

Name : Dr.S.Sivakumar

Designation: Assistant Professor

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- **Research Area**:
  - Wearable Exoskeleton Systems and Human Assistive Technologies
  - Advanced Battery Design and Thermal Modelling
  - Sustainable Biomass Gasification Systems with Tar-Reduction Techniques in Dual-Stage Downdraft Gasifiers
  - Computational Fluid Dynamics (CFD) and Finite Element Analysis and Simulation for Thermal and Energy Systems

- **Educational Qualifications**:

Qualification	**Department**	**Year (From -To)**	**Percentage**	**Class**
Ph.D	Energy Engineering, Mechanical Engineering, Anna University.	2018	----	----
M.E	Engineering Design, Government College of Technology, Coimbatore.	1998-1999	70.17	FIRST CLASS
B.E	Mechanical Engineering, Government College of Technology, Coimbatore	1993-97	70.46	FIRST CLASS

- **Experience: (24 Years 8 Months)**

Name of Company / Institutions	**Designation of Post**	**From**	**To**	**Experience in Year**
		DD-MM-YYY	**DD-MM-YYYY**	
PSNA College of Engineering and Technology	Assistant Professor	18/07/2000 -	03/05/2002	1 Year 9 Months
College of Engineering Guindy, Anna University, Chennai	Teaching Research Associate (TRA)	04/06/2002	4/06/2006	4

Hinode Technologies Ltd.Chennai.	Senior Application Engineer	01/08/2006	17/11/2007	1 Year 3 Months
Pricol Technologies Ltd, Coimbatore	Engineer CFD	26/11/2007	13/11/2009	1 Year 11 Months
Jayalakshmi Institute of Technology, Dharmapuri	Associate Professor	04/01/2010	30/04/2016	6 Years 3 Months
Kumaraguru College of Technology, Coimbatore.	Assistant Professor-III (SRG)	11/05/2016	03/12/2025	9 Years 6 Months
University college of Engineering, Annauniversity, Ariyalur	Assistant Professor	04/12/2025	Till Date	----

- **Professional Activities:**
  - Associate Member in The Institution of Engineers (India) from 2002.

- **List of Seminar / Short Term Course /FDP/ Workshop attended: (Within India-Last Three years)**

1. Attended a one-week programme on "EV Battery Technology and Energy Storage Technologies" conducted by the Centre for Energy Storage Technologies (CEST), Anna University in association with Birds India Corporation from 05/02/2024 to 10/02/2024.
2. Participated in the "e-NeW IPR 2023 e-Workshop" organized by the Innovative Technology Enabling Centre (InTEC), CSIR-IMMT from 12/06/2023 to 17/06/2023.
3. Successfully completed the AICTE Training and Learning (ATAL) Academy Online Faculty Development Programme on "Electric Vehicles" conducted by National Institute of Technology Puducherry from 05/10/2020 to 09/10/2020.
4. Attended the AICTE Training and Learning (ATAL) Academy Online Elementary FDP on "Design and Development of Electric Vehicle" conducted by Francis Xavier Engineering College from 09/07/2021 to 13/07/2021.

5. Participated in the Faculty Development Programme conducted by Datta Pattern (India) Pvt. Ltd. from 01/07/2024 to 05/07/2024.

- **Publications & Patent List :**
  - **a. International Journals:**

Academic Year 2025-26

1. S. Sivakumar, C. Velmurugan, D.S. Ebenezer Jacob Dhas, A. Brusly Solomon" Effect of nano cupric oxide coating on the forced convection performance of a mixed-mode flat plate solar dryer" Renewable Energy 155 (2020) 1165-1172,Elsevier. (Web of Science Q1-ranked journal).
2. S. Sivakumar 'Performance Analysis of Gasification Coupled with IC Engine for Emission Control: Enhancing Environmental Sustainability' ,Global NEST Journal, Vol 27, No 3, 05827,2025 (Web of Science Q3-ranked journal).
3. S. Sivakumar "Enhancing Sustainability: Innovative Design and Performance Analysis of a 10 kWe Double-Throat Two-Stage Gasifier for Tar Emission Reduction" Global NEST Journal (Accepted for Publications)Web of Science Q3-ranked journal).
4. Thermal Management system of Lithium Ion Battery ,Patent No: 404360,Dated 12/01/24
5. Filed Four patents with the following details:

No	Patent Tittle	CBR Number
1	All wheel steering mechanism by using stepper motor	206852
2	Adaptive Lower Limb Exoskeleton for Human Rehabilitation	206866
3	Innovative Design of a 10 kWe Double-Throat Two-Stage Gasifier for Tar Emission Reduction	210613
4	Design for a Smart Polishing Apparatus for Surface Finishing	210913

Academic Year 2024-25

6. Siddhan Sivakumar ,'Assistive Lower Limb Exoskeletons for Elderly Patients: FEA-Based Design and Performance Optimization, IEEE 2025
7. Siddhan Sivakumar "Design and Performance Evaluation of a Wireless Energy Transfer System for Dynamic Charging of Electric Vehicles", IEEE 2025.
8. Siddhan Sivakumar, J.Dhivya, Vijeta Iyer "Fuzzy Logic based Kinematics Mathematical Modelling of Lower Limb Exoskeleton for Rehabilitation in Stroke Patients"

Academic Year 2023-24

9. S. Sivakumar, B. Damodhara Reddy " An investigation of fatigue analysis of power take-off shaftused in agricultural tractor" AIP Conference Proceedings 2869, 030032 (2023); https://doi.org/10.1063/5.0168671,Published Online: 27 October 2023.
10. S. Sivakumar, M. Prasanth; M. Thirunavukarasar; S. T. Harishmaran;" Design and fabrication of hexapod based multifunctional agricultural vehicle" AIP Conference Proceedings 2869, 030032 (2023); https://doi.org/10.1063/5.0168672,Published Online: 27 October 2023.
11. S. Sivakumar, A. Sreekar Reddy, S. Subasraj,Ankammarao Padamurthy " Design and comparative analysis of cardiovascular selfexpanding stent for different shape memory alloy (SMA) materials using finite element analysis" AIP Conference Proceedings 2869, 030032 (2023); https://doi.org/10.1063/5.0168673,Published Online: 27 October 2023.

Academic Year 2022-23

12. Patent Filled and Fabrication of Hexapod based Multifunctional Agricultural Vehicle. Ref No : CBR No : 38188,Application No: 202241054176and Published :
13. S. Sivakumar, P. Somasundaram " An investigation on influence of battery materials for efficient lithium-ion battery pack design" AIP Conference Proceedings 2446, 080001 (2022); https://doi.org/10.1063/5.0108156 Published Online: 29 November 2022.
14. S. Sivakumar, P. Somasundaram " Exploring the efficacy of nano fluid (Al2O3) based battery thermal management system using CFD " AIP Conference Proceedings 2446, 130003 (2022); https://doi.org/10.1063/5.0108198 Published Online: 29 November 2022.

15. S. Sivakumar, G. Sritharan, N. Mokisnayagam ” Effect of ferromagnetic and diamagnetic coil materials study on a wireless energy transfer system using mathematical model” : AIP Conference Proceedings 2446, 180064 (2022); https://doi.org/10.1063/5.0108229 Published Online: 29 November 2022.
16. S. Sivakumar, G. Thenmozhi, K. S. Sabir Ali ” Thermal analysis of stacked type supercapacitors for different material structures”AIP Conference Proceedings 2446, 180047 (2022); https://doi.org/10.1063/5.0108260 Published Online: 29 November 2022.
17. G. Thenmozhi, S. Sivakumar, B. Arun” An investigation on the performance of permanent magnet brushless DC motor based on different materials” AIP Conference Proceedings 2446, 100004 (2022); https://doi.org/10.1063/5.0108137 Published Online: 29 November 2022.

Academic Year 2020-21

18. S. Sivakumar,” Effect of nano cupric oxide coating on the forced convection performance of a mixed-mode flat plate solar dryer” Renewable Energy 155 (2020) 1165-1172,Elsevier.
19. S. Sivakumar,” Investigation of Charging and Discharging Behavior on Lithium –Ion Battery Cell using Multi Scale Multi Domain Battery model in CFD” AIP Conference Proceedings 2270, 110014 (2020); https://doi.org/10.1063/5.0019780. Published Online: 02 November 2020.
20. S. Sivakumar “Enhancement Heat Transfer Characteristics Study in the Rectangular Channel of Nano Fluids Using CFD” AIP Conference Proceedings 2270, 040011 (2020); https://doi.org/10.1063/5.0019433 Published Online: 02 November 2020.
21. S. Sivakumar “Design and mathematical modeling of electro magnetic motor” AIP Conference Proceedings 2270, 140018 (2020); https://doi.org/10.1063/5.0019779 Published Online: 02 November 2020.

Academic Year 2019-20

22. S. Sivakumar, Manivel. R, A. Arunraja, S. Sibisurya” Effect of Dynamic Stress on Heavy Duty Centrifugal Pump Assembly through Fluid Structure Interaction.” International Journal of Recent Technology and Engineering (IJRTE) ISSN: 2277-3878, Volume-8 Issue-2S8, August 2019.

23. S. Sivakumar, Sathyabalan P," FEA Assisted Design and Structural Research on Vertical Axis Wind Turbine Rotor." International Journal of Recent Technology and Engineering (IJRTE) ISSN: 2277-3878, Volume-8 Issue-2S8, August 2019
24. S. Sivakumar," CFD Research on Optimal Designing of Radiator Axial Fan." International Journal of Engineering and Advanced Technology (IJEAT) ISSN: 2249 – 8958, Volume-8 Issue-6S, August 2019.

Academic Year 2018-19

25. S. Sivakumar, K. Mohankumar, "The mathematical modeling of evacuated Tube Solar collector with heat pipe", International Journal of Mechanical and Production Engineering Research and Development (IJMPERD) ISSN(P): 2249-6890; ISSN(E): 2249-8001 Vol. 8, Special Issue 7, Dec 2018, 1505-1510.
26. S. Sivakumar, R.Suresh , "Design and influence study of lift to drag ratio (l/d) on Optimal aerodynamic performance study of Vertical axis wind turbines (VAWT)", International Journal of Mechanical and Production Engineering Research and Development (IJMPERD) ISSN(P): 2249-6890; ISSN(E): 2249-8001 Vol. 8, Special Issue 7, Dec 2018, 1449-1456.
27. S. Sivakumar, "Transient analysis of multistage pump using Finite element methods", International Journal of Mechanical and Production Engineering Research and Development (IJMPERD) ISSN(P): 2249-6890; ISSN(E): 2249-8001 Vol. 8, Special Issue 7, Dec 2018, 1151-1158.
28. S. Sivakumar,P.Sathyabalan, R.Suresh "Numerical study of wall function and near wall approach Treatments on air foil blade (NACA0012)", International Journal of Mechanical and Production Engineering Research and Development (IJMPERD) ISSN(P): 2249-6890; ISSN(E): 2249-8001 Vol. 8, Special Issue 7, Dec 2018, 63-70.