applications (ICNDA 2022), Virtual mode (Paper ID: 154), 09-11 March, Sikkim Manipal Institute of Technology, Sikkim, 09-11 March | 2022 |
| **49.** | B.P. Bonthala, B. Panda and U.S. Dixit | Exploration of the aquatic ecosystem of the river Brahmaputra | Online 2nd National Symposium on Technologies for Underwater Exploration, May 2-3, 2022, IIT Guwahati | 2022 |
| **50.** | Lalit M. Pandey and Uday Shanker Dixit | Traditional and Modern Storage Practices for Food Grains | North-East Research Conclave 2022, May 20-22, 2022, IIT Guwahati | 2022 |
| **51.** | Kaustabh Chatterjee, Uday S. Dixit and Jian Zhang | Fuzzy Set Based Estimation of Closed-Die Forging Load using the Shop Floor Data | North-East Research Conclave 2022, May 20-22, 2022, IIT Guwahati | 2022 |
| **52.** | Bappa Das, Uday Shanker Dixit, Biranchi Narayan Panda | Corrosion behavior and mechanical properties of ER70S-6 alloy cladding on aluminum using a cold metal transfer process | North-East Research Conclave 2022, May 20-22, 2022, IIT Guwahati | 2022 |
| **53.** | Shubham Maurya, Biranchi Panda, Uday Shanker Dixit, | Design and fabrication of an extrusion system for cement paste 3D printing | North-East Research Conclave 2022, May 20-22, 2022, IIT Guwahati | 2022 |

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| | Arun Ch. Borsaikia and Biswajeet Barman | | | |
| **54.** | Lalit M. Pandey and Uday Shanker Dixit | Extracting Science, Engineering and Technology from the Ancient Literature of Mahapuranas | North-East Research Conclave 2022, May 20-22, 2022, IIT Guwahati. | 2022 |
| **55.** | Amit Raj, Arun Chandra Borsaikia and Uday Shanker Dixit | Strength of autoclaved aerated concrete (AAC) and its masonry: a review | North-East Research Conclave 2022, May 20-22, 2022, IIT Guwahati. | 2022 |
| **56.** | Basant Kumar Mishra, Gaurav Trivedi and U.S. Dixit | Conceptual Design of Electric Vehicle with Regenerative Braking System | North-East Research Conclave 2022, May 20-22, 2022, IIT Guwahati. | 2022 |
| **57.** | B. P. Bonthala, B. Panda and U.S. Dixit | A Review on development of Underwater Vehicles for Transportation | North-East Research Conclave 2022, May 20-22, 2022, IIT Guwahati. | 2022 |
| **58.** | Pratik Raj and Uday S. Dixit | Modelling and CFD Simulation of Hull of an Underwater Vehicle | North-East Research Conclave 2022, May 20-22, 2022, IIT Guwahati | 2022 |
| **59.** | Shyaman Saloi and U.S. Dixit | Importance of Scientific Writing for Enhancing the Science Education in Northeast India | North-East Research Conclave 2022, May 20-22, 2022, IIT Guwahati. | 2022 |
| **60.** | Faladrum Sharma and Uday Shanker Dixit | Impact of Additive Manufacturing Technology on Education: A Review | North-East Research Conclave 2022, May 20-22, 2022, IIT Guwahati | 2022 |
| **61.** | Bappa Das, Abhijeet Dhulekar, Biranchi N. Panda and Uday S. Dixit | Investigation of temperature distribution through finite element model of Fe-based ER70S-6 cladding on aluminum substrate using a cold metal transfer process | 12th International Conference on Precision, Micro, Meso and Nano Engineering (COPEN), Indian Institute of Technology Kanpur, December 8-10, 2022. | 2022 |
| **62.** | B.P. Bonthala, B. N. Panda and U. S. Dixit | Design and Development of an Unmanned Surface Vehicle for water quality assessment | 12th International Conference on Precision, Micro, Meso and Nano Engineering (COPEN), Indian Institute of Technology Kanpur, December 8-10, 2022 | 2022 |
| **63.** | Abhijeet Dhulekar, Faladrum Sharma, Uday Shanker Dixit | Design and Manufacturability Issues in Autonomous Underwater Vehicles | 12th International Conference on Precision, Micro, Meso and Nano Engineering (COPEN), Indian Institute of Technology Kanpur, December 8-10, 2022. | 2022 |
| **64.** | Bharat Bhushan, J. Ramkumar and Uday S. Dixit | Simulation of the Incremental Sheet Metal Forming of a U-Channel Made of Different Materials | 12th International Conference on Precision, Micro, Meso and Nano Engineering (COPEN), Indian Institute of Technology Kanpur, December 8-10, 2022 | 2022 |
| **65.** | B. Brahma, K. Kalita and U.S. Dixit | A Study of Passive Control in a Bridge Configured Winding Induction Motor with an Oval-shaped Stator | IPRoMM 2022, IIT-ISM, Dhanbad, December 22-23, 2022 | 2022 |
| **66.** | Shubham Maurya, Dhrutiman Dey, Biranchi Panda and U.S. Dixit | Inline reinforcement of steel in 3D concrete printing | Second International Conference on Construction Materials and Structures (ICCMS 2022), in virtual mode, December 14-18, 2022 (Virtual Mode), NIT Calicut, India | 2022 |
| **67.** | Ashok Kumar Gond, Dipankar | Numerical investigation of heat transfer characteristics of sCO2 in a | 9th International & 49th National Conference on Fluid Mechanics & | 2022 |

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| | Narayan Basu and Amaresh Dalal | vertical divergent tapered annular channel | Fluid Power (FMFP-2022) held at IIT-Roorkee from December 14 to December 16, 2022. | |
| **68.** | Nath, D., Agrawal, V., Gautam, S. S. | A Machine Learning Approach to Optimize Quadrature Rule for Isogeometric Analysis | 8th Asian Conference on Mechanics of Functional Materials and Structures | 2022 |
| **69.** | Agrawal, V., Das, S. K., Gautam, S. S. | Performance study of VO-based NURBS discretization in isogeometric analysis of contact problems | 8th Asian Conference on Mechanics of Functional Materials and Structures | 2022 |
| **70.** | Nath, S. S., Nath, D., Gautam, S. S. | Efficient stiffness matrix in finite element method using deep learning for linear elasticity | 8th International Congress on Computational Mechanics and Simulation | 2022 |
| **71.** | Saikia, B. B., Nath, D., Gautam, S. S. | Machine learning models for stress recovery in finite element method | 8th International Congress on Computational Mechanics and Simulation, | 2022 |
| **72.** | Das, S. K., Agrawal, V., Gautam, S. S. | Effects of the varying-order based NURBS discretization strategies on the solution of two-body large deformation contact problems | 8th International Congress on Computational Mechanics and Simulation, | 2022 |
| **73.** | Kiran U., Gautam S. S., and Sharma D. | Accelerating finite element assembly on a GPU | 3rd Biennial International Conference on Future Learning Aspects of Mechanical Engineering (FLAME - 2022) | 2022 |
| **74.** | Saikia, B. B., Nath, D., Gautam, S. S. | Application of Machine Learning in Efficient Stress Recovery in Finite Element Analysis | 3rd Biennial International Conference on Future Learning Aspects of Mechanical Engineering (FLAME - 2022) | 2022 |
| **75.** | Nath, S. S., Nath, D., Gautam, S. S. | Design of Efficient Finite Elements using Deep Learning Approach | 3rd Biennial International Conference on Future Learning Aspects of Mechanical Engineering (FLAME - 2022) | 2022 |
| **76.** | Chinchkar, R., Nath, D., Gautam, S. S. | Design of Efficient Quadrature Scheme in Finite Element Using Deep Learning | 3rd Biennial International Conference on Future Learning Aspects of Mechanical Engineering (FLAME - 2022) | 2022 |
| **77.** | Vaibhav Jaiswal, J. Mahesh, P. Kishore, R. Hridaysh and S. kanagaraj | Dynamic-mechanical ankle joint for trans-femoral and transtibial amputees to increase their stability and range of motion | North-East Research Conclave (NERC)-2022", Indian Institute of Technology Guwahati, Assam, May 20-22 | 2022 |
| **78.** | Vaibhav Jaiswal, R. Hridaysh and S. Kanagaraj | Rehabilitation feedback of passive polycentric knee joint and its analysis | Biomaterials, Regenerative Medicine and Devices-2022 Indian Institute of Technology Guwahati, Assam, December 15-18 | 2022 |
| **79.** | Arnab Sarmah, Satoshi Ito and S. Kanagaraj | Biomechanical Techniques for Identification and management of Neurological disorders | One Day National Symposium on Challenges and Opportunities in the Management of Neurological Disorders,NIPER Guwahati, 7th December 2022. | 2022 |
| **80.** | Akshay Daydar, B Venkatesh,Arijit Sur, S Kanagaraj | AUTOMATED SEGMENTATION OF KNEE JOINT TISSUES FROM MRI DATA USING CONVOLUTIONAL NEURAL NETWORK AND INCORPORATING SHAPE KNOWLEDGE | Medical Image Computing Workshop, IISC Bangalore | 2023 |
| **81.** | Lipika Boruah, | Review of orthotic devices for | International Conference on | 2022 |

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| | Santosha Kumar Dwivedy, Subramani Kanagaraj | neuropathic foot | Biomaterials, Regenerative Medicine and Devices | |
| **82.** | Lipika Boruah, Santosha Kumar Dwivedy, Subramani Kanagaraj | Review of underwater gait analysis | 8th Asian Conference on Mechanics of functional materials and structures | 2022 |
| **83.** | Subhojit Jash, Sajan kapil, Subramnai Kanagaraj | Developement of Rescue System for Swimmers and Underwater Divers | 8th Asian Conference on Mechanics of functional materials and structures | 2022 |
| **84.** | Subhojit Jash, Sajan kapil, Subramnai Kanagaraj | Review of underwater Health Monitoring Devices and Drowning Detection Methods | International Conference on Biomaterials, Regenerative Medicine and Devices | 2022 |
| **85.** | Dhruvkumar H. Wankawala and P. K. Mondal | On-Demand Droplet Formation in Lab-on-a-chip Platforms | North-East Research Conclave (NERC) | 2022 |
| **86.** | Dhruvkumar H. Wankawala and P. K. Mondal | Experimental investigation of non-Newtonian droplet splitting in a microfluidic T-junction | Proceedings of the 9th International and 49th National Conference on Fluid Mechanics and Fluid Power (FMFP 2022) | 2022 |
| **87.** | Sumit Kumar Mehta, Dhananjay Kumar, Pranab Kumar Mondal, and Somchai Wongwises | Effect of Thermal Dispersion on Thermo-Hydraulic Characteristics for Flow through Wavy Solar Power Plant with Metallic Porous Blocks | 5th International conference on Energy systems, drives and automation (ESDA 2022) | 2022 |
| **88.** | Sumit Kumar Mehta, Pranab Kumar Mondal, and Somchai Wongwises | Free convective heat transfer characteristic of hybrid nanofluid inside the solar plant with porous block | 12th TSME-International Conference on Mechanical Engineering 2022 | 2022 |
| **89.** | Sumit Kumar Mehta, Pranab Kumar Mondal, and Somchai Wongwises | Natural convective heat removal from the heat generating electronics component using metallic porous extension | 12th TSME-International Conference on Mechanical Engineering 2022 | 2022 |
| **90.** | Deepak Kumar, Avinash Chetry, Sachin D. Kore, and Arup Nandy, | Study of Interfacial Waviness Formation and Jetting Phenomenon during Magnetic Pulse Welding using Smoothed Particle Hydrodynamics (SPH) | ME@75 Research Frontiers Conference, IISc Bangalore, Karnataka, India | 2022 |
| **91.** | Sreekanth Karanam, Durgarao Kamireddy and Arup Nandy | Implementing symmetric boundary condition in electromagnetic harmonic analysis: two different approaches | 7th International Conference on Micro-Electronics Electromagnetics and Telecommunication, ICMEET 2022 | 2022 |
| **92.** | Sagar Pawar, Deepak Kumar, Sachin D. Kore, Arup Nandy | Effect of Die Conductivity on Electromagnetic Forming of Tube | 2nd International Conference & Exposition on Mechanical, Material and Manufacturing Technology | 2022 |
| **93.** | Deepak Kumar, Kunalan Murthy, Sachin D. Kore, Arup Nandy | Effect of Thread Angle besides Pitch and Discharge energy in Electromagnetically Crimped Threaded Surfaced Tube-to-Tube Joint: Experimental and Numerical | 2nd International Conference & Exposition on Mechanical, Material and Manufacturing Technology | 2022 |

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| | | Investigation along with ANOVA Analysis to Assess the Relative Contribution of the Process Parameters | | |
| **94.** | Arnab Adhikary, Rishav Shaw, Dr. Arup Nandy | Outward Wave Favouring formulation in exterior acoustics: an assessment of its high frequency performance | International Conference on Vibration Problems, ICOVP 2023 | 2023 |
| **95.** | D. Bombarde, M. Agrawal, S. Gautam, and A. Nandy | A locking-free formulation for three-dimensional isogeometric analysis | International Conference on Recent Advances in Engineering Materials, ICRAEM 2022 | 2022 |
| **96.** | D. Kamireddy, S. M. Chavan, and A. Nandy | Electromagnetic eigen analysis: performance comparison of four node and four edge quadrilateral elements with the effect of distortion | International Conference on Recent Advances in Engineering Materials, ICRAEM 2022, Karnataka, India, 03-05 March | 2022 |
| **97.** | D. Kumar, C. Morajkar, S.D. Kore, and A. Nandy | Comparison of two different non-coupled multistep simulation techniques for strength prediction of an electromagnetically crimped Cu-SS tube-to-tube joint with smooth interface | 2nd International Conference on Industry 4.0 and Advanced Manufacturing, IISc Bangalore | 2022 |
| **98.** | Kumar N, S Panda | Development of Constrained Viscoelastic Composite Damping tape | Innovation & Entrepreneurship Conclave (IEC 2022), IIT Guwahati | 2022 |
| **99.** | Kumar N, S Panda | Development of a 1-3 VEC based constrained layer damping tape | Innovation & Entrepreneurship Conclave (IEC 2022), IIT Guwahati | 2022 |
| **100** | V. V. Sarnaik, S Panda, Nitin Kumar and S. Kanagaraj | Performance of silicon rubber in constrained layer damping of structural vibration | North-East Research Conclave & Assam Biotech Conclave – 2022 (NERC 2022), IIT Guwahati | 2022 |
| **101** | Gupta A, Munendra, Reddy RS and Panda S. | Damping analysis of sandwich beams with the viscoelastic particulate composite core using fractional order derivation viscoelastic constitutive model | 1st International Conference on Advances in Mechanical Engineering & Material Science (ICAMEMS-2022), VIT AP University | 2022 |
| **102** | Reddy RS, Gupta A and Panda S. | Nonlinear frequency response of sandwich beam with frequency-dependent viscoelastic core using reduced-order finite element method | 1st International Conference on Advances in Mechanical Engineering & Material Science (ICAMEMS-2022), VIT AP University | 2022 |
| **103** | Kumar N, Panda S, Sarnaik VV. | On the performance of silicon and polyurethane rubbers in structural vibration damping. | The Eight Asian Conference on Mechanics of Functional Materials and Structures (ACMFMS 2022), IIT Guwahati | 2022 |
| **104** | Rohit Kumar and Manmohan Pandey | Thermodynamic Approach to Determine the Hydraulic and Thermal Losses in Fluid Flow Through Triangular Miniature Channels | 7th Thermal and Fluids Engineering Conference (TFEC), May, 15-18, 2022 , Las Vegas, NV, USA | 2022 |
| **105** | Chandan Nashine and Manmohan Pandey | Theoretical Modelling of Miniature Loop Heat Pipe | 7th Thermal and Fluids Engineering Conference (TFEC), May, 15-18, 2022 , Las Vegas, NV, USA | 2022 |
| **106** | Chandan Nashine, Nadaf Arman Mohaddin, Sandip | Experimental studies on sintered bi-porous wicks for loop heat pipe | Joint 21st IHPC and 15th IHPS, Melbourne, Australia, February 5-8, 2023 | 2023 |

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| | Kumar Sarma, Manmohan Pandey | | | |
| **107** | Rohit Kumar and Manmohan Pandey | Numerical Investigation of Heat Transfer Augmentation in Miniature Channels with Microfins having Axially Varying Fin Pitch | Joint 21st IHPC and 15th IHPS, Melbourne, Australia, February 5-8, 2023 | 2023 |
| **108** | Shivayya C. Hiremath, Rohit Kumar, Arman Mohaddin Nadaf, Manmohan Pandey | Numerical Analysis of Heat Transfer and Fluid flow in Microchannel Heat sinks Designed for Uniform Cooling | 9th International and 49th National Conference on Fluid Mechanics and Fluid Power (FMFP) December 14-16, 2022, Roorkee, Uttarakhand, India | 2022 |
| **109** | Chandan Nashine and Manmohan Pandey | Transient Numerical Modeling of a Miniature Loop Heat Pipe | 9th International and 49th National Conference on Fluid Mechanics and Fluid Power (FMFP) December 14-16, 2022, Roorkee, Uttarakhand, India | 2022 |
| **110** | Toni Kumari and Manmohan Pandey | Study of physical characteristics of a bi-porous composite capillary wick for a flat miniature loop heat pipe | 9th International and 49th National Conference on Fluid Mechanics and Fluid Power (FMFP) December 14-16, 2022, Roorkee, Uttarakhand, India | 2022 |
| **111** | Rohit Kumar, Chandan Nashine, Arman Mohaddin Nadaf, Mohd Sakib Hussain, Manmohan Pandey | Experimental Investigation of Fluid Flow Behaviour in Parallel Microchannel using Micro-PIV | 9th International and 49th National Conference on Fluid Mechanics and Fluid Power (FMFP) December 14-16, 2022, Roorkee, Uttarakhand, India | 2022 |
| **112** | Rohit Kumar and Manmohan Pandey | Heat Transfer Enhancement in Miniature Channels with Micro-Fin having Varying Fin Height Along the Axis of Flow | 9th International and 49th National Conference on Fluid Mechanics and Fluid Power (FMFP) December 14-16, 2022, Roorkee, Uttarakhand, India | 2022 |
| **113** | Rohit Kumar, Chandan Nashine, Arman Mohaddin Nadaf, Harish Kumar Tomar, Manmohan Pandey | Experimental Investigation of Two-Phase Immiscible Liquid Flow through a Microchannel | 9th International and 49th National Conference on Fluid Mechanics and Fluid Power (FMFP) December 14-16, 2022, Roorkee, Uttarakhand, India | 2022 |
| **114** | Arman Mohaddin Nadaf, Sandip Kumar Sarma, Manmohan Pandey | Mitigation of flow boiling instabilities using diverging channels | 8th International Congress on Computational Mechanics and Simulation, 9-11 December 2022, Indore, India | 2022 |
| **115** | Chandan Nashine, Nadaf Arman Mohaddin, Rohit Kumar, Sandip Kumar Sarma, Manmohan Pandey | Development and characterization of bi-porus metallic wick for loop heat pipes | North-East Research Conclave, 20-22 May 2022, Guwahati, Assam, India | 2022 |
| **116** | Toni Kumari, Chandan Nashine, Manmohan Pandey | Fabrication of cost-effective bi-porus composite wick for loop heat pipes | North-East Research Conclave, 20-22 May 2022, Guwahati, Assam, India | 2022 |
| **117** | Nadaf Arman Mohaddin, Sandip Kumar Sarma, Chandan Nashine, Rohit Kumar, | Development and characterization of ITO coated glass microchannels for high-speed flow visualization | North-East Research Conclave, 20-22 May 2022, Guwahati, Assam, India | 2022 |

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| | Manmohan Pandey | | | |
| **118** | Rohit Kumar, Chandan Nashine, Arman Mohaddin Nadaf, Manmohan Pandey | Fabrication of microchannels for heat transfer applications | North-East Research Conclave, 20-22 May 2022, Guwahati, Assam, India | 2022 |
| **119** | A Kumar, S Bag, VC Srivastava, M R Amin | Thermo-mechanical behavior of multi-layer deposition for wire arc additive manufacturing of structural steel: wire arc additive manufacturing | Proceedings of the ASME 2022 International Mechanical Engineering Congress and Exposition | 2022 |
| **120** | P. Paul, K.S.R.K. Murthy, and D. Chakraborty | Mode-I notch stress intensity factors for sharp center V-notched configuration using strain gage technique: A numerical assessment | Proceedings of the International Conference on Advanced Materials and Computational Methods in Mechanical Engineering, ICAMCMME-2022 | 2022 |
| **121** | S. S. Shukla and K.S.R.K. Murthy | Fracture studies in PMMA using single edge cracked circular specimen. | Proceedigs of International Conference on Innovations in Mechanical and Materials Engineering, IMME-2022 | 2022 |
| **122** | S. S. Shukla, P. B. Kumar and K.S.R.K. Murthy | Effect of stress ratio on the mixed mode (I/II) fatigue crack growth in Al 7075-T6 | Proceedings of 8th Asian Conference on Mechanics of Functional Materials and Structures, ACMFMS | 2022 |
| **123** | Vishal Yadav, K. Varshith, Sajan Kapil | A Volumetric Approach based Reverse Engineering Method of Reconstruction of the CAD Models | International Conference on Precision, Micro, Meso and Nano Engineering (COPEN), IIT Kanpur | 2022 |
| **124** | Ambrish Singh, Sajan Kapil, Manas Das | A Non-Pneumatic Method of Powder Feedstock Handling in Laser-based Directed Energy Deposition | International Conference on Precision, Micro, Meso and Nano Engineering (COPEN), IIT Kanpur | 2022 |
| **125** | Sajan Kapil, Prathamesh Joshi, Sadaival Singh and Ambrish Singh | Functionally Graded Materials TSP Solver–based Toolpath for Additive Manufacturing of Density–based | International Conference on Precision, Micro, Meso and Nano Engineering (COPEN), IIT Kanpur | 2022 |
| **126** | Sathes Raja V, Ritam Sarma, Umesh Melkani, Sajan Kapil and Nelson Muthu | Investigation of fiber holding techniques for the fabrication of continuously reinforced Metal Matrix Composites using wire arc additive manufacturing | Bio-Remidi 2022 | 2022 |
| **127** | Brijesh K. Singh, Sajan Kapil, and Shrikrishna Nandkishor Joshi | Numerical Modeling and Simulation of Micromachining of Biomedical Materials Using Nd: YAG Millisecond Pulse Laser | In Low Cost Manufacturing Technologies: Proceedings of NERC Singapore: Springer Nature Singapore | 2022 |
| **128** | Sajan Kapil, Ambrish Singh | A Novel Non-Pneumatic Method of Powder Feedstock Handling for Directed Energy Deposition-based Additive Manufacturing | International Conference on Powder Metallurgy and Particulate Materials (PM 23) + Exhibition & 48 Annual Technical Meeting of PMAI, The Lalit Mumbai, 13 to 15 March | 2022 |
| **129** | BJ Sahariah, P Khanikar | High Energy Absorbing Tubular Structures Made of Lattice with Zero Poisson's ratio | 13th International Symposium on Plasticity and Impact Mechanics (IMPLAST ) | 2022 |
| **130** | MJ Baishya, M Dalakoti, N Muthu, P Khanikar | A Crashworthy Lightweight Lattice Structure Having a Composite Strut-Plate Lattice Topology Optimized Using the Design of Experiments Technique | 13th International Symposium on Plasticity and Impact Mechanics (IMPLAST ) | 2022 |

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| **131** | S Tamuly, S Dixit, Parameswaran V, P Khanikar | High strain rate deformation behavior of suction-cast dual-phase high entropy alloy | 13th International Symposium on Plasticity and Impact Mechanics (IMPLAST ) | 2022 |
| **132** | A Namdeo, H Acharya, P Khanikar | Annealing of tetrahedral and strut-reinforced tetrahedral microlattices for improved energy absorption capacity | COPEN, IIT Kanpur | 2022 |
| **133** | A Namdeo, Parameswaran V, P Khanikar | Dynamic behavior of additively manufactured high strength and high stiffness tetrahedral and strut-reinforced tetrahedral microlattices | 4th Structural Integrity Conference and Exhibition, IIT Hyderabad | 2022 |
| **134** | Abhimanyu Singh, Poonam Kumari and Deepak Sharma | Axially Functionally Graded Beams – A Review | 8th Asian Conference on Mechanics of Functional Materials and Structures (ACMFMS2022) | 2022 |
| **135** | Arup Deka, B. Sandeep Reddy | Emergency Braking Control in 3D Overhead Cranes using a switching PD-Fuzzy Controller | 9 th International Conference on Control, Automation and Robotics (ICCAR 2023) | 2023 |
| **136** | Santosh Kumar, B. Sandeep Reddy | Design of a novel tree-type robot for pipeline repair | Robotics, Control, Automation and Artificial Intelligence (RCAAI-2022) | 2022 |
| **137** | Shivani Raj, B. Sandeep Reddy, Arup Deka | A Survey on Fault Tolerant Control of Unmanned Underwater Vehicles | NERC, IIT Guwahati, July 2022 | 2022 |
| **138** | Arup Deka, B. Sandeep Reddy | Emergency Braking Controller for the Overhead Cranes | ME@75, Research Frontiers Conference, IISc Bengaluru, India | 2022 |
| **139** | Atul Singh Rajput, Sajan Kapil, and Manas Das | Surface Enhancement of Additively Manufactured biomedical implants through Hybrid-Electrochemical Magnetorheological (H-ECMR) finishing | COPEN, IIT Kanpur | 2022 |
| **140** | Atul Singh Rajput, Sajan Kapil, and Manas Das | Investigation on tribological behavior of additively manufactured bone plate polished through Magnetorheological Fluid Assisted Finishing process | IndiaTrib, IIT Delhi, India | 2022 |
| **141** | Abhinav Kumar and Manas Das | Investigation of process parameters of electropolishing of maraging steel with organic electrolytes | COPEN, IIT Kanpur | 2022 |

**INVITED LECTURES OF FACULTY: IN INDIA, ABROAD (1 APRIL 2022 – 31 MARCH 2023)**

| Sl.No. | Name of Faculty | Name of Lecture | Name of Inst./Org. | Place | Date |
|---|---|---|---|---|---|
| **1.** | Ujjwal K. Saha | Drag-based Wind Turbines: An Overview | NIT Silchar | Silchar | November 25, 2022 |
| **2.** | Ujjwal K. Saha | Craft of Thesis Writing | Tezpur University | Tezpur | December 26, 2022 |
| **3.** | Shyamanta M Hazarika | Robotic Hardware | First Fellowship in Advanced Robotic and Innovative Surgery (FARIS); Second Fellowship Course in Robotic Surgery (FALS). IAGES. | Online Course | December 7, 2022 |
| **4.** | Shyamanta M Hazarika | Influence of Affordance-driven Action Observation on Motor | XL Annual Meeting of Indian Academy of | NEHU, Shillong | December 9, 2022 |

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| | | Imagery | Neurosciences | | |
| **5.** | Pankaj Biswas | Some Advanced Research on Welding Technology | Golden Jubilee Celebration of Kolkata Branch of The Indian Institute of Welding by organizing "Weld 2023", the Annual Seminar | Indian Institute of Welding, Kolkata | March 11 & 12, 2023 |
| **6.** | Pankaj Biswas | Hybrid and Robotic Welding Processes | Two Weeks FDP on "Advanced Remanufacturing Technology" Sponsored by AICTE Training and Learning (ATAL) Academy | | 12th – 23rd December 2022, |
| **7.** | Pankaj Biswas | Some Advanced Research on Welding Technology (11th Dec) | One Week High End Workshop (KARYASHALA) on 'Joining Techniques for Modern Transportation Sector', | BIT Mesra, Ranchi | 5th to 11th Dec, 2022 |
| **8.** | Pankaj Biswas | Principle and Safety of Underwater Welding | 5-day workshop on "Underwater Welding | IIT Guwahati | October 10, 2022 to October 14, 2022 |
| **9.** | Pankaj Biswas | Thermo-mechanical Transient Elasto-plastic Analysis of Underwater welding fusion welding process by Commercially Available FE Package | 5-day workshop on "Underwater Welding | IIT Guwahati | October 10, 2022 to October 14, 2023 |
| **10.** | Pankaj Biswas | Residual Stress and Hydrogen Embrittlement in CSEF and Dissimilar Welds | ON-LINE COURSE (Via ZOOM) on Distortion Control in Ship Building | ASRANet Ltd. Sutton, Surrey, UK | 24th - 25th August 2022 |
| **11.** | Pankaj Biswas | Weld Induced Residual Stress Prediction by Thermo-mechanical Transient Elasto-plastic Analysis by Commercially Available FE Package | ON-LINE COURSE (Via ZOOM) on Distortion Control in Ship Building | ASRANet Ltd. Sutton, Surrey, UK | 24th - 25th August 2023 |
| **12.** | Pankaj Biswas | Residual Stresses in Engineering Components: Types, Causes, Effects and Estimation, | ON-LINE COURSE (Via ZOOM) on Distortion Control in Ship Building | ASRANet Ltd. Sutton, Surrey, UK | 24th - 25th August 2024 |
| **13.** | Pankaj Biswas | Advancement and Current Trends of Friction Stir Welding | Short Term Course (e-STC) on "Advances in Manufacturing Engineering and Materials | Department of Mechanical Engineering, IIT Indore. | 4th - 9th April 2022 |
| **14.** | R K Mittal | Dynamics of High speed micromachining Process | Machining instabilities and Preventive approaches for modern production industries | NIT Rourekla | 30th September 2022 |
| **15.** | R K Mittal | Micro manufacturing and its role in promoting sustainability | 1st GILP JD International Symposium, Gifu University | Gifu University, Japan | 9th March 2023 |
| **16.** | Niranjan Sahoo | Mechanical Characterization of | 8th Asian Conference on | IIT Guwahati | 11-14 |

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| | | Innovative Energy Absorbing Materials under Impact Loading | Mechanics of Functional Materials and Structures, Department of Mechanical Engineering, IIT Guwahati | | December 2022 |
| **17.** | U.S. Dixit | Advanced Manufacturing: Research Opportunities | AICTE-QIP Short-Term Course on Advances in Manufacturing Engineering and Materials | IIT Indore | April 4-9, 2022 |
| **18.** | U.S. Dixit | Evolution of Mechanical and Industrial Engineering | A group of Ph.D. students at IIT Delhi | IIT Delhi | April 13, 2022 |
| **19.** | U.S. Dixit | Sustainability aspects of additive manufacturing | Karyashala entitled "High end workshop on 3D Printing, Nano-Tribology and Characterization of Materials" | NIT Srinagar | August 31, 2022 |
| **20.** | U.S. Dixit | Modeling and optimization of laser based forming processes | International Conference on “Laser Assisted Material Processing (LAMP-2022)” | IIT Kharagpur | August 29-31, 2022 |
| **21.** | U.S. Dixit | Sustainability aspects of additive manufacturing | faculty development program on "Advances in Material Processing and Additive Manufacturing" sponsored by E&ICT Academy | PDPM IIIDM Jabalpur | September 2, 2022 |
| **22.** | U.S. Dixit | Design for Remanufacturing | International Workshop on 'Remanufacturing Capability Building' at National Institute of Advanced Manufacturing Technology | Ranchi | September 17, 2022 |
| **23.** | U.S. Dixit | FEM application in welding | 5-day course on “Underwater Welding” organized in IITG TIDF | Guwahati | October 12, 2022 |
| **24.** | U.S. Dixit | A talk on Evaluation and Assessment in a FDP on “Blended Learning” organized by E&ICT Academy | E&ICT Academy | Indian Institute of Technology Guwahati | November 9, 2022 |
| **25.** | U.S. Dixit | A talk on activities of Technology Innovation Hub | Technology Innovation Hub | Indian Institute of Technology Guwahati | December 8-10, 2022 |
| **26.** | U.S. Dixit | Intelligent machining using sensors and data transfer system | AICTE Training and Learning (ATAL) Academy in hybrid mode | NIAMT, Ranchi | 12th – 23rd December 2022 |
| **27.** | U.S. Dixit | Using Mechanical Engineering for Societal Benefit | FDP on “Technology Transfer from Lab to Society” | Mizoram University | January 21, 2023 |

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| **28.** | U.S. Dixit | Lasers in Surface Engineering | one-week High End workshop titled Emerging trends in Material Science & Engineering for its Applications in Manufacturing Sector under Abhyaas (Karyashala) component of Accelerate Vigyan (AV) Scheme | SERB-DST | 24th Jan 2023 to 30th Jan 2023 |
| **29.** | U.S. Dixit | Modelling of Phase Transformation: Two Case Studies | one-week High End workshop titled Emerging trends in Material Science & Engineering for its Applications in Manufacturing Sector under Abhyaas (Karyashala) component of Accelerate Vigyan (AV) Scheme | SERB-DST | 24th Jan 2023 to 30th Jan 2024 |
| **30.** | U.S. Dixit | A talk in the book discussion of the book entitled "Strength of Materials" | AICTE | AICTE | February 6, 2023 |
| **31.** | U.S. Dixit | Lecture on Ramcharit Manas at Param Seva Sangh Ashram | North Guwahati | North Guwahati | February 13, 2023 |
| **32.** | U.S. Dixit | Impact of 3D Printing in Education | 1st International Conference on "Fourth Industrial Revolution and Higher Education 2023" | Dibrugarh University Institute of Engineering and Technology | 24th February 2023 |
| **33.** | U.S. Dixit | Lecture on National Science Day | Think India | NIT Nagaland | February 28, 2023 |
| **34.** | U.S. Dixit | Lecture on National Science Day | Think India | NIT Arunachal Pradesh | February 28, 2023 |
| **35.** | U.S. Dixit | AI in manufacturing in the era of Industry 4.0 | 4th Research Conclave | NIT Meghalaya | March 1, 2023 |
| **36.** | U.S. Dixit | Modelling and Simulation of Manufacturing Processes | 2nd International Conference on Mechanical Engineering and Emerging Technologies | Bapatla Engineering College | March 3-4, 2023 |
| **37.** | U.S. Dixit | Orienting Manufacturing Education in the Era of Industry 4.0 | 7th International Conference on Production & Industrial Engineering (CPIE2023) | NIT Jalandhar | March 10-12, 2023 |
| **38.** | U.S. Dixit | A holistic and multidisciplinary way of research as per Indian Philosophy | Outreach program entitled "Multidisciplinary Research for Sustainable Society" organized by Center for Multidisciplinary Research | Tezpur University | March 14, 2023 |

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| **39.** | U.S. Dixit | A lecture on Indian Knowledge Systems | Royal Global University | Royal Global University | March 22, 2023 |
| **40.** | U.S. Dixit | Delivered a talk on Bhagat Singh in “Shaheed Diwas” function | Shaheed Diwas | National Law University and Judicial Academy (NLUJA) | March 23, 2023 |
| **41.** | Amaresh Dalal | Migration of Hydrogel Drug Carriers Through Narrow Passages | International Conference in Fluid, Thermal and Energy Systems – 2022 (ICFTE’22) | NIT Calicut | June 09, 2022 |
| **42.** | Amaresh Dalal | Analysis of Heat Transfer in Fin-Tube Heat Exchangers Using Winglet-Type Vortex Generators | ATAL-sponsored Two Week Faculty Development Program on "Thermal Characterization and Advanced Measurement Techniques" | NIT Srinagar | March 15, 2023 |
| **43.** | Amaresh Dalal | "Development of Novel Continuous Microbial Fuel Cells with Improved Performance | | | |
| **44.** | " | "Taiwan-India 2022 Exchange Workshop and Symposium on Intensifying the Connection of | | | |
| **45.** | Sustainable Technology" | IIT Guwahati | September 5, 2022 | | |
| **46.** | Sachin Singh Gautam | Machine Learning in Computational Solid Mechanics – Review, Results, and Future | ACMFMS 2022 | IIT Guwahati | December 13, 2022 |
| **47.** | Pranab Kumar Mondal | Magnetic-Field Mediated On-Demand Droplet Splitting in Lab-on-a-Chip Devices | Recent Trends in Engineering and Technology 2022 | GIET University, Gunupur, Odisha | April 11, 2022 |
| **48.** | Pranab Kumar Mondal | On-chip fluidic functionalities: towards the development of microfluidic/bio-microfluidic systems | Technical University Darmstadt | Germany | June 7, 2022 |
| **49.** | Pranab Kumar Mondal | Fluid Mechanics at Small Scale – A Numerical Perspective | Cooch Behar Panchanan Barma University | West Bengal | August 16-17, 2022 |
| **50.** | Pranab Kumar Mondal | Microfluidics in Biotechnology: Perspectives and Applications | Recent trends in CAR-T cells Research and Manufacturing | BIT Pilani, Goa | September 22-23, 2022 |
| **51.** | Satyajit Panda | Rubber Composites for Structural Vibration Problems | Rajkiya Engineering College | Azamgarh, UP | 02 January 2023 |
| **52.** | Satyajit Panda | "On the piezoelectrically smart damping for attenuation of critical dynamics of beam-like slender structures | | | |
| **53.** | " | ACMFMS 2022 | IIT Guwahati | December 12, 2022 | |
| **54.** | Satyajit Panda | Rubber Composites for Structural Vibration Attenuation | National Physical & Oceanography Laboratory (NPOL), | Kochi, India | June 17, 2022 |

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| | | | DRDO | | |
| **55.** | | Modelling & Simulation of welding and additive manufacturing | | | |
| **56.** | Manmohan Pandey | Liquid-Vapor Phase-Change Phenomena in Miniature Devices | 9th International and 49th National Conference on Fluid Mechanics and Fluid Power (FMFP) December 14-16, 2022, Roorkee, Uttarakhand, India | IIT Roorkee | 15-Dec-22 |
| **57.** | Swarup Bag | A hybrid machine learning – finite element model for the prediction of residual stress in directed energy deposition process | National Welding Seminar 2022 (NWS 2022) | IIW Chennai | 21 January 2023 |
| **58.** | Swarup Bag | Simulation of surface and volumetric defects in friction stir welding process | High End workshop on Emerging Trends in Material Science & Engineering for its Applications in Manufacturing Sector | Nit Silchar | 27 January 2023 |
| **59.** | Swarup Bag | Assessment of material deposition through induction heating | High End workshop on Emerging Trends in Material Science & Engineering for its Applications in Manufacturing Sector | Nit Silchar | 28 January 2023 |
| **60.** | Swarup Bag | A perspective on laser welding of metallic materials: Modelling and experiments | DAE-BRNS NATIONAL LASER SYMPOSIUM – 31 | IIt Kharagpur | 4 December 2022 |
| **61.** | Swarup Bag | An overview of underwater welding: Materials, processing and challenges | Workshop on Underwater Welding, Organized by Department of Mechanical Engineering | IIT Guwahati | 12 October 2022 |
| **62.** | Swarup Bag | Modelling and simulation of friction stir welding: A potential joining technique for underwater welding | Workshop on Underwater Welding, Organized by Department of Mechanical Engineering | IIT Guwahati | 12 October 2022 |
| **63.** | Swarup Bag | Modelling & Simulation of welding and additive manufacturing | SERB-sponsored high-end workshop on Advances in Welding and Additive Manufacturing | SVNIT Surat | 20 July 2022 |
| **64.** | Swarup Bag | An introduction to Laser additive manufacturing processes | AICTE-ISTE sponsored Refreshers Course on “Rapid Manufacturing: The Future Sustainable Manufacturing Technology” | Asansol Engineering College, Asansol, West Bengal | 22 Janury 2022 |
| **65.** | Swarup Bag | Visualization of material defects in FSW through finite element simulation | National Welding Seminar 2022 (NWS 2022) | IIW Kolkata | 22 April 2022 |

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| **66.** | Sajan Kapil | Metal Additive Manufacturing | 1st GILP JD International Symposium, Gifu University | Gifu University, Japan | 9th March 2023 |
| **67.** | Sajan Kapil | Functionally Graded Materials TSP Solver–based Toolpath for Additive Manufacturing of Density–based | COPEN 12 | IIT Kanpur | 10th December 2023 |
| **68.** | Sajan Kapil | A Novel Non-Pneumatic Method of Powder Feedstock Handling for Directed Energy Deposition-based Additive Manufacturing | International Conference on Powder Metallurgy and Particulate Materials (PM 23) + Exhibition & 48 Annual Technical Meeting of PMAI, | The Lalit Mumbai | 15th March 2023 |
| **69.** | Sajan Kapil | Multi-Axis Multi-Material Wire Arc Additive Manufacturing (MAMM - WAAM) | IGSCT Outreach Program | IIT Guwahati | 30th Jan 2023 |
| **70.** | Sajan Kapil | ASTM Classification on Additive Manufacturing Technologies and Tool Path Planning for Additive Manufacturing | A 3-days workshop on AM Modeling and Simulation Techniques | VIT, Vellore | 24th Nov 2022 |
| **71.** | Sajan Kapil | A System-Level Classification of Additive Manufacturing | 4 days' workshop on Advances in Additive Manufacturing (3D Printing) | IIT Jodhpur | 6th Dec 2022 |
| **72.** | Sajan Kapil | Introduction to Advancement in 3D Printing and Bio-printing | International Conference on Biomaterials, Regenerative Medicine and Devices | IIT Guwahati | 14th Dec 2022 |
| **73.** | Sajan Kapil | Introduction, Basic Concepts and Case Studies of DFAM | Programme on Design for Additive Manufacturing | CLD-HRDI, WRI & CTM-AMPT | 11th Jan 2023 |
| **74.** | Sajan Kapil | 5-axis and Robotic Toolpath Planning for WAAM | Programme on Design for Additive Manufacturing | CLD-HRDI, WRI & CTM-AMPT | 12th Jan 2023 |

**VISITORS FROM OTHER INSTITUTES/UNIVERSITIES/ORGANISATIONS/INVITED LECTURES (1 APRIL 2022 – 31 MARCH 2023)**

| Sl. No. | Name | Name of Inst./Univ./Org. | Purpose/ Name of Lecture | Date | Remarks |
|---|---|---|---|---|---|
| 01 | Prof./ Dr. (Name) (Surname) | xxx | xxx | D/M/Y | xxx |
| **1** | Prof. Partha P Mukherjee | Purdue University, USA | Interfaces and Crosstalk in Solid-State Batteries | 27/07/2022 | Honorary Faculty at IITG |
| **2** | Prof.(Dr.) Achyut Ch. Baishya, | Guwahati Medical College Guwahati | Discussion related to Biodesign Center | 20/03/2023 | Principal Cum Chief Superintendent, GMC Guwahati and PI from GMC in Biodesign project |
| **3** | Mr. Ashish Bhatt | Aeronautical Development Agency, Bangalore | "Aircraft stealth technology and infrared | | |

***(Please adhere to Designation/ First Name/ Surname/ Date format)***

**SEMINARS/WORKSHOPS/CONFERENCES/SHORT-TERM COURSES ORGANISED (1 APRIL 2022 – 31 MARCH 2023)**

| Sl. No. | Name of Faculty (Convener/ Co-ordinator, etc.) | Name of Sem./Wor./Con. | Funded By | Date | International/ National | No. of participants |
|---|---|---|---|---|---|---|
| **01** | S.K. Dwivedy and Poonam Kumari | ACMFMS2022 | SERB+CSIR+BRNS+DRDO+TIH+EDS+Admeca | 11-14 December, 2022 | International | |
| **02** | Niranjan Sahoo and Pankaj Kalita | Sustainable Energy Utilization Technology for Green Hydrogen and Renewable Energy | Technology Innovation Hub (IITG-TI&DF), IIT Guwahati | 20-21 October 2022 | | |
| **03** | Niranjan Sahoo and Pankaj Kalita | Industry – Academia Stakeholder meet on "Metrology for Deployment of Green Hydrogen and Renewable Fuels in India" in collaboration with delegates from PTB (Physikalish-Techniche Bundesanstalt), Germany | Technology Innovation Hub (IITG-TI&DF), IIT Guwahati | 21 October 2022 | | |
| **04** | Uday Shanker Dixit | Workshop on Underwater Welding | Technology Innovation Hub (IITG-TI&DF), IIT Guwahati | October 10 -14, 2022 | National | |
| **05** | Uday Shanker Dixit (Technical Chairman) | North-East Research Conclave 2022 | | May 20-22, 2022 | | |
| **06** | Uday Shanker Dixit | National Symposium on Poorvottar Bharat in the Bharatiya Swadhinata Sangram | Special Center for the Study of North India, Jawaharlal Nehru University (JNU), New Delhi in collaboration with Indian Knowledge Systems, IIT Guwahati | September 20-21, 2022 | | |
| **07** | Sajan Kapil and R Ganesh Narayanan | Computer-Aided Process Planning for 3D Printing & CNC Machining | NewGen IEDC | 25-27 May 2022 | National | 20 |
| **08** | Sajan Kapil | CAD through Solidworks | TIH IITG | 2-3 September 2022 | National | 10 |
| **09** | Sajan Kapil | Indo German Science and Technology Outreach Program | IGSTC - Delhi | 30th Jan 2023 | International | >100 |

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| **10** | Sajan Kapil, Biranchi Panda and R Ganesh Narayanan | Demonstration and hands-on-training on 3D Printing | NewGen IEDC | 16-17 March 2023 | National | 15 |
| **11** | S.Kanagaraj and Biman B Mandal | International Conference on Biomaterials, Regenerative Medicine and Devices (BIO-Remedi 2022). | Industries and SERB | Dec 15, 2022 -Dec 18, 2022 | International | |

***(Please adhere to Designation/ First Name/ Surname/ Date format)***

**A brief report on the major NATIONAL and INTERNATIONAL events with photographs may also be given separately in addition to the format given above**

**PATENTS (1 APRIL 2022– 31 MARCH 2023)**

**No. of Patents Applied: 10.**

**No. of Patents Granted ……..**

| Sl. No. | Name of Faculty and co researcher | Name | Date Applied/Granted | Application No. | Remarks |
|---|---|---|---|---|---|
| **1.** | Anand Mohan Pandey, Sajan kapil, Manas das | A portable device for simultaneous coating and texturing of surfaces by an electrochemical deposition-based process, | 4th August 2022 | 202331002410 | Filed |
| **2.** | Atul Singh Rajput, Sajan Kapil, and Manas Das | A Method for Performing Magnetorheological Fluid-Assisted Finishing (MFAF) on a Product having a Hole Feature | 7th June 2022 | 202231032416 | Filed |
| **3.** | Atul Singh Rajput, Sajan Kapil, and Manas Das | An Apparatus for Enhancing Surface Quality of Invisible Aligners Fabricated by Additive Manufacturing | 4th August 2022 | 202231044563 | Filed |
| **4.** | Atul Singh Rajput, Sajan Kapil, and Manas Das | Method and apparatus for chemical etching of the additively manufactured head manufactured from Ti-6Al-4V | 11th Nov 2022 | 202231064595 | Filed |
| **5.** | Sudip shyam, Dhruvkumar Wankawala, and Pranab Kumar Mondal | A passive droplet formation and splitting microfluidic device for symmetric or asymmetric droplet generation and a process thereof | 08th April 2022 | 202231008005 | Filed |
| **6.** | Dhruvkumar Wankawala, Sudip shyam, and Pranab Kumar Mondal | A microfluidic system for droplet manipulation including simultaneous operation of magnetic and non-magnetic droplet formation, alternation, and sorting and method thereof | 26th Sepetember, 2022 | 202231055118 | Filed |
| **7.** | D Das, S Bag, and S Pal: | Multi-utility FSW tool shank with interchangeable tool | 1 September 2022 | 202231049902 | Filed |

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| **8.** | D Das, and S Bag | An economical and portable μ-FSW setup | 26 Augusr 2022 | 202231048830 | Filed |
| **9.** | D Das, S Bag, and S Pal | FSW tool with modified tool shoulder | 23 February 2023 | 202331012303 | Filed |
| **10.** | Ranajit Mahanti, and Manas Das | Systems and methods for application of vibrations to a microtool electrode in micro-electrical discharge machining | 26 March 2023 | 202331021594 | Filed |

***(Please adhere to Designation/ First Name/ Surname/ Date format)***

**AWARDS AND HONOURS (1 APRIL 2022 – 31 MARCH 2023)**

| **Sl. No.** | **Name of Faculty** | **Name of Award** | **Name of Institute/ Organization/ Foundation bestowing the award** | **Reason for award** | **Form of Award (Citation/ Medal/ Cash etc)** |
|---|---|---|---|---|---|
| **1.** | Shyamanta M Hazarika | Abdul Kalam Technology Innovation National Fellowship | INAE-SERB, DST. | Outstanding contributions in the field of Rehabilitation Robotics - Robotic Neurorehabilitation, Artificial Intelligence; as well as contribution in the growth of engineering profession in the country. | The Fellowship amount is Rs 25,000/- per month. Research Grant of Rs.15.00 lakh per annum.The Fellowship is for five years. |
| **2.** | Amaresh Dalal | Associate Editor in Sadhana (Springer publication) | | | From 1st January 2023 |
| **3.** | Pranab Kumar Mondal | JSPS fellowship for Long term research work | Okinawa Institute of Science and Technology Graduate University, Japan | | |
| **4.** | S Kanagaraj | Trasfer of Technology | IIT Guwahati and Ratnannidhi Charitable Truest, Mumbai | Non-exclusive rights of the knee joint technology have been transferred to Ratnanidhi Charitable Trust, Mumbai | |
| **5.** | Pranab Kumar Mondal | Guest Editor in Microsystem Technologies | Springer | | |

***(Please adhere to Designation/ First Name/ Surname/ Date format)***

**STUDENTS' ACHIEVEMENTS (1 APRIL 2022– 31 MARCH 2023)**

| Sl. No. | Name of Student | Name of Award | Name of Institute/ Organization/ Foundation bestowing the award | Reason for award | Form of Award (Citation/ Medal/ Cash etc) |
|---|---|---|---|---|---|
| **1.** | Jyotirmoy Kakati/Ujjwal K. Saha/Sukhomay Pal | Travel Grant to attend International Conference | DST-SERB | ASME 2022 Power Conference, July 18-19, Pittsburgh, USA. | Travel Grant (in INR 2.16 Lakh) |
| **2.** | Sima Nayak / Niranjan Sahoo | PMRF | IIT Madras | Experimental and soft-computing approach for the prediction of impulsive forces and thermal loads for aerodynamic applications | Research Grant |
| **3.** | Aditya Sharma / Niranjan Sahoo | PMRF | IIT Madras | Blast and Impact Assessment of Shear Thickening Fluids and Underwater Sloshing Behavior through Shock Tube Experiments | Research Grant |
| **4.** | Amit Kumar & Divakar Bommana / Niranjan Sahoo & S. K. Dwivedy | New Generation Innovation and Entrepreneurship Development | New Gen IEDC - IIT Guwahati | Innovative hybrid composite metallic foam as energy absorbing materials – Design, Fabrication and Characterization | Research Grant |
| **5.** | Sumit Kumar Das/Sachin Singh Gautam | Best Paper Award | ACMSFMS 2022, IIT Madras | Performance study of VO-based NURBS discrerization in isogeometric analysis of contact problems | Citation, Cash (150 Euro) |
| **6.** | Dhruvkumar Wankawala and Pranab Kumar Mondal | Best Paper Award | FMFP 2022, IIT Roorkee | Experimental investigation of non-Newtonian droplet splitting in a microfluidic T-junction | Citation |
| **7.** | Vaibhav Jiaswal, Kishore kumar Padi, Subramani Kanagaraj | Trasfer of Technology | IIT Guwahati and Ratnannidhi Charitable Truest, Mumbai | Non-exclusive rights of the knee joint technology have been transferred to Ratnanidhi Charitable Trust, Mumbai | Transfer of Technology |
| **8.** | Lipika Boruah | ACS Biomaterial Sciences and Engineerning Best Poster Presentation Award | BIO-Remedi 2022, IIT Guwahati | Review of orthotic devices for neuropathic foot | Rs. 5000 only and certificate |
| **9.** | Sumit Kumar Mehta, Dhananjay Kumar, Pranab Kumar Mondal, and Somchai Wongwises | Best Paper Award | 5th International conference on Energy systems, drives and automation (ESDA 2022) | Effect of Thermal Dispersion on Thermo-Hydraulic Characteristics for Flow through Wavy Solar Power Plant with Metallic Porous Blocks | Citation |
| **10.** | Sumit Kumar Mehta, Pranab Kumar Mondal, and | Best Paper Award | 12th TSME-International Conference on | Free convective heat transfer characteristic of hybrid nanofluid inside | Citation |

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| | Somchai Wongwises | | Mechanical Engineering 2022 | the solar plant with porous block | |
| **11.** | Toni Kumari, Chandan Nashine, Nadaf Arman Mohaddin, Sandip Kumar Sarma / Manmohan Pandey | New Generation Innovation and Entrepreneurship Development | DST | Design and development of miniature loop heat pipe for passive cooling in space and terrestrial applications | Research Grant |
| **12.** | Swagat Dwibedi and Swarup Bag | Corps of Electrical and Mechanical Engineers' Prize | The Institution of Engineers (India) | Development of micro-plasma arc welding system for different thickness dissimilar austenitic stainless steels | Citation and medal |
| **13.** | Atul Singh Rajput / Sajan Kapil, Manas Das | Young Tribologist Award | 11th International Conference on Industrial Tribology (ICIT)) organized by IIT Delhi | He has received the prestigious "Young Tribologist Award" based on research work presented during IndiaTrib-2022 | 500 USD and certificate |
| **14.** | Ambrish Singh / Sajan Kapil, Manas Das | Best Poster Presentation Award | COPEN 12, IIT Kanpur | A Non-Pneumatic Method of Powder Feedstock Handling in Laser-based Directed Energy Deposition | |
| **15.** | Anand Mohan Pandey / Sajan Kapil, Manas Das | Best Poster Presentation Award | COPEN 12, IIT Kanpur | Metal Based µ-Additive Manufacturing by Localized Electrochemical deposition | |
| **16.** | Atul Singh Rajput / Sajan Kapil, Manas Das | Runner up award for oral presentation | 11th International Conference on Industrial Tribology (ICIT)) organized by IIT Delhi | Investigation on tribological behavior of additively manufactured bone plate polished through Magnetorheological Fluid Assisted Finishing process | |
| **17.** | Atul Singh Rajput, Ambrish Singh, Sajan Kapil, Manas Das | New Generation Innovation and Entrepreneurship Development | DST | Surface Enhancement of aaditively manufactured Invisaligners | Research Grant |

***(Please adhere to Designation/ First Name/ Surname/ Date format)***

**FACULTY MEMBERS**

| **Sl. No.** | **Name** | **Name of the University/Institute/Org PhD degree received from** | **Designation** | **Areas of Interest** |
|---|---|---|---|---|
| **1.** | Bag, Swarup | IIT Bombay | Associate Professor | Fusion welding processes, Finite element method, Laser micro joining, Heat transfer and fluid flow in fusion welding, Residual stress and distortion, Recrystallization in hot metal forming process, Optimization in manufacturing process |
| **2.** | Bandopadhya, Dibakar | IIT Kanpur | Associate Professor | Active materials, Artificial muscle materials, Smart structures, Robotics and mechanism, Composites, MEMS, Bio inspired design |

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| **3.** | Banerjee, Atanu | IIT Kanpur | Associate Professor | Complaint Mechanism, Shape memory alloy, Bio-memetic devices |
| **4.** | Basireddy, Sandeep Reddy | IISc Bangalore | Assistant Professor | Nonlinear Dynamics of Mechanical Systems, Robotics and Control, Applied Dynamics |
| **5.** | Basu, Dipankar Narayan | IIT Kharagpur | Associate Professor | Nuclear Thermalhydraulics, Supercritical Natural Circulation Loops, Domestic Air-conditioning, Computational Fluid Dynamics and Heat Transfer |
| **6.** | Biswas, Pankaj | IIT Kharagpur | Associate Professor | Manufacturing and Design: Computational weld mechanics, Solid state welding, Soft computing modeling of welding processes, FEM, Line heating |
| **7.** | Chakraborty, Debabrata | IIT Kharagpur | Professor | FRP, Composites, FEM, Fracture Mechanics and Design |
| **8.** | Dalal, Amaresh | IIT Kanpur | Associate Professor | Computational Fluid Dynamics, Heat Transfer, Structured Grid Techniques in Curvilinear Coordinates, Finite Volume Methods and Unstructured Grid Techniques, Natural and Mixed Convection Flows, Electrochemical Energy Conversion and Storage |
| **9.** | Das, Manas | IIT Kanpur | Associate Professor | Advanced Finishing and Nano-finishing Processes, Non-traditional Machining Processes, Machining of Advanced Engineering Materials, Micromanufacturing, Micromachining, Tribology, Laser Welding |
| **10.** | Dass, Anoop K. | IISc Bangalore | Professor | Computational Fluid Dynamics and Turbomachines |
| **11.** | De, Arnab Kumar | IIT Kanpur | Associate Professor | Numerical Methods in Fluid Flow and Heat Transfer, Convection, Turbulence |
| **12.** | Dixit, Uday S. | IIT Kanpur | Professor | Design and Manufacturing : FEM, Neural Network and Fuzzy Set Application; Mechatronics |
| **13.** | Dwivedy, Santosha K. | IIT Kharagpur | Professor & HOD | Non-linear Dynamics, Design and Robotics, vibrations |
| **14.** | Gautam, Sachin S. | IIT Kanpur | Assistant Professor | Design and Manufacturing : Nonlinear Finite Element Analysis, Computational Contact Impact Analysis, Adhesion, Rough Surfaces, Time Integration Schemes, Mixed Time Integration Schemes, Plasticity, Ductile Fracture, Continuum Damage Mechanics |
| **15.** | Hazarika, Shyamanta M. | University of Leeds, England | Professor | Robotics, Cognitive Systems, Knowledge Representation and Reasoning |
| **16.** | Joshi, Shrikrishna N. | IIT Bombay | Associate Professor | Micro fabrication: Laser micro forming, Micro machining: Micro electric discharge machining (EDM), Web based manufacturing, Process modeling and optimization of advanced manufacturing processes, Application of soft computing techniques in manufacturing |
| **17.** | Kakoty, Sashindra K. | IIT Kharagpur | Professor & Dean, Infrastructure, Planning and Management | Tribology, Duct Acoustics, Mechanical System Design, Rural Technology |
| **18.** | Kalita, Karuna | University of Nottingham | Associate Professor | Rotordynamics, Coupled Dynamics of Electro-Mechanical Systems, Vibration |
| **19.** | Kanagaraj, S. | IIT Kharagpur | Professor | Biomaterials, Carbon nanotubes based nanocomposites, Nanofluids, Materials characterization |
| **20.** | Kapil, Sajan | IIT Bombay | Assistant | Rapid Manufacturing (3D Printing), |

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|---|---|---|---|---|
| | | | Professor | Welding/Cladding Processes, CNC, Manufacturing Automation |
| **21.** | Khanikar, Prasenjit | North Carolina State University | Assistant Professor | Microstructural Materials Modeling, Micro-mechanics, Dislocation Density Based Crystal Plasticity, Deformation and Failure Mechanisms of Metallic Materials, Finite Element Method, Dynamic Behavior of Materials, Fracture Mechanics, Aluminum Alloys, Microstructural Characterization |
| **22.** | Kulkarni, Vinayak | IISc Bangalore | Associate Professor | High enthalpy flows, scramjet engine, experimental, aerodynamics, measurement science, CFD simulations |
| **23.** | Kumar, Bhaskar | IIT Kanpur | Assistant Professor | Hydrodynamic Stability, Bluff Body Flows, Computational Fluid Dynamics |
| **24.** | Kumari, Poonam | IIT Delhi | Associate Professor | Theory of plates and shells, Computational mechanics, Smart structures |
| **25.** | Madhusudhana, Gavara | IISc Bangalore | Assistant Professor | Computational Fluid Dynamics, Heat Transfer, Cooling of Electronics, Multi-phase flows, Cooling at Micro/Mini scales, Turbulent Fluid Flow and Heat transfer |
| **26.** | Mahanta, Pinakeswar | IIT Guwahati | Professor | Thermal Radiation with Participating Media, Fluidization, Energy Conservation and Renewable Energy |
| **27.** | Mandal, Shubhadeep | IIT Kharagpur | Assistant Professor | Microswimmers, Complex Fluids, Droplet Microfluidics, Electrohydrodynamics |
| **28.** | Mankodi, Tapan Krishnakumar | IIT Bombay | Assistant Professor | Rarefied Gas Dynamics, Computational Gas Dynamics, Hypersonic Aerothermodynamics, Non-equilibrium Flows, Galerkin Methods |
| **29.** | Mittal Rinku Kumar | IIT Bombay | Assistant Professor | Machining Dynamics: Chatter Free Machining |
| **30.** | Satish Kumar Panda | National University of Singapore (NUS), Singapore | Assistant Professor | Artificial Intelligence in Healthcare, Medical Image Processing, Diagnosis, Ophthalmology, Biomechanics, and Finite Element Analysis |
| **31.** | Mondal, Pranab Kumar | IIT Kharagpur | Assistant Professor | Microfluidics, Electrokinetics, Two Phase Transport, Microscale Transport of Heat, Flow Through Porous Media. |
| **32.** | Murthy, K. S. R. Krishna | IIT Kharagpur | Professor | Finite Element Methods, Error Estimation and Fracture Mechanics |
| **33.** | Muthu, Nelson | IIT Bombay and Monash University | Assistant Professor | Meshfree Methods, FEM, Fracture Mechanics, Composites, Structural Health Monitoring, Medical Device Innovation |
| **34.** | Muthukumar, P. | IIT Madras | Professor | Coupled heat and mass transfer analysis; Metal hydride based thermal machines, Conventional and Non-conventional refrigeration systems |
| **35.** | Nandy, Arup | IISc Bangalore | Assistant Professor | Finite Element Development and Analysis in Structure, Acoustics, Electromagnetics, Structural acoustic interaction, Magnetohydrodynamics, MEMS; Optimization |
| **36.** | Narayanan, Ganesh R. | IIT Bombay | Associate Professor | Material Forming and Joining |
| **37.** | Pal, Sukhomay | IIT Kharagpur | Associate Professor | Welding Process Monitoring and Control, Tool Condition Monitoring, Non-Conventional Machining Process Application of Artificial Neural Network, Genetic Algorithms and Fuzzy logic in manufacturing |
| **38.** | Panda, Biranchi | NTU Singapore | Assistant Professor | Advanced manufacturing and design, 3D/4D printing, Modelling and Characterization, Energy and sustainable environmental |

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| | | | | technologies |
| **39.** | Panda, Satyajit | IIT Kharagpur | Associate Professor | Composite materials, Nonlinear vibrations, Smart materials and structures, FEM, Functionally Graded materials and structures, Micromechanics. |
| **40.** | Pandey, Manmohan | IIT Kanpur | Professor | Dynamics and Control of Fluid-Thermal Systems, Nuclear Reactor Thermal-Hydraulics |
| **41.** | Robi, P. S. | IIT Bombay | Professor | Coating, Fracture Mechanics, Materials Processing, Metal Matrix composite, Metal Casting, P/M Processing |
| **42.** | Saha, Ujjwal K. | IIT Bombay | Professor | Propulsion, Turbomachinery, Wind Energy Conversion, Internal Combustion Engines |
| **43.** | Sahasrabudhe, Anil D. | IISc Bangalore | Professor (On deputation as Chairman of the All India Council for Technical Education) | Vibration and Noise, Condition Monitoring, CAD/CAM |
| **44.** | Sahoo, Niranjan | IISc Bangalore | Professor | Fluid and Thermal Engineering, Aerodynamics, Gas Dynamics, Instrumentation, Measurements and Experiments in Fluid |
| **45.** | Senthilvelan, S. | IIT Madras | Professor | Composites, Fatigue, Wear and Failure Analysis |
| **46.** | Soti, Atul | Monash University and IIT Bombay | Assistant Professor | Computational Fluid Dynamics and Heat Transfer, Fluid-Structure Interaction, Renewable energy, High Performance Computing, Immersed-Boundary Method, Spectral-element Method |
| **47.** | Sharma, Deepak | IIT Kanpur | Associate Professor | Optimal Design: Modeling and Computation, Engineering Design and Optimization, Genetic Algorithms, Multi-objective Optimization |
| **48.** | Tiwari, Rajiv | IIT Kanpur | Professor | Rotor Dynamics, Vibrations, Identification in Mechanical Systems, Rolling Element Bearing Design and Analysis, Application of Active Magnetic Bearings in Rotors, Vibrations based Condition Monitoring of Industrial Rotating Machines |