

## **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)

**3. 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 different 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

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

**5. 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

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

## 7. 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 Pugazhenth 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	Reversible Alkali Metal Based Hydrides	DST	76.5		2017

Muthukumar	for High Temperature Thermal Energy Storage				
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. Punnamurthy	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

**8. 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	Tata Consultancy Limited, Pune	0.552		

	nanofluids				
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

## 9. 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.	Mesosopic 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	A Strain Gage Technique for the Determination of	2017	Composite Structures	160		185	194

	K. S. R. K. Murthy	Mixed Mode Stress Intensity Factors of Orthotropic Materials						
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.	Electric field mediated spraying of miniaturized droplets inside	2017	Electrophoresis	38		1450	1457

	Mandal, G. Biswas and D. Bandyopadhyay	microchannel						
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 MoS <sub>2</sub> -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 ZrO <sub>2</sub> -	2017	Advanced Engineering Materials	18	9	1634	1644



		Toughened Al <sub>2</sub> O <sub>3</sub> Acetabular Socket						
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:	2017	Microfluidics and Nanofluidics	21	7	122-1	122-16

		the role of lateral confinement						
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	
77	Rajkumar Sarma, Pranab K. Mondal	Entropy Generation Minimization in a Pressure-Driven Microflow of Viscoelastic Fluid With Slippage at the Wall: Effect of Conjugate Heat Transfer	2018	ASME Journal of Heat Transfer	140	5	052402-1	052402-11
78	Poonam Kumari, Agyapal Singh, R.K.N.D. Rajapakse, Santosh Kapuria	Three-dimensional static analysis of Levy-type functionally graded plate with in-plane stiffness variation	2017	Composite Structures	168		780	791
79	Poonam Kumari, S. Behera	Three-dimensional free vibration analysis of levy-type laminated plates using multi-term extended Kantorovich method	2017	Composites Part B: Engineering	116		224	238
80	Poonam Kumari, A. Shakya	Two-Dimensional Solution of Piezoelectric Plate Subjected to Arbitrary Boundary Conditions using Extended Kantorovich Method	2017	Procedia Engineering	173		1523	1530

81	Arvind K Agrawal, R. Ganesh Narayanan, Satish V Kailas	End forming behaviour of friction stir processed Al6063-T6 tubes at different tool rotational speeds	2017	Journal of Strain Analysis for Engineering Design	52	7	434	449
82	Arvind K Agrawal	Joining of a tube to a sheet through end curling	2017	Journal of Materials Processing Technology	246		291	304
83	Ishwar Kapoor, R. Ganesh Narayanan, Scott Taylor, Vit Janik, Richard Dashwood	Predicting the warm forming behavior of WE43 and AA5086 alloys	2017	Procedia Engineering	173		897	904
84	R. Vignesh Babu, S. Kanagaraj	Thermal, electrical and mechanical characterization of microwave sintered Copper/carbon nanotubes (CNT) composites against sintering duration, CNT diameter and its concentration.	2018	Journal of Materials Processing Tech	258		296	309
85	A Saikia, SM Hazarika	cBDI: Towards an Architecture for Human–Machine Collaboration	2017	International Journal of Social Robotics	9	2	211	230
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
87	Shobhanjana Kalita, Arindam Karmakar, Shyamanta M Hazarika	Efficient extraction of spatial relations for extended objects vis-à-vis human activity recognition in video	2018	Applied Intelligence	48	1	204	219
88	Sumant Pushp, Adity Saikia, Arif Khan and Shyamanta Hazarika	A Cognitively Enhanced Collaborative Control Architecture for an Intelligent Wheelchair: Formalization, Implementation, and Evaluation	2017	Cognitive Systems Research	49		114	127
89	Prakash Kumar Sahu and Sukhomay Pal	Effect of FSW Parameters on Microstructure and Mechanical Properties of AM20 welds	2018	<i>Journal of Materials and Manufacturing Processes</i>	33	3	288	298
90	D. K. Yaduwanshi, S. Bag and Sukhomay Pal	On the effect of tool offset in hybrid FSW of copper and aluminium alloy	2018	<i>Journal of Materials and Manufacturing Processes</i>	33	3	277	278
91	Prakash Kumar Sahu, Sukhomay Pal and Surjya K. Pal	Al/Cu Dissimilar FSW with Ni, Ti and Zn Foil as Interlayer for Flow Control, Enhancing Mechanical and Metallurgical Properties	2017	Metallurgical and Materials Transactions A	48	7	3300	3317
92	Nizar Faisal Alkayem, Biswajit Parida and Sukhomay Pal	Optimization of friction stir welding process parameters using soft computing techniques, Soft Computing	2017	Soft Computing	21	23	7083	7098

93	Bipul Das, Sukhomay Pal and Swarup Bag	Torque based defect detection and weld quality modelling in friction stir welding process	2017	Journal of Manufacturing Processes	27		8	17
94	Prakash Kumar Sahu and Sukhomay Pal	Mechanical Properties of Dissimilar Thickness Aluminium Alloy weld by Single/Double Pass FSW	2017	Journal of Materials Processing Technology	243		442	455
95	Prakash Kumar Sahu and Sukhomay Pal	Influence of Metallic Foil Alloying by FSW Process on Mechanical Properties and Metallurgical Characterization of AM20 Mg Alloy	2017	Materials Science and Engineering: A	684		442	445
96	Bipul Das, Sukhomay Pal and Swarup Bag	Design and Development of force and torque measurement setup for real time monitoring of friction stir welding process	2017	Measurement	103		186	198
97	B. Das, S. Pal and S. Bag	Weld quality prediction in friction stir welding using wavelet analysis	2017	International Journal of Advanced Manufacturing Technology	89	1	711	725
98	M. Baruah and S. Bag	Characteristic difference of thermo-mechanical behavior in plasma microwelding of steels	2017	Welding in the World	61	4	857	871
99	B. Das, S. Bag and S. Pal	Probing weld quality monitoring in friction stir welding through characterization of signals by fractal theory	2017	Journal of Mechanical Science and Technology	31	5	2459	2465
100	M. Baruah, S. Bag and S Kumar	Probing phase lag effect in ultra-short pulse laser heating of nano-film	2017	Manufacturing Letters	13		6	10
101	M. Baruah and S. Bag	Influence of pulsation in thermo-mechanical analysis on laser microwelding of Ti6Al4V alloy	2017	Optics & Laser Technology	90		40	51
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
103	Ashish Kumar Rajak, Sachin D Kore	Experimental investigation of aluminium-copper wire crimping with electromagnetic process: Its advantages over conventional process	2017	Journal of Manufacturing Processes	26	-	57	66
104	Chandras Patel, Pravin Ghatule, Sachin D Kore	Finite element analysis of effect of process parameters on electromagnetic free expansion of aluminium tube	2017	International Journal of Materials and Product Technology	54		165	178
105	P. Kishore Kumar, M. Charan, and S. Kanagaraj.	Trends and challenges in lower limb prostheses	2017	IEEE potentials	36	1	19	23

106	A. Kumar, S. Panda	Optimal Damping in Circular Cylindrical Sandwich Shells With a Three-Layered Viscoelastic Composite Core	2017	ASME Journal of Vibration and Acoustics	139	6	061003-1	061003-12
107	S. S. Gautam and P. M. Dixit	Simulation of Large Deformation Elasto-plastic Impact Problems Using Two Different Objective Stress Measures	2017	Procedia Engineering	172		432	439
108	Achinta Sarkar and Ujjwal K. Saha	Impact of intake charge preheating on a biogas run dual fuel diesel engine using ternary blends of diesel-biodiesel-ethanol	2018	ASCE Journal of Energy Engineering	144	3	04018031-1	04018031-13
109	Achinta Sarkar and Ujjwal K. Saha	Effect of intake charge preheating and equivalence ratio in a dual fuel diesel engine run on biogas and ethanol-blended diesel	2018	ASME Journal of Energy Resources Technology	140	4	041802-01	041802-13
110	Nur Alom and Ujjwal K. Saha	Four decades of research into the augmentation techniques of Savonius wind turbine rotor	2018	ASME Journal of Energy Resources Technology	140	5	050801-1	050801-14
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
114	Parag K. Talukdar, Vinayak Kulkarni, Ujjwal K. Saha	Field-testing of model helical-bladed hydrokinetic turbines for small-scale power generation	2018	Renewable Energy	127		158	167
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
117	W.G. Jiru, M. Ravi Sankar and U.S. Dixit	Investigation of microstructure and microhardness in laser surface alloyed aluminum with TiO <sub>2</sub> and SiC powders	2017	Materials Today: Proceedings	4	2A	717	724

118	U.S. Dixit, Vinod Yadav, Varun Sharma, Pulak M. Pandey, Anish Roy and Vadim Silberschmidt	Estimation of cutting forces in conventional and ultrasonic-vibration assisted turning using inverse modelling	2017	International Journal of Additive and Subtractive Materials Manufacturing	1		265	289
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 Bona, 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
122	G.C. Verma, P. M. Pandey and U.S. Dixit	Modeling of static machining force in axial ultrasonic-vibration assisted milling considering acoustic softening	2018	International Journal of Mechanical Sciences	136		1	16
123	G.C. Verma, P. M. Pandey and U.S. Dixit	Estimation of workpiece-temperature during ultrasonic-vibration assisted milling considering acoustic softening	2018	International Journal of Mechanical Sciences	140		547	556
124	Guangjin Li, Hengcheng Liao, Xiaojing Suo, Yunyi Tang, Uday S. Dixit and Pavel Petrov	Cr-induced morphology change of primary Mn-rich phase in Al-Si-Cu-Mn heat resistant aluminum alloys and its contribution to high temperature strength	2018	Materials Science & Engineering A	709		90	96
125	B. N.Fetene, Vikash Kumar, Uday S.Dixit, Raghu Echempati	Numerical and experimental study on multi-pass laser bending of AH36 steel strip	2018	Optics & Laser Technology	99		291	300
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
127	N. Muthu, S.K. Maiti, B.G. Falzon, Wenyi Yan	Modelling Interacting Cracks using Level Set Method using the element-free Galerkin method	2017	International Journal of Mechanical Sciences	134		203	215

**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**

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		
3	B. Das, S. Pal and S. Bag	Weld defect identification in friction stir welding using power spectral density	International Conference on Recent Advances in Materials & Manufacturing Technologies (IMMT 2017), 28th - 29th November, 2017, Dubai.	2017		
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		
8	Avinish Tiwar, Piyush Singh, Pankaj Biswas and Sachin D. Kore	Effect of traverse speed on FSW of AISI 1006 low carbon steel	10th International Conference on Precision, Meso, Micro and Nano Engineering (COPEN 2017), 7-9 December 2017, IIT Madras.	2017		
9	Avinish Tiwar, Piyush Singh, Pankaj Biswas and Sachin D. Kore	Friction Stir Welding of AISI 1006 Low Carbon Steel	1st International Conference on Mechanical Engineering (INCOM 2018), 4- 6 January 2018, Jadavpur University, Jadavpur.	2018		
10	Saurav Suman , Pankaj Biswas , Basil Kuriachen , Abhijit Sinha ,	Modelling an arc welded fillet joint for minimum welding induced distorsions	3rd International Conference on Design, Analysis, Manufacturing and Simulation,ICDAMS 2018,Chennai, INDIA, 6-7 April, 2018.	2018		
11	Jena, S. R., Dalal, A., and Natarajan, G.	Development of Turbulent Axisymmetric Solver Over a Hybrid Unstructured Grid	44th National Conference on Fluid Mechanics and Fluid Power, Amrita University, Kollam, India	2017		
12	Pandey, V., Biswas, G., and Dalal, A.	Dependence of Growth Rate, Pinch-off Velocity and Size of a Single Bubble During Film Boiling	Proceedings of the 24th National and 2nd International ISHMT-ASTFE Heat and Mass Transfer Conference, BITS-Pilani, Hyderabad, India.	2017		



		on Superheat and Gravity-level				
13	Thirumalaisamy, R., Parmananda, M., Dalal, A., and Natarajan, G.,	Development of a Low Mach Number Solver to Study Combined Turbulent Convective-Radiative Heat Transfer	6th Asian Symposium on Computation Heat Transfer and Fluid Flow, IIT Madras, India.	2017		
14	Nath, B., Borthakur, M. P., Biswas, G. and Dalal, A.,	Deformation of a Droplet in Constricted Microfluidic Channels at Low Reynolds number	6th Asian Symposium on Computation Heat Transfer and Fluid Flow, IIT Madras, India.	2017		
15	Nath, B., Borthakur, M. P., Biswas, G. and Dalal, A., USA	Dynamics of Droplet Deformation in Microchannels with Symmetric and Asymmetric Constrictions	Proceedings of the ASME 2017 International Mechanical Engineering Congress & Exposition, Tampa, Florida,	2017		
16	Manik, J., Parmananda, M., Kotoky, S., Borgohain, P., Dalal, A., and Natarajan, G.,	Lessons from Anupravaha: Towards a General Purpose Computational Framework on Hybrid Unstructured Meshes for Multi-Physics Applications	ICHMT International Symposium on Advances in Computational Heat Transfer, Napoli, Italy.	2017		
17	U. S. Dixit	Keynote in National Conference on Applied Sciences, Sustainable & Evolving Technologies	63rd Annual Technical Session of Assam Science Society, ASSET 2018, March 9-11, 2018, CIT, Kokrajhar	2018		
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		
19	Chayanika Nath and S. M. Hazarika	Diagrams': A Hybrid Visual Information Representation and Reasoning Paradigm Towards Video Analysis. Diagrams	Lecture Notes in Computer Science, (To Appear). Springer, June 18-22, 2018, Edinburgh, UK.	2018		
20	A. Singh, P. Kumari	Accurate stress solution for laminated rectangular plates bonded with functionally graded adhesive interlayer and subjected to transverse loading	INCAM – 2017, 5-7 July 2017, MNNIT Allahabad, India	2017		
21	S Behera, P Kumari	Free vibration analysis of piezoelectric plate using Mixed-field Extended Kantorovich Method	INCAM – 2017, 5-7 July 2017, MNNIT Allahabad, India	2017		
22	A. Singh, R. Hazarika, P. Kumari	Three-dimensional analytical solution of FGM panel with varying material properties along in-	ICCE-25, 16-22 July, 2017, Rome, Italy	2017		

		plane directions using Extended Kantorovich Method				
23	P. Kumari	Three dimensional solutions for smart composite/sandwich plates subjected to Levy-type support conditions using extended Kantorovich method	3rd Euro Congress on Iron, Steel and Construction Engineering , November 16-17, 2017 London, United Kingdom	2017		
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		
26	B. Prabhakar, P. Kumari, S. Agyapal and K. Shranish	Experimental study of piezoelectric beam under free and forced vibration response for energy harvestin application	13th International Conference on Vibration Problems (ICOVP-2017) 29th November - 2nd December, 2017	2017		
27	A. Singh, P. Kumari	Analytical solution of functionally graded beam having longitudinal stiffness variation.	International Conference on Composite Materials and Structures, 27-29th December 2017, Hyderabad, India	2017		
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		
31	Jasinta PE, Lakshmi DVN, Yashwant K, Muthukumar, P	Drying characteristic of mixed mode type solar dryer using forced convection and thermal storage for ginger	Proceedings of the 24th National and 2nd International ISHMT-ASTFE Heat and Mass Transfer conference (ihmtc-2017), BITS Pilani, Hyderabad, December 27-30, 2017	2017		
32	Lakshmi DVN, Muthukumar P, Apurba Layek, Abhimanyu KS, Sushoban D	Performance analysis of double pass counter flow solar air heater for drying application	Proceedings of the 24th National and 2nd International ISHMT-ASTFE Heat and Mass Transfer conference (ihmtc-2017), BITS Pilani, Hyderabad, December 27-30, 2017	2017		

33	Kaushik L K, Deb S, Muthukumar P	Assessment of energy saving potential in self aspirated LPG stove with porous radiant burner	Proceedings of the 24th National and 2nd International ISHMT-ASTFE Heat and Mass Transfer conference (ihmtc-2017), BITS Pilani, Hyderabad, December 27-30, 2017.	2017		
34	Niyas H, Muthukumar P	Appropriate sizing prediction and performance evaluation of the shell-and-tube latent heat storage uni	Proceedings of the 24th National and 2nd International ISHMT-ASTFE Heat and Mass Transfer conference (ihmtc-2017), BITS Pilani, Hyderabad, December 27-30, 2017	2017		
35	Lakshmi DVN, Apurba Layek, Muthukumar, P	Performance analysis of a mixed mode forced convection solar dryer with and without thermal energy storage heat exchanger	Presented at International Conference on Mechanical Materials and Renewable Energy, Sikkim Manipal Institute of Technology, Sikkim,8-10th Dec 2017	2017		
36	Kaushik L K, Deb S, Muthukumar P.	Energy Saving and Techno-economic Assessment of Self Aspirated Domestic LPG Stove with Porous Radiant Burner	Presented at International Conference on Mechanical Materials and Renewable Energy, Sikkim Manipal Institute of Technology, Sikkim,8-10th Dec 2017	2017		
37	U K Tarai, P S Robi and Sukhomay Pal	Development of a Novel Ni-Fe-Cr-B-Si Interlayer Material for Transient Liquid Phase Bonding of Inconel 718	International Conference on Recent Advances in Materials & Manufacturing Technologies (IMMT 2017), BITS Pilani Dubai Campus, Dubai, UAE, November 28-29, 2017	2017		
38	A. Singh, N. A. Manikandan, M. Ravi Sankar, K. Pakshirajan, L. Roy	Experimental Investigation and Surface Morphology of Bio-Micromachining on Copper	7th International Conference of Materials Processing and Characterization (ICMPC), 17-19 March, 2017, GRIET Hyderabad, India, 2017.	2017		
39	B.V. Ramanaiah, B. Manikanta, M. Ravi Sankar, M.Malhotra, K. Kumar Gajrani	Experimental Study of Deflection and Surface Roughness in Thin Wall Machining of Aluminum Alloy	7th International Conference of Materials Processing and Characterization (ICMPC), 17-19 March, 2017, GRIET Hyderabad, India, 2017.	2017		
40	K. Kumar Gajrani, P. S. Suvin, S.Vasu Kailash, M. Ravi Sankar	Comparative studies on thermal, rheological behavior of eco-friendly cutting fluids and their machining performance	6th International and 27th All India Manufacturing Technology Design and Research (AIMTDR) Conference, 16-18 December, 2016, COEP Pune	2017		
41	K. Kumar Gajrani, S. Kumar Mallick, M. Ravi Sankar	Comparative Studies on Mineral Oil, Eco Friendly Bio-Cutting Fluids Treatment and their Machining Performance	,National Conference on Sustainable Mechanical Engineering: Today and Beyond (SMETB), March 25-26, 2017, Tezpur University, India.(Best Paper Award)	2017		
42	M. Ravi Sankar, K. Kumar Gajrani	Cutting Fluid Emissions and Eco-Friendly Cutting Fluid for Sustainable Machining	Proceedings of the National Conference on Sustainable Mechanical Engineering: Today and Beyond (SMETB), March 25-26, 2017, Tezpur University, Assam, India.	2017		
43	A. Singh, N. A. Manikandan, M. Ravi Sankar, K. Pakshirajan, L. Roy	Development of Nozzle Feature on Copper Surface by Bio-Micromachining	International Conference on Manufacturing Technology and Simulation (ICMTS), 7-8 July, 2017, IIT Madras, India, 2017. (Best Paper Award)	2017		

44	S. Singh, M. Ravi Sankar, P. Ranjan, R. Balasubramaniam	Development and rheological study of the polymer blended viscoelastic medium for finishing of microholes	2nd International conference on Advanced Materials Research and Manufacturing Technologies (AMRMT-2017), Aug 02-05, 2017, Phuket, Thailand (Best Presenter Award to M. Ravi Sankar)	2017		
45	M. Ravi Sankar	Nanofinishing of Bio-Implants using Polymer Rheological Abrasive Complex Suspensions	6th Asian Biomaterials Congress (ABMC-2017), October 25-27, 2017. Thiruvananthapuram, India	2017		
46	M. Ravi Sankar	Rheological and Nano-finishing Studies of Elastically Dominant Multiple Polymers Blend Based Abrasive Flow Finishing Medium	International Conference on Advances in Polymer Science and Technology (APA-2017), 23-25 November, 2017, New Delhi, India.	2017		
47	J. Das, P.S. Robi, M. Ravi Sankar	International Creep Behavior of Nugget Zone of Friction Stir Welded 2014 Aluminum Alloy	International conference on Recent Advances in Materials & Manufacturing Technologies, Nov 28-29, 2017, Dubai, UAE.	2017		
48	M. Ravi Sankar	Nano-finishing of Bio-Implants using Polymer Rheological Abrasive Complex Suspensions	4th International Symposium on Advances in Sustainable Polymers (ASP-2018), 8-11 January, 2018, IIT Guwahati, India.	2018		
49	K.K. Gajrani, A. Kumar, M. Ravi Sankar	Fabrication of Biodegradable Magnesium Alloy (AZ 31) Thin Wall with Minimum Quantity Environmental Friendly Cutting Fluids	21ST ADNAT Convention and International Symposium on Biodiversity and Biobanking (BIODIVERSE 2018), 27-29 January, 2018, IIT Guwahati, India	2018		
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 TiO <sub>2</sub> -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		
53	S. Banik, N. Kalita, K.K. Gajrani, R. Kumar, M. Ravi Sankar	Recent Trends in Laser Assisted Machining of Ceramic Materials	8th International Conference of Materials Processing and Characterization (ICMPC), 16-18 March, 2018, GRIET Hyderabad, India.	2018		
54	M. Ravi Sankar, V.K. Jain , K.P. Rajurkar	Rheological and Nano-finishing Studies of Elastically Dominant Multiple Polymers Blend Based Abrasive Flow	19th CIRP Conference on Electro Physical and Chemical Machining, 23-27 April 2018, Bilbao, Spain, (Accepted).	2018		

		Finishing Medium				
55	Kishor Kumar Gajrani, Subrat Kumar Mallick, M. Ravi Sankar	Comparative Studies on Mineral Oil, Eco Friendly Bio-Cutting Fluids Treatment and their Machining Performance	Proceedings of the National Conference on Sustainable Mechanical Engineering: Today and Beyond (SMETB), March 25–26, 2017 at Tezpur University, India, pp. 111–116, 2017.	2017		
56	Nada Barakat and Deepak Sharma,	Multi-Objective Optimization Framework and its Experimental Validation for Bulldozer in Soil Cutting	In Proceedings of the Indian Geotechnical Conference 2017 GeoNEst, 14-16 December 2017, IIT Guwahati, India	2017		
57	S. Kirtania and D. Chakraborty	Representative Volume Element Based Finite Element Modeling of Carbon Nanotube (CNT)-Reinforced Composites with a Broken CNT,	Proceedings of the National Conference on Sustainable Mechanical Engineering: Today and Beyond(SMETB), March 25–26, 2017 at Tezpur University, India	2017		
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	International conference on Advances in Materials and Manufacturing (ICAMM 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) - 3rd 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, Applied, 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, Applied, 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		

**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 Chakraborty, 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

#### 10. Conferences/Workshops/Symposia Attended: International, National

Name of Faculty	Name of Conf./Workshop	Place	Date	International/National
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#### 11. 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	Porous Medium Combustion- An	Sikkim Manipal Univesity	Sikkim	9th

Muthukumar	Energy Efficient Technologies			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

## 12. 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

## 13. 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.

## 14. 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
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## 15. 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 Development 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

#### 16. 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,	Development and rheological study of the polymer blended viscoelastic medium for finishing of microholes	Certificate and Trophy	4/8/2017

			Phuket, Thailand			
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

#### 17. Any Other (Special Mention)

#### 18. 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	Bandopadhyaya, 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	Compliant Mechanism, Shape memory alloy, Bio-	2010

				memetic devices	
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	2013

				Schemes, Plasticity, Ductile Fracture, Continuum Damage Mechanics	
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,	2013

				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	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	2010

				Artificial Neural Network, Genetic Algorithms and Fuzzy logic in manufacturing	
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, Niranjana	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	2012



				Optimization, Genetic Algorithms, Multi-objective Optimization	
47	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	1997