

BIO DATA

- 1 Name : **Dr. S. USHA**
- 2 Designation & College : **ASSOCIATE PROFESSOR**
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- 3 Residential Address : 2-123, 2nd floor,
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- 4 Date of Birth & Age : **24.01.1980; 43 Years**



5 Educational Qualifications

Sl. No.	Academic Qualification	Specialization	Institution / University	Year of Passing	Class Obtained
1	SSLC	-	St. Mary's Girls High School, Vellore	1995	I
2	DME	Mechanical Engineering	TPEVR Govt. College, Vellore	1998	I
3	B.E.	Mechanical Engineering	Sri Sai Ram Engg. College, Chennai	2001	I
4	M.E.	Engineering Design	BIHER University	2005	I
5	Ph.D.	Mechanical Engineering	IITDM Kancheepuram, Chennai -127	2017	-

- 6 Teaching Experience: UG - 16 Years
PG - 10 Years

- 7 Research Experience: 14 Years

FIELD OF INTEREST

- ➔ Design
- ➔ Mechatronics and robotics
- ➔ Smart materials
- ➔ Renewable Energy Engineering

8 Papers Published: **Journals - 17**
Conferences - 06

9 Scholars pursuing Research and completed PhDs } **Research Scholars pursuing research work - Nil**

10 Membership in Professional Bodies:

IAENG Member 255032 (IAEND - Indian Society of Mechanical Engineers)

11 ACHIEVEMENT & AWARD:

Best paper award (2nd place) for the paper titled “Development of Dielectric Electroactive Polymer Actuators for Robotic Applications”, at the International Conf. on Advances in Mechanical Engineering, 2-5 Dec 2010, Malaysia.

QEEE Committee organized by IIT Madras - FDP program in GCT, Coimbatore is attended and obtained the **appreciation certificate** for “Engineering Drawing – Machine Drawing” topic material preparation on October 2015.

Certificate of Appreciation by IIT Bombay for “Contributions by faculty for Recourses Repository Wiki” on 2016.

Certificate of Appreciation received from GCT, Coimbatore in Academic Award Ceremony 2015 for “Two Research paper publications”.

Certificate of Appreciation received from GCT, Coimbatore in Academic Award Ceremony 2016 for “Two Research paper publications”.

Received **Certificate of Appreciation**, and **Achiever award by TANCAM** (Tamil Nadu Centre of Excellence for Advanced Manufacturing) with TIDCO in association with Dassault Systems on March 2023.

12 PROJECT PROPOSALS SUBMITTED:

Glue Grant – Industry Infrastructure requirements project proposal entitled “**Industry 5.0 based Smart Manufacturing using Digital Twin & Cyber Physical System**” on 13.7.2022 to Glue Grant, New Delhi (Amount Rs.66.94 Lakhs). (Submitted)

Proposal entitled “**Design and Implementation of Efficient Wind Power Generating System by Modifying Windmill Mechanism**” in Government College of Technology, Coimbatore under state funding on 15.3.2023 to **CM research grant** (Amount Rs. 40.5 Lakhs). (Submitted)

Research Proposal entitled “**Thermoelectric Air-Conditioner for domestic household usage**” to CSIR – A special call for Research Grants for Women Scientists (CSIR-ASPIRE) on **30.4.2023** (Amount Rs.6.5 Lakhs). (Submitted)

13 CONSULTANCY

- **Consultant for TWAD - 8.65 MLD capacity sewage plant design verification officer duty – Rs. 1,18,000, Mettupalayam.**
- **Consultant for TWAD - 30.53 MLD sewage plant design verification officer duty (17 files verified) – L&T project on Aug 2020- Rs. 5,01,500.**
- **Consultant for M30 TPD-Udhagamandalam - dry solid waste plant - Machine Erection-Third party verification officer, on Jan 2021 Ooty, India – Rs. 97,350.**

14 ACADEMIC AND ADMINISTRATIVE ACTIVITIES

- Co-coordinating for Mechanical Department NBA work in Government College of Technology, Coimbatore.
- MoU Coordinator in Government College of Technology, Coimbatore.
- Faculty member for “Product Design and Development club” in GCT on May 2022.
- Gate class material is prepared and conducted the class for Mechanical Engineering department “Theory of Machines” topic on 16.11.2021 to 20.11.2021.
- GATE-Coaching class done for Mechanical Engineering department for the topics of Applied Mechanics and design on 23.4.2019.
- DOTE-Anna univ- Regulations 2017 - video lectures for ME8492 - KOM - 9 videos verified which was prepared by Mrs.P.Vijayalakshmi on June 2021.
- Research coordinator for Mechanical Engineering department in GCT, Coimbatore.
- Faculty member for student cooperative store on 2020.
- Responsible in developing the Automation Laboratory in Mechanical Engineering Department at Government College of Technology, Coimbatore.
- Doctoral Committee Members for PhD Scholars in Anna University Chennai.
- BOS Member in Mechanical Engineering department, Government College of Technology, Coimbatore.
- Presented technical lecture on “STTP on Practical Approaches in Robotics and Smart Material Technologies in the topic of Electro Active Polymer Actuators for Robotic Applications” from my research work in a STTP organized by IIITDM Kancheepuram, Chennai - 600127 on 24-28 June 2013.
- Industrial visit attended for 8 days along with 20 students to "Abirami Pumps Industries" on 2022.
- DC member for PSG Tech – PhD scholars and BIHER university PhD scholars.

- Kumaraguru College of Tech - Chairperson for the technical session of the Int.Conf for "Material Research in Science and Engineering 2021" on 23.7.2021.
- Sri Krishna College of Technology, Program advisory committee member, meeting conducted on 5.2.2020.
- Webinar conducted in Bharath Institute of Higher Education and Research - on the topic of "Influence of smart materials" on 1.12.2020 at 3.00 pm to 4.00 pm.
- Worked as a District level assessor for testing the skill development training of CNC turning operation on 22.1.2020 to 27.1.2020.
- Presented Lecture in Faculty Development Programme on 'SAR Criterion 6&7: Facilities and Technical Support, Continuous Improvement' in "Outcome based education and NBA accreditation' at GCT on 14.8.2019, Coimbatore, Tamilnadu.

15 SEMINARS / CONFERENCES / WORKSHOPS ORGANIZED

S.No	Topic	Place	Duration	
			From	To
1	Career opportunities in Indian army - Guest lecture organized as a coordinator to GCT students	GCT, Department of Mechanical Engineering , By Brigadier Ilangovan - Alumni	20.8.2019	-
2	Hands on training on CNC programming and operations – Coordinator to GCT students	GCT, Department of Mechanical Engineering	26.6.2019	--
3	Certified Virtual Internship Program - Topic is Power plant operations – organized as a coordinator	GCT, Department of Mechanical Engineering , by Chennai power and desalination training institute	6.7.2020	10.7.2020
4	Workshop on "Employability skill development workshop" organized as coordinator for 3rd year students	GCT, Department of Mechanical Engineering	3.1.2020	5.1.2020
5	CMM Training organized for non-teaching staffs - by Er. Mohan from Electronica Mechatronics systems	GCT, Department of Mechanical Engineering	23.8.2021	24.8.2021
6	"Skill sets for Industry 4.0"	IIRC, Department of	25.10.2021	-.

	organized as a coordinator for 3 rd sem Mechanical Engineering students	Mechanical Engineering, GCT		
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16 PhD PRODUCED: Nil

17 JOURNAL PUBLICATIONS

1. Usha. S, and Sreekumar. M., “Development of Dielectric Electroactive Polymer Actuator for Robotic Applications”, International Journal of Recent Patents on Mechanical Engineering, 2011, 4 (2), 180-187.
2. Usha. S, and Sreekumar. M., “Elastic Behaviour of DEAP film in the Development of Actuators”, Journal of Procedia Engineering- Elsevier, 2012, 41, 1154-1161.
3. S.Kunguma, S. Usha, “Multi Response Optimization of Quality Characteristics in CNC turning process of AA2285 Aluminium Alloy Using Response Surface Methodology” International Journal of Engineering Technology Science and Research,2(3), March 2015.
4. Dr .K. Ramesh, S. Usha, U.Ameer Abbas, P. Mohamed Shameer, Investigations on the Performance and Emission Characteristics of Enzymatic Coconut Oil-Diesel Blends In a DI Diesel Engine, SSRG International Journal of Mechanical Engineering (SSRG-IJME) – volume 2 Issue 5–May 2015.
5. S. Usha, M. Sreekumar, “A study on the effect of surface topography on the actuation performance of stacked-rolled dielectric electro active polymer actuator”, Functional Materials Letters, Volume 9, issue no 3 (page no: 1650042(5 pages)), 27 may 2016. (Impact Factor: 1.606, SCI/Scopus Indexed)
6. Muhammed Danish, S.Usha, R.Veerapandian, “Characterization of Aluminum alloy coated steel made using Friction Surfacing Method” IJSRD International Journal for Scientific Research & Development”, Volume 4, issue 3, June 2016.
7. Kalpana K, Usha S, “Effect on Tempering Process on Hydrogen Delayed Fracture Susceptibility of 4140 Steel Fastener” Int Research Journal of Engineering and Technology (IRJET), Volume 4(3), March 2017, pg.no 827-831.
8. Effect of tempering process on hydrogen delayed fracture susceptibility of 4140 steel fastener”, IRJET, Vol.4(3), 2017-2019.
9. Evaluation of mechanical properties and surface morphology on stir casted AL A356 reinforced with fly ash and e-glass fiber”, IRJET, Vol.4(4), 2017-2020.
10. Enhancing the working efficiency of the transmission system used in sugercane machine”, IJSART, Vol.4(4), 2017-2021.
11. R.Lakshmganthan, S.Usha, “Experimental Approach of Surface Modification of Magnesium Alloys by Friction Stir Processing , IJSART , Vol. 6(7), pp.553-557 (ISSN (online): 2395-1052, 2020.
12. Characterisation of Boron nitride particulate reinforced AA7075 Aluminium alloy composites produced via Stir casting”, IJSREM, Vol.5(7), july 2021,pg-1-8, ISSN: 2582.3930.
13. Manibharathi, S.Usha, “Design and analysis of composite leaf spring with different arrangements”, IJRES, Vol.9(6), pp.28-36, ISSN: 2320-9364, 2021.

14. Sudhagar, S. Usha, "Investigation and analysis of failure modes in 16A switches", Journal of Electronics and Informatics (IRO journal), 2022.
15. S.Usha, P.Rajeshwar, S.Sasi kumar, K. Yeswanth, G. Yugesh, "Review of piezoelectric energy harvesting through footsteps", Int.J. of composite and constituent materials (IJCCM), Vol.8(1),2022,pp.14-18,ISSN:2456-5237.
16. Gokhul.K, Usha.S, "Analysis of thermoelectric materials used for cooling of solar PV module", Int.Research J.Engg and Tec (IRJET), 7th July 2022, Vol.5(7),pp.1804-1809, e-ISSN:2395-0056.
17. S.Usha, M.S.Abishake, G.Anbezhil, S.Dhanasekar, "Increasing the wind power generation by modifying the windmill mechanism", Materialstoday:proceedings, 2022. (<http://dx.doi.org/10.1016/j.matpr.2022.09.250>).

18 PUBLICATIONS IN CONFERENCES

1. Usha. S, and Sreekumar. M., "Development of Dielectric Electroactive Polymer Actuator for Robotic Applications", Proc of 2010 International Conference on Advances in Mechanical Engineering, Malaysia (ICAME 2010), 2010, 352-357. (2nd Best paper Award)
2. Sarath, Usha.S., Comparative study of different arrangements of Dielectric Electro active Polymer Actuator (DEAP)", National conference on ADAMMS 2014, Sri Krishna College of Engg., Tech., 3rd to 4th 2014.
3. S.Kunguma, S.Usha, "EVALUATION OF MECHANICAL PROPERTIES OF CARBON FIBER REINFORCED PLASTIC IN FRICTION STIR WELDING", Emerging Technologies in Mechanical Engineering to Meet Industrial Needs, N.S.N College of Engineering and Technology, Karur , April 18th, 2015.
4. M.Satheesh, S.Usha, "INVESTIGATION ON FORCE ANALYSIS OF ROLLED DIELECTRIC ELECTRO ACTIVE POLYMER ACTUATOR" ICEREST 2015, Kalyani College of Education, Coimbatore, 125-14 March 2015.
5. Sudhagar and Usha, "Investigation and analysis of failure modes in 16A switches" National Conf - NCEIS'22, GCT, Coimbatore, Department of EEE,& E&I, 28.4.2022.
6. S.Usha, M.S.Abishake, G.Anbezhil, S.Dhanasekar, "Increasing the wind power generation by modifying the windmill mechanism", i-SMaRT2022 conf, 2022.

19 TRAINING PROGRAMME ATTENDED AND ORGANISED PROGRAMS (From 2017)

Sl. No.	Name	Place	Duration of Course	
			From	To
1	Advanced Material Science and Engineering	CIT, Department of Mechanical Engineering, AICTE	15.5.2017	28.5.2017
2	Industrial Automation	SREC, Department of E&I, AICTE	20.11.2017	3.12.2017

3	Multidisciplinary innovations in engineering and science for sustainable development	GCT, Department of Mechanical Engineering, Engineering Design	5.8.2019	9.8.2019
4	Multidisciplinary approach for water conservation and management	GCT, Department of Civil Engg.,	3.9.2019	7.9.2019
5	3D printing & Design	GCT, Department of Mechanical Engineering, AICTE	16.9.2019	20.9.2019
6	ANSYS - CFD and CHEMKIN-PRO in IC Engines	GCT, Department of Mechanical Engineering, Thermal Engineering	21.10.2019	25.10.2019
7	Cutting edge technologies in programmable controllers and industrial automation	GCT, Department of E&I	4.12.2019	17.12.2019
8	MATLAB Programming for Meta-Heuristic Multi-objective optimization tools - Hands on training	GCT, Department of Mechanical Engineering	22.6.2020	26.6.2020
9	Productivity enhancement program (PEP)	GCT, Civil Engineering, NPIU & The art of living	27.1.2020	1.2.2020
10	Introduction to Environmental Engineering	GCT, Industrial Bio-Technology	14.12.2020	23.12.2020
11	Design, Develop and Deliver online courses through MOODLE platform	CIT, CBE-14	23.4.2020	23.12.2020
12	Additive Manufacturing of Multi-functional Nanocomposites	IRTT, Erode	23.8.2021	27.8.2021
13	Mechanical Engineering Applications in Telecom Industry (Industrial Training)	BSNL, Coimbatore	26.4.2021	15.5.2021
14	"Scientific and technical writing" conducted by Nano science and technology consortium	Online-NSTC	25.4.2022	29.4.2022
15	Research and Innovation with 3D Printing	GCT, AICTE - ATAL-FDP	2.8.2021	6.8.2021

16	Advanced Heat transfer in Manufacturing Process	TFC, GCT, (by Polytechnic college coordinators) online	25.7.2022	29.7.2022
17	Robotic Process Automation (Automation Anywhere)	ICT Academy -PSGR Krishnamal College of Women-FDP	29.8.2022	3.9.2022
18	Kinematic analysis of Robot Mechanisms: Fundamentals	FDP by IIITDM Kancheepuram, Chennai	9.12.2022	15.12.22
19	Kinematic analysis of Robot Mechanisms: Advanced simulation and validation	IIITD&M Kancheepuram, Chennai	16.12.2022	23.12.2022
20	Abirami Pumps – Attended DOTE sponsored Internship scheme along with 20 students (Industrial Training)	Abirami pumps, Coimbatore	11.7.2022,12th, 18th, 19th 25th 26th jul 22, 5th and 8th aug 22	
21	Question paper setting and assessment tools	GCT , IQAC	3.10.2019	-
22	IC Engine components and its design	GCT, Department of Mechanical Engineering, Thermal Engineering	14.8.2019	-
23	Hands on training on CNC programming and operations	GCT, Department of Mechanical Engineering	3.7.2019	4.7.2019
24	Certified lean six sigma green belt	MSME,TDC, GCT	Nov 30 and 1,7,8 Dec 2019	
25	Stress management and professional excellence	DIBT,GCT	10.10.2019	-
26	Lean Six Sigma tools and its applications	GCT, Department of Mechanical Engineering	23.9.2019	25.9.2019
27	Design, Develop and Deliver online courses through MOODLE platform	CIT, Coimbatore	23.4.2020	24.4.2020
28	Outcome based Education - NBA Accreditation	GCT, Department of E&I,	12.3.2021 -	13.3.2021
29	Design and implementation of curriculum as per National Education Policy 2020	GCT, IQAC	29.9.2021-	1.10.2021

30	Webinar "New education policy 2020" from 10.30am to 1.30 pm	GCT, IT department	24.9.2021	-
31	E-Mobility- The future of automotive industry - Online seminar	Kalasalinggam Acedemy of resear and education	30.6.2022	-
32	NSTC workshop on- "Scientific & Technical Writing"	A Nanotechnology Platform - NSTC	7.5.2022	9.5.2022
33	Thozhil nutpam tamil payilarankil	AU, regional office, Coimbatore	13-2-2023	14.2.2023

- Dr. S. USHA -