**FORMAT FOR ANNUAL DEPARTMENT/CENTRE REPORT**

**(PERIOD: 1 APRIL 2017 – 31 MARCH 2018)**

1. **Year of Establishment of the Department /Centre: 1995**
2. **Academic Programmes Offered:**

Bachelor of Technology (BTech) in

* + - Mechanical Engineering

Master of Technology (MTech) in

(1) Machine Design,

(2) Fluid and Thermal Engineering,

(3) Computer Assisted Manufacturing,

(4) Computational Mechanics,

(5) Aerodynamics and Propulsion

Doctor of Philosophy (PhD)

1. **No. of Laboratories with brief introduction: (Total No: 15 + 14) 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.
* 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.
* 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.
* Wind Tunnel Laboratory: Provides facilities for carrying out wind tunnel related experiments.
* 3D Printer Laboratory: Provides facilities for 3D printing.

In addition, 14 new laboratories have been built –

* Micro-machining lab
* Aerodynamics lab
* Electromechanics lab
* Composite and Fracture lab
* Welding lab
* Dynamics and Vibration lab
* Advance Mechatronics and Bio-materials lab
* Computation MD Lab
* Microfluidics Lab-1
* Microfluidics Lab-2
* Smart materials and structures lab
* CFD lab
* Gasification and Thermal Lab
* Hydraulic lab

1. **Major Equipment and Facilities acquired during 1 April 2017 – 31 March 2018:**
2. **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
* 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

1. **Major initiatives and breakthrough in Research and Development during 1 April 2017 – 31 March 2018:**
2. **Research Projects:**

**a) New Sponsored Projects (Total No: 17)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Principal Investigator | Name of Project | Sponsoring Agency | Amount Sanctioned (Rs. in Lakh) | Co-Investigator | Duration |
| Amaresh Dalal | Development of Microbial Fuel Cells and theoretical modeling on the multiple effect of flow-materials in waste water bio-energy reactor | GITA-DST | 42.96 | Prof. Gautam Biswas, Dr. Vimal Katiyar, Dr. Chandan Mukherjee | 2018-2021 |
| B Mehta | Thermo-hydrodynamics of evaporating meniscus of conventional fluid and ferrofluids under externally imposed magnetic field inside heated mini-channels | SERB | 44.93 |  | 2017 |
| Ravi Sankar | Design and Development of Automated Abrasive Flow Nano-Finishing (A-AFNF) Process for Defence Applications. | DRDO | 78.6 |  | 2017 |
| P. Kumari | Analytical solution for boundary layer stresses in piezoelectric plates with longitudinally functionally graded materials | DST | 23.96 |  |  |
| S Senthilvelan | Manufacturing Solutions for the Preparation of Siddha Medicines (Traditional Medicines Originated from Tamilnadu) | MHRD IMPRINT | 57.98 | Dr S Kanagaraj Prof P S Robi Prof . Kannan Pakshirajan Prof G Pugazhenthi Indian Institute of Technology Guwahati  Prof R Gnanamoorthy Professor , Indian Institute of Technology Madras Dr P Selva Shanmugam( MD Siddha), PhD Siddha Consultant Physician, Dr J Raamachandran (Retd.) Professor Indian Institute of Technology Madras Prof R A Kalaivani Vels University Chennai 600117 | 2007-2010 |
| P Muthukumar | Design and development of energy efficient and environment friendly LPG and Kerosene cooking stoves with Porous Radiant Burners for household and large-scale cooking applications. | MHRD IMPRINT | 159.7 | Nil | 2017-2020 |
| P Muthukumar | Development of High Temperature Thermal Energy Storage System for Solar Thermal Power Plant | DST | 159 |  | 2017 |
| P Muthukumar | Reversible Alkali Metal Based Hydrides for High Temperature Thermal Energy Storage | DST | 76.5 |  | 2017 |
| P Muthukumar | Design, development and demonstration of indigenous hydrogen storage and fuel cell system for mobile and stationary applications of 5 kW capacity. | MHRD IMPRINT | 48.5 |  | 2017 |
| P Muthukumar | Design and development of energy efficient and environment friendly LPG and Kerosene cooking stoves with Porous Radiant Burners for household and large-scale cooking applications. | MHRD IMPRINT | 159.7 |  | 2017 |
| P Muthukumar | Gait analysis based patient specific prosthetic polycentric knee joint and socket for trans-femoral amputees to improve their walking pattern | PRISM, DSIR | 22 |  | 2017 |
| P Muthukumar | Preservation of residual hearing by localized delivery of nanoceria based solid solution and composite as an antioxidant in cochlear implants | Department of Biotechnology | 132.37 |  | 2017 |
| M. Pandey | Investigations on hydrodynamics, flow regimes and heat transfer characteristics of flow boiling in mini- and microchannels | SERB (DST) | 58.95 | A. Singh | 2017 |
| S K Dwivedy | Probabilistic and seismic hazard assessment (PSHA) and fragility evaluation of SSC’s | NPCIL | 76 |  | 2017 |
| R. Ganesh Narayana | Forming of automotive materials at elevated temperature and selection of lubricants for sustainable manufacturing | DST, SERB; Indo-sri Lanka collaborative research project | 11.11 |  | 2017 |
| S Kanagaraj and S K Dwivedy | Program support for Research in Biological sciences and Healthcare Engineering in North East Region | DBT | 3735.28 | Prof. R. Swaminathan, Prof. S. Dandapat, Prof. Ashish Anand, Prof.K. Pakshirajan and Prof.T. Punniamurthy | 2018-2021 |
| N. Muthu | Manufacturing and testing of fibre reinforced composites | IITG | 5 |  | 2017-2019 |

**b) Ongoing Sponsored Projects (Total No: 01)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Principal Investigator | Name of Project | Sponsoring Agency | Amount Sanctioned (Rs. in Lakh) | Co-Investigator | Duration |
| Amaresh Dalal | Development of a General Purpose CFD Solver over a Hybrid Unstructured Grid | BRNS-DAE | 300.88 | Dr. Ganesh Natarajan, Dr. Nanda Kishore | 2013-2018 |

**c) Completed Sponsored Projects (Total No:……)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Principal Investigator | Name of Project | Sponsoring Agency | Amount Sanctioned (Rs. in Lakh) | Co-Investigator | Duration |
|  |  |  |  |  |  |

1. **Consultancy (Total No: 06)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Principal Investigator | Name of Project | Sponsoring Agency | Amount Sanctioned (Rs. in Lakh) | Co-Investigator | Duration |
| S Kanagaraj | Design of a Food Ecology System (FES) for Pig feed | GNRC Limited | 11.68 | Prof.S.K.Dwivedy, Prof.P.S.Robi , Prof.P. Muthukumar, Prof. R. Ganesh Narayanan, Prof. Poonam Kumari, Prof. Deepak Sharma, Prof. A Narayana Reddy , Prof.Ravi Sankar | 6 months |
| S Kanagaraj | Studies on thermal conductivity of nanofluids | Tata Consultancy Limited, Pune | 0.552 |  |  |
| P Muthukumar | Energy Auditing in Cadila RAC plants | CADILA PHARMA | 7.95 |  |  |
| D. Sharma | Training Program on Inventory and Supply Chain Management | Ministry of Heavy Industry & Public Enterprises | 23 | S. Pal, S D Kore, P C Kalita | 7 days |

1. **Research Publications**

**International and National Journal(PERIOD: 1 APRIL 2017 – 31 MARCH 2018)**

**Total No. of International Journal: ………………………….**

**Total No. of National Journal: ………………………………. 127 nos.**

**Format for submission of Research Publications/Journals**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Sl. No. | Authors | Paper Title | Journal Name | Year | **Volume** | Issue Number  (If any) | Starting Page | Ending Page |
| 1 | S. Karmakar, N. Kalita, A. Banerjee | Optimum placement of shape memory alloy wire actuator | 2017 | Proc IMechE Part C: J Mechanical Engineering Science | 231 | 7 | 1272 | 1291 |
| 2 | Kotoky, S., Dalal, A., and Natarajan, G. | Effects of Specularity and Particle-particle Restitution Coefficients on the Hydrodynamic Behavior of Dispersed Gas-particle Flows Through Horizontal Channels | 2018 | Advanced Powder Technology | 29 | 4 | 874 | 889 |
| 3 | Bhardwaj, S., and Dalal, A. | Mesoscopic Analysis of Dynamic Droplet Behavior on Wetted Flat and Grooved Surface for Low Viscosity Ratio | 2017 | ASME Journal of Heat Transfer | 139 | 5 | 052002-1 | 052002-11 |
| 4 | Bhardwaj, S., Randive, P. and Dalal, A. | Lattice Boltzmann Simulations of Coalescence of Two Droplets on a Rectangular Channel Wall Considering Wetting Effects | 2017 | Progress in Computational Fluid Dynamics | 17 | 5 | 281 | 289 |
| 5 | Kotoky, S., Dalal, A., and Natarajan, G. | A Parametric Study of Dispersed Laminar Gas-Particle Flows Through Vertical and Horizontal Channels | 2018 | Advanced Powder Technology | 29 | 5 | 1072 | 1084 |
| 6 | Kapadia, H., Dalal, A., and Sarkar, S. | Forced Convective Flow and Heat Transfer Past an Unconfined Blunt Headed Cylinder | 2017 | Numerical Heat Transfer Part A | 72 | 5 | 372 | 388 |
| 7 | Bhardwaj, S., Randive, P., and Dalal, A. | Numerical Investigation of Two Dimensional Natural Convection and Entropy Generation inside a Porous Square Enclosure with Sinusoidally Heated Wall | 2017 | Progress in Computational Fluid Dynamics | 17 | 5 | 281 | 289 |
| 8 | Parmananda, M., Khan, S., Dalal, A., and Natarajan, G. | Critical Assessment of Numerical Algorithms for Convective-Radiative Heat Transfer in Enclosures with Different Geometries | 2017 | International Journal of Heat and Mass Transfer | 108 | 11 | 627 | 644 |
| 9 | Kumar, Sunny and Sarma, Bhaskarjyoti and Dasmahapatra, Ahsok Kumar and Dalal, Amaresh and Basu, Dipankar Narayan and Bandyopadhyay, Dipankar | Field induced anomalous spreading, oscillation, ejection, spinning, and breaking of oil droplets on a strongly slipping water surface | 2017 | Faraday Discuss. | 199 |  | 115 | 128 |
| 10 | Srivastava, H., Dalal, A., Sahu, K. C., and Biswas, G. | Temporal Linear Stability Analysis of an Entry Flow in a Channel with Viscous Heating | 2017 | International Journal of Heat and Mass Transfer | 109 |  | 922 | 929 |
| 11 | Nath, B., Biswas, G., Dalal, A., and Sahu, K. C. | Migration of a Droplet in a Cylindrical Tube in the Creeping Flow Regime | 2017 | Physical Review E | 95 |  | 033110-1 | 033110-11 |
| 12 | Pandey, V., Biswas, G., and Dalal, A. | Saturated Film Boiling at Various Gravity Levels Under the Influence of Electrohydrodynamic Forces | 2017 | Physics of Fluids | 29 |  | 032104-1 | 032104-13 |
| 13 | Bhardwaj, S., and Dalal, A. | Mesoscopic Analysis of Three-dimensional Droplet Displacement on Wetted Grooved Wall of a Rectangular Channel | 2018 | European Journal of Mechanics / B Fluids | 67 |  | 35 | 53 |
| 14 | Kumar, S., Sarma, B., Dalal, A., Basu, D., Dasmahapatra, A. K., and Bandyopadhyay, D. | Field Induced Anomalous Spreading, Oscillation, Ejection, Spinning, and Breaking of Oil Droplets on Strongly Slipping Water Surface | 2017 | Faraday Discussions | 199 |  | 115 | 128 |
| 15 | Parmananda, M., Dalal, A., and Natarajan, G. | The Influence of Partitions on Predicting Heat Transfer due to the Combined Effects of Convection and Thermal Radiation in Cubical Enclosures | 2018 | International Journal of Heat and Mass Transfer | 121 |  | 1179 | 1200 |
| 16 | Bhadauriya, S., Kapadia, H., Dalal, A., and Sarkar, S. | Effect of channel confinement on wake dynamics and forced convective heat transfer past a blunt headed cylinder | 2018 | International Journal of Thermal Sciences | 124 |  | 467 | 476 |
| 17 | Subham, Saikia, A., Dalal, A., and Pati, S. | Thermo-hydraulic Transport Characteristics of Non-Newtonian Fluid Flows Through Corrugated Channels | 2018 | International Journal of Thermal Sciences | 129 |  | 201 | 208 |
| 18 | Borgohain, P., Dalal, A., Natarajan, G., and Gadgil, H. | Numerical assessment of mixing performances in cross-T microchannel with curved ribs | 2018 | Microsystem Technologies | 24 |  | 1949 | 1963 |
| 19 | Deka, H., Ray, B., Biswas, G., Dalal, A., Tsai, P-H, and Wang, A-B. | The Regime of Large Bubble Entrapment During a Single Drop Impact on a Liquid Pool | 2017 | Physics of Fluids | 29 |  | 092101-1 | 092101-13 |
| 20 | D Chakraborty, D. Chakraborty and K. S. R. K. Murthy | A Strain Gage Technique for the Determination of Mixed Mode Stress Intensity Factors of Orthotropic Materials | 2017 | Composite Structures | 160 |  | 185 | 194 |
| 21 | Debaleena Chakraborty, D. Chakraborty and K. S. R. Krishna Murthy | Experimental determination of mode I stress intensity factor in orthotropic materials using a single strain gage | 2017 | Engineering Fracture Mechanics | 173 |  | 130 | 145 |
| 22 | D. Gayen, D. Chakraborty and R. Tiwari | Whirl Frequencies and Critical Speeds of a Rotor-Bearing System with a Cracked Functionally Graded Shaft - Finite Element Analysis | 2017 | European Journal of Mechanics - A/Solid | 61 |  | 47 | 58 |
| 23 | L. Ram and D. Sharma | Evolutionary and GPU Computing for Topology Optimization of Structures | 2017 | Swarm and Evolutionary Computation | 35 |  | 1 | 13 |
| 24 | M.K.S. Sarkar, D.N. Basu | Numerical Comparison of Thermalhydraulic Aspects of Supercritical Carbon Dioxide and Subcritical Water-based Natural Circulation Loop | 2017 | Nuclear Engineering and Technology | 49 | 1 | 103 | 112 |
| 25 | U.S. Tejaswini, D.N. Basu, M. Pandey | Improved Scaling Analysis for Heat Transfer in a Circular Tube with Various Supercritical Fluids using Computational Fluid Dynamics Simulations | 2017 | Heat Transfer Engineering | 38 | 2 | 149 | 161 |
| 26 | V.K. Mishra, S.C. Mishra, D.N. Basu | Simultaneous Estimation of Parameters in Analyzing Porous Medium Combustion - Assessment of Seven Optimization Tools | 2017 | Numerical Heat Transfer, Part A | 71 | 6 | 666 | 676 |
| 27 | M. Krishnani, D.N. Basu | Computational Stability Appraisal of Rectangular Natural Circulation Loop: Effect of Loop Inclination | 2017 | Annals of Nuclear Energy | 107 |  | 17 | 30 |
| 28 | H. Gaikwad, D.N. Basu, P.K. Mondal | Slip Driven Micro-pumping of Binary System with A Layer of Non-conducting Fluid under Electrical Double Layer Phenomenon | 2017 | Colloids and Surfaces A: Physicochemical and Engineering Aspects | 518 |  | 166 | 172 |
| 29 | H. Gaikwad, D.N. Basu, P.K. Mondal | Non-linear Drag Induced Irreversibility Minimization in a Viscous Dissipative Flow Through a Micro-porous Channel | 2017 | Energy | 119 |  | 588 | 600 |
| 30 | P. Saha, G. Biswas, A.C. Mandal and S. Sarkar | Investigation of coherent structures in a turbulent channel with built-in longitudinal vortex generators | 2017 | International Journal of Heat and Mass Transfer | 104 |  | 178 | 198 |
| 31 | H. Chattopadhyay, S. K. Samanta, G. Biswas and B. B. Sharma | Direct numerical simulation of evaporation in a biporous media | 2017 | Journal of Mechanical Science and Technology | 31 | 6 | 2635 | 2641 |
| 32 | S. Timung, J. Chaudhuri, M. P. Borthakur, T. K. Mandal, G. Biswas and D. Bandyopadhyay | Electric field mediated spraying of miniaturized droplets inside microchannel | 2017 | Electrophoresis | 38 |  | 1450 | 1457 |
| 33 | M. P. Borthakur, G. Biswas, and D. Bandyopadhyay | Formation of liquid drops at an orifice and dynamics of pinch-off in liquid jets | 2017 | Physical Review E | 96 |  | 013115-1 | 013115-11 |
| 34 | M. P. Borthakur, G. Biswas, and D. Bandyopadhyay | Dynamics of deformation and pinch-off of a migrating compound droplet in a tube | 2018 | Physical Review E | 97 |  | 043112-1 | 043112-9 |
| 35 | H. Deka, B. Ray, G. Biswas, and A. Dalal | Dynamics of tongue shaped cavity generated during the impact of high-speed microdrops | 2018 | Physics of Fluids | 30 |  | 042103-1 | 042103-14 |
| 36 | H. Sarangi, K.S.R.K. Murthy and D. Chakraborty | Accurate measurement of mixed mode (I/II) stress intensity factors using strain gages | 2017 | ASTM: Journal of Testing and Evaluation | 45 | 3 | 751 | 762 |
| 37 | Pranjol Paul, K.S.R.K. Murthy and D. Chakraborty | A strain gage technique for mode I notch stress intensity factor of sharp V-notched configurations | 2018 | Theoretical and Applied Fracture Mechanics | 94 |  | 57 | 70 |
| 38 | D. Shankar, D.N. Basu, M. Pandey | Development and analysis of a novel scaling methodology for stability appraisal of supercritical flow channels | 2017 | Nuclear Engineering and Design | 323 |  | 46 | 55 |
| 39 | K. K. Gajrani, M. Ravi Sankar, U. S. Dixit | Tribological performance of MoS2-filled microtextured cutting tools during dry sliding test | 2018 | ASME Journal of Tribology | 140 | 2 | 021301-1 | 021301-11 |
| 40 | A. Singh, N. A. Manikandan, M. Ravi Sankar, K. Pakshirajan, L. Roy, | Experimental Investigation and Surface Morphology of Bio-Micromachining on copper | 2108 | Materials Today: Proceedings | 5 | 2 | 4225 | 4234 |
| 41 | B. V. Ramanaiah, B. Manikanta, M. Ravi Sankar, M. Malhotra, K. K. Gajrani | Experimental study of Deflection and Surface Roughness in Thin Wall Machining of Aluminum Alloy | 2108 | Materials Today: Proceedings | 5 | 2 | 3745 | 3754 |
| 42 | Sachin Singh, Deepu Kumar, M. Ravi Sankar | Experimental, Theoretical, and Simulation Comparative Study of Nano Surface Roughness Generated during Abrasive Flow Finishing (AFF) Process | 2017 | ASME Journal of Manufacturing Science and Engineering | 139 | 6 | 061014-1 | 061014-12 |
| 43 | A. Gupta, A. Prasad, N. Mulchandani, M. Shah, M. Ravi Sankar, S. Kumar, V. Katiyar | Toughened Stereocomplex Polylactic Acid-Nano Hydroxyapatite Biocomposites with Improved Thermo-mechanical and Gas Barrier Properties: A Potential candidate for Biomedical and Engineering Applications | 2017 | American Chemical Society (ACS) Omega | 2 | 7 | 4039 | 4052 |
| 44 | D. Sarkar, B. S. Reddy, S. Mandal, M. Ravi Sankar, B. Basu, | Uniaxial Compaction-Based Manufacturing Strategy and 3D Microstructural Evaluation of Near-Net-Shaped ZrO2-Toughened Al2O3Acetabular Socket | 2017 | Advanced Engineering Materials | 18 | 9 | 1634 | 1644 |
| 45 | Arbind Prasad, M. Ravi Sankar, Vimal Katiyar | State of Art on Solvent Casting Particulate Leaching Method for Orthopedic Scaffolds Fabrication | 2017 | Materials Today: Proceedings | 4 | 2A | 898 | 907 |
| 46 | Arbind Prasad, Siddhart Mohan Bhasney, M. Ravi Sankar, Vimal Katiyar | Fish Scale Derived Hydroxyapatite reinforced Poly (Lactic acid) Polymeric Bio-films: Possibilities for Sealing/locking the Internal Fixation Devices | 2017 | Materials Today: Proceedings | 4 | 2A | 1340 | 1349 |
| 47 | Kishor Kumar Gajrani, M. Ravi Sankar | State of the art on micro to nano textured cutting tools | 2017 | Materials Today: Proceedings | 4 | 2A | 3776 | 3785 |
| 48 | Kishor Kumar Gajrani, M. Ravi Sankar | Past and current status of eco-friendly vegetable oil based metal cutting fluids | 2017 | Materials Today: Proceedings | 4 | 2A | 3786 | 3795 |
| 49 | K. K. Gajrani, D. Ram, M. Ravi Sankar | Biodegradation and hard machining performance comparison of eco-friendly cutting fluid and mineral oil using flood cooling and minimum quantity cutting fluid techniques | 2017 | Journal of Cleaner Production | 165 | C | 1420 | 1435 |
| 50 | R. Ranjan Behera, P. M. Babu, K. Kumar Gajrani, M. Ravi Sankar | Fabrication of micro-features on 304 stainless steel (SS-304) using Nd:YAG laser beam | 2017 | International Journal of Additive and Subtractive Materials Manufacturing | 1 |  | 338 | 359 |
| 51 | A. Das, A. Kumar, G. P. Bharti, R. R. Behera, M. Ravi Sankar, A. Khare, D. Pamu, | Effect of thickness on optical and microwave dielectric properties of Hydroxyapatite films deposited by RF magnetron sputtering | 2018 | Journal of Alloys and Compounds | 739 |  | 729 | 736 |
| 52 | Kiran Naik B, Choudhary V, Muthukumar P, Somayaji, C | Performance Assessment of a Counter Flow Cooling Tower – Unique Approach | 2017 | ,Energy Procedia | 109 |  | 243 | 252 |
| 53 | Kiran Naik B, Muthukumar P | A Novel Approach for Performance Assessment of Mechanical Draft Wet Cooling Towers, | 2017 | Applied Thermal Engineering | 121 |  | 14 | 26 |
| 54 | Hakeem Niyas, Sunku Prasad, P. Muthukumar | Performance investigation of a lab-scale latent heat storage prototype - Numerical results, | 2017 | Energy Conversion and Management | 135 |  | 188 | 199 |
| 55 | Kiran Naik B, Muthukumar P | Empirical correlation based models for estimation of air cooled and water cooled condenser’s performance. | 2017 | Energy Procedia | 109 |  | 293 | 305 |
| 56 | Lakshmia DVN, Apurba Layek, Muthukumar, P | Performance Analysis of Trapezoidal Corrugated Solar Air Heater with Sensible Heat Storage Material. | 2017 | Energy Procedia | 109 |  | 463 | 470 |
| 57 | Muthukumar, P and Lakshmia DVN | Nucleation Enhancement Studies on Aqueous Salt Solutions. | 2017 | Energy Procedia | 109 |  | 174 | 180 |
| 58 | Rabha DK, Muthukumar P, Somayaji C | Energy and exergy analyses of the solar drying processes of Ghost Chilli Pepper and Ginger. | 2017 | Renewable Energy | 105 |  | 764 | 773 |
| 59 | Rabha, DK, Muthukumar P | Experimental Investigation of Thin Layer Drying Kinetics of Ghost Chill Pepper (Capsicum Chinense Jacq.) Dried in a Forced Convection Solar Tunnel Dryer. | 2017 | Renewable Energy | 105 |  | 583 | 589 |
| 60 | Rabha DK, Muthukumar P, Somayaji C | Performance Studies on a Forced Convection Solar Dryer Integrated With a Paraffin Wax−Based Latent Heat Storage System. | 2017 | Solar Energy | 149 |  | 214 | 226 |
| 61 | Hakeem Niyas,Chilaka RCR, Muthukumar P | Performance Investigation of a lab–scale latent heat storage prototype - Experimental results, | 2017 | Solar Energy | 155 |  | 971 | 984 |
| 62 | Chilaka Ravi Chandra Rao, Hakeem Niyas, Muthukumar P | Performance Tests on Lab–scale Sensible Heat Storage Prototypes. | 2018 | Applied Thermal Engineering | 129 |  | 953 | 967 |
| 63 | Mishra NK, Muthukumar P | Development and Testing of Energy Efficient and Environment Friendly Porous Radiant Burner Operating on Liquefied Petroleum Gas. | 2018 | Applied Thermal Engineering | 129 |  | 482 | 489 |
| 64 | Lakshmia DVN, Muthukumar P, Apurba Layek, Nayak PK Energy Storage.Renewable Energy 120 (2018) 23-34. | Drying Kinetics and Quality Analysis of Black Turmeric (Curcuma Caesia) Drying in a Mixed Mode Forced Convection Solar Dryer Integrated with Thermal Energy storage | 2018 | Renewable Energy | 120 |  | 23 | 34 |
| 65 | Hakeem Niyas, Chilaka RCR, Muthukumar P | Performance Investigation of a lab–scale latent heat storage prototype - Experimental results, | 2017 | Solar Energy | 155 |  | 971 | 984 |
| 66 | Mondal Arpan Kumar, Biswas Pankaj and Bag Swarup | Prediction of weld induced residual stress and angular distortion of single sided and double sided fillet joint by SAW process | 2017 | International Journal of Steel Structure | 17 | 1 | 1 | 10 |
| 67 | Arun K Kadian | Effect of tool pin profile on the material flow characteristics of AA6061 | 2017 | Journal of Manufacturing Processes | 26 |  | 382 | 392 |
| 68 | H. Gaikwad, P. K. Mondal | Slip driven electroosmotic transport through porous media | 2017 | Electrophoresis | 38 | 5 | 596 | 606 |
| 69 | P. Kaushik, P. K. Mondal, S. Chakraborty | Rotational electrohydrodynamics of a non‑Newtonian fluid under electrical double‑layer phenomenon: the role of lateral confinement | 2017 | Microfluidics and Nanofluidics | 21 | 7 | 122-1 | 122-16 |
| 70 | R. Sarma, H. Gaikwad, P. K. Mondal | Effect of Conjugate Heat Transfer on Entropy Generation in Slip Driven Microflow of Power-Law fluids | 2017 | Nanoscale and Microscale Thermophysical Engineering | 21 | 12-31 | 26 | 44 |
| 71 | H. Gaikwad, P. K. Mondal, S. Wongwises | Non-linear drag induced entropy generation analysis in a microporous channel: The effect of conjugate heat transfer | 2017 | International Journal of Heat Mass Transfer | 108 |  | 2217 | 2228 |
| 72 | A. Mukherjee, S. C. Mishra, P. K. Mondal | Numerical analysis of combined mode dual-phase-lag heat conduction and radiation in an absorbing, emitting and scattering cylindrical medium | 2017 | Numerical Heat Transfer: Part-A | 71 |  | 769 | 788 |
| 73 | Srinivas R. Gorthi, P. K. Mondal, G. Biswas | Magnetic-field-driven alteration in capillary filling dynamics in a narrow fluidic channel | 2017 | Physical Review E | 96 |  | 013113-1 | 13113-14 |
| 74 | Pranab K. Mondal, Somchai Wongwises | Assesment of Thermodynamic Irreversibility in a Micro-Scale Viscous Dissipative Circular Couette Flow | 2018 | Entropy | 20 | 1 | 50 |  |
| 75 | Arnab Lahiri, Pranab K. Mondal | Evaluation of temperature history of a spherical nanosystem irradiated with various short-pulse laser sources | 2018 | Physical Review E | 97 | 4 | 43302 |  |
| 76 | Rajkumar Sarma, Pranab K. Mondal | Marangoni instability in a thin film heated from below: Effect of nonmonotonic dependence of surface tension on temperature | 2018 | Physical Review E | 97 | 4 | 43105 |  |
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| 86 | A Bhowmick, SM Hazarika | An insight into assistive technology for the visually impaired and blind people: state-of-the-art and future trends | 2017 | Journal on Multimodal User Interfaces | 11 | 2 | 149 | 172 |
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| 102 | R. Kumar and S. D. Kore | Electromagnetic Crimping in Tube-to-Cylinder Configuration: Influence of the Base Profiles on the Joint Quality | 2017 | Journal of Testing and Evaluation | 46 | 3 | 1 | 14 |
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| 111 | Nur Alom and Ujjwal K. Saha | Performance evaluation of vent-augmented elliptical-bladed Savonius rotors by numerical simulation and wind tunnel experiments | 2018 | Energy | 152 |  | 277 | 290 |
| 112 | Ranjan Das, Sukanta Roy and Ujjwal K. Saha | An inverse method for optimization of geometric parameters of a Savonius-style wind turbine | 2018 | Energy Conversion and Management | 155 |  | 116 | 127 |
| 113 | Parag K. Talukdar, A. Sardar, Vinayak Kulkarni, Ujjwal K. Saha | Parametric analysis of model Savonius hydrokinetic turbines through experimental and computational investigations | 2018 | Energy Conversion and Management | 158 |  | 36 | 49 |
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| 115 | P.P. Dutta, K. Kalita, U.S. Dixit and H. Liao | Magnetic-force-assisted straightening of bent mild steel strip by laser irradiation | 2017 | Lasers in Manufacturing and Materials Processing | 4 | 4 | 206 | 226 |
| 116 | Sangeeta Das, S.S. Gautam, C.R. Gautam, Abhishek Madheshiya and U.S. Dixit | Parametric optimization of dry sliding wear and friction of germanium doped lead calcium titanate borosilicate glass ceramic | 2018 | Ceramics International | 44 | 6 | 6541 | 6550 |
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| 119 | Kishor Kumar Gajrani, Dhanna Ram, Ravi Sankar Mamilla, Uday Shanker Dixit, P.S. Suvin and Satish Vasu Kailas | Machining of hardened AISI H-13 steel using minimum quantity eco-friendly cutting fluid | 2017 | International Journal of Additive and Subtractive Materials Manufacturing | 1 |  | 240 | 256 |
| 120 | R. Kalidasan, S. Senthilvelan, and U. S. Dixit | An experimental study of surface roughness in double tool turning process | 2017 | International Journal of Additive and Subtractive Materials Manufacturing | 1 |  | 310 | 327 |
| 121 | Ketema Bobe Bonsa, Woldetinsay Jiru, Mamilla Ravi Sankar, U. S. Dixit | Experimental Study and Empirical Modelling of Laser Surface Finishing of Silicon Carbide | 2017 | International Journal of Additive and Subtractive Materials Manufacturing | 1 |  | 290 | 309 |
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| 126 | J. Ravi, S. Nidhan, N. Muthu, S.K. Maiti | Analytical and Experimental studies on detection of longitudinal, L and T shaped cracks in Isotropic and Bi-material beams based on changes in natural frequency | 2018 | Mechanical Systems and Signal Processing | 101 |  | 67 | 96 |
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**Conference/Workshop/Seminar/Symposia(PERIOD: 1 APRIL 2017 – 31 MARCH 2018)**

**Total No. of papers published in Conference Proceedings: 89**

**Format for submission of papers published in Conference Proceedings**

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| --- | --- | --- | --- | --- | --- | --- |
| Sl. No. | Authors | Paper Title | Name of Conference/Workshop/Seminar/Symposia Proceedings | Year | Starting Page | Ending Page |
| 1 | S. Bag and M. R. Amin | Simulation based study on ultra-short pulse laser welding of dissimilar materials expending phase lag influence | IMECE 17, November 3 - 9, 2017, Tampa, Florida, USA. | 2017 |  |  |
| 2 | S. Bag | Microscale heat transfer in fusion welding of glass by ultra-short pulse laser using dual phase lag effects | International Conference on Recent Advances in Materials & Manufacturing Technologies (IMMT 2017), 28th - 29th November, 2017, Dubai. | 2017 |  |  |
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| 4 | S. Bag: | Feasibility of dissimilar microwelding using femtosecond pulse laser | 5th International Congress of the International Institute of Welding, 7th - 9th December, 2017, Chennai, India. | 2017 |  |  |
| 5 | A. Sahu and S. Bag | Micro-plasma Arc welding of Inconel718 thin Sheets, | 5th International Congress of the International Institute of Welding, 7th - 9th December, 2017, Chennai, India. | 2017 |  |  |
| 6 | S. Bag, D. K. Yaduwanshi and S. Pal | Role of physical variables in dynamic recrystallization during friction stir welding of aluminium alloy | Advances in Materials & Processing Technologies, 11th - 14th December, 2017, Chennai, India. | 2017 |  |  |
| 7 | B. Kumar, M. Baruah and S. Bag | On the effect of heat input in cooling rate and microstructure of laser welded Ti-6Al-4V alloy | Advances in Materials & Processing Technologies, 11th - 14th December, 2017, Chennai, India. | 2017 |  |  |
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| 18 | Pushp S., Bhardwaj B., Hazarika S.M. | Cognitive Decision Making for Navigation Assistance Based on Intent Recognition | In: Ghosh A., Pal R., Prasath R. (eds) Mining Intelligence and Knowledge Exploration. MIKE 2017. Lecture Notes in Computer Science, vol 10682. Springer, Hyderabad, India | 2017 |  |  |
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| 24 | S. Kar and P. Kumari | A review on three-dimensional solution approaches for bending and dynamic analysis of piezolaminated cylindrical shell structures | 13th International Conference on Vibration Problems (ICOVP-2017) 29th November - 2nd December, 2017 | 2017 |  |  |
| 25 | S. Behera and P. Kumari | Effect of adhesive thickness on the free vibration of arbitrary supported smart plates | 13th International Conference on Vibration Problems (ICOVP-2017) 29th November - 2nd December, 2017 | 2017 |  |  |
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| 28 | P. Kumari. S. Kar | Three dimensional elasticity solution for a simply supported cylindrical composite panel using the extended Kantorovich method. | International Conference on Composite Materials and Structures, 27-29th December 2017, Hyderabad, India | 2017 |  |  |
| 29 | Lakshmi DVN, Apurba Layek, Muthukumar, P | Drying of moringa olefera leaves in mixed mode and indirect forced convection solar dryers | Proceedings of Proceedings of the International Conference on Sustainable Energy and Environmental Challenges (SEEC-2018) 01 – 03, January, 2018, IISc Bangalore | 2018 |  |  |
| 30 | Kaushik L K, Deb S, Muthukumar P | Life cycle and techno-economic assessments of domestic and commercial LPG cook-stove with porous radiant burner, | Proceedings of Proceedings of the International Conference on Sustainable Energy and Environmental Challenges (SEEC-2018) 01 – 03, January, 2018, IISc Bangalore | 2018 |  |  |
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| 50 | K.K. Gajrani, M. Ravi Sankar | Cutting Fluid Emissions in Mechanical Machining and its Adverse Effects on Biodiversity | 21ST ADNAT Convention and International Symposium on Biodiversity and Biobanking (BIODIVERSE 2018), 27−29 January, 2018, IIT Guwahati, India. | 2018 |  |  |
| 51 | R.R. Behera, A.H., L.Pandey,, M. Ravi Sankar | Laser Surface Bio-Coating of Functionally Graded TiO2-HAp on Textured Ti Alloy for Enhancing Bioactivity and Cell Proliferation |  | 2018 |  |  |
| 52 | M. Bhuyan, A. Sarmah, K.K. Gajrani, A. Pandey, T.G. Thulkar, M. Ravi Sankar | State of Art on Minimum Quantity Lubrication in Grinding Process | 8th International Conference of Materials Processing and Characterization (ICMPC), 16−18 March, 2018, GRIET Hyderabad, India. | 2018 |  |  |
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| 58 | S. Kirtania and D. Chakraborty, | Determination of Thermoelastic Properties of Carbon Nanotube/Epoxy Composites using Finite Element Method, | Proceedings of International Conference on Emerging Trends in Nanoscience and Nanotechnology (ICETINN-2017), March 2017, SMIT, Sikkim | 2017 |  |  |
| 59 | Subhajit Sanfui and Deepak Sharma, | GPU Acceleration of Local Matrix Generation in FEA by Utilizing Sparsity Pattern | In 1st International Conference on Mechanical Engineering (INCON 2018), 4–6 January 2018, Jadavpur University, India. | 2018 |  |  |
| 60 | R. Kumar, M. Pandey | Numerical simulation of slug-plug flow in narrow channels of heat pipe, | In: Proc. 44th National Conference on Fluid Mechanics and Fluid Power (FMFP-2017), Kollam, Kerala, India, 2017 (to appear). | 2017 |  |  |
| 61 | A. Kamath, S.K. Sarma, A. Iqbal, M. Pandey | Numerical simulation of fluid flow and heat transfer in miniature channels incorporating the effect of local properties | In: Proc. 44th National Conference on Fluid Mechanics and Fluid Power (FMFP-2017), Kollam, Kerala, India, 2017 (to appear). | 2017 |  |  |
| 62 | V. Satheeshkumar,  R. Ganesh Narayanan | Assessment of Formability of Adhesive Bonded Steel Sheets by Geometrical Heterogeneities | lnternational conference on Advances in Materials and Manufacturing (lCAMM 2017), NIFFT Ranchi, India, January 19-21, 2017 | 2017 |  |  |
| 63 | V. Satheeshkumar, R. Ganesh Narayanan | Assessment of formability of adhesive bonded steel sheets by geometrical heterogeneities | Proceeding of the International Conference on Advances in Materials and Manufacturing (ICAMM 2017), January 19-21, 2017, pp.9-14 | 2017 |  |  |
| 64 | A.Johnney Mertens and S. Senthilvelan | Adhesive Wear Performance of PP/MWCNT Composites | International Conference on Advances in Manufacturing and Materials Engineering AMEE2014 NIT Suratkal March 27th-29th, 2014 Also Published in Procedia Materials Science Volume 5, 2014 | 2017 | 1192 | 1197 |
| 65 | Aditya Kumar, Atman Patel and S. K. Dwivedy | Development of a NAO humanoid based medical assistant | Proceedings of ACM Advances in Robotics conference, Indian Institute of Technology, Delhi, Delhi India, June 2017 (AIR’17), 6 pages. DOI: 10.1145/3132446.3134899 | 2017 |  |  |
| 66 | Upasana Talukdar and Shyamanta M Hazarika | Designing spatio-temporal filter using adaptive sliding window for single trial EEG based BCI | Proceedings of Advances in Robotics (AIR 2017) - 3r d International Conference of the Robotics Society of India. June 27-July 2, 2017, IIT Delhi, ACM - ICPS. | 2017 |  |  |
| 67 | V. Agrawal, S. S. Gautam | NURBS-enriched Contact Isogeometric Element for Adhesive Contact Problems | Seventh International Conference on Theoretical, Aapplied, Computational and Experimental Mechanics, IIT Kharagpur, 28-30 December 2017 (Accepted) | 2017 |  |  |
| 68 | S. S. Gautam | GPU-based Simulation of Nonlinear Finite Element Problems | Seventh International Conference on Theoretical, Aapplied, Computational and Experimental Mechanics, IIT Kharagpur, 28-30 December 2017 (Accepted) | 2017 |  |  |
| 69 | V. Agrawal, S. S. Gautam | Enrichment of Finite Elements with Higher Order Hermite Polynomials for Adhesive Contact Problems | Indian Conference on Applied Mechanics (INCAM) 2017, MNNIT Allahabad, 5– 7 July 2017 (Accepted) | 2017 |  |  |
| 70 | S. R. Ashirgade, A. Jhalani, S. S. Gautam | Comparison of Explicit Time Integration Schemes for Dynamic Problems | Indian Conference on Applied Mechanics (INCAM) 2017, MNNIT Allahabad, 5– 7 July 2017 (Accepted) | 2017 |  |  |
| 71 | Kumar M., and Gautam S. S. | Parametric study of ballistic impact using continuum damage mechanics (CDM) model | Second Quadrennial International Conference on Structural Integrity (ICONS 2018), IIT Madras, Chennai, India, December 14th – 17th, 2018, (accepted). | 2018 |  |  |
| 72 | Sahu A., Thakur, R, Agrawal V., and Gautam S. S. | A comparative study of explicit time integration algorithms for non-linear systems | 1st International Conference on Future Learning Aspects of Mechanical Engineering (FLAME - 2018), Amity University, Noida, October 3rd – 5th , 2018, (accepted) | 2018 |  |  |
| 73 | Saipraneeth G. and Gautam S. S. | Nonlinear finite element analysis of a gecko spatula adhesion on a rigid substrate | 1st International Conference on Future Learning Aspects of Mechanical Engineering (FLAME - 2018), Amity University, Noida, October 3rd – 5th , 2018, (accepted) | 2018 |  |  |
| 74 | Bora D., Kumar M., and Gautam S. S. | Simulation of ductile fracture at high velocity impact of cylindrical tubes | 1st International Conference on Future Learning Aspects of Mechanical Engineering (FLAME - 2018), Amity University, Noida, October 3rd – 5th , 2018, (accepted) | 2018 |  |  |
| 75 | Agrawal V., and Gautam S. S. | An isogeometric based study of mortar contact algorithm for frictionless sliding | 1st International Conference on Future Learning Aspects of Mechanical Engineering (FLAME - 2018), Amity University, Noida, October 3rd – 5th , 2018, (accepted) | 2018 |  |  |
| 76 | Agrawal. V, and Gautam S. S. | Investigation of contact pressure oscillations with different segment-to-segment based isogeometric contact formulations | 1st International Conference on Numerical Modelling in Engineering, Ghent University, Belgium, August 28th – 29th , 2018. | 2018 |  |  |
| 77 | Agrawal. V, and Gautam S. S. | A comparative study of contact problem solution based on different isogeometric contact formulations | 13th World Congress on Computational Mechanics / 2nd Pan American Congress on Computational Mechanics (WCCM 2018)., July 23rd – 27th , 2018. | 2018 |  |  |
| 78 | Noor, A., and Gautam S. S. | Finite element analysis of effect of surface roughness on particle erosion of ductile material | INCOM 2018 1st International Conference on Mechanical Engineering, Jadavpur University, Kolkata, India, January 4th – 6th, 2018 | 2018 |  |  |
| 79 | Kiran U., and Gautam S. S. | A GPU-based simulation of nonlinear finite element problems | International Conference on Theoretical, Applied, Computational and Experimental Mechanics, IIT Kharagpur, Kharagpur, India, December 28th - 30th, 2017. | 2017 |  |  |
| 80 | Agrawal. V, and Gautam S. S. | NURBS-enriched contact isogeometric element for adhesive contact problems | International Conference on Theoretical, Applied, Computational and Experimental Mechanics, IIT Kharagpur, Kharagpur, India, December 28th - 30th, 2017. | 2017 |  |  |
| 81 | Agrawal. V, and Gautam S. S. | Enrichment of finite elements with higher order Hermite polynomials for adhesive contact problems | 3rd Indian Conference on Applied Mechanics (INCAM) 2017, MNNIT Allahabad, India, July 5th – 7th , 2017. | 2017 |  |  |
| 82 | Ashirgade, S. R., Jhalani A. and Gautam S. S. | Comparison of explicit time integration schemes for dynamic problems | 3rd Indian Conference on Applied Mechanics (INCAM 2017), MNIT Allahabad, India, 5th – 7th, 2017. | 2017 |  |  |
| 83 | Talukdar PK, Kulkarni V, Das AK, Dwivedy SK, Kakoty, SK, Mahanta P, and Saha UK | In-situ experiments to estimate the performance characteristics of a double-step helical-bladed hydrokinetic turbine | Paper No. GTIndia2017-4572, ASME 2017 Gas Turbine India Conference, December 7–8, Bangalore, India. | 2017 |  |  |
| 84 | Alom N, Kumar N, and Saha UK | Aerodynamic performance of an elliptical-bladed Savonius rotor under influence of number of blades and shaft | Paper No. GTIndia2017-4554, ASME 2017 Gas Turbine India Conference, December 7–8, Bangalore, India. | 2017 |  |  |
| 85 | Roy S, Das R and Saha UK | Identification of geographical locations to operate Savonius wind turbine rotor for meeting a desired performance | Paper No. GTIndia2017-4566, ASME 2017 Gas Turbine India Conference, December 7–8, Bangalore, India. | 2017 |  |  |
| 86 | Talukdar PK, Kulkarni V, Dehingia D, and Saha UK | Evaluation of a model helical bladed hydrokinetic turbine characteristics from in-situ experiments | ASME 2017 11th International Conference on Energy Sustainability, Paper No. ES2017-3490, June 26–30, Charlotte, North Carolina, USA. | 2017 |  |  |
| 87 | Alom N, and Saha UK | Arriving at the optimum overlap ratio for an elliptical-bladed Savonius rotor | Paper No. GT2017-64137, ASME 2017 Turbo Expo, June 26–30, Charlotte, North Carolina, USA. | 2017 |  |  |
| 88 | P. Dinesh, M.R. Behera, P.G. Ranjith, N. Muthu | Application of an efficient numerical model for CO2 sequestration in deep saline aquifers | 4th International Conference in Ocean Engineering, IIT Madras, Chennai, India, 2018 | 2018 |  |  |
| 89 | P. Dinesh, M.R. Behera, P.G. Ranjith, N. Muthu | An Element-Free Galerkin (EFG) Meshfree Method Model for Carbon Sequestration | 3rd International Conference on Multiphase Flow and Heat Transfer, Budapest, Hungary, 2018 | 2018 |  |  |

**Book, Book Chapter, etc. (PERIOD: 1 APRIL 2017 – 31 MARCH 2018)**

**Total No. of Books published: 03**

**Total No. of Book Chapters published: 12**

**Format for submission of Book**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Sl. No. | Name of Author/s | Name of Book | Publisher | Volume and Issue No. (If any) | Total Page No. | ISBN | Year of Publication |
| 1 | R. Tiwari | Rotor Systems: Analysis and Identification | CRC | 1 | 1089 | 1138036285 | 2017 |
| 2 | S.S. Pande and U.S. Dixit (Editors) | Precision Product-Process Design and Optimization: Select Papers from AIMTDR 2016 | Springer, Singapore |  | 434 | 9789811087677 | 2018 |
| 3 | U.S. Dixit and R. Kant (Editors) | Simulations for Design and Manufacturing: Select Papers from AIMTDR 2016 | Springer, Singapore |  | 292 | 9789811085178 | 2018 |

**Format for submission of Book Chapter, etc.**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Sl. No. | Name of Author/s | Name of Paper | Name of Book | Publisher | Volume and Issue No. (If any) | Page No. | ISBN | Year and Date of Publication |
| 1 | Sathisha, H.M., Dalal, A. |  | An Unsteady Model to Study the Effects of Porosity and Temperature in All-Vanadium Redox Flow Battery with Mass Transfer and Ion Diffusion | Springer | 2 | 379-396 | 978-981-10-8392-1 | 2018 |
| 2 | NK Mishra, P Muthukumar, Snehasish Panigrahy |  | A Review on Clean Combustion Within Porous Media | Springer Nature Singapore Pte Ltd. |  | 209-224 | 978-981-10-7184-3 | 2018 |
| 3 | P. S. Robi, Sukhomay Pal, and Biswajit Parida |  | Recent Trends and Advances in Friction Stir Welding and Friction Stir Processing of Metals | CRC Press |  | 715-751 | 9781138099265 | 2018 |
| 4 | Devarshi Kashyap, Charan Mukundan and S.Kanagaraj |  | Manufacturing and characterization of shape memory polymers and composites | CRC press |  | 43-73 | 9781498799300 | 2018 |
| 5 | Kishor Kumar Gajrani, Mamilla Ravi Sankar |  | Encyclopedia of Renewable and Sustainable Materials | Elsevier | Accepted |  |  | 2018 |
| 6 | Achinta Sarkar, Maryom Dabi and Ujjwal K. Saha |  | Supplementing the energy need of diesel engines in Indian transport and power sectors | Springer |  | 26 | 978-981-10-7508-7 | 2018 |
| 7 | D.N. Basu, M.K.S. Sarkar | Supercritical Natural Circulation Loop: A Technology for Future Reactors | L. Chen, Y. Iwamoto (eds.) Advanced Applications of Supercritical Fluids in Energy Systems | , IGI Global, Hershey PA, USA, |  | 188-214 |  | 2017 |
| 8 | Ogier Maitre, Frederic Kruger, Deepak Sharma, Stephane Querry, Nicolas Lachiche and Pierre Collet | Parallelizing Evolutionary Algorithms on GPGPU Cards with the EASEA Platform | Programming multi-core and many-core computing systems, edited by Sabri Pllana, Fatos Xhafa, |  |  | 301 – 319 |  | 2017 |
| 9 | Sachin Singh, M. Ravi Sankar, V.K. Jain, J. Ramkumar | Abrasive flow finishing process and Modeling | Nanofinishing Science and Technology: Basic and Advanced Finishing and Polishing Processes, Edited by V. K. Jain, | CRC Press,, Taylor and Francis group | eBook | 75–110 | 978-1-315-40409-7 | 2017 |
| 10 | Deepak Mylavarapu, Manas Das, Ganesh Narayanan R | Prediction of Temperature Evolution During Self-Pierced Riveting of Sheets | Handbook of Research on Manufacturing Process Modeling and Optimization Strategies | IGI Global |  | 381-298 | 13: 9781522524410 |  |
| 11 | D.N. Basu, M.K.S. Sarkar | Supercritical Natural Circulation Loop: A Technology for Future Reactors | L. Chen, Y. Iwamoto (eds.) Advanced Applications of Supercritical Fluids in Energy Systems | IGI Global, Hershey PA, USA, |  | 188-214 |  | 2017 |
| 12 | Debaleena Chakrabortry, D Chakraborty and KSRK Murthy | Mode I SIF Determination of Orthotropic Laminates with Double-Ended Cracks Using a Single-Strain Gage | Advances in Structural Integrity, | Springer |  | 461-468 | 978-981-10-7197-3 | 2017 |

1. **Conferences/Workshops/Symposia Attended: International, National**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name of Faculty | Name of Conf./Workshop | Place | Date | International/National |

1. **Invited Lectures of Faculty: In India, Abroad(Please do not repeat entries from Sl. No. 10)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name of Faculty | Name of Lecture | Name of Inst./Org. | Place | Date |
| Amaresh Dalal | Numerical Simulation of Droplet Hydrodynamics and Boiling | NIT Arunachal Pradesh | Arunachal Pradesh, India | 9-Mar-18 |
| Amaresh Dalal | AnuPravaha: A General Purpose Indigenous CFD Solver for Multiphysics Applications | 44th National Conference on Fluid Mechanics and Fluid Power, Amrita University | Kollam, India | December 14-16, 2017 |
| U.S. Dixit | A talk on laser forming and surface alloying at IGNIS 2017 on October, 30, 2017. | Royal Global University | Guwahati | 30-Oct-17 |
| P Muthukumar | Green Energy Technologies | Pondicherry University | Pondicherry | 15th December 2017 |
| P Muthukumar | Recent trends in Refrigeration and Air-conditioning systems | Pondicherry Engg College | Pondicherry | 15th December 2017 |
| P Muthukumar | Porous Medium Combustion- An Energy Efficient Technologies | Sikkim Manipal Univesity | Sikkim | 9th December 2017 |
| Ujjwal K. Saha | Wind Energy Conversion Systems | Assam Engineering College | Guwahati | 18-11-2017 |
| Ujjwal K. Saha | Gas Turbine Propulsion Technology | Assam Engineering College | Guwahati | 18-11-2017 |
| Ujjwal K. Saha | Wind Tunnel Aerodynamics | Tezpur University | Tezpur | 13-12-2017 |
| U.S. Dixit | Manufacturing, Friction | Institute of Engineering and Technology, Dibrugarh University | Dibrugarh | 27th March 2018 |
| Sukhomay Pal | Sensor based weld defects detection system in friction stir welding | 1st International Conference on Emerging Trends on Engineering and Science (ETES:2018) | Asansol, West Bengal | 24th March, 2018 |
| S Kanagaraj | Synthesis and characterization of ceria based solid solution as a radical scavenger in cochlear implants | Madras University | Chennai | 16-03-2018 |
| Ujjwal K. Saha | Understanding Aerospace Engineering (6 Lectures) | Dibrugarh University | Dibrugarh | 26-03-2018 |
| Ujjwal K. Saha | Aeronautics for Beginners (One-day Workshop) | IIIT Bhagalpur, Bihar | Bhagalpur | 13-04-2018 |

1. **Visitors From Other Institutes/Universities/Organisations / Invited Lectures**

(**Only distinguished visitors invited by appropriate authority**)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Name of Inst./Univ./Org. | Purpose/ Name of Lecture | Date | Remarks |
| Dr. Sumon K Sinha | SinhaTech, USA | To Deliver Departmental Lecture | UTILIZING FLOW UNSTEADINESS FOR MAXIMIZING EFFICIENCY IN REAL LIFE | March, 215, 2018 |

1. **Seminars/Workshops/Conferences/Short-Term Courses Organised**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Sl. No. | Name of Faculty (Convener/ Co-ordinator,etc.) | Name of Sem./Wor./Con. | Funded By | Date | International/National | No. of participants |
| 1 | Amaresh Dalal | GIAN course on " Multiphysics Coupling in Energy Storage " |  | June 26-30, 2017 |  |  |
| 2 | U.S. Dixit | GIAN course on Crystal Plasticity Modelling of Micro-machining Processes |  | 11-15 December 2017 |  |  |
| 3 | D. Sharma, S. Pal. S. D. Kore and P. C. Kalita | Training Program on Inventory and Supply Chain Management |  | 6-10 November 2017 |  |  |

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

1. **Patents:**

**No. of Patents Applied with details …………………………….**

**No. of Patents Granted with details …………………………….**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Sl. No. | Name of Faculty and co researcher | Name | Date Applied/Granted | Application No. | Remarks |

1. **Awards and honours (Only awards/honours at national/international level from reputed organisations)**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 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) | Date of Award |
| 1 | Amaresh Dalal | Prof KN Seetharamu Medal and Prize | Indian Society of Heat and Mass Transfer | Best Young Researcher in Heat Transfer-2017 | Citation, Medal and Cash of Rs. 10,000/- | 29-12-17 |
| 2 | G. Biswas | Keynote Lecture | I2CNER Annual Symposium on Challenges in Thermal Science and Engineering, Towards a Sustainable Society, Kyushu University | Jan 31-Feb 2, 2018 |  | 2017 |
| 3 | M. Ravi Sankar | Skill India Indo Global Research Excellence Award 2017 | Andra Pradesh and Telengana Skill Developement Chapter 2017 | Contribution in Teaching and Research | Certificate and citation | 2017 |
| 4 | M. Ravi Sankar | Venus International Faculty Award 2017 |  | Outstanding Faculty in Mechanical Engineering, 2017 |  | 2017 |
| 5 | P Muthukumar | Mechanical Engineering Design Award 2017 | National Design & Research Forum (NDRF) of Institute of Engineers (India), | Out standing Individual contribution in Engineering Design | Certificate, citation and medal | 21-12-2017 |
| 6 | P Muthukumar | Fulbright-Nehru Academic & Professional Excellence Award (Teaching & Research) 2017 | Indo - U.S. Science and Technology Forum | Contribution in Teaching and Research | Fellowship $2700 per month for 6 months. | 2017 |
| 7 | P Muthukumar | Fulbright-Nehru Academic & Professional Excellence Award (Teaching & Research) 2017 from Indo - U.S. Science and Technology Forum | 2017 |  |  | 2017 |
| 8 | P. Mahanta | Guest Faculty | Hof University of applied sciences, Germany |  |  | May-17 |
| 9 | P. Mahanta | JSPS Fellowship (by invitation) | GIFU University, Japan |  |  | October 15 to December 13, 2017 |
| 10 | Poonam Kumari | Young Engineer INAE-2017 | Indian National Academy of Engineering | Young Engineer-2017 | Certificate, Cheque of Rs 1,00,000/- | 15-12-2017 |
| 11 | S. K. Dwivedy | Award for Excellence for the paper published | Mechanism and Machine Theory journal | top 10 most cited papers since its first publication |  | 2017 |

1. **Students’ Achievements:**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Sl. No. | Name of Faculty | Name of award | Name of Institute/ Organization/ Foundation bestowing the award | Reason for award (Name of Paper, if applicable) | Form of Award (Citation/ Medal/ Cash etc) | Date of Award |
| 1 | M. Ravi Sankar | 3rd Prize for Oral presentation award | ASP-2018 Conference | PLA/Nano HAp Based Resorbable Composites: Devise to Fix Podietry fixations | 100 Euro | 11/1/2018 |
| 2 | M. Ravi Sankar | Best Presenter Award to M. Ravi Sankar | 2nd International conference on Advanced Materials Research and Manufacturing Technologies (AMRMT-2017), Aug 02-05, 2017, Phuket, Thailand | Development and rheological study of the polymer blended viscoelastic medium for finishing of microholes | Certificate and Trophy | 4/8/2017 |
| 3 | M. Ravi Sankar | Best Paper Award to M. Ravi Sankar | International Conference on Manufacturing Technology and Simulation (ICMTS), 7-8 July, 2017, IIT Madras, India, 2017. | Development of Nozzle Feature on Copper Surface by Bio-Micromachining | Certificate and Trophy | 8/7/2017 |
| 4 | M. Ravi Sankar | Best paper award to PhD student Kishor Kumar Gajrani | National Conference on Sustainable Mechanical Engineering: Today and Beyond (SMETB), March 25-26, 2017, Tezpur University, India. | Comparative Studies on Mineral Oil, Eco Friendly Bio-Cutting Fluids Treatment and their Machining Performance | Certificate and Trophy | 26-03-2017 |
| 5 | Sangamesh Deepak R | 2nd Prize to PhD student Sunil Kumar Singh in Student's Mechanism Design Contest | international-National Conference on Mechanism and Machines (iNaCoMM), December 2017 (Conference) held in BARC Mumbai | A partially statically balanced scissor-linkage based robot was made primarily out of bamboos | Cash prize of Rs. 6,000/- plus a certificate to the student Sunil Kumar Singh | 15-12-2017 |
| 6 | Ujjwal K . Saha | ASME Young Engineer Turbo Expo Participation Award to PhD Student Md. Nur Alom | American Society of Mechanical Engineers, USA | Arriving at the optimum overlap ratio for an elliptical-bladed Savonius rotor | USD 2000 to meet the expenses to attend the conference and a Certificate to PhD Student, Md. Nur Alom | 30-06-2017 |

1. **Any Other (Special Mention)**
2. **Faculty Members(In alphabetical order according to surname)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Sl. No. | Name | Name of the University/Institute/Org  PhD degree received from | Designation | Areas of Interest | **Date of joining (Not Internal Promotion)** for the faculty members who **joined during the reporting year** |
| 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 | 2011 |
| 2 | Bandopadhya, Dibakar | IIT Kanpur | Associate Professor | Active materials, Artificial muscle materials, Smart structures, Robotics and mechanism, Composites, MEMS, Bio inspired design | 2008 |
| 3 | Banerjee, Atanu | IIT Kanpur | Associate Professor | Complaint Mechanism, Shape memory alloy, Bio-memetic devices | 2010 |
| 4 | Basu, Dipankar Narayan | IIT Kharagpur | Assistant Professor | Nuclear Thermalhydraulics, Supercritical Natural Circulation Loops, Domestic Air-conditioning, Computational Fluid Dynamics and Heat Transfer | 2012 |
| 5 | Biswas, Pankaj | IIT Kharagpur | Associate Professor | Manufacturing and Design: Computational weld mechanics, Solid state welding, Soft computing modeling of welding processes, FEM, Line heating | 2011 |
| 6 | Biswas, Gautam | IIT  Kharagpur | J C Bose National Fellow and Director of the Institute; Professor | Computational Fluid Dynamics, Convective Heat Transfer, Turbulence, Boiling Heat Transfer, Heat Transfer Augmentation, Turbomachinery | 2013 |
| 7 | Chakraborty, Debabrata | IIT Kharagpur | Professor | FRP, Composites, FEM, Fracture Mechanics and Design | 1999 |
| 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 | 2010 |
| 9 | Das, Manas | IIT Kanpur | Assistant Professor | Advanced Finishing and Nano-finishing Processes, Non-traditional Machining Processes, Machining of Advanced Engineering Materials, Micromanufacturing, Micromachining, Tribology, Laser Welding | 2012 |
| 10 | Dass, Anoop K. | IISc  Bangalore | Professor | Computational Fluid Dynamics and Turbomachines | 1996 |
| 11 | De, Arnab Kumar | IIT Kanpur | Associate Professor | Numerical Methods in Fluid Flow and Heat Transfer, Convection, Turbulence | 2009 |
| 12 | Dixit, Uday S. | IIT Kanpur | Professor | Design and Manufacturing : FEM, Neural Network and Fuzzy Set Application; Mechatronics | 1998 |
| 13 | Dwivedy, Santosha K. | IIT Kharagpur | Professor & HOD | Non-linear Dynamics, Design and Robotics, vibrations | 1999 |
| 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 | 2013 |
| 15 | Hazarika, Shyamanta M. | School of Computing, University of Leeds, England | Professor | Robotics, Cognitive Systems, Knowledge Representation and Reasoning | 2017 |
| 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 | 2010 |
| 17 | Kakoty, Sashindra K. | IIT Kharagpur | Professor & Dean, Infrastructure, Planning and Management | Tribology, Duct Acoustics, Mechanical System Design, Rural Technology | 2000 |
| 18 | Kalita, Karuna | University of  Nottingham | Associate Professor | Rotordynamics, Coupled Dynamics of Electro-Mechanical Systems, Vibration | 2010 |
| 19 | Kanagaraj, S. | IIT Kharagpur | Professor | Biomaterials, Carbon nanotubes based nanocomposites, Nanofluids, Materials characterization | 2008 |
| 20 | 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 | 2015 |
| 21 | Kore, Sachin D. | IIT Bombay | Associate Professor | Experimental and numerical study of electromagnetic pulse processing, Solid state welding, Joining of similar, dissimilar and lightweight metals like Al, Steel, Al-Li, and Mg | 2009 |
| 22 | Kulkarni, Vinayak | IISc  Bangalore | Associate Professor | High enthalpy flows, scramjet engine, experimental, aerodynamics, measurement science, CFD simulations | 2008 |
| 23 | Kumar, Bhaskar |  | Assistant Professor | Hydrodynamic Stability, Bluff Body Flows, Computational Fluid Dynamics | 2015 |
| 24 | Kumari, Poonam | IIT Delhi | Assistant Professor | Theory of plates and shells, Computational mechanics, Smart structures | 2013 |
| 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 | 2012 |
| 26 | Mahanta, Pinakeswar | IIT Guwahati | Professor | Thermal Radiation with Participating Media, Fluidization, Energy Conservation and Renewable Energy | 2001 |
| 27 | Mehta, Balkrishna | IIT Kanpur | Assistant Professor | Experimental investigation of heat transfer in two-phase flow in mini/micro systems, Heat pipes, Thermosyphons, Heat transfer investigation of ferrofluids in presence of magnetic field, InfraRed thermography for temperature measurements. | 2015 |
| 28 | Mondal, Pranab Kumar | IIT Kharagpur | Assistant Professor | Microfluidics, Electrokinetics, Two Phase Transport, Microscale Transport of Heat, Flow Through Porous Media. | 2015 |
| 29 | Murthy, K. S. R. Krishna | IIT  Kharagpur | Professor | Finite Element Methods, Error Estimation and Fracture Mechanics | 2002 |
| 30 | Muthu, Nelson | Monash University | Assistant Professor | Meshfree Methods, FEM, Fracture Mechanics, Composites, Structural Health Monitoring, Medical Device Innovation | 2017 |
| 31 | Muthukumar, P. | IIT Madras | Professor | Coupled heat and mass transfer analysis; Metal hydride based thermal machines, Conventional and Non-conventional refrigeration systems | 2006 |
| 32 | Nandy, Arup | IISc Bangalore | Assistant Professor | Finite Element Development and Analysis in Structure, Acoustics, Electromagnetics, Structural acoustic interaction, Magnetohydrodynamics, MEMS; Optimization | 2017 |
| 33 | Narayanan, Ganesh R. | IIT Bombay | Associate Professor | Material Forming and Joining | 2007 |
| 34 | Natarajan, Ganesh | IISc Bangalore | Associate Professor | Computational Fluid dynamics, Grid Adaptation, Error Estimation, Immersed Boundary methods, Parallel computing, Biofluid dynamics | 2011 |
| 35 | 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 | 2010 |
| 36 | Panda, Satyajit | IIT Kharagpur | Associate Professor | Composite materials, Nonlinear vibrations, Smart materials and structures, FEM, Functionally Graded materials and structures, Micromechanics. | 2009 |
| 37 | Pandey, Manmohan | IIT Kanpur | Professor | Dynamics and Control of Fluid-Thermal Systems, Nuclear Reactor Thermal-Hydraulics | 2000 |
| 38 | R, Sangamesh Deepak | IISc Bangalore | Assistant Professor | Kinematics and Dynamics of rigid multi-body systems, Compliant Mechanisms, Topology Optimization, Static Balancing | 2013 |
| 39 | Reddy, Narayana | IISc Bangalore | Assistant Professor | Inverse Problems, Biomechanics, Compliant Mechanisms, Topology Optimization, Nonlinear FEM, MEMS and Design of Materials | 2012 |
| 40 | Robi, P. S. | IIT Bombay | Professor | Coating, Fracture Mechanics, Materials Processing, Metal Matrix composite, Metal Casting, P/M Processing | 1997 |
| 41 | Saha, Ujjwal K. | IIT Bombay | Professor | Propulsion, Turbomachinery, Wind Energy Conversion, Internal Combustion Engines | 2000 |
| 42 | 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 | 1995 |
| 43 | Sahoo, Niranjan | IISc  Bangalore | Professor | Fluid and Thermal Engineering, Aerodynamics, Gas Dynamics, Instrumentation, Measurements and Experiments in Fluid | 2004 |
| 44 | Sankar, Ravi M. | IIT Kanpur | Assistant Professor | Machining & Advanced Machining Processes, MEMS &  NEMS, Sustainable Machining, Micromanufacturing,  Composite Materials, Online monitoring of  Manufacturing Processes, Tribology, Precision  Engineering | 2012 |
| 45 | Senthilvelan, S. | IIT Madras | Professor | Composites, Fatigue, Wear and Failure Analysis | 2006 |
| 46 | Sharma, Deepak | IIT Kanpur | Assistant Professor | Optimal Design: Modeling and Computation,  Engineering Design and Optimization, Genetic  Algorithms, Multi-objective Optimization | 2012 |
| 47 | Tiwari, Rajiv | IIT Kanpur | Professor | Rotor Dynamics, Vibrations, Identifi cation in  Mechanical Systems, Rolling Element Bearing Design  and Analysis, Application of Active Magnetic Bearings  in Rotors, Vibrations based Condition Monitoring of  Industrial Rotating Machines | 1997 |