



# Resonance



## Newsletter of Mechanical Engineering

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### Inside this Issue

- About Department
- Ph.D. Awarded
- Patent published
- Papers Published
- Conference Participated
- Project Approved
- Experts visited
- Industry visited
- Student Achievements
- FDP Organized
- Guest Lecture
- Student Team Achievements

### Editorial Board

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### About the Department

The Department of Mechanical Engineering is one of the pioneering departments of SRM IST. The B.Tech. - Mechanical Engineering program at Kattankulathur campus is accredited by the Engineering Accreditation Commission of ABET, <https://www.abet.org>. The department is functionally divided into four broad areas of (iii) Thermal and iv) Materials Engineering with 137 faculty in which 51 are Ph.D., holders.



**Prof. DEBES BHATTACHARYYA, University of Auckland Resource Person for short terms course on "COMPOSITE MATERIALS: THEORY AND APPLICATIONS", (CMTA' 19), January 03 – 10, 2019**

#### Ph.D. Awarded

- **Dr. A. Vijaya**, awarded Ph.D., in Mechanical Engineering on 27th Oct 2018 in SRM Institute of Science and Technology. Thesis: Contouring reflective surfaces using iterative intensity integration technique (IIIT).
- **Dr. P. V. Jeyakarthyayan**, awarded Ph.D., in Mechanical Engineering on 27th Oct 2018 in SRM Institute of Science and Technology. Thesis: On robust Quadrature for finding element stiffness matrices of quadrilateral and hexahedral elements.

#### Faculty Accolades

- Dr. R. Senthil selected as Dr APJ Abdul Kalam Young Scientist Award 2018 & Dr APJ Abdul Kalam Teaching Excellence Award 2018 by Marina lab, Chennai on 23rd September 2018
- Dr. Ranjeet Kumar Sahu selected for the Dr APJ Abdul Kalam Young Scientist Award 2018 by Marina lab, Chennai on 23rd September 2018.

#### Patent Awarded

1. Se Jin Park, Seung Nam Min, Kyung Sun Lee, Jung Nam Im, Dong Joon Kim, Dong Joon Kim, Murali Subramaniam, "System and Method for Determining Stroke based on Voice Analysis" Korean Patent Number: 10-1958188 (Awarded on: 14-03-2019). Status: Awarded
2. Se Jin Park, Seung Nam Min, Kyung Sun Lee, Dong Joon Kim, Murali Subramaniam, Seung Hee Hong, Damee Kim. Diagnostic Method for Stoke-Based Electrocardiogram. Korean Patent Number: 10-1897419 (Awarded on: 04-09-2018). Status: Awarded

#### Project Approved

- Mr. Shubrajit Bhumik received a project titled "Investigation of tribological and rolling contact fatigue analysis of AISI 52100 steel with micro and nano-additives dispersed in vegetable and mineral oil" was approved by the Science and Engineering Research Board (SERB) for funding under Teachers Associateship for Research Excellence (TARE) with research grand as per SERB-TARE norm.

#### Books Published

- Ranjeet Kumar Sahu, Somashekhar S Hiremath. "Corona Discharge Micromachining for the Synthesis of Nanoparticles: Characterization and Applications", ISBN: 9780367224738, CRC Press, Taylor and Francis, August 2019.
- Shubhabrata Datta and J. Paulo Davim (Editors): Optimization in Industry: Present Practices and Future Scopes, Springer, January 2019.

## Student Achievements (Paper presentation)

**Mr. Vivek Venugopal [2nd year M.Tech.]**. An autonomous approach for emotion recognition and generation. International conference on Artificial Intelligence and Machine Learning, Satyabhama Institute of Science and Technology, Chennai, 3rd to 5th April 2019.

**Manas Hardikar, [Final year B.Tech Mechanical]**. Investigation on the Effect of Tin Addition on Foaming Behaviour of Al7SiMg produced by Powder Route. 5th International conference on Asian Powder Metallurgy, Pune, 18th to 21st February 2019. **Recognition: Best Paper Award.**

**Aditya Rauniyar (RC), [Final year B.Tech Mechanical]**. Design Model for the Drive and Actuator of the Test Set-up of a Novel Flexible Robotic System. 2018 IEEE International Conference on Computational Intelligence and Computing Research (ICIC), Thiyagarajar College of Engineering, Madurai, Tamil Nadu, India. **Recognition: Best Paper Award.**

**K. Gokul, [Research Scholar]**. Survival of mechanical properties after water absorption on coconut shell filled banana fiber polymer composite. Techno-Societal 2018, SVERT's college of Engineering, Pandharpur, 14-15th Dec 2018. **Recognition: Silver Paper Award.**

**Amit Varakhedkar [3rd year B.Tech. Mechanical]** and R. Senthil Kumar. Flow and heat transfer characteristics of square cylinder with protrusions at different channel confinements, SRM Research Day, 28th February 2019, **Recognition: Gold Medal.**

**Shaik. Subhani [First year M.Tech. solar energy]** and R. Senthil kumar. Natural Convection Heat Transfer Enhancement of Circular Obstacle within Square Enclosure, SRM Research Day, 28th February 2019.

C. Selvam, R. Senthil kumar, **D. Mohan Lal and Sivasankaran Harish** Numerical Investigation on the Convective Heat Transfer and Pressure Drop Characteristics of Graphene based dispersions under laminar flow regimes, SRM Research Day, 28th February 2019, **Recognition: Gold Medal.**

**Shaik Subhani [First year M.Tech. solar energy]** and R. Senthil Kumar. Numerical Investigation on Influence of Mounting Baffles in Solar Stills", Second International Conference on Sustainable Energy Resources, Materials and Technologies [ISERMAT 2019], 14-15 March, 2019,SSN College of Engineering, Chennai.

**Nishchay Sachdeva [3rd year B.Tech. Mechanical]** and R. Senthil Kumar. Numerical Analysis of heat transfer and primary Geometrical Influence on secondary cylinder at inline arrangements", Second International Conference on Sustainable Energy Resources, Materials and Technologies [ISERMAT 2019], 14-15 March, 2019, at SSN College of Engineering, Chennai.

**Shaik Subhani [First Year M.Tech. Solar Energy]**, N. Palani, R. Senthil Kumar and G. Dhanushkodi. Design of Finned Spherical Enclosures and Thermal Performance Evaluation under Natural Convection. International Conference on Mechanical Engineering Design [ICMechD 2019], 25-26 April 2019 at SSN College of Engineering, Chennai.

**Shaik Subhani [First year M.Tech. solar energy]** and R. Senthil Kumar, Design and Thermal Performance Analysis on Solar Still. International Conference on Mechanical Engineering Design [ICMechD 2019], 25-26 April 2019 at SSN College of Engineering, Chennai.

**Ashwin Mahendra [Final year B.Tech. Mechanical]** and R. Senthil Kumar. Macro Rough Surface and its Influence on Bottom Heated Square Enclosure", International Conference on Mechanical Engineering Design, 25-26 April 2019 at SSN College of Engineering, Chennai.

**Ashwin Sahasranaman [3rd year B.Tech. Mechanical]**, S. Senthil Kumar., and P. Balakrishnan. Computational Aeroacoustics characteristics of an Aerofoil at Higher Reynolds Number. Second International Conference on Sustainable Energy Resources, Materials and Technologies [ISERMAT 2019], 14-15 March, 2019, at SSN College of Engineering, Chennai.

**Amit Varakhedkar [3rd year B.Tech. Mechanical]** and R. Senthil Kumar. Design and Thermal Hydraulics Analysis of Square Cylinder with Variety of Protrusions on Rear Side", International Conference on Mechanical Engineering Design, 25-26 April 2019 at SSN College of Engineering, Chennai.

**Nishchay Sachdeva [3rd year B.Tech. Mechanical]** and R. Senthil Kumar. Numerical analysis of heated square and circular geometries arranged in", International Conference on Mechanical Engineering Design, 25-26 April 2019 at SSN College of Engineering, Chennai.

**Akash Mithra (2018 batch)**, published an eBook. "Friction stir welding for beginners", Amazon, Print 88 pages, 2018.

## Student Team Achievements

Our **Team Hybrutos Racing** recently participated in the 5th Edition of Formula Imperial-HVC-2019 event was held between 4th to 10th February 2019 at Galgotias University, and Buddha International Circuit, Greater Noida. 32 Teams from various colleges/Universities all over India participated. Our vehicle has passed all the static & dynamic tests and entered into final endurance test. It successfully completed the given distance of 22 km first with the fuel consumption of 900 ml. Our team received various awards in the event including: Overall 2nd position (Hybrid Category), overall 1st in Statics Events, Best Hybrid Award, and Best Design Award, Runners-up in Endurance Test, and Best Business Plan and Cost Estimation Award, Best Design award - Rs.10,000/-, Best Business plan & cost - Rs.10,000/-, Best Hybrid Car award- Rs. 10,000/-, Runner up in Endurance- Rs.10,000/-, Spirit of formula Imperial award.



Our **Team Electruser (eBaja)** participated in the event "Champion of champions" organized by Imperial Society for Innovative Engineers (ISIE) from 21/02/2019 to 24/02/2019 at KL University, Vijayawada, AP. There were 22 Teams from various colleges/Universities all over India participated. Our vehicle has passed all the static & dynamic tests and entered into final endurance test. It successfully completed the given distance of 24 km in One hour and was placed First with lot of obstacles. In this event, our vehicle has won the followings medals: Best Endurance, Best land Maneuverability award, Over all ATV First Runner up in Endurance – Rs. 50,000 /-.



## Student Team Achievements (continued)

Our **Team SRM\_HPV**, **Team IAM3D**, and **ASME-SRM members** were participated in the ASME E-FEST 2019 held at VIT-Vellore from 01/02/2019 to 03/02/2019. This festival is WAY more than just a series of events. It's a movement driven by engineering students that have gained force globally. Our SRM\_HPV participated in the following activities at E-FEST: Women's drag race, Men's drag race, Endurance race. Our IAM3D participated in ASME's Innovative Additive Manufacturing 3D Challenge. The team SRM\_HPV secured 2nd Prize in the Women's drag race among 40 teams in the ASIA PACIFIC E-FEST. The team IAM3D acquired 2nd prize in the Innovative Additive Manufacturing 3D Challenge among 18 groups in the ASIA PACIFIC E-FEST.



Our **Team SOLAREON** of Mechanical Department have won 4th position out of 52 Teams in Virtual round of National Solar Vehicle Challenge (NSVC 2018-19) competition. Also we are the winner of major component "Electric and Solar Systems" in the virtual round.



Our **Team Super Ignitors** acquired Rank 8 out of 40 competitions and 3 out of 10 competitions in Techfest held at IIT Bombay and IIT Madras, respectively during January 2019.



Our **Team Odyssey** participated in DRDO Robotics and Unmanned Systems Exposition (DRUSE) 2018. Out of these 513 teams, 30 were selected for the zonal level in which team Odyssey secured second place and thus qualifying for participation at National level.



## Experts Visited

**Mr. Nageswaran, Scientist-H, LPSC, ISRO**, Thiruvananthapuram visited the department on 05-10-2018 and discussed about the project availability and submission guidelines.

**Mr. Balasubramanian Salla, Senior Expert, GM-R&D, Projects and Applications, Valeo Friction Materials India Private Limited (VFMI)** visited the department on 03-01-2019 and discussed about possible collaboration including Industrial visit, Internship, FIIP, project collaboration, placement, MoU.

**Mr. Murali Bodla, MD & Technical head, HTS** (Quiet possible) visited to the department and discussed about the Vibration research equipments.

**Mr. R. Ramani, CEO, Fluid Tech Solutions Inc.**, visited on 4.3.19 at our Robotics lab (Through International relation office) and discussed about foreign collaboration in Robotics field.

## Industry visited

- Diamond Engineering Chennai Private Limited, Pudupakkam, 05-09-2018
- Indian oil Corporation Ltd., (Chengalpattu Bottling plant), 05-09-2018
- Caterpillar India Private Limited, Thiruvallur, 11-09-2018
- Ashok Leyland, Ennore, 12-09-2018
- Indian Piston (IP) Rings, 15-09-2018
- Monotech Systems Limited, Ambattur, 28-09-2018
- JBM Company, Maraimalai Nagar, 04-10-2018
- Integral Coach Factory (ICF), 05-10-2018
- J.K. Fenner (India ) Limited, Sriperumbudur, 04-10-2018
- Valeo Friction Materials India Private Limited, Maraimalai Nagar, Kancheepuram, 25-10-2018
- Saint Gobain Industries, Chennai, 02.03.2019
- 440 MW Solar PV power plant at Neyveli, 08-03-2019
- Endotherm Fluids, Sriperumbudur, 29-03-2019

## Guest lecture by experts

- Application of Hydrogen in Automobiles by Dr. N. Saravanan, Principal Engineer, Smart Implements & Machinery and sustainability, Mahendra Research Valley (MRV), 19-09-2018
- Industrial Artificial Intelligence by Mr. Kuruvilla Lukose, CTO Altair Engineering India, 20.09.2018
- Importance of Microstructural Design in Manufacturing by Dr. Sushanta Kumar Panigrahi, Department of Mechanical Engineering, IIT Madras, 24-09-2018
- Tribology 4.0 by Dr. Tomasz, University of Leeds, UK 04-10-2018
- Cold Storage/ Chain Opportunities in India by Mr. Ajit Pandalai, Director, Strategy and Organization Development for Cold Point Pvt. Ltd., Chennai under ISHRAE student chapter, 03-10-2018
- Building cooling and Air-Conditioning technologies by Mr. D. Balaji, Founder member of ISHRAE Chennai Chapter, HVAC Consultant for Voltas ,Utility and Blue Star under ISHRAE student chapter 12-10-2018
- Sensors, Actuators and Torque co-ordination in gasoline engines by Mr. Sarat Chandara Prasad, Sr. Lead Engineer, Mahindra Research Valley, Mahindra & Mahindra Ltd. 12-10-2018

## Guest lecture by experts (continued)

- Non-destructive testing and its application by Mr. R. Baskar, Technical Director, PCN coordinator, BIT Inspection Technology pvt ltd. 13-10-2018
- Motivational talk on energy and power by Dr. Suresh MVJJ, GE India Technology Centre, Bengaluru. 11-01-2019
- Energy conservation by Mr. Panneerselvam Premkumar, Energy Consultant, Former DGM – Delphi TVS & Mr. Anil Kumar Kurapati, External Faculty – PCRA. 28-09-2018

## FDP/Workshop conducted

- Two days' workshop on "Experimental vibration", 7-8th September 2018
- Five days FDP on "Recent advances in Renewable energy Technologies for Sustainable Development", 26-30 November 2018
- Two days' workshop on "Recent developments in metal forming and its research aspects", November 29-30th 2018
- Three days' workshop on "Recent trends in Optimization", December 6-8th 2018
- Five days FDP on "Recent Advances in Renewable Energy Technologies and Sustainable Development", November 26 - 30, 2018
- Three days' FDP on "Recent Trends in Optimization (RTIO)", 6-8th December 2018
- One day workshop on "Current trends in Material joining process", 10-10-2018
- Five days FDP on "COORDINATE METROLOGY AND MEASUREMENTS (Integrated with Hands-on training on CMM, Machine Vision, and Roughness measurement)", 2-7th January 2019
- One day workshop on "Additive manufacturing and its implications", 25th January 2019
- One day workshop on "Scanning electron microscopy: Theory and Practice", 25th January 2019
- Two days FDP on "Design of Experiments (DOE)", February 7-8th 2019
- Six days short term course on "Finite Element Analysis (FEM)", March 4-9th 2019
- Seven days short terms course on "COMPOSITE MATERIALS: THEORY AND APPLICATIONS", (CMTA' 19), January 03 – 10, 2019
- One credit course on "Lean Manufacturing" was conducted during 26.2.19 to 05-03-19 by WABCO experts

## Alumni Talk Series

- **Mr. S. Siranjevi [2018 Alumni]**, Escorts Construction Equipment, Escorts limited, Chennai. Given a guest speech on "Run down of construction equipment industry" at G .D. Naidu hall on 01-03-2019.
- **Mr. Alokumar [2009 Alumni]**, Tata Motors, Bombay have visited the department on 01-03-19 and interacted with Students and Faculty.
- **Mr. Vikrant Srivastava [2012 Alumni]**, MS - RWTH Aachen University, Germany & Mr. Vishnu Raj [2012 Alumni], Singapore have visited the department on 15-03-2019 and shared their working experience Germany and Singapore respectively.

## Guest lecture given by Faculty

Faculty	Details of Guest Lecture
Dr. S. Prabhu	"ANOVA and Factorial design" at AICTE QIP Sponsored 6 days FDP on "Design of Experiments with Statistical modelling" at TKM College of engineering, Kollam, Kerala on 25th – 2nd March 2019
	"Taguchi analysis and Fuzzy logic analysis" at 2 days' workshop on "Design of Experiments", at Dept. of Mechanical, SRM IST, during February 7-8th 2019
Dr. Jitendra kumar Khatiyar	"Wear Monitoring", in MMM 2018, Dec 6 to 11th, 2018
	"Essential Teaching Techniques & Practices for Engineering Educators", on 27th & 28th December, 2018, in RVIT Bijnor, Uttar Pradesh.
Dr. Ranjeet kumar sahu	"Advances in Manufacturing: State of the Art Research", organized by Einstein Academy of Technology and Management, Bhubaneswar in collaboration with NIT Rourkela on 23-11-2018.
	"Advent of Corona Discharge Micro-manufacturing Method in the field of Nanoparticle Technology" in Degree Engineering College, SMIT, Odisha on 01-10-2018.
	"Innovations in Materials and Manufacturing", SRKR Engineering College (Autonomous), Andhra Pradesh in association with the IE on 01-03-2019.
Dr. S. Manikandan, & Dr. R. Senthil	"Instruments for Solar Photovoltaic Systems Monitoring and Conditioning" at One Day Workshop on "Instruments for Solar Photovoltaic Systems Monitoring and Conditioning" organized by Dept. of Electrical Engineering, sponsored by IE at SRM IST, Kattankulathur. Feb 20, 2019
Mr. Shubrajit bhaumik	"Recent trends in surface engineering" at Valliammai Engineering College, Chennai on 24th January 2019.
Dr. Shubrata data	"Design of Polymer Composites - Artificial Intelligence Approach" in 10th International Conference on Advancements in Polymeric Materials - APM-2019, CIPET, Chennai during 22nd to 24th January 2019.
	"Scope of Artificial Intelligence in ICME" in the Symposium on 'Integrated computational Materials Engineering' under National Metallurgists Day – Annual Technical Meet 2018, organized by Indian Institute of Metals at Kolkata during 4th to 16th November, 2018.
Dr. P. Balakrishnan	"Aerodynamics and its application in Aeronautics" at St. Peter's college of engineering, Chennai on 7th Feb 2019.
	"How lift is generated – Correct and Incorrect theories" at Vaayusastra Aerospace Pvt. Ltd., IIT Madras Research Park, Chennai on 25th Feb 2019.
Dr. Deepan Bharathy kannan	"Advanced welding techniques for industrial applications" at MEPCO Schlenk Engineering College on 8/02/2018
	"Fundamentals of welding, TIG, and Microstructural Analysis of the weld" at a workshop organized by Department of Mechanical Engineering, MEPCO Schlenk Engineering College, Sivakasi on 14/09/2018

## Patent Published/Filed

1. S. Manikandan, C. Selvam, and Pavan Sai Praful. "A Thermoelectric Cooling Device Encapsulating a Phase Change Material", Patent Application Number: 201841028136 (Published on 05-08-2018). Status: Published
2. Abhinav Srivastava, Priyansh tripathi, S. Manikandan. "A multifunctional power bank". Patent Application Number. 201841033382 A (Published on 14-09-2018). Status: Published
3. M. Prakash, N. Arun, Abburi lakshankumar. "A tool for Friction stir processing". Patent Application Number. 201841035152 A (Published on 28-09-2018). Status: Published
4. Abburi Lakshman Kumar, M. Prakash, Anujakale, M. Muralikrishna. "A tool holder for a subtractive manufacturing machine", Patent Application Number. 201841036917A (Published on 05-10-2018). Status: Published
5. V. Thirunavukarasu, M. Cheralathan. "An Evacuated solar cavity receiver". Patent Application Number. 201841007044A (Published on 25-01-2010). Status: Published
6. M. Uma, T. Sheela, and S. Prabhu. "A system for Gesture detection and controlling an apparatus," Patent Application Number. 201941000316 (Filed on 03.01.2019). Status: Filed
7. Shubrajit Bhaumik, Shubhabrata Datta, Behanan Roy Mathew. "A composition and method for preparing a lubricant blend with multiple vegetable oils and

## International Conference Presented/Participated

- Dr.T V V L N Rao, Research Associate Professor have been attended and presented a paper titled on "Analysis of Magnetohydrodynamic Partial Slip Texture Slider and Journal Bearing" at ASIATRIB2018 from 17-20 September 2018 in Kuching, Malaysia.
- Shubrajit Bhaumik<sup>1,\*</sup>, Rishabh Maggirwar<sup>1</sup>, Viorel Paleu, published paper titled "Enhancing tribological properties of cashew nut shell liquid (CNSL) with reduced graphene oxide(r-GO) as a friction modifier" in Proceedings of Asia International Conference on Tribology 2018, pp. 411-413, September 2018.,Kuching Sarawak,Malaysia
- Kishore Kumar, Dinesh Shanmugam, Seung Nam Min, Murali Subramaniyam\*. "Assistive Technologies for Lower Limb Exoskeleton System - A Short Review". The 3rd International Conference on Inventive Systems and Control (ICISC 2019), January 10-11, 2019, Coimbatore, Tamilnadu, India. (\*corresponding author).
- S. Vignesh and U. Mohammed Iqbal 2018, Experimental Investigation on Machining parameters of Hastelloy C276 under different Cryogenic Environment, In Proc. of 7th International and 28th All India Manufacturing Technology, Design and Research (AIMTDR 2018) conference held at Anna University, Chennai during 13th to 15th December 2018.
- S. Vignesh and U. Mohammed Iqbal 2019, Characterization of Nano cutting fluids and its performance study in end milling of AA6082, In Proc. of 5th International Conference on Nano Science and Nano Technology (ICONN 2019) held at SRM Institute of Science and Technology during 28-30 January 2019.
- Mr.P.Sudhakar, presented a paper titled"Experimental study on phase change materials based solar air heater", in the 4th International conference on recent advancement in chemical, Environmental and Energy engineering, during 14-15th Feb 2019 held at SSN college of Engineering,Chennai.
- Seung Nam Min, Seoung Eun Kim, Murali Subramaniyam, Kyung Sun Lee, Dong-Joon Kim, Se Jin Park. "Effect of the Office Chair with and without Posture Correction Cushion – A Comparative Analysis". 2018 Fall Conference of Korean Society for Emotion and Sensibility, 8-9-November-2018. (Best paper award under poster Session)
- Dong-Joon Kim, Hung Shil Kim, Seoung Kwang Lim, Seung Nam Min, Kyung Sun Lee, Murali Subramaniyam, Se Jin Park. "Difference of Electrocardiography Parameter in Patient with Stroke and Healthy Elderly".2018 Fall Conference of Korean Society for Emotion and Sensibility, 8-9-November-2018.
- Mr. K. Gokul, has presented a research paper "Survival of Mechanical properties after water absorption on coconut shell filled banana fiber polymer composite" in International conference on "Advanced Technologies for societal application-Techno societal 2018" held at SVERI's COLLEGE OF Engineering, Pandharpur,M.P during 14-15th Dec 2018.
- Mr.A.Vinoth, presented a paper titled "Optimization of Mechanical characteristics of UHMWPE composites using Computational Intelligence" in the second International conference on structural integrity (ICONS 2018) at IIT Madras during 15th to 17th December, 2018.
- Jitendra Kumar Katiyar, Shubrajit Bhaumik, Ashwin Ashok and Anuj Kumar Sharma, "Physiochemical Properties of Hexagonal Boron Nitride Blended Coconut Oil", TriboINDIA 2018, VJIT Mumbai, December 13-15, 2018.
- Vrajesh Lakhani, Gowtham Anandan, Ashok Chandak, Jitendra Kumar Katiyar, T V K Gupta, "Experimental Investigations on Single and Multiple Layer Laser Cladding with Stellite 6", International Conference on Advancements and Futuristic Trends in Mechanical and Materials Engineering, November 15-17, 2018.
- P. Balakrishnan, K. Srinivasan, and Kannan BT, Subsonic Jet Noise Reduction Using Co-axial Flat Vane Swirlers. 7th International & 45th National Conference on Fluid Mechanics and Fluid Power, IIT Bombay, 10 - 12 Dec 2018, India.
- Kannan BT, and P. Balakrishnan, Effect of Upstream Turbulent Intensity on the Flow Field of Multiple Jets using OpenFOAM®. 7th International & 45th National Conference on Fluid Mechanics and Fluid Power, IIT Bombay, 10 - 12 Dec 2018, India.
- Shardul Vikram Singh, Pankaj Kumar, Numerical Investigation of Flow Interactions between Two Cylinders at different Angular Position, presented in FMFP 2018 (7th International and 45th National Conference on Fluid Mechanics and Fluid Power) held on December 10-12, 2018, IIT Bombay, Mumbai.
- Ranjeet Kumar Sahu, Vijay Kumar Pal, and Pankaj Kumar, Micro-structural and Size Accuracy Study of Electro-Chemical Machined Aluminium alloy Features" in the 7th International and AIMTDR 2018 held during December 13-15, 2018, Anna University, Chennai.
- Jitendra Kumar Katiyar and Vinay Kumar Patel, "Nanoenergetic Materials on a Chip", In: Bhattacharya S., Agarwal A., Rajagopalan T., Patel V. (eds), Nano-Energetic Materials. Energy, Environment, and Sustainability. Springer, Singapore, 123-139, ISBN No. 978-981-13-3268-5.
- Vinay Kumar Patel, Jitendra Kumar Katiyar, Shantanu Bhattacharya, "Solid Energetic Materials Based Microthrusters for space applications", In: Bhattacharya S., Agarwal A., Rajagopalan T., Patel V. (eds), Nano-Energetic Materials. Energy, Environment, and Sustainability. Springer, Singapore, 241-250, ISBN No. 978-981-13-3268-5.

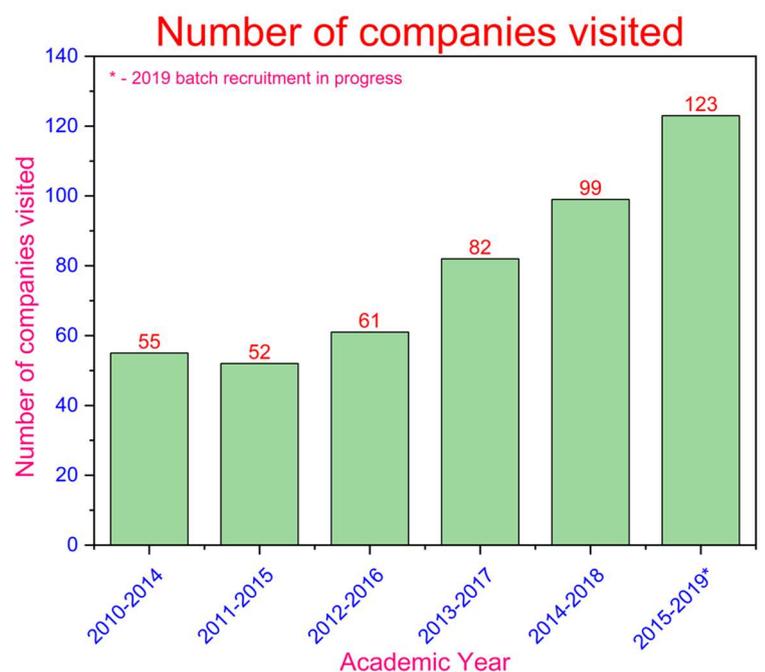
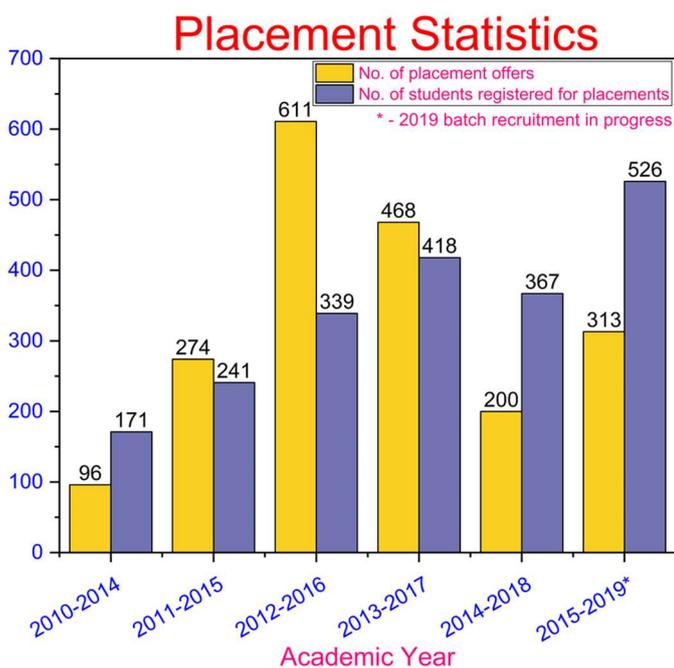
## Journal Publication

1. Ninety eight papers from ICAME 2018 were published in Scopus Indexed "IOP Conference Series: Materials Science and Engineering, 402(1), ISSN" 1757-899X by the Department of Mechanical Engineering Faculties.
2. Murali Subramaniyam, Seoung Eun Kim, Se Jin Park, Seung Nam Min. "Trunk Muscle Activities during Lifting in Upright and Stooped Postures". International Journal of Engineering Research and Technology, vol. 10(2), 245-254, 2019 (Scopus)
3. Kim, S. E., Min, S. N., Subramaniyam, M., & Kim, S. K. (2019). Effects of correction program on back muscle functional asymmetry among squash players. International Journal of Mechanical Engineering and Technology, 10(2), 597-606.
4. Mahato, N. K., Dhason, R., & RAM, D. R. (2019). Quantifying Range of Motion and Stress Patterns at the Transitional Lumbosacral Junction: Pilot Study Using a Computational Model for Load-Bearing at Accessory L5-S1 Articulation. International journal of spine surgery, 13(1), 17-23.
5. Prabhu, S., Ambigai, R., & Vinayagam, B. K. (2019). Thermal and surface analysis of copper-CNT and copper-graphene-based composite using Taguchi-Grey relational analysis. Australian Journal of Mechanical Engineering, doi:10.1080/14484846.2019.1581450.
6. Venkatachalam, T., & Cheralathan, M. (2019). Effect of aspect ratio on thermal performance of cavity receiver for solar parabolic dish concentrator: An experimental study. Renewable Energy, 139, 573-581.
7. Bharathy, S., Gnanasikamani, B., & Radhakrishnan Lawrence, K. (2019). Investigation on the use of plastic pyrolysis oil as alternate fuel in a direct injection diesel engine with titanium oxide nanoadditive. Environmental Science and Pollution Research, doi:10.1007/s11356-019-04293-0.
8. Dr.S.Shashikumar, N.Murugan, K.K.Ramachandran, "Friction stir welding of AISI 316L stainless steel in a 3.5 NaCl aqueous solution:Metallurgical and Mechanical Characterization", Materials Performance and Characterization, ASTM International, Online Feb 2019.Scopus Indexed:0.475.
9. Kumar, P. (2019). Numerical investigation of fluid flow and heat transfer in trapezoidal microchannel with groove structure. International Journal of Thermal Sciences, 136, 33-43. doi:10.1016/j.ijthermalsci.2018.10.006.
10. Singh Sivam, S. P. S., Rajasekaran, A., RajendraKumar, S., Sathiyamoorthy, K., & Gopal, M. (2019). A study of cooling time, copper reduction and effects of alloying elements on the microstructure and mechanical properties of SG iron casting during machining.Australian Journal of Mechanical Engineering, doi:10.1080/14484846.2018.1560679.
11. Dutta, T., Dey, S., Datta, S., & Das, D. (2019). Designing dual-phase steels with improved performance using ANN and GA in tandem. Computational Materials Science, 157, 6-16. doi:10.1016/j.commatsci.2018.10.020.
12. S. Vignesh, U. Mohammed Iqbal, G. Tigere, "Optimization of End Milling Process of OHNS under different cutting environment using Taguchi and Response Surface Methodology (RSM) Approach, International Journal of Advances in Materials and Processing Technologies, Taylor & Francis Publishers, 5(1), 78-94, 2019. (Scopus)
13. Sundar Singh Sivam, S. P., Kumaran, D., Saravanan, K., Umasekar, V. G., Rajendrakumar, S., & Moorthy, K. S. (2018). Thickness distribution and numerical modelling of conventional superplastic forming in AA2024 alloy. International Journal of Modern Manufacturing Technologies, 10(2), 76-85.
14. Dr.S. Shashi Kumar, N. Murugan, K.K. Ramachandran, Identifying the optimal FSW process parameters for maximizing the Tensile Strength of Friction Stir Welded AISI 316L Butt Joints, Accepted in Measurement Journal, Elsevier, Impact factor:2.218. (SCIE)
15. Subhamita Chakraborty, Prasun Das, Kaveti Naveen Kumar, P.P. Chattopadhyay, Shubhabrata Datta: MCDM towards knowledge incorporation in ANN models for phase transformation in continuous cooling of steel – Multidiscipline Modeling in Materials and Structures, Vol. 15 (2018), pp. 170-186. (SNIP 0.439) (Scopus)
16. Swati Dey, Nashrin Sultana, Partha Dey and Shubhabrata Datta: Intelligent design optimization of age-hardenable Al alloys – Computational Materials Science, Vol. 153 (2018), pp. 315-325. (Impact Factor: 2.53) (SCI)
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19. Seung Nam Min, Jung Yong Kim, Murali Subramaniyam, Dong-Joon Kim, Joo-Hyun Jung, Kyung Sun Lee. "Evaluation of flow level through pupil size, blink rate and blink duration in different types of smartphone games". Journal of Ergonomics Society of Korea, 37(5), pp.563-573, 2018 (KCI).
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21. Shubrajit Bhaumik, Behanan Roy Mathew, Shubhabrata Datta , Computational intelligence-based design of lubricant with vegetable oil blend and various nano friction modifiers, Fuels, Vol. 241, 733-743. Impact Factor 4.908. (SCI)
22. Anand Singh Rathaur, Jitendra K Katiyar, Vinay Kumar Patel, Shubrajit Bhaumik, and Anuj K Sharma, "A Comparative Study of Tribological and Mechanical Properties of Composite Polymer Coatings on Bearing Steel", International Journal of Surface Science and Engineering, 2018 Vol.12 No.5/6, pp.379 – 401. (SCIE)
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**Journal Publication**

25. Se Jin Park, Kyung-Sun Lee, Murali Subramaniyam, Hee-Ran Lee, Seung-NamMin, " Investigation of improvement strategy for Size Korea (anthropometry) database", got accepted into "WORK: A Journal of Prevention, Assessment, and Rehabilitation" Indexed in Social SCI with IF: 0.902.
26. B. Sachuthanathan, G. Balaji & R. L. Krupakaran, "Experimental exploration on NOx diminution by the combined effect of antioxidant additives with SCR in a diesel engine powered by neem biodiesel", in International Journal of `Ambient Energy, Taylor and Francis, Scopus indexed. SNIP:0.36.
27. Seung Nam Min, Dong-Jun Kim, Murali Subramaniyam. "Pilot Test to Build Back-Pain Diagnosis Support System". International Journal of Mechanical Engineering and Technology (IJMET), 9(6), pp. 1174-1179. (Scopus Indexed).
28. Infanta Mary Priya1 and BK Vinayagam, ",Enhancement of bi-axial glass fibre reinforced polymer composite with graphene platelet nanopowder modifies epoxy resin", published in Advances in Mechanical Engineering, 2018, Vol. 10(8) 1–10, Sage Publication, Impact factor:0.848. (SCIE)
29. P.Balakrishnan, K.Srinivasan, "Impinging jet noise reduction using non-circular jets" Applied Acoustics, Volume 143, 1 January 2019, Pages 19-30, Elsevier, Impact factor:1.721. (SCIE)
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36. Tanusree Dutta, Debdulal Das, Siddhartha Banerjee, Sanjoy Kumar Saha and Shubhabrata Datta: An automated morphology-based classification of ferrite-martensite dual-phase microstructures – Measurement, Vol. 137 (2019), pp. 595–603. (Impact Factor: 2.218).

**Placement Details**



# ICAME 2020 – 3rd International Conference on Advances in Mechanical Engineering.

The primary goal of the ICAME 2020 is to promote research and developmental activities in mechanical engineering. Another goal is to promote scientific information interchange between researchers, developers, engineers, students, and practitioners working around the world. You are cordially invited to participate and contribute.

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## 3<sup>rd</sup> International Conference on Advances in Mechanical Engineering

**ICAME 2020**  
**February 24 - 29, 2020**

**Convener**  
**Dr. S. Prabhu**

**Coordinators**  
**Dr. G. Balaji**  
**Dr. M. Prakash**  
**Dr. S. Murali**

**Organized by**  
**Department of Mechanical Engineering**  
**SRM Institute of Science and Technology (SRMIST)**  
**Kattankulathur, Chennai - 603203, India**

<http://www.srmuniv.ac.in/icame-2020>

## 3<sup>rd</sup> INTERNATIONAL CONFERENCE ON ADVANCES IN MECHANICAL ENGINEERING (ICAME - 2020)

### 1<sup>st</sup> INTERNATIONAL CONFERENCE ON RECENT ADVANCES IN COMPOSITE MATERIALS (ICRACM - 2020)

FEBRUARY 24 - 29, 2020

#### DEPARTMENT OF MECHANICAL ENGINEERING, SRM INSTITUTE OF SCIENCE AND TECHNOLOGY

**3<sup>rd</sup> International Conference on Advances in Mechanical Engineering (ICAME 2020): 27-29th Feb.**

The primary goal of the conference (ICAME 2020) is to promote research and developmental activities in mechanical engineering. Another goal is to promote scientific information interchange between researchers, developers, engineers, students, and practitioners working around the world. You are cordially invited to participate in the 3<sup>rd</sup> International Conference on Advances in Mechanical Engineering and the Associated Conferences, jointly held under one management and one registration. The conference focuses on a range of issues but not limited to: Solid Mechanics, Structural, Thermal, Energy, Manufacturing, Aerospace, Materials Science, Mechatronics, Robotics and Control, Micro and Nano Mechanics, Automotive, Biomechanics, Bioengineering, Industrial Applied Mechanics, Multidisciplinary and Emerging Areas of Engineering.

**(i) 1<sup>st</sup> International Conference on Recent Advances in Composite Materials (ICRACM-2020): 26th Feb.**

ICRACM-2020 aims at bringing together academicians and researchers in various disciplines to share knowledge and exchange views, for useful industrial applications of composite materials. This conference will broadly cover the following topics: polymer composites, metal matrix composites, ceramic composites and advanced ceramics, Nanomaterials and Nano-composites, Biomaterials and Bio-composites, testing and Quality control of composites, application of composites in low cost houses and bridges, composite technology, recent developments in fibre and tribological applications. The conference will facilitate discussion on the latest trends in the entire gamut of composite materials.

**(ii) Two Day Workshop on Advances in Finite Element Method: 24 - 25 th Feb.**

The major problem facing the engineering analyst contemplating the use of the technique lies in acquiring appropriate knowledge to provide assurance that the finite element model produced gives a reasonably reliable representation of the "real life" problems being analyzed. The workshop is designed to bridge the gap between the theoretical finite element knowledge and its industrial applications by providing sufficient insights into the relationship between the physical data (e.g., loads, boundary conditions, constitutive behavior, etc) and the finite element equations. This course is intended to provide graduate students, engineers, and researchers working in aerospace, automotive, civil, mechanical engineering, mathematics, and information technology industries as well as numerical analysts and materials scientists with the

theory and applications of linear finite element analysis of problems from heat transfer, fluid mechanics, solid and structural mechanics, and general field problems.

**(iii) One Day Workshop on Design of Experiments: 24th Feb.**

The objective of this workshop is to provide the participant's a theoretical and practical knowledge on the Design of Experiments and the skill required to analyze engineering problems with the commercially available software package. This workshop is designed in such a way that, in addition to the fundamental topics, advance topics have been included inline with the current research scenario which will be covered through expert lectures and hands on training.

**(iv) Two Day Workshop on Composites: 24 - 25th Feb.**

The objective of this workshop is to provide the participants a theoretical and practical knowledge on polymer composite materials. This workshop will be handled by Prof. DEBES BHATTACHARYYA, Distinguished Professor, Department of Mechanical Engineering and Director of the Centre for Advanced Composite Materials, University of Auckland, New Zealand. This workshop will broadly cover the following topics, Applications and manufacturing of composite materials, Mechanics of composite laminas/laminates, Failure prediction, analysis and design of sandwich structures.

**(v) One Day Workshop on Advances in Thermal Systems: 25th Feb.**

The objective of this workshop is to provide the participants a theoretical and practical knowledge on the latest advancements in thermal systems covering topics such as HVAC systems, Solar Technologies, Energy Storage, Refrigeration and Airconditioning systems, Heat Transfer, Nano applications in thermal, IC Engines, biofuels and fuel policies, emission control technologies, etc. These topics will be handled by distinguished professors and with industrial experts.

**ICAME 2018 Key Outcome:**

1, 208 selected papers from ICAME 2018 were published in "IOP Conference Series: Material Science and Engineering (ISSN: 1757-899X) – Volume 402, Number 1", SCOPUS, SNIP: 0.531. Papers can be downloadable at <https://iopscience.iop.org/journal/1757-899X/issue/1757-899X/402/1>

2. A paper has been accepted by the Journal of Applied Science and Engineering (ISSN: 1560-6686) SCOPUS, SNIP: 0.289

**About SRMIST**

SRM Institute of Science and Technology (formerly known as "SRM University") is located in an extensive sylvan campus of 140 acres skirting the National Highways (NH45), in the outskirts of Chennai. SRMIST is one of the top ranking Universities and most premier engineering destinations in India, which is established in 1985 by the Founder Chancellor, Dr. T.R. Paarivendhar. Now it is functioning in campuses located at Kattankulathur, Vadapattinam and Ramapuram in Chennai and one in Modi Nagar, Ghaziabad with over 40,000 students and 2,800 faculty members, offering wide range of undergraduate, postgraduate and doctoral programs in Engineering, Management, Medicine & Health Sciences, Agriculture Law and Science & Humanities. The Institution has moved up through international alliances and collaborative initiatives to achieve global excellence. SRMIST also collaborates with various foreign Universities. Now the Institute enjoys an unsurpassed reputation in academic and corporate circles being the preferred manpower source for vision to be recognized as a world class learning institution. SRMIST has been categorized as grade A by Ministry of Human Resources Development (MHRD); Government of India and also accredited by NAAC with "A++" Grade in the year 2018. SRM is Category 1 status institute as per UGC accreditation.

**About the Department**

The Department of Mechanical Engineering is one of the pioneering departments of SRM IST. The department is functionally divided into four broad areas of specialization: (i) Design (ii) Manufacturing (iii) Thermal and (iv) Materials Engineering. The B.Tech - Mechanical Engineering program at Kattankulathur campus is accredited by Accreditation Board for Engineering and Technology (ABET), USA. The department also offers M.Tech and Doctoral programs in various specializations. The present faculty strength is 135 in which 51 Faculties are PhD Holder. About 800+ research papers and 850+ conference papers have been published in national and international levels. More than 30 patents have been filed in national and international levels. The following salient workshops and conferences conducted by the Department of Mechanical Engineering were International Conference on Advances in Mechanical Engineering 2006, Short Course on Mechanics of Composite Materials and Structures: 2015, Workshop on Development, Manufacturing and Analysis of Advanced Composites, 2015 and short course on FEM, 2015, National Conference on Advances in Mechanical Engineering (NCAME 2016), Brain Wave - Robotics, 2017, International Conference on Advances in Mechanical Engineering (ICAME 2018).

**Publication Details**

- IOP Conference Series: Material Science and Engineering (ISSN: 1757-899X) – SCOPUS Indexed
- Journal of Applied Science and Engineering (ISSN: 1560-6686) – Emerging SCI Indexed
- Materials Research Express (ISSN: 2053-1591) – SCIE Indexed (under communication)
- Journal of Mechanical Science and Technology (ISSN: 1726-6843) – SCIE (under communication)

- Discussing with reputed journals for publication.  
 - All submitted papers will undergo peer review process.

**Paper Submission Details (Tentative)**

Abstract submission deadline : 15th October, 2019  
 Full paper due : 15th December, 2019  
 Notification of acceptance : 1st January, 2020  
 Preliminary program : 1st February, 2020  
 Conference : 24th - 29th Feb, 2020

**Registration Details**

	Plan A*	Plan B**
Delegate (Foreign)	: US\$ 100	US\$ 200
Delegate – Industry (India)	: Rs. 7500	Rs. 15000
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\* Plan A: Abstract + Lunch + Refreshments  
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For inclusion in the ICAME 2020 Proceedings (Abstract Book) and Publication, at least one registration per submission is required by 10 February, 2020.

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