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Editors: Dr. C. Velmurugan, Mr. B. N. Sre	eharan Associate Editors	: Mr. P. Kapil, Mr. K. Arun,

## **Events Organized**

• Department Organized a Guest Lecture on "Scope and Importance of Non Destructive Techniques in Industries" on 02.02.2019.





Mr. Naresh, Technical Head and Mr. G. Shiva, Technical Head delivered the guest lecture.



Dr. C. Velmurugan, HoD/ME and Mr. R. S. Mohan Kumar, AP/ME coordinated the event.

- Dr. C. Velmurugan, HoD/ME and Mr. M. A. Vinayaga Moorthi, AP (II)/ME represented the department as Event Organizers in organizing "The Future of Higher Education Leadership Conclave" conducted during 13.02.2019 and 14.02.2019.
- Dr. V. Muthukumaran, Professor/ME and Dr. S. Balaji, AP/ME organized a One-day Workshop on "Current Happenings in e-Mobility and Automation" on 21.02.2019.



Mr. Ross McCulloch, Rivian, California and Mr. Balaji Thangapandiyan, CEO, Technoverse, India were the chief guest who conducted the workshop.



 Another Guest Lecture on "Advanced Welding Processes" was organized by the department in association with our IWS Students Chapter on 26.02.2019.



Dr. N. Murugan, Professor of RAE, PSG College of Technology, Coimbatore delivered the guest lecture. Mr. V. Manivelmuralidaran, AP/ME and Dr. K. K. Arun, coordinated the event.

## **Industry Institute Interaction**

Dr. V. Muthukumaran, Professor / ME, Dr. K. M. Senthilkumar, ASP/ME & Mr. P. D. Devan, AP/ME attended IMTEX 2019 – Tooltech 2019 during 24 to 30<sup>th</sup> January 2019, Bangalore.



# 24 To 30 Jan. 2019 Banglore.

 Dr. S. Sivakumar, AP III/ME, Mr. S. Suresh, AP/ME, Mr. S. Rajesh, AP/ME, Mr. P. Pradeep, AP/ME & Mr. M. Ramesh Kumar, AP/ME visited M/s. Hirotec India (P) Ltd., Coimbatore on 22.02.2019 as a part of Industry Institute Interaction.



## **Guest Lecture Delivered**

Dr. S. Bhaskar, ASP/ME, delivered a guest lecture at Sri Eshwar College of Engineering titled on the topic "Affiliation System Versus Autonomous System" to inculcate the knowledge required to transform from affiliation to autonomous.

## **Journal Publications**

Babin, T., Sangeetha, N., Sudalaiyandi Durgesh, P. published a paper entitled "Reducing the drag resistance of automotive cars by diminishing the wake separation zone" in AIP Conference Proceedings Scopus indexed, Nov 27, 2018 - AIP Conference Proceedings Vol 2039, 020078 (2018); https://doi.org/10.1063/1.5079037"

## Consultancy

Mr. Jeeva B, AP/ME offered consultancy to Mr. R. Rohith (Final Year student, Department of Automobile Engineering, KCT) in Biodiesel (Fatty acid Methyl ester composition) using Gas chromatography.

## **Students Activities**

- Mr. R. Gokula Krishnan from 3rd year Mech B has participated and get the 1st prize in SIICA in Badminton event at MCET on 13th February, 2019.
- Mr. C. K. Krishnakanth from 2nd year Mech C has participated in Mr. Machinist event at KCT on 7th Feb, 2019.

- Ms. Rushethra P N from 2nd year Mech B has participated and got 3rd prize in the event "Muthamizhvizha" at Coimbatore Institute of Technology on 2nd Feb, 2019.
- She also had presented a paper in Ignitro 2K19 at Kongu Engineering College.
- Mr. Gowtham S from 2<sup>nd</sup> year Mech B has attended a workshop on Autodesk Fusion 360 workshop at National Institute of Technology, Trichy on 15th Feb, 2019.
- Mr. Scaria N Joy from 2nd year Mech B has attended a workshop on Industrial Design Thinking at Kumaraguru College of Technology, Coimbatore on 5th Feb, 2019.
- Mr. Vijay Balaji from 3rd year Mech has presented a paper article related to Nono Materials in ISTEM at Kumaraguru College of Technology, Coimbatore.
- He also had participated in project Expo in FARFEST event at RVS college of Engineering.
- Mr. Naveen Raj V from 3rd year Mech B had attended an In-plant training at Sri Gowrish CNC pvt. Ltd., from 08th Feb to 12th Feb, 2019.
- Mr. J. Kishore had attended the one day workshop on Industrial Design Thinking at Kumaraguru College of Technology, on 5th Feb 2019.
- Mr. K. Sathish from 2nd year Mech B has participated and got 2nd prize in Volley ball tournament in the CIT COVAI TIES 2019 held at CIT, Coimbatore from 1st Feb to 9th Feb 2019.
- He also had participated and got 1st prize in Volley ball tournament in the 8th SIICAA tournaments for the year 2018-2019 held at Dr. Mahalingam College of Engineering and Technology, Pollachi from 23rd Feb to 26th Feb, 2019.

### **Mechanical Engineering Association**

Mechanical Engineering Association (MEA) organized an awareness and interactive seminar on "Intellectual Property Right" on 26.02.2019.



Dr. K. Paramasivam, Head, Intellectual property Rights (IPR) Cell created the awareness.



Mr. Arun K from 3rd Year Mech-C and Mr. Kapil Anandh P from 2nd Year Mech-B coordinated in organizing this seminar.



The aim of the seminar is to inculcate the knowledge required by the student to patent their product developed during Engineering Clinics.



# **I-STEM 2019**

Following are the details of the paper presented by the students and faculty members of the department in the Second International conference on Science, Technology, Engineering and Management (I-STEM 2019) February 15th & 16th, 2019 conducted by our institution.

S. No.	Authors	Title
1	Raghul S, Ajay R, Sam vimal kumar S, Thirumalaimuthukumaran M	Design and Fabrication Of FNR-Planetary Gear Box
2	Arun A P, S.S. Dhamotharan , Balaji M, Prakash R	Application of Total Productive Maintenance to Enhance Overall Equipment Effectiveness in Yarn Manufacturing
3	V. Arun, V. Manivel Muralidaran, R. Sedhu Siddarth	Design of Workplace in Assembly Unit Using Ergonomic Principles
4	Siddhan Sivakumar	CFD Analysis for Optimal Designing of Radiator Axial Fan
5	S.Thirumurugaveerakumar, Gowtham V	Design and Analysis of Muffler to Reduce the Back Pressure
6	R.S.Mohan Kumar, M.A.Vinayagamoorthi	Design and Fabrication of Automated Inbuilt Hydraulic Jack for Light Motor Vehicle
7	Arun A P, S.R. Pragadeshwar, Krishnamoorthi K, Arjun Krishna S	Design and Implementation of Lean Manufacturing System in Diffuser Housing
8	Sangeetha N, and Mohanraj K	Review on Design and Method to Predict Fatigue Life of An Anti-Vibration Mount
9	S.Sivakumar, C.Velmurugan, V Sujith, S.Santharaj, S Kalaivendhan	Enhancing the Efficiency of Solar Thermal Collector by Physical Vapour Deposition Nano Coating
10	S. Bhaskar	A Study on Causes of Underemployment of Engineering Graduates Through Quality Control (Qc) Tool - Affinity Diagram (Kj Method)
11	Sathyabalan P, Srimath N	Characterization of Stainless Steel 410 L Pta Hardfaced Valve Seat Rings
12	Siddhan Sivakumar, S.Dhinesh, J.K,Kani naina mohammed, Sanju. M	Design and Mathematical Modelling of Electro Magnetic Motor
13	Manivel. R, Siddhan Sivakumar, A.Arunraja, S.Sibisurya, M.Santhosh	Effect of Dynamic Stress on Heavy Duty Centrifugal Pump Assembly Through Fluid Structure Interaction
14	C. Kannan, P. Sathyabalan, S. Ramanathan	Numerical Investigation of Natural Convection Heat Transfer Enhancement in Rectangular Fins with Different Perforation
15	M. Balaji, S. N. Dinesh, A.P. Arun, V. Manivel Muralidaran	An Application of Balanced Scorecard Approach in Measuring Supply Chain Performance
16	Sathyabalan P, Srimath N	A Neural Network Model for The Compressive Strength of a Hybrid LM6 Aluminium Alloy Composite
17	Jeeva. B, Jai Sandeep. S, N. Ramsundram	Experimental Investigation of Three Bladed Inclined Savonius Hydrokinetic Turbine by Using Deflector Plate
18	Prabhu S, Rajesh S	Experimental Investigation of PEM Fuel Cell Stack with Common Rail Using Computational Fluid Dynamics
19	S. Thirumurugaveerakumar	Temperature Variation Study on Industrial Bus Duct System by Matlab and FEA
20	Siddhan Sivakumar, Sathyabalan P	FEA Assisted Design and Structural Analysis of Vertical Axis Wind Turbine Rotor

S. No.	Authors	Title
21	Devan P D, Arun K K	Design and Analysis of Heat Recovery Shield at Hot Rolling Mill in Steel Industry
22	R. S. Mohan Kumar, C. Velmurugan	Optimization of Blanking Die Design Parameters Through Mathematical Modeling and Genetic Algorithm Based Exploration for AISI 304 Sheet Material
23	Dhamotharan S S, Arun A P, Manivel Muralidaran V	Optimization of Mould Base Production Using Ranked Positional Weighted Method and Single Minute Exchange of Die System
24	Devan P D	Determination of Natural Frequencies of Spur Gear in Portal Axle Gearbox
25	Karikalan R, Sreeharan B N, Rallish Rahuman Khan J, Akilan S	Productivity Improvement Using Lean Concept in Automotive Welding Fixture Manufacturing Industry
26	K. Praveenkumar, K. M. Senthil Kumar	Review on Biomaterials
27	S. Sivakumar, C. Velmurugan, S. Ramanathan M. Thennavan, B. Anbarasan, Pradhip	Design of Solar Auto Tracking with Water Pump System
28	Karthi P, Prasanth P	Experimental Investigation on Effect of LPG On Bio Diesel Fuelled Engine
29	Manivel. R, Muthukumaran. V, Nekilesh. S, Kandharooban. S	Design of Thermal Storage Using Phase Change Material (Pcm) For Agro Products Preservation
30	Pavithra S, Muthukumaran	A Comparative Experimental Study on The Water Repellency Property of Beeswax Treated and Bacterial Cellulosic Material
31	P. Sathyabalan, M. D. Puhazhendhi, K. R. Aranganayagam, R. Kannan	Electrodeposition of Transition Metal Composites on Mild Steel: Structural and Wear Behaviour
32	Jeevarathinam A, Muthukumaran V, Tharoon T	Mathematical Modeling and Optimization of Cutting Parameters of Epoxy Granite Using Taguchi Method
33	Hariram VR, Muthukumaran. V, Padmanabhan. K. K	A Review of Implementation of Lean Tools Across Verticals in Manufacturing
34	S. Balasubramanian, Hari Sankar. R	Analysis and Finding Technical Enablers Using Ism for Industry 4.0 In Indian Agricultural Industries
35	T. Suresh, S. Prabhu, B. Prabhu, S. Ramanathan and F. Justin Dhiraviam	Investigation of Performance and Emission of Ic Engine Using Porous Medium Cylinder Head
36	David Anson V, Bhaskar S	A Study Using Failure Mode and Effect Analysis on Tea Leaves Processing - Leaf Shredder Machine
37	T. Karuppusamy, C. Velmurugan	Experimental study on the wear rate and hardness vs. Aging time on the reinforced aluminium composites
38	Vinayagamoorthi M A, Prince M, Mohan Kumar R S	An Experimental Study on Friction Stir Welding Using M42 On AISI 1018 Steel Plates
39	Lavanpriya. C, MuthuKumaran .V	Design of Agile Supply Chain Model Using Fuzzy Logic Approach in Manufacturing Industry
40	S. Suresh, R. S. Mohan Kumar, Arun G P, Siva M	A Comparative Study on Tribological Behaviour Of Pongamia Biodiesel Blended Lubricant with Cardanol Biodiesel Blended Lubricant at Different Loads
41	S. Ramanathan, S. Prabhu, T. Soudharya, T. Suresh, J. Jenish Sabarinathan, R. Jeyakumar	Numerical Study of Effects of Obstacles on Heat Transfer and Fluid Flow in Backward Facing Step Flow



## **Department of Mechanical Engineering**

### **INSTITUTE VISION**

The vision of the college is to become a technical university of International Standards through continuous improvement.

### **INSTITUTE MISSION**

Kumaraguru College of Technology (KCT) is committed to providing quality Education and Training in Engineering and Technology to prepare students for life and work equipping them to contribute to the technological, economic and social development of India. The College pursues excellence in providing training to develop a sense of professional responsibility, social and cultural awareness and set students on the path to leadership.

#### **DEPARTMENT VISION**

To emerge as a center that imparts quality higher education through its program in the domain of Mechanical Engineering to meet the changing needs of the society.

#### **DEPARTMENT MISSION**

Bring about supremacy in curricular and co-curricular sustained activities with competent faculty through teaching and research, that generates technically capable mechanical engineering professionals to serve the society with delight and gratification.

#### **PROGRAMME OUTCOMES (POS)**

- **1.** Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
- 2. Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
- **3.** Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
- 4. Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
- **5. Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
- 6. The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

- **7.** Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
- 8. Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
- **9.** Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
- **10. Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
- **11. Project management and finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
- **12.** Life-long learning: Recognize the need for and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

#### **PROGRAMME EDUCATIONAL OBJECTIVES (PEOS)**

- **PEO 1** : Graduates will take up careers in manufacturing and design related sectors.
- **PEO 2** : Graduates will be involved in the execution of mechanical engineering projects.
- **PEO 3** : Graduates will take up educational programmes in mastering Mechanical Engineering Science and Management.

### **PROGRAMME SPECIFIC OUTCOMES (PSOS)**

- 1. Apply the fundamentals of science and mathematics to solve complex problems in the field of design and thermal sciences.
- 2. Apply the concepts of production planning and industrial engineering techniques in the field of manufacturing engineering.