



P. A. COLLEGE OF ENGINEERING AND TECHNOLOGY
POLLACHI, COIMBATORE - 642 002
An Autonomous Institution
Accredited by NAAC with 'A' Grade
Accredited by NBA (CSE, ECE, EEE & Mech)
An ISO 9001:2015 Certified Institution



RESEARCH AND DEVELOPMENT CELL

Academic Research – Mechanical Engineering

Research Facilities

Sl. No.	Facility	Description (Equipments / Software Details)
01	Finite Element Analysis	ANSYS 14.0
02	Computer Aided Design	CATIA V6
03	Computer controlled Metal cutting process	CNC Wirecut Electric Discharge Machine, Moly wire Dia 0.18 mm
04	Additive Manufacturing	3D printer (FFF Technology), Dual Extruder, WIFI and Web enabled.
05	Universal Tensile Testing machine with double 1 shear attachment	40 Ton Capacity
06	Impact Testing Machine	300 J Capacity
07	Brinell Hardness Testing Machine	3000 N Capacity
08	Muffle Furnace	800° C

Supervisors

Sl. No.	Name of the Supervisor	Reference No.	Name of the University	Research Area	E-Mail ID	Phone No
01	Dr.D.Senthilkumar	2220442	Anna University	Cryogenic Treatment and Thermal Sciences	Kumarsen_2001@yahoo.com	9942499844
02	Dr.N.Zeelanbasha	3320096	Anna University	Metal Cutting, Optimization, Composite Materials	Zeelu6@gmail.com	9677438561

Research Scholars

Sl. No.	Name of the Scholar	Reg. No.	Name of the University	Name of the Supervisor	Research Area	Part Time/ Full Time	Status
01	Dr.A.Baskaran	7081032106	Anna University	Dr.P. Koshy Mathews Dean Research & Development, Kalaivani College of Technology, Coimbatore	Refrigeration	Part Time	Completed on 02.11.2016
02	Dr.T.Varun Kumar	11110331075	Anna University	Dr. B.Ganesh Babu, Principal, Roever College of Engg. & Tech., Perambalur	Agile Manufacturing, Composite Materials	Part Time	Completed on 22.06.2017
03	Dr.N.Gnanasekar	1414269144	Anna University	Dr. Rama Thirumurugan, Professor, Dept. of Mechanical Engg. Dr. Mahalingam College of Engg. & Tech., Pollachi	Fatigue and Fracture	Part Time	Completed on 28.04.2021

04	Dr.N.Manikandan	1614269185	Anna University	Dr. C. Sabarinathan, Professor, Dept. of Mechanical Engg.Hindusthan College of College of Engg. & Tech. Coimbatore	Nano particle Applications, Refrigeration	Part Time	Completed on 12.08.2021
05	Dr.M.Jayaraj	1414269766	Anna University	Dr. Rama Thirumurugan, Professor, Dept. of Mechanical Engg. Dr. Mahalingam College of Engg. & Tech., Pollachi	Composite Material	Part Time	Completed on 20.10.2021

Faculty Pursuing PhD outside PACET

Sl. No.	Department	Name of the Scholar	Reg. No.	Supervisor Details	Research Area	Name of the University
01.	Mechanical Engineering	Mr.V.P.Suresh Kumar	1414269188	Dr.K.ManikandaSubramanin Professor, Dept. Mechanical Engineering, Coimbatore Institute of Engineering and Technology, Coimbatore.	Nano materials	Anna University
02.	Mechanical Engineering	Mr.R.Mohammed Farooq	17182691266	Dr.S.Syath Abuthakeer, Assistant Professor, Dept. of Mechanical Engineering, PSG College of Technology, Coimbatore	Smart materials	Anna University
03.	Mechanical Engineering	Mr. K.Manikandan	17142691270	Dr.R.Ramamoorthi, Associate Professor, Dept. of Mechanical Engineering, Sri Krishna College of Engineering and Technology, Coimbatore.	Nitriding Process	Anna University

Journals

Sl. No	Title of the paper	Name of the journal	International / National	Vol. No. / Issue No./ Page No. / Year	Authors
1	Deep cryogenic treatment of En 31 and En 8 steel for the development of wear resistance	Advances in Materials and Processing Technologies	International	2021	D Senthilkumar
2	Tensile and residual stress behaviour of deep cryogenically treated EN31 steel	Advances in Materials and Processing Technologies	International	6/1/1-12/2020	D Senthilkumar
3	Enhancing thermal conductivity of water by using TiC nanopowder with cryogenic treatment	Materials Research Innovations	International	2019	D.Senthilkumar, Somchai Wongwises
4	Influence of deep cryogenic treatment on hardness and toughness of En31 steel	Advances in Materials and Processing Technologies	International	5/4/114-122/2019	D Senthilkumar
5	Influence of Cryogenic Treatment on TiC Nanopowder in R600a and R290 Refrigerant Used in Vapor Compression Refrigeration System	International Journal of Air-Conditioning and Refrigeration	International	2019	D Senthilkumar
6	Influence of deep cryogenic treatment on viscous behavior of TiC nanopowder/water nanofluid	Advances in Materials and Processing Technologies	International	4/4/ 548-557/ 2018	D Senthilkumar
7	Enhancing thermal behavior of SiC nanopowder and SiC/Water nanofluid by using cryogenic treatment	Advances in Materials and Processing Technologies	International	4/3/402-415/ 2018	D Senthilkumar, Chaiwat Jumpholkul, Somchai Wongwises

8	Influence of Silicon Carbide Nanopowder in R134a Refrigerant Used in Vapor Compression Refrigeration System	International Journal of Air-Conditioning and Refrigeration	International	01/25/1750007	D Senthilkumar
9	Effect of deep cryogenic treatment on residual stress and mechanical behaviour of induction hardened En 8 steel	Advances in Materials and Processing Technologies	International	02/04/427-436	D Senthilkumar
10	Cryogenic treatment:Shallow and deep	Encyclopedia of Iron, Steel, and Their Alloys	International	995-1007/2016	D Senthilkumar
11	Effects of deep cryogenic treatment on mechanical and tribological properties of AISI D3 tool steel	Friction	International	3/3/234-242/2015	Nay Win Khun, Erjia Liu, Adrian Wei Yee Tan, D Senthilkumar, Bensely Albert, D Mohan Lal
12	Thermophysical Behavior of Cryogenically Treated Silicon Carbide for Nanofluids	Materials and Manufacturing Processes	International	29/7/ 819-825/2014	D Senthilkumar
13	A research review on deep cryogenic treatment of steels	International Journal of Materials and Structural Integrity	International	8/1-3/ 169-184/2014	D Senthilkumar, I Rajendran
14	Investigations on the effect of cryogenic treatment on the behaviour of En 19 steel	Shodhganga, Chennai	International		D Senthilkumar
15	Fabrication of hybrid (AA6061/SiCp/B4C) composites using FSP method and analysing the thermal behaviour in the weld region	Materials Today: Proceedings	International	2021	N Subramani, R Haridass, R Krishnan, N Manikandan, A Baskaran

16	Thermodynamic analysis of di methyl ether and its blends As alternative refrigerants to r134a in a vapour Compression refrigeration system	Development	International	5/12/2018	ABaskaran, N Manikandan Sureshkumar VP
17	Effects of sub-cooling on the performance of r152a and re170 as Possible alternatives in a domestic refrigeration system		International	7/11/18	A Baskaran
18	Thermodynamic and thermophysical assessment of Dimethyl ether and its blends application in Household refrigerator		International	2018	A Baskaran, N Manikandan, VP Sureshkumar
19	Exergetic analysis of a vapour compression refrigeration system with R134A, RE170, R429A, R435A	International Journal of Current Advanced Research	International	6/6/4029-4036/2017	A. Baskaran
20	International Journal of Current Advanced Research		International	6/6/4029-4036/2017	A Baskaran
21	A performance study of Vapour compression refrigeration system using ZrO2 Nano particle with R134a and R152a	International Journal of Scientific and Research Publications	International	6/12/2016	VP Suresh Kumar, A Baskaran, K Manikandan Subaramanian
22	Thermodynamic Analysis of R152a and Dimethylether Refrigerant Mixtures in Refrigeration System	Jordan Journal of Mechanical and Industrial Engineering	International	4/9/289-296/2015	Ayyalusamy Baskaran
23	Investigation of New Eco Friendly Refrigerant Mixture Alternative to R134a in	Australian Journal of Basic and Applied Sciences	International	9/5/297-306/2015	A. Baskaran

	Domestic Refrigerator				
24	Energy and exergy analysis of a vapour Compression refrigeration system with r134a, R152a and re170	Archives Des Sciences	International	66/3/1-15/2013	A. Baskaran
25	Comparative Study of Environment Friendly Alternatives to R12 and R134a in Domestic Refrigerators	European Journal of Scientific Research	International	92/2160-171/2012	A. Baskaran
26	A Performance comparison of vapour compression refrigeration system using various alternative refrigerants	International Journal of Scientific and Engineering Research	International	3/10/1-8/2012	P.Koshy Mathews A.Baskaran
27	Thermal analysis of vapour compression refrigeration system with R152a and its blends R429A, R430A, R431A and R435A	International Journal of Scientific & Engineering Research	International	3/10/1-8/2012	A Baskaran, P Koshy Mathews
28	A Performance Comparison of Vapour Compression Refrigeration System Using Eco Friendly Refrigerants of Low Global Warming Potential	International Journal of Scientific and Research Publications (IJSRP)	International	2/9/1-8/2012	A Baskaran, P Koshy Mathews
29	Design and Development of Multi-functional Floor Cleaning Machine	IOSR JOURNAL OF MECHANICAL AND CIVIL ENGINEERING (IOSR-JMCE)	International	18/2/06-11/2021	T. Varun Kumar R. Praveen Kumar R. Raj Kumar M. Balakrishnan K. Logesh
30	SMEs Perception towards Adoption of Measurement System Analysis Strategy: A	IOP Conference Series: Materials Science and	International	954/1/012006/2020	T Varun Kumar, G Ramya, P Kowsalya, B

	Case Study in Pump Manufacturing Industry	Engineering			Shanmuga Priya, P Tharani
31	Optimising the Parameters and Increasing the Hardness of Duplex Stainless Steel by Annealing Process in Valve Manufacturing Industries	IOP Conference Series: Materials Science and Engineering	International	954/1/012005/2020	T Varun Kumar, K Karthick, K Dhanushkaran, D Jagadeesh
32	An Investigation Study on Effect of Pressure Die Casting Process Parameters on Mechanical Properties	International Research Journal of Modernization in Engineering Technology and Science	International	2/8/ 869-876/2020	S. Kowshik T. Varunkumar, G. Boopathi, J. Jaikishore, S. Jeevan prasad
33	Evaluation of mechanical and interfacial properties of carbon fiber reinforced polymer (CFRP) composite materials	Materials Today: Proceedings	International	21/477-482/2020	T Varun Kumar, V Manoj Mohan Prasad, D Santhosh, C Prasanth, K Ranjith
34	Effective performance and influence of automated inbuilt hydraulic jack in a four wheeler vehicle	International Journal on Engineering Technology and Sciences	International	6/5/34-37/2019	S. Manoj Prapakar and S. Sathyan T. Varun kumar , K.V. Santhosh , D. Hari prasath
35	Design and Fabrication of Domestic Herbal Water Filter	International Journal on Engineering Technology and Sciences	International	6/5/10-05/2019	K.V.Santhosh T. Varun kumar, V.Manoj Mohan Prasath ,C.Prashanth ,D.Santhosh
36	Effective Implementation of Quality Management System (QMS) in Small Scale Manufacturing Firms	International Journal of Engineering and Advanced Technology	International	8/4/62-67/2019	V. Shalini T. Varun kumar, R. Jerin Ahino, N.Dhayalan, V. Kathiresan

35	Prediction of Material Strength and Interfacial Properties of Carbon Fiber Reinforced Polymer (CFRP) Composite Materials	International Journal of Creative Research Thoughts	International	6/1/187-199/2018	k.Durai Murugan T. Varunkumar, K.R. Abinesh Kumar, J.AbishekRahuman , E.Aravindh
36	Qcdm culture design: a new paradigm in manufacturing sector to meet the customer satisfaction	International Journal of Mechanical Engineering and Technology (IJMET)	International	9/12/2018	T Varun Kumar, I Sayed Mohammed, K Palanivel Rajan, D Arun Prasad, K Kaleeswaran
37	Assessing the awareness of the agile manufacturing for organizational change in Indian small manufacturing firms: An empirical investigation	Journal of Organizational Change Management	International	2016	Varun Kumar, Ganesh Babu, Saravanan Muthusamy
38	Lean Six Sigma Approach to Improve Overall Equipment Effectiveness Performance: A Case Study in the Indian Small Manufacturing Firm	INTERNATIONAL JOURNAL FOR INNOVATIVE RESEARCH IN MULTIDISCIPLINARY FIELD	International	2/12/2016	T Varun Kumar, M Parthasarathi, S Manojkumar, S Selvaprakash
39	Characterization of New Natural Cellulosic Fiber from Coconut Tree Primary Flower Leaf Stalk Fiber (CPFLSF)	Journal of Natural Fibers	International	18/11/ 1844-1856/2021	Rama Thirumurugan, M Jayaraj, D Shanmugam, T Ramkumar
40	Investigation of Static and Dynamic Mechanical Properties of Short Palmyra Palm Leaf Stalk Fiber (PPLSF) Reinforced Polymer Composites	Journal of Natural Fibers	International	1-17/2020	Thiru Muruganrama, Jayaraj Mahalingam, Shanmugam Dharmalingam, Shanmugasundaram Natarajan

41	Optimization of process parameters using taguchi's design of experiment in wire cut electrical discharge machining	International Research Journal of Engineering and Technology (IRJET)	International	5/4/ 2794-2798	Arun Prasath .P Jayaraj .M
42	Mechanical and Water Absorption Behavior of Continuous Untreated and Alkali Treated Areca Palm Leaf Stalk Fiber Reinforced Polymer Composites	Ecology, Environment and Conservation	International	24/63-66	M. Jayaraj and I. Aravindhaguru N. Shanmugasundaram, I. Rajendran
43	Design and analysis of ultrasonic welding horn using finite element analysis	Int. J. Eng. Sci. Technol. Res	International	2/74-87	VP Suresh Kumar, N Manikandan, M Jayaraj
44	Design of Contact Stress Analysis in Straight Bevel Gear	International Journal of Computational Engineering Research	International	03/04/2013	N Mohan Raj, M Jayaraj
45	Fabrication Of Enhanced Solar Still with Power Generation		International		M Jayaraj, VP Surseh Kumar, J Jayasuriyaa Skandhan, G Giftson Jebadurai M Ajith Kumar
46	Influence of finite element model, load-sharing and load distribution on crack propagation path in spur gear drive	Engineering Failure Analysis	International	110/104383/2020	Rama Thirumurugan, N Gnanasekar
47	Investigation of the effect of load distribution along the face width and load sharing between the pairs in contact on the fracture parameters of the spur gear tooth with root crack	Engineering Failure Analysis	International	97/ 518-533/2019	Thirumurugan Rama, N Gnanasekar
48	Prediction of tooth root failure under static loading condition for EN353 steel spur gear	IOP Conference Series: Materials Science and Engineering	International	402/1/012158/2018	N Gnanasekar, Rama Thirumurugan, Arun Muthukumar, M Azmal Khan
49	Finite Element Simulation of Knuckle and Strut Arm Column Assembly for Automotive Steering System	International Journal of Vehicle Structures and Systems	International	7/4/ 128-131/2016	N Gnanasekar, Rama Thirumurugan, S Madhusuthanan